LAVA WiFi Ether-Serial Link
One/Two Port
Quick Network Connection Guide

LAVA™

Rev. A02

1 Getting Started

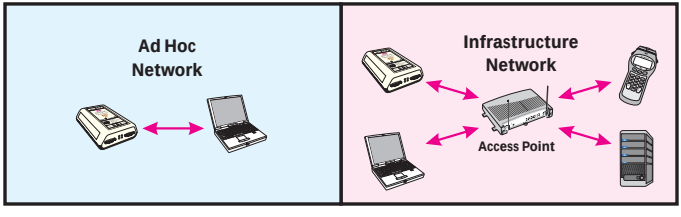
This Quick Network Connection Guide describes connecting the LAVA WiFi Ether-Serial Link (ESL) to a wireless network. Once connected, directions in the Quick Installation Guide or the Advanced Features document describe configuring and using the serial ports of the WiFi ESL. The WiFi ESL can connect to a wireless network in one of two ways: in Ad Hoc mode, or in Infrastructure mode.

Ad Hoc Mode

Ad Hoc mode (default) is a peer-to-peer connection between two wireless devices capable of operating in Ad Hoc mode. The two devices have a direct wireless connection to each other, with no intervening wireless devices (or "infrastructure") such as wireless access points or routers. Both devices in an Ad Hoc connection have static IP addresses and use WEP or no security.

Infrastructure Mode

Infrastructure Mode is used to connect a wireless device to an intermediate piece of network infrastructure, typically an access point, router, or PC running access point software. A WiFi ESL in Infrastructure mode becomes a wireless part of a larger Local Area Network (LAN). Devices operating in Infrastructure mode can have either static or dynamically-assigned IP addresses.



2 Initial Connection to the WiFi ESL

An initial connection to the WiFi ESL can be made in one of two ways:

1) wirelessly, in Ad Hoc mode (peer-to-peer connection) (described starting on page 3)

2) using a direct serial cable connection on serial port 1 of the WiFi ESL (described starting on page 6)

After the initial connection has been made, the WiFi ESL can be configured for further use in Ad Hoc mode, or be switched for use in Infrastructure mode.

When in Infrastructure mode, the WiFi ESL can be accessed and configured using the LAVA Ether Link Manager application from a computer on the same LAN as the WiFi ESL.

Setting the WiFi ESL to operate in Infrastructure mode using a web browser interface is described beginning on page 9.

Setting the WiFi ESL to operate in Infrastructure mode using the command line interface is described on page 8.

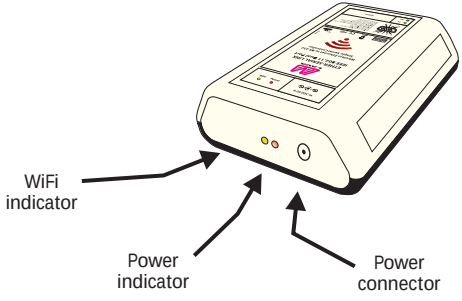
3 Connection Method #1: Wireless Connection in Ad Hoc Mode

Before Proceeding: This method of connection requires that the laptop or other device you are using to connect to the WiFi ESL have a static IP address in the same subnet 192.168.0.xxx. Because other LAVA devices ship with a factory default IP address of 192.168.0.35, avoid using this address. Directions for setting your device to a static IP address can be found in the Advanced Features PDF document on the Installation CD, or on numerous web sites.

The alternative method of initial connection, using the serial port of the WiFi ESL, can be used to configure the WiFi ESL directly.

Powering on the WiFi ESL

Plug the power supply into the WiFi ESL's power connector. On powering on, the red power LED will light solidly. Full power up will take about 7 or 8 seconds.



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Finding and connecting to the WiFi ESL

For this connection you will need a laptop or other wireless-capable device capable of operating in Ad Hoc mode. Only one Ad Hoc connection at a time is permitted. The following instructions are for Windows.

1) In Windows, search for wireless networks visible to your computer. The WiFI ESL will be identified (showing its SSID) as "WSL" by factory default.

2) Connect to the WiFi ESL by selecting it and clicking on the button "Connect". (Note: You may need to first disconnect from another network if your computer is already connected).

3) A prompt for a network key will appear. Enter the factory default "**1234567890**" or other key if one has been configured for the WiFi ESL, then click on "Connect".

4) Depending on your version of Windows, you will now be asked to set a location (in Windows 7 these are presented as Home network, Work network, Public network; other versions of Windows may differ). If required, select the type of connection you wish for the WiFi ESL and close the "Select a location" dialog.

5) Windows has an option to keep your connection's configuration as a preset, and will ask "Would you like to keep this connection as one of your locations?" If you agree to keep the connection, Windows will retain the network key and SSID you have entered and use it for future connections.

6) Once connected, the yellow WiFi LED will be flashing steadily.

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Accessing the WiFi ESL's configuration screens

1) Once connected, open a web browser to 192.168.0.35 (Or, if the WiFI ESL has been reconfigured with a new IP address, use that). The home page of the WiFi ESL will open, with an entry box for the password to the WiFi ESL.

2) The factory default password is "**admin**". Enter the appropriate password, then hit <Enter> or click on the "Configure" button.

Enter "admin"

3) The Administrator Menu of the WiFi ESL will appear. At this point you can access the WiFi ESL's configuration screens for Network Settings, Port Configuration, and Passwords.

   At this point you can also switch the WiFi ESL's mode of operation from Ad Hoc to Infrastructure, if desired. Switching modes using a web browser interface is described starting on page 9.

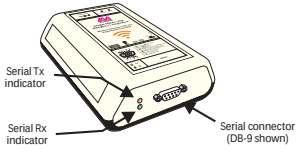
6 Connection Method #2: Direct Serial Cable Connection

An initial connection to a WiFi ESL can be made without a wireless interface, by connecting an RS-232 serial port from a computer to serial port 1 on the WiFi ESL. This connection will allow you to configure the WiFi ESL directly, on a cabled connection.

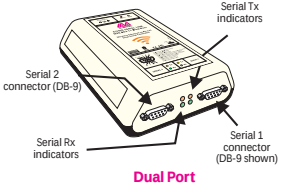
1) Use a null modem female-to-female serial cable for this connection.

2) Disconnect power from the WiFi ESL.

3) Connect the serial cable to the computer and the WiFi ESL's serial port 1.



Single Port



Dual Port

4) Using a terminal application like Hyperterm (included with versions of Windows 95-XP inclusive), PuTTY, or TeraTerm, connect the serial port of your PC to serial port 1 on the WiFi ESL. A list of terminal emulator applications for a variety of operating systems can be found here:

http://en.wikipedia.org/wiki/List_of_terminal_emulators

You might want to turn your terminal application's "local echo" setting on, so that what you type will be visible.

5) Configure the computer's serial port to the following settings:

Baud rate: 115200 bps
Data bits: 8 bit
Parity: none
Stop bits: 1 bit
Flow control: none

6) Power up the WiFi ESL.

7) After 3 seconds and within 15 seconds of applying power to the WiFi ESL, send the string "**+++++**" to the COM port connected to the WiFi ESL. Note: Be sure that these are "plus" signs: use the "+" key on the main keyboard, as the "+" key on the numeric keyboard may give an incorrect character.

The WiFi ESL will respond with a command prompt:

```
WiFi Setup
WSL>
```

8) You are now connected to the serial port configuration interface of the WiFi ESL. This connection will drop and the device will restart if there is no terminal input for 60 seconds. A list of valid commands can be obtained by typing "?" <Enter> or "help" <Enter> into the terminal application.

Note: The commands requiring a parameter to be supplied are entered in two steps: first, the command is entered, such as "ssid", then the <Enter> key is pressed. Some minimal information about the parameter options or requirements will be presented.

Next, once you enter the appropriate parameter or selection, hit <Enter> again.

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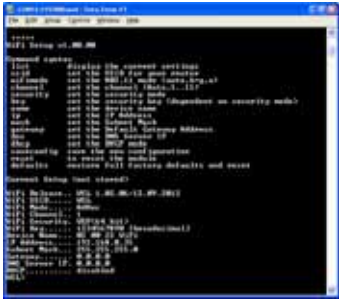
Finally, once all changes are made, enter "saveconfig" to write the changes to the WiFi ESL. Changes will become active on restarting the device.

The WiFi ESL's command line interface



Entering "?" or "help" presents a list of valid commands.

Entering "list" shows the current settings of the WiFi ESL.

Detailed instructions on the command line interface of the WiFi ESL are in the "Advanced Features" documentation.

Switching to Infrastructure Mode using the Command Line Interface

The WiFi ESL can be set to operate in Infrastructure mode using the command line interface. You will need to know the name of the access point (its SSID), the method of encryption it uses, and its security key.

Enter the method of encryption to use before entering the security key, as the format of acceptable keys will depend on the method of encryption used.

Detailed description on changing from Ad Hoc to Infrastructure mode using the command line interface can be found in the Advanced Features PDF on the Installation CD.

9 Changing to Infrastructure Mode

These instructions describe setting the WiFi ESL into Infrastructure mode using a web browser, so that it will connect to a wireless access point, such as a wireless router. You will need to know the name of the access point (its SSID), the method of encryption it uses, and its security key.

1) Open a web browser to the IP address used by the WiFi ESL. After entering the device's password (by default "**admin**", enter the Network Settings page of the WiFi ESL's configuration screens.

2) If your network assigns IP addresses using a DHCP server, DHCP detection can also be enabled.

3) In the WiFi Settings, enter the following:

i) In the "SSID:" box, enter the name of the access point you to which you will be connecting the WiFi ESL.

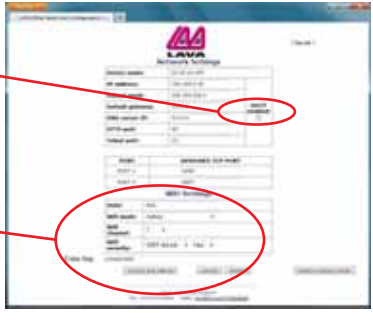
ii) In the "WiFi mode:" box, choose "Auto". For further information on these modes, consult the Advanced Features PDF documentation on the Installation CD.

iii) In the "WiFi security:" box, choose the encryption method used by the access point, and ensure that the Hex/ASCII setting matches that used by your access point.

iv) In the "Enter Key" box, enter the security key of the access point.

Enable DHCP

Enter settings for access point / router



4) Click on the "Submit and reboot" button. At this point you will lose connection to the WiFi ESL as it drops its Ad Hoc connection and connects in Infrastructure mode to the access point you have chosen.

5) If you are going to access the WiFi ESL from the computer you have been using to set it up, you will now also need to connect that computer to the same LAN.

NOTE: If connecting the WiFi ESL to a WiFi access point in Infrastructure mode fails (as for example when the SSID, encryption method, or password are incorrect), the WiFi ESL will appear to "hang" as it attempts to form an infrastructure connection.

In this situation the WiFi ESL will not be accessible through its software interfaces (HTTP or serial port). Cycling power on the device will make the serial port command line interface again available.

Alternatively, a hard reset can be performed. This is done by disconnecting power from the device, opening the plastic enclosure of the WiFi ESL, placing a jumper or other shorting device across the pins of the jumper set marked "J15", and applying power for at least 10 seconds. Then remove power from the device, remove the jumper bridge, and reapply power. The WiFi ESL will now restart in factory default configuration.

Unjumpered

Jumpered

12 Using the LAVA Ether Link Manager Application

After your WiFi ESL is connected to your network, you can open the LAVA Ether Link Manager application (version 5.9 and later) to make further changes to the WiFi ESL's configuration. The WiFi ESL will appear in the "Ether Links Near Me" branch of the Ether Link Desktop tree.

The LAVA Ether Link Manager application can be used to configure serial ports and LAN settings on the WiFi ESL. It is not however a configuration interface for changing WiFi settings. The factory reset option in the Manager application consequently does not restore WiFi parameters to factory defaults.

Details on the use of the LAVA Ether Link Manager application, and on serial port and network settings, can be found in the Quick Installation Guide and Advanced Features documentation.

13 Using the Telnet Configuration Interface

After your WiFi ESL is connected to your network, you can open a Telnet client to the IP address of the WiFi ESL to make further changes to the WiFi ESL's configuration.

The Telnet interface can be used to configure serial ports and LAN settings on the WiFi ESL. It is not however a configuration interface for changing WiFi settings. The factory reset option in the Telnet interface consequently does not restore WiFi parameters to factory defaults.

Details on the use of the Telnet interface, and on serial port and network settings, can be found in the Quick Installation Guide and Advanced Features documentation.

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