The Ethernet connected scanner allows for configuration via the scanner panel or by USB2 link of the following parameters:

1. IP address
2. Command Port
3. Data Port

Ethernet for SmartLF is a simple long-range connection alternative to USB2. It has very limited networking functionality. The main operational considerations are listed below.

1	DHCP is not supported. The scanner supports static IP addressing only
2	There is no embedded web server in the scanner to support a user web-browser interface
3	The IP address of the scanner must be unique and not conflict with any addresses assigned by DHCP for other devices on the network
4	Device subnet mask is not supported. This will not restrict Ethernet communication.
5	The first user to Ethernet connect keeps the scanner connection until they exit the scanner application

Why Have Subnets?
Subnets are used to split up networks into smaller subnetworks to improve router and network efficiency by signalling to the router that the masked-off IP addresses can be ignored.

Have I got a connection?
Windows commands available from the DOS prompt like ***ping*** (space) nnn.nnn.nnn.nnn <CR> and ***netstat*** (space) ***–a*** <CR> can be used to verify that the IP address in the scanner is working. Tip: To show the ports start SmartLF All-In-One in Ethernet mode with the scanner Ethernet connected before running the netstat command.

```
C:\>ping 200.2.1.210 <CR>

Pinging 200.2.1.210 with 32 bytes of data:
Reply from 200.2.1.210: bytes=32 time<1ms TTL=64
Reply from 200.2.1.210: bytes=32 time<1ms TTL=64
Reply from 200.2.1.210: bytes=32 time<1ms TTL=64
Reply from 200.2.1.210: bytes=32 time<1ms TTL=64
Ping statistics for 200.2.1.210:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
C:\>netstat –a

 TCP    200.2.1.29:57726       213.120.163.168:http   ESTABLISHED
 TCP    200.2.1.29:57751       wy-in-f100:http        ESTABLISHED
 TCP    200.2.1.29:57752       wy-in-f100:http        ESTABLISHED
 TCP    200.2.1.29:57755       200.2.1.210:17236      ESTABLISHED
 TCP    200.2.1.29:57756       200.2.1.210:17237      ESTABLISHED
```

What stops a scanner connection?
A scanner IP address of 10.9.240.5 is typical for a large network and such networks often have many sub-routers or Ethernet switches which sub-divide the network down into smaller networks – each with their own subnet mask and IP address range. If the *scanner* is on a different router to the *scanner user*, the scanner may become unreachable because the particular scanner IP address is not effectively on the same local network. This can be overcome by having the IT administrator program a STATIC ROUTE into the router(s) to allow visibility of the scanner from all networks requiring scanner access.

Other Technical Information and User Tips
A 1000BASE-T (1000Mbits/s) Ethernet pathway must exist between the SmartLF scanner and the computer even if the rest of the network is 100BASE-T (100Mbits/s). If the scanner is to be integrated into a slower network then a gigabyte switch can be added and connected to the scanner and the computer(s) using the scanner.

If required the SmartLF can be directly connected to a computer with a single 1000BASE-T Ethernet port using a straight-through or crossover CAT5 (twisted-pair) cable in a non-networked environment to provide a longer connection length than the 2m USB cable shipped with the scanner.

When connecting the scanner to Ethernet always remove the USB cable from the scanner and power cycle the scanner or it will not respond to the new connection.

Colortrac ScanWorks, CopySmart, SmartLF All-In-One and Utilities programs all work on a first-come-first-served basis and an Ethernet connection to the scanner will only be released when the first operator quits the application (or changes their connection to USB).

Use this table when troubleshooting connection problems with Ethernet. A common mistake is not rebooting the scanner after connecting it to Ethernet.

DETERMINING SMARTLF ETHERNET AND USB CONNECTION STATUS - POWER SAVE DISABLED

KEY:

	Not Connected
	Partial
	Connected + Active

NOTE: ScanWorks and CopySmart applications assume licence dongle installed and working

CONNECTED COMMUNICATIONS INTERFACE		CONNECTION DESCRIPTION	Smart All In One / ScanWorks / CopySmart		Utilities program	
USB	ETHERNET		USB PRESELECTED	ETHERNET PRESELECTED	PRE-CONFIGURED FOR USB	PRE-CONFIGURED FOR
NO	NO	Scanner disconnected or connected but powered off.	'NO SCANNER DETECTED' message. PROGRAM LOADS	'NO SCANNER DETECTED' message. PROGRAM LOADS	**'NO SCANNER' message. No GUI appears**	**'NO SCANNER' message. No GUI appears**
YES	NO	USB only connection. Scanner **HAS BEEN REBOOTED** before use.	**COMMUNICATION**	'NO SCANNER DETECTED' message. PROGRAM LOADS	**COMMUNICATION**	**Times out but GUI and comms. options available. No connection**
NO	YES	Ethernet only connection. Scanner **HAS BEEN REBOOTED** before use.	'NO SCANNER DETECTED' message. PROGRAM LOADS	**COMMUNICATION**	'NO SCANNER' message. No GUI appears RE-ATTACH USB AND CONFIGURE TO ETHERNET	**COMMUNICATION**
YES/NO	YES	USB connected and working but then removed. Ethernet is plugged in but scanner **HAS NOT BEEN REBOOTED** before use.	'NO SCANNER DETECTED' message. PROGRAM LOADS	'NO SCANNER DETECTED' message. PROGRAM LOADS	'NO SCANNER' message. No GUI appears RE-ATTACH USB AND CONFIGURE TO ETHERNET	'NO SCANNER' message. No GUI appears RE-ATTACH USB AND CONFIGURE TO ETHERNET
YES	NO/YES	USB connected and working then Ethernet is plugged in as well. Scanner has **HAS NOT BEEN REBOOTED** before use.	**COMMUNICATION**	'NO SCANNER DETECTED' message. PROGRAM LOADS	**COMMUNICATION**	**Times out but GUI and comms. options available. No connection**
YES	NO/YES	USB connected and working then Ethernet is plugged in as well. Scanner **HAS BEEN REBOOTED** before use.	**COMMUNICATION**	'NO SCANNER DETECTED' message. PROGRAM LOADS	**COMMUNICATION**	**Times out but GUI and comms. options available. No connection**
YES	YES	Ethernet connected and working then USB is plugged in, scanner NOT rebooted. In this case USB will begin working (and Ethernet will stop working) **WITHOUT REBOOTING**	**COMMUNICATION**	'NO SCANNER DETECTED' message. PROGRAM LOADS	**COMMUNICATION**	**Times out but GUI and comms. options available. No connection**
YES	YES	Ethernet connected and working then USB is plugged in. Scanner **HAS BEEN REBOOTED** before use.	**COMMUNICATION**	'NO SCANNER DETECTED' message. PROGRAM LOADS	**COMMUNICATION**	**Times out but GUI and comms. options available. No connection**