LEXMARK

Sending Print Jobs to the Adapter's TCP/IP Ports

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Network Attachment Products

Sending Print Jobs to the Adapters TCP/IP Ports

You may wish to write a program to send print data to the adapters logical TCP/IP ports. There are two ports on the Internal Network Adapter (INA) that you may use: 9100 and 9200. On the Marknet XLe external network adapter, these TCP/IP ports apply to parallel port 1. The additional TCP/IP ports on the Marknet XLe are listed on page 7.

Port 9100

Port 9100 is the data port. You should write your program to send print jobs to this port.

The adapter will respond to PostScript** or PJL (printer job language) queries on this TCP port exactly as if they were received directly from a serial port.

The adapter supports a multiple, but finite, number of logical TCP port connections. When the logical port has finished sending a print job, be sure to close the port.

The time-out default on port 9100 is 90 seconds. With the INA, you can change this time-out from the printers front panel. It is labeled End-of-Job Timeout under Network Setup. It can be set from 1 to 255 seconds. With the external network adapter, you can change the time-out value with the network utilities.

If data is not received from the host for this time-out period, then the adapter closes the data session and begins listening for a new session. The input/output port to the printer and the print job are also closed. This time-out prevents incomplete print jobs from hanging up in the printer and keeping other jobs from printing.

Port 9200

Port 9200 is the Intervention Required (IR) port. It was designed as a convenience for you. You do not have to implement port 9200 to send data to the adapter. Port 9200 has no effect on printing or on the sending of data. It is strictly for use in reporting status from the adapter to the host. For information about the format of the IR packets, see Format of the IR Packets on page 3.

Port 9200 reports two things to the host:

anything that occurs at the printer that needs user intervention. For example, if the printer cover is opened, the adapter sends a message through port 9200 to the host describing that situation. A detailed description of all the IR codes that the adapter may send to the printer is located in IR Codes on page 4.

a five-minute time-out period has elapsed. For a complete description of this time-out, see Time-out Period on page 2.

For synchronized reporting, the host should open port 9200 after port 9100 to receive Intervention Required (IR) data from the adapter. We recommend that you not open port 9200 until the data connection on port 9100 is established. There is no direct mapping between a 9100 data port and a 9200 IR port.

Time-out Period

Port 9200 has a five-minute time-out that cannot be changed. A time-out on a data port is not linked to a time-out on an IR port.

When the five-minute time-out on port 9200 is up, the adapter sends an IR packet to all port 9200 connections. If no IR condition exists, the IR code will be x00. The adapter expects an acknowledgment back, on port 9200, from the transmitting host. Be sure you write your program to include this acknowledgment. The format of the host reply should be the same as the adapters packet, except that bit 7 of byte 3 should be 1 to signify an acknowledgment. For information about the format of the IR packets, see Format of the IR Packets on page 3.

If the adapter does not receive an acknowledgment from port 9200, the adapter closes the connection.

The host may choose not to open port 9200. If it does not open this port, it will not receive Intervention Required information during the print job. If port 9200 is not open when an IR condition occurs, the adapter will save the IR information and send it to the next host that opens port 9200 (if the condition still exists).

In summary, the adapter will send an Intervention Required packet over port 9200:

- when an IR condition occurs. All hosts who have an open 9200 port will get the IR.
- when port 9200 is opened.
- when port 9200s time-out has expired. All hosts who have an open 9200 port will get the IR. The adapter waits for an acknowledgment.

Format of the IR Packets

The adapter sends IR packets to port 9200 in the following format:

Byte	Value	Notes
1	1-byte message length	This byte contains the total length of the IR message packet. This value includes bytes 1 through 5, plus the length of the printer name and the null terminator.
2	1-byte printer IR code	This byte is the printer IR code. For detailed information about these codes, see IR Codes on page 4.
3	1-byte busy/idle and acknowledgment	This byte has two purposes: For the printer to send the port status: busy or idle. For the host to acknowledge a printer transmission. The bits in this byte should be used as follows: Bit 0 (LSB) = busy or idle bit. 1 = printer port (not TCP port) is printing 0 = printer port is idle Bits 1 through 6 = Reserved. Should be set to x00 Bit 7 (MSB) = Host acknowledgment bit Adapter always sets to 0 for IR transmission Host always sets to 1 as an acknowledgment The host always sets bit 7 to 1 to send an acknowledgment. In this host acknowledgment packet, bits 1 through 6 are still reserved and should be set to x00. Bit 0 may be set to either 1 or 0.
4 - 5	Reserved. Should be set to x00	Reserved for future use.
6 - n	ASCIIZ string	This field is an ASCII string that gives the printers name. In the case of the 4039, the name is: IBM LaserPrinter 4039. A host utility can use this field to cross-reference the IR number with a specific IR condition based upon the type of printer that the adapter is installed in. The host should send the printer name back as part of the acknowledgment. Be sure to end this ASCII string with a null terminator.

IR Codes

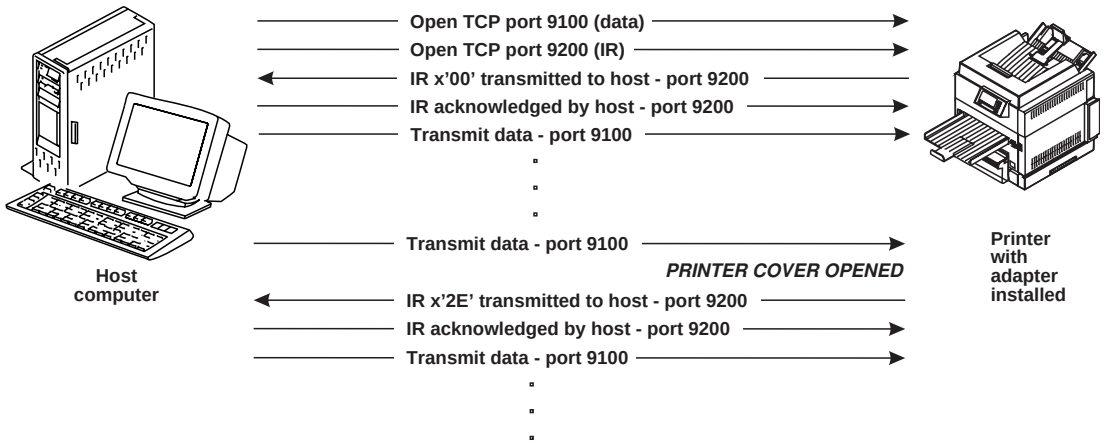
The one-byte printer IR codes for the IBM LaserPrinter 4039 printer are as follows:

IR Value (Hex)	IR Condition
x00	Reserved (No IR condition exists)
x01	Unknown printer error
x02	Service software
x03	Engine software error
x04	Service font card
x05	Service transfer roller
x06	Service fuser
x07	Stalled fan
x08	Service printhead
x09	Service base memory
x0A	Service optional memory
x0B	Service duplexer
x0C	Service duplex card
x0D	Service duplex motor
x0E	Service duplex communication
x0F	Short paper
x10	Feed failure
x11	Change paper
x12	Output bin full
x13	Memory overrun
x14	Print overrun
x15	NVRAM error
x16	Font missing 41
x17	Font missing 42
x18	ROM defective
x19	Card defective
x1A	Invalid download font ID
x1B	Invalid character header in download font
x1C	Flash full
x1D	Flash defective
x1E	Serial error
x1F	Invalid outline
x20	Maintenance error
x21	Reserved for future use
x22	Reserved for future use
x23	Reserved for future use
x24	Reserved for future use
x25	Insufficient memory
x26	Duplex unattached

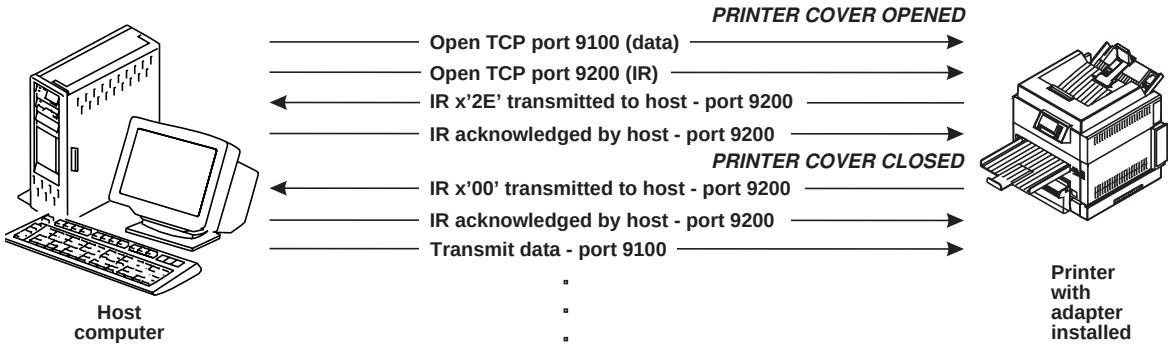
IR Value (Hex)	IR Condition
x27	Paper jam
x28	Input paper jam
x29	Exit paper jam
x2A	Duplex paper jam
x2B	Load paper
x2C	Toner low
x2D	Duplex cover open
x2E	Cover open
x2F	Off-line
x40	Unknown adapter error
x41	Network disconnected/not functioning
x70	Programming flash memory

Sample TCP Port Connections

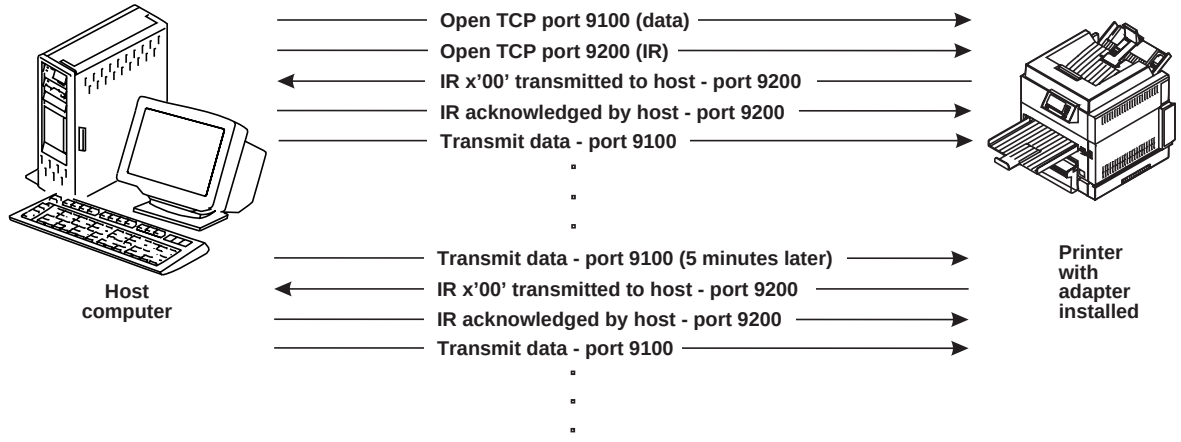
The following three diagrams show you some sample TCP port connections that may occur.



The diagram above shows the communication that takes place when a host opens ports 9100 and 9200, then a printer Intervention Required condition occurs (the printer cover is opened).



The diagram above shows an IR condition (the printer cover is opened) occurring before port 9200 is opened. The condition still exists when 9200 is opened. Please note that the host opening port 9200 will get the IR immediately. Also note that an IR is sent back to the host to tell it when the IR condition is cleared (the cover is closed).



The diagram above shows an IR port time-out and acknowledgment sequence. Please note that data is being sent by the host and that no IR condition exists. Nevertheless, the IR packet is still transmitted after the time-out period has elapsed. If the host had not acknowledged the IR packet, port 9200 would have been closed.

Special considerations for Marknet XLe external network adapter

The following table shows the TCP ports that correspond to the adapter parallel and serial ports (if applicable).

	Parallel Port 1	Parallel Port 2	Serial Port
TCP Data Port	9100	9102	9109
TCP Status Port	9200	9202	9209