Setting your printer's IP address using IPCONFIG.PS

Note *The information in this document applies only to version 1.11 of the file IPCONFIG.PS. This version of the file is available from the Tektronix ftp server:* ***ftp.tek.com****.*

Why use IPCONFIG.PS?

Under the default configuration, as soon as you connect your Tektronix printer to the network it starts broadcasting AppleTalk packets. It also attempts to find a Novell configuration file server to log into.

Likewise, by default the printer is set up to dynamically gain a TCP/IP address. The printer broadcasts an ARP request packet. The packet says, in effect, "this is my hardware address; does anyone have my IP address?" If a host has been configured to recognize the printer's hardware address in the host's ARP or BOOTP tables, then the printer gets an IP address from the host, and the job is finished. This process is called *dynamic address resolution*.

You can see if the printer is set up for dynamic address resolution by printing a configuration page. Look in the **TCP/IP** area of the configuration page; the printer is set up for dynamic address resolution if the **RARP/BOOTP** field contains an entry of **True**. Refer to the printer's user manual for information on how to print a configuration page.

TCP/IP is a protocol that was designed for use in a Wide Area Network. For that reason, TCP/IP configuration and administration is usually more involved than protocols that were not designed for global use, like Appletalk and Novell.

Note *Tektronix printers do not support DHCP or WINS.*

If your network operating system does not have RARP or BOOTP, you cannot use the printer's dynamic address resolution capability to set the printer's IP address; you can use the PostScript utility file *IPCONFIG.PS*. By editing this file appropriately and sending it to the printer, you can set the IP address and other IP parameters in the printer's non-volatile RAM.

Editing the file

The file *IPCONFIG.PS* is a PostScript file. Because it is important that the file stays pure PostScript, we suggest that you edit this file using **EDIT** in DOS (also available in NT's command tool environment) rather than with an application like Microsoft Word. If you must use an application, make sure that you save the file as plain text.

All PostScript files must start with the characters percent (%) and an exclamation point (!). In PostScript, a comment begins with a percent sign (%). Throughout the file you will see comments describing each parameter, as well as some suggestions.

The first two-thirds of the file involves initializing some address values. The last third executes the address values and sets them in memory. These address values are in the standard dot-notation of TCP/IP.

Note *It is important that you have the permission of a network administrator before going on. Simply making up TCP/IP addresses can cause network problems. Make sure you have been assigned valid TCP/IP address values by a qualified administrator.*

Follow these instructions for editing the file:

1. Enter the IP address into the line that reads:

   ```
   /YourIPAddress (0.0.0.0) def
   ```

   For example; if you want the printer to have an IP address of 134.62.36.101, enter that value into the file like this:

   ```
   /YourIPAddress (134.62.36.101) def
   ```

2. Enter the network mask into the line that reads:

   ```
   /YourNetworkMask () def
   ```

This is needed in networks that use sub-netting. If you are not using sub-netting, or if you are not sure, leave this blank; the printer will choose an appropriate mask.

To enter a network mask of 255.255.255.0, enter that value into the file like this:

```
/YourNetworkMask (255.255.255.0) def
```

3. Enter the broadcast address into the line that reads:

```
/YourBroadcastAddress () def
```

This is the address the printer uses to send broadcast packets. If you are unsure of the value, leave this blank; the printer will choose an appropriate address.

For this example, your broadcast address for the printer would be 134.62.36.255; enter that value into the file like this:

```
/YourBroadcastAddress (134.62.36.255) def
```

4. Enter the gateway address/destination address pair into the line that reads:

```
/YourGatewayAddress () def
```

You should only be concerned with a gateway address if your network are uses a router; if not, then leave this blank. If you are, then enter the valid destination IP address, followed by a slash (/), then the gateway host IP address. The destination IP address can be 0.0.0.0 or any valid IP address of the segment you want the printer to communicate with. The gateway host address is the address of a host that is used to retransmit the packets from the current network segment to another network segment.

If you want to provide connectivity for all devices through that router, you would enter the gateway address like this:

```
/YourGatewayAddress (0.0.0.0/134.62.36.1) def
```

5. The next part is only for those who really know of the internals of their network. The following line controls the way ARP/RARP requests and IP datagrams are transmitted over the network:

```
/YourIPAdaptive false def
```

In most cases, this line can be left alone. Like the other entries above, if you don't know what to enter, leave it and go on. The printer will determine the correct frame type.

Note *This line affects Ethernet only; do not change it for Token Ring networks.*

If you do know what frame type your network supports, change `false` to `true` in the above entry, like this:

```
/YourIPAdaptive true def
```

If you change this line, you may also have to change the following line:

```
/YourFrameType /DIX def
```

- For Token Ring, do not change the line that begins with `/YourFrameType`.
- To select Ethernet II, do not change the line that begins with `/YourFrameType`.
- To select Ethernet SNAP, change `/DIX` to `/802.3-2-SNAP` in the line that begins with `/YourFrameType`. The line should look like this:

```
/YourFrameType /802.3_2_SNAP def
```

6. The following line changes the printer's default behavior so that it does not use dynamic address resolution (getting the IP address from a RARP or BOOTP server), but instead uses the IP address and other parameters it gets from this file.

```
/YourIPAddressDynamic false def
```

   If you intend to use this file to set the printer's IP address and other parameters, do not change this line. If you change `false` to `true` on this line, the printer attempts to get the IP parameters from a RARP or BOOTP server, not from this file.

7. Do not touch or edit the rest of the file; this is where the values you have set above are actually set into the printer's memory.

8. Save the file as a plain text file.

Sending the file to the printer

Because you don't have TCP/IP connectivity until the printer gains an IP address, you must send the file to the printer through one of the available resources. These instructions are for sending the file from a PC over a parallel connection.

If you are sending the file to the printer via the parallel or serial port, you'll need to add CONTROL-Ds to the file. The CONTROL-D tells the printer that it has received all the data and now it can start processing the job. If it does not receive a CONTROL-D at the end of the job, it will assume it hasn't received all of the data and will wait until it times out.

There is a PC batch file that is shipped with your printer called *ADDCTRLD.BAT*. It adds a CONTROL-D to the beginning and end of the file. *ADDCTRLD.BAT* needs another PostScript file called *CTRLD.PS*, which also is shipped with your printer. Both *ADDCTRLD.BAT* and *CTRLD.PS* are on your network utilities diskette in the *NET-UTIL* directory. If you do not have your diskette, you can get both files from any one of the Tektronix on-line services.

Note *All three files (IPCONFIG.PS, ADDCTRLD.BAT, and CTRLD.PS) must be in the same directory.*

1. To add the CONTROL-Ds to the file, type the following command:

   ```
   ADDCTRLD    IPCONFIG.PS
   ```

2. After you add the CONTROL-Ds to the file, do not open or edit *IPCONFIG.PS* again; this has a tendency to null out the CONTROL-D you just added.

3. Now you can copy the file to the parallel port. For example, if the printer is connected to parallel port LPT1, type the following command:

   ```
   COPY    IPCONFIG.PS    LPT1
   ```

4. After you send the file, observe the printer's front panel **READY** light. It should blink for a few seconds. When the **READY** light stops blinking, reset the printer and print a configuration page to ensure that you have given the printer its IP address. If it accepted the file you sent, you can now connect the printer to the network.

Troubleshooting

If you print a configuration page and find that the printer did not take the values you entered, download the file *TEKEHAND.PS* and send the *IPCONFIG.PS* file again.

TEKEHAND.PS is an advanced PostScript Level 2 error handler. It is shipped with the printer, but it is also available from all of Tektronix on-line resources, such as our ftp site, BBS, etc. If the printer receives a file that it cannot process, the error handler causes the printer to print a page explaining why it cannot print the file.

If the error handler file was correctly downloaded, it will print a page explaining why it did not accept the values given to it. Change the values that caused the error, add the CONTROL-Ds (if necessary), and send the file to the printer again.