Network Printer Setup Guide

Audience

This guide is for the system administrator installing the printer on the network.

This document covers only those features unique to Cognitive's network *e*+Solutions™ printer line. Please refer to the specific printer's user guide for information onusing and maintaining the printer. Consult the Programmer's Guide and Cognitive's web site for additional configuration, setup and special feature functions.

Applicable Models

All Del Sol and Advantage network *e*+Solutions™ enabled printers.

Cognitive

Guide Conventions

Notes and Important comments are highlighted respectively with a border line and red text. Notes provide tips on where to find additional information. Important statements and warnings indicate procedures and comments to which you should pay special attention.

This document is for a system administrator to follow and use as a guide to establish network connection to Cognitive's network printers. It is not designed for an average user.

Related Documents

- Cognitive Programmer's Guide, includes Cognitive Programming Language (CPL) syntax
- Ethernet Printer Programmer's Guide
- *in*Control™ Guide
- Quick Start Guide specific to the printer

Setup Overview

There are three basic steps to establish the network connection to a Cognitive Ethernet printer:

- Physically connect the printer to the network
- Verify the printer's physical address MAC
- Set the printer's IP address

Depending upon the operating system in use, these steps may require more research and programming by the system adminstrator to meet the requirements of a specific network configuration.

This document provides the basic steps to setup a network printer . However, the specific operating system will dictate the specific input and enhanced setup procedures. Please be aware of the notes throughout this guide that refer to the operating system and network documentation.

Cognitive's network printers are designed to work with any Ethernet network using TCP/IP. Cognitive enables all networking features by default. This facilitates the setup process. To change the default settings, refer to the Cognitive Programmer's Guide and the Ethernet Programming Commands section of this document.

Cognitive network printers act as remote hosts and support the following features:

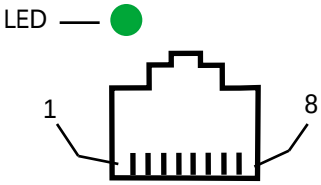
- BOOTP
- TFTP (UDP port 60)
- LPD (TCP port 515)
- TELNET (TCP port 23)
- RTEL (default port 9100)

Note: *TELNET is password protected. Refer to Cognitive's inControl documentation for additional information.*

Important: ***Read these instructions carefully and refer to other manuals as needed to support the host system.***

Step 1 Connect Printer

The printer physically connects to the network by Ethernet cabling via a 10Base-T connection. Plug one end of the ethernet cable into the 10Base-T hub port and the other into the RJ-45 jack found on the printer's rear panel. The pinout on the printer jack is:



Pin #	*Description*
1	*TXD+*
2	*TXD-*
3	*RXD+*
6	*RXD-*

Ethernet connector wiring

Above the jack, a green LED illuminates when an active Ethernet link is present.

Step 2 Verify Physical Address

Note: *A pre-printed self test label should be in the packing materials and other documentation shipped with the printer.*

Perform a self test to identify the printer's MAC address. Or locate the MAC address on the bottom panel label (see below) of the printer itself.

Note: *The printer label may look different, but will contain the same information.*

The self test includes a loopback test to verify the data path integrity and cyclic redundancy check (CRC).

If the test is successful, a label prints (see below) showing the NVRAM settings, including the MAC Address (hexidecimal) and the IP Address (decimal).

```
RECALIBRATE:   ON
MAC ADDRESS:
00:E0:70:00:01:53
IP ADDRESS:   10.3.2.240
NET MASK:   255.255.0.0
GATEWAY:   0.0.0.0
```

Sample Self Test Printout

The IP Address and MAC address appear in the lower third of the self test printout. This sample includes only a portion of the printout.

Upon initial setup, the label indicates that "Ethernet Not Initialized". If BOOTP is on, "BOOT" will appear in the IP Address area until the static IP Address is assigned for this printer.

Note: *Refer to the printer's Quick Start Guide for additional self test instructions.*

Step 3 Set IP Address

There are several ways to set the IP address for a Cognitive network printer.

- BOOTP is the most common method (see BOOTP Configuration on next page).
- Using CPL via a serial null modem cable or parallel cable connected directly to the printer from the host computer, send the IP address to the printer using CPL command VARIABLE ETHERNET IP.

Note: *Refer to the Cognitive Programmer's Guide and release notes for Cognitive Programming Language (CPL) commands.*

- Some DHCP servers can be configured to respond to BOOTP requests. Please consult your system documentation for information on configuring a DHCP and/or BOOTP server.

Note: *Refer to system documentation for information on the operating system configuration requirements.*

Step 4 Verify IP Address

After setting the IP address, run the printer self test to verify the IP address, which appears on the self test label printout.

Note: *If BOOTP is on, "BOOT" will appear in the IP Address area until the static IP Address is assigned to this printer.*

Step 5 Printing Methods

RTEL or LPD provide printing methods using an application such as LPR or another custom application that implements RTEL or LPD printing.

Or use the label design software included with the printer or other Windows application with the IP Address in the appropriate print driver.

Note: *Refer to RTEL or LPD documentation for additional information.*

BOOTP Configuration

During the BOOTP process the BOOTP server assigns an IP Address to the printer.
The following variables are identified as required or optional in proper BOOTP file:

Variable	Function	Status	Value
ht	<hardware type>	required	ether
vm	<vendor magic>	required	auto or RFC1048
ha	<hardware address>	required	variable
ip	<internet address>	required	variable
sm	<subnet mask>	optional	variable
gw	<router ip address>	optional	variable
bf	<bootfile>	optional	variable
to	<time offset>	optional	variable

The ht, vm, ha and ip entries are required. The Subnet Mask will be set according to the class of the chosen IP Address if the sm value is not specified.

The bf command must specify a fully qualified path and filename.

Note: *Consult the operating system documentation for information on specific BOOTP configurations.*

Additionally,BOOTP can be configured to check the current firmware version and download firmware updates from the BOOTP server if desired. Procedures to reconfigure the BOOTP file appear on Cognitive's web site: www.cognitive.com/firmware.

Additional Configurations

With the IP Address assigned, use CPL or Cognitive's *in*Control software to configure the printer.

Note: *The CPL commands needed to configure the printer appear in Cognitive's Ethernet Printer Programmer's Guide.*

Ethernet Programming Commands

Most of the following commands execute simple on-off functions to adjust the features of the printer. Consult the Cognitive's Ethernet Printer Programmer's Guide available on CD-ROM and Cognitive's web site, www.cognitive.com, for additional information.

All variables are on by default when shipped from the factory. The phrase "VARIABLE ETHERNET" precedes each command name in the programming syntax.

BOOTP	TELNET	LPD
IP	RTEL	RTEL PORT
HEXDUMP	NETMASK	GATEWAY
RESET	FIRMWARE	

The following commands: BOOTP, LPD, TELNET, RTEL and HEXDUMP, use the basic syntax structure: VARIABLE COMMAND NAME [on/off]. For example:

VARIABLE ETHERNET BOOTP ON

Commands such as IP, NETMASK, RTEL PORT and GATEWAY look for the command value, for example:

VARIABLE ETHERNET IP ddd.ddd.ddd.ddd

The FIRMWARE command looks for the following: firmware partnumber (pn), firmware revision (r), firmware filename (f), and server IP address (s). For example:

VARIABLE ETHERNET FIRMWARE pn r f s

The RESET command has no variable parameters.

Note: *Use the Cognitive inControl software to configure the printer without using the programming commands. InControl enables easy configuration and label programming via a graphic interface.*

Contact Cognitive or visit our web site, www.cognitive.com, for additional information.

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