



# Level One Printer Servers

FPS-2111TXU  
FPS-2013TXU

## User Guide

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# Table of Contents

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<b>1. Introduction.....</b>	<b>1</b>
Features .....	1
Safety Instructions.....	2
Package Contents .....	2
Models .....	3
<b>2. LAN Installation.....</b>	<b>6</b>
Procedure.....	6
<b>3. Configuration .....</b>	<b>8</b>
Required Configuration .....	8
Configuration Methods & Utilities.....	8
Using the Windows Setup Wizard.....	9
<b>4. BiAdmin Utility Program.....</b>	<b>10</b>
Requirements.....	10
Installation.....	10
Main Screen.....	10
Menu Options.....	14
<b>5. AppleTalk .....</b>	<b>16</b>
Software Requirements .....	16
AppleTalk Setup.....	16
Printing .....	16
Advanced Setup and Management .....	17
<b>6. NetWare .....</b>	<b>19</b>
Overview .....	19
Using BiAdmin with Client 32.....	21
Print Server Mode - Bindery .....	22
Print Server Mode - NDS .....	29
Remote Printer Mode - Bindery .....	34
Remote Printer Mode - NDS .....	35
NDPS (NetWare 5).....	36
<b>7. TCP/IP .....</b>	<b>40</b>
Overview .....	40
Web Browser Configuration.....	40
Telnet.....	44
<b>8. Unix .....</b>	<b>45</b>
Overview .....	45
IP Address Configuration.....	45

Printing Methods – Overview .....	46
LPD Printing Configuration .....	47
Other Printing Methods .....	51
<b>9. Windows NT Server (TCP/IP) .....</b>	<b>52</b>
Software Requirements .....	52
LevelOne Printer Server Configuration.....	52
Windows NT Host Configuration.....	53
Printing with Windows NT .....	56
<b>10. Windows Peer-to-Peer .....</b>	<b>57</b>
Overview .....	57
Setup.....	57
<b>11. Special Features.....</b>	<b>61</b>
Internet Printing.....	61
SNMP .....	67
<b>12. Troubleshooting .....</b>	<b>68</b>
Overview .....	68
Hardware Problems .....	68
Printing - General .....	69
AppleTalk.....	70
NetWare .....	72
TCP/IP (Unix & Windows NT).....	77
Windows Peer-to-peer .....	79
Internet Printing.....	82
<b>13. Specifications .....</b>	<b>84</b>

# Introduction

*This chapter provides details of your LevelOne Printer Server's features and components.*

Congratulations on the purchase of your new LevelOne Printer Server. This device was designed to provide a simple and efficient network printing solution.

## Features

- **Versatility.** The LevelOne Printer Server supports up to five protocols: NetWare, TCP/IP, SMB (Service Message Block), AppleTalk (EtherTalk), and NetBEUI. Operating system support includes Unix, Novell, and Microsoft Windows.
- **Easy Installation.** The LevelOne Printer Server makes adding printers or plotters to your network simple. The auto-sensing feature on the LAN interface means that there is no need to set jumpers or perform software configuration to select the network speed or duplex setting.
- **DHCP Client Support.** If your LAN has a DHCP Server, the LevelOne Printer Server can act as a DHCP client; automatically obtaining an IP address from the DHCP Server on your LAN.
- **Easy Setup.** A number of utility programs are supplied to simplify setup. For Windows 95/98/NT/2000/XP users, the BiAdmin program makes it easy to configure the LevelOne Printer Server for a variety of network and server configurations.
- **Web-based interface.** The LevelOne Printer Server incorporates a Web-based interface to provide an easy method of configuration in TCP/IP networks. When using this method, no software needs to be installed.
- **Compact Size.** This allows the LevelOne Printer Server to be used even where space is limited.
- **Remote Management Tools.** A variety of software tools are provided. In most environments, both the LevelOne Printer Server and attached bi-directional printers can be configured remotely.
- **SNMP Support.** The LevelOne Printer Server can act as a SNMP agent, with its own MIB. This allows TCP/IP users to monitor, configure and troubleshoot the LevelOne Printer Server using their existing SNMP management tools.
- **JetAdmin Support.** Both models support HP's *JetAdmin* utility. If you are already using this program, you can also use it to manage your LevelOne Printer Server.
- **Internet Printing.** Using TCP/IP, the LevelOne Printer Server can be configured to allow clients, suppliers, colleagues and others to print to one of your printers from anywhere on the Internet.

## Safety Instructions

For your own safety, and to protect your LevelOne Printer Server, please observe the following safety advice.

1. Unplug this device from its power source before cleaning. Use only a slightly dampened cloth for cleaning. Do not use liquid or aerosol cleaners.
2. Avoid using this product near water. Exposure to water poses an electric-shock hazard.
3. Do not place this device on an unstable surface. The device may fall causing serious damage to the device.
4. This device should only be used with the power supply type specified on the marking label. If you are not sure of type of your local power supply, consult your dealer or local power company.
5. Do not pinch, crimp or otherwise damage the power cord. If exposed to foot traffic, ensure that the cable is properly shielded and does not pose a tripping hazard.
6. If using an extension cord, make sure the total ampere rating of the products using the cord does not exceed the extension cord's ampere rating.
7. Do not attempt to service this device, as opening or removing casing may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.
8. The device should be serviced by qualified service personnel under the following conditions:
  - The power cord is damaged or frayed.
  - Liquid has been spilled onto the product.
  - The product has been exposed to rain or water.
  - The product does not operate normally in accordance with the operating instructions.
  - The device has been dropped or the casing has been damaged.

## Package Contents

You should find the following items packaged with your LevelOne Printer Server. If any items are missing, contact your dealer immediately.

- LevelOne Printer Server
- Power Adapter
- One CD-ROM containing all support programs and the complete User Manual in on-line format (PDF).
- This User's Manual
- Quick Install Guide

## Models

This section contains details of all LevelOne Printer Server models covered by this manual. Please take a few minutes to familiarize yourself with your new LevelOne Printer Server.

### FPS-2111TXU

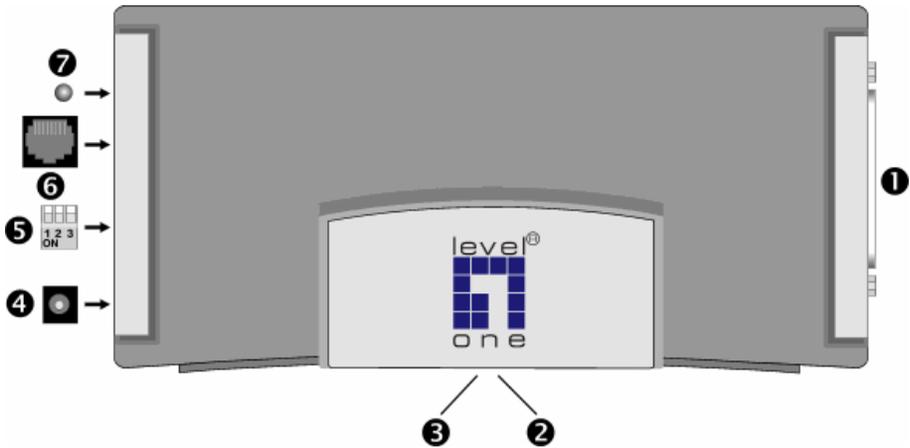
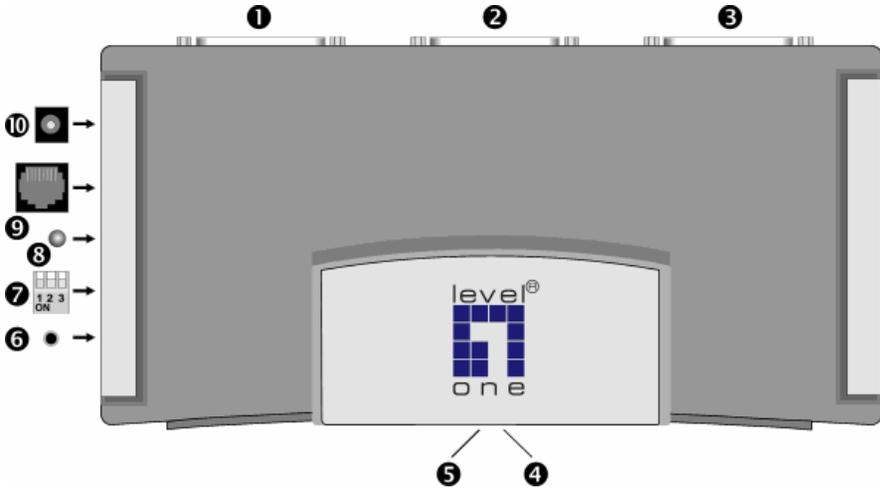


Figure 1 FPS-2111TXU

Item	Description
1	Parallel Port
2	Red Error LED. See page 5 for details.
3	Green Link LED See page 5 for details.
4	12V Power port
5	10/100BaseT Switches See page 5 for details.
6	10/100BaseT STP Connector
7	10/100BaseT Link LED

The FPS-2111TXU offers support for both 10BaseT and 100BaseT environments. It features one UTP connector and one bi-directional parallel port.

## FPS-2013TXU



**Figure 2: FPS-2013TXU**

Item	Description
1	Parallel Port 1
2	Parallel Port 2
3	Parallel Port 3
4	Red Error LED. See page 5 for details.
5	Green Link LED. See page 5 for details.
6	Reset Button. This will Reboot the LevelOne Printer Server.
7	10/100BaseT Switches. See page 5 for details.
8	10/100BaseT Link LED
9	10/100BaseT Connector
10	12V Power port

## LED Indicators

All LevelOne Printer Servers are fitted with 2 LED indicators. The red LED is the Status/Error indicator. The green LED is the Power/Link indicator. The LED indicator modes are described in the following table.

Green LED	Red/Orange LED	Status Description
Off	Off	No power.
On	On	Hardware error.
Flashing	Flashing	Firmware upgrade in progress.
On	Off	Normal operation - idle.
Flashing	Off	Normal operation - transmitting or receiving packets from the network.

## DIP Switches

The DIP switches are used to set the LAN connection. Operation is as follows.

SW1	SW2	SW3	Description
UP	-	-	Auto select LAN connection (Default) Switches 2 and 3 have no effect.
Down	Down	Down	10BaseT - Half Duplex
Down	Down	UP	10BaseT - Full Duplex
Down	UP	Down	100BaseT - Half Duplex
Down	UP	UP	100BaseT - Full Duplex

The other possibilities are reserved, and should not be used.

e. If you have a PostScript printer on port 1, the test page will not be printed.

# LAN Installation

*This chapter describes how to install the LevelOne Printer Server in your Local Area Network.*

## Procedure

### 1. Find the Default LevelOne Printer Server Name

- The *Default Server Name* is shown on a sticker on the base of the device. It consists of 8 letters and/or digits.
- Record this name, it will be needed during configuration.



**During configuration you will be able to change the device name. The new name MUST NOT contain any spaces or blanks**

### 2. Connect the Printer(s)

- Connect the printer or plotter to the LevelOne Printer Server's printer port(s), as appropriate:
- Use standard Parallel port cables to connect the printer to the parallel port on the LevelOne Printer Server. Parallel printer cables should be less than 3 meters long.



**Leave the LevelOne Printer Server powered OFF while connecting it to the Printer(s) and the LAN.**

### 3. Connect the Network Cable

- Connect the LevelOne Printer Server to your LAN. For 10/100BaseT interfaces, the LevelOne Printer Server will automatically detect the correct speed.

#### 4. Power Up and Check

- Plug in the power adapter cable.
- If using 10/100BaseT, check the LAN connection LED next to the 10/100BaseT connector.  
If this LED does not light when the LevelOne Printer Server is powered up, auto-negotiation has failed. In this case, set the DIP switches as described in the document for your model.



**Use only the Power Supply unit provided with the LevelOne Printer Server.**

# Configuration

*This chapter provides an overview of the configuration process.*

## Required Configuration

The LevelOne Printer Server is designed to support many different platforms, and the configuration required will depend upon the environment in which it is installed. Depending upon the situation, any of the following may require configuration:

- LevelOne Printer Server itself.
- LAN Server.
- Client PCs on the LAN.

For each supported platform, detailed instructions are contained in the appropriate chapter in this document.

## Configuration Methods & Utilities

Many different methods and utilities can be used to configure the LevelOne Printer Server.

### Windows Wizard

The recommended method for configuring the LevelOne Printer Server is to use the supplied *Windows Setup Wizard*, described in the following section.

### BiAdmin

The recommended method for advanced management of the LevelOne Printer Server is to use the supplied *BiAdmin* utility program. If using NetWare, this program can be used to configure the NetWare Server as well as the LevelOne Printer Server.

For details about installing and using *BiAdmin*, refer to *Chapter 4 - BiAdmin Utility Program*. BiAdmin requires Window 95/98 or Windows NT4.0 or later.

### Web-based Interface

Most Browsers will work with the Web-based interface, provided on all models supporting 100BaseT. See *Chapter 7 - TCP/IP* for details.

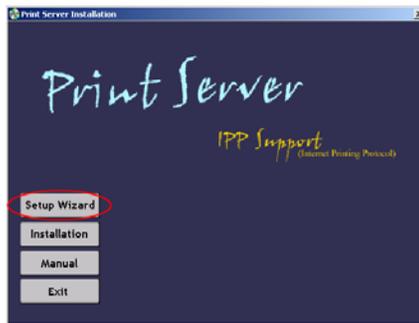
### Other Methods

Method	Platform	Details
FTP	All TCP/IP networks	Using this method, the configuration file is down loaded from the LevelOne Printer Server, edited, then sent back.
JetAdmin (HP)	Windows 95/98/NT	100BaseT models support this program.
PSConfig	DOS (IPX/SPX)	Menu-based DOS program for NetWare users.

<b>Telnet</b>	All TCP/IP networks	Telnet can be used only to monitor the printers attached to the LevelOne Printer Server.
<b>WebAdmin</b>	Windows NT Server (TCP/IP) Web Browser	WebAdmin is installed on the NT Server, and then accessed using a Web Browser.
<b>WPConfig</b>	Windows 3.1 (IPX/SPX)	Not all LevelOne Printer Server features are available.

## Using the Windows Setup Wizard

1. Insert the supplied CD-ROM into your drive. If the setup program does not start automatically, run *Autorun.exe* in the root folder.
2. On the first screen, shown below, click *Setup Wizard*.



1. Click *Next* on the first screen, to view a list of Print Servers on your LAN.
2. Select your new Print Server, then click *Next* to continue.
3. Enter the required data on the *Print Server* screen.
  - Name can be changed if you wish.
  - Comment is optional.
  - Select or enter the Workgroup name for this Print Server.
  - You can enter a name (eg. Printer Model) for each Printer.
4. Click *Next* to configure the *TCP/IP* screen.
  - Select *Obtain IP Address automatically* if your LAN has a DHCP Server, otherwise select *Fixed IP Address*.
  - For *Fixed IP Address*, enter an unused address from the range used on your LAN, or click the *Suggest New Values* Button.
  - Use the same Network Mask and Gateway as PCs on your LAN.
5. Click *Next* to continue to the final screen.
6. Click *Finish* to save the data to the Print Server.

Print Server configuration is now complete.

- Windows and Macintosh client PCs can now be configured to use the Print Server.
- If using NetWare or Unix, further configuration is required. Refer to the appropriate chapter for details.

# BiAdmin Utility Program

*This chapter covers the installation and operation of the BiAdmin utility.*

## Requirements

This program requires:

- Windows 95, Windows 98 or ME
- Windows NT 3.51, Windows NT 4.0, Windows 2000 or XP

### Additional Recommendations:

- Screen resolution of 800 \* 600 or greater.
- If using Novell NetWare, installation of Novell's *Client 32 for Windows* is strongly recommended. This will greatly enhance the ability to BiAdmin to work with NetWare servers.

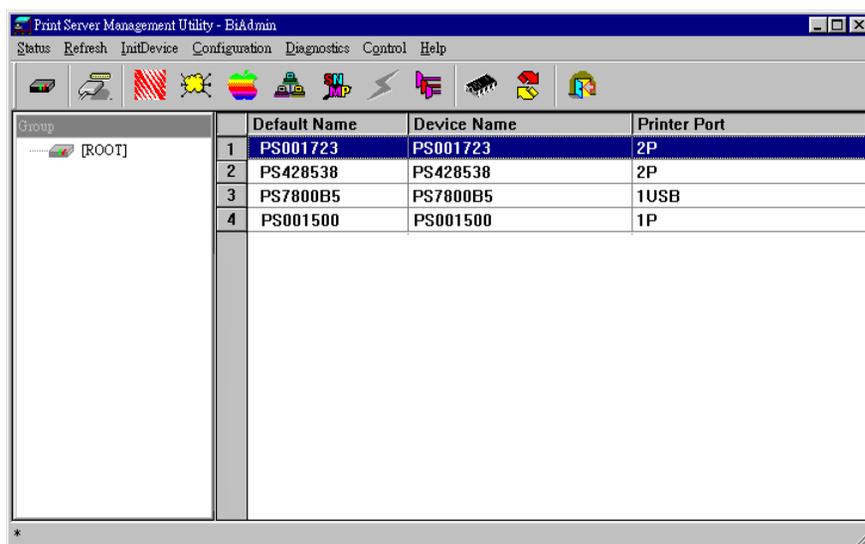
## Installation

1. Run the SETUP program in the PS\Utility\Biadmin\disk1 directory on the CD-ROM.
2. Follow the on-screen prompts to complete the installation.

## Main Screen

Start the program by using the icon created by the setup program.

When run, the program searches the network for all active LevelOne Printer Servers, then lists them on screen, as shown by the example screen below.



The screenshot shows the 'Print Server Management Utility - BiAdmin' window. The menu bar includes 'Status', 'Refresh', 'InitDevice', 'Configuration', 'Diagnostics', 'Control', and 'Help'. The toolbar contains various icons for printer management. The main area displays a table of printer servers found on the network.

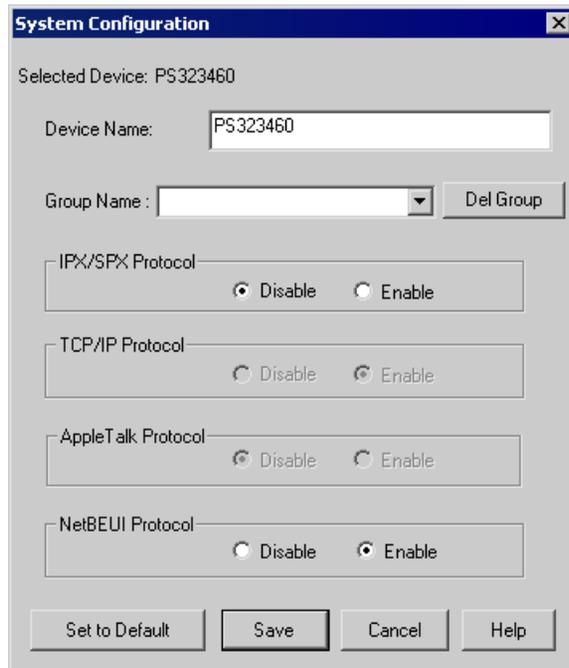
Group	Default Name	Device Name	Printer Port
[ROOT]			
1	PS001723	PS001723	2P
2	PS428538	PS428538	2P
3	PS7800B5	PS7800B5	1USB
4	PS001500	PS001500	1P

**Figure 3: BiAdmin Main Screen**

## Groups

On the left side of the screen is a column for *Groups*. Each LevelOne Printer Server may be placed in a group, using the *Configuration-System Configuration-Groups* menu option.

- If a group is selected, only LevelOne Printer Servers in that group will be listed on the right side of the screen.
- By default, all LevelOne Printer Servers will appear in the [ROOT] group.
- A LevelOne Printer Server can only be a member of one (1) group, and will always be a member of a group
- Use the *Configuration-System Configuration-Groups* menu option to select a group for the current LevelOne Printer Server.
- To create a new Group and add the current LevelOne Printer Server to it, just enter a group name in the dialog. (See example screen below)



**Figure 4: System Configuration - Groups**

## Device List

On the right side of the screen is a list of all LevelOne Printer Servers found on the network. For each device, the following data is shown:

- **Default Name.** The *Default Server Name* is shown on a sticker on the base of the device.
- **Device Name.** If you have not changed the name, this will be the same as the *Default Server Name*.
- **Port information.** The number and type of ports is shown in the right column.

### If the desired device is not listed, try the following:

- Check that the device is installed and ON, then *Refresh* the list.
- Use the *InitDevice - Find* menu option to search for the LevelOne Printer Server. You need to know the *Default Name* of the LevelOne Printer Server. The *Default Server Name* is shown on a sticker on the base of the device.
- If the LevelOne Printer Server is on another LAN segment, use the *InitDevice - Attach Remote* menu option to locate and display the LevelOne Printer Server.
- For networks using ONLY TCP/IP, LevelOne Printer Servers without an IP Address will not appear. Use the *InitDevice - Set IP Address* menu option to assign an IP Address, then *Refresh* the list. You need to know the *Default Name* of the unlisted device in order to assign an IP Address. The *Default Server Name* is shown on a sticker on the base of the device.

## Status Icons

Once a LevelOne Printer Server has been selected, the Icons become active.



The icons provide status information as well as access to the selected LevelOne Printer Server settings. If an icon is grayed out, that option or protocol is unavailable.



### Device Information

Menu equivalent: *Status - Backup/Restore Device Information*

All of the settings for the current device are displayed in a read-only scrollable list in the left panel.

You can use the "Save to File" and "Restore to Device" buttons on this screen to save a copy of the selected device's CONFIG file to your PC, or restore a previously saved file to the selected LevelOne Printer Server.



### Port Status

Menu equivalent: *Status - Port Status*

After selecting this icon, a *Detail* button will be available to show more information about the printer.

## Configuration Icons

The following icons are available. Refer to the on-line help for details of the data on each screen.



### NetWare

Menu equivalent: *Configuration - NetWare*

BiAdmin supports configuration of both the LevelOne Printer Server and Novell NetWare servers.

- You need to be logged into the NetWare server(s) with ADMIN rights.
- The screens you will see, and the operations which can be performed, depend on whether or not you have *Novell NetWare Client 32* installed.
  - If *Novell NetWare Client 32* is installed on your PC, BiAdmin

allows you to configure both the LevelOne Printer Server and the NetWare server from within BiAdmin.

- If this *Novell NetWare Client 32* is NOT installed, you can configure only the LevelOne Printer Server itself, not the NetWare server.

See **Chapter 6** for more details on using BiAdmin with NetWare Servers.



## TCP/IP Configuration

Menu equivalent: *Configuration - TCP/IP*

Selecting this icon will allow configuration for TCP/IP. Some models may have checkboxes for *DHCP*, *Bootp*, and *Rarp*. Some models may also display the setup data for the proprietary "Internet Printing" feature (printing via E-Mail).



## AppleTalk Configuration

Menu equivalent: *Configuration - AppleTalk*

See Chapter 5 for more details.



## NetBEUI Configuration

Menu equivalent: *Configuration - NetBEUI*



## SNMP Configuration

Menu equivalent: *Configuration - SNMP*

Configuration is only required if using Simple Network Management Protocol.

See Chapter 11 for more details.



## Logical Port Configuration

Menu equivalent: *Configuration - Logical Port*

Logical port (printers) can be used in the NetWare and Unix environments.

## Other Icons



## Upgrade

Menu Equivalent: *InitDevice - Upgrade*

This option allows you to upgrade the firmware for the selected LevelOne Printer Server. Before using this option, you need to obtain the .BIN file for the firmware upgrade, and copy it to the same directory as BiAdmin.



## Refresh

Menu Equivalent: *None*

Select this icon to update the LevelOne Printer Server device listing after changing the name or IP Address.



## Exit

Menu Equivalent: *Help - Exit*

Exit the BiAdmin program. This does not save any changes you have made; you must *Save to Device* on each screen.

## Menu Options

### Status Menu

- Device Info** Same as *Device* button.
- Display all the configuration and status information about the selected LevelOne Printer Server. The data is presented in a scrolling, read-only window.
- Port** Same as *Port Status* buttons.

### InitDevice Menu

- Attach Remote** This is used to connect to a LevelOne Printer Server device on another LAN segment. If your LAN does not have a Router, ignore this option.
- Connected Protocol** This option allows you to designate which LAN protocol will be used for communication between the selected device and this application. You should select ONE protocol only.
- Find** Use this option to use the IPX/SPX protocol to locate a LevelOne Printer Server on the LAN. Simply enter the *Default Name* of the LevelOne Printer Server you wish to locate. The *Default Server Name* is shown on a sticker on the base of the device.
- Reset Device** This will cause the device to reboot. This should be done after making any configuration changes, or if the device stops responding after some problems.
- Restore Factory Default** This will restore ALL device values to their factory defaults. To restore only the current screen, use the *Set to Default* button on the screen.
- Set IP Address** For TCP/IP networks only:
- If a LevelOne Printer Server does not appear on the main screen, use this option to set a Device IP Address, Gateway IP Address, and Network Mask to the LevelOne Printer Server.
  - This should only be necessary if your LAN is using ONLY the TCP/IP protocol. In other cases, BiAdmin will use IPX/SPX to locate the LevelOne Printer Server even if it doesn't have a valid IP Address.
  - To locate the LevelOne Printer Server, enter the *Default Name*. The *Default Server Name* is shown on a sticker on the base of the device.
  - Enter the required IP Address, Network Mask, and Gateway IP Address.
  - After saving the data to the device, refresh the listing. The LevelOne Printer Server should then appear in the device list on the main screen.
- Upgrade** Upgrade the firmware in a LevelOne Printer Server. See **Upgrade Icon** for details.

## Configuration Menu

The *System* option allows you to:

- Change the name of the selected LevelOne Printer Server.
- Change the "Group" for the selected LevelOne Printer Server.
- Set the Network Protocols used the selected LevelOne Printer Server. (Any protocols not used on your LAN may be disabled. This may improve performance.)

The *Configuration Menu* also contains selections for each of the following. These have the same effect as the corresponding Icon:

- NetWare
- TCP/IP
- AppleTalk
- NetBEUI
- Logical Port
- SNMP

## Diagnostics menu

### Print Test Page

Use this option to print a test sheet from the selected LevelOne Printer Server port. The test print out will include status information.

## Control Menu

### Abort Mail Print Job

This menu option refers to print jobs which has been received through the proprietary "Internet Printing" feature (printing via E-Mail). This menu option can be used to terminate a print job which is not printing correctly.



The "Abort Mail Print Job" menu option can **NOT** be used to cancel IPP (Internet Printing Protocol) print jobs.

# AppleTalk

*This chapter details using the LevelOne Printer Server in the AppleTalk environment.*

The LevelOne Printer Server supports AppleTalk (EtherTalk), PAP, ATP, NBP, ZIP and DDP protocols, enabling Macintosh computers on the network to view and use the LevelOne Printer Server as a regular AppleTalk printer. Configuring and printing in the EtherTalk environment operates completely as usual.

The *PSTool* program has been provided specifically for the Macintosh environment, to allow easy configuration of your LevelOne Printer Server. However, it is not necessary to install and use this program for basic operation.

## Software Requirements

System 7.x OS or newer.

## AppleTalk Setup

1. Click the apple icon and choose Control Panel.
2. Click Network.
3. Ensure that *EtherTalk* is selected under *AppleTalk Connection*.
4. Click *Chooser*. The Chooser panel will open.
5. Click on either the *LaserWriter 8* icon (recommended) or the *LaserWriter 7* icon. LaserWriter 8 makes use of the fonts installed in the printer itself, so the printing response time is quicker. LaserWriter 7 uses the fonts installed in the computer, which increases network traffic and takes more printing time.
6. Select a LevelOne Printer Server from the printer list by clicking on the appropriate name. The LevelOne Printer Server's name is recorded on a label on the bottom of the LevelOne Printer Server as "Server Name". This name consists of 8 digits and/or numbers.
7. Click on the *Close* box.  
Configuration is now complete.

## Printing

Printing with the LevelOne Printer Server installed in an AppleTalk network is identical to normal printing.

For example, select a document that you want to print and then select *File - Print*. Chose the desired printer.

## Advanced Setup and Management

This section describes the configuration changes which can be made to your LevelOne Printer Server device.

### Changing the Device Configuration

#### Windows Software

In a mixed Windows PC/Macintosh environment, you can use the BiAdmin utility program to configure the LevelOne Printer Server.

For details on installing and using BiAdmin, refer to *Chapter 4 - BiAdmin*.

#### Macintosh Software

In AppleTalk, you can use **SimpleText** to edit the LevelOne Printer Server's CONFIG file and the supplied **PSTool** program to send it to the LevelOne Printer Server. The procedure is as follows:

1. Copy the following files from the \PS\Utility\Apple folder on the CD-ROM to an appropriate folder on your hard disk.
  - PSTool
  - CONFIG file (e.g. config.3p)
2. Use **Chooser** to select the desired LevelOne Printer Server.
3. Double click the CONFIG file, and edit it. The contents of the file will vary depending on your model, but will look something like the example below.

```
begin CMD
0001 Device Name: xxxxxxxx
3000 Apple Zone : *
3001 Printer Type (P1): LaserWriter
3002 Printer Type (P2) LaserWriter
3004 Printer Type (P3) LaserWriter
3101 AP_PCOMM1: No
3102 AP_PCOMM2: No
3104 AP_PCOMM4: No
9002
```

The appropriate values for each line are described in the following section.



*Note!*

Do NOT modify the following lines:

```
begin CMD
9002:
```

4. Save the file.
5. Double click the icon for PSTool.
6. Click the Printer submenu and choose *Download Postscript File*. A panel will appear with a list of files.
7. Click the CONFIG file. Then click *Download*.

## AppleTalk Settings

When editing the CONFIG file, only the *parameter* should be changed. The *parameter* is the last part of the line, after the colon (:). Ensure that you use only valid *parameters*.

### 0001 Device Name: xxxxxxxx

The *Device Name* will initially be the *Default Server Name*. The *Default Server Name* is shown on a sticker on the base of the device. The *Device Name* can be changed, but the new name MUST NOT exceed 19 characters in length.

### 3000 Apple Zone: \*

The default value "\*" allows all AppleTalk zones to access the LevelOne Printer Server's printers. To restrict access to a particular zone, enter the zone name here.

### 3001 Printer Type (P1): LaserWriter

### 3002 Printer Type (P2): LaserWriter

### 3004 Printer Type (P3): LaserWriter

These are text fields, used to describe the printer driver used for each port. P1, P2, P3 refer to parallel ports 1 to 3 respectively. The name can be up to 19 characters long.

### 3101 AP\_PCOMM1: No

### 3102 AP\_PCOMM2: No

### 3104 AP\_PCOMM4: No

These settings determine whether the port uses ASCII or Binary Communication Protocol. Enter NO for ASCII or YES for Binary. The lines refer to the following ports.

3101 AP_PCOMM1:	Parallel Port 1
3102 AP_PCOMM2:	Parallel Port 2
3104 AP_PCOMM4:	Parallel Port 3

In choosing which Protocol to use, consider the following points.

- Binary communication is twice as fast as ASCII
- ASCII communication is more reliable
- The computer, LevelOne Printer Server and printer MUST all be configured to use the SAME protocol. Check your printer manual for details of printer configuration, and use the *Print* menu to configure your computer, so that they use the same settings as the LevelOne Printer Server.

*This chapter describes using your LevelOne Printer Server in the NetWare environment.*

## Overview

This section describes how the LevelOne Printer Server functions in the Novell NetWare environment.

The LevelOne Printer Server fully supports both Bindery and NDS Novell systems, and be configured as either a NetWare *Printer Server* or NetWare *Remote Printer*.

Novell Distributed Printing Services (NDPS) using TCP/IP under NetWare 5 is also supported. See page 36 for details.

## Logical Printers (Ports)

Logical Printers can be used to create a “Virtual” printer. Single port models support 3 logical printers, while multi-port models support 8 logical printers.

The Logical Printers are named L1, L2, and L3; or L1 to L8 on multi-port models. The names can not be changed.

## Configuring NetWare

PCONSOLE or NWAdmin must be used to create new (logical) printers and assign print queues to the printers. When creating logical printers, NetWare Printer 8 corresponds to Logical printer L1 on the LevelOne Printer Server, printer 9 to Logical printer L2, and so on up to printer 15 (logical printer L8).

## Configuring the LevelOne Printer Server

The LevelOne Printer Server requires the following data, if logical printers are going to be used.

<b>Physical Port</b>	Select the parallel port (P1 to P3) for this Logical Printer
<b>String Before Job</b>	The printer control string (in Hex) to be sent to the printer before each print job.
<b>String After Job</b>	The printer control string (in Hex) to be sent to the printer after each print job.
<b>Convert LF to CR+LF</b>	If ON, LF (line feed) characters are changed to CR+LF (carriage return + line feed). If OFF, no conversion is done.

## Configuration Methods

To support the widest possible range of users, the LevelOne Printer Server is supplied with the utilities listed in the following table.

Note that this document covers only BiAdmin with Novell's Client 32 software installed on your PC. For more details about the other methods, refer to the full User Manual on the CD-ROM.

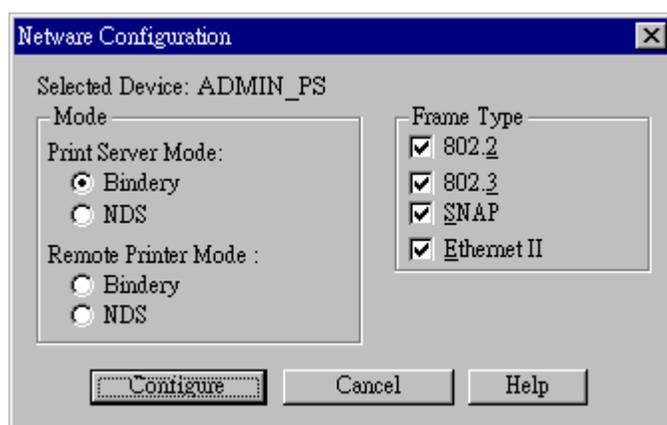
- |                 |   |
|-----------------|---|
| <b>BiAdmin</b>  | <p>If possible, you should use the supplied BiAdmin utility for configuration. BiAdmin is a powerful, user-friendly program which runs under Windows 95/98/NT.</p> <p>See <i>Chapter 4 - BiAdmin Utility</i> for details on installing this program, and general instructions on usage.</p> <p>BiAdmin works best if you have Novell NetWare Client 32 for Windows installed.</p> |
| <b>Quickset</b> | <p>QUICKSET is a DOS-based command-line program. It will configure the LevelOne Printer Server and the current Novell server in a single operation. However, it provides few options.</p>   |
| <b>PSConfig</b> | <p>PSConfig is a DOS-based, menu-driven program. It uses the IPX/SPX protocol to connect to the LevelOne Printer Server, so your PC must load the IPX/SPX drivers before PSConfig can be used.</p> <p>PSConfig can only configure the LevelOne Printer Server itself. You must use the NetWare's PCONSOLE or NWAdmin to configure the NetWare server.</p>                         |

## Using BiAdmin with Client 32

With NetWare Client 32 installed on your PC, BiAdmin's NetWare capabilities are enhanced. As well as configuring the LevelOne Printer Server, you can configure the NetWare Server or Servers.

### Preparation

1. Ensure that you are logged into the NetWare server(s) you wish to use. You need to have ADMIN rights so you have permission to create printer objects and queues.
2. Start BiAdmin.
3. Select a LevelOne Printer Server from the list.
4. Select the NetWare icon.
5. From the resulting screen, shown below, select the operating mode to match your NetWare server, and click *Configure*. The following sections describe the screens for each of these selections.



**Figure 5: NetWare Mode**

## Print Server Mode - Bindery

If *Bindery Print Server Mode* is selected, the following screen will appear:

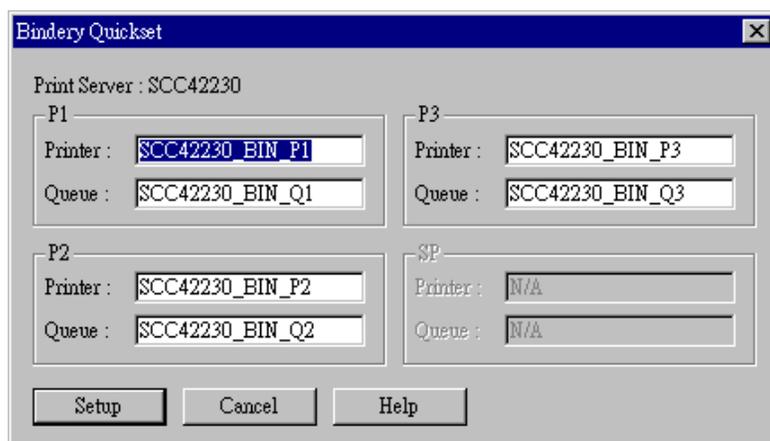


**Figure 6: Bindery Print Server Mode**

Data	
<b>Print Server Name</b>	Change the name of the selected LevelOne Printer Server if you wish. (This field is also on the <i>Configuration-System</i> menu.)
<b>Master File Server</b>	Name of the LevelOne Printer Server's master file server (NetWare server). Select from the drop-down list.
<b>Polling Queue Interval</b>	Defines how often the LevelOne Printer Server will poll the queues to be serviced. The default is 1 second.
<b>Job Notification by Connection ID</b>	Set to <i>Yes</i> to receive a job notification at only the workstation where the print job originated, <i>No</i> to receive a job notification at all workstations that you have logged on.
Buttons	
<b>Quickset</b>	This option will configure the NetWare server using default values. See below for details.
<b>NetWare Configuration</b>	Use this to configure the NetWare server. See below for details. See the following section for details
<b>Help</b>	View context-sensitive help.
<b>Set to Default</b>	Replace the on-screen values with the default values. These are NOT saved until you click <i>Save to Device</i> . (No changes are made to the NetWare server.)
<b>Save to Device</b>	Save any changes you have made to the LevelOne Printer Server
<b>Cancel</b>	Ignore any changes made since the last <i>Save</i> operation; close the window.

## Quickset Button (Bindery)

The *Quickset* button on the previous screen will configure the NetWare server using default values derived from the default name, as shown on the following example.



**Figure 7: Bindery Quickset**

This screen displays the name the selected LevelOne Printer Server, and the following information for each port:

**Printer** - the NetWare printer object which will be created on the current server.

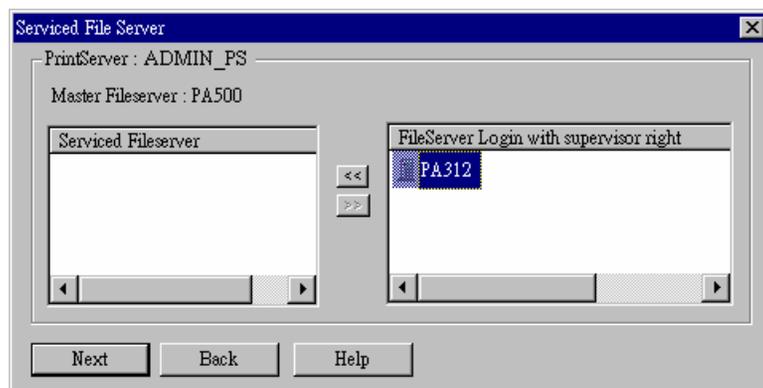
**Queue** - the NetWare queue associated with the Printer Object. This queue will be serviced by the current LevelOne Printer Server, with print jobs being sent to the port shown.

Change the default values if you wish, then click *Setup* to create these objects on the NetWare server.

## NetWare Configuration Button (Bindery)

Clicking the *NetWare Configuration* button will reveal one of the following screens, depending on the number of servers:

**If you have multiple File Servers:**



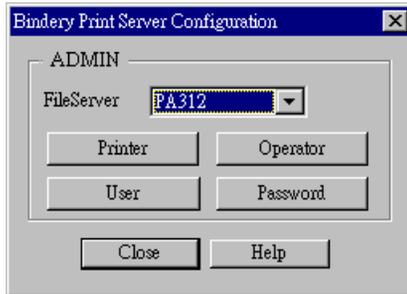
**Figure 8: Assigning Additional File Servers**

- This screen allows you to set the LevelOne Printer Server to service additional file servers. Normally, the LevelOne Printer Server will service only the *Master File Server*.

- The right column lists any available servers. Note that to be available, you must be logged into the Server with Supervisor rights.
- Use the “<<” and “>>” buttons to move file servers to and from the *Serviced Fileserver* list on the left.
- When completed, click *Next*. This will create a NetWare Print Server object on the *Serviced Fileserver* if it does not yet exist. The NetWare Print Server will have the same name as the NetWare Print Server on the *Master File Server*.
- After clicking *Next*, you will see the screen below.

**If you have a single File Server:**

Clicking the *NetWare Configuration* button will reveal the following screen:



**Figure 9: Configure NetWare Server (Bindery PS mode)**

- The NetWare Print Server name is shown at the top of the screen. If more than 1 NetWare server is used, this name is the same on every NetWare server.
- The options available are :

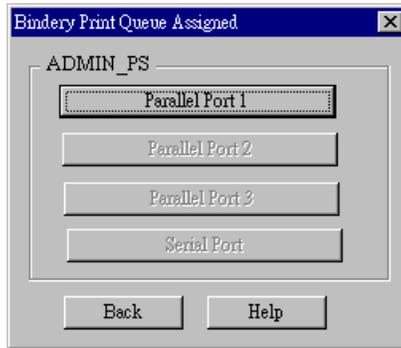
- File Server** This drop-down list will be operational only if you have assigned more than 1 file server to be serviced by the LevelOne Printer Server.
- Printer** Create Printer Objects, assign Print Queues, and assign users to Print Queues (Required). See the following section for details.
- Operator** Assign Operators to the NetWare Print Server object. (Optional) These operators will then have permission to manage the NetWare Print Server object. The screen is identical to *Figure 13: Assign Operator to Queue (Bindery)*.
- User** Assign Users to the NetWare Print Server object. (Optional) These users will then be able to view the status of the NetWare Print Server object. The screen is identical to *Figure 12: Assign Users to Queue (Bindery)*.
- Password** Change the login password used by the LevelOne Printer Server when it connects to the NetWare server. By default, there is no password. See *Password* for details.

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## "Printer" Button

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1. After selecting the **Printer** button on the screen above, the NetWare printer objects ( 1 for each port on the LevelOne Printer Server) will be created if they do not yet exist.
2. The next screen (shown below) allows you to select the desired port on the LevelOne Printer Server. This also selects the printer object. You can NOT change the printer object associated with the port.



**Figure 10: Select Printer Port (Bindery)**

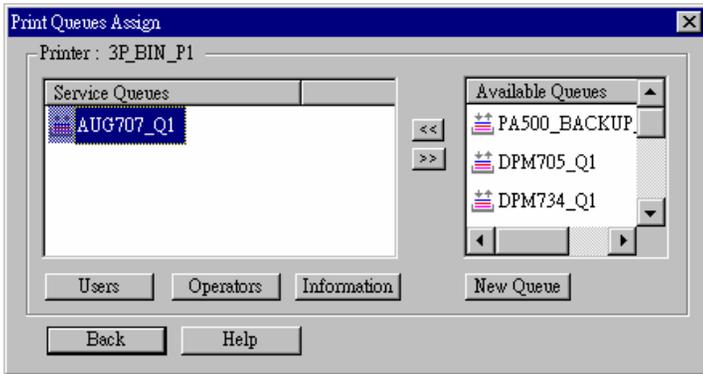
3. After selecting the desired port, you will see a screen like the following example, which allows you to assign printer queues to the printer object.

## Assigning Printer Queues (Required)

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This screen will be displayed when a port button is clicked on the previous screen.

Use this screen to assign queue(s) to the printer object associated with the selected port.



**Figure 11: Assign Queues (Bindery)**

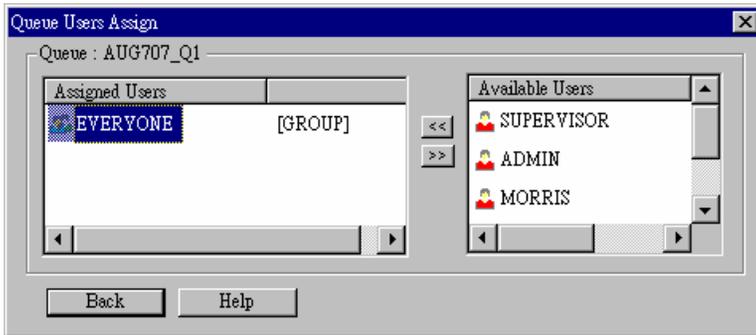
This screen displays the name of the NetWare Printer on the top of the screen.

Queues serviced by this NetWare printer are listed on the left, and other queues on the right.

- Create a new queue by clicking **New Queue**. Enter the name in the dialog.
- Assign an existing queue by selecting a queue on the right, and clicking the “<<” button.
- Stop servicing a queue by selecting it from the list on the left, and clicking the “>>” button.
- When a Queue on the left is selected, the *Users*, *Operators*, and *Information* buttons become available.

## To Assign Users to Queues (Required)

Select the queue, then click *Users* on the screen above to see the following screen. The current queue name is shown on the top of the screen.

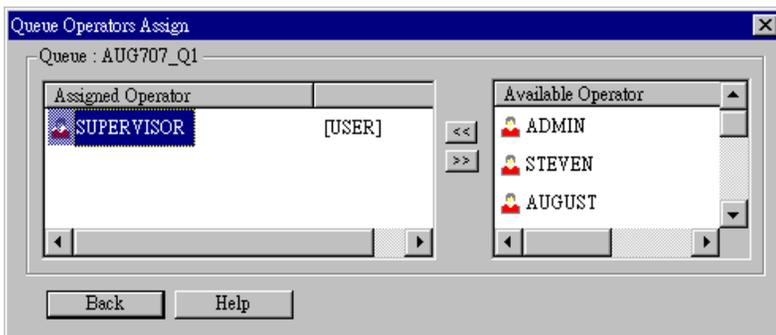


**Figure 12: Assign Users to Queue (Bindery)**

- Assign a user or group by selecting them on the right, and clicking the “<<” button.
- Remove an assignment by selecting the user or group from the list on the left, and clicking the “>>” button.

## To assign operators to Queues (Optional)

Select *Operators* from *Figure 11: Assign Queues* to view the following screen.



**Figure 13: Assign Operator to Queue (Bindery)**

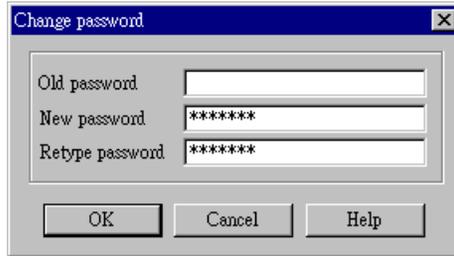
- Assign an operator by selecting them on the right, and clicking the “<<” button.
- Remove an assignment by selecting the operator from the list on the left, and clicking the “>>” button.

## Password

---

Clicking the **Password** button on the screen shown in *Figure 9: Configure NetWare Server (Bindery PS mode)*, allows you to simultaneously change the NetWare password for the *Master File Server*, and the NetWare login password stored in the LevelOne Printer Server. (The LevelOne Printer Server must be able to login to the NetWare server.)

You will see a screen like the example below.



**Figure 14: NetWare Password (Bindery PS Mode)**

- Enter the old (NetWare) password, and enter the new password in both fields provided.
- If the printer object has been created by BiAdmin, the *Old Password* will be blank. In that case, leave this field empty.
- The new password will be saved both on the NetWare server and the LevelOne Printer Server.

## Print Server Mode - NDS

If *Print Server - NDS Mode* was chosen, the following screen will appear.

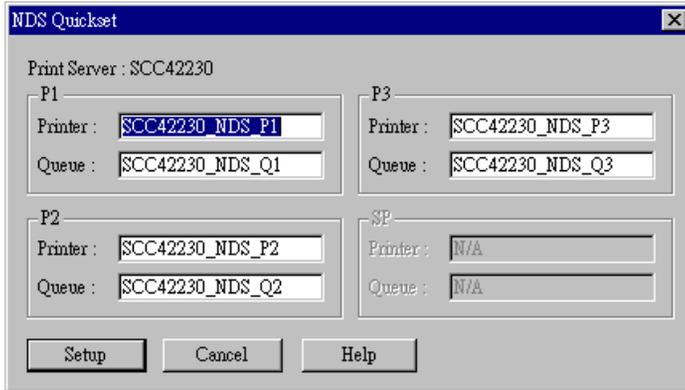
**Figure 15: NDS Print Server Mode**

Data	
<b>Print Server Name</b>	Change the name of the selected LevelOne Printer Server if you wish. (This field is also on the <i>Configuration-System</i> menu.)
<b>NDS Tree Name</b>	Select the File Server's NDS tree name (root name)
<b>Print Server NDS Context</b>	Select <i>Browse</i> to view the NDS tree and select the appropriate Context.
<b>Polling Queue Interval</b>	Defines how often the LevelOne Printer Server will poll the queues to be serviced.
<b>Job Notification by Connection ID</b>	Set to <i>Yes</i> to receive a job notification at only the workstation where the print job originated, <i>No</i> to receive a job notification at all workstations that you have logged on.
Buttons	
<b>NetWare Configuration</b>	Use this to configure the NetWare server. See the following section for details.
<b>Quickset</b>	This option will configure the NetWare server using default values. See below for details.
<b>Help</b>	View context-sensitive help.
<b>Set to Default</b>	Replace the on-screen values with the default values. These are NOT saved until you click <i>Save to Device</i> . (No changes are made to the NetWare server.)
<b>Save to Device</b>	Save any changes you have made to the LevelOne Printer Server
<b>Cancel</b>	Ignore any changes made since the last <i>Save</i> operation; close the window.

## Quickset Button (NDS)

The *Quickset* button on the screen above will configure the NetWare server with default values based on the default name of the LevelOne Printer Server.

You will see a screen like the following example.



**Figure 16: NDS Quickset**

Change the default values if you wish, then click *Setup* to create these objects on the NetWare server.

The configuration data will be saved to the NetWare server and the LevelOne Printer Server.

## NetWare Configuration Button (NDS)

Clicking this button will reveal the following screen.



**Figure 17: NetWare Configuration (NDS PS mode)**

The NetWare Print Server name is shown at the top of the screen.

The options available are:

- **Printer** - Create Printer Objects, assign Printer Queues, and assign users to Queues (Required). See the following section for details.
- **Operator** - Assign Operators to the NetWare Print Server object. (Optional)  
These operators will then have permission to manage the NetWare Print Server object. The screen is identical to *Figure 21: Assign Operators to Queue (NDS PS mode)*  
**Note:** Operator assignment has no effect on the LevelOne Printer Server. This facility is provided only for the convenience of NetWare administrators.
- **User** - Assign Users to the NetWare Print Server object. (Optional)  
These users will then be able to view the status of the NetWare Print Server object. This is optional; printing requires only that users be assigned to queues, not to the NetWare Print Server. The screen for assigning users to a NetWare Print Server is identical to *Figure 20: Assign Users to Queue (NDS PS mode)*

- **Password** - Change the login password used by the LevelOne Printer Server when it connects to the NetWare server. By default, there is no password. See *Password (NDS)* for details.

## Printer button

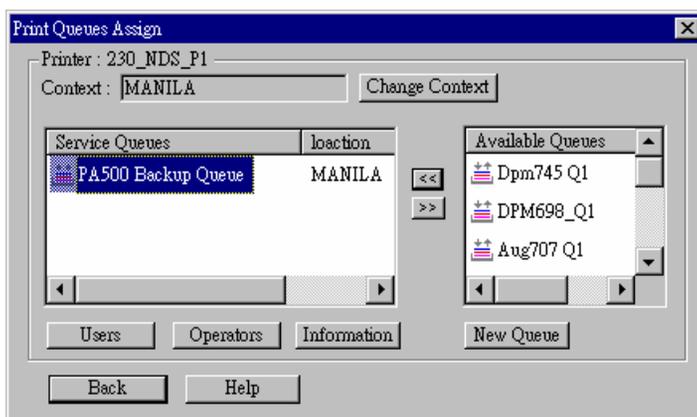
1. After selecting **Printer** above, the NetWare printer objects (1 for each port on the LevelOne Printer Server) will be created if they do not yet exist.
2. The next screen (shown below) allows you to select the desired port on the LevelOne Printer Server. This also selects the printer object. You can NOT change the printer object associated with the port.



**Figure 18: Select Printer Port (NDS)**

3. After clicking on the button for the desired port, you will see a screen like the following example. Use this screen to assign queue(s) to the printer object associated with the selected port.

## Assigning Printer Queues (Required)



**Figure 19: Assign Queues (NDS PS mode)**

This screen displays the current NetWare Printer Object at the top of the screen.

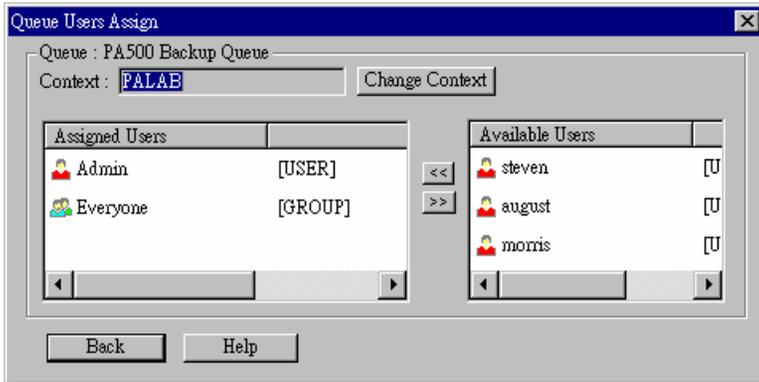
Queues serviced by the current Printer Object are listed on the left, and other queues (in the current context) on the right.

- Use the *Change Context* button to change the current context. The *Available Queues* list on the right will then change to show the queues available in that context.
- Create a new queue by clicking *New Queue*. Enter the new name, and select the desired context.
- Assign an existing queue by selecting a queue on the right, and clicking the “<<” button.

- Stop servicing a queue by selecting it from the list on the left, and clicking the “>>” button.
- When a Queue on the left is selected, the *Users*, *Operators*, and *Information* buttons become available.

### To Assign Users to Queues (Required)

Select on queue on the screen above, then click *Users* to see the following screen.



**Figure 20: Assign Users to Queue (NDS PS mode)**

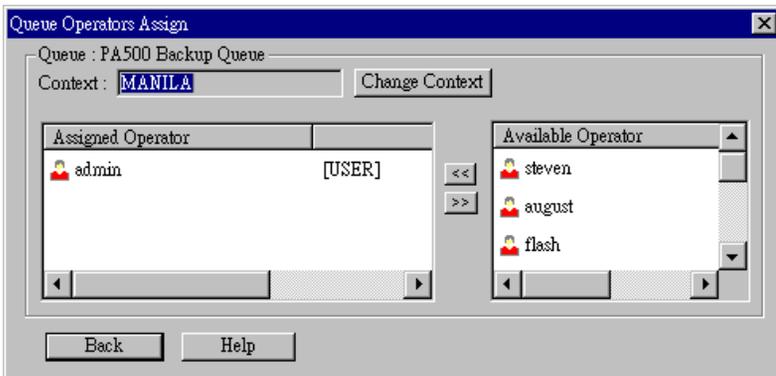
The screen allows you to assign users to the current queue. The current queue is displayed on the top of the screen.

- Use the *Change Context* button to change the current context. The *Available Users* list on the right will then change to show the users available in that context.
- Assign a user or group by selecting them on the right, and clicking the “<<” button.
- Remove an assignment by selecting the user or group from the list on the left, and clicking the “>>” button.

**Note:** If you select *User* from *Figure 17: NetWare Configuration (NDS PS mode)*, you will see a similar screen, which allows you to assign users to the Printer Object, rather than the Printer Queue.

### To assign operators to the Print Queue (Optional)

To assign Operators to the selected queue, select *Operators* from *Figure 19: Assign Queues (NDS PS mode)*. This step is optional; operator assignment has no effect on operation of the LevelOne Printer Server.



**Figure 21: Assign Operators to Queue (NDS PS mode)**

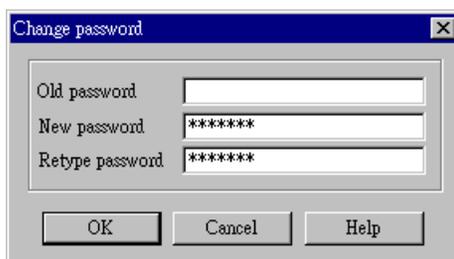
The current Queue and Context are displayed at the top of the screen.

- Use the *Change Context* button to change the current context. The *Available Operators* list on the right will then change to show the queues available in that context.
- Assign an operator by selecting them on the right, and clicking the “<<” button.
- Remove an assignment by selecting the operator from the list on the left, and clicking the “>>” button.

## Password (NDS)

Clicking the *Password* button on the screen shown in *Figure 17: NetWare Configuration (NDS PS mode)* allows you to simultaneously change the NetWare password for the *Master File Server*, and the NetWare login password stored in the LevelOne Printer Server. (The LevelOne Printer Server must be able to login to the NetWare server.)

You will see a screen like the example below.

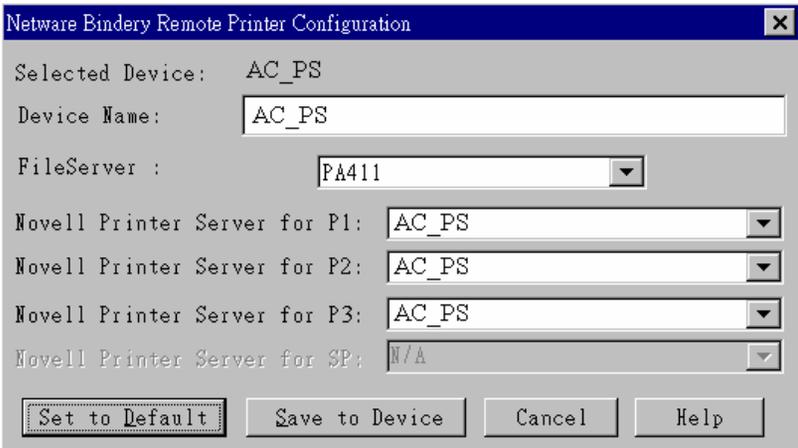


**Figure 22: NetWare Password (NDS PS Mode)**

- Enter the old (NetWare) password, and enter the new password in both fields provided.
- If the printer object has been created by BiAdmin, the *Old Password* will be blank. In that case, leave this field empty.
- The new password will be saved both on the NetWare server and the LevelOne Printer Server.

## Remote Printer Mode - Bindery

If, on the original screen, *Remote Printer Mode - Bindery*, was selected, the following screen will be shown.



**Figure 23: Bindery Remote Printer**

Data	
<b>Device Name</b>	Change the name of the selected LevelOne Printer Server if you wish. (This field is also on the <i>Configuration-System</i> menu.)
<b>File Server</b>	Select the NetWare File Server to service each port.
<b>Novell Printer Server for P1 (Parallel port 1)</b>	Select the NetWare print server to service the LevelOne Printer Server's parallel port 1.
<b>Novell Printer Server for P2, P3</b>	Select the NetWare print server to service the LevelOne Printer Server's parallel port 2 (P2), parallel port 3 (P3).
Buttons	
<b>Set to Default</b>	Replace the on-screen values with the default values. These are NOT saved until you click <i>Save to Device</i> . (No changes are made to the NetWare server.)
<b>Save to Device</b>	Save any changes you have made to the LevelOne Printer Server
<b>Cancel</b>	Ignore any changes made since the last <i>Save</i> operation; close the window.
<b>Help</b>	View context-sensitive help.

## Remote Printer Mode - NDS

If, on the original screen, *Remote Printer Mode - NDS* was selected, the following screen will be shown.

**Figure 24: NDS Remote Printer**

Data	
<b>Device Name</b>	Change the name of the selected LevelOne Printer Server if you wish. (This field is also on the <i>Configuration-System</i> menu.)
<b>NDS Tree Name</b>	Select the NDS tree
<b>Current Context</b>	Select <i>Browse</i> to view the NDS tree and select the appropriate Context.
<b>Novell Printer Server for P1 (Parallel port 1)</b>	Select the NetWare print server to service the LevelOne Printer Server's parallel port 1.
<b>Novell Printer Server for P2, P3</b>	Select the NetWare print server to service the LevelOne Printer Server's parallel port 2 (P2), parallel port 3 (P3).
Buttons	
<b>Set to Default</b>	Replace the on-screen values with the default values. These are NOT saved until you click <i>Save to Device</i> . (No changes are made to the NetWare server.)
<b>Save to Device</b>	Save any changes you have made to the LevelOne Printer Server
<b>Cancel</b>	Ignore any changes made since the last <i>Save</i> operation; close the window.
<b>Help</b>	View context-sensitive help.

## NDPS (NetWare 5)

### Overview

- The LevelOne Printer Server must first be configured as a valid device on your TCP/IP network. See *Chapter 7 - TCP/IP* for details.
- To use DNPS (Novell Distributed Printing Services), the Novell server must be running Novell NetWare 5, and the PCs (clients) must be running IntranetWare Client V2.2. or later.

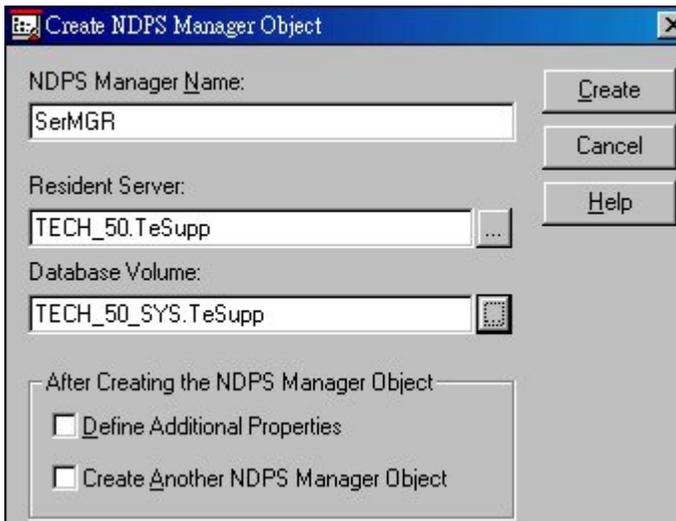
The following procedure is designed to enable **Public Access Printing** under DNPS, using TCP/IP. **Public Access Printing** allows anybody on the network to access the printer.

The procedure has 3 parts:

1. Create a NDPS Manager Object on the server.
2. Create a NDPS Printer Agent on the server.
3. Configure each workstations requiring access to the NDPS printers.

### Creating an NDPS Manager Object

1. Login to NetWare 5.0 Server as Admin and start the NetWare Administrator program Nwadmn32.exe
2. Select the container on NetWare Administrator where you want the NDPS Manager object to reside. (e.g. TeSupp)
3. Select *Create - Object* from the menu bar to view the *New Object* dialog.
4. Select *NDPS Manager* as the object to create. The *Create NDPS Manager Object* window shown below will appear.



**Figure 25: Create DNPS Manager Object**

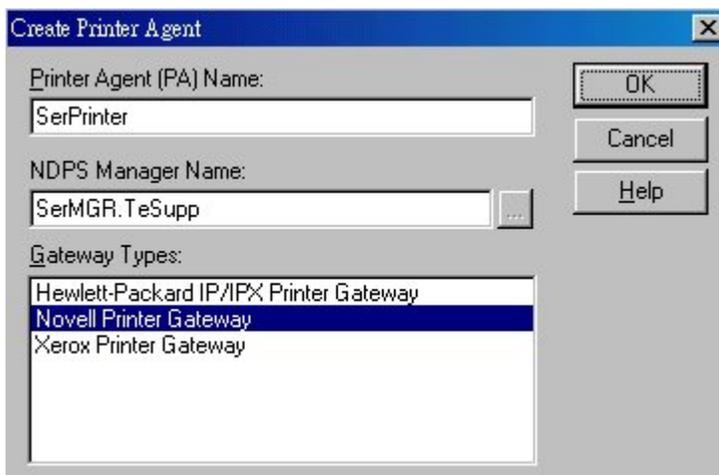
5. Type a name in the NDPS Manager Name.(e.g. SerMGR in Figure 1 above)
6. Browse the Resident Server and select where you want the DNPS Manager object to be assigned. (e.g. TECH\_50.TeSupp in figure 1 above)
7. Browse the Database Volume and select where you want the NDPS Manager database to be assigned. (e.g. TECH\_50\_SYS.TeSupp in figure 1 above)

8. Click **Create**. The new NDPS Manager will appear in the main browser window.
  - To start the NDPS Manager in future, enter the following command at the console:  
LOAD NDPSM  
then select the NDPS Manager object.
  - To start the NDPS Manager whenever you bring up the server, add a command like the following to your server's AUTOEXEC.NCF file:  
LOAD NDPSM SerMGR.TeSupp  
The last item is the name of the NDPS Manager object you wish to load.
9. After creating an NDPS Manager, you can create NDPS printers by using NetWare Administrator, as explained below

## Creating an NDPS Printer Agent

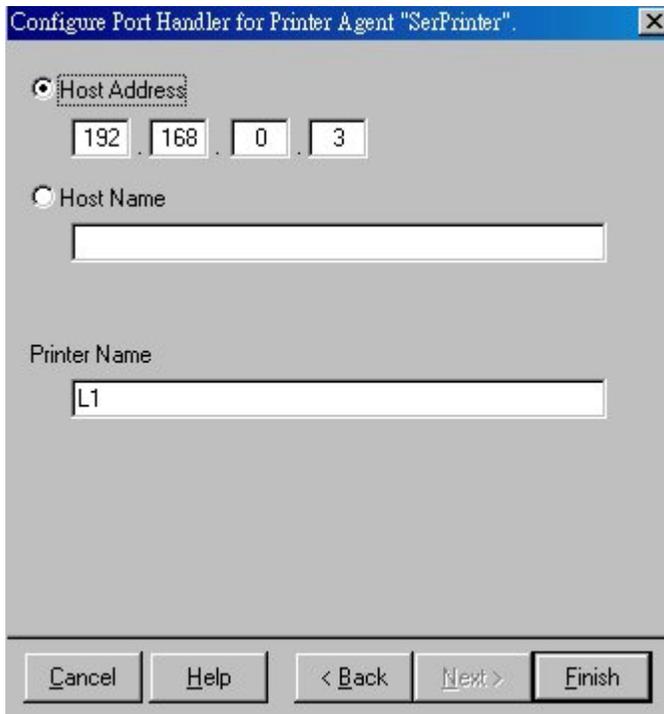
To create Public Access Printers using the NDPS Manager Object in NetWare Administrator, follow this procedure:

1. Start the NDPS Manager object you will be using to control the Printer Agent.
2. At the Identification page, click the Printer Agent List
3. Click New to see the *Create Printer Agent* window, as shown below.



**Figure 26: Create Printer Agent**

4. Enter the desired name for the *Printer Agent (PA) Name*
5. Normally, the *DNPS Manager* will be the NDPS Manger object you are using.
6. Select *Novell Printer Gateway* in the *Gateway Type* (see figure2 above)
7. Click *OK* and then select the available printer.
8. Select *Remote (LPR on IP)* in the *Connection Type*.
9. Click Next to see the following *Configure Port Handler* screen.



**Figure 27: Configure Port Handler**

10. In the *Host address IP* field, enter the IP Address previously assigned to the LevelOne Printer Server device.
11. In the *Printer Name* field, enter the Logical Port name on the LevelOne Printer Server. (e.g.: L1)
 

**Note:** For LevelOne Printer Servers with one parallel port, the logical ports are named L1, L2 and L3. For devices with three parallel ports, the logical ports are named L1 to L8.
12. Click *Finish*, then select appropriate drivers for Windows 3.1, Windows 95/98 and Windows NT 4.
13. The new Printer Agent will now appear in the Printer Agent List window

Repeat this procedure for any other ports on the LevelOne Printer Server, or for any other logical printers you wish to use.

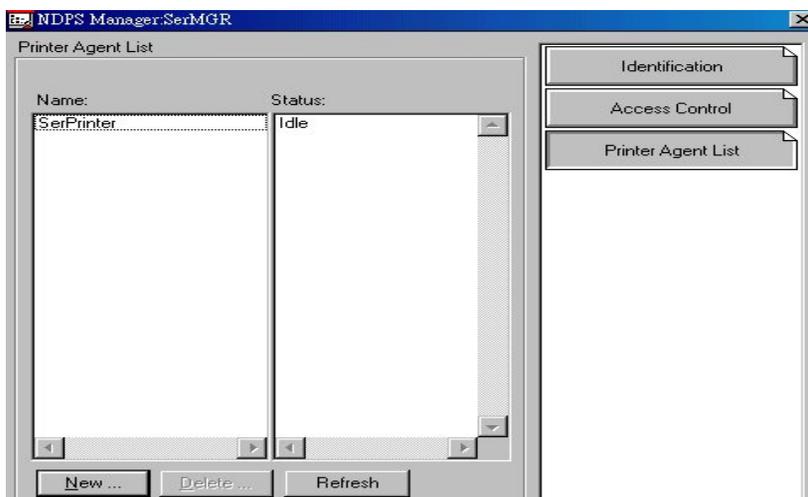
## Workstation Configuration

Before attempting to install and configure Public Access Printers on your workstation, ensure that:

- Novell IntranetWare Client v2.2 (or later) is installed on your PC
- You have access to the Novell Printer Manager utility (e.g. Nwpmw32.exe)

### Procedure

1. Start the Novell Printer Manager utility.
2. Select *Printer - New* from the menu, then click *Add*.
3. Select the required printer and click *Install*, then *Close*.



**Figure 28: NDPS Manager - Client**

4. The printer (e.g.: SerPrinter in the example above) appears in the main Printer Manager window in the *Name* list, and is available for print jobs. Printer drivers are automatically downloaded from the server as required.
5. The printer will appear in your Windows printer list, and may be used from by any Windows application.

*This chapter covers configuration of the LevelOne Printer Server in a TCP/IP environment.*

## Overview

- The following procedure can NOT be used with model EPS-3001TU. For this model, the **BiAdmin** utility program should be used for configuration. See *Chapter 4* for details on installing and using BiAdmin.
- If using TCP/IP in a Peer-to-peer printing environment, refer to *Chapter 10 - Windows Peer-to-peer*.
- This chapter covers configuration of the LevelOne Printer Server only. For host configuration, refer to *Chapter 8 - Unix* or *Chapter 9 - Windows NT Server*.

## Web Browser Configuration

LevelOne Printer Server models incorporate a HTTP server. This allows you to connect to the LevelOne Printer Server and configure it using your Web Browser. Most browsers should work, provided they support tables and forms.

## Preparation

Because it supports dynamic IP Address allocation using DHCP, BOOTP, or RARP, the LevelOne Printer Server ships with an IP Address of 0.0.0.0. This is NOT a valid IP Address.

Therefore, you must do ONE of the following:

- Check your **DCHP server** (if you have one), and determine the IP Address allocated to the LevelOne Printer Server.
- Use **BiAdmin** or another LevelOne Printer Server utility to allocate a valid IP Address to the LevelOne Printer Server.
- Add an entry to the **arp** table to associate the hardware address of the LevelOne Printer Server with the desired IP address, as follows:

```
arp -s IP_Address 00:c0:02:xx:xx:xx (Unix)
```

```
arp -s IP_Address 00-c0-02-xx-xx-xx (Windows)
```

Where:

IP\_Address is the IP Address you wish to assign to the LevelOne Printer Server  
00:c0:02:xx:xx:xx is the hardware address of the LevelOne Printer Server.

### Example (Unix):

```
arp -s 192.168.0.21 00:c0:02:12:34:56
```

### Example (Windows):

```
arp -s 192.168.0.21 00-c0-02-12-34-56
```

**Note:** The **Default Server Name** and the **Hardware Address** of the LevelOne Printer Server are shown on a sticker on the base of the device.

---

## Connecting to the LevelOne Printer Server

1. Start your Web Browser
2. In the *Address* box, enter *HTTP://* followed by the IP Address of the LevelOne Printer Server.  
e.g.  

```
http://192.168.0.21
```
3. You will then be prompted for the password. If no password has been set, just press ENTER.
4. Use the top menu bar to move about. Remember to save each screen before changing to a different screen.

## TCP/IP Configuration

Selecting *TCP/IP* will display the screen below.

Figure 29: TCP/IP Screen

### Data - TCP/IP Screen

<b>IP Address</b>	<p>The LevelOne Printer Server is able to obtain an IP Address dynamically, using DHCP, Bootp, or rarp. Normally, it will check these methods in sequence, but each method can be individually disabled using <b>BiAdmin</b>. (See Chapter 4). For more details on using Boop or rarp, refer to <i>Chapter 8 - Unix</i>.</p> <ul style="list-style-type: none"> <li>• To use a dynamic IP Address leave the IP Address here at 0.0.0.0.</li> <li>• To use a fixed (static) IP Address, enter an unused IP Address from the IP Address range used your LAN (or LAN segment, if routers are installed).</li> </ul>
<b>Router (Gateway) IP Address</b>	<p>If your network segment has a router, enter the router address here. If there is no router, leave the address as 0.0.0.0.</p>
<b>Network Mask</b>	<p>If the Router is 0.0.0.0, the Network Mask should also be left at 0.0.0.0. If you have a router, enter the Network mask (Subnet mask) for the segment to which the LevelOne Printer Server is attached.</p>
<b>Delay before reconnection attempts</b>	<p>Sets how long the LevelOne Printer Server should wait before retrying a TCP/IP connection which is lost. Allowable values are from 0 to 255 seconds, with 2 as the default.</p>
<b>Number of reconnection attempts</b>	<p>Sets how many attempts at reconnection will be made. After that, the TCP/IP session will be terminated. Allowable values are from 0 to 255, with 254 as the default.</p>

## Logical Printer Configuration

Logical Printers can be used to create a “Virtual” printer. For example, to create a Landscape printer, you could define a Logical Printer as follows:

- Pre-string**     Printer Control codes to switch the printer to Landscape mode
- Post-string**    Printer Control codes to reset the printer, restoring the default settings.

Another logical printer could be used to print Unix-format text files for a DOS printer, by converting Unix-style LF (Line Feeds) to DOS-style LF/CR (Line Feed, Carriage Return) pairs.

The LevelOne Printer Server supports 8 Logical Printers. The names (L1..L8) cannot be changed. Each Logical Printer has 4 settings as shown below.

### Logical Printer Setup Data

<b>Physical Port</b>	LevelOne Printer Server parallel port (P1 to P3) to which the printer is attached.
<b>String Before Job</b>	The printer control string (in hex) to be sent to the printer before each print job.
<b>String After Job</b>	The printer control string (in hex) to be sent to the printer after each print job.
<b>Convert LF to CR+LF</b>	If ON, LF (line feed) characters are changed to CR+LF (carriage return + line feed). If OFF, no conversion is done.



*Note!* The maximum size of printer control strings is 15 characters, and they must be entered in HEX.

## Other Screens

Other screens which may be useful in a TCP/IP environment:

- **Configure Server** - Change the LevelOne Printer Server name, password, and disable network protocols not used on your LAN.
- **SNMP** (Simple Network Management Protocol) - Configure the LevelOne Printer Server for use with SNMP Programs. *See Chapter 11- Special Features* for details.
- **Server Status** - Check the current settings of the LevelOne Printer Server.
- **Printer Port** - Check the status of the printers attached to the LevelOne Printer Server.

## Telnet

Telnet can be used to monitor the status of the printers attached to the LevelOne Printer Server.

### Operation

Establish a connection to the LevelOne Printer Server, by starting your Telnet program and providing the IP Address of the LevelOne Printer Server. (No port number is required.)

e.g. `telnet 192.168.0.21`

The LevelOne Printer Server will respond with "Welcome to Print Server". From the resulting prompt, 3 commands are possible:

- **Help:** Show brief help
- **Monitor:** show printer status
- **Exit:** leave telnet

The Monitor command will show the status of the printer on each port., as shown below. The display is updated once per second.

```
(P1)STATE: Idle
TYPE: Parallel
PRINTER STATUS: Out Of Paper

(P2)STATE: Printing
TYPE: Parallel
PRINTER STATUS: On-Line
BYTES SERVICED:      75264
OCCUPIED BY: LPD

(P3)STATE: Idle
TYPE: Parallel
PRINTER STATUS: Idle
```

*This chapter describes using your LevelOne Printer Server in the Unix environment.*

## Overview

### Software Requirements

- TCP/IP protocol, FTP (Optional: - BOOTP, Rarp, Telnet)
- LPD printing system (for LPD printing)
- C Compiler (for PSfilter proprietary printing system only).

## IP Address Configuration

The LevelOne Printer Server must be provided with a IP Address so that it will be a valid device on the LAN. This can be done using either *Static* or *Dynamic* IP Address configuration.

### Procedure

1. Login to the UNIX host as root.
2. Connect to the LevelOne Printer Server and configure it with your Web browser, as explained in *Chapter 7 - TCP/IP*. Note the following points:
  - If using static IP Addresses, you will need to add an entry to your arp table, as described in Chapter 7.
  - If using bootp or rarp, the Unix host must be configured as explained in the following section, before you can connect to it.
3. Add an entry for the LevelOne Printer Server to the /etc/hosts file. This will allow you to address the LevelOne Printer Server by name, rather than by IP Address. The line in the hosts file looks like the following:

```
IP_Address NAME # comment
```

Where:

*IP\_Address* is the IP address for the LevelOne Printer Server. This address **must match** the address stored in the device.

*NAME* is the LevelOne Printer Server's name. This **must match** the name stored in the device.

*# comment*. Add the *Default Server Name* as a comment. The *Default Server Name* is shown on a sticker on the base of the device.

Example:

```
192.10.2.54 PS_Rm203 #Default name PS123456
```

In the example above, PS123456 is assigned the IP address 192.10.2.54 and the name "PS\_Rm203".

4. Check the IP Address using the **ping** command:

```
ping NAME
```

You should receive a response. If you get a *Timeout* message, the above procedure has failed.

## Using BOOTP

If using bootp, no arp table entry is necessary, but the following configuration is required:

1. Add the following entry to the Boot Table `/etc/bootptab`

```
NAME:ht=ether:vm=rfc1024::ha=PA:ip=IP:sm=SM:gw=GW
```

Where

*NAME* is the LevelOne Printer Server's name

*PA* is the hardware address of the LevelOne Printer Server

*IP* is the LevelOne Printer Server's IP Address

*SM* is the Subnet Mask

*GW* is the Gateway IP Address

2. If it is not running, start the bootp daemon (the usual command is `bootpd`) and reset the LevelOne Printer Server. It will then acquire an IP Address using bootp.

## Using RARP

If using rarp, no arp table entry is necessary, but the following configuration is required:

1. If the rarp daemon is not running, start it with the command:

```
rarpd -a
```

2. Add a line to the Ethernet Address table `/etc/ethers`

```
00:c0:02:xx:yy:zz NAME
```

Where

*00:c0:02:xx:yy:zz* is the hardware address of the LevelOne Printer Server

*NAME* is the name of the LevelOne Printer Server.

3. Reset the LevelOne Printer Server. When it reboots, it should acquire an IP Address from rarp.

## Printing Methods – Overview

There are 4 printing methods to choose from. All are explained in the following sections. Select whichever is the most convenient in your environment.

### LPD

LPD is a standard print method for most UNIX systems. Using this method eliminates the need to install additional host software. However, in many cases the LPD protocol sends out the data file before the control file. The LevelOne Printer Server will print the data file immediately, ignoring any print options set in the control file. To solve this problem, use PSfilter instead.

### Direct Socket Interface

The Direct Socket Interface (DSI) is a Unix-based method of providing a “direct” connection between a host computer and a printer. The host and the LevelOne Printer Server establish a TCP connection, using a special socket number. All data sent over this connection is treated as print data, and sent transparently to a logical printer defined on the LevelOne Printer Server.

### PSfilter

PSfilter is a proprietary print method provided with the LevelOne Printer Server as “C” source code. The benefit of this method is that it provides many print options such as banner print, copies, and so on. For details, see page 51.

## FTP (File Transfer Protocol)

FTP is also a standard print method in most UNIX systems, but it is NOT recommended except as a test and back-up method of printing, because it does not use a print queue.

## LPD Printing Configuration

LPD is a built-in printing protocol for most UNIX systems, and is also supported in Windows NT 3.5 or later.

### LPD on IBM AIX 4.15

Before proceeding, ensure that the LevelOne Printer Server has been assigned an IP Address. To setup your AIX system for LPD printing, perform the following steps.

1. Add the LevelOne Printer Server to `/etc/hosts.lpd`, using the name you assigned to the LevelOne Printer Server.
2. Start the LPD daemon if it is not running, using the following command:  
`start src -s qdaemon`
3. Start the system administration tool **smit** and select *Print Spooling*
4. Create the required number of queues (one for each logical printer) by selecting:
  - Add a Print Queue
  - Remote (Printer attached to Remote Host)
  - Standard Processing
5. Use the following information:

<b>Name of queue to add</b>	Use a single-word queue name which indicates which printer is attached.
<b>Hostname for remote server</b>	LevelOne Printer Server name as used in <code>/etc/hosts.lpd</code> .
<b>Name of queue on remote server</b>	Logical printer number (L1..L8) to service this queue.
<b>Type of print spooler on remote server.</b>	Use default value (AIX Version xxx)

6. Ensure that the logical printers are configured in the LevelOne Printer Server. Refer to *Chapter 7 - TCP/IP* for details.
7. Print using the following command:  
`lp -d printer_queue file_name`

Where

*printer\_queue* is one of the entries used in *Name of queue to add*.

*file\_name* is the file you wish to print.

## LPD on System V

Before beginning LPD Setup, ensure that an IP Address has been assigned to the LevelOne Printer Server. Keep the following points in mind:

- The **remote host name** is the name of the LevelOne Printer Server.
- The **remote printer name** is the print queue name for the Logical Printer. Logical printers also need to be configured on the LevelOne Printer Server itself. (See ).
- If your UNIX asks for the LPD type, be sure to identify the service type as BSD. The LevelOne Printer Server's LPD protocol meets BSD system standards.
- In the sample commands shown, *printer\_name* is the name of the Print Queue serviced by the LevelOne Printer Server, and *Spooler\_directory* is the name of the directory used to spool the print jobs.

### Procedure

Action	Sample Command
Stop Print Services	<code>/usr/lib/lpshut</code>
Add a System Printer	<code>/usr/lib/lpadmin -p <i>printer_name</i> -v /dev/null</code>
Restart the Print Services	<code>/usr/lib/lpsched</code>
Enable printing to the new printer device	<code>enable <i>printer_name</i></code>
Start accepting jobs for the new printer device	<code>accept <i>printer_name</i></code>
Create a spooling directory	<code>mkdir /usr/spool/<i>Spooler_directory</i></code>
Make spooling daemon the owner of this directory	<code>chown daemon /usr/spool/<i>Spooler_directory</i></code>
Create read/write permissions	<code>chmod 775 /usr/spool/<i>Spooler_directory</i></code>
Give permissions to LPD processes.	<code>chgrp daemon /usr/spool/<i>Spooler_directory</i></code>
Add remote printer(s)	See following section.

### Adding Remote Printers

A remote printer is added by inserting the following line in the `/etc/printcap` file.



*Note!*

The entry is really one line, but can be entered as shown. Use a TAB character where shown.

```
printer_name | Remote_Printer_Alias:\
[ TAB ] :lp=: \
[ TAB ] :rm=PS_NAME: \
[ TAB ] :rp=Logical_Printer_name: \
[ TAB ] :sd=Spooler_directory: \
[ TAB ] :mx#0:
```

Where:

- printer\_name* is the Print Queue name used to store jobs for the corresponding logical printer
- PS\_NAME* is the LevelOne Printer Server name defined in /etc/hosts
- Logical\_Printer\_name* is the logical printer name on the LevelOne Printer Server (L1..L3 or L1..L8, depending on your model)
- Spooler\_directory* is the directory you created in Step 6.

Example:

```
Marketing|RP1_PS123456:\
[ TAB ] :lp=\
[ TAB ] :rm=PS_Rm203:\
[ TAB ] :rp=L1:\
[ TAB ] :sd=/usr/spool/Marketing:\
[ TAB ] :mx#0:
```

Repeat this process for each Logical Printer/Print Queue combination that you wish to create.

## LPD on BSD

Before continuing, ensure that an IP Address has been assigned to the LevelOne Printer Server. Remember the following:

- The **remote host name** is the name of the LevelOne Printer Server.
- The **remote printer name** is the logical printer (L1..L3, or L1..L8) on the LevelOne Printer Server.
- If asked for the LPD type, enter the service type as BSD.
- In the sample commands shown, *printer\_name* is the Print Queue serviced by the logical printer on the LevelOne Printer Server, and *Spooler\_dir* is the name of the directory used to spool the print jobs.

### Procedure

Action	Sample Command
Create a spooling directory	<code>mkdir /usr/spool/<i>Spooler_dir</i></code>
Set spooling daemon as owner of this directory.	<code>chown daemon /usr/spool/<i>Spooler_dir</i></code>
Create read/write permissions.	<code>chmod 775 /usr/spool/<i>Spooler_dir</i></code>
Give permissions to LPD processes.	<code>chgrp daemon /usr/spool/<i>Spooler_dir</i></code>
Add remote printer(s)	See below.
Start lpc print mechanism	<code>lpc start <i>printer_name</i></code>

## Adding Remote Printers

A remote printer is added by inserting the following line in the `/etc/printcap` file.



The entry is really one line, but can be entered as shown. Use a TAB character where shown.

```
printer_name | Remote_Printer_Alias:\
[ TAB ] :lp=: \
[ TAB ] :rm=PS_NAME:\
[ TAB ] :rp=Logical_Printer_name:\
[ TAB ] :sd=Spooler_directory:\
[ TAB ] :mx#0:
```

Where:

*printer\_name* is the Print Queue name used to store jobs for the corresponding logical printer

*PS\_NAME* is the LevelOne Printer Server name defined in `/etc/hosts`

*Logical\_Printer\_name* is the logical printer name on the LevelOne Printer Server (L1..L3 or L1..L8)

*Spooler\_directory* is the directory you created in Step 6.

Example:

```
Marketing | RP1_PS123456:\
[ TAB ] :lp=: \
[ TAB ] :rm=PS_Rm203:\
[ TAB ] :rp=L1:\
[ TAB ] :sd=/usr/spool/Marketing:\
[ TAB ] :mx#0:
```

Repeat this process for each Logical Printer/Print Queue combination that you wish to create.

## Printing using LPD

For LPD printing instructions, refer to your UNIX manual. The following example is for a BSD system:

```
lpr -P printer_name filename
```

Where:

*printer\_name* is the name of the Print Queue defined on the Unix host.

*filename* is the name of the file you wish to print.

Example:

```
lpr -P Marketing /etc/hosts
```

In the above example, the `/etc/hosts` file is sent to the printer queue Marketing. It will then be sent to the logical printer associated with this queue.

## Other Printing Methods

Your LevelOne Printer Server supports 2 other printing methods:

- DSI (Direct Socket Interface)
- PSfilter (Proprietary print method)

### Printing Using DSI

Logical printers must be configured on the LevelOne Printer Server as explained in *Chapter 7 - TCP/IP* (DSI supports only 3 Logical Printers).

Socket numbers are defined as follows:

Logical Printer No.	Socket No.
1	4010
2	4020
3	4030

### Printing Using PSfilter

PSfilter is a proprietary print method provided with the LevelOne Printer Server as “C” source code. It provides many print options. To use PSfilter, a C compiler and Socket Library must exist on the host so that `psfilter.c` can be compiled to an executable file.

The PSfilter program is shipped in source code as `psfilter.c`. Detailed instructions for installing, configuring, and using PSfilter are provided in the following files. These files, along with `PSfilter.c`, are stored on the CD-ROM in the following directories:

PS\driver\lpti\lpsource (text format)

PS\driver\lpti\tar (tar format)

Operating System	Filename
SCO UNIX System V Release 3	SCO.TXT
HP UXIX on HP workstation	HP.TXT
Sun 5.x on Sun SPARC workstation	SUN5.TXT
Sun 4.x on Sun SPARC workstation	SUN4.TXT
AT&T UNIX SV Release 4	SVR4.TXT
DEC/OSF1	DECOSF1.TXT
IBM AIX	AIX.TXT
UNIXWare	UNIXWARE.TXT



**Note!** If your system is not listed above, do not attempt to use the PSfilter method of printing.

# Windows NT Server (TCP/IP)

*This chapter explains how to configure and use your LevelOne Printer Server in the Windows NT Server TCP/IP environment.*

## Software Requirements

- Windows NT3.51 or later
- TCP/IP network protocol
- TCP/IP remote printing system (provided with Windows NT; configuration is described in this document).

## LevelOne Printer Server Configuration

**Note: The LevelOne Printer Server should be configured FIRST.**

Refer to *Chapter 7 - TCP/IP* for details on configuring the LevelOne Printer Server. It must have a valid IP Address.

Note that if you have a DHCP server, the LevelOne Printer Server is assigned an IP Address of 0.0.0.0. It will then obtain an IP Address from the DHCP server. But using DHCP is only feasible if you have DHCP management software which allows you to take advantage of this feature. Otherwise, the LevelOne Printer Server's IP Address will be unknown, and connection to it will be impossible. In this case, configure the LevelOne Printer Server for a static IP Address.

## Windows NT Host Configuration

This section covers configuration of a Windows NT host. The LevelOne should be configured first. For Windows NT configuration in a Peer-to-Peer environment, see *Chapter 10 - Windows Peer-to-Peer*.

### Host File Entry (Optional)

If you wish to refer to the newly-installed LevelOne Printer Server by its name, rather than by its IP Address, you must add an entry for it to the hosts file

```
\SYSTEM32\DRIVERS\ETC\HOSTS
```

The entry consists of the following line:

```
xxx.xxx.xxx.xxx Name
```

Where **xxx.xxx.xxx.xxx** is the IP Address you assigned to the LevelOne Printer Server and **Name** is the LevelOne Printer Server's name. This should match the name stored in the LevelOne Printer Server itself. If you have not changed the name, use the *Default Server Name* shown on a sticker on the base of the device.

You can check that this has worked using the **ping** command, as follows:

```
ping Name
```

Where *Name* is the value used in the host file.

You should receive a response. If you get a *Timeout* message, there is a problem. If you repeat the command using the *IP Address* instead of *Name*, and get a response, then the problem is the entry in the host file.

## Preparing for TCP/IP Printing

To create a TCP/IP remote printer, Microsoft *TCP/IP Printing Support* must be installed. If it is already installed, proceed to **Adding a TCP/IP Remote Printer**. Otherwise, the procedure to install TCP/IP printing support is as follows.

### Windows NT 3.51

---

1. Start the *Network* option in Control Panel. When the Network Settings dialog box appears, click the *Add Software* button to display the *Add Network Software* dialog box.
2. Select *TCP/IP Protocol And Related Components* in the Network Software list box, and then click the *Continue* button.
3. In the *Windows NT TCP/IP Installation Options* dialog box, check the *TCP/IP Network Printing Support* option.
4. Click the *OK* button. Windows NT Setup will display a message asking for the full path to the Windows NT distribution files. Provide the appropriate location and click the *Continue* button. All necessary files will be copied to your hard disk.
5. If you did not check the *Enable Automatic DHCP Configuration* option in the *Windows NT TCP/IP Installation Options* dialog box, you must complete all the required TCP/IP configuration procedures manually.
6. After you finish configuring TCP/IP, the *Network Settings* dialog box will reappear, click the *Close* button and then restart your computer for the changes to take effect.

### Windows NT 4.0

---

1. Go to Start-Settings-Control Panel-Network.
2. Click the *Service* option and ensure that **Microsoft TCP/IP Printing** is enabled. If it is not enabled, select the *Add* option and enable it as usual.
3. If you added services in step 2, reboot the computer for the changes to take affect.

## Adding a TCP/IP Remote Printer

### Windows 3.51

---

1. From the *Printer* menu in **Print Manager**, select *Create Printer*
2. In the resulting dialog box, enter data as follows:

<b>Printer Name</b>	Enter a name (up to 32 characters). This name appears in the title bar of the printer window.
<b>Driver</b>	Select the appropriate driver for the attached printer.
<b>Description</b>	Enter a printer description for other network users to reference.
<b>Print To</b>	Select <i>Other</i> .

3. A *Print Destinations* dialog box will appear after selecting *Other*. In the *Available Print Monitor* list, select *LPR Port*, then *OK*.
4. An *Add LPR compatible printer* window will appear. Enter data in the fields as follows:

<b>Name Or Address Of Host</b>	Enter the IP address of the LevelOne Printer
--------------------------------	--

---

<b>Providing LPD</b>	Server
<b>Name Of Printer On That Machine</b>	Enter the appropriate logical printer number (L1..L8)

---

5. When the *Create Printer* dialog box reappears, check the *Share This Printer On The Network* option.
6. In the *Share Name* box, Printer Manager creates a MS-DOS compatible resource name, which you can change if you wish. In the *Location* box, you can enter information concerning the printer location.  
Network users will see this information when browsing to find this printer.
7. Complete any other configuration information in the *Create Printer* dialog box.

## Windows NT 4.0

---

1. Go to Start-Settings-Printer and invoke the Add Printer wizard.
2. When prompted with *This printer will be managed by*, select **My Computer** and click Next.
3. Select **Add Port...**, then select **LPR Port** and click **New Port**.
4. In the *Name of Address of server providing lpd:* dialog box, enter the LevelOne Printer Server's IP address.
5. In the *Name of printer or print queue on that server* dialog box, enter the appropriate logical printer number (L1..L8) as previously configured on the LevelOne Printer Server.
6. Click *OK*. When returned to the *Printer Ports* window, select *Close* and then install your printer driver as usual.
7. When prompted whether or not the printer will be shared, select the **Sharing** radio button
8. In the *Shared* dialog box, enter the shared printer name. The shared name is how other users will see this printer.

## Printing with Windows NT

### Windows Applications

The LevelOne Printer Server's printers will appear as *Network Printers* to users on the LAN.

- To install the printer on each PC, use the *Add Printer* wizard. Select *Network Printer* when prompted, and then select the appropriate destination.
- To print a file from an application, select the remote printer as the destination, and print the file as usual.

### Command Line

To print a file from the command prompt, type:

```
lpr -S NT_Host -P printer_name file_name
```

Where:

*NT\_Host* is the name of the NT host on which the remote printer is configured.

*printer\_name* is the name assigned to the remote printer

*file\_name* is the name of the file you wish to print.

To check the print status, type:

```
lpq -S NT_Host -P printer_name
```

# Windows Peer-to-Peer

*This chapter describes operation in a Windows Peer-to-Peer Networking environment.*

## Overview

In a peer-to-peer environment, each PC communicates directly with the LevelOne Printer Server.

The LevelOne Printer Server supports both NetBEUI and TCP/IP. Both protocols can be used simultaneously.

The following Windows versions are supported:

- Windows 95/98 or ME.
- Windows NT 4.0, Windows 2000 or XP

## Setup

Before performing the following procedure, the LevelOne Printer Server must be installed on your LAN. Both the LevelOne Printer Server and the attached printer should be powered ON.

1. Run the **SETUP** program in the **PS\Driver\ptp\_95nt** folder on the CD-ROM.
2. Choose the User option in the "Setup Type" screen. This will install the Peer-to-peer Print Driver.
3. Follow the prompts to complete the installation.
4. The Print Driver Setup will then run.
5. The LAN will be searched for LevelOne Printer Servers, and a screen like the following will be displayed.
  - If desired, change the Workgroup name and click *Refresh*.
  - Select *List all Print Servers* to list all LevelOne Printer Servers, regardless of Workgroup.
  - The name of the attached printer will be displayed if possible. If "No printer" is displayed, check that the printer is properly connected and powered on.

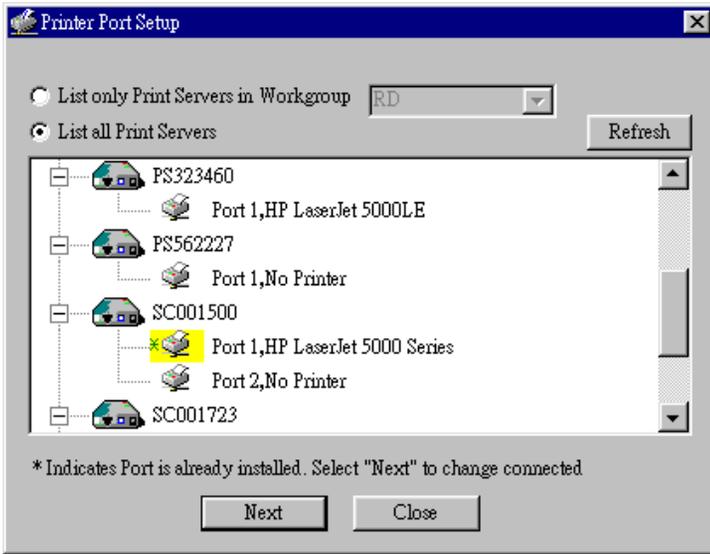


Figure 30: Add Port (Peer-to-peer Print Driver)

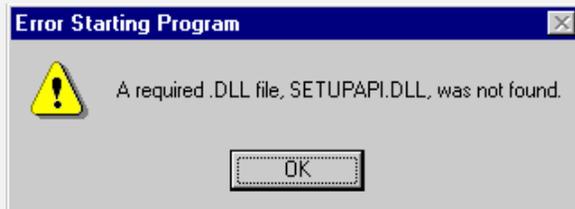
**If your LevelOne Printer Server is not listed:**

- Select "List all Print Servers", and click the "Refresh" button.
- Check that both the LevelOne Printer Server and the printer are properly connected, and powered on.
- Make sure the LevelOne Printer Server has been configured.
- If using TCP/IP, try installing the NetBEUI protocol. Then uninstall and re-install the *Peer-to-peer Print Driver*.

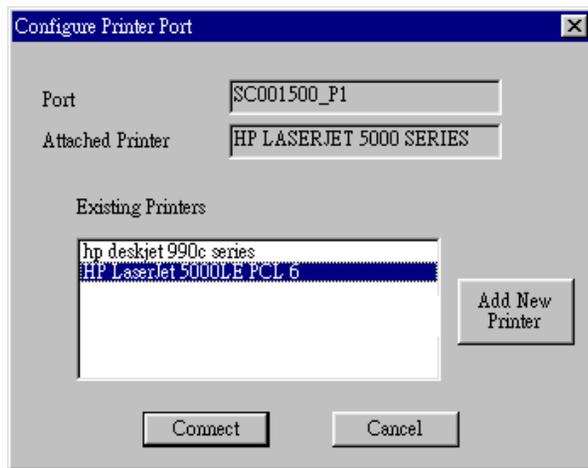
6. Select the desired printer port, and then click the "Next" button. A pop-up message will inform you if the port has been created successfully.



**If you see the following error message, you need to install Internet Explorer 4 or later.**



7. Then a screen like the following will be displayed:



**Figure 31: Configure Printer Port**

8. Select the correct Windows printer in the Existing Printers list, and click the "Connect" button.

If the correct printer type is not listed, click "Add New Printer" to run the Windows Add Printer wizard. Step through the Wizard and install the required printer:

- Select the correct Printer Manufacturer and Model, or use the "Have Disk" option if appropriate.
  - We recommend changing the Printer name to indicate which device is on. (e.g. HP2100 on SCA43600\_P1)
  - If prompted about Sharing the printer, do NOT enable Sharing.
  - When the Printer installation is finished, it will be listed in the *Configure Printer Port* screen above. Select it and click "Connect".
9. Installation is now complete. You can now print using this printer.
    - To install additional Printers, repeat steps 6 to 8.
    - Use the **Start** menu to run this program in future. The default installation is *Start - Programs - Print Server Utility - Print Server Setup*.

## Management

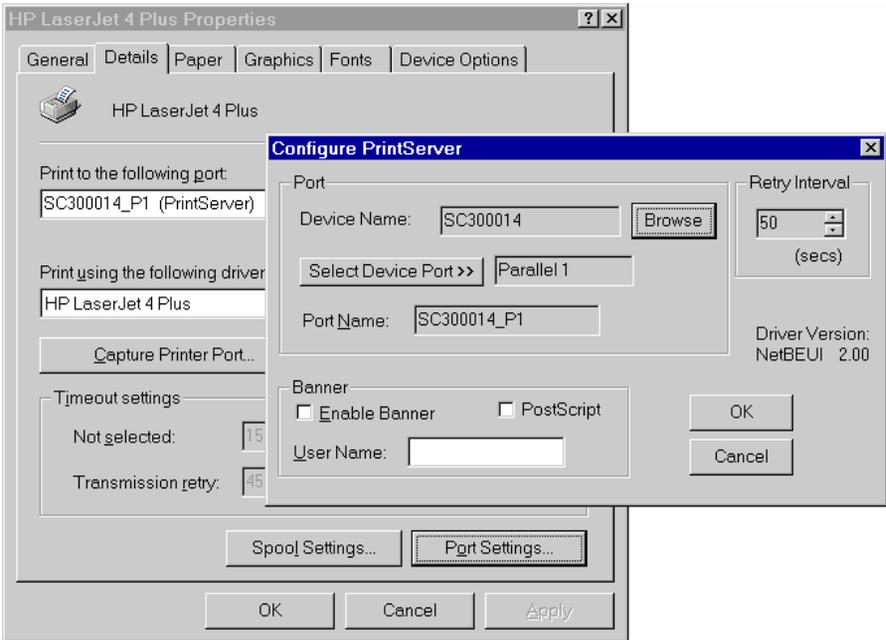
- Print jobs can be managed like any Windows printer. Open the *Printers* folder (*Start - Settings - Printers*) and double-click any printer to see the current print jobs.
- If the printer attached to the LevelOne Printer Server is changed, just run this program again, and select the correct printer.
- To delete a port created by this setup program, use the Windows *Delete Port* facility:
  - Right-click any printer in the *Printers* folder, and select *Properties*.
  - Locate the *Delete Port* button. This button is on the *Details* or *Ports* tab, depending on your version of Windows.
- If the LevelOne Printer Server's IP Address is changed, and you can no longer print, delete the port (see procedure above) and re-install it.

## Port Options

The options for the *Peer-to-peer Print Driver* are accessed via the *Port Settings* button.

Use *Start - Settings - Printers* to open the Printers folder, then right-click the Printer, and select *Properties*. The *Port Settings* button is on the *Details* or *Ports* tab, depending on your version of Windows.

An example screen is shown below:



**Figure 32: Port Settings (Peer-to-peer Driver)**

Items shown on this screen are as follows:

<b>Port</b>	<p>If desired, click <i>Browse</i> to select a different LevelOne Printer Server. If the selected device has multiple ports, the <i>Select Device Port</i> button can be used to select the port.</p> <p>The <i>Port Name</i> can not be changed after installation. This name is shown in the Printer's <i>Properties</i>.</p>
<b>Banner</b>	<p>Check this option to print a banner page before each print job.</p> <ul style="list-style-type: none"> <li>• If using a PostScript Printer, check the <i>PostScript</i> box.</li> <li>• The <i>User Name</i> will be printed on the banner page.</li> </ul>
<b>Retry Interval</b>	<p>Sets how often Windows will poll the LevelOne Printer Server to establish a connection when the printer is busy. Increase this value if you get too many warning messages.</p>

# Special Features

*This chapter covers the special features of the LevelOne Printer Server.*

When using the TCP/IP protocol, the LevelOne Printer Server supports 2 special features:

- Internet Printing
- SNMP

## Internet Printing

### Overview

The Internet Printing System allows users (employees, colleagues, suppliers, customers...) to print data to your printer across the Internet.

Users send the Internet LevelOne Printer Server an E Mail, with the print job normally sent as an attachment to the E Mail.

The LevelOne Printer Server will retrieve the E Mail and print it, using the printer attached to port 1.

### System Requirements

#### Mail Server

- **Accessibility.** The Mail Server must be accessible by the intended clients or users. Normally, this means a permanent connection to the Internet.
- **Protocols.** The Mail Server must support the POP3 and SMTP protocols. The Internet Printing System uses these protocols and the most common E Mail formatting standards:
  - MIME (Multipurpose Internet Mail Extensions)
  - Base64 Encoding (for mail attachments)

## Internet Printer Server

- **TCP/IP Protocol.** The LAN must use the TCP/IP protocol.
- **Mail Server Access.** The LevelOne Printer Server must be able to access the Mail Server using a single IP address.
- **Mail Account.** The LevelOne Printer Server must have a Mail Account. Users print by sending an E Mail to this mail account.

## User (Client) Requirements

- **Internet Connection.** Either through a LAN, or dial-up.
- **E Mail address.** This is used to notify the user that their print job has been done, or if there are any problems.
- **Printer Driver.** Users must have a printer driver which matches the printer connected to the remote Internet Printer Server.
- **Print Capture Software.** To print more than plain text, users require InterNet Printing Port software to capture the print job and convert it into an E Mail attachment. The InterNet Printing Port software is available for the following operating systems:
  - Microsoft Windows 95/98
  - Microsoft Windows NT 3.51 or later.

## Internet Mail Printing Configuration

The LevelOne Printer Server must be configured with the data in the following table. This can be done with either the supplied **BiAdmin** utility program (see Chapter 4) or your Web Browser (see Chapter 7).

<b>Mail Server IP Address</b>	The IP Address of the E Mail Server used by the LevelOne Printer Server.
<b>Mail Account</b>	The name of the E Mail Account used by the LevelOne Printer Server.
<b>Mail Account Password</b>	Enter the password for the above Mail Account here.
<b>Check Mail Interval</b>	Sets how often to check for mail. Values range from 0 to 65,535 minutes, with 0 meaning a continuous connection and 1 as the default.
<b>Print Banner</b>	If YES (default), a banner page is printed to identify the owner of the print job.
<b>Redirect Mail Account</b>	Jobs which can not be printed will be sent to this account. If blank, unprintable jobs will be discarded.
<b>Default Printer Number</b>	Printer number for all Internet print jobs. Only one port can be selected. Users on the LAN can also use this port.
<b>Print every E-Mail</b>	If ON, then all E Mail received is printed. Otherwise, only E Mail from the InterNet Printing Port will be printed.
<b>Activate Response Mail</b>	If YES, all print jobs receive an E mail response. If NO, only users who set this option in their InterNet Printing Port software receive an E Mail
<b>Printer Model ID String</b>	This text field identifies the printer used for Internet printing. This value is sent to remote users upon request.

## User Software

The software provided for remote users (InterNet Printing Port) should be installed by everyone intending to use Internet printing. Otherwise, remote users can print correctly only if:

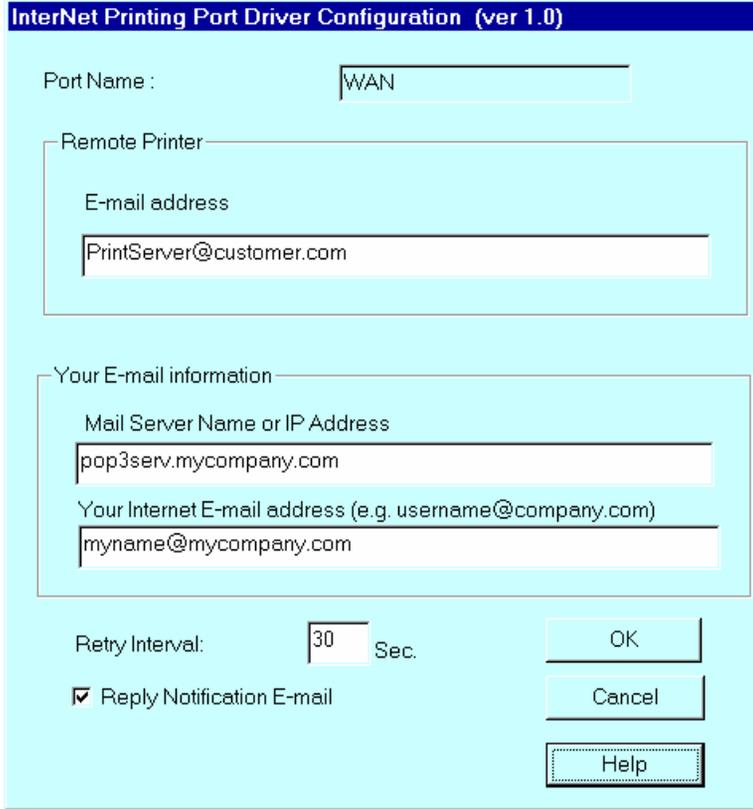
- They send an E Mail directly to the LevelOne Printer Server Mail Account, using their normal E Mail application.
- The E Mail contains plain text only.
- The Internet LevelOne Printer Server is configured with *Print every E Mail* ON.

Installation of the InterNet Printing Port software will create a new printer port. After attaching the correct printer to this port, users can print to the Internet Printer using any Windows application.

### Installation - User Software

1. Run the InterNet Printing Port installation program SETUP.EXE, in the PS\Driver\IPD folder on the CD-ROM.
2. Default values for the installation are:

- **Directory** - C:\Program Files\Internet\_Printer
  - **Start Menu folder** - InterNet Printing Port Driver
3. You will then see the *Configure Port* screen, as shown in the following screenshot.



**Figure 33: InterNet Printer Port**

4. The following data must be provided.

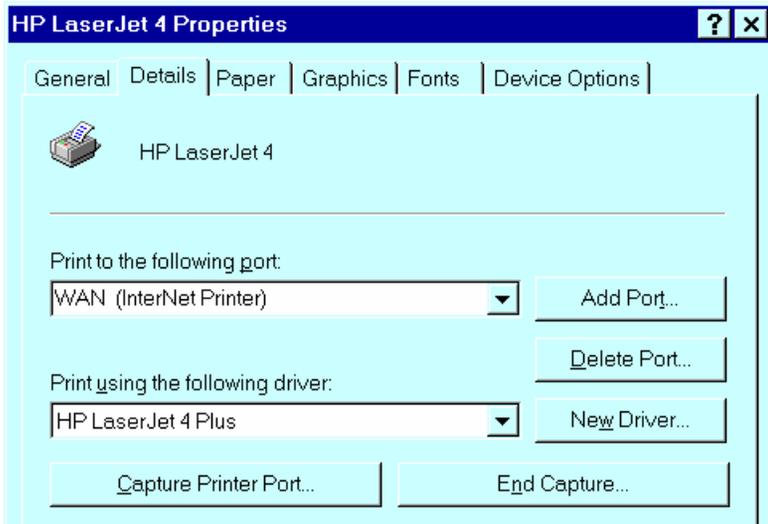
<b>Port Name</b>	Enter a descriptive name (e.g. “WAN”) for the new printer port.
<b>Remote Printer E-mail Address</b>	The E Mail address for the Internet printer. Your print jobs will be sent to this E Mail address.
<b>Mail Server Name or IP Address</b>	This is the name or IP Address of your Mail Server. If you are on a LAN, ask the LAN Administrator. If using a dial-up connection, use the data provided by your ISP.
<b>Your Internet E-mail Address</b>	The normal address that people use to send you E-mail.
<b>Retry Interval (Seconds)</b>	If unable to connect to the E Mail server, retry after this time period (1 to 255 seconds, 30 is usually OK).
<b>Reply Notification Mail</b>	Check to receive an E Mail when your print job has been processed.

5. On completion, a new printer port will have been created.

## Using the new Port

The Windows Control Panel is used to connect the correct printer to the InterNet Printing Port. In Windows 95/98/NT, the procedure is:

1. Select the Printer which matches the remote printer, then choose *Properties*, as shown in the example below.



**Figure 34: InterNet Printer Properties**

2. Select the new port - WAN (InterNet Printer) in the example - as the port for this printer.
  - If you do not have the correct printer driver, or you wish to create another printer using an existing driver, use the Windows *Add Printer* facility.
  - Using the Windows *Port Settings* or *Configure Port* facility will reveal the same *Configure Port* screen shown in *Figure 33: InterNet Printer Port*.
  - If you wish to print to multiple Internet Printers, use the Windows *Add Port* facility to add a new InterNet Printer port. Ensure that the correct data is entered in each port, and that each port has a unique name.

## Checking the Printer Driver

To make sure that the correct printer driver for the remote printer is installed on your system, you can use the InterNet Printing Port to send an E Mail to the Internet Printer. The procedure is as follows:

1. Connect your default printer to the InterNet Printing Port.
2. Check that "Reply Notification Mail" in the InterNet Printing Port is ON.
3. From Notepad or another text editor, print a short message (e.g. "This is a test print") to the Internet Printer.

You will receive a reply E Mail containing the "Printer ID" which will identify the printer attached to the LevelOne Printer Server. If this does not match the printer driver you are using, install the correct printer driver.

## Printing through the Internet

1. Create or open the document you wish to print.
2. Select the Printer connected to the InterNet Printing Port.
3. If you do not have a permanent Internet connection, establish a connection now. (**Note:** The InterNet Printing Port will NOT establish a dial-up connection, but it will send the E Mail the next time you are connected.)
4. Print the document.
5. The InterNet Printing Port will generate an E Mail and send it to the remote printer. The document will be encoded and sent as an attachment to the E Mail. You will see a progress screen similar to the example below:



**Figure 35: InterNet Printing Progress**

6. Close the Internet connection if you opened it in Step 3.
7. If the “Notify after print job” option is set, you will receive an E Mail when your job is printed.

## Canceling a Print Job

Users cannot cancel a Print Job once it has been sent, but Print Jobs can be canceled at the LevelOne Printer Server. In **BiAdmin**, the *Control - Abort Mail Print Job* menu option can be used to cancel a print job which has already started printing.

## SNMP

The LevelOne Printer Server supports SNMP (Simple Network Management Protocol).

The LevelOne Printer Server's SNMP support allows network supervisors to monitor and control the LevelOne Printer Server using network management platforms such as HP OpenView, IBM SystemView, etc. This is accomplished through the SNMP **agent** and the **SNMP MIB**.

The LevelOne Printer Server's **SNMP MIB** is a collection of objects that are monitored and controlled using SNMP's *get* and *set* commands. The appropriate .MIB file must be imported into your SNMP management program using the *Import-Compile* command. Check your management program for details on this procedure.

The MIB files are provided in the \PS\MIB folder on the CD-ROM. Use the *Import - Compile* command of your SNMP program to import the Mib file for your model.

### Configuring the LevelOne Printer Server for SNMP

Before using a SNMP Management station to manage the LevelOne Printer Server, the following settings should be assigned to it, in addition to standard TCP/IP settings covered in *Chapter 7 - TCP/IP*.

#### SNMP Settings

<b>SysContact</b>	Text Field - Name of the contact person.
<b>SysLocation</b>	Text Field - Location of the contact person.
<b>Management Station IP Address(s)</b>	Up to 4 Management Stations can be entered.
<b>Trap Receiving IP Address(s)</b>	Up to 4 Trap Receiving Stations can be entered.

#### Management Station Settings

For each Management Station, the following fields are available.

<b>Access Permission</b>	Options are: Read Only Read/Write Not Accessible.
<b>Community String</b>	Leaving this blank will disable management by this station.

#### Trap Receiving Station Settings

For each Trap Receiving Station, the following fields are available.

<b>Community String</b>	Leaving this blank will disable management by this station.
<b>Trap Enable</b>	Use this option to Enable/Disable Trap Receiving by this station.
<b>Trap Severity</b>	In this version, all traps are level 1. Levels 2 and 3 will be implemented in future versions.

# Troubleshooting

*This chapter describes some problem situations which may arise, and the solutions to them.*

## Overview

If you encounter printing difficulties, please refer to the *Hardware* section first, then the *Printing* section, then the section for your specific situation.

If, after following the advice in these documents, the LevelOne Printer Server still does not function properly, please contact your dealer for further advice.

## Hardware Problems

<b>Problem No. 1</b>	<b>All the LevelOne Printer Server's LEDs are off.</b>
Solution No. 1	Check the power supply or power connection.
<b>Problem No. 2</b>	<b>LevelOne Printer Server's status light continuously stays lit.</b>
Solution No. 2	Reset LevelOne Printer Server by unplugging the power supply and plugging it back in.
<b>Problem No. 3</b>	<b>LevelOne Printer Server status light and power light stays on continuously and do not turn off.</b>
Solution No. 3	Reset LevelOne Printer Server by unplugging the power supply or by pushing the reset push button.
<b>Problem No. 4</b>	<b>I am using DHCP, and getting an IP Address conflict involving the LevelOne Printer Server.</b>
Solution No. 4	<p>If the LevelOne Printer Server is left on, but the DHCP server is turned off, then the LevelOne Printer Server will retain its IP Address without the DHCP Server being aware of it. Simply reset the LevelOne Printer Server so it will obtain a new IP Address.</p> <p>This problem would also arise if you assigned a static IP Address which is within the range used by the DHCP server. If so, use another address which is NOT within the range used by the DHCP server.</p>
<b>Problem No. 5</b>	<b>I am using WPCongig on Windows 95, and having problems configuring the LevelOne Printer Server.</b>
Solution No. 5	WPCongig is designed for Windows 3.1 only. For Windows 95/NT, you should use BiAdmin.

## Printing - General

<b>Problem No. 1</b>	<b>When using 10BaseT cabling, the LevelOne Printer Server unit does not work.</b>
Solution No. 1	Check the Hub's link LED for the port to which the LevelOne Printer Server is connected. If it is off, there is a problem in the network cable. If using 10BaseT or 100BaseT, check the LED next to the connector. It should be on if the network connection is OK.
<b>Problem No. 2</b>	<b>A printing device connected to the a LevelOne Printer Server port cannot print or prints garbage.</b>
Solution No. 2	Check the following: <ul style="list-style-type: none"><li>• Cable connection between LevelOne Printer Server and printer.</li><li>• Printer driver in the application program or Windows matches the printer.</li></ul>
<b>Problem No. 3</b>	<b>The <i>Configuration</i> button on the <i>Printer Status</i> screen in BiAdmin is grayed out, even though my printer in bi-directional.</b>
Solution No. 3	The button is unavailable if the printer is busy. You must wait until the printer is idle.

**AppleTalk**

<b>Problem No. 1</b>	<b>Why do I get an incorrect printout?</b>
Solution No. 1	Some possible reasons are: <ul style="list-style-type: none"><li>• You may have chosen Binary encoding to print the file. Try to use ASCII encoding.</li><li>• Some of the fonts in your print file may not be supported by the printer. Try selecting LaserWriter 7 instead of LaserWriter 8.</li></ul>
<b>Problem No. 2</b>	<b>Can't find the LevelOne Printer Server's name in the Chooser.</b>
Solution No. 2	Try the following: <ol style="list-style-type: none"><li>1. Make sure that AppleTalk is on (the button next to Active is highlighted in the Chooser).</li><li>2. Make sure the printer has been on and in the READY state for a few minutes.</li><li>3. Make sure the printer has not been renamed since its last appearance in the Chooser.</li><li>4. If the printer resides on a network with multiple zones, make sure the correct zone is selected from the AppleTalk Zones box in the Chooser.</li></ol>
<b>Problem No. 3</b>	<b>My document didn't print to the right printer.</b>
Solution No. 3	Check the following: <ul style="list-style-type: none"><li>• Another LevelOne Printer Server with the same name may have received your print job. Use the PSTOOL to reconfigure your LevelOne Printer Server name and ensure all LevelOne Printer Servers have unique names.</li><li>• Make sure your application output encode is set to ASCII. If not, change it to ASCII.</li></ul>
<b>Problem No. 4</b>	<b>My file doesn't print with the correct fonts.</b>
Solution No. 4	Try using the LaserWriter 7 printer driver.
<b>Problem No. 5</b>	<b>My EPS file doesn't print with the correct fonts.</b>
Solution No. 5	This is a problem that occurs in some application programs. Try downloading the fonts contained in the EPS file before printing the saved EPS file.
<b>Problem No. 6</b>	<b>I can't select the "Remaining from:" item in the print dialog box.</b>
Solution No. 6	If you have selected the Layout value, 2 Up, or 4 Up, you cannot access the <i>Remaining from:</i> item. Choose other selections.
<b>Problem No. 7</b>	<b>A cover page prints either on the first or the last page of the document.</b>
Solution No. 7	Select one of these solutions: <ul style="list-style-type: none"><li>• Turn the cover page feature off.</li><li>• Insert extra page breaks in your document to avoid the cover</li></ul>

	<p>page printing on the first or last page of your document.</p> <ul style="list-style-type: none"> <li>• Install the Apple LaserWriter 7 driver. You are having trouble printing with the Apple LaserWriter 8 driver.</li> </ul>
<b>Problem No. 8</b>	<b>Why do I have trouble printing with the LaserWriter 8?</b>
Solution No. 8	Your application software may not be compatible with the LaserWriter 8 driver or your system may not meet the requirements of the LaserWriter 8 driver. Use the Apple LaserWriter 7 driver instead.
<b>Problem No. 9</b>	<b>How come the colors on my printed output do not match the colors on my computer screen?</b>
Solution No. 9	<p>When the printer receives a color file, it tries to match the printed output color to the screen color. Sometimes the printer cannot match up the colors as closely as wanted. To alleviate this problem, perform the following steps:</p> <ul style="list-style-type: none"> <li>• Choose Calibrated Color/Grayscale in the <i>Print</i> pop-up menu in the <i>Print Options</i> dialog box. The printer will make adjustments to match the colors.</li> <li>• Check your monitor to make sure all settings (for example, brightness) are adjusted correctly.</li> </ul>
<b>Problem No. 10</b>	<b>The blue color I chose on my computer screen is printing out purple.</b>
Solution No. 10	Choose Calibrated Color/Grayscale in the Print pop-up menu in the Print Options dialog box.
<b>Problem No. 11</b>	<b>When I send a print job, I get a PostScript Command error or no print out.</b>
Solution No. 11	<p>Check the communication protocols. <b>The computer, LevelOne Printer Server and printer must all be configured to the same communication protocol.</b>(either Binary or ASCII).</p> <p>To configure your system:</p> <ol style="list-style-type: none"> <li>1. Choose which protocol you are going to use. You should check your printer; it may not give you a choice.</li> <li>2. Set your printer to the correct protocol</li> <li>3. Use the computer's <i>print</i> submenu to configure your computer to use the protocol you have chosen.</li> <li>4. Configure the LevelOne Printer Server to use the same protocol as the printer and computer.</li> </ol>

## NetWare

Problem No. 1	My LevelOne Printer Server prints garbage.
Solution No. 1	<p>Follow the following steps to identify the problem:</p> <ol style="list-style-type: none"> <li>1. Print a diagnostic file using PSConfig program.               <ol style="list-style-type: none"> <li>(a) Run PSConfig and select your LevelOne Printer Server from the list. Then select <i>Print Diagnostic Report</i></li> <li>(b) Select each port in turn and print a diagnostic report.</li> <li>(c) Check to see if the diagnostic report printed OK. If the diagnostic report printed OK, the problem may be caused by incorrect system configuration. Go to Step 2. If the diagnostic report printout is not OK, check your printer. If your printer is OK, call your dealer.</li> </ol> </li> <li>2. Print a test text file and a test graphic file. If the text file prints correctly but the graphic file prints garbage, then specify /NT (no tabs) option for NPRINT or CAPTURE commands and print again. If both print incorrectly, go to step 3.</li> <li>3. Temporarily disable the LevelOne Printer Server servicing the print queue by following the instructions below:               <p><b>NetWare 2.x and 3.x</b></p> <ol style="list-style-type: none"> <li>(a) Run PCONSOLE, Select <i>Print Queue Information</i>, select the print queue that the LevelOne Printer Server services, select <i>Current Queue Status</i>.</li> <li>(b) Set <i>Servers can service entries in queue</i> to NO.</li> <li>(c) Press Esc and select <i>Print Queue ID</i>. Record its queue ID.</li> <li>(d) Send your test files to the print queue using normal print commands.</li> </ol> <p><b>NetWare 4.x bindery and NDS modes</b></p> <ol style="list-style-type: none"> <li>(a) Run PCONSOLE, select <i>Print Queues</i>, select the print queue that your LevelOne Printer Server services, select <i>Status</i>.</li> <li>(b) Set <i>Allow service by current print servers</i> to NO.</li> <li>(c) Press Esc and select <i>Information</i>, and record its queue ID.</li> <li>(d) Send your test files to the print queue using normal print commands.</li> </ol> </li> <li>4. Re-route network printing to local printing.               <ol style="list-style-type: none"> <li>(a) Disconnect the printer attached to your LevelOne Printer Server and connect it to LPT1 of your PC.</li> <li>(b) Change to the drive and then the directory on the file server that contains the print queue. The directory will have the name of the queue ID (e.g. \queues\Q_ID for NDS mode or system\Q_ID for Bindery mode).</li> </ol> </li> <li>5. The test files you printed in step 2 should be in the queue directory. Print these files to the local printer using the COPY command with the /b option. Example: <code>copy /b test.txt LPT1</code></li> <li>6. Compare the printouts from the PC and the LevelOne Printer Server.</li> </ol>

	<ul style="list-style-type: none"> <li>• If the printouts are the same, then the problem is NOT the LevelOne Printer Server. The problem might be that an incorrect printer driver was chosen or the timeout setting in the CAPTURE command is too short.</li> <li>• If the printouts are NOT the same, there may be a problem with the LevelOne Printer Server. Call your dealer.</li> </ul> <p>7. Re-enable queue service.</p> <ul style="list-style-type: none"> <li>• Disconnect the printer attached to LPT1 of your PC and connect it to your LevelOne Printer Server.</li> <li>• For NetWare 2.x or 3.x, run PCONSOLE and Select <i>Print Queue Information</i>. Then select the LevelOne Printer Server's print queue and select <i>Current Queue Status</i>. Set <i>Servers can service entries in queue</i> to YES</li> <li>• For NetWare 4.x bindery and NDS modes, run PCONSOLE and select <i>Print Queues</i>. Then select the print queue and select <i>Status</i>. Set <i>Allow service by current print servers</i> to YES.</li> </ul>
<p><b>Problem No. 2</b></p>	<p><b>My LevelOne Printer Server does not appear in the Active Device List of the PSConfig program.</b></p>
<p>Solution No. 2</p>	<ul style="list-style-type: none"> <li>• Ensure that the LevelOne Printer Server is on the same network segment as your PC.</li> <li>• Load the NetBEUI protocol on your PC, so that PSConfig can try connecting using NetBEUI. Once connected, check the following:             <ul style="list-style-type: none"> <li>• The NetWare protocol is enabled.</li> <li>• The Ethernet frame type of your PC may be different than the one with your LevelOne Printer Server. Enable all Ethernet frame types.</li> </ul> </li> </ul>
<p><b>Problem No. 3</b></p>	<p><b>My LevelOne Printer Server is configured as a Novell Print Server, and cannot log in to a file server.</b></p>
<p>Solution No. 3</p>	<p>The following steps may solve this problem:</p> <ol style="list-style-type: none"> <li>1. Get the LevelOne Printer Server information using PSConfig. If the device is configured as a Novell Print Server, the information will look like the following:             <p style="margin-left: 40px;">Server Name: PS110049              NetWare Information:              Master File Server: ICE              Print Server Mode Status:              Your_File_Server: Current Status              Remote Printer Mode Status: N/A</p> </li> <li>2. Make sure the master file server name is assigned correctly.</li> <li>3. Check the Current Status of Your_File_Server:             <ul style="list-style-type: none"> <li>• <b>Connected:</b> No action required</li> <li>• <b>No file server:</b> Assign a master file server using PSConfig</li> <li>• <b>Connecting to Server:</b> Wait and check if the file server exists</li> </ul> </li> </ol>

	<ul style="list-style-type: none"> <li>• <b>Password Mismatch:</b> Clear the NetWare password with PCONSOLE, or set the correct password for the LevelOne Printer Server using WPCConfig or BiAdmin.</li> <li>• <b>Print Server Not Defined:</b> Install LevelOne Printer Server again</li> </ul> <ol style="list-style-type: none"> <li>4. Check NetWare to see if the login status of the Print Server to the file servers is <i>Ready</i>. If it is not, check the error message and perform the required corrective action.</li> <li>5. Check the Novell file server's name. If it is over 20 characters long,. Rename it using no more than 20 characters.</li> <li>6. If the file server is not in the status list and the LevelOne Printer Server has logged into the master file server, it means that the file server has not been serviced by the LevelOne Printer Server. Check to see if the file server is in the list of "File Servers To Be Serviced" item of PCONSOLE. If not, insert the file server name to the list.</li> </ol>
<p><b>Problem No. 4</b></p>	<p><b>My LevelOne Printer Server is configured as a Novell Remote Printer, and can't log in to the Novell Print Server.</b></p>
<p>Solution No. 4</p>	<p>Try the following steps:</p> <ol style="list-style-type: none"> <li>1. Get the LevelOne Printer Server information as described in Problem 3 above.</li> <li>2. Check the fields after the <b>Remote Printer Mode Status:</b> For each logical printer, there will be a status entry. The status will be one of the following. <ul style="list-style-type: none"> <li>• <b>Connected:</b> No action required</li> <li>• <b>Unable to find server:</b> Load NetWare Print Server.</li> <li>• <b>Connecting to Server:</b> Wait and check if the NetWare Print server is loaded</li> <li>• <b>Printer not Defined:</b> Install the LevelOne Printer Server as a remote printer of a NetWare print server.</li> </ul> </li> <li>3. Check NetWare to see if the Print Server is ready. If it is not, check the error message and perform the required corrective action.</li> <li>4. Check the NetWare print server's name. If it is over 20 characters, rename the NetWare Print Server name using no more than 20 characters.</li> </ol>
<p><b>Problem No. 5</b></p>	<p><b>Using NetWare 4, My LevelOne Printer Server cannot print the jobs sent to the print queue.</b></p>

<p>Solution No. 5</p>	<p>Try the following.</p> <ol style="list-style-type: none"> <li>1. Check if the printer attached to the LevelOne Printer Server is on-line.</li> <li>2. Check if your LevelOne Printer Server is logged into the file server (See Problem 3)</li> <li>3. Check the current status of the queue. Run PCONSOLE and select <i>Print Queue Information</i>. Then select the queue and select <i>Current Queue Status</i>. See if there are three "YES"s. If not, set them to YES.</li> <li>4. Check if the NetWare printer number is correct. 0 = parallel port 1 of the LevelOne Printer Server. 1 = parallel port 2 of the LevelOne Printer Server. 2 = parallel port 3</li> <li>5. Check if the LevelOne Printer Server is a static queue server to the queue. Run PCONSOLE and select <i>Print Server Information</i>. Then select <i>Print Server Configuration</i> and select <i>Queues Serviced by Printer</i>. Select your desired printer and check if the queue is on the list. If its not, insert the queue into the list by pressing the [Insert] key and select the queue. Then reset the LevelOne Printer Server to service the new queue.</li> <li>6. The total number of queues to be serviced may be over the limit of 56. If so, reduce the number of queues.</li> </ol>
<p><b>Problem No. 6</b></p>	<p><b>I used the Capture command to print a job, but the job was separated into two parts.</b></p>
<p>Solution No. 6</p>	<p>The time out setting in the Capture command may be too short. You should increase the timeout value of the Capture command. Use the option /TI=n of the Capture command to increase the time out value, where n is the value of timeout.</p>
<p><b>Problem No. 7</b></p>	<p><b>PSConfig shows "No Response."</b></p>
<p>Solution No. 7</p>	<p>This may be due to the following</p> <ul style="list-style-type: none"> <li>• The network traffic is busy now. Wait for a minute and then try it again.</li> <li>• The LevelOne Printer Server is not powered on. Power it on.</li> <li>• The network cable is disconnected. Check the cable.</li> <li>• The node address of the LevelOne Printer Server may be the same as the node address of another device on the network.</li> </ul>
<p><b>Problem No. 8</b></p>	<p><b>QUICKSET timed out when checking if the device had logged in to the file servers.</b></p>

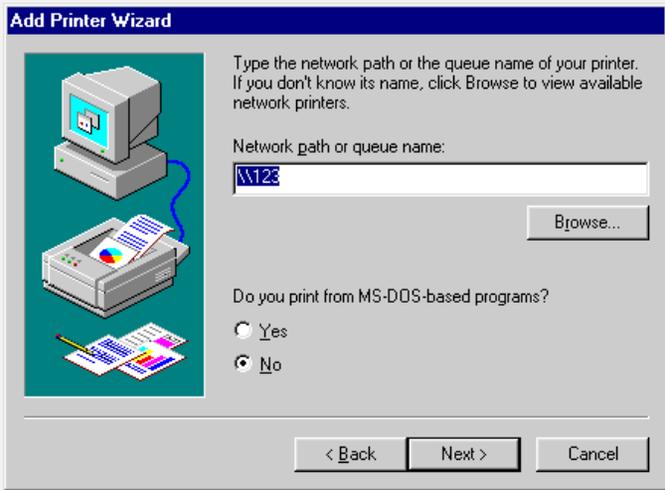
Solution No. 8	<p>This means that the LevelOne Printer Server did not log in the master file server. It might be that the Ethernet frame types do not match.</p> <ol style="list-style-type: none"><li>1. Try to find a workstation that use the same frame type as the LevelOne Printer Server so that PSConfig can see the device. Or load the NetBEUI protocol on your PC and use WPCConfig to connect to the device.</li><li>2. Enable the LevelOne Printer Server's frame type to the frame type that the master file server uses and disable all other frame types.</li></ol>
<b>Problem No. 9</b>	<b>I cannot receive Notify message in NetWare 4.x environment.</b>
Solution No. 9	<ul style="list-style-type: none"><li>• Make sure you are a Notify member of the Print Server.</li><li>• Run NetAdmin and set the name of the Default Server to receive notification.</li></ul>
<b>Problem No. 10</b>	<b>I cannot use PCONSOLE to see Printer Status or the current server status in Print Server Information is showing <i>Down</i> in the NetWare 4.x environment.</b>
Solution No. 10	<p>It may be that you created the print server object in NetWare 3.x environment and used PCONSOLE in NetWare 4.x to view the status. Try the following:</p> <ul style="list-style-type: none"><li>• Ensure the LevelOne Printer Server is ON.</li><li>• Delete the print server object of the LevelOne Printer Server.</li><li>• Install the LevelOne Printer Server again in NetWare 4.x NDS environment.</li></ul>
<b>Problem No. 11</b>	<b>The “String Before Job” and/or “String After Job” settings in the Logical Printers don’t work properly.</b>
Solution No. 11	<ul style="list-style-type: none"><li>• Check the length of the control strings. No string can exceed 15 characters.</li><li>• Check that the control strings are in HEX.</li></ul>

## TCP/IP (Unix & Windows NT)

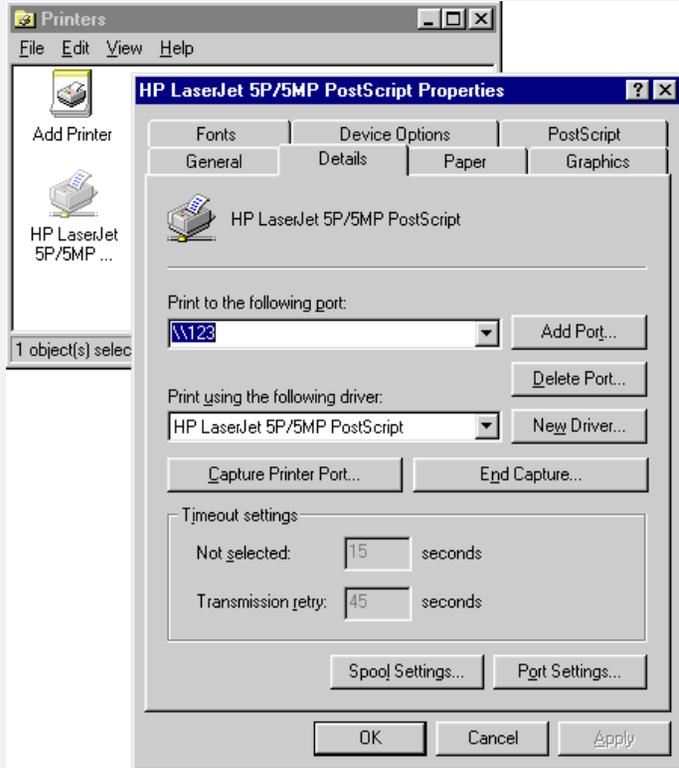
<b>Problem No. 1</b>	<b>LevelOne Printer Server device is not recognized.</b>
Solution No. 1	<p>Check the following:</p> <ul style="list-style-type: none"> <li>• There are no routers between the LevelOne Printer Server and the UNIX host during IP address assignment.</li> <li>• There are no NetWare File Servers that do not have TCP/IP support between the LevelOne Printer Server and the UNIX host.</li> <li>• The network cable to be used by LevelOne Printer Server is intact. Connect the cable to another network device and test it.</li> <li>• You have used the correct hardware address, as shown on a sticker on the base of the device.</li> <li>• Use the ping command to see if the LevelOne Printer Server is a valid device on the network.</li> </ul>
<b>Problem No. 2</b>	<b>The standard interface program on SUN 5.2 cannot be used with Psfilter.</b>
Solution No. 2	Use dumb_int.sh which is the interface program shipped with LevelOne Printer Server.
<b>Problem No. 3</b>	<b>When the interface program detects that the printer device is not a printer, a printer error message appears on the screen.</b>
Solution No. 3	Mark out all stty commands in the interface script.
<b>Problem No. 4</b>	<b>The .psopts file format is not accepted by BSD UNIX.</b>
Solution No. 4	If the prefix or and suffix string must contain control words or are too long, use headfile or tailfile instead of prefix string or suffix string.
<b>Problem No. 5</b>	<b>The LevelOne Printer Server's IP address is forgotten and it needs to be installed in a new environment.</b>
Solution No. 5	<p>Follow the steps below to set the LevelOne Printer Server back to the factory default configuration.</p> <ol style="list-style-type: none"> <li>1. Enter the command: <pre>arp -s yyy.yyy.yyy.yyy 00:c0:02:xx:xx:xx</pre> <p>Where:            yyy.yyy.yyy.yyy is the new IP address assigned to the LevelOne Printer Server            00:c0:02:xx:xx:xx is the hardware address, as shown on a sticker on the base of the LevelOne Printer Server.</p> <p><b>Note:</b> Windows NT uses "-" instead of ":" in the hardware address.</p> </li> <li>2. Enter the commands: <pre>ftp yyy.yyy.yyy.yyy ftp&gt;get DEFAULTC ftp&gt;quit</pre> <p>This will reset the configuration to the factory defaults (including setting the IP address back to 0.0.0.0).</p> </li> </ol>

	3. Reconfigure as for a new device.
<b>Problem No. 6</b>	<b>Printing by FTP, I receive an error message: <i>Invalid print queue</i> <i>Print queue not ready</i></b>
Solution No. 6	<ul style="list-style-type: none"> <li>• Check that the printer is ready</li> <li>• Check that Logical printer(s) are defined on the LevelOne Printer Server. With FTP, you can print ONLY to a logical printer.</li> <li>• Reset the LevelOne Printer Server</li> </ul>
<b>Problem No. 7</b>	<b>I can't print using LPD.</b>
Solution No. 7	<p>Try printing with FTP. If this works, the problem is the LPD daemon on your UNIX host. Reconfigure the remote printer and the LPD daemon. Check the following points.</p> <ul style="list-style-type: none"> <li>• The remote host name is the name of the LevelOne Printer Server.</li> <li>• The remote printer name is the logical printer name on the LevelOne Printer Server (e.g. L1).</li> <li>• If your UNIX asks for the LPD type, be sure to identify the service type as BSD.</li> </ul>
<b>Problem No. 8</b>	<b>I can't print using PSfilter,</b>
Solution No. 8	<p>Run PSfilter directly with the command:</p> <pre>PSfilter -D P_name -v &lt;file_name&amp;</pre> <p>Where:  P_name is the LevelOne Printer Server's name  file_name is the file you wish to print.</p> <p>If this fails, check for an error log file (e.g. PSErrLog XXXXX) in the /tmp directory. If there is not an error log file, recompile PSfilter.</p> <p>Also, check the Troubleshooting section of the Psfilter .TXT file for your system.</p>
<b>Problem No. 9</b>	<b>The "String Before Job" and/or "String After Job" settings in the Logical Printers don't work properly</b>
Solution No. 9	<ul style="list-style-type: none"> <li>• Check the length of the control strings. No string can exceed 15 characters.</li> <li>• Check that the control strings are in HEX.</li> </ul>

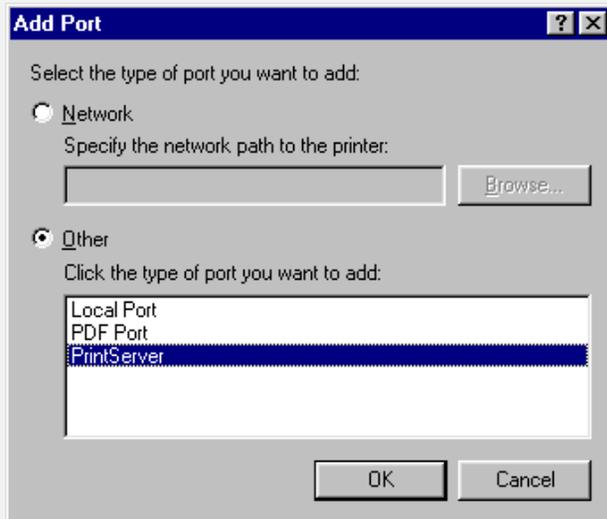
## Windows Peer-to-peer

<p><b>Problem No. 1</b></p>	<p><b>When I tried to install the Printing software for Peer-to-Peer printing, I received an error message and the installation was aborted..</b></p>
<p>Solution No. 1</p>	<p>This may be caused by an existing installation of the printer port software. Before attempting another installation:</p> <ul style="list-style-type: none"> <li>• Remove the existing installation</li> <li>• Restart your PC</li> </ul> <p><b>To remove an existing printer port installation:</b></p> <ol style="list-style-type: none"> <li>1. Open Start - Settings - Control Panel - Add/Remove Programs</li> <li>2. Look for an entry with a name like "Shared Port", "Shared Printer Port", "Print Server Driver" or "Print Server Port".</li> <li>3. Select this item, click "Add/Remove", and confirm the deletion.</li> </ol>
<p><b>Problem No. 2</b></p>	<p><b>On Windows 95, I installed the Print Port Driver for Peer-to-Peer Printing, but when I selected a port on a Print Server and clicked "Add", the printer was not installed.</b></p>
<p>Solution No. 2</p>	<p>Try installing the Printer using the standard Windows tools, as follows:</p> <ol style="list-style-type: none"> <li>1. Start the Add Printer Wizard.</li> <li>2. Select Network Printer when prompted "How is the printer attached to your Computer?", and click Next.</li> <li>3. When prompted for the Network Path or Queue, enter a dummy value such as shown below. (Do NOT select Yes for "Do you print for MS-DOS programs?")</li> </ol> <div data-bbox="358 1181 1023 1671" style="border: 1px solid black; padding: 5px;"> <p><b>Add Printer Wizard</b></p>  </div> <ol style="list-style-type: none"> <li>4. The printer wizard will display a message stating that "The Network Printer is off-line". This is OK. Continue the Add Printer Wizard until finished.</li> <li>5. Go to the Printers folder (Control Panel-Printers). The printer icon will be grayed out indicating the printer is not ready.</li> <li>6. Right-click the Printer, and select Properties. Then select the</li> </ol>

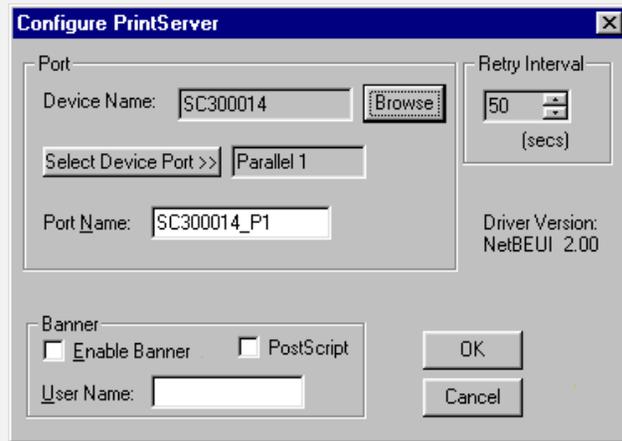
Details tab, as shown below.



7. Click the Add Port button. On the resulting screen, select Other, then Printer Server, as the port to add, as shown below.



8. Click OK to see the Print Port Configuration screen, as shown below.



9. Click the Browse Device button, select the desired LevelOne Printer Server, and click OK.
10. Click OK to return to the Printers folders, and right-click on the Printer. Ensure that the Work off-line option is NOT checked.



The Printer should no longer be grayed out, and is ready for use.

**Problem No. 3**

**I connected and configured a WPS (Windows Printing System) printer as described, but I can't get the print job to print.**

**Solution No. 3**

Printer drivers for WPS printers poll the printer before sending print data. Since the printer is networked, the printer is not found and no data is sent. The solution is to add your printer as a network printer as described in Solution 1 above.

**Note:** The screens shown in Solution 1 are from Windows 95. Other versions of Windows may look slightly different, but the process is identical. If using Window NT or 2000, do NOT enable Sharing for the printer.

**Problem No. 4**

**When printing from some software applications such as Power Point, it takes a long time and the print out is incorrect.**

**Solution No. 4**

The problem is due to the printer, which is being configured to **Start printing after the first page is spooled**. To change this setting:

- Go to **Control Panel - Printers** and click on your printer.
- Then select **File - Properties - Details**.

	<ul style="list-style-type: none"> <li>• When the Details screen appears, click the <i>Spool Settings</i> button.</li> <li>• When the Spool Settings dialogue box appears, choose <i>Start printing after last page is spooled</i> and click OK.</li> </ul>
<b>Problem No. 5</b>	<b>A printing device connected to the LevelOne Printer Server port cannot print or prints garbage.</b>
Solution No. 5	<p>Check the following:</p> <ul style="list-style-type: none"> <li>• Cable connection between LevelOne Printer Server and printer.</li> <li>• Printer driver in the application program or Windows matches the printer.</li> </ul>
<b>Problem No. 6</b>	<b>The <i>Configuration</i> button on the <i>Printer Status</i> screen in BiAdmin is grayed out, even though my printer is bi-directional.</b>
Solution No. 6	The button is unavailable if the printer is busy. You must wait until the printer is idle.

## Internet Printing

<b>Problem No. 1</b>	<b>I don't know my Mail Server's IP Address.</b>
Solution No. 1	<p>Use the PING command to connect to the Mail Server by name. Example</p> <ul style="list-style-type: none"> <li>• ping ms.hinet.net</li> </ul> <p>The reply will say:</p> <ul style="list-style-type: none"> <li>• Reply from xxx.xxx.xxx.xxx</li> </ul> <p>where xxx.xxx.xxx.xxx is the IP Address of the Mail Server.</p>
<b>Problem No. 2</b>	<b>Plain text E Mails are not printed.</b>
Solution No. 2	Text E Mail messages are printed only if the LevelOne Printer Server is configured with <i>Print every E Mail ON</i> .
<b>Problem No. 3</b>	<b>Plain text E Mails print OK., but if I include an attachment, I get an E Mail reply "Wrong Encoding Method".</b>
Solution No. 3	The Internet Printer system supports only Base64 encoding. Using the Internet Printing Port driver will ensure a correctly encoded attachment..
<b>Problem No. 4</b>	<b>A print job is printing garbage.</b>
Solution No. 4	Users must use the correct printer driver. The print job can be canceled using the <i>Control - Abort Mail Print Job</i> menu option in the BiAdmin program.
<b>Problem No. 5</b>	<b>Two print jobs are printing on the same page.</b>
Solution No. 5	Change the port used for Internet Printing from a physical port to a Logical Port (Printer). Configure the Logical Printer so that the <i>String after Job</i> contains a FF (Form Feed, decimal 12 or 0C in Hex). See

	the section on <i>Logical Printers</i> in the Unix or NT Server sections for details of Logical Printers.
<b>Problem No. 6</b>	<b>The Print job seemed to go through OK, but it was never received.</b>
Solution No. 6	Check the E Mail address. If you use more than one Internet Printer with the same printer driver, ensure that you use the correct port each time you print.
<b>Problem No. 7</b>	<b>Only the banner page was printed.</b>
Solution No. 7	<p>This could be caused by using the wrong encoding method. Ask the user to use the InterNet Printing Port.</p> <p>Also, some printer drivers, when configured as <i>Local Printer</i>, will poll the printer to see if it is connected. Since the printer is networked, the printer can not be detected. To fix this, perform the following:</p> <ul style="list-style-type: none"> <li>• Select <i>Network printer</i> when asked “How is the printer attached to your computer?”</li> <li>• Then when prompted for “Network Path or Queue name” enter a dummy value such as \\123 and select Next</li> <li>• The printer wizard will display a message stating that “The Network Printer is off-line”. Continue to install the printer as normal.</li> <li>• When finished, go to <i>Control Panel-Printers</i> and select your printer. The printer icon will be grayed out indicating the printer is not ready.</li> <li>• Select <i>Properties - Details</i>. In the <i>Print to the following port</i> box, select Print Server (PrintServer).</li> <li>• Click <i>Apply</i>, then <i>OK</i>, then close the <i>Properties</i> window.</li> <li>• Select the printer and go to the <i>File</i> menu. Check the <i>Work off-line</i> option is OFF.</li> </ul> <p>If the printer is connected and powered On, the printer icon should no longer be grayed out, and you should be able to print.</p>
<b>Problem No. 8</b>	<b>The Banner page is not correct; the first row has disappeared.</b>
Solution No. 8	<p>This may be caused by the previous print job not sending a form feed after finishing printing.</p> <p>Try sending print jobs to a logical printer, which is defined with a Post String of FF (Form Feed - 0C in Hex).</p> <p>To do this, define the Logical Printer, and set the port used for Internet Printing to this Logical Printer.</p>

# Specifications

<b>FPS-2111TXU</b>	
Power Consumption	5w max.
External Power Adapter	12V DC
LEDs	3
Parallel Port	1 Centronic female DB-25 connector
Ethernet cables	10BASE-T, 100BASE-T
<b>FPS-2013TXU</b>	
Power Consumption	5w max.
External Power Adapter	12V DC
LEDs	3
Parallel Port	Three Centronic female DB-25 connectors
Ethernet cables	10BaseT, 100BaseT

## FCC Statement

This equipment generates, uses, and can radiate radio frequency energy. It has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a domestic environment.

Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

## CE Marking Warning

This is a Class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

<b>Environmental Specifications</b>	
Operating Temperature	0 ~ 40°C
Storage Temperature	-10 ~ 70°C
Shipping Temperature	-40 ~ 70°C
Operating Humidity	10 ~ 80%
Storage Humidity	5 ~ 90%
Shipping Humidity	5 ~ 100%

<b>Parallel Port Pin Assignments</b>		
<b>Pin</b>	<b>Signal Name</b>	<b>Direction</b>
1	-Strobe	To printer
2	+Data 0	To printer
3	+Data 1	To printer
4	+Data 2	To printer
5	+Data 3	To printer
6	+Data 4	To printer
7	+Data 5	To printer
8	+Data 6	To printer
9	+Data 7	To printer
10	- ACK	To Server
11	+ Busy	To Server
12	+ Paper End	To Server
13	+ Select	To Server
14	- Auto Feed	To printer
15	- Error	To Server
16	- Init	To printer
17	- Select In	To printer
18-25	GND	Ground