User's Manual for Wired & Wireless Ethernet Interface/Print Servers

THARO

Covers: H-427, H-436, H-626, H-634, V-424 Plus and V-434 Plus

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1. PRODUCT OVERVIEW 3
1-1. General Description 3
1-2. Print Server Specifications 3
1-3. Wireless LAN Module Specifications 5
1-4. Product CD 5
2. THE NETPS CONTROL CENTER 6
2-1. Install the NetPS Control Center Software 6
2-2. Using the NetPS Control Center Software 6
2-3. NetPS Control Center Software Main Menu 7
3. NETWORK CONFIGURATION 8
3-1. Installing a Windows Printer Driver 8
3-2. Connecting the Printer to your Network 8
3-3. Assigning an IP Address to the Print Server 8
3-3-1. Preliminary Notes 8
3-3-2. Setting the IP Address Using the NetPS Control Center Software 10
3-3-3. Setting the IP Address Using the Print Server's Web Pages 12
3-4. Wireless Connection 14
3-4-1. Preliminary Notes 14
3-4-2. Wireless Configuration Using the NetPS Control Center Software 15
3-4-3. Wireless Configuration Using the Print Server's Web Page 17
4. THE PRINT SERVER'S WEB PAGES 22
4-1. Introduction 22
4-2. Using the Print Server's Web Pages 22
4-2-1. The Print Server's Status Page 22
4-2-2. Server Configuration 23
5. TROUBLESHOOTING 30
5-1. FAQ 30
5-2. Firewall 30
7. UPGRADE FIRMWARE 32

1. Product Overview

1-1. General Description

The Ethernet Interface Adaptor Card/Print Server is an optional Ethernet Adaptor that connects your Tharo Label Printer to a Local Area Network (LAN). There is also an Ethernet Interface Adaptor Card/Print Server that includes a wireless Module that will allow you to connect your Tharo Label Printer to a Wireless Local Area Network (WLAN). Both devices provide the following features and benefits:

- **Reliability:** The Ethernet Interface Adaptor Card/Print Server provides a high performance and reliable method to transfer data to your Tharo Label Printer.
- **Flexibility:** This Ethernet Interface Adaptor Card/Print Server can be used in all major computer systems and environments.*
- **Easy to Use:** The Ethernet Interface Adaptor Card/Print Server is easy to install, operate and manage.
- **Security:** Use an administrator name and password to prevent unauthorized changes.
- **Monitoring:** The Ethernet Interface Adaptor Card/Print Server's web pages and software allow you to continuously monitor the status of the connected printer.
- **Upgradeable:** The Ethernet Interface Adaptor Card/Print Server's firmware can be upgraded over the network. This allows you to quickly take advantage of any operational enhancements by updating the Ethernet Interface Adaptor Card/Print Server's firmware remotely.

* A Windows based system is still required for the initial setup using the NetPS Control Center Software.

NOTE: For the rest of this manual the Ethernet Interface Adaptor Card/Print Server will be referred to as "Print Server"

NOTE: It is NOT POSSIBLE to add the Wireless Module to an existing Ethernet Interface Adaptor Card/Print Server! If you feel you may need the Wireless Module, buy the Ethernet Interface Adaptor Card/Print Server with the Wireless Module. The Wireless Module can NOT be added on later.

NOTE: To fully benefit from this document, you should be familiar with basic networking principles.

NOTE: The instructions described in this manual are based on the default parameters of a new Ethernet Interface Card/Print Server. It is possible to restore the device to the factory default parameters, see the "Restore Factory Defaults" section for details. 1-2. Print Server Specifications

1-2. Print Server Specifications

ITEM		Description
CPU		32-bits RDC(x86), 133 MHz
SDRAM		4 Megabytes
Flash Memory		2 Megabytes
ETHERNET	**Connector**	RJ-45 Connector
	Standard	IEEE 802.3 10/100Base-Tx
	Protocol	ARP, IP, UDP, TCP, HTTP, DHCP, FTP, SNMP, SMTP
	Server	TCP Server ; UDP Server
	Setup	HTTP Browser Setup (IE & Netscape)
	Security	Setup Password & Connection Password
USB Port	**Connector**	Dual row 8-pin header
	Standard	USB 2.0 Host mode, Full-Speed (12 Mbit/s)
POWER		DC 5V, 300mA
LED LAMP		SYS(PWR) , LAN --100 Mbit/s, LAN – 10 Mbit/s
ENVIRONMENT		Operating Temperature: 0°~50° Storage Temperature: -10°~70°
DIMENSIONS		95 x 51.5 x 20 mm (W x D x H)
WEIGHT		100 grams
OTHERS		Watch Dog Function, Update Firmware via Ethernet interface

USB Port connector pin assignment:

Pin 1	Vbus	**Pin 3**	D+	**Pin 5**	+5V	**Pin 7**	+5V(RLY)
Pin 2	GND	**Pin 4**	D-	**Pin 6**	GND	**Pin 8**	GND

1-3. Wireless LAN Module Specifications

ITEM		Description
CPU		32-bits RDC(x86) , 133 MHz, miniPCI
SDRAM		16 Megabytes
Flash Memory		2 Megabytes
Wireless LAN	**Standard**	IEEE 802.11b/g, 2.4GHz, DSSS
	Data Speed	802.11b : 1, 2, 5.5, 11 Mbit/s 802.11g : 6, 9, 12, 18, 24, 36, 48, 54 Mbit/s
	Network	Infrastructure, Ad-Hoc
	TX Power	802.11b : ~15 dBm; 802.11g : ~12 dBm
	RX Sensitivity	802.11b : -80 dBm@11 Mbit/s, Packed Error Rate 8% 802.11g : -65 dBm @ 54 Mbit/s, PER 10%
	Protocol	ARP, IP, UDP, TCP, HTTP, DHCP, FTP, SNMP, SMTP
	Server	TCP Server ; UDP Server
	Security	802.11b : WEP64-128bit 802.11g : WPA
	Setup	HTTP Browser Setup (IE & Netscape)
	Security	Setup Password & Connection Password
Ethernet	**Connector**	RJ-45 Connector
	Standard	IEEE 802.3 10/100Base-Tx
	Function	Wireless LAN setup configuration and an alternative to the Wireless LAN
USB Port	**Connector**	Dual row 8-pin header connector
	Standard	Host mode, Full-Speed (12 Mbit/s)
POWER		DC 5V, 500mA
LED LAMP		SYS(PWR), LAN/WLAN
ENVIRONMENT		Operating Temperature: 0°~45° Storage Temperature: -10°~70°
DIMENSIONS		95 x 70 x 20 mm (W x D x H)
WEIGHT		185 grams
OTHERS		Watch Dog Function, Update Firmware via Ethernet interface

USB Port connector pin assignment:

Pin 1	Vbus	**Pin 3**	D+	**Pin 5**	+5V	**Pin 7**	+5V(RLY)
Pin 2	GND	**Pin 4**	D-	**Pin 6**	GND	**Pin 8**	GND

1-4. Product CD

The Ethernet folder on the Printer Accessory CD contains the easy-to-use *NetPS Control Center* software and this User's Manual. The *NetPS Control Center* software can also be downloaded from our website www.tharo.com.

2. The NetPS Control Center

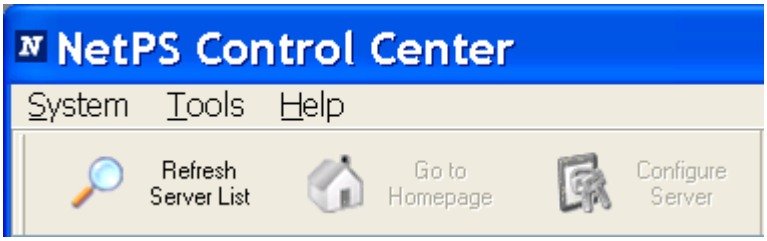
The NetPS (Network Print Server) Control Center Software MUST be used for the initial configuration of the Print Server. Once the initial configuration is completed you may use the NetPS Control Center or the Print Server's web pages to make changes to the configuration.

2-1. Install the NetPS Control Center Software

1. Place the CD in the CD/DVD-ROM drive of your PC.
2. Open the "Ethernet" folder and double-click "Setup_Control_Center.exe" to install the program.
3. After the installation is complete, double-click the "Control Center" icon to start the program.

2-2. Using the NetPS Control Center Software

The main interface of the NetPS Control Center Software has 3 functions:



1. Refresh Server List: performs and a search of the network for Tharo Printers with Print Servers.
2. Go to Homepage: opens the web page of the selected Print Server.
3. Configure Server: configures the selected Printer Server.

NOTE: You can double-click on the selected Print Server to get the "Configure Server" function. You can also right-click the mouse button on the selected Print Server to get the "Configure Server" and "Go to Homepage" functions.

Displaying Print Server Status

Start the NetPS Control Center Software and click on one of the Print Servers for information such as: Server Information, TCP/IP status and Supported Protocols.

Print Server Configuration

Click the "Configure Server" button to configure the selected print Server. Then enter an administrator ID and password to login.

- TCP/IP: You will need to configure the Print Server's TCP/IP to connect to your network. See the "Network Configuration" section of this manual for more details.
- Wireless: You will need to configure the Wireless LAN Module to connect to your network using the Print Server's wireless interface. See the "Wireless Connection" section of this manual for more details.

2-3. NetPS Control Center Software Main Menu

The main menu of the NetPS Control Center software has the following selections:

- System Menu: Select the "Exit" to close the Control Center Software.
- Tools Menu: Select "Configuration" to configure the NetPS Control Center Software. The configuration includes Print Server information and settings and language settings.
- Help Menu: Displays the version number of the NetPS Control Center Software.

Closing the NetPS Control Center Software

There are two ways to close the NetPS Control Center Software. The first is clicking the "X" box (close box) at the top right corner of the window. The second method is to choose "Exit" from the "System" menu in the NetPS Control Center Software.

3. Network Configuration

3-1. Installing a Windows Printer Driver

If you will be printing using a Windows driver you should install it first. If you will be printing with a labelling application like EASYLABEL you will not need a Windows driver. Follow these steps to install the driver.

1. Click Start, click Control Panel, click Printers and Other Hardware, and then click Printers and Faxes.
2. Double click Add Printer to start the Add Printer Wizard, and then click Next.
3. Click Local printer, clear the 'Automatically detect and the install my Plug-n-Play printer' check box to avoid having to wait for the completion of a printer search and then click Next.
4. Browse to and select the Windows driver for your printer. Click Next.
5. Choose whether you want to share the printer with other network users and if you wish to print a test page. Select the appropriate radio buttons and click Next
6. Click Finish to close the Wizard.

3-2. Connecting the Printer to your Network

1. Turn the printer off.
2. Connect the printer to the network using a category 5 RJ-45 cable.
3. Turn the printer on and make sure the LCD says “Ready to Print”.

3-3. Assigning an IP Address to the Print Server

3-3-1. Preliminary Notes

Methods for Setting the IP Address

You can set the IP address of your Print Server using one of the following methods, depending on your network operating environment:

- Automatic IP Address Assignment -- If you have a DHCP server on your network, your Print Server will receive an IP address automatically. The IP address will be shown in the list of Print Servers in the NetPS Control Center Software and on the Print Server's General Configuration web page.
- Manual IP Address Assignment -- If you are not working in a DHCP network, you must manually set the Server’s IP address.

Ethernet Address

You do not need to know the Ethernet address of your Print Server for assigning an IP address to it. The NetPS Control Center Software will automatically search for Print Servers and list their Ethernet addresses.

IP Address

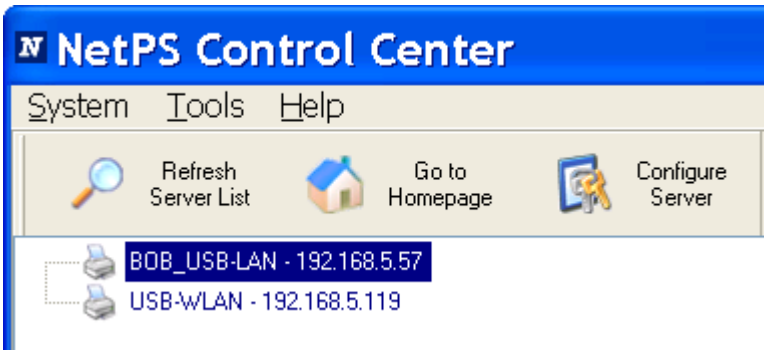
Unless you are assigning an IP address using DHCP, you must obtain an unused IP address from your network administrator.

Print Server Names and print Server Name Rules

The default name of the Print Server is “USB-LAN” or “USB-WLAN”. If you connect two or more Print Servers to your local area network you will have to change the server names by using the NetPS Control Center Software or the Print Server’s web pages. The Print Server only uses the first 15 characters of the Server name.

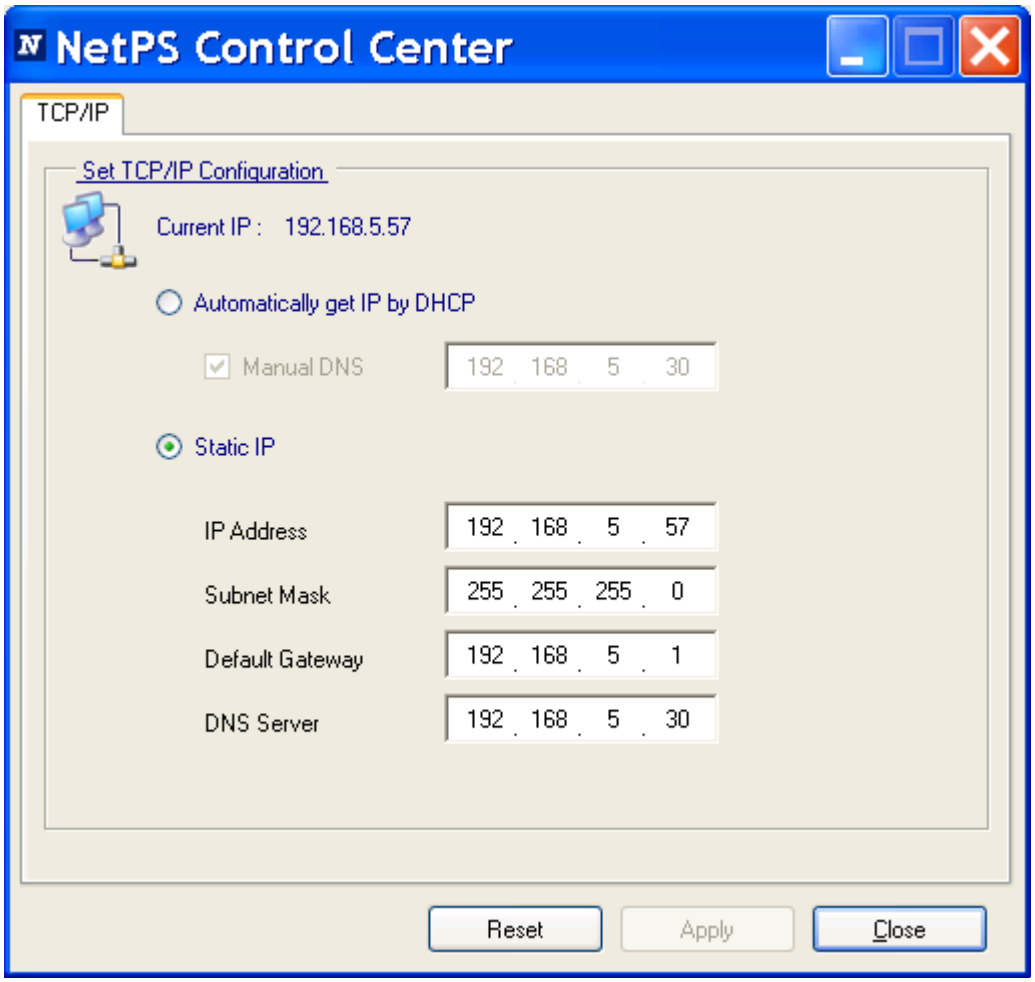
3-3-2. Setting the IP Address Using the NetPS Control Center Software

1. When you start the NetPS Control Center Software it will automatically search your network for compatible Print Servers.
2. Select the Print Server you want to configure from the list of found Print Servers



3. Double-click the name of the highlighted Print Server. You will be prompted for a Username (default: admin) and Password (default: admin).

4. Select TCP/IP from the Print Server's menu. The Set IP Address dialog will be displayed.



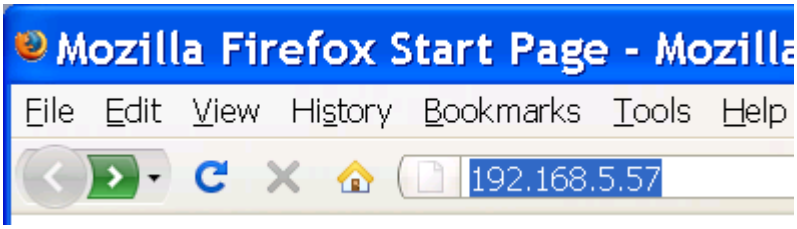
5. Click “Static” to use static IP addressing or “Dynamic” to use DHCP. When assigning a static IP address you must also define a Subnet Mask and Default Gateway. If you choose to use DHCP, you can specify a DNS by clicking the Manual DNS button and manually assigning the DNS the Print Server should use.

6. Click Apply to save your settings and the Print Server will reboot.

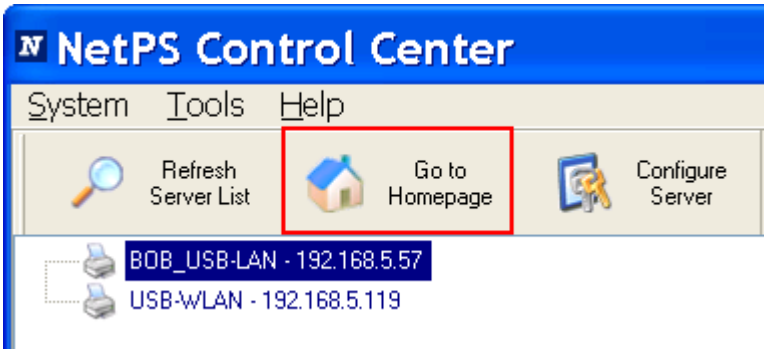
7. The configuration of the Print Server's IP address is complete.

3-3-3. Setting the IP Address Using the Print Server's Web Pages

1. Open a Web browser and type the IP address of the Print Server in the address bar.



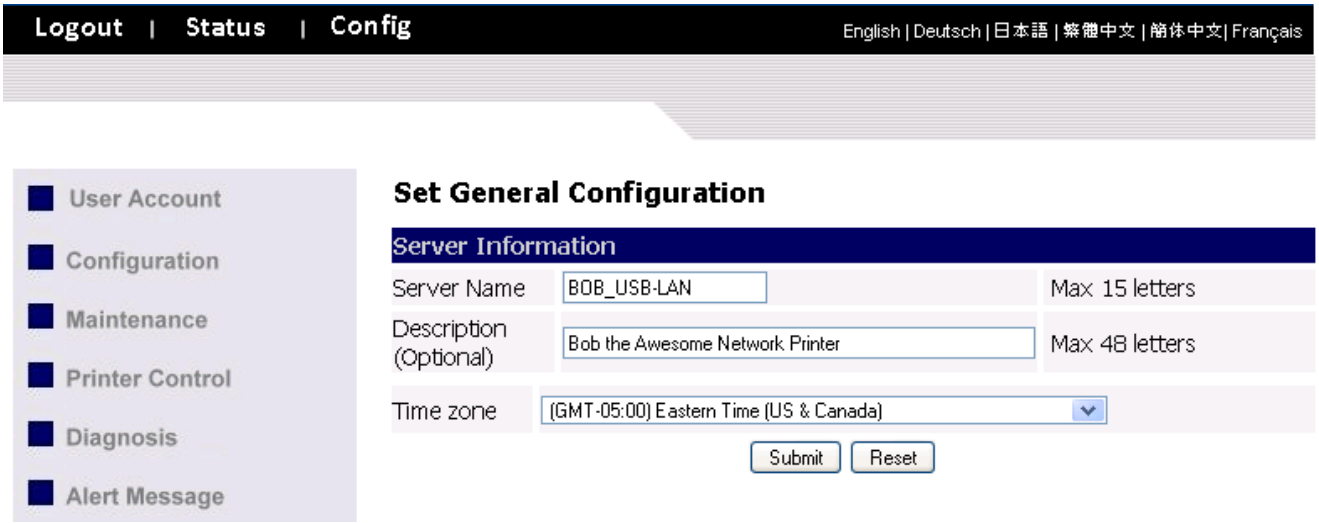
2. You can also open the Print Server's Web Page from within the NetPS Control Center Software. Select the Print Server you want to configure and then click the "Go to Homepage" Icon.



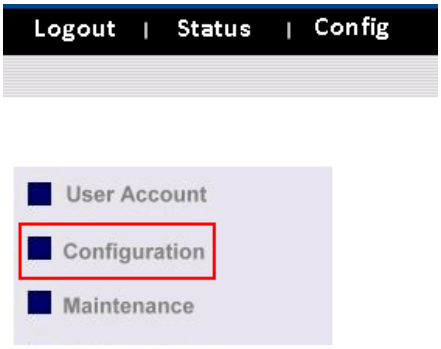
3. Click "Login" to log in.

4. You will be prompted for a Username (default: admin) and Password (default: admin). Then click the Login button.

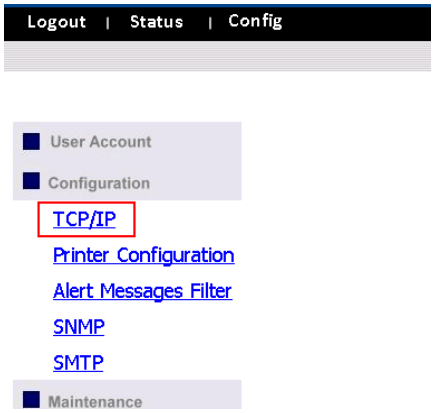
5. You will be presented with the Print Server's Status page.



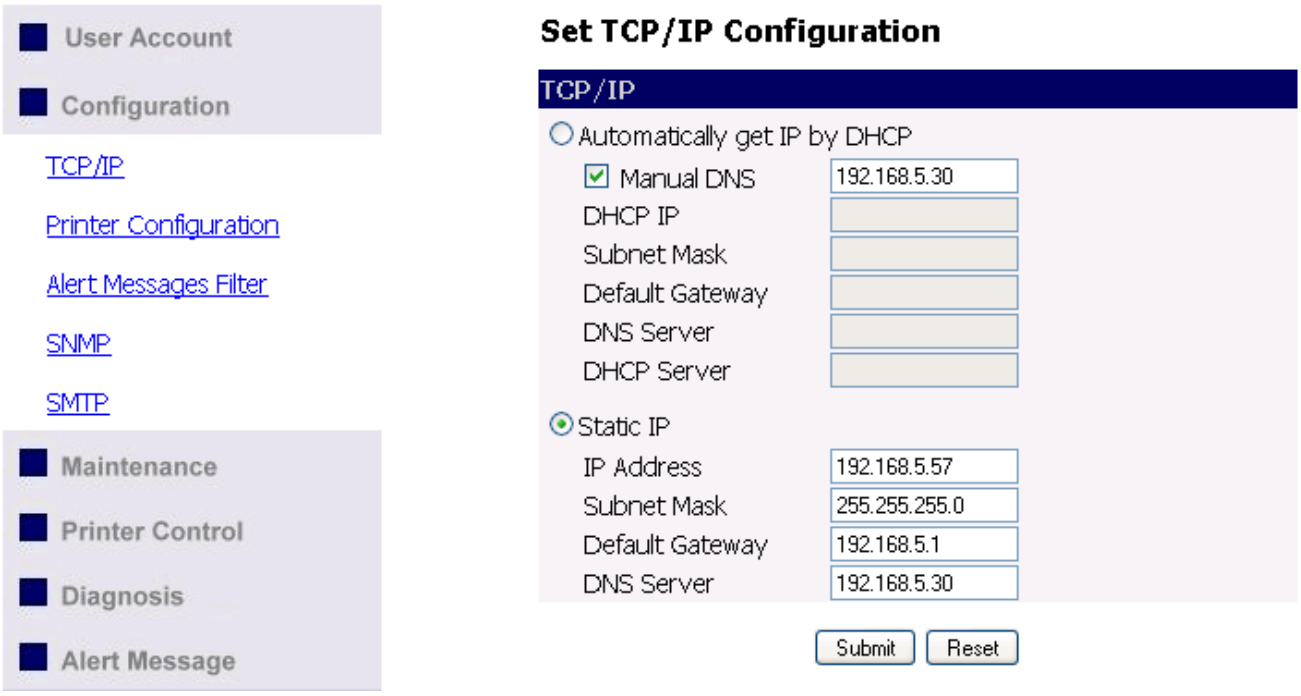
6. Click "Configuration".



6. Click “TCP/IP”.



7. Click “Static” to use static IP addressing or “Dynamic” to use DHCP. When assigning a static IP address you must also define a Subnet Mask and Default Gateway. If you choose to use DHCP, you can specify a DNS by clicking the Manual DNS button and manually assigning the DNS the Print Server should use.



Click Submit to save your settings and the Print Server will reboot. You have now successfully finished setting the IP address.

3-4. Wireless Connection

3-4-1. Preliminary Notes

Before you can access a wireless network the wireless parameters need to be set correctly. You must set up the wireless parameters through the wired LAN connection.

Wireless access can be set as:

1. **Infrastructure (station) mode**, which needs an access point to route network messages, or
2. **Ad-hoc mode,** which connects 2 nearby wireless PC/devices with the same SSID (Service Set ID).

When changing security related parameters, the Print Server should be changed first and the wireless access point should be changed second. That is because if you change the wireless access point first and your changes cause a loss of communications you will have to re-attach the LAN connection to modify them on the Print Server. Modifying the Print Server first prevents this.

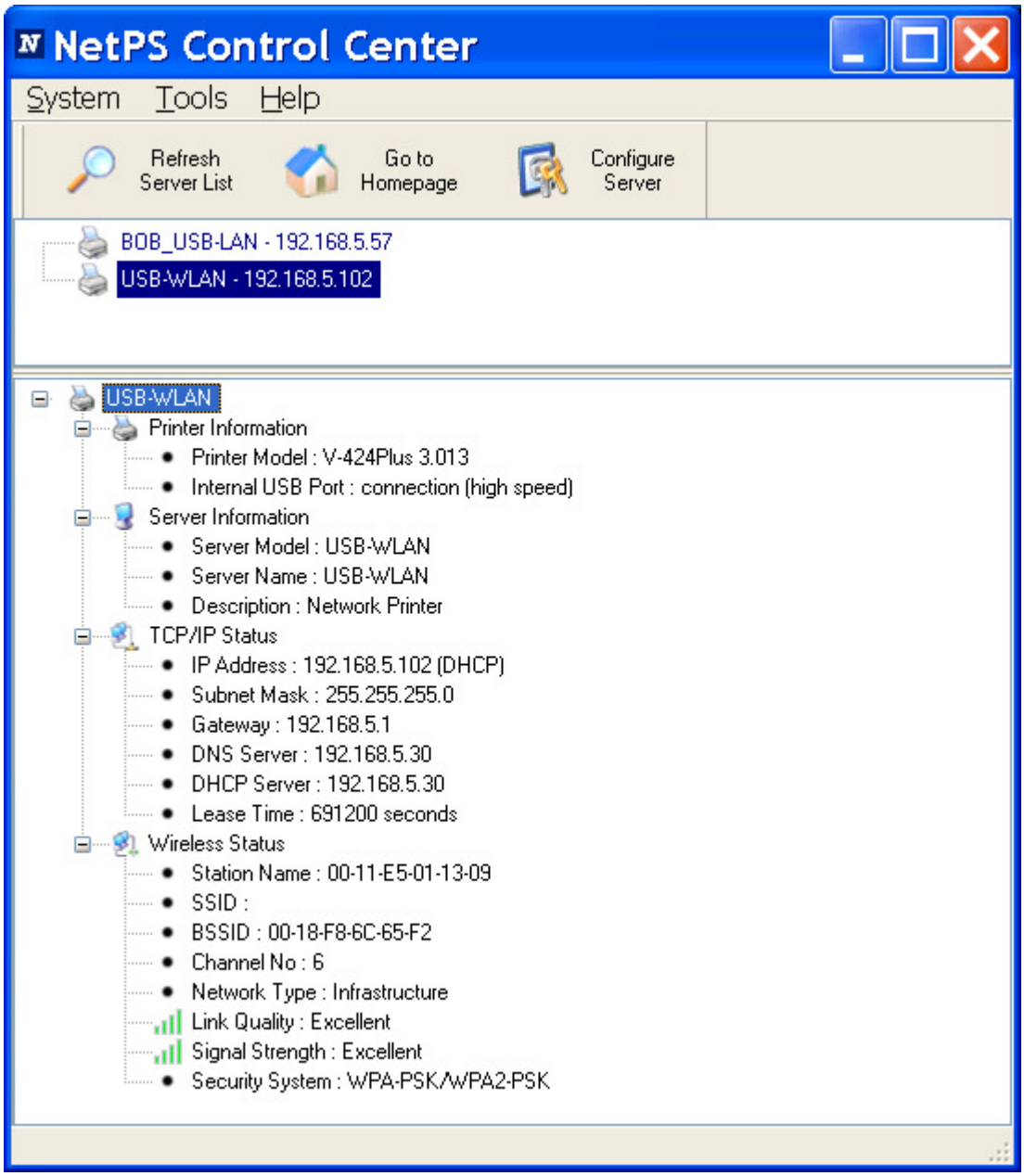
NOTE: In infrastructure mode, the maximal transfer rate is 54 MBit/s depending on the capability of the wireless access point. In ad-hoc mode, the maximal transfer rate is 11 Mbit/s (802.11b).

3-4-2. Wireless Configuration Using the NetPS Control Center Software

1. When you start the NetPS Control Center Software it will automatically search your network for compatible Print Servers.

NOTE: If the wireless parameters are not set correctly, you have to use the wired LAN interface to access the Print Server.

2. Select the Print Server you want to configure from the list of found Print Servers.



3. To change the configuration of the selected Print Server, click the “Configure Server” button. You can also you can double-click the name of the highlighted Print Server.

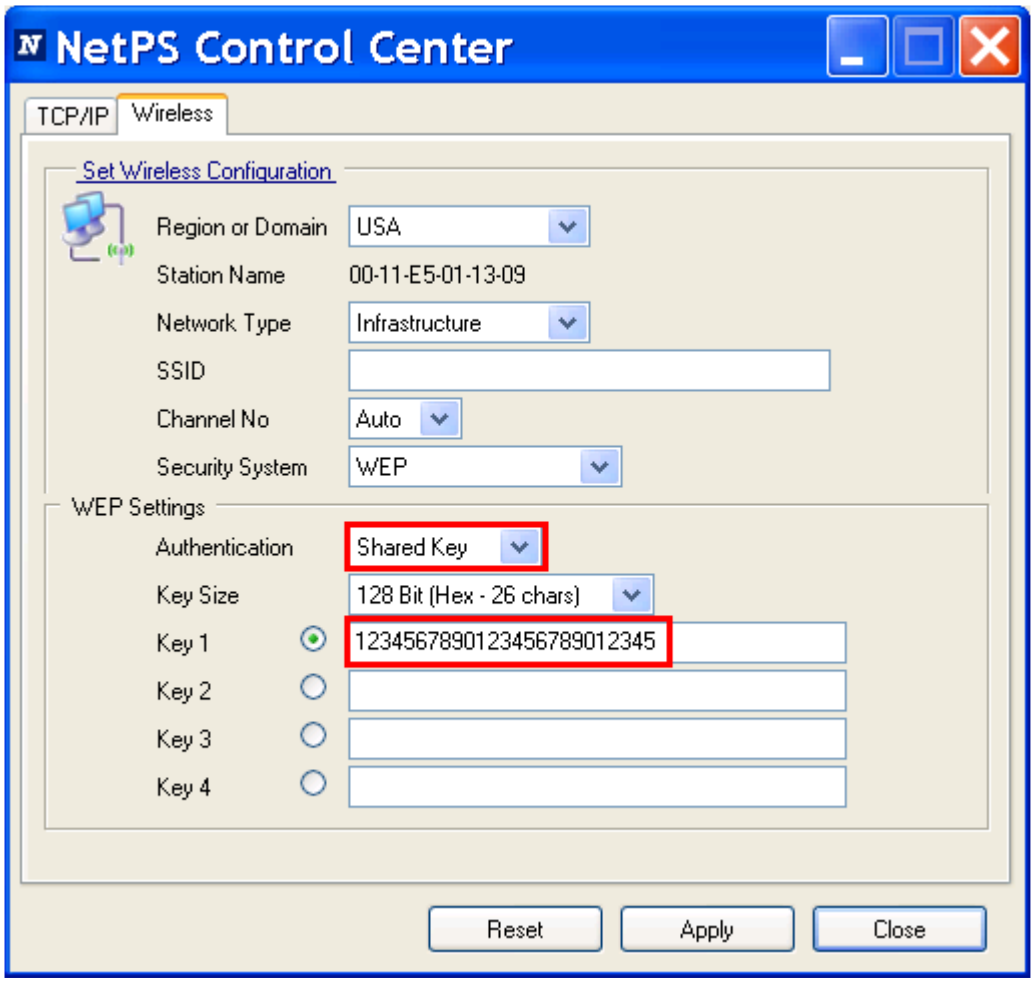
4. You will be prompted for a Username (default: admin) and Password (default: admin).

5. Select 'Wireless' from the Print Server's menu.

6. Consult with your network administrator for the appropriate settings for: network type (infrastructure or ad-hoc), SSID, and the correct security information.

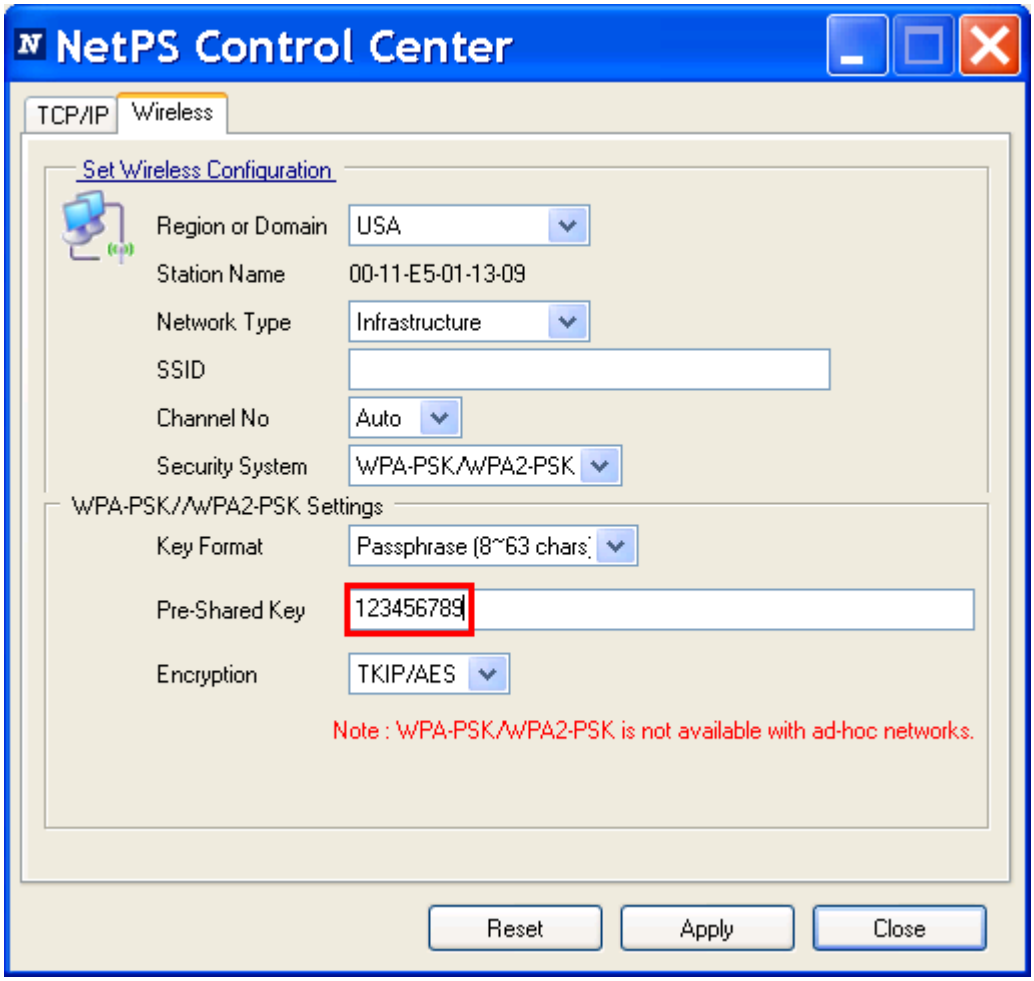
NOTE: Wireless security can set to WEP64, WEP128, or WPA-PSK/TKIP.

7. If the wireless network is secured using the WEP64 or WEP128 authentication method, you will need to set the key index (Key 1, Key 2, Key 3 or Key 4), and enter the WEP key string.



8. If the wireless network is secured using WPA-PSK/TKIP you will need to set the shared key correctly.

NOTE: The use of WPA-PSK/TKIP is not supported in ad-hoc mode.



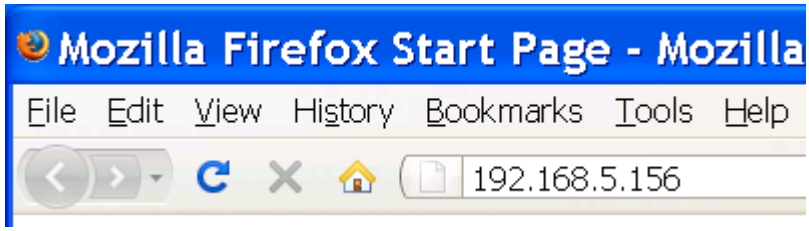
9. Click 'Apply' to save your settings and the Print Server will reboot.

10. This completes the configuration of the Print Server's wireless LAN interface.

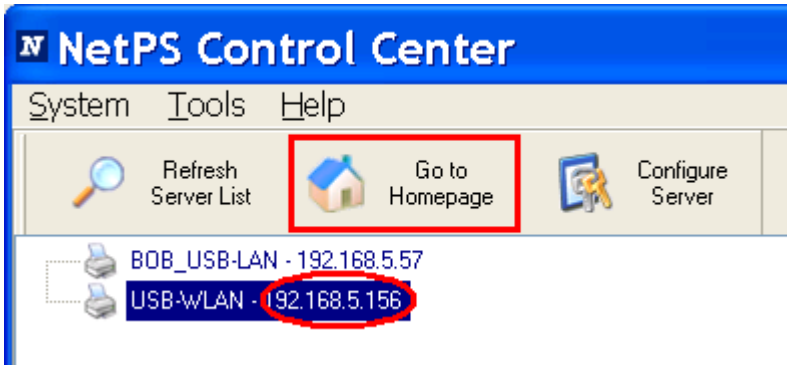
3-4-3. Wireless Configuration Using the Print Server's Web Page

NOTE: The Print Server's web page interface is not available for the initial setup of the Print Server. You must use the NetPS Control Center Software for the initial setup of the Print Server.

1. Open a Web browser and type the IP address of the Print Server in the address bar.

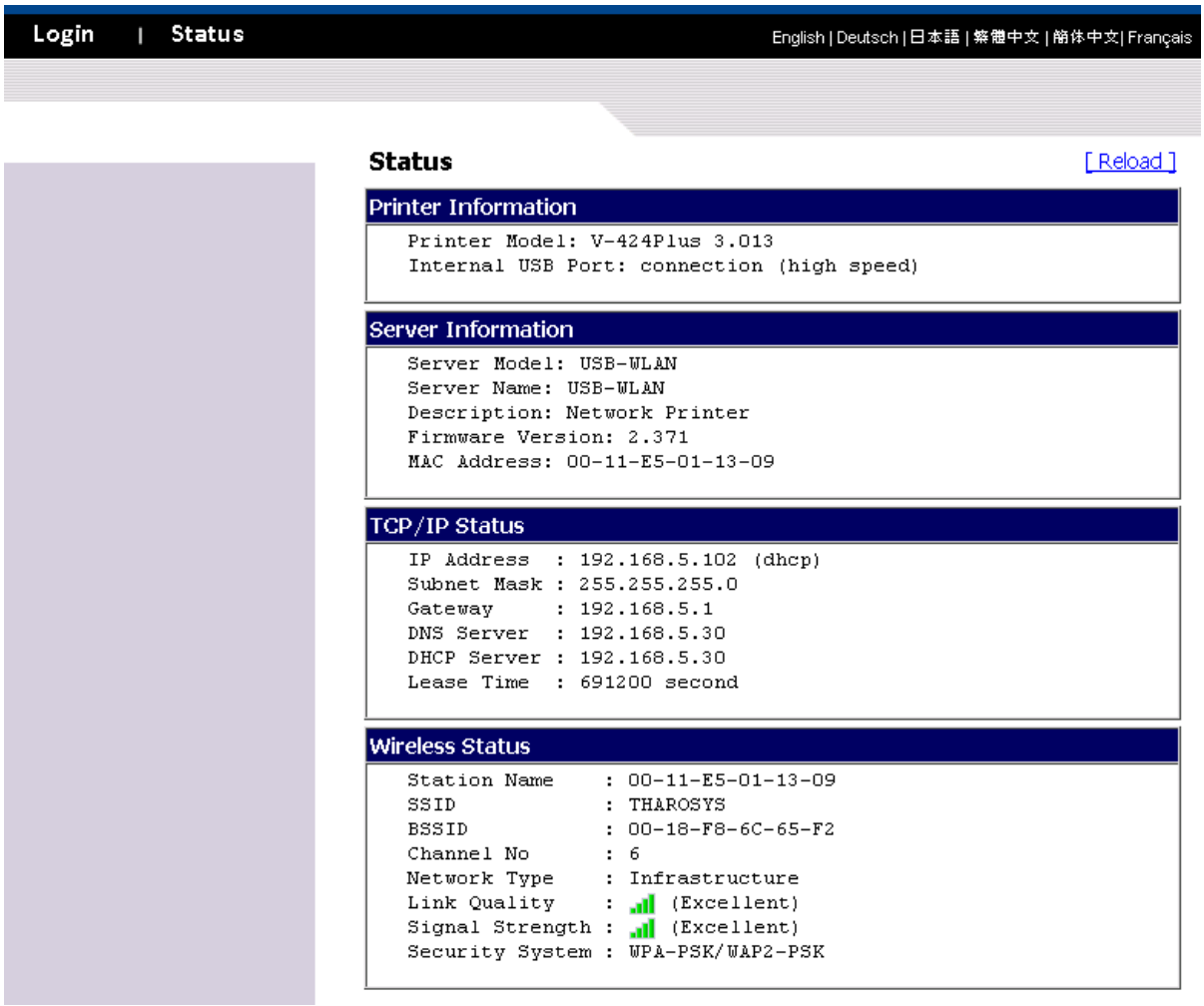


2. You can also open the Print Server's Web Page from within the NetPS Control Center Software. Select the Print Server you want to configure and then click the “Go to Homepage” Icon.



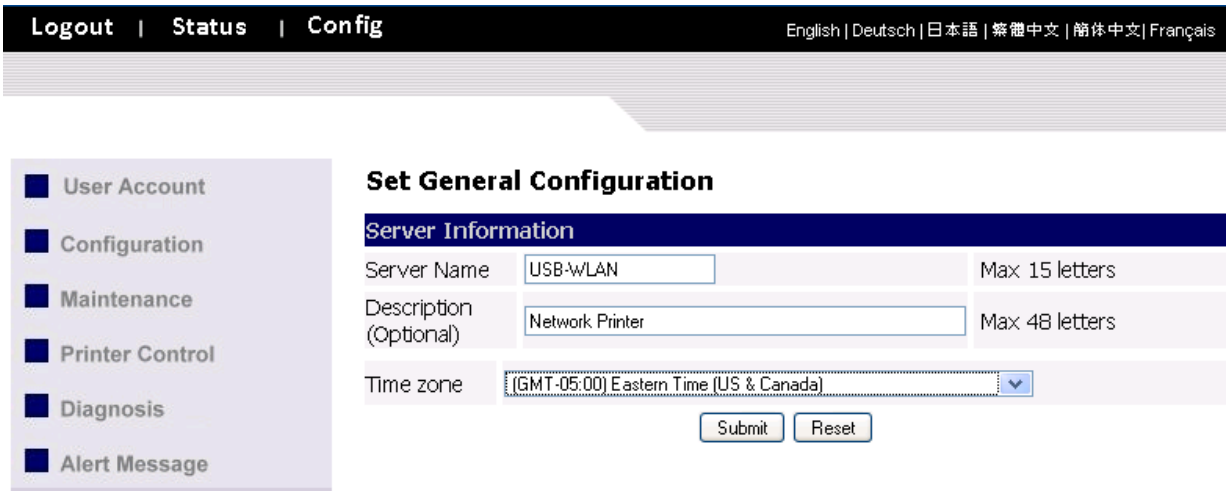
NOTE: If the wireless parameters are not set correctly, you have to use the wired LAN interface to access the Network Printer Server.

3. Click "Login" to log in.

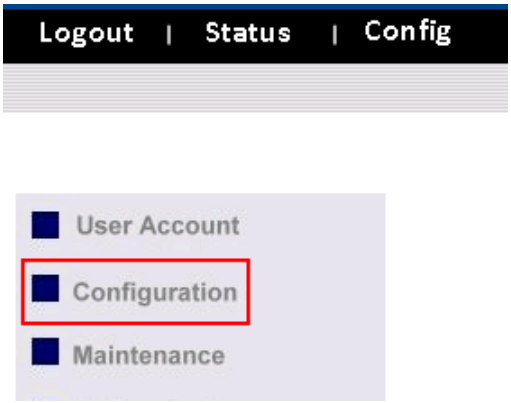


4. You will be prompted for a Username (default: admin) and Password (default: admin). Then click the Login button.

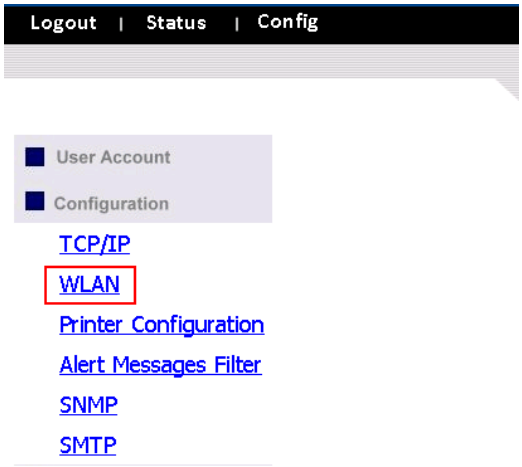
5. You will be presented with the Print Server's General Configuration page.



6. Click "Configuration".



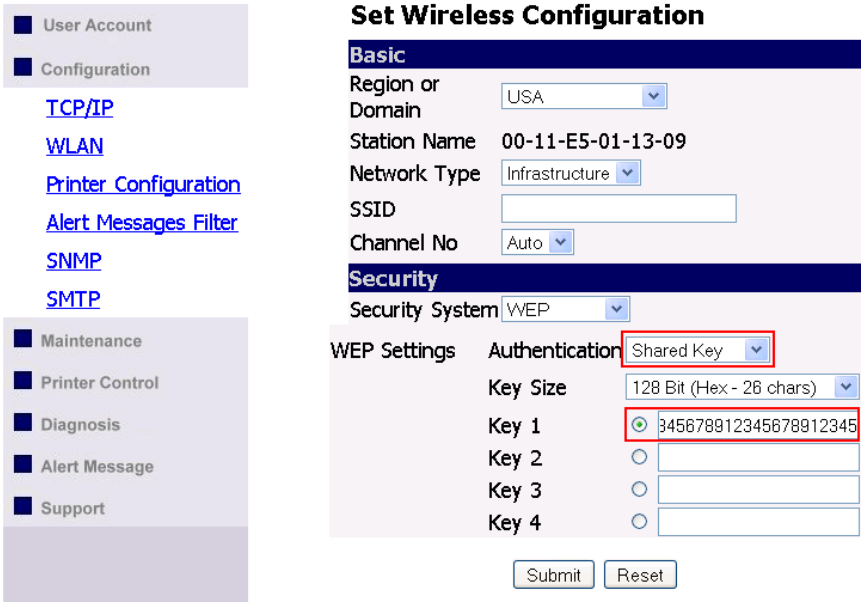
7. Click "WLAN".



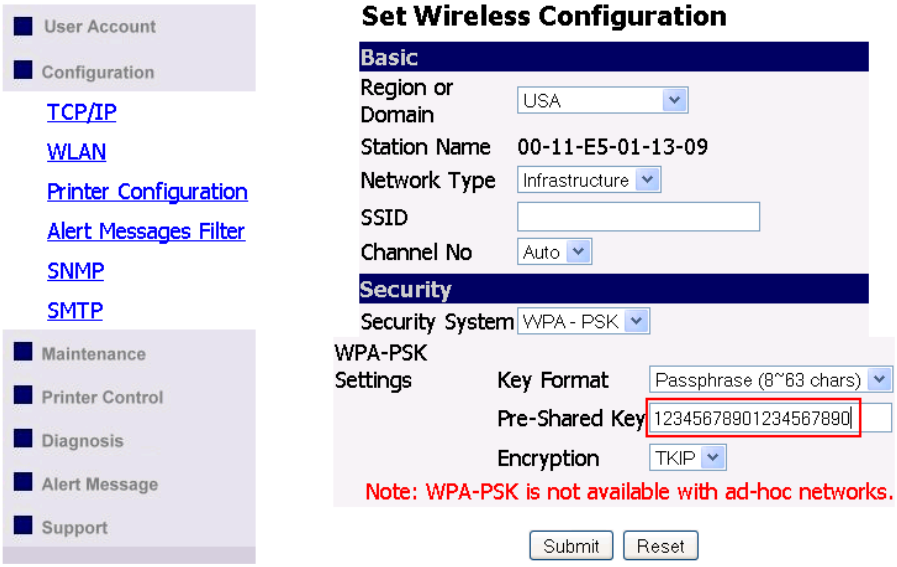
8. Consult with your network administrator for the appropriate settings for: network type (infrastructure or ad-hoc), SSID, and the correct security information.

NOTE: Wireless security can set to WEP64, WEP128, or WPA-PSK/TKIP.

9. If the wireless network is secured using the WEP64 or WEP128 authentication method, you will need to set the key index (Key 1, Key 2, Key 3 or Key 4), and enter the WEP key string.



10. If the wireless network is secured using WPA-PSK/TKIP you will need to set the shared key correctly.



NOTE: The use of WPA-PSK/TKIP is not supported in ad-hoc mode.

11. Click 'Submit' to save your settings and the Print Server will reboot.

12. Disconnect the wired LAN interface and cycle the power on the printer.
13. This completes the configuration of the Print Server's wireless LAN interface.

IMPORTANT NOTE: The Wired LAN interface MUST be disconnected in order for the Wireless interface to function.

4. The Print Server's Web Pages

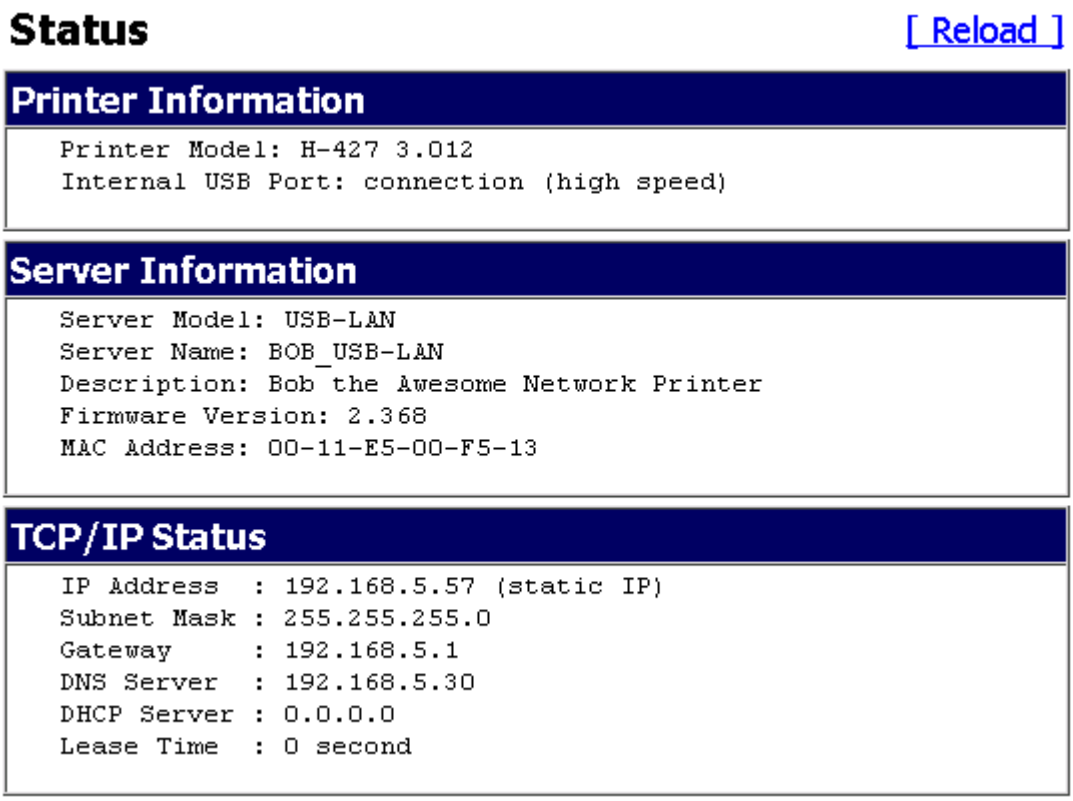
4-1. Introduction

The Print Server runs the http server daemon (*httpd)* on TCP port: 9100. Users can use the web pages to see the Print Server's status and configure the Print Server.

4-2. Using the Print Server's Web Pages

4-2-1. The Print Server's Status Page

You can view the Printer, Print Server, TCP/IP and Wireless settings.



4-2-2. Server Configuration

To make changes to the Print Server configuration, the system will request the user to enter a Username (default: admin) and Password (default: admin) to login.

- **Set User Account:** You can change the default administrator name and password or add a user account for the Print Server. If you forgot the administrator name and password, you must restore the Print Server to factory defaults. Please refer to the section “Restore Factory Defaults” for more information.

  ◆ Set Administrator

  New Administrator: enter the name of the administrator.

  New Password: enter the password.

  Retype Password: confirm the password.

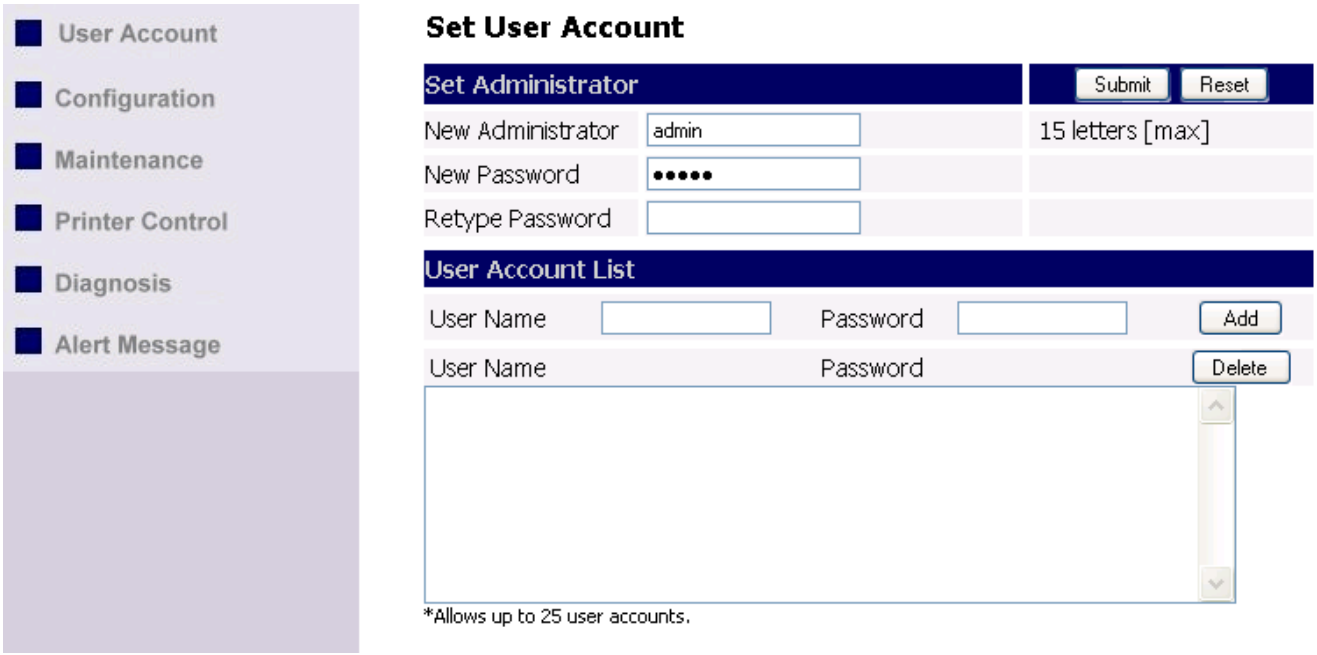
  ◆ User Accounts list

  User name: the name of an account to access the storage in the Print Server.

  Password: enter the password for the new user.

  Add: click the “Add” button to create the new user account after entering the user name and password.

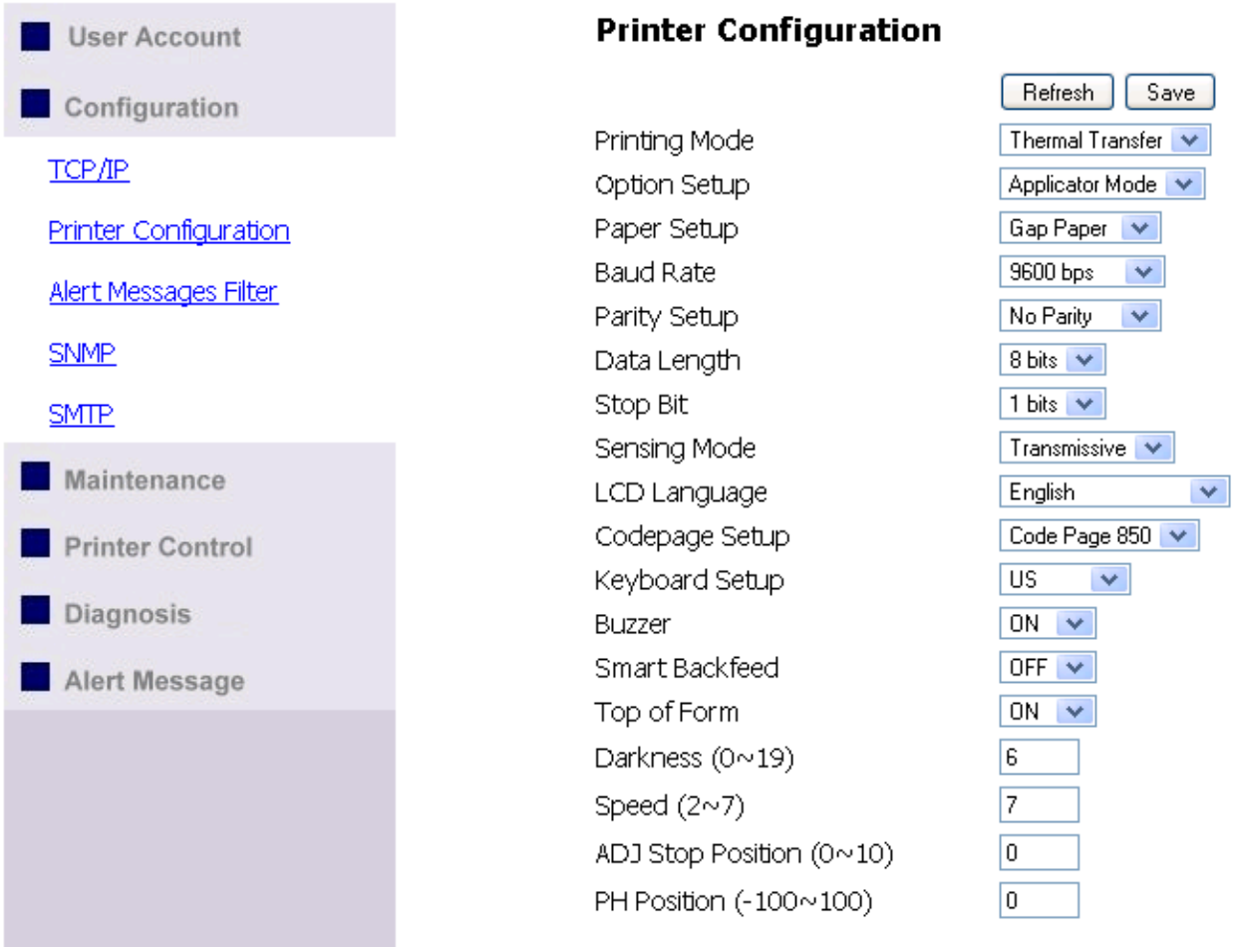
  Delete: click the “Delete” button to delete the selected user account.



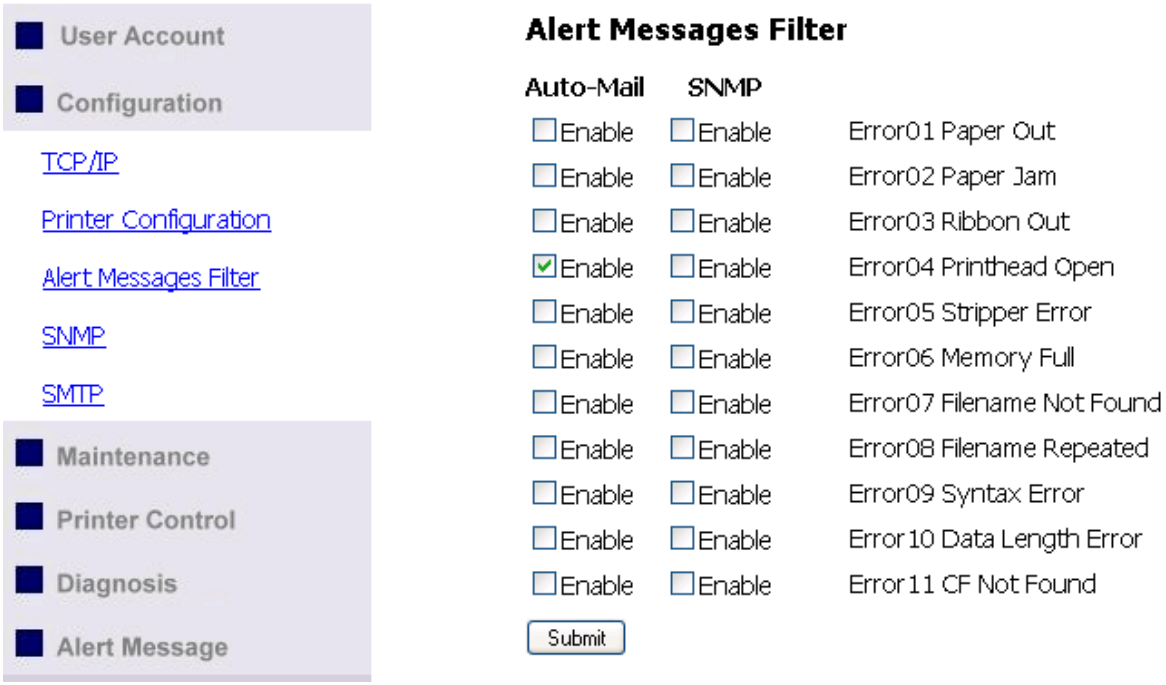
- **Configuration**

  ◆ TCP/IP: Settings that allow the Print Server to access your wired network. See the section on Network Configuration for more details.

- WLAN: Setting that allow the Print Server access to your wireless network. See the "Set Wireless Configuration Using Server's Web Pages" section for more details.
- Printer Configuration: Change the configurations of the printer. Please refer to the printer's operator's manual for more details.



◆ **Alert Message Filter**: Enables or disables sending error messages via SMTP or SNMP.



◆ **Set SNMP Configuration**: This Server runs an SNMP (Simple Network Management Protocol) daemon that supports SNMP v1 and v2c protocols. Users can use SNMP client software such as HP OpenView to manage the Server. The Server supports all relevant parts of MIB-II and a private MIB. You can set these MIB variables from the Server's web pages or by using the NetPS Control Center. You can set community and some parameters for SNMP server. **SNMP REQUIRES Printer firmware 3.014 or higher**

The SNMP Configuration includes:

Authentic Community: Sets the Community name of the SNMP server.

Trap Community: Sets the Trap Community name for the SNMP server to send trap packets.

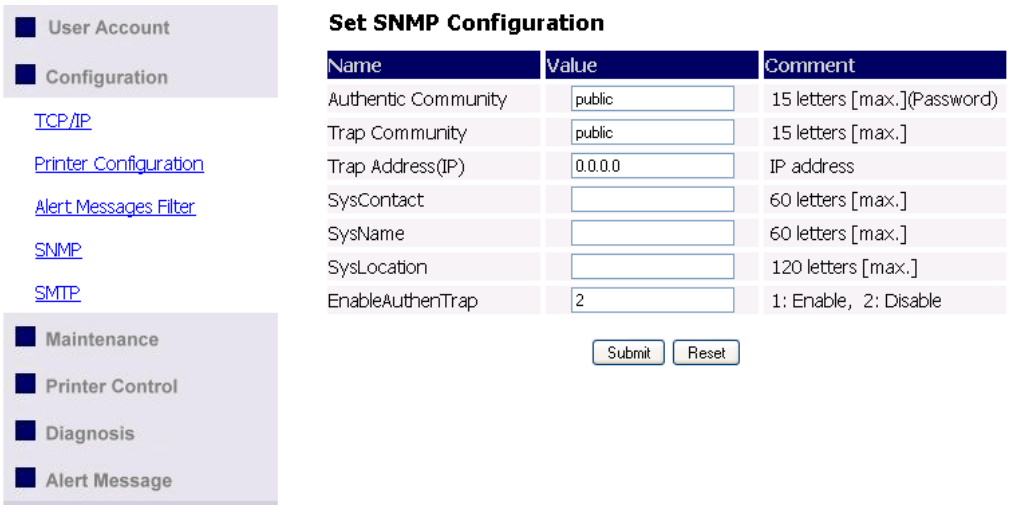
Trap Address (IP): Enter an IP address to send the Trap packet.

SysContact: Enter the name of system contact.

SysName: Enter the name of system.

SysLocation: Enter the location of system.

EnableAuthenTrap: Enter 1 to enable or 2 to disable sending Trap packets.



◆ **Set SMTP Configuration** - the Print Server has the ability to send notification E-mails to alert users or administrators of error conditions. **SMTP REQUIRES Printer firmware 3.014 or higher**

SMTP Protocol: Enables or disables the SMTP Protocol.

SMTP Server Name: Sets the IP address or server name of SMTP Server.

SMTP Port Number: Sets the port number, the range is from 1 to 65535. Typical is 25.

Subject: The subject of notification mail.

From Address: The From Address of notification mail.

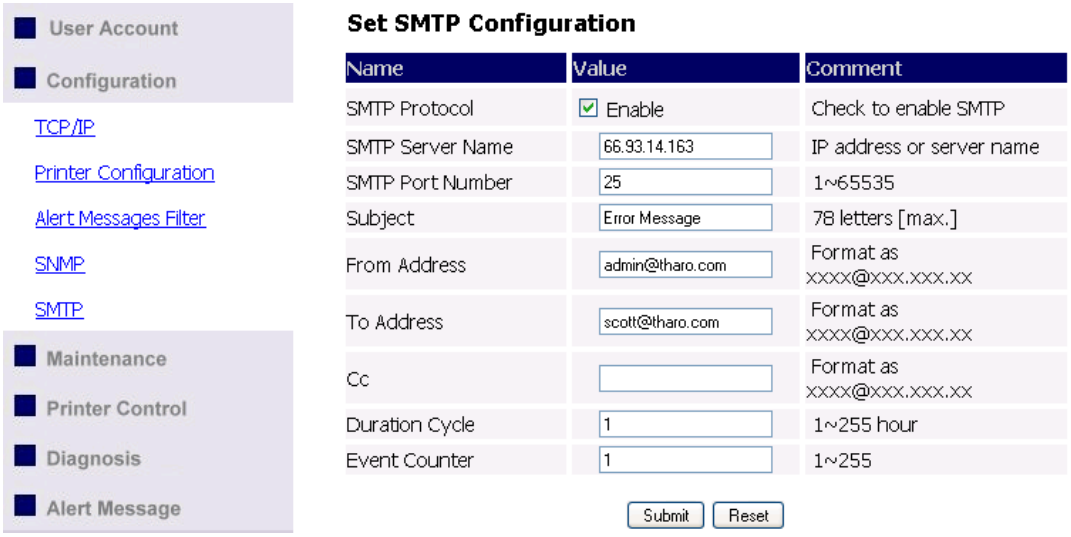
To Address: The From Address of notification mail.

Cc: The Cc receiver of notification mail.

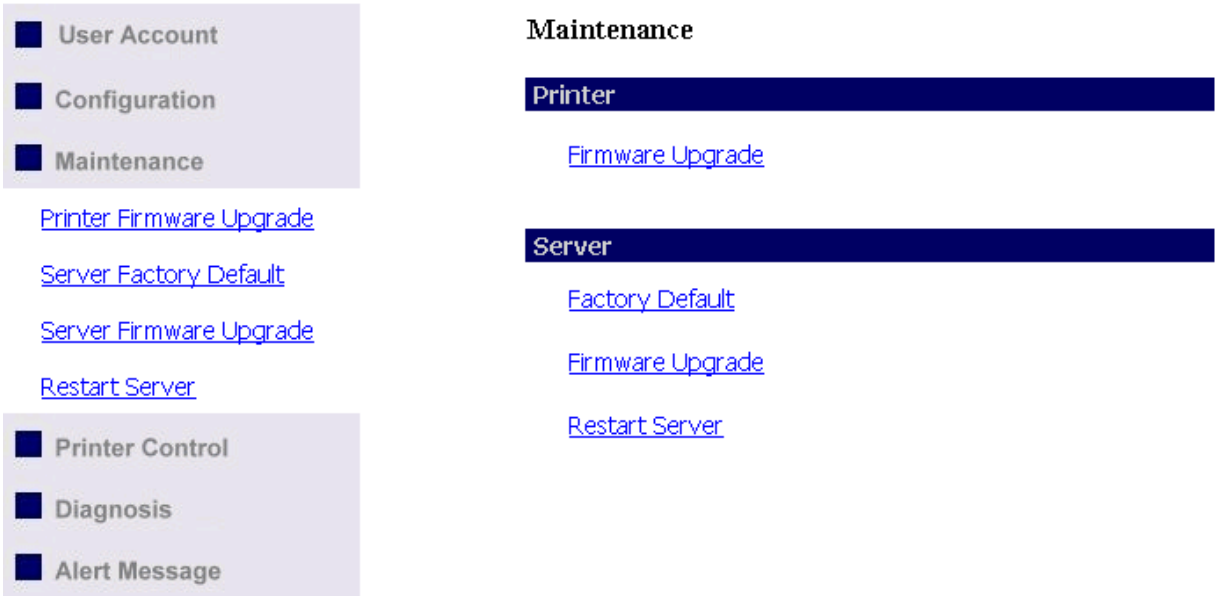
Duration Cycle: Sets the amount of time in hours to wait before sending the notification mail.

Event Counter: Sets the number of errors to accumulate before sending the notification mail.

Note: When both Duration Cycle are Event Counter set, the notification mail will be sent depending on which condition is met first.



- **Maintenance**

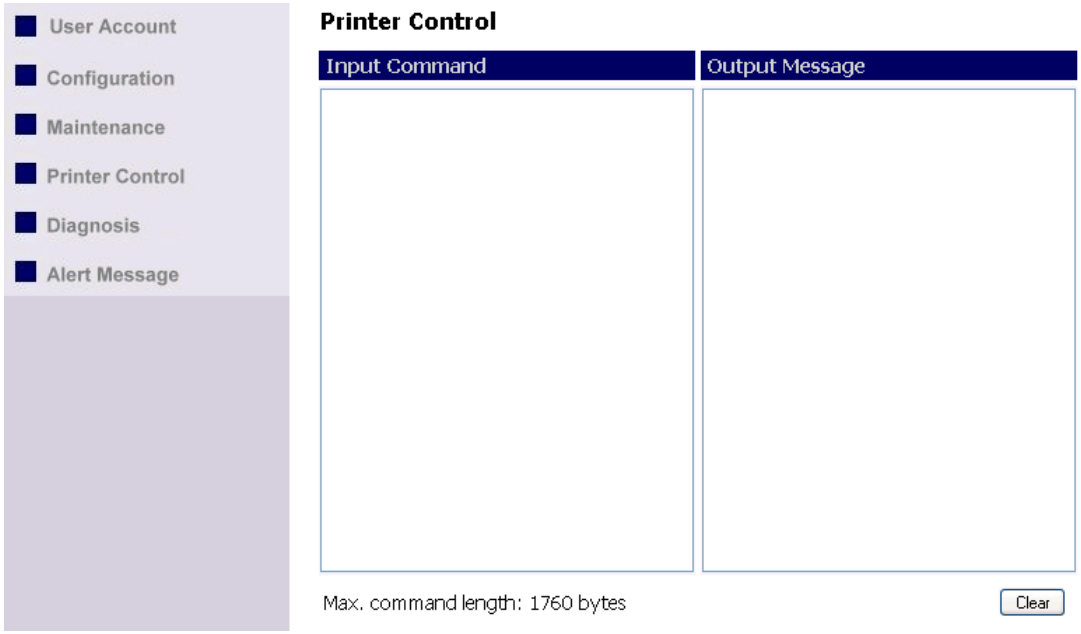


If you want to restore the Print Server to factory default values, upgrade the firmware of the Printer, upgrade the firmware of the Print Server or restart the Print Server, you can use the tools on the Maintenance page:

- Printer Firmware Upgrade: Click Open to find the firmware file to be loaded. Click Upload to upload the firmware to the printer.
- Server Factory Default: Click this button and the Server will restore the factory default values.
- Server Firmware Upgrade: Click Open to find the firmware file to be loaded. Click Upload to upload the firmware to the Print Server.
- Restart Server: Click this button and the Server will restart.

- **Printer Control**

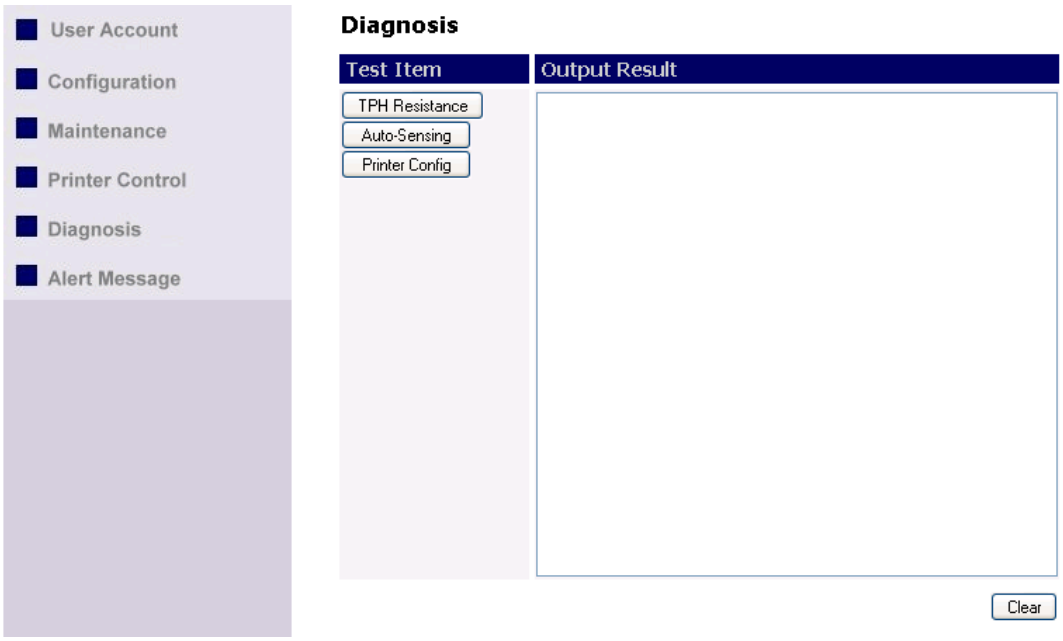
This page allows you to send printer commands directly to the printer. Type a TPL command in the "Input Command" window and press Enter key. The Print Server will transfer the command(s) to the printer. If command returns response message, the message will be displayed in the "Output Message" window.



- **Diagnosis**

The Diagnosis page can check the hardware status of printer.

- ◆ Click the "TPH Resistance" button to check the dot information of Thermal Print Head. The result of the test will be displayed in the "Output Result" window.
- ◆ Click the "Auto-Sensing" button and the printer will perform an Auto-Sense test to find the media.
- ◆ Click the "Printer Config" button to display the printer configuration in the "Output Result" window.



- **Alert Message**

Collects and displays the error messages that come from the printer. You can click the "Dump" button to get error messages from the printer and display them in the “Alert Message” window. Click the "e-mail" button to send the message to a designated e-mail address or click the "Clear" button to delete the contents of the “Alert Message” window.

5. Troubleshooting

This chapter provides useful information to help you resolve problems you may encounter with your Print Server. Fault symptoms, possible causes, and remedial actions are provided within a quick reference table.

5-1. FAQ

Problem	Recommended Solution
Why can't the NetPS Control Center detect the Ethernet/Wireless LAN module?	◆ Make sure the network cable is securely connected. ◆ The NetPS Control Center may be blocked by a firewall. Please refer to "Firewall" section to change the firewall configuration.
Why can't I use IE to set the Ethernet/Wireless LAN module?	◆ Check that the LAN Module's Gateway address is the same as the computer's Gateway address. Both must be in the same Gateway domain to change the Print Server's settings using IE.
Why can't I change the IP address of Ethernet/Wireless LAN module?	◆ Login to the NetPS Control Center and change the "DHCP client" to TCP/IP.
When I use Firefox, the text on the web interface wraps to the next line, making it hard to read.	◆ We have found that when using Firefox, setting the font on the 'Content' tab to 14 or smaller eliminates the text wrap and makes it much easier to read.

5-2. Firewall

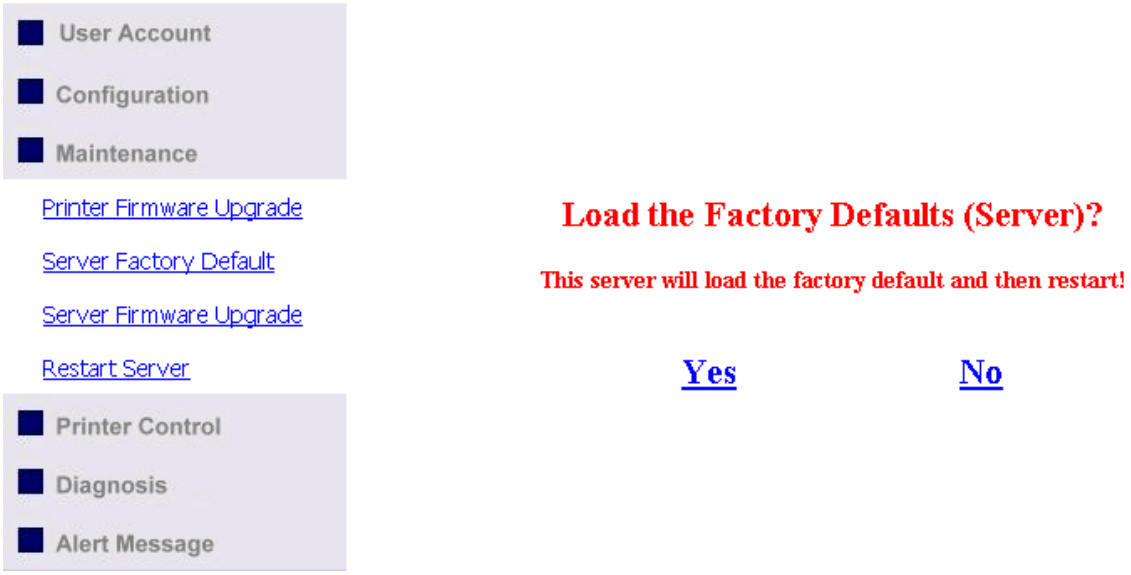
If firewall software has been installed on your PC, it may block the communication between the PC and the Print Server. This may cause the Print Server to not function properly. To solve this problem you can either disable the firewall or configure the firewall to allow the following TCP and UDP ports:

7303, 7305, 20005, 30201, 30202, 30203

6. Restore Factory Defaults

This section describes how to restore the Print Server to the factory default settings:

1. Open a Web browser and type the IP address of the Print Server in the address bar.
2. Click "Login" to log in.
3. You will be prompted for a Username (default: admin) and Password (default: admin). Then click the Login button.
4. Click “Maintenance”.
5. Click “Server Factory Default”.

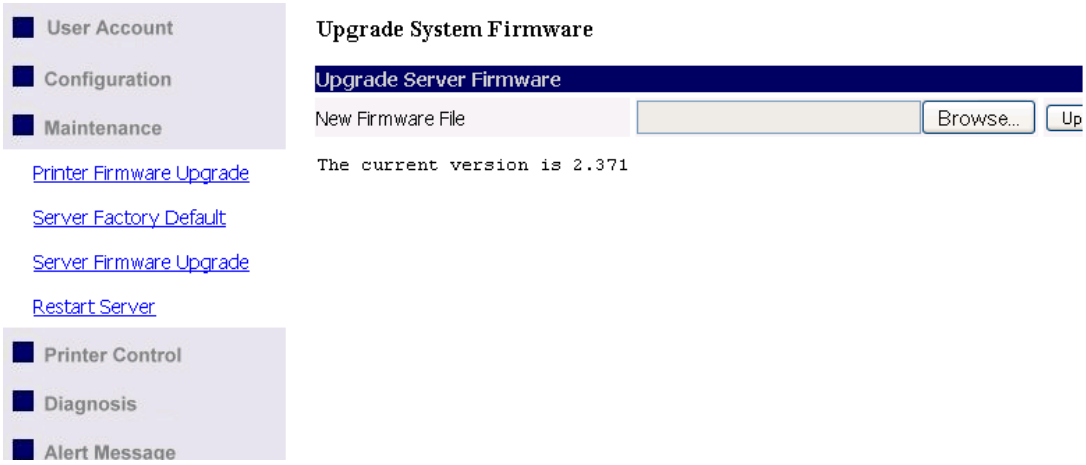


6. Click “Yes” to confirm and the factory default settings will be loaded.

7. Upgrade Firmware

This section describes how to upgrade Print Server's firmware.

1. Open a Web browser and type the IP address of the Print Server in the address bar.
2. Click "Login" to log in.
3. You will be prompted for a Username (default: admin) and Password (default: admin). Then click the Login button.
4. Click “Maintenance”.
5. Click “Server Firmware Upgrade”.



6. Click the “Browse” button to choose the firmware file you want to load.
7. Click the “Upload” button to start the firmware upgrade.
8. Wait for 15 seconds for the system to reboot.