LevelOne

FUS-3101

USB MFP Server

User Manual

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Chapter1   Introduction

Thank you for purchasing FUS-3101 USB MFP Server (in the following referred to as "Server"). This Server is designed to connect your Multifunction Printer, Scanner, Fax, Multifunction Printer, to your network, allowing all network users' access to these shared USB devices.

1.1 About the Printer Server Described in this Manual

This manual provides introductory information as well as detailed instructions on how to set up and manage LevelOne USB MFP Server in various network environments.

To fully benefit from this document, you should be familiar with basic networking principles. The instructions described in this manual are based on the settings in a new Server. To reload the Factory Parameters, you can reset this Server back to Factory Default, which will restore most of the settings. For details, please refer to the chapter "Restore Factory Defaults".

1.2 Customer Support

Should you require any technical assistance, please contact your product reseller. Or you can visit our website at http://www.level.com for latest product information.
This document is subject to changes without prior notice.

Chapter2   Product Overview

2.1 Package Contents

Verify that nothing is missing from the package by using the checking list below. Please contact your dealer if anything is missing or damaged. All packing materials are recyclable. Please confirm the items in the package below:

- FUS-3101
- Power Adapter
- Quick Installation Guide
- CD Manual/Utility

2.2 Product CD

This CD provides easy-to-use Control Center software, and the User's Manual and Quick Installation Guide.

2.2.1   Start-up Procedures

If your computer is configured to auto start CDs, this CD will start automatically when inserted. You can also navigate to the CD and start the autorun.exe file from within the Windows file manager.

2.3   Physical Description

1. **Power Adaptor Connector:** for DC IN 12V/1A power adaptor
2. **Init Button**: for restoring the parameters to the default values
3. **Ethernet Connector:** connected to a twisted pair category 5 cable
4. **USB Host Ports:** USB 1.1/2.0 low, full, and Hi-Speed compliant
5. **Indicators**
   - *Power Indicator* is lit while power is applied. If it is not lit, or if it blinks, there is a problem with this Server or power adapter.
   - *Link Status* is lit while network is applied. If it is not lit, it indicates that this server does not connect to the network.
   - *Status Indicator* blinks to indicate network activity.
   - *LAN Indicator* blinks to indicate wired network activity. If it is lit, it indicates the wired network is applied. If it is not lit, it indicates that the server does not connect to the wired network.
   - *USB Indicator* is lit while a USB device connects to a USB Port of this Server. If it is not lit, or if it blinks, there is a problem with the USB device or this Server.

## 2.4   Supported USB Devices

The LevelOne USB device server supports the following types of USB devices.

- USB Printer
- USB multifunction printer (MFP/AIO)

Chapter3　　　Basic Installation

3.1　　　Connecting the Hardware

1. Make sure that your USB devices are switched off and that the Server's Power Adapter is disconnected.

2. Connect the USB devices to the USB port with the USB cable.

3. Connect the Server to the network with a twisted-pair category 5 cable, 10baseT or 100baseTX.

4. Turn on the USB device and make sure it is ready for use.

5. Connect the Power Adapter to the Server. The power indicator will light up and USB indicator will flash in turn. When the Link indicator lights up, the Server is correctly connected to the network. When USB indicator stops flashing, the Server starts to work normally.
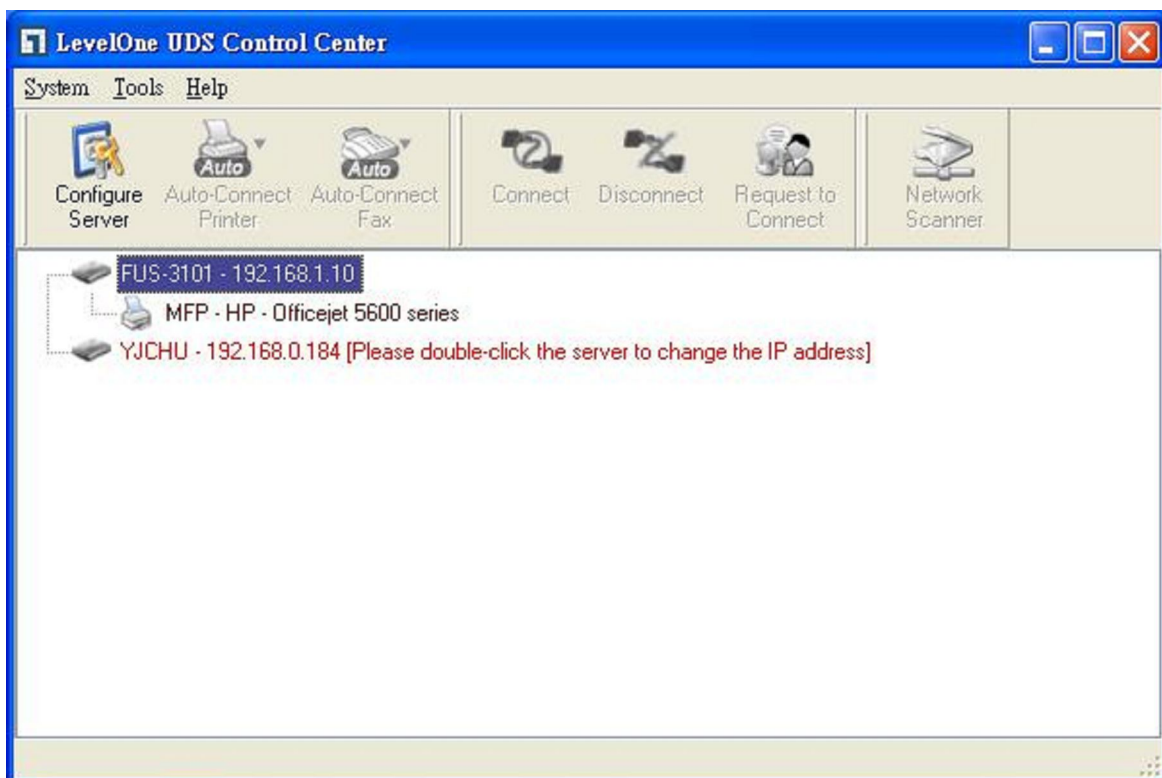
1. Double click the highlighted server (or click the "Configure Server" button) to get the server's web pages. Click CONFIG icon.
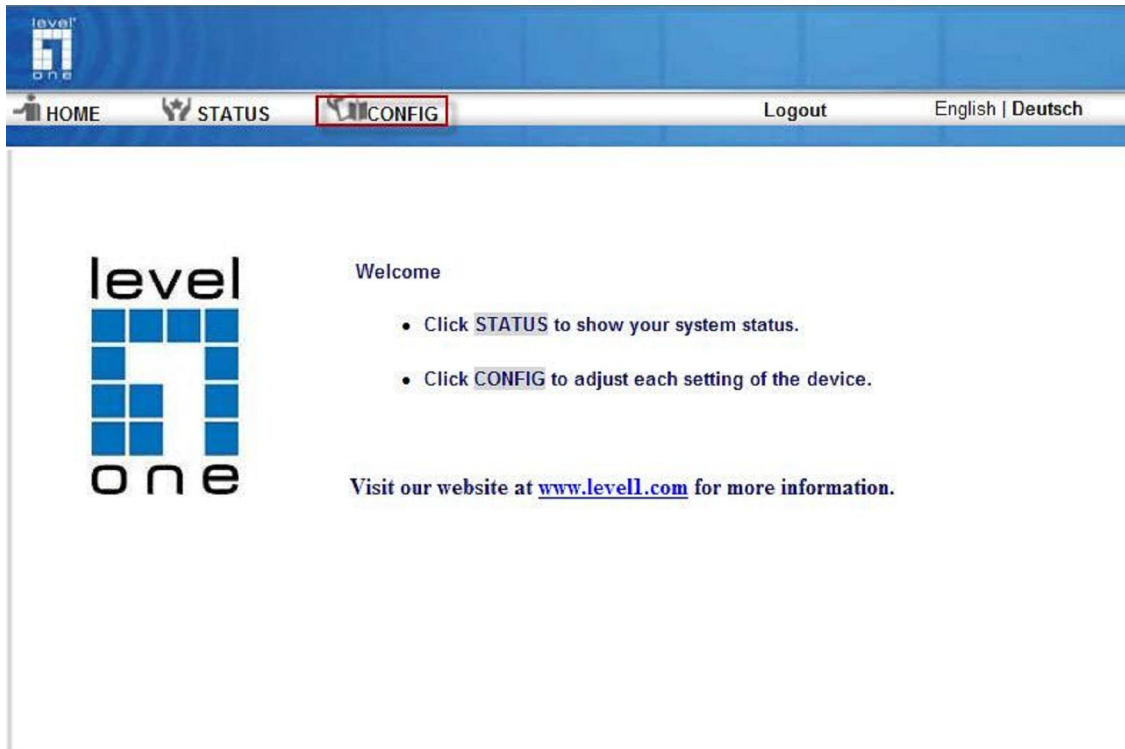
2. Login with administrator ID (default: *admin*) and its password (default: *admin*).

3. Click **Submit** to save your settings. And the server will reboot
4. You have now finished the procedure of setting the wireless parameters.

After properly configuring the wireless parameters, you can remove the network cable and reboot the Printer Server. LevelOne Printer Server will then connect to your wireless network. And it will detect if a network cable is plugged-in or not. If a network cable is plugged-in, the Printer Server will always connect to the network through the network cable. Otherwise it will always connect to the network through wireless module. Once the Printer Server connects to the network, all operations to use USB device server are exactly the same.

3.3 Assigning an IP Address to the Server

3.3.1   Preliminary

■   If you have a DHCP server on your network, your Server will receive an IP address automatically. The IP address will then appear on the *Control Center* or on the page of configuration report that you printed earlier. If your DHCP server does not give an IP address to the Server, the Server will use the automatic private IP addressing IP:

6

169.254.0.0. ~ 169.254.255.255

■ If you are not working in a DHCP network, you need to manually set the Server's IP address.

3.3.2   IP Address

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

3.3.3   Methods for Setting the IP Address

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

■ Automatic IP Address Assignment

■ Manual IP Address Assignment

3.3.4   Server Names and Server Name Rules

The default server name of the Server is "LevelOne". If you put two or more Servers in your local area network, to avoid using the same server names you have to change the server names by using the Control Center or the Server's web pages. If your server name is longer than 15 characters, the Server uses only the first 15 characters.

3.3.5   Setting the IP Address Using DHCP

Follow the instructions below to get an IP address using DHCP:

1. Edit or create a scope in the DHCP manager of the DHCP daemon. The entries included in this scope should contain the following parameters:
    • range of IP addresses
    • subnet mask
    • default router IP address
    • DNS server IP address
    • lease duration

2. Activate the scope. The Server automatically gets the DHCP parameters. If you are using DNS, you may include at least one DNS server IP address in the DHCP scope or manually set the DNS server IP address using Server's web pages or the Control Center.

3.3.6   Setting the IP Address Using the Control Center

1. Install the Control Center. The Control Center is available on the Product CD.

2. Start the Control Center and Auto-searching Server window will appear.

3. If the tool finds multiple Servers in your local area network, then you have to select one Server from the Server List.
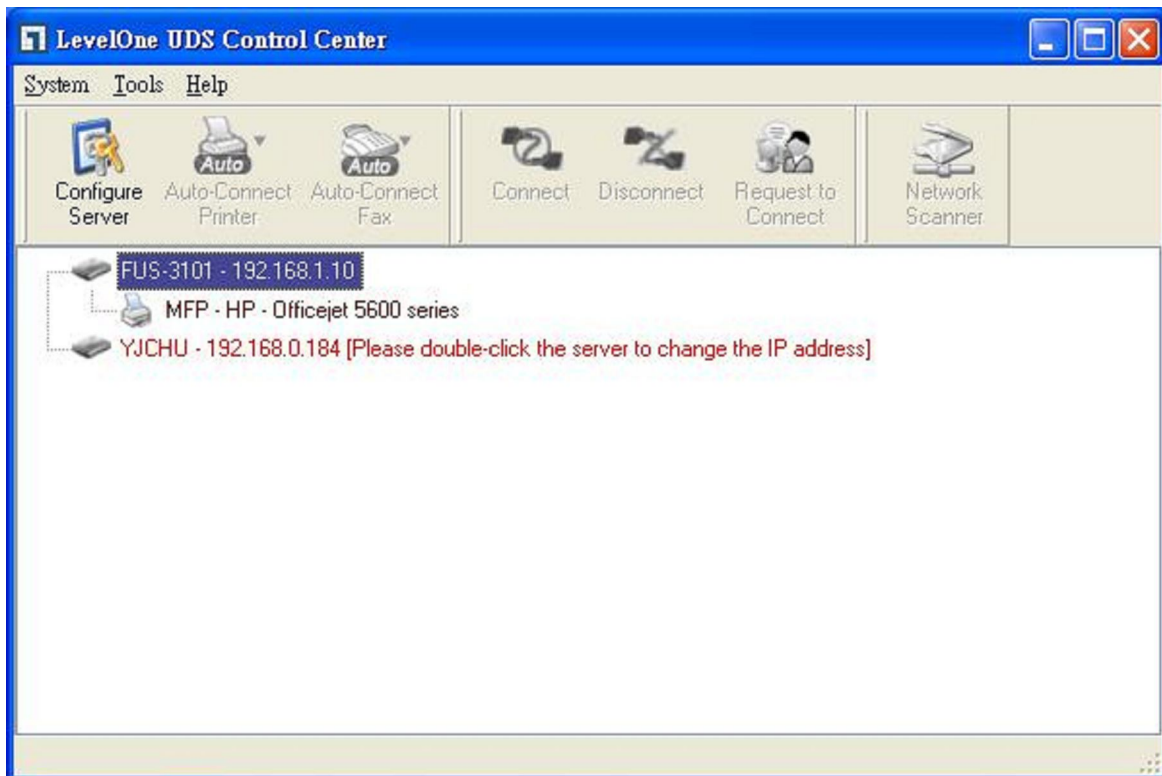
4. Double click the highlighted server (or click the "Configure Server" button) to get the server's web pages. Click CONFIG icon.

5. Login with administrator ID (default: admin) and its password (default: admin).

6. Click the button corresponding to your choice of IP setting methods (static or dynamic using DHCP). When assigning a static IP address you also have to define Subnet Mask.

7. Click Submit to save your settings. And the Server will reboot. You have now finished the procedure of setting the IP address.

Chapter4   Using the USB Device Server

4.1 Introduction

The goal of this product is to provide the USB device server in a single product. We developed a new technology called "NetUSB" to achieve this goal. Basically, the "NetUSB" is a "USB over IP" technology that transparently redirects all USB packets to TCP/IP network channel. "NetUSB" allows you to use USB devices as if they were connected directly to your PC although they are actually remotely connected to the LevelOne Printer Server USB device server.

4.2 Connect & Disconnect

"NetUSB" allows you to use USB devices as if they were connected directly to your PC although they are actually remotely connected to the LevelOne USB Printer Server. The "connect" operation is a software operation that simulates an actual USB device plug-in. That is to say, when you do a "connect" operation in the Control Center, PC can then detect a USB device's plug-in, although actually you do not plug in any USB device. Similarly, the "disconnect" operation is a software operation that simulates the disconnection of the USB device. Once the connect operation is successful, the operations to use that USB device are just the same as if the USB device is directly connected to the PC.

If a USB device is "connected" by a PC, we say that PC has the ownership of the USB device. Only one PC can get the ownership of a USB device at the same time. Therefore, if a USB device is connected by one PC, no other PC can connect this USB device until this USB device is disconnected.

4.3 Subnet Issue

Before using the NetUSB technology, you must first make sure that your PC can access LevelOne USB device server via TCP/IP. The simplest way to do this is using "Control Center" to search for the LevelOne USB device server on the network and change its IP address to be the same subnet as your PC. If the server and your PC are not in the same TCP/IP subnet, Control Center will show the server in red, as the following figure. You must change the IP address (or using DHCP) of the server so that the server and your PC are in the same subnet. Control Center will show these servers in blue, meaning you can access these servers by the NetUSB technology.
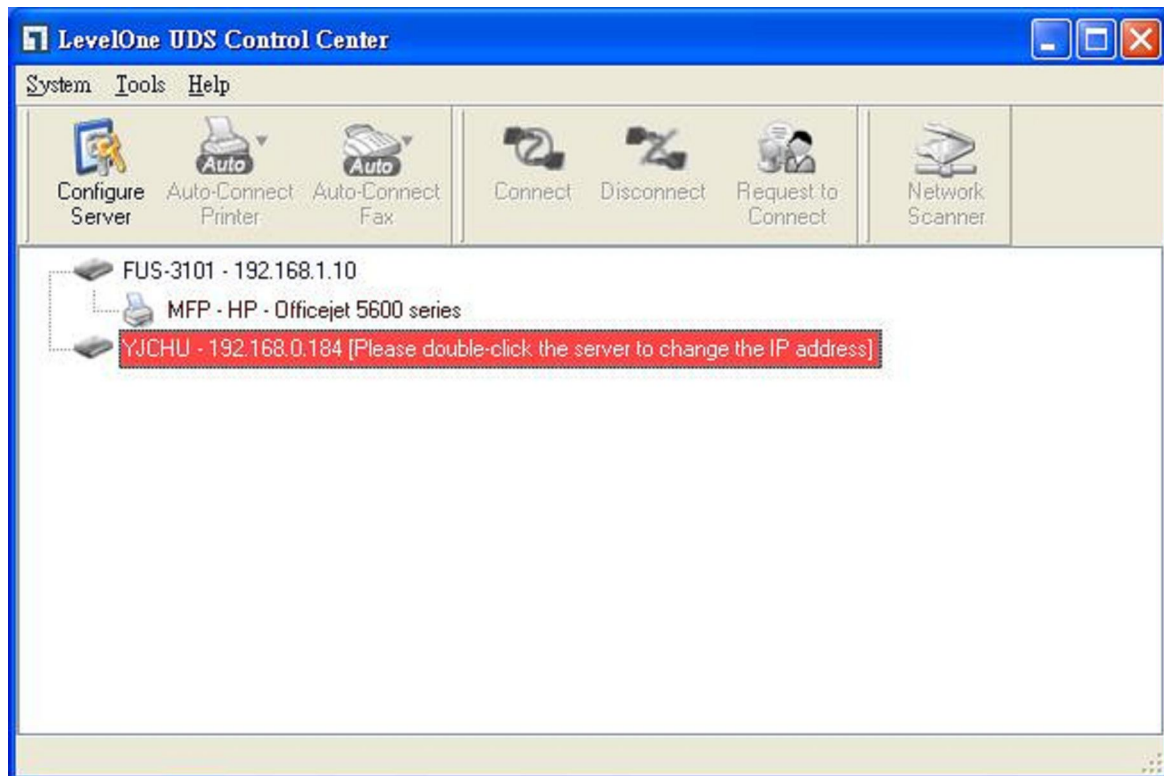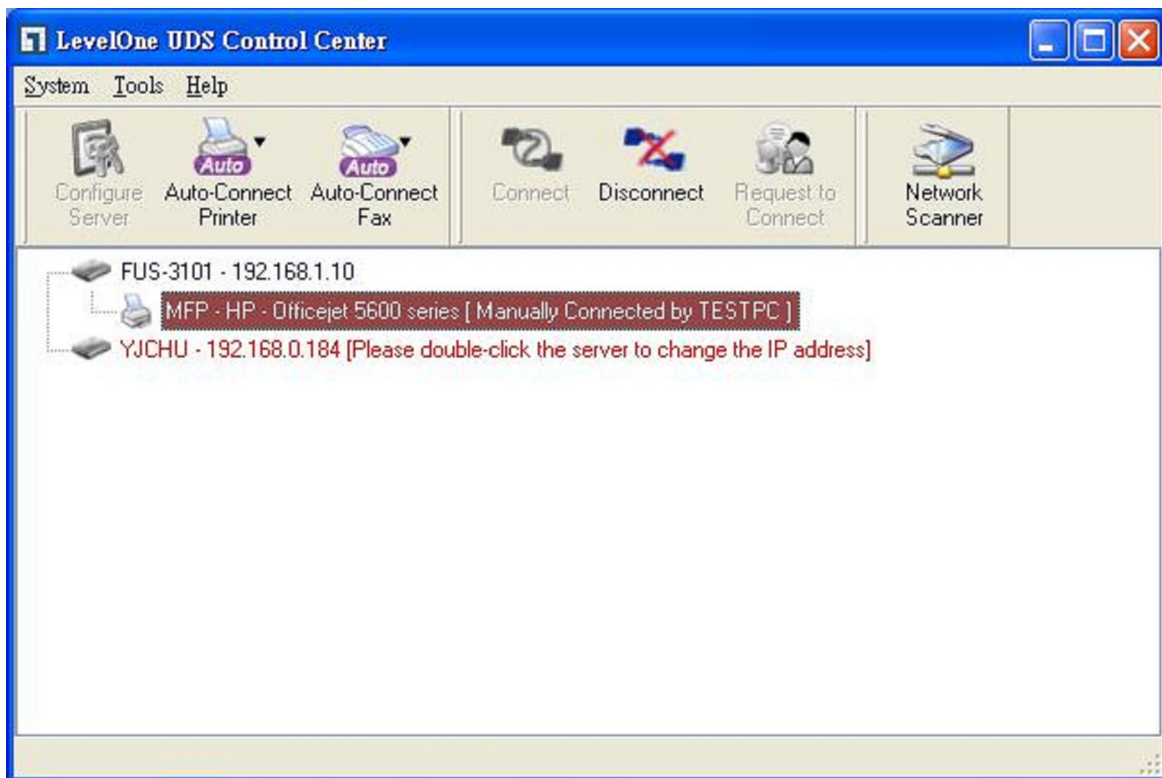
4.4 Installation of USB Device Driver

Some USB devices, like printers or MFPs (multifunction printers), require to install vendor-supplied driver (usually on CDROM). For those USB devices that do not need to install driver, please skip this section.

A. Insert the CDROM into the CD drive and run the "autorun" program.
B. Follow the instructions of the installation program to install driver.
C. When the installation program asks you to plug-in the USB device, run the "Control Center".
D. In the Control Center, click the USB device server that has the desired USB device attached.
E. Click the desired USB device as the following figure.
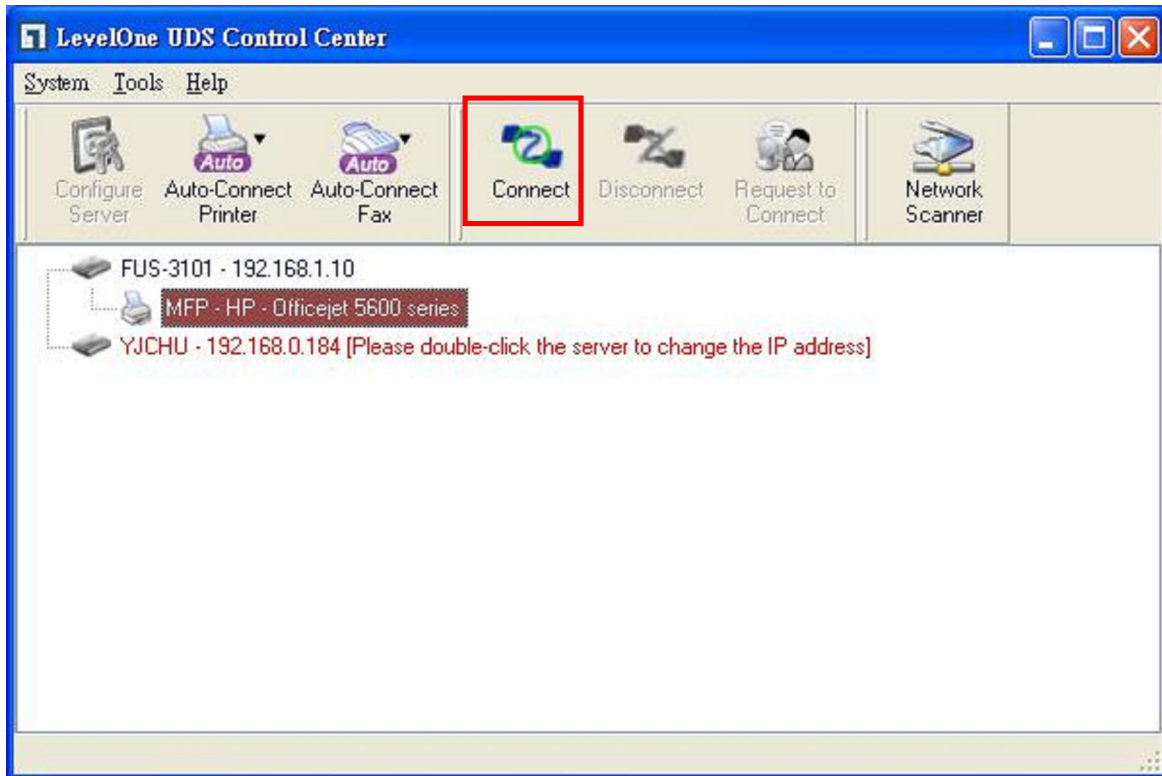
F. Click the "Connect" button. Then the message "Manually Connect by your_computer_name" will be shown, as the following figure.


G. Now, the installation program will detect the USB device and continue to install driver.
H. After the installation is completed, click the USB device in the Control Center and then click the "Disconnect" button to disconnect the USB device.
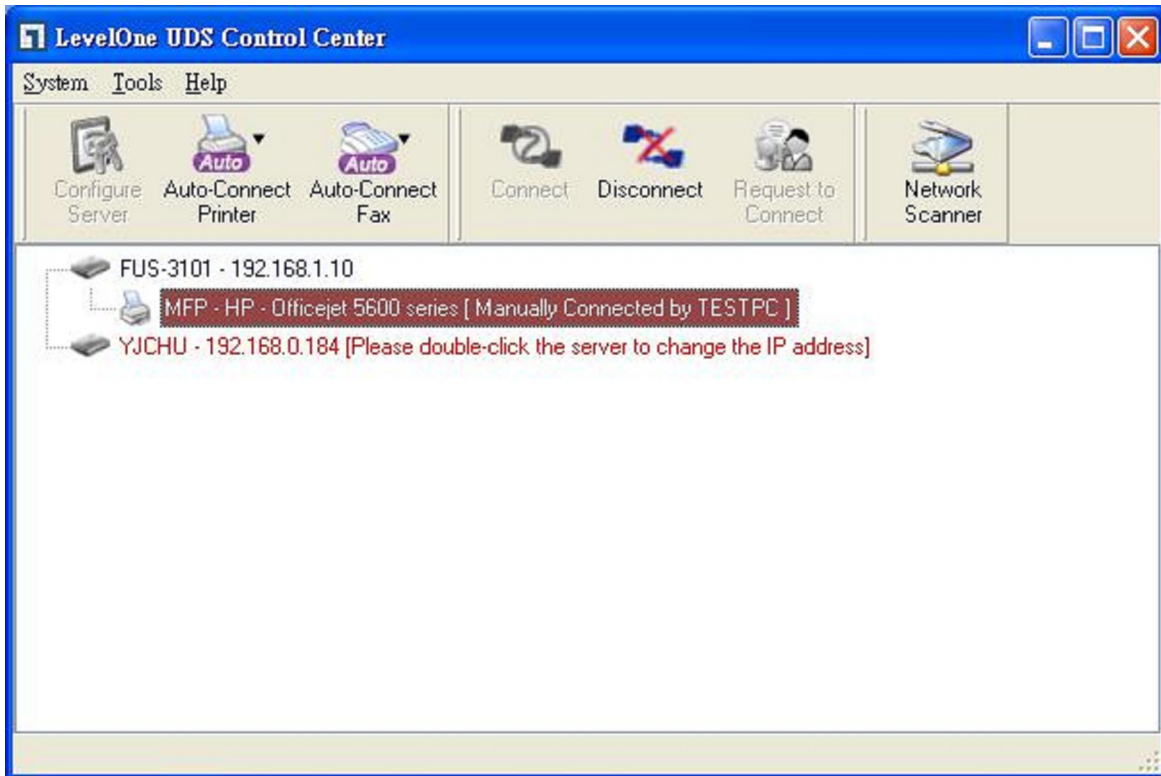
Now the driver of your USB device is installed.
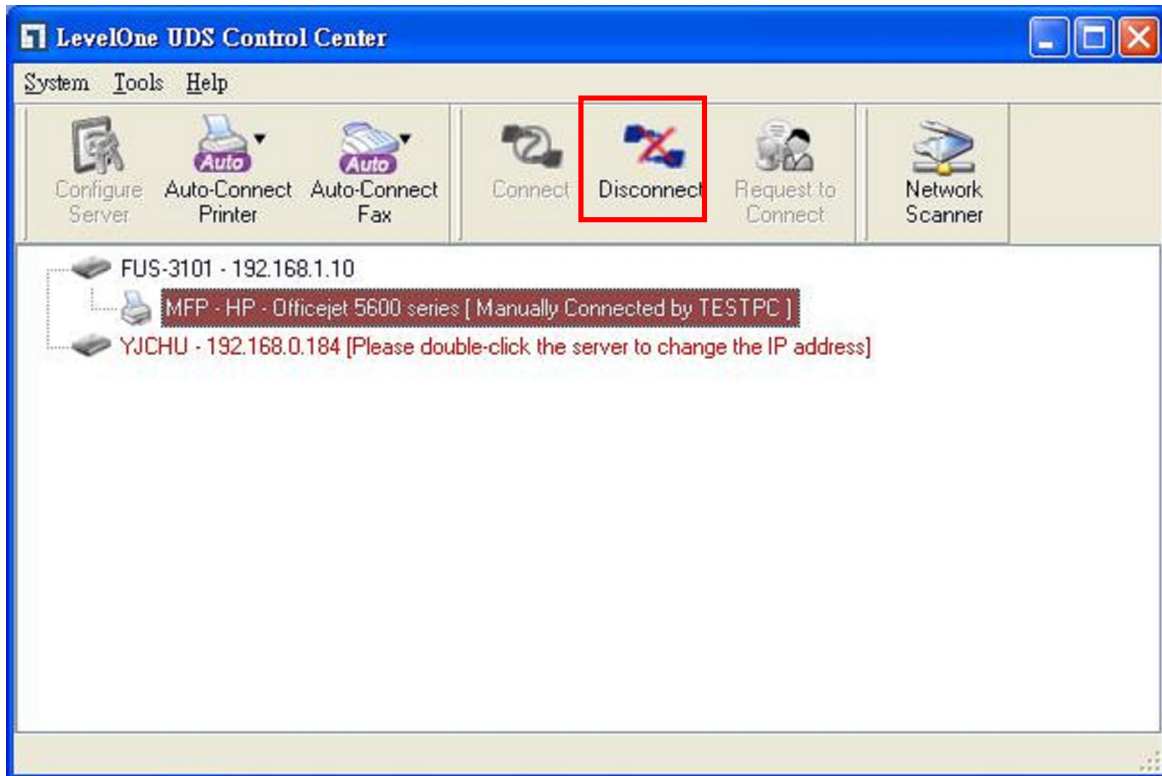
4.5 Using the USB Device Server

A. In the Control Center, click the USB device server that has the desired USB device attached.
B.   Click the desired USB device.
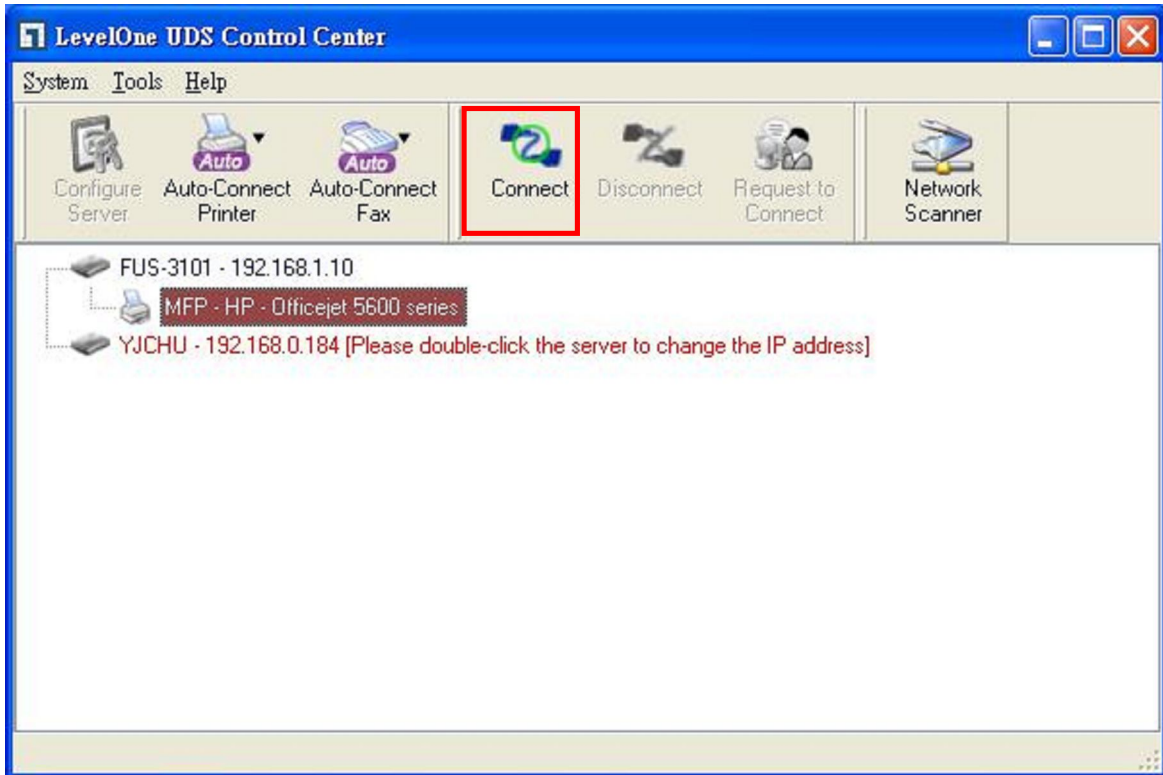
C.   Click the "Connect" button. Then the message "Manually Connect by your_computer_name" will be shown.

D. Now, PC will detect the plug-in of the USB device. The "connect" operation is a software operation that simulates an actual USB device plug-in. That is to say, when you do a "connect" operation in the Control Center, PC can then detect a USB device's plug-in, although actually you do not plug in any USB device.

E. Then, just use the USB device as if it is connected directly to your PC's USB port.

F. After you finish using the USB device, click the USB device in the Control Center and then click the "Disconnect" button to disconnect the USB device. Other PCs can not "Connect" the USB device until you "Disconnect" that USB device. That is to say, only one PC is allowed to connect the USB device at the same time.

4.6 Auto-Connect Printer

The method described in section 4.5 is so-called manual-connect, which means users must manually connect the USB device before using that device, and must manually disconnect the USB device after using the device, otherwise nobody else can connect this device. However, for printers and scanners (and MFPs), the USB device server supports auto-connect so users don't need to manually connect/disconnect. This and the next sections show you how to do this.

After the driver is installed as described in section 4.4, you can see a newly created printer in the Control Panel's "Printers and Faxes". Follow the steps below to do a NetUSB auto-connect printing.

A. In the Control Center, click the USB device server that has the desired printer (or MFP) attached.
B. Click the desired printer (or MFP).
C. Click the "Auto Connect Printer" button and choose "Set Auto-Connect Printer".
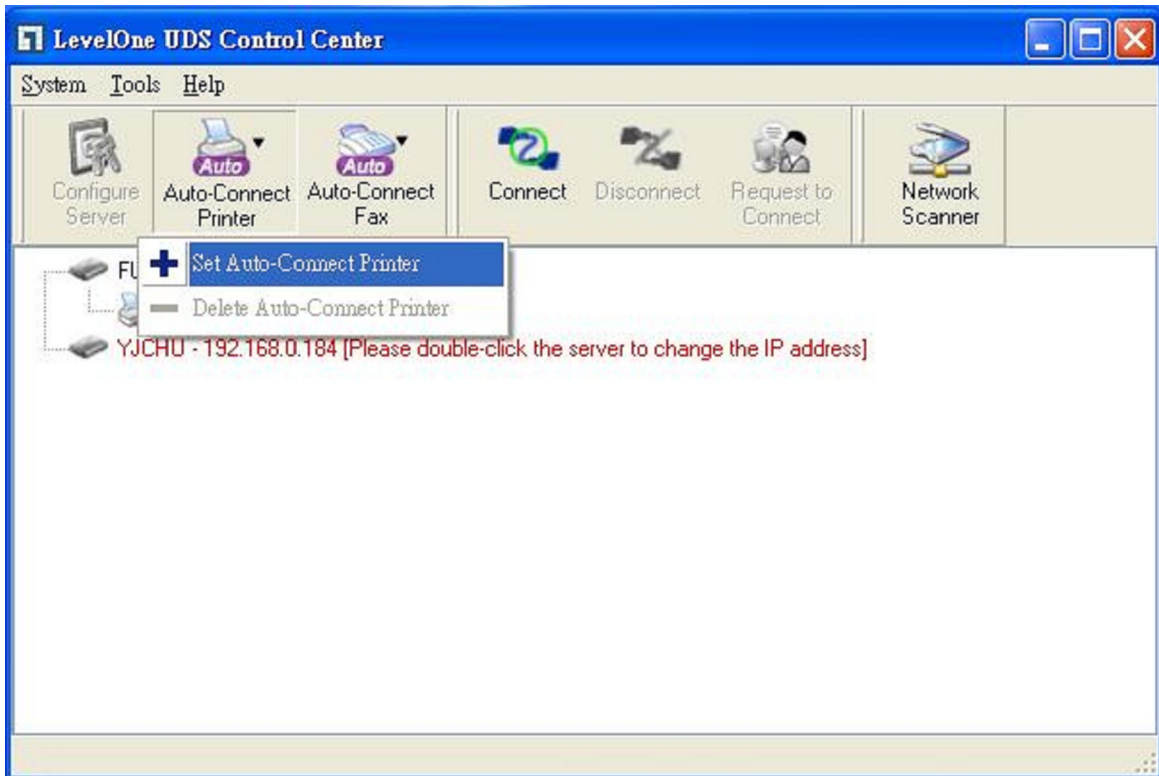
The following figure will appear.
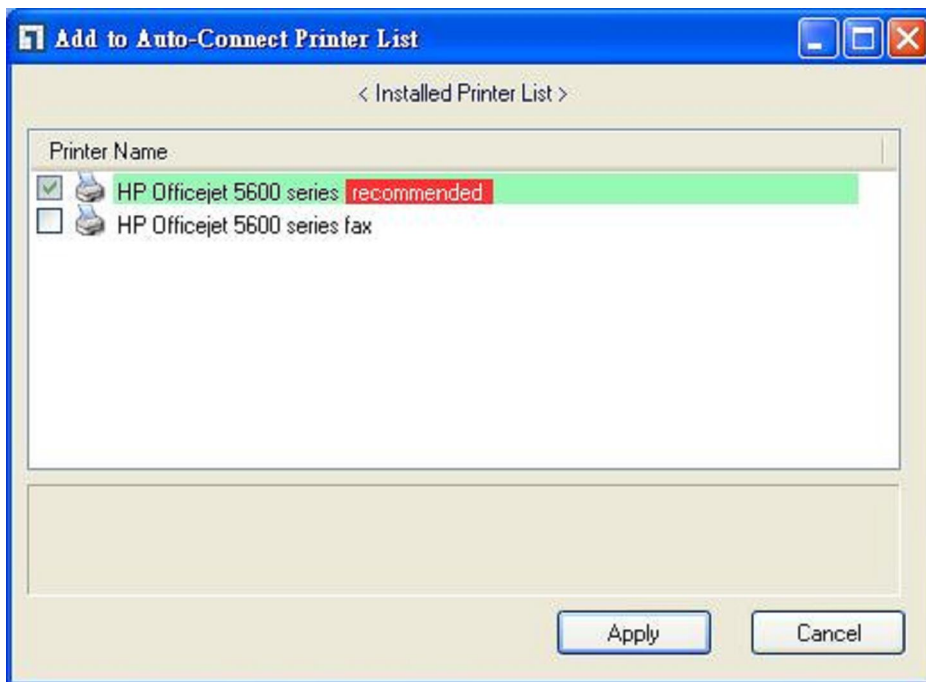
D. Choose the desired printer. The desired printer must be the Windows printer (this is a logical printer) that matches the printer attached on the USB device server (this is a physical printer). Then click the "Apply" button.

E. Then, the printer will be marked as an "Auto-Connected Printer" in red. If you choose "Auto-Connected Printer List" in the "Tools" menu, you can see a newly created item that describes the association between the Windows printer and the physical printer on the server.
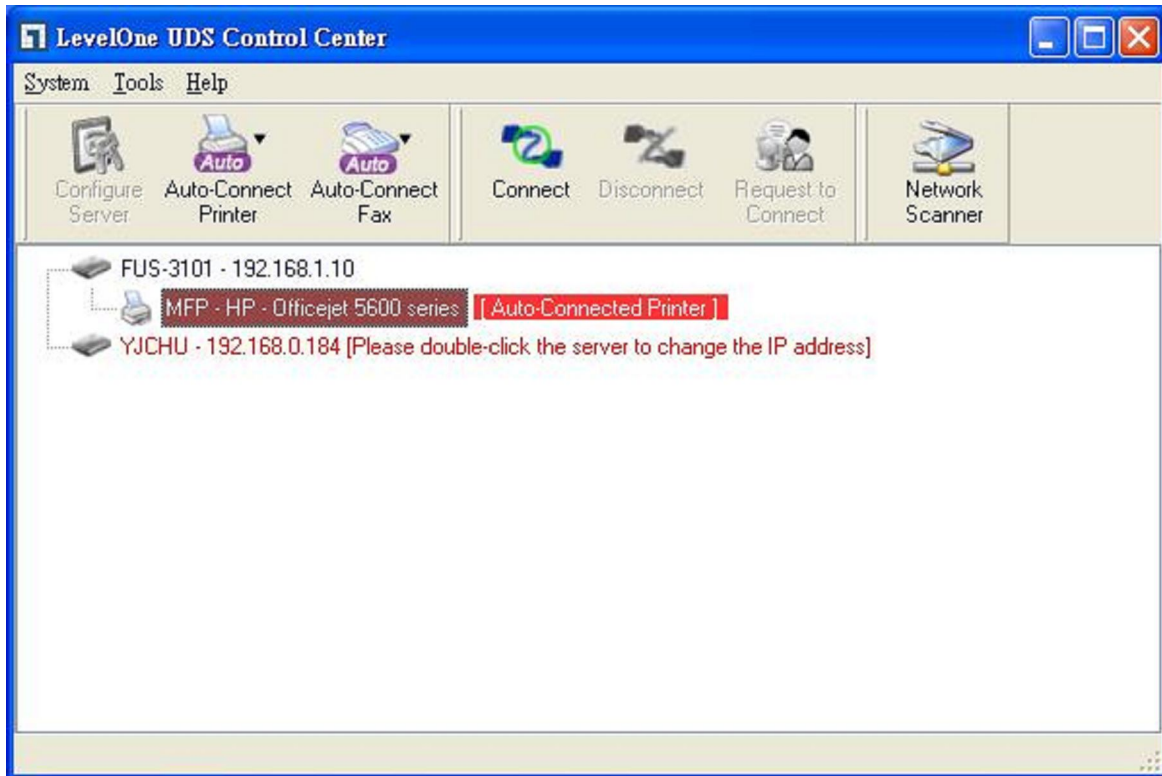
F. Then try to issue a print job to the desired printer. You will see the Control Center will automatically do a connect operation. Then, the print job will be issued to that printer.

G. Even you already properly setup an auto-connected printer, the Control Center must be running (in the background) while a print job is issued. This means you'd better run the Control Center every time after you login Windows. In order to skip this manual operation, you can make the Control Center be run automatically after you login Windows. To do this, choose the "Configuration" item in the "Tools" menu. The following window will appear. Click on the check box and then on the "OK" button. This feature is enabled by default.

If you would like to break the association between the Windows printer and the physical printer, just click on the association and click the "Delete" button in the "Auto-Connected Printer List".

4.7 Network Scanner
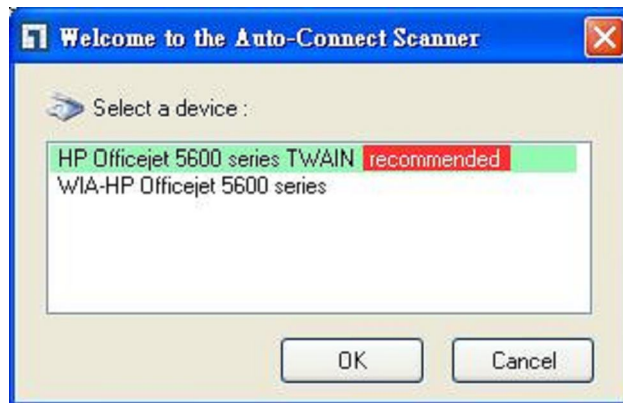
For NetUSB scanning, we recommend you use Network Scanner as the following steps.

A. In the Control Center, click the USB device server that has the desired MFP (or scanner) attached.
B. Click the desired MFP (or scanner).
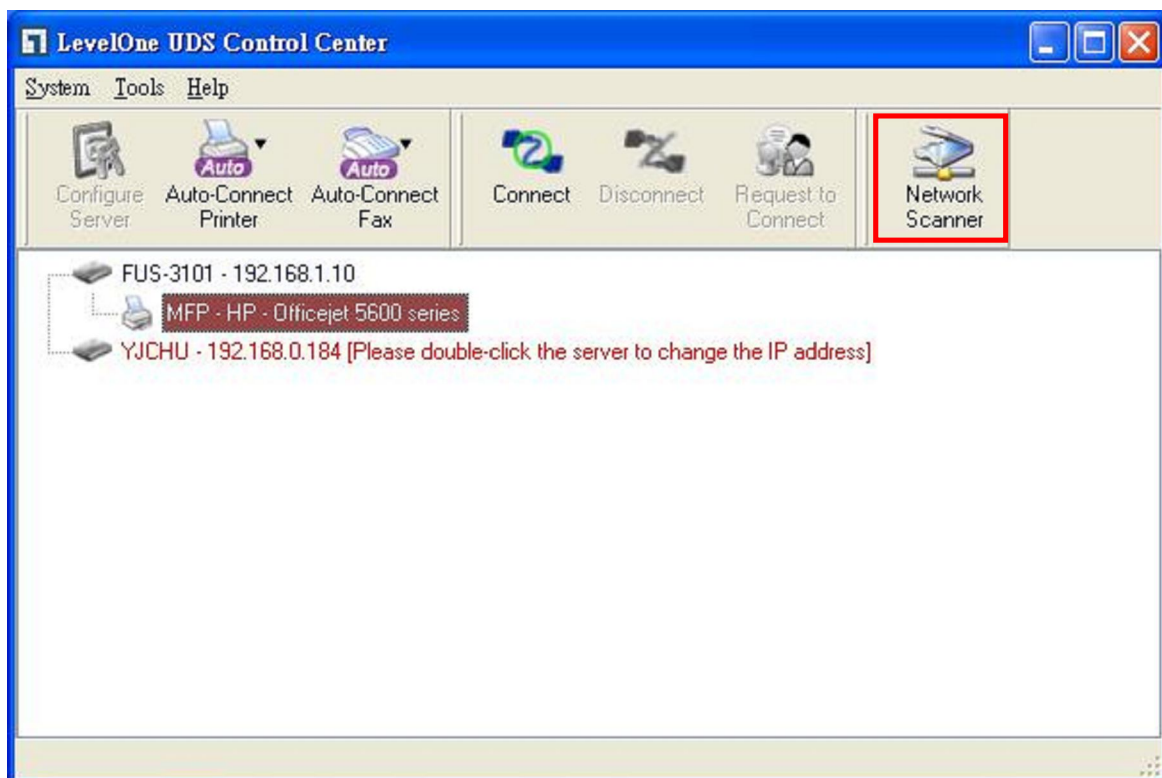
C. Click the "Network Scanner" button. Then you can see that the Control Center will automatically do a "connect" operation. The following window will appear.

D. Choose one of TWAIN or WIA item. Click "OK". The following window will appear.
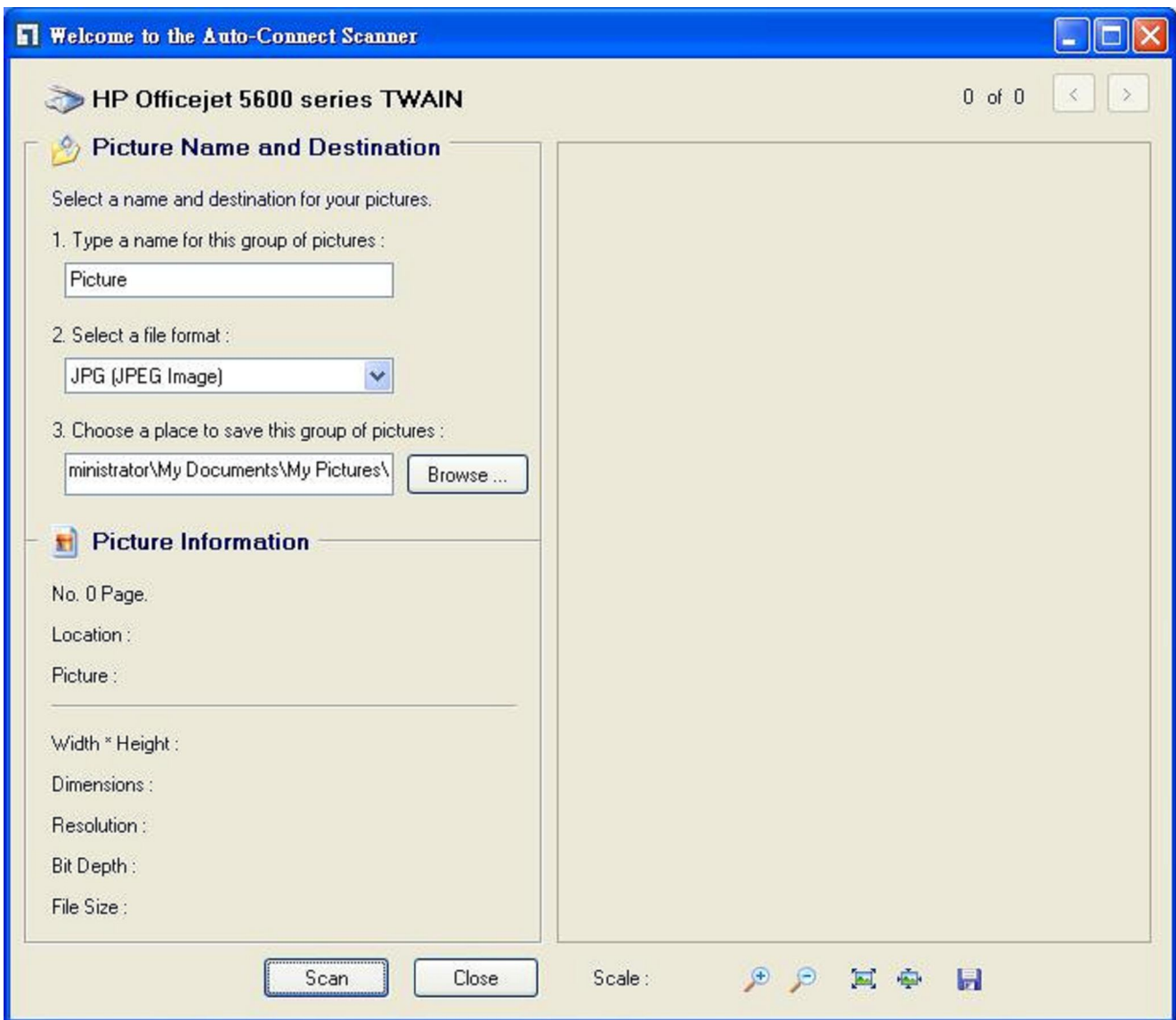
E. Follow the usual steps to do scanning.
F. After the scanning, close the "Auto-Connect Scanner" window. At this moment, Control Center will automatically do a disconnect.

4.9 Request to Connect

If a USB device is manually connected by any other user, basically you can not connect that device. However, we offer another mechanism called "Request to Connect" to solve this inconvenience. For example, there are two computers – LEVELONE and TEST. Now the owner of "HP Photosmart 2600" is LEVELONE. Then, the TEST computer wants to use this HP printer. The user on the TEST computer can click the "Request to Connect" button in the Control Center. The following window appears.

At this moment, the user on the LEVELONE computer will see the following window, indicating that another computer – TEST is requesting to use the HP printer.

The user will choose to accept or reject. If accepted, the Control Center on LEVELONE will automatically disconnect the device and the Control Center on TEST will automatically connect that device.

4.10   Quitting the Control Center

The Control Center doesn't really quit if you click the "X" box (close box) at the top right corner of the window. Instead, it just minimizes itself to the system tray. There are two ways to really close the Control Center. The first way is choosing "Exit" item in the "File" menu in the Control Center. The second way is right-clicking the icon of the Control Center in the system tray and choosing the "Exit" item.

4.11   Limitations

There are some limitations to use the NetUSB technology.

A. Only supports Windows 2000/XP/2003/Vista/7. Windows 98/ME is not supported.
B. Only one PC can get the ownership of the same USB device at the same time.
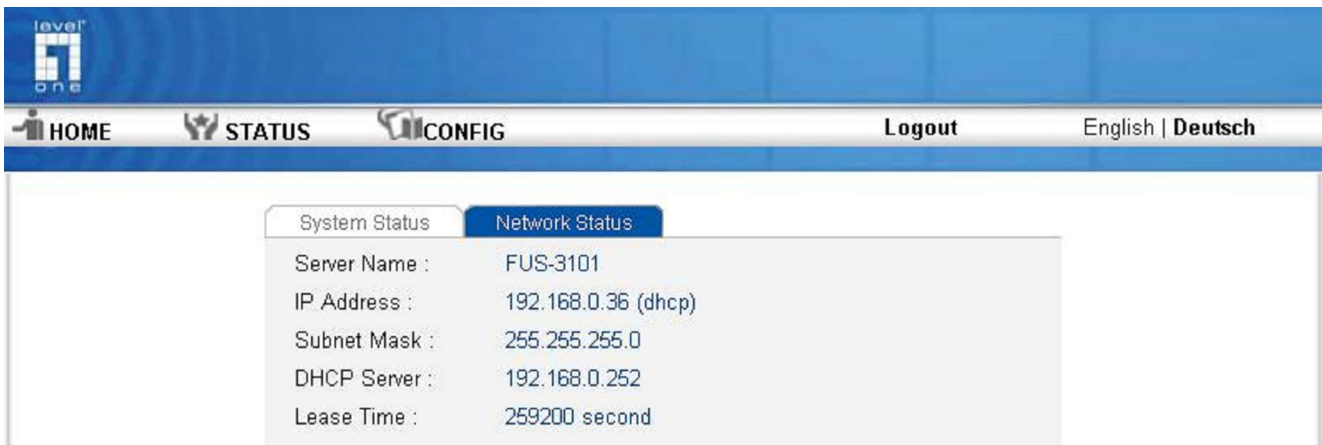
Chapter5 The Server's Web Pages

5.1 Introduction

The Server runs the http server, *httpd* on TCP port: 80.   Users may use the web pages to see the Server's system status and configure the Server.

5.2 Using the Server's Web Pages

5.2.1   Displaying Server Status

Click on the "STATUS" icon to see system status and network status.

5.2.2   Setting up Server Configuration

To set up the Server configuration, click on the "CONFIG" icon ad then the system will request user to enter administrator (default: *admin*) and password (default: *admin*) to login.

■   **General Configuration**

◆   **Server Information:** You have to set the Server Name, which is the name to represent the Server.

◆   **TCP/IP:** You have to set the Server's TCP/IP configuration to connect TCP/IP network. Please see Chapter 3 Basic Installation for more details.
◆   **UPnP Setting:** Enable or disable the UPnP function.
◆   **Printer Server Setting:** Enable or disable LPR, IPP and RawTCP printing protocol to support HPLIP network printer.

■   **Administrator:** You can change administrator name and password. If you forgot administrator name and password, you must perform Restore Factory Default action by plugging in the power adaptor while pressing the Init button. Please refer to the chapter "Restore Factory Defaults".

☑   *Administrator:* enter your desired administrator name.
☑   *New Password:* enter your desired password.
☑   *Re-type Password:* re-confirm the password.

- ■ **Maintenance** If you want to restore factory default values of the Server or upgrade new firmware, you can use the Maintenance tool.
  - ☑ **Restart:** click this button to restart (reboot) the Server.
  - ☑ **Factory Default:** click this button, the Server will restore factory default values.
  - ☑ **Firmware Upgrade:** click **Browse** to find the firmware file to be upgraded. Click **Upload** to upload the firmware into the Server.

Chapter6   Troubleshooting

This chapter provides useful information to help you resolve difficulties that you may experience with your Server. Fault symptoms, possible causes, and remedial actions are provided within a quick reference table. This Server's USB ports only support MFPs, printers, scanners, mass storage, and USB cameras.

6.1 LED Indicators

Indicators	Behavior	Description
Power	On	Power On
	Off	Power off/System error
Link	On	Network connected
	Off	No physical connection to network
Status	Blinking	Activity on network
	Off	No activity on network
USB	On	USB device connected
	Blinking	Connected USB device error
	Off	No physical connection to USB device

6.2 Firewall

If a firewall software has been installed on your PC, it may block the communication between the PC and the USB device server so that the USB device server can not work properly. To solve this problem, either disable the firewall or configure the firewall to allow the following TCP and UDP ports:

7303, 7305, 20005, 30201, 30202, 30203

Chapter7 Restore Factory Defaults

You may restore the Server's default parameters by one of the following methods.

7.1 Using the Server's Web Pages

1. Go to the Server's web page and click **CONFIG**

2. Enter administrator (default: *admin*) and password (default: *admin*).

3. Click **Maintenance**.

4. Click **Factory Default**.

5. Click **Yes** to confirm

7.2 Using Init Button

Plug in the power adaptor while pressing the Init button until LED indicator of USB blink. After that, plug off the power adaptor and then plug in the power adapter again to restart the Server. Finally, the Server will operate using the Factory Default values.

7.3 Default Parameters List

General Information
- Server Name: LevelOne

TCP/IP
- Automatically get IP by DHCP: Enabled
- Static IP: Disabled
    - IP Address: 192.168.1.100
    - Subnet Mask: 255.255.255.0

User Accounts

- Administrator: admin
- Password: admin

Chapter8   Upgrade Firmware

This chapter describes how to upgrade firmware. Please follow one of the following Procedures:

Procedure A: Using the Control Center

1. Open Control Center. It will automatically search the existing Servers and display their statuses.
2. Select the Server that you want to upgrade the firmware. Double click the selected Server to get the serve's main web page.
3. Click CONFIG icon.
4. Login the Server with Administrator (default: admin) and Password (default: admin).
5. Click Maintenance.
6. Click Upgrade Firmware.
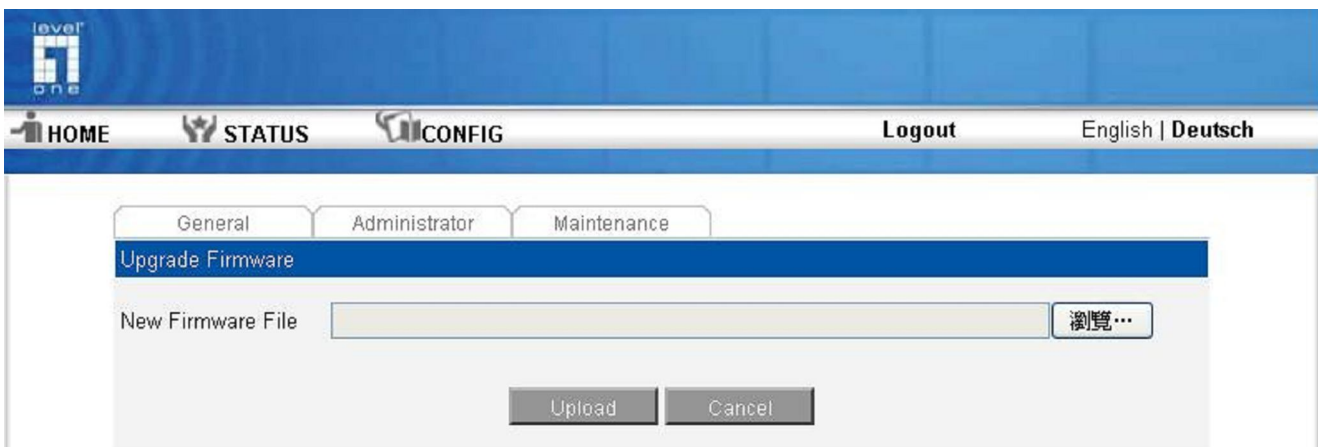
7. Click Browse button to choose the file of new firmware.
8. Click Upload button to start firmware upgrade.
9. Wait for 20 seconds for system reboot.

Procedure B: Using the Init Button and the TFTP Client

1. Plug in the power adaptor while pressing the Init button until LED indicator of USB1 blink. *Please note that after that, the Server will operate using the factory default values after restarting, i.e., your Server's configuration will recover to Factory Default values.*
2. Run the TFTP client Tool: *Image Burner,* from Windows Start menu.
3. Click **Open Image** to open your new firmware. Please note that you must configure your PC's TCP/IP such that PC and the Server belong to the same LAN, i.e. PC's IP is 192.168.1.xxx and subnet mask is 255.255.255.0.
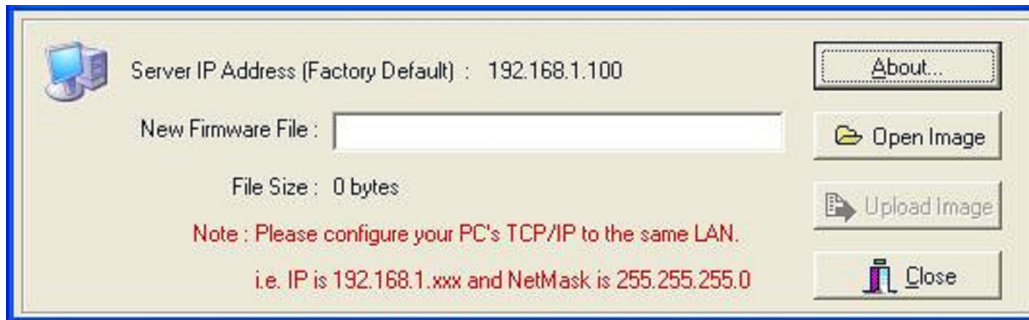
4. Click **Upload Image**.
5. Wait for **Image Uploading** to finish and then click **Close**.
6. Plug-off the power adapter and then plug-in the power adapter to restart the Server.

Chapter9   The Init Button

The Init button is used for maintenance: Simultaneously press **Init** button and turn on (by plugging in the power adaptor) the Server until USB LED indicator simultaneously blink. After that, the Server will do the following tasks:
A.   Perform a Factory Default restoration of the server, which will restore most of the parameters and settings to factory default values.
B.   Perform a TFTP server. You can upgrade new firmware using any TFTP client tool.

Note: After performing the tasks mentioned above, you have to plug off the power adaptor and then plug in the power adaptor to restart the Server.