4.7.5 Routing Table

Administrator's Main Menu	Routing Table					
Status Winnet	D	Destination	Subnet Mask	Gateway	Hop	Enable
<u>Wizard</u>	1					
+ Basic Setting	2					
+ Forwarding Rules	3					
+ Security Setting	4					
Advanced Setting	5					
System Time	6					
• System Log	7					
• <u>Dynamic DNS</u>	8					
<u>SNMP</u>						
<u>Schedule Rule</u>	Save	Undo Help				
<u>+ Toolbox</u>						

Routing Tables allow you to determine which physical interface address to use for outgoing IP data grams. If you have more than one routers and subnets, you will need to enable routing table to allow packets to find proper routing path and allow different subnets to communicate with each other.

Routing Table settings are settings used to setup the functions of static.

Static Routing: For static routing, you can specify up to 8 routing rules. You can enter the destination IP address, subnet mask, gateway, hop for each routing rule, and then enable or disable the rule by checking or unchecking the Enable checkbox.

Example:



Configuration on NAT Router

Destination	SubnetMask	Gateway	Нор	Enabled
192.168.1.0	255.255.255.0	192.168.123.216	1	V
192.168.0.0	255.255.255.0	192.168.123.103	1	V

So if, for example, the client3 wanted to send an IP data gram to 192.168.0.2, it would use the above table to determine that it had to go via 192.168.123.103 (a gateway),

And if it sends Packets to 192.168.1.11 will go via 192.168.123.216

Each rule can be enabled or disabled individually.

After routing table setting is configured, click the save button.

4.7.6 Schedule Rule

Administrator's Main Menu		Sche	edule Rule	
• <u>Status</u> • <u>Wizard</u>	Item Schedule	⊠ Enat	Setting ble	
<u>+ Basic Setting</u> <u>+ Forwarding Rules</u>	Rule#	Rule Na	ume	Action
<u>+ Security Setting</u> - <u>Advanced Setting</u>	Save Add New Rule	Help		
• <u>System Time</u> • <u>System Log</u> • Dynamic DNS				
<u>SNMP</u> <u>Routing</u> Schedule Rule				
+ Toolbox				
Log out				

You can set the schedule time to decide which service will be turned on or off. Select the "enable" item.

Press "Add New Rule"

You can write a rule name and set which day and what time to schedule from "Start Time" to "End Time". The following example configure "ftp time" as everyday 14:10 to 16:20

Administrator's Main Menu	Schedule Rule Setting				
• <u>Status</u>	Item		Setting		
• <u>Wizard</u>	▶ Name of Rule 1	ftp time			
+ Basic Setting					
+ Forwarding Dulas	Week Day	Start Time (hh:mm)	End Time (hh:mm)		
	Sunday				
+ Security Setting	Monday	:			
- Advanced Setting	Tuesday				
<u>System Time</u>	Wednesday	:			
• <u>System Log</u> • Dynamic DNS	Thursday				
• <u>SNMP</u>	Friday				
• <u>Routing</u>	Saturday				
<u>Schedule Rule</u>	Every Day	14 : 10	16 : 20		
<u>+ Toolbox</u>					
Log out	Save Undo Help Back				
Log our					

After configure Rule $1 \rightarrow$

Administrator's Main Menu	Schedule Rule				
• <u>Status</u> • <u>Wizard</u>	Ite ▶ Schedule	m	🗆 Enable	Setting	
<u>+ Basic Setting</u> <u>+ Forwarding Rules</u>	Rule#		Rule Name ftp time		Action Edit Delete
<u>+ Security Setting</u> <u>- Advanced Setting</u> <u>- System Time</u> <u>- System Log</u> <u>- Dynamic DNS</u> <u>- SNMP</u> <u>- Routing</u> <u>- Schedule Rule</u> <u>+ Toolbox</u>	Save Add New Rul	e Help			
Log out					

Schedule Enable

Selected if you want to Enable the Scheduler.

Edit

To edit the schedule rule.

Delete

To delete the schedule rule, and the rule# of the rules behind the deleted one will decrease one

automatically.

Schedule Rule can be apply to Virtual server and Packet Filter, for example:

Example1: Virtual Server – Apply Rule#1 (ftp time: everyday 14:10 to 16:20)

Administrator's Main Menu			Virtual Server		
• <u>Status</u>	ID	Service Ports	Server IP	Enable	Use Rule#
• <u>Wizard</u>	1	21	192.168.122.33	•	1
<u>+ Basic Setting</u>	2		192.168.122.		0
- Forwarding Rules	3		192.168.122.		0
 <u>Virtual Server</u> 	4		192.168.122.		0
<u>Special AP</u> Denotempore	5		192.168.122.		0
• <u>IMISCEIIAneous</u>	6		192.168.122.		0
<u>+ Security Setting</u>	7		192.168.122.		0
<u>+ Advanced Setting</u>	8		192.168.122.		0
<u>+ Toolbox</u>	9		192.168.122.		0
	10		192.168.122.		0
Log out	11		192.168.122.		0
	12		192.168.122.		0
	13		192.168.122.		0
	14		192.168.122.		0
	15		192.168.122.		0

Example2: Packet Filter – Apply Rule#1 (ftp time: everyday 14:10 to 16:20).

Administrator's Main Menu	Outbound Packet Filter					
Status		Item		Set	ting	
<u>Wizard</u>	🕨 Outbou	nd Filter		🗹 Enable		
+ Basic Setting	0	Allow all to pass except those ma	tch the follo	wing rules.		
+ Forwarding Rules	0)	Deny all to pass except those mat	ch the follo [,]	wing rules.		
- Security Setting	D	Source IP : Ports	De	estination IP : Ports	Enable	Use Rule#
Packet Filters	1	:		: 20-21		1
 <u>Domain Filters</u> 	2	:		:		0
 <u>URL Blocking</u> 	3	:		:		0
• <u>MAC Control</u>	4 L					0
Miscellaneous	5 [
+ Advanced Setting		· [· I		
+ Toolbox					-	
Log out	8 [0
	Sava III	Schedule rule	(00)Always	Copy to D		
	Save Ur	ndo Inbound Filter MA	AC Level	Help		

4.8 Toolbox

Administrator's Main Menu • Status • Wizard + Basic Setting + Forwarding Rules + Security Setting + Advanced Setting • Toolbox • View Log • Firmware Upgrade • Backup Setting • Reset to Default • Reboot • Miscellaneous

Log out

Toolbox

View Log View the system logs.

- Firmware Upgrade - Prompt the administrator for a file and upgrade it to this device.
- Backup Setting

 Save the settings of this device to a file.
- Reset to Default
 - Reset the settings of this device to the default values.
- Reboot
 - Reboot this device.

• Miscellaneous

- MAC Address for Wake-on-LAN: Let you to power up another network device remotely.
- Domain Name or IP address for Ping Test: Atlow you to configure an IP, and ping the device. You can ping a secific IP to test whether it is alive.

4.8.1 System Log

Administrator's Main Menu	System Log			
• <u>Status</u> • <u>Wizard</u>				
<u>+ Basic Setting</u> + Forwarding Rules	・ ~ 2003年10月1日 上午 12:01:30 DOD:TCP trigger from 192.168.123.125:2288 to 207.46.104.20:186 2003年10月1日 上午 12:01:30 DHCP:discover()			
+ Security Setting	2003年10月1日 上午 12:01:34 DHCP:discover() 2003年10月1日 上午 12:01:35 Admin from 192.168.123.125 login successfully 2003年10月1日 上午 12:01:42 DHCP:discover()			
<u>+ Advanced Setting</u> - Toolbox	2003年10月1日 上午 12:01:42 DHCP:discover() 2003年10月1日 上午 12:01:58 DHCP:discover() 2003年10月1日 上午 12:02:47 DOD:triggered internally 2003年10月1日 上午 12:02:47 DMCP:discover()			
• <u>View Log</u> • <u>Firmware Upgrade</u>	2003年10月1日 上午 12:02:57 DHCP:discover() 2003年10月1日 上午 12:02:59 DHCP:discover() 2003年10月1日 上午 12:02:59 DHCP:discover()			
 <u>Backup Setting</u> <u>Reset to Default</u> <u>Reboot</u> 	2003年10月1日 上午 12:03:15 DHCP:discover() 2003年10月1日 上午 12:03:48 DOD:triggered internally 2003年10月1日 上午 12:03:48 DHCP:discover()			
<u>Miscellaneous</u>	2003年10月1日 上午 12:03:52 DHCP:discover() 2003年10月1日 上午 12:04:00 DHCP:discover() 2003年10月1日 上午 12:04:16 DHCP:discover()			
Log out				
	Back Refresh Download Clear			

You can View system log by clicking the View Log button

4.8.2 Firmware Upgrade

Administrator's Main Menu	Firmware Upgrade
• <u>Status</u> Winned	Firmware Filename
+ Basic Setting	瀏覽
+ Forwarding Rules	Current firmware version is R1.9414vTIG. The upgrade procedure takes about 20 seconds. Note! Do not power off the unit unben it is being upgraded. When the upgrade is done successfully, the unit will be restarted automatically
+ Security Setting	are unit when it is being upgraded. When are upgrade is done succession, are unit will be restarted automaticany.
+ Advanced Setting	Upgrade Cancel
<u>- Toolbox</u>	
 <u>View Log</u> Firmware Unorade 	
<u>Backup Setting</u>	
 <u>Reset to Default</u> Reboot 	
<u>Miscellaneous</u>	
Log out	

You can upgrade firmware by clicking Firmware Upgrade button.

4.8.3 Backup Setting

File Dov	wnload
?	You are downloading the file: config.bin from 192.168.123.254 Would you like to open the file or save it to your computer? Open Save Cancel More Info Image: Always ask before opening this type of file

You can backup your settings by clicking the **Backup Setting** button and save it as a bin file. Once you want to restore these settings, please click **Firmware Upgrade** button and use the bin file you saved.

4.8.4 Reset to default



You can also reset this product to factory default by clicking the **Reset to default** button.

4.8.5 Reboot

Microsoft I	nterne	i Explorer	×
Re	eboot rig	ht now?	
ОК		Cancel)

You can also reboot this product by clicking the **Reboot** button.

4.8.6 Miscellaneous Items

Administrator's Main Menu	Miscellaneous Items				
• <u>Status</u>	Item	Setting			
• <u>Wizard</u>	▶ MAC Address for Wake-on-LAN	Wake up			
+ Basic Setting					
+ Forwarding Rules	Save Undo Help				
+ Security Setting					
+ Advanced Setting					
 <u>Toolbox</u> <u>View Log</u> <u>Firmware Upgrade</u> <u>Backup Setting</u> <u>Reset to Default</u> <u>Reboot</u> <u>Miscellaneous</u> Log out 					

MAC Address for Wake-on-LAN

Wake-on-LAN is a technology that enables you to power up a networked device remotely. In order to enjoy this feature, the target device must be Wake-on-LAN enabled and you have to know the MAC address of this device, say 00-11-22-33-44-55. Clicking "Wake up" button will make the router to send the wake-up frame to the target device immediately.

Chapter 5 Print Server

This product provides the function of network print server for MS Windows 95/98/NT/2000 and Unix based platforms. (If the product you purchased doesn't have printer port, please skip this chapter.)

5.1 Configuring on Windows 95/98 Platforms

After you finished the software installation procedure described in Chapter 3, your computer has possessed the network printing facility provided by this product. For convenience, we call the printer connected to the printer port of this product as server printer. On a Windows 95/98 platform, open the **Printers** window in the **My Computer** menu:



Now, yon can configure the print server of this product:

Find out the corresponding icon of your server printer, for example, the **HP LaserJet 6L**. Click the mouse's right button on that icon, and then select the **Properties** item:

HP LaserJet 6L (PCL) Properties	? ×
General Details Sharing Paper Print Quality Fonts Device Options	
HP LaserJet 6L (PCL)	
<u>C</u> omment:	
Separator page: (none) Browse	
Print <u>T</u> est Page	
OK Cancel Apply Help	

2. Click the **Details** item:

HP LaserJet 6L (PCL) Properties	? ×
General Details Sharing Paper Print Quality Fonts Device Options	
HP LaserJet 6L (PCL)	
Print to the following port:	
PRTmate: (All-in-1) Add Port	
Delete Port	
Print using the following driver:	
<u>Capture Printer Port</u> E <u>n</u> d Capture	
Timeout settings	
Not <u>s</u> elected: 15 seconds	
Transmission retry: 45 seconds	
Spool Settings Port Settings	
OK Cancel Apply Help	2

- 3. Choose the "PRTmate: (All-in-1)" from the list attached at the **Print To** item. Be sure that the **Printer Driver** item is configured to the correct driver of your server printer.
- 4. Click on the button of **Port Settings**:



Type in the IP address of this product and then click the **OK** button.

6. Make sure that all settings mentioned above are correct and then click the **OK** button.

5.2 Configuring on Windows NT Platforms

The configuration procedure for a Windows NT platform is similar to that of Windows 95/98 except the screen of printer **Properties**:

🐗 Hewlett Packard La	aserJet 6L Properti	es	? ×		
General Ports Sche	duling Sharing Se	curity Device Set	tings		
Hewlett Pack	Hewlett Packard LaserJet 6L				
Print to the following po checked port.	rt(s). Documents will p	arint to the first free			
Port	Description	Printer	-		
LPT3 COM1: COM2: COM3: COM4: FILE: FAXmate	Local Port Local Port Local Port Local Port Local Port Local Port Local Port Local Port	Hewlett Packa	rd L 💌		
Add Port	Delete Port	Configur	e Port		
L Lable printer pooli	ng				
		ОК	Cancel		

Compared to the procedure in last section, the selection of **Details** is equivalent to the selection of **Ports**, and **Port Settings** is equivalent to **Configure Port**.

5.3 Configuring on Windows 2000 and XP Platforms

Windows 2000 and XP have built-in LPR client, users could utilize this feature to Print.

You have to install your Printer Driver on LPT1 or other ports before you preceed the following sequence.

1.Open Printers and Faxs.



2.Select "Ports" page, Click "Add Port..."

icerca por.	6		iree	
Port	Description	Printer	~	
LPT1:	Printer Port	HP LaserJet 2200 S	eries PC	
LPT2:	Printer Port			
LPT3:	Printer Port			
🗆 со	Serial Port			
🗆 со	Serial Port			
🗆 co	Serial Port			
	Serial Port		~	

3. Select "Standard TCP/IP Port", and then click "New Port..."

? 🗙
New Port Cancel

4.Click Next and then provide the following information:

Type address of server providing LPD that is our NAT device:192.168.123.254

Add Standard TC	P/IP Printer Port Wizard 🛛 🔀
Add Port For which device do you want	t to add a port?
Enter the Printer Name or IP a	ddress, and a port name for the desired device.
Printer Name or IP Address	192.168.123.254
Port Name:	IP_192.168.123.254
	< <u>B</u> ack <u>N</u> ext > Cancel

1. Select Custom, then click "Settings..."

Additional Port Information Require The device could not be identified.	ed
The device is not found on the network.	Be sure that:
 The device is turned on. The network is connected. 	
 The device is properly configured. The address on the previous page is 	correct.
If you think the address is not correct, clic the address and perform another search (select the device type below.	ck Back to return to the previous page. Then correct on the network. If you are sure the address is correct,
If you think the address is not correct, clic the address and perform another search o select the device type below. Device Type	ck Back to return to the previous page. Then correct on the network. If you are sure the address is correct,
If you think the address is not correct, clic the address and perform another search o select the device type below. Device Type O Standard Generic Network Card	ck Back to return to the previous page. Then correct on the network. If you are sure the address is correct,
If you think the address is not correct, clic the address and perform another search of select the device type below. Device Type Standard Generic Network Card O Custom Settings	ck Back to return to the previous page. Then correct on the network. If you are sure the address is correct,

6.Select "LPR", type " lp" lowercase letter in "Queue Name:"

And enable "LPR Byte Counting Enabled".

ort Name:	IP_192.168.123.254
rinter Name or IP <u>A</u> ddress:	192.168.123.254
Protocol	
Raw Settings Port <u>N</u> umber: 9	100
LPR Settings Queue Name: Ip	
LPR Byte Counting Ena	bled
SNMP Status Enabled	
Community Name:	ublic
SNMP Device Indev	

Add Standard T	CP/IP	Printer Port Wizard 🛛 🚺	<
	Comple TCP/IP You have sele	ting the Add Standard Printer Port Wizard acted a port with the following characteristics.	
	SNMP: Protocol: Device: Port Name: Adapter Type:	No LPR, lp 192.168.123.254 IP_192.168.123.254	
	To complete t	his wizard, click Finish. < <u>B</u> ack Finish Cancel	

eneral Sharing Po	orts Advanced Color Ma	es FCL 6 FFO
HP LaserJ	et 2200 Series PCL 6	
Print to the following proceeding to the character of the	port(s). Documents will print to	o the first free
Port	Description	Printer
🗆 сом4:	Serial Port	
PILE:	Print to File	
☑ IP_192.168.123	3.254 Standard TCP/IP Po	ort 🔰 👘 💼
LI WEWAN_NOTE	RO Local Port	Auto hp des
	Local Port	*
	100	>
<		
Add Port	Delete Port	Configure Port
Add Port	Delete Port	Configure Port
Add Port	Delete Port	Configure Port
Add Por <u>t</u>	Delete Port	Configure Port
Add Por <u>t</u> Enable bidirection Enable printer poo	<u>D</u> elete Port al support ling	<u>C</u> onfigure Port

5.4 Configuring on Unix-like based Platforms

Please follow the traditional configuration procedure on Unix platforms to setup the print server of this product. The printer name is "lp."

In X-Windows, for example, In Redhat Platforms,

Please follow the below steps to configure your printer on Red Hat 9.0.1. Start from the Red Hat--->

System Setting---> Printing.



2. Click New---> Forward.

 Printer cont 	figuration - amit-test.com 🗕 🗖 🗙
<u>A</u> ction <u>T</u> es	st <u>H</u> elp
New Edi	Default Description
Queue name 👻	Default Description
🗙 Add a new	print queue
Add a n	ew print queue
	On the following screens, you will be asked to provide basic
	information for adding a new print queue. You will be able to edit the more advanced options afterwards.
	cur die more auraneeu options arematus.
	Nothing will be done to your settings until you hit "Apply" on the last screen
	the last screen.
🔀 <u>H</u> elp	X Cancel A Back Forward

1. Enter the Pinter Name, Comments then forward.

Add a new print queue		
Queue name	⊳	
Please enter a name for name that begins with a Name: printertest About	this queue. Choose a short letter and contains no spaces.	
to help you identify it me Short description: test	ore easily.	
🔀 <u>H</u> elp	X Cancel A Back For	ward

4. Select LPD protocol and then forward.

Queue type	<u>le</u> ////////////////////////////////////
Select a queue type:	Locally-connected
/dev/lp0	
	Networked Windows (SMB)
🝓 <u>R</u> escan devices	Networked JetDirect
S Help	X <u>C</u> ancel A <u>B</u> ack Forward

5. Enter Router LAN IP Address and the queue name "lp". Then forward.

Queue type	12 <i>444444444444444444444444444444444444</i>
Select a queue type:	Networked UNIX (LPD)
Server:	Queue:
Router Lan IP Addre	ss Ip
🔀 <u>H</u> elp	🔀 <u>C</u> ancel 🖪 <u>B</u> ack 🕞 <u>F</u> orwa

6. Select the Printer Brand and Model Name. Then Forward.

Select the printer manufac on how the remote queue	turer and model. Depending is configured, you may need	<u>N</u> otes
to select the generic Post	Script option here.	
HP		±
LaserJet 2000		^
LaserJet 2100		
LaserJet 2100M	ĸ	
LaserJet 2200		.

7. Click Apply to finish setup.

🗙 Add a new pr	int queue	
Finish, and create the new print queue		
,		
	About to create the following queue:	
	Type: Unix Print Queue	
	Queue: Ip@Router Lan IP Address Printer: HP LaserJet 2200	
🔀 <u>H</u> elp	🗙 <u>C</u> ancel < <u>B</u> ack 🥠 <u>A</u> pply	

8. At last you must click Apply on the toolbox to make the change take effective.

In Command Mode:

#mkdir /var/spool/lpd/lp

Too see the detail ,please refer to the online manual in linux.

#man printcap

5.5 Configuring on Apple PC

1.First, go to Printer center (Printer list) and add printer

Printer List	
(IP Printing	•
Printer's Address: Internet address or DNS name	
Use default queue on server	
Printer Model: Generic	:
(Cancel Add

2. Choose IP print and setup printer ip address (router Lan ip address).

3.Disable "Default Queue of Server." And fill in ' lp ' in Queue name item.

4.Printer Model: Choose "General" or Printer as below.

_
\$
Ĩ.
4
Ŧ

Appendix A TCP/IP Configuration for Windows 95/98

This section introduces you how to install TCP/IP protocol into your personal computer. And suppose you have been successfully installed one network card on your personal computer. If not, please refer to your network card manual. Moreover, the Section B.2 tells you how to set TCP/IP values for working with this NAT Router correctly.

A.1 Install TCP/IP Protocol into Your PC

- 1. Click Start button and choose Settings, then click Control Panel.
- 2. Double click Network icon and select Configuration tab in the Network window.
- 3. Click Add button to add network component into your PC.
- 4. Double click **Protocol** to add TCP/IP protocol.

Select Network Component Type	? ×
Click the type of network component you want to install:	
📃 Client	<u>A</u> dd
🕮 Adapter	
T Protocol	Cancel
Service	
-	
Protocol is a 'language' a computer uses. Computers	
must use the same protocol to communicate.	

5. Select **Microsoft** item in the manufactures list. And choose **TCP/IP** in the Network Protocols. Click **OK** button to return to Network window.

Select Network Protocol	×
Click the Network Pro an installation disk for	tocol that you want to install, then click OK. If you have this device, click Have Disk.
<u>M</u> anufacturers:	Network Protocols:
출 Banyan 출 IBM 주 Microsoft 출 Novell	Fast Infrared Protocol IPX/SPX-compatible Protocol Microsoft 32-bit DLC Microsoft DLC NetBEUI TCP/IP
	<u>H</u> ave Disk
	OK Cancel

6. The TCP/IP protocol shall be listed in the Network window. Click **OK** to complete the install procedure and restart your PC to enable the TCP/IP protocol.

A.2 Set TCP/IP Protocol for Working with NAT Router

- 1. Click Start button and choose Settings, then click Control Panel.
- 2. Double click **Network** icon. Select the TCP/IP line that has been associated to your network card in the **Configuration** tab of the Network window.

Network		? ×		
Configuration Identification Access Control				
The following <u>n</u> etwork	The following network components are installed:			
💷 PCI Fast Etherne	💷 PCI Fast Ethernet DEC 21140 Based Adapter 📃			
🍹 NetBEUI -> Dial-I	Jp Adapter			
🍹 NetBEUI -> PCI F	Fast Ethernet DEC 211	40 Based Adapter		
TCP/IP -> Dial-U	p Adapter			
File and printer ek	ast Ethernet DEC 2114	U Based Adapter		
Pile and plinter sr	naming for Microsoft Net	WOIKS		
<u>A</u> dd	Remove	Properties		
Primary Network Logo	on:			
Client for Microsoft N	letworks	•		
<u>File and Print Sha</u>	aring			
- Description				
TCP/IP is the protocol you use to connect to the Internet and				
wide-area networks.				
	(DK Cancel		

- 3. Click **Properties** button to set the TCP/IP protocol for this NAT Router.
- 4. Now, you have two setting methods:

a. Select **Obtain an IP address automatically** in the IP Address tab.

TCP/IP Properties		? ×
Bindings DNS Configuration An IP address can If your network doa your network admir the space below.	Advanced Gateway WINS Confi be automatically assigne ss not automatically assign histrator for an address, a	NetBIDS guration IP Address d to this computer. n IP addresses, ask nd then type it in
© <u>O</u> btain an IP © <u>S</u> pecify an IP	address automatically address:	
gr Audress. Sybnet Mas		·
	OK	Cancel

b. Don't input any value in the Gateway tab.

TCP/IP Properties		? ×	
Bindings DNS Configuration	Advanced Gateway WINS Confi	NetBIOS iguration IP Address	
The first gateway in the Installed Gateway list will be the default. The address order in the list will be the order in which these machines are used.			
New gateway:	. <u>A</u> dd		
Installed gateways:			
	OK	Cancel	

c. Choose **Disable DNS** in the DNS Configuration tab.

TCP/IP Properties		? ×
Bindings DNS Configuration	Advanced Gateway WINS Conf	NetBIOS
• Disable DNS ••••••••••••••••••••••••••••••••••••		
Host:	D <u>o</u> main:	
DNS Server Sea	rch Order	Add
		emove
Domain Suffix Se	arch Order	
		Add
	01	Cancel

- B. Configure IP manually
 - a. Select Specify an IP address in the IP Address tab. The default IP address of this product is 192.168.123.254. So please use 192.168.123.xxx (xxx is between 1 and 253) for IP Address field and 255.255.255.0 for Subnet Mask field.

TCP/IP Properties		? ×
Bindings DNS Configuration	Advanced Gateway WINS Confi	NetBIOS guration IP Address
An IP address can If your network doe your network admir the space below.	be automatically assigned s not automatically assign istrator for an address, an	d to this computer. n IP addresses, ask nd then type it in
O <u>O</u> btain an IP ⊡⊙ Specify an IP	address automatically address:	
IP Address:	192.168.123	.115
S <u>u</u> bnet Masl	c 255.255.255	. 이
	OK	Cancel

In the Gateway tab, add the IP address of this product (default IP is 192.168.123.254)
 in the New gateway field and click Add button.

TCP/IP Properties		? ×
Bindings DNS Configuration Gat	Advanced eway WINS Config	NetBIOS guration IP Address
The first gateway in the The address order in th machines are used.	Installed Gateway lis e list will be the order	t will be the default. in which these
<u>N</u> ew gateway: 192.168.123.	254 <u>A</u> dd	
- Installed gateways:	<u>H</u> emov	e
	OK	Cancel

c. In the DNS Configuration tab, add the DNS values which are provided by the ISP into DNS Server Search Order field and click Add button.

TCP/IP Properties
Bindings Advanced NetBIOS DNS Configuration Gateway WINS Configuration IP Address
© Djsable DNS ● <u>E</u> nable DNS
Host: MyComputer Domain:
DNS Server Search Order
168.95.1.1 <u>E</u> emove
Domain Suffix Search Order
Add
Hemove
OK Cancel

Appendix B 802.1x Setting



Figure 1: Testing Environment (Use Windows 2000 Radius Server)

1 Equipment Details

PC1:

Microsoft Windows XP Professional without Service Pack 1.

D-Link DWL-650+ wireless LAN adapter

Driver version: 3.0.5.0 (Driver date: 03.05.2003)

PC2:

Microsoft Windows XP Professional with Service Pack 1a.

Z-Com XI-725 wireless LAN USB adapter

Driver version: 1.7.29.0 (Driver date: 10.20.2001)

Authentication Server: Windows 2000 RADIUS server with Service Pack 3 and HotFix Q313664.

Note. Windows 2000 RADIUS server only supports PEAP after upgrade to service pack 3 and HotFix Q313664 (*You can get more information from* <u>http://support.microsoft.com/default.aspx?scid=kb; en-us;313664</u>)</u>

2 DUT

Configuration:

Enable DHCP server.
 WAN setting: static IP address.
 LAN IP address: 192.168.123.254/24.
 Set RADIUS server IP.
 Set RADIUS server shared key.
 Configure WEP key and 802.1X setting.

The following test will use the inbuilt 802.1X authentication method such as ,EAP_TLS, PEAP_CHAPv2(Windows XP with SP1 only), and PEAP_TLS(Windows XP with SP1 only) using the Smart Card or other Certificate of the Windows XP Professional.

3. DUT and Windows 2000 Radius Server Setup

3-1-1. Setup Windows 2000 RADIUS Server

We have to change authentication method to MD5_Challenge or using smart card or other certificate on RADIUS server according to the test condition.

3-1-2. Setup DUT

1.Enable the 802.1X (check the "Enable checkbox").

2.Enter the RADIUS server IP.

3.Enter the shared key. (The key shared by the RADIUS server and DUT).

4.We will change 802.1X encryption key length to fit the variable test condition.

3-1-3. Setup Network adapter on PC

1. Choose the IEEE802.1X as the authentication method. (Fig 2)

Note.

Figure 2 is a setting picture of Windows XP without service pack 1. If users upgrade to service pack 1, then they can't see MD5-Challenge from EAP type list any more, but they will get a new Protected EAP (PEAP) option.

2. Choose MD5-Challenge or Smart Card or other Certificate as the EAP type.

3. If choosing use smart card or the certificate as the EAP type, we select to use a certificate on this computer. (Fig 3)

4. We will change EAP type to fit the variable test condition.

🕹 Wireless Network Connection Properties 🛛 🔹 💽
General Wireless Networks Authentication Advanced
Select this option to provide authenticated network access for wired and wireless Ethernet networks.
EAP type: Smart Card or other Certificate
Smart Card or other Certificate
Authenticate as computer when computer information is available
Authenticate as guest when user or computer information is unavailable
OK Cancel

Figure 2: Enable IEEE 802.1X access control

Figure 3: Smart card or certificate properties

4. Windows 2000 RADIUS server Authentication testing:

4.1DUT authenticate PC1 using certificate. (PC2 follows the same test procedures.)

- 1. Download and install the certificate on PC1. (Fig 4)
- 2. PC1 choose the SSID of DUT as the Access Point.
- 3. Set authentication type of wireless client and RADIUS server both to

EAP_TLS.

- 4. Disable the wireless connection and enable again.
- 5. The DUT will send the user's certificate to the RADIUS server, and then send the message of authentication result to PC1. (Fig 5)
- Windows XP will prompt that the authentication process is success or fail and end the authentication procedure. (Fig 6)
- Terminate the test steps when PC1 get dynamic IP and PING remote host successfully.

Certificate	es				? 🗙
Intended p	urpose: </td <td>411></td> <td></td> <td></td> <td>~</td>	411>			~
Personal	Other People	Intermediate Certification /	Authorities Tru:	sted Root Certifical	tion 🔹 🕨
Issued		Issued By	Expiratio	Friendly Name	
fael	1	WirelessCA	2/6/2004	<none></none>	
Import		<u>R</u> emove		Adva	anced
Certificate	e intended purp	oses			
				⊻ie	w
					lose

Figure 4: Certificate information on PC1



Figure 5: Authenticating

S Network Connections	
Eile Edit View Favorites Iools Advanced Help	- 1
🕥 Back - 🕥 - 🏂 🔎 Search 🍋 Folders 🔟 -	
Address 🕥 Network Connections	💌 ラ Go
Network Tasks	
Create a new connection Disabled D-Link DFE-530TX PCI Fast Et Wireless Network Connection Authentication succeeded MiniDSB Wireless Adapter	

Figure 6: Authentication success

4.2DUT authenticate PC2 using PEAP-TLS.

- 1. PC2 choose the SSID of DUT as the Access Point.
- 2. Set authentication type of wireless client and RADIUS server both to

PEAP_TLS.

- 3. Disable the wireless connection and enable again.
- 4. The DUT will send the user's certificate to the RADIUS server, and then

send the message of authentication result to PC2.

5. Windows XP will prompt that the authentication process is success or fail

and end the authentication procedure.

 Terminate the test steps when PC2 get dynamic IP and PING remote host successfully.

Support Type: The router supports the types of 802.1x Authentication: PEAP-CHAPv2 and PEAP-TLS.

Note.

- 1.PC1 is on Windows XP platform without Service Pack 1.
- 2.PC2 is on Windows XP platform with Service Pack 1a.
- 3.PEAP is supported on Windows XP with Service Pack 1 only.
- 4. Windows XP with Service Pack 1 allows 802.1x authentication only when data encryption function is enable.

Appendix C WPA-PSK and WPA



Wireless Router: LAN IP: 192.168.123.254 WAN IP: 192.168.122.216 Radius Server: 192.168.122.1 UserA : XP Wireless Card:Ti-11g Tool: Odyssey Client Manager Refer to: www.funk.com Download: http://www.funk.com/News&Events/ody_c_wpa_preview_pn.asp Or Another Configuration:



WPA-PSK

In fact, it is not necessary for this function to authenticate by Radius Server, the client and wireless Router authenticate by themselves.

Method1:

1. Go to the Web manager of Wireless Router to configure, like below:

Network ID(SSID)	123kk	
Channel	8	
Security	WPA-PSK	
Key Mode	ASCI 💽	
Preshare Key	12345678	

Go to Odyssey Client Manager, first choose "Network"
 Before doing that, you should verify if the software can show the wireless card.
 Open "Adapters"

と Odyssey Client Ma	mager	
<u>S</u> ettings <u>C</u> ommands <u>J</u>	<u>N</u> eb <u>H</u> elp	
	Networks The following <u>n</u> etworks are configured:	
La Promies	<[any]>	<u>A</u> dd
+++Networks	<123KK>	<u>R</u> emove
Auto-Scan Lists		Properties
Trusted Servers		
Adapters		

3. Add and edit some settings:

metwork name (SSID).	123kk	>
Connect to any ava	ailable network	<u>S</u> can
Description (optional):	[
Network <u>t</u> ype:	Access point (infrastructure mo	te) 💌
Channel	default channel	<u> </u>
Association mode:	WPA	
Encyption method:	TKIP	-
Keys will be genera	ited automatically for data privacy	
Keys will be genera Keys will be genera Pre-shared Key (WPA)	sted automatically for data privacy	
Pre-shared Key (WPA) Pre-shared Key (WPA)	Ited automatically for data privacy	- -
Pre-shared Key (WPA) Pre-shared Key (WPA) Passphrase:	12345678	- ,
Pre-shared Key (WPA) Pre-shared Key (WPA) Passphrase:	12345678	

4. Back to Connection:

Then Select "Connect to network" You will see:



Method2:

1. First, patch windows XP and have to install "Service package 1"

Patch:

http://www.microsoft.com/downloads/details.aspx?displaylang=en&FamilyID=503 9ef4a-61e0-4c44-94f0-c25c9de0ace9

- 2. Then reboot.
- 3. Setting on the router and client:

Router:

Network ID(SSID)	123kk	
Channel	8	
Security	WPA-PSK 💌	
Key Mode	ASCI 💌	
Preshare Key	12345678	

Client:

Go to "Network Connection" and select wireless adapter.

Choose "View available Wireless Networks" like below: Advanced→ choose "123kk"

Wireless Network Connection Properties 💦 🛛 🔀	123kk properties	?
eneral Wireless Networks Advanced	Association Authentication	
Use Windows to configure my wireless network settings	Network name (SSID): 123kk	
To connect to an available network, click Configure.	This natural territor is a key for the following:	
dale Configure amit01 DVCC Befresh	Network Authentication: WPA-PSK	-
	Data encryption: TKIP	~
Preferred networks:	Network key:	
Automatically connect to available networks in the order listed below:	Confirm network key:	
Move down	Key index (advanced):	
Add Remove Properties	The key is provided for me automatically	
Learn about setting up wireless network configuration. Advanced	This is a computer-to-computer (ad hoc) network; wireless access points are not used	
OK Cancel	ок с	ancel

WPA:

For this function, we need the server to authenticate. This function is like 802.1x.



The above is our environment:

Method 1:

1. The UserA or UserB have to get certificate from Radius, first.

http://192.168.122.1/certsrv

account : fae1

passwd : fae1

Connect to 192.168.	122.1 🛛 🛛 🔀
R	
Connecting to 192.168.1	22.1
Password:	
	3emember my password

- 2. Then, Install this certificate and finish.
- 3. Go to the Web manager of Wireless Router to configure, like below:

Network ID(SSID)	123kk
Channel	8 💌
Security	
802.1X Settings	
802.1X Settings RADIUS Server IP	192.168.122.1
802.1X Settings RADIUS Server IP RADIUS port	192.168.122.1 1812

4. Go to Odyssey Client Manager, choose "Profiles" and Setup Profile name as "1"

Add Profile	
Profile name: 1	
User Info Authentication	<u>I</u> TLS Settings <u>P</u> EAP Settings
Password ✓ P <u>e</u> rmit login using p ← use <u>W</u> indows pass ← prompt for password ← use the following pa	assword word d assword:
fae1 ▼ U <u>n</u> mask	
Certificate	וא <u>c</u> ertificate:
fae1	<u></u>
ОК	Cancel

Login name and passwd are fae1 and fae1.

Remember that you get certificate from Radius in Step1.

5. Then Choose "certificate" like above.

lect Certificate		?
ersonal Certificates		
Issued To	Issued By	E
fae1	WirelessCA	2
<		>
1		
		View

6. Then go to Authentication and first Remove EAP/ TLS and Add EAP/TLS again.

EAP / TLS	
	<u>A</u> dd
	<u>R</u> emove

7. Go "Network" and Select "1" and ok

letwork			
letwork name (SSID)	: 123kk		
Connect to any av	vailable netw	vork	<u>S</u> can
escription (optional):	-		
letwork <u>t</u> ype:	Access p	ooint (infrastructure mode)	
C <u>h</u> annel:		default channel	
Association mode:	\leq	WPA	
Encryption method:		TKIP	
Keus will be gener	ated automa	stically for data privacy	
Keys will be gener Ye observed key (1) (PA)	ated automa	atically for data privacy	
✓ Keys will be gener Pre-shared key (WPA) Passphrase.		atically for data privacy	
✓ Keys will be gener Pre-shared key (WPA) Passphrase: Unmask		atically for data privacy	
✓ Keys will be gener Pre-shared key (WPA) Passphrase: Unmask		atically for data privacy	

8. Back to Connection and Select "123kk.

If **successfully**, the wireless client has to authenticate with Radius Server, like below:

etwork Properties					Odurou Client
Network					
Network name (SSID):	123kk				You are about to authenticate to an untrusted server!
Connect to any avail	lable network	<u>S</u> can			To terminate communication, press [No]
Description (optional):	👶 Odyssey Client Ma	nager			To temporarily trust this server, press [Yes] To permapently trust this server, check "add this trusted server to
Network type:	Settings Commands M	leb <u>H</u> elp			the database" and press [Yes]
Channel	-Connection	Connection			Certificate chain:
Association mode:	Profiles	Adapter: TNET1130 \ Adapter type: wireless Connect to network:	✓LAN Adapter ✓123kk>	-	WirelessCA win2000adv.intra.com.tw
Authentication Authenticate using Keys will be general Pre-shared key (WPA)- Passphrase: Unmask	Auto-Scan Lists	Connection information Status: au Elapsed time: Network (SSID): 12 Access point: 00 Packets in/out: <u>R</u> econnect R	Sce thenticating 3kk 50-18-00-0F-F8 gauthenticate	<u>ه.</u> چ	✓jew Permanent trust ▲dd this trusted server to the database Server name must end with: win2000edv.intra.com.tw
					Proceed to authenticate with this server?

9.Result:

F. a=6.3
п 05
[L=63

Method 2:

1. The UserA or UserB have to get certificate from Radius, first.

http://192.168.122.1/certsrv

account:fae1

passwd:fae1

Connect to 19	2.168.122.1	? 🛛
R		
Connecting to 19	2.168.122.1	
User name:	2 1	*
Password:		
	Remember my pas	ssword
	ОК	Cancel
		100

- 2. Then Install this certificate and finish.
- 3. Setting on the router and client:

Router:

Network ID(SSID)	123kk
Channel	8 💌
Security	
802.1X Settings	
RADIUS Server IP	192.168.122.1
RADIUS port	1812

costra

Client:

Go to "Network Connection" and select wireless adapter.

Choose "View available Wireless Networks" like below:

Advanced \rightarrow choose "123kk"

Select "WirelessCA and Enable" in Trusted root certificate authority:

General Authentication Advanced	Smart Card or other Certificate Properties 🛛 🛛 🔀
Select this option to provide authenticated network access for wired and wireless Ethernet networks. Penable network access control using IEEE 802.1X EAP-type: Smart Card or other Certificate Properties Authenticate as computer when computer information is available Authenticate as guest when user or computer information is unavailable	When connecting: Use my smart card Use a gertificate on this computer Validate server certificate Connect only if server name gnds with: Trusted root certificate authority: Trusted root certificate authority: Use a different user name for the connection DK Cancel
OK Cancel	

- Wireless Network Connection Properties 🛛 🔹 🔀	123kk properties
General Wireless Networks Advanced	Association Authentication
Use Windows to configure my wireless network settings Available networks: To connect to an available network, click Configure. i dale i amit01 i JOYCE	Network name (SSID): 123kk Wireless network key This network requires a key for the following: Network Authentication: WPA Data encryption: TKIP
Preferred networks: Automatically connect to available networks in the order listed below: 123kk Move up	Network key:
Move down Add Remove Properties Learn about setting up wireless network configuration. Advanced	Key index (advanced): 1
OK Cancel	OK Cancel

Then, if the wireless client wants to associate, it has to request to authenticate.

Appendix D FAQ and Troubleshooting

Reset to factory Default

There are 2 methods to reset to default.

1. Restore with RESET button

First, turn off the router and press the RESET button in. And then, power on the router and push the RESET button down until the M1 and or M2 LED (or Status LED) start flashing, then remove the finger. If LED flashes about 8 times, the RESTORE process is completed. However, if LED flashes 2 times, repeat.

2. Restore directly when the router power on

First, push the RESET button about 5 seconds (M1 will start flashing about 5 times), remove the finger . The RESTORE process is completed.

FCC Channel selection disabled attestation:

The Channels 1-11 is just for USA used, other channels will be disabled by software. the end user can not provide with any controls or software to allow operation outside the USA frequency band for all future applications when selling this product in USA.

FCC Caution

- **1.** The device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:
- (1)This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.
- 2. FCC RF Radiation Exposure Statement: The equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.
- **3.** This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- **4.** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user authority to operate the equipment.