

Setting up the KX-TDA0470 16 Channel VoIP Extension Card

for Mobile Users via PPTP VPN with the

Multitech Routefinder SOHO

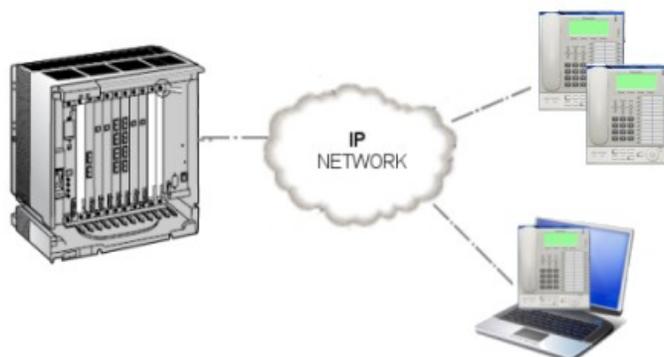
Model # RF820

RouteFinder™ SOHO



Introduction

The 16 Channel VoIP IP-Extension card [KX-TDA0470] provides connectivity for Panasonic VoIP devices like the IP Proprietary Telephone [KX-NT136] and the IP Soft-phone. The IP-Extension card allows IP telephones to have full functionality on the Host PBX system and can be used for mobile users and remote offices.



In this example we will connect remote mobile users to a KX-TDA200 via a 16 Channel VoIP IP-Extension card [KX-TDA0470]. The Mobile Users are equipped with a notebook computer and have installed the IP Soft-phone application. The Mobile Users can connect to the Internet in any manner such as a Cable Modem or DSL from home or through an Internet connection provided at a Hotel or Wireless Access Point.

The Mobile User will enable secure communication to the Host PBX via a VPN Tunnel using Point to Point Tunneling Protocol and the PPTP client software available in most PC Operating Systems. Once a VPN Tunnel is established the IP Soft-phone will establish a connection to the Host PBX and provide full access to the Panasonic KX-TDA200 as provided by the Class of Service and Extension Settings just like a telephone connected directly to the system.



A STATIC IP ADDRESS is required at the location of the KX-TDA200 system for this application. If you do not have a Static IP Address to assign to the router connecting the PBX to the network please obtain one from your Internet Service Provider along with Gateway Address and DNS Information.

Example Application

KX-TDA0470 16 Channel VoIP Extension Card

Connecting Mobile Users via PPTP VPN

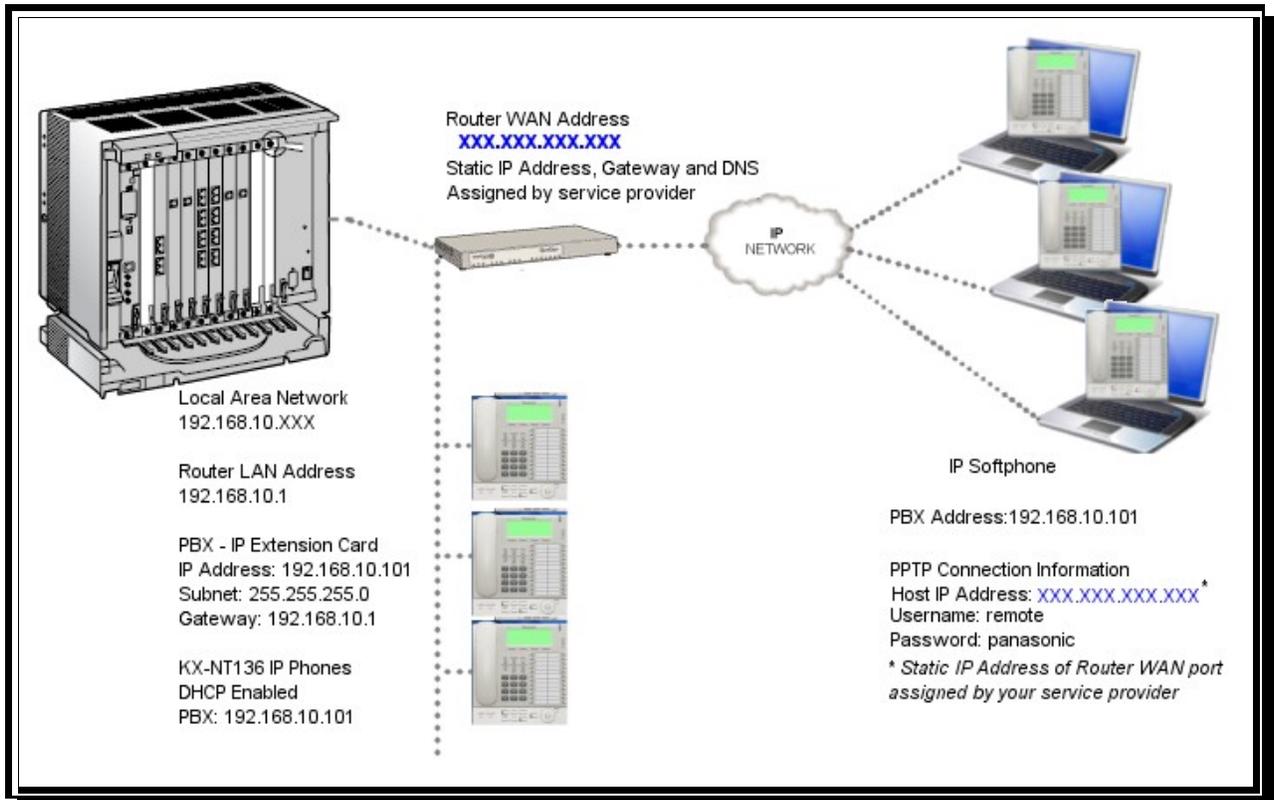


Figure 1 - IP Addressing Example

IP and Networking Basics



Networking and IP Fundamentals

Understanding IP Addressing

An IP address is an address used to uniquely identify a device on an IP network. An IP address consists of four octets separated by a period, and example IP address would be 192.168.1.200. While most people have become familiar with the IP address the Netmask and Subnet is often overlooked and expected to be 255.255.255.0.

The Netmask is an important part of the IP address. The Netmask determines the scope of the network on which a device is located. The familiar netmask of 255.255.255.0 is equal to saying my network is 192.168.1. Anything from 1-254. 255 in the Netmask equals an exact match and 0 equals any number from 1 to 254. This defines our local network as everything from 192.168.1.1 to 192.168.1.254.

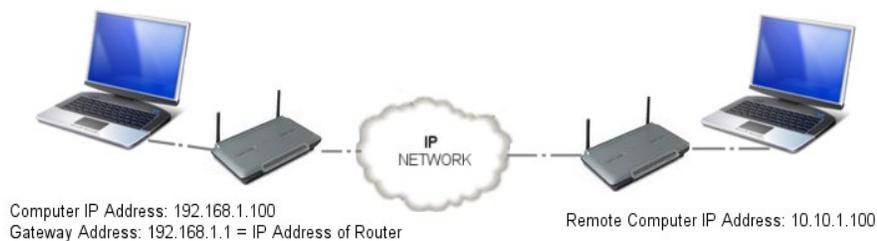
The Local Network

The Local Network is the network a device can communicate on without the help of a Router. Most people have become familiar with setting the Default Gateway. The Default Gateway is the address of a Router which knows how to get to an address outside the local network. When two devices communicate on the same local network they can exchange information without any assistance.

When a device tries to communicate with a device on another network the request is sent to the default



gateway.



Private IP Addresses

Private IP Addresses are addresses reserved for private networks and can not communicate on the public Internet. The addresses reserved for this use are as follows:

10.0.0.0 - 10.255.255.255
172.16.0.0 - 172.31.255.255
192.168.0.0 - 192.168.255.255

Public IP Addresses

Public IP Addresses are assigned to Service Providers by the Internet Assigned Numbers Authority (IANA) and are used to communicate over the public Internet. With a Cable Modem or DSL line a public IP address is assigned to the user when they connect. When a user connects to a public website that website only sees the public IP address assigned to their modem/router.

You can visit www.myipaddress.com and the webpage there will show you how the outside world actually sees your computer.

NAT - Network Address Translation

Network Address Translation or NAT allows multiple users on a private IP network to communicate with the public Internet using one address. While NAT has many other capabilities most often it is used to conserve public addresses.

DHCP - Dynamic Host Configuration Protocol

Dynamic Host Configuration Protocol or DHCP is a way to control the assignment of IP addresses on the local network. DHCP allows a computer to receive its configuration, IP Address, Subnet, Gateway and other information from a server. The use of DHCP allows a network administrator to make changes to how the network operates without having to reconfigure each user's computer when a change is made. A DHCP server assigns a computer an IP address from a pool of available addresses and can reassign those addresses when not in use.

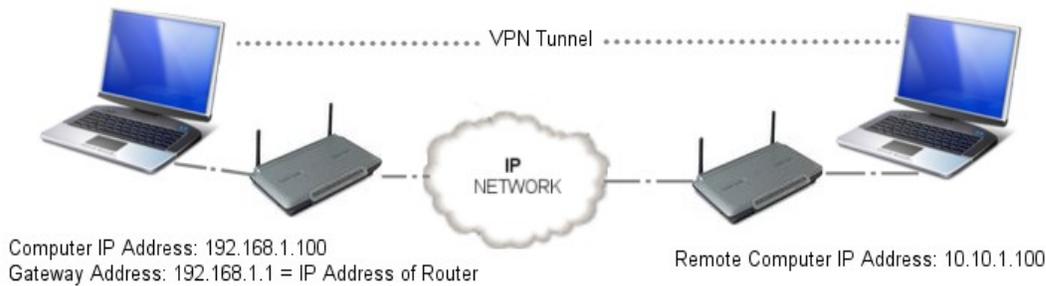
Static Addresses

IP Addresses which are assigned to a device by a network administrator directly are Static or fixed IP Addresses. It is important to assign Static Addresses to devices the users need to find often. Web Servers, printers and VoIP cards require Static IP Addresses so devices connecting to them can always find them. DHCP addresses can be reassigned and may not be available to a specific device all of the time. A Static IP address is fixed and will not change.

Understanding VPN

A VPN or Virtual Private Network is a method that can connect a device on one IP network to another IP network using encryption and security making the remote device appear to be connected directly to the host network. A VPN creates a *tunnel* or path within a public network which appears to a computer to be a direct connection. Data is encapsulated or wrapped in the tunnel to keep it hidden from the public network. Using a VPN two private networks using private IP addresses can be connected together or a remote user can be connected to a private network with its own private IP address. To the computer the VPN is transparent and it operates as if it were directly connected to the private network.

IPSEC – IP Security



IP Security or IPSEC is a set of protocols which support secure exchange of packets using encryption. For IPSEC to work the sending and receiving devices share a public key.

PPTP - Point to Point Tunneling Protocol

Developed by Microsoft, PPTP or Point to Point Tunneling Protocol is a protocol for establishing a secure connection. PPTP uses User IDs and passwords and a client for establishing a connection is included with Microsoft Windows 2000 & XP.

Routers

Understanding Routers

Routers connect the local network to other devices located on a different subnet or network. A computer with an IP Address of 192.168.1.100, Subnet Mask of 255.255.255.0 can communicate with any address which matches. 255.255.255.0 means 192.168.1.Any address from 1-254. When a computer tries to talk to a device with another address it requires a Default Gateway. The Default Gateway is the address of the Router which knows how to find the other networks. The Default Gateway must always be a part of the computers local network such as 192.168.1.1.

RouteFinder™ SOHO

Setting up the Routefinder SOHO



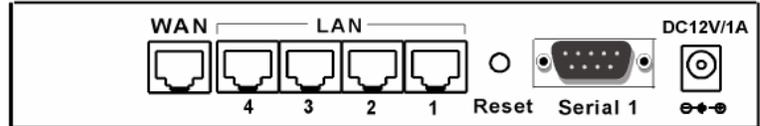
Setting up the Routefinder SOHO RF820 For Mobile Users over PPTP

Basic Setup (LAN and WAN Settings)

Connecting to the Routefinder

The Routefinder RF820 has a built in 4 port switch. Connect a computer to a LAN port of the Routefinder and power up your computer and the Routefinder. If your computer is not set for DHCP enable this and your computer will now be connected to the Routefinder on the network 192.168.2.0 255.255.255.0.

RF820 Back Panel



Open a Web Browser and connect to <http://192.168.2.1>

The Routefinder is configured via a web page. Login to the web page using User Name: **admin** and Password: **admin**.

Select **Network Setup** from the menu.



LAN - Local Area Network

The Routefinder assigns by default an IP address of 192.168.2.1 to itself and a Subnet Mask of 255.255.255.0.

For this example change the LAN Address to 192.168.10.1.

The screenshot shows the "Network Setup >> IP Settings" page. It is divided into two sections: "LAN" and "WAN 1".
In the "LAN" section, the "IP Address" field is set to "192.168.10.1" and the "Subnet Mask" field is set to "255.255.255.0". A "Save" button is at the bottom right of this section.
In the "WAN 1" section, the "WAN 1" dropdown is set to "Static IP". The "IP Address" field is "xxx.xxx.xxx.xxx", "Subnet Mask" is "255.255.255.0", "Default Gateway" is "xxx.xxx.xxx.xxx", "Primary DNS" is "xxx.xxx.xxx.xxx", and "Secondary DNS" is "xxx.xxx.xxx.xxx". A "Save" button is at the bottom right of this section.

WAN - Wide Area Network

Connect the WAN Port of the Routefinder to your Cable or DSL Modem or Ethernet Port on your router provided by your ISP. Configure the WAN1 settings for the Static IP

address provided by your Internet Service Provider.

A STATIC IP ADDRESS is required for this application if you do not have a Static IP Address please obtain one from your Internet Service Provider along with Gateway Address and DNS Information.

Networks and Services

Select Networks and Services from the top menu. Enter the name PPTP_POOL, IP Address 192.168.10.224 and Subnet Mask of 255.255.255.224 and click Add.

Networks & Services >> Network Configuration

Network Configuration

Name	IP Address	Subnet Mask		
<input type="text" value="PPTP_POOL"/>	<input type="text" value="192.168.10.224"/>	<input type="text" value="255.255.255.224"/>	<input type="button" value="Add"/>	

Name	IP Address	Subnet Mask	Options	
Any	0.0.0.0	0.0.0.0	Static	
LAN	192.168.10.0	255.255.255.0	Static	
LANInterface	192.168.10.1	255.255.255.255	Static	
WAN1	140.212.207.0	255.255.255.0	Static	
WAN1Interface	140.212.207.19	255.255.255.255	Static	
PPTP_POOL	192.168.10.224	255.255.255.224	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>

VPN

Select VPN from the top menu then select PPTP from the left menu. Check PPTP Status and select the PPTP_POOL from

the dropdown box labeled Select Remote Address. Click Save.

Under User Authentication add a user name and password. In this example the user name is "remote" and the password is "panasonic". Click Add to save the user.

Note: Multiple users can all log in using a single user id and password.

VPN >> PPTP

PPTP Settings

PPTP Status	<input checked="" type="checkbox"/>
Encryption Strength	40,56,128
Select Remote Address	<input type="text" value="PPTP_POOL"/>
Local Address	192.168.10.225
Remote Start Address	192.168.10.226
Remote End Address	192.168.10.254
Range	29

User Authentication

Username	<input type="text"/>	
Password	<input type="text"/>	
Confirm Password	<input type="text"/>	<input type="button" value="Add"/>
Allowed Users	<input type="text" value="remote"/>	<input type="button" value="Delete"/>

Packet Filters

From the top menu select **Packet Filters**.

Packet Filters >> Packet Filter Rules

Show Packet Filter Rules

Show Packet Filter Rules in Popup Window Show

System Defined Rules

Status	From	Allowed Services	To	Action	Remarks
<input checked="" type="checkbox"/>	LAN	FTP, TELNET, SMTP, DNS, HTTP, HTTPS, POP3 and IMAP	Any	ACCEPT	Allow Outbound Access

Add User Defined Packet Filter Rules

From (Host/Networks) Service To (Host/Networks) Action

PPTP_POOL Any Any ACCEPT Add

No.	From (Host/Networks)	Service	To (Host/Networks)	Action	Command
1	PPTP_POOL	Any	Any	ACCEPT	Edit Delete
2	Any	Any	PPTP_POOL	ACCEPT	Edit Delete

In the section labeled Add User Defined Filter Rules create a rule as follows:

From (Host/Networks) Service To (Host/Networks) Action

PPTP_POOL Any Any ACCEPT Add

Add an additional rule as follows:

From (Host/Networks) Service To (Host/Networks) Action

Any Any PPTP_POOL ACCEPT Add

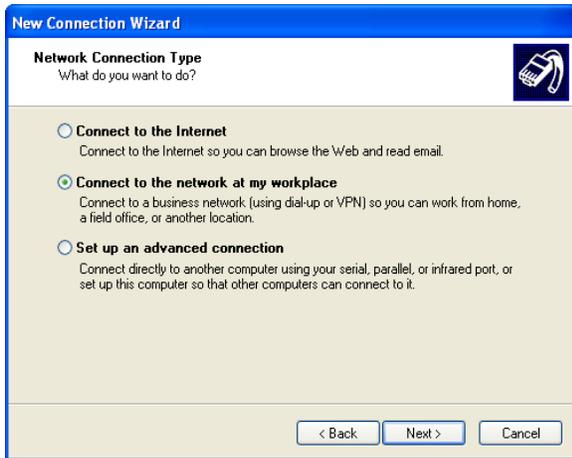
This completes the setup of the Multitech RF820. Select **Save and Restart** from the menu at the top right. Restart the router and your PC.

Setting up the Mobile User's Computer



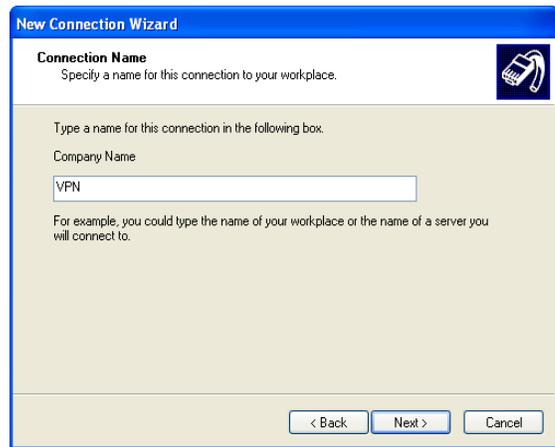
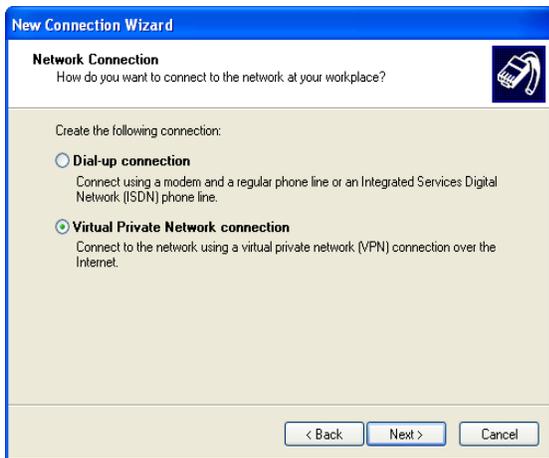
Setting up a PPTP VPN connection on a Mobile User's PC (Windows XP)

Depending on your Operating system the following procedure will vary but you should be able to follow along and create a VPN connection. If you are having trouble please consult with your Network Administrator for assistance.



On your PC open the Control Panel and select Network Connections then Make New Connection. On Windows XP select the network wizard and select Connect to the network at my workplace. Then select Next >

Select Virtual Private Network connection then select Next >



Enter a name for the connection then select Next >.

Enter the IP Address* of your Multitech Router's WAN



Port*.

***You must obtain a static IP address from your Internet Service Provider and this address must match the Public IP Address assigned to your WAN1 Port on your Multitech Router.**



Select Next> and Finish to complete the wizard.

Enter the User name and password configured in your Multitech router. In this example – remote / panasonic.



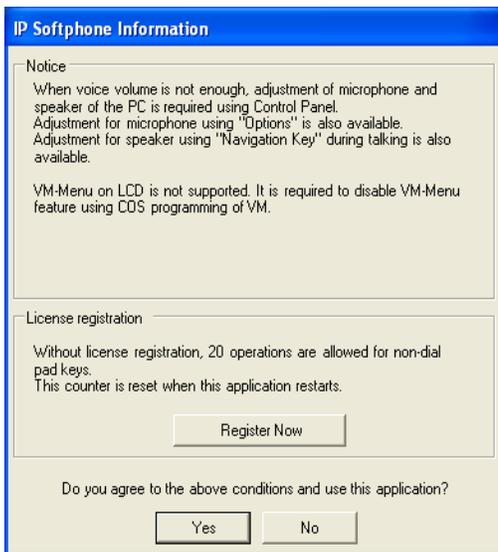
Press Connect.

Installing the IP Softphone on your PC

You can download and install the latest IP softphone application from www.kxtasupport.com. Unzip the downloaded file and install the application.



Open the ip-softphone by double clicking on the icon. On the opening screen select Yes to accept the conditions and use of this application. On the IP Softphone Trial dialog box select I will register the license later and use trial mode for now, then select Yes.



The IP Softphone will start. In the bottom left corner select **Options**.

On the Options dialog under PBX setting set the IP Address for the PBX to 192.168.10.101 for this example. Select OK and the IP Softphone will attempt to connect

