

**Motorola WiMAX Wireless Broadband  
Residential Subscriber Unit  
User Guide  
BLADE Series**

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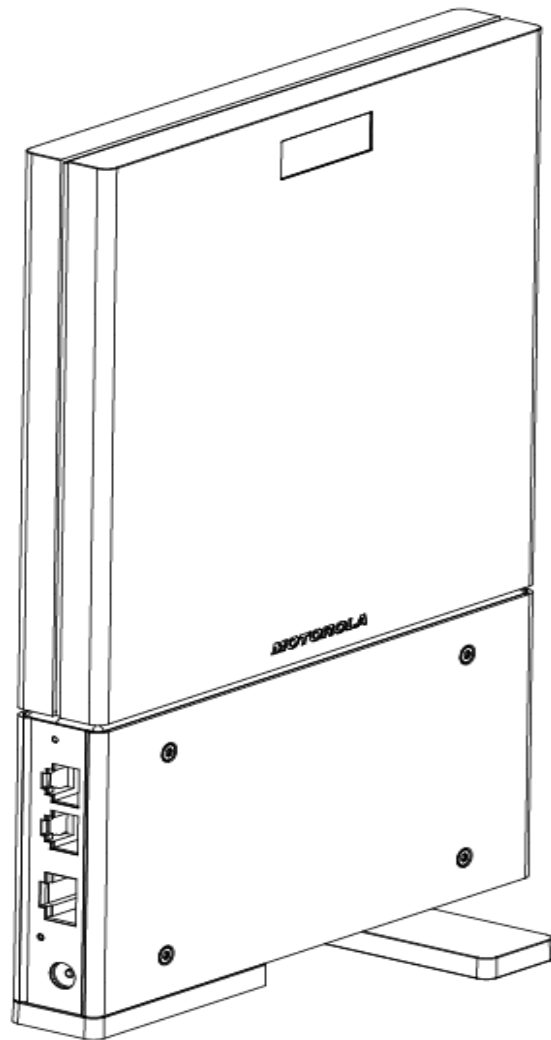
# 1.Overview

Thank you for purchasing the Motorola WiMAX Wireless Broadband Residential Subscriber Unit (BLADE series) desktop device. The Motorola Wireless Broadband Gateway allows you to connect to the wireless world easily and seamlessly without complicated installation and setup procedures.

The Motorola Wireless Broadband Gateway provides the user:

- Convenience — with easy plug and play functionality. Flexible connectivity. Compact design.
- Performance — dual antennas supply diversity technology. Best in Class Radio Performance. Reliable indoor coverage. High throughput.
- Control — remote management capability allows easy detection and authentication once the unit is setup. Robust security.

## Motorola Wireless Broadband Residential Subscriber Unit (BLADE)



The features and the physical appearance of your WiMAX Wireless Broadband Gateway may differ slightly from the illustration. This illustration shows the model with the antennas embedded inside.

This product is subject to change. Not all features described in this WiMAX Wireless Broadband BLADE User's Guide are available on all models. For the most recent documentation, visit the Product Documentation page on [www.motorola.com](http://www.motorola.com).

## **Powerful Features in a Single Unit**

The WiMAX Wireless Broadband Residential Subscriber Unit (BLADE) provides the following features:

1. WiMAX Authentication
  - WAN DHCP
  - LAN DHCP
  - Router Functions
2. Firewall
3. URL Filter
4. Port Forwarding
5. VoIP function

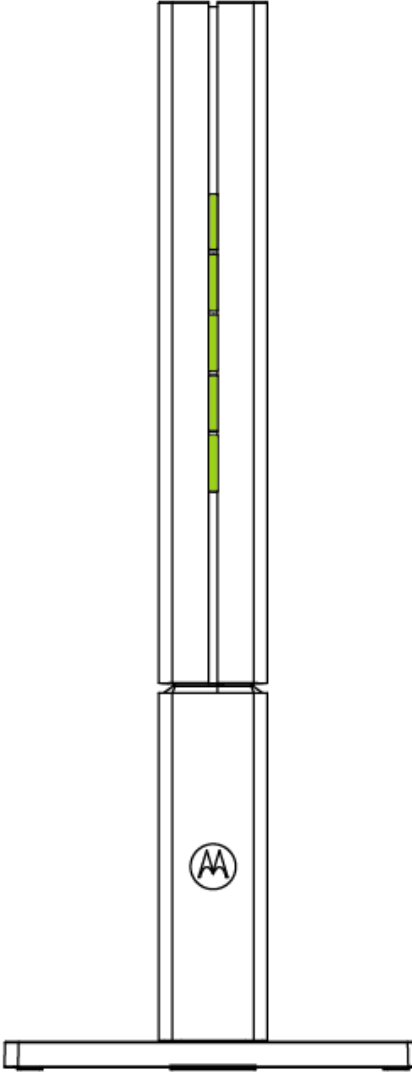
## **Back Side Panel Reset Button**

The back side panel of the WiMAX Wireless Broadband Residential Subscriber Unit (Blade) contains the reset button for the unit. There are two ways to reset the unit:

- Pressing the reset button less than 5 seconds to restart the device.
- Pressing the reset button for more than 5 seconds will restore the factory configuration of the Gateway.

# Front Side Panel LED Indicator

The WiMAX Wireless Broadband Residential Subscriber Unit (BLADE) contains five LED indicators on the front side of the unit. The LEDs provide the status of the unit and the signal strength for easy adjustment during setup. It is green when on or blinking. The five LED are on, off or blinking together to react the status.



## Front Side Panel LEDs

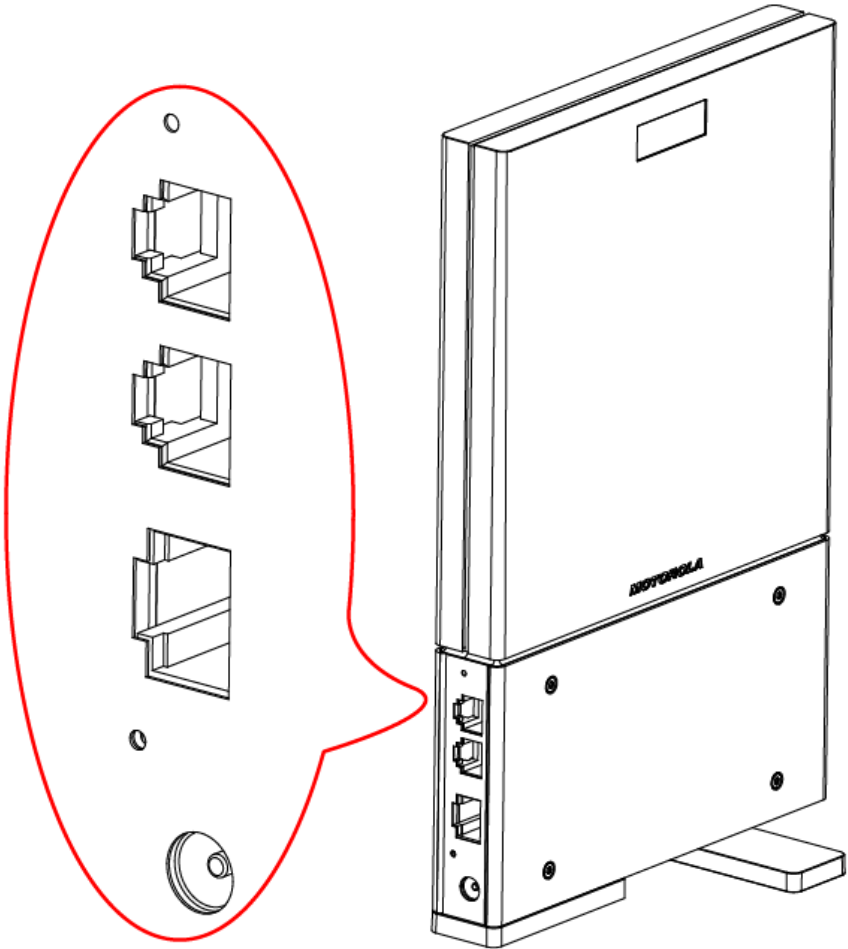
Power Status	The LED indicator is: <ul style="list-style-type: none"> <li>• On - the power to Gateway is on</li> <li>• Off - power to the Gateway is off</li> </ul>
Gateway Status	The status is provided by the LED indicator as follows: <ul style="list-style-type: none"> <li>• Off - the Gateway is initializing (powering on)</li> <li>• On - normal operation</li> <li>• Flashing - error condition. Contact your service provider for additional details.</li> </ul>

WiMAX Status	<p>The LED is:</p> <ul style="list-style-type: none"> <li>• On - the Gateway has a WiMAX connection</li> <li>• Off - the Gateway does not have a WiMAX connection</li> </ul>
LAN Port	<p>The LED indicator is:</p> <ul style="list-style-type: none"> <li>• On - LAN Port is connected</li> <li>• Off - LAN Port is not connected</li> <li>• Blinking - LAN port is active</li> </ul>
Phone Port	<p>The LED indicator does not react the VoIP status.</p>
Signal Strength	<p>All LEDs on the side are lit, full signal is received</p> <ul style="list-style-type: none"> <li>• All LEDs are off, no signal</li> <li>• LEDs will display a left to right chase pattern when the device is attempting to locate and connect to the network.</li> </ul>



# Side Panel

The side panel of the unit contains reset button, two VoIP ports, an Ethernet port and a power connection port (from top to bottom).



## Port Descriptions

Side Panel /Button Ports	Description
Reset	Reset button
Phone	Two VoIP phone ports
Ethernet	One Ethernet switch Port
Power	AC Power connector

## Operating Information

Temperature Range and power rating for the WiMAX Wireless Broadband Residential Subscriber Unit (BLADE):

Operating temperature for the units is 0 to 40°C.

Power Rating AC for the Wireless Broadband Residential Subscriber Unit (BLADE):

- 110V ~240, 1A

## 2. Installation

### Overview

To install the WiMAX Wireless Broadband BLADE, you need to review the following sections:

- Before You Begin
- Gather Information
- Connect the WiMAX Wireless Broadband BLADE

### Before You Begin

Before you begin installation, check that you have received the following items with your Gateway:

#### Items Needed for Installation

Item	Description
AC Adapter	Power adapter
Power Cord	Power cord that connects to the AC Adapter to connect the unit to an AC electrical outlet
Ethernet Cable	The cable connects the Internet port on your Gateway to your PC or laptop computer
Quick Start guide	Demonstrate the setup and basic IP configuration

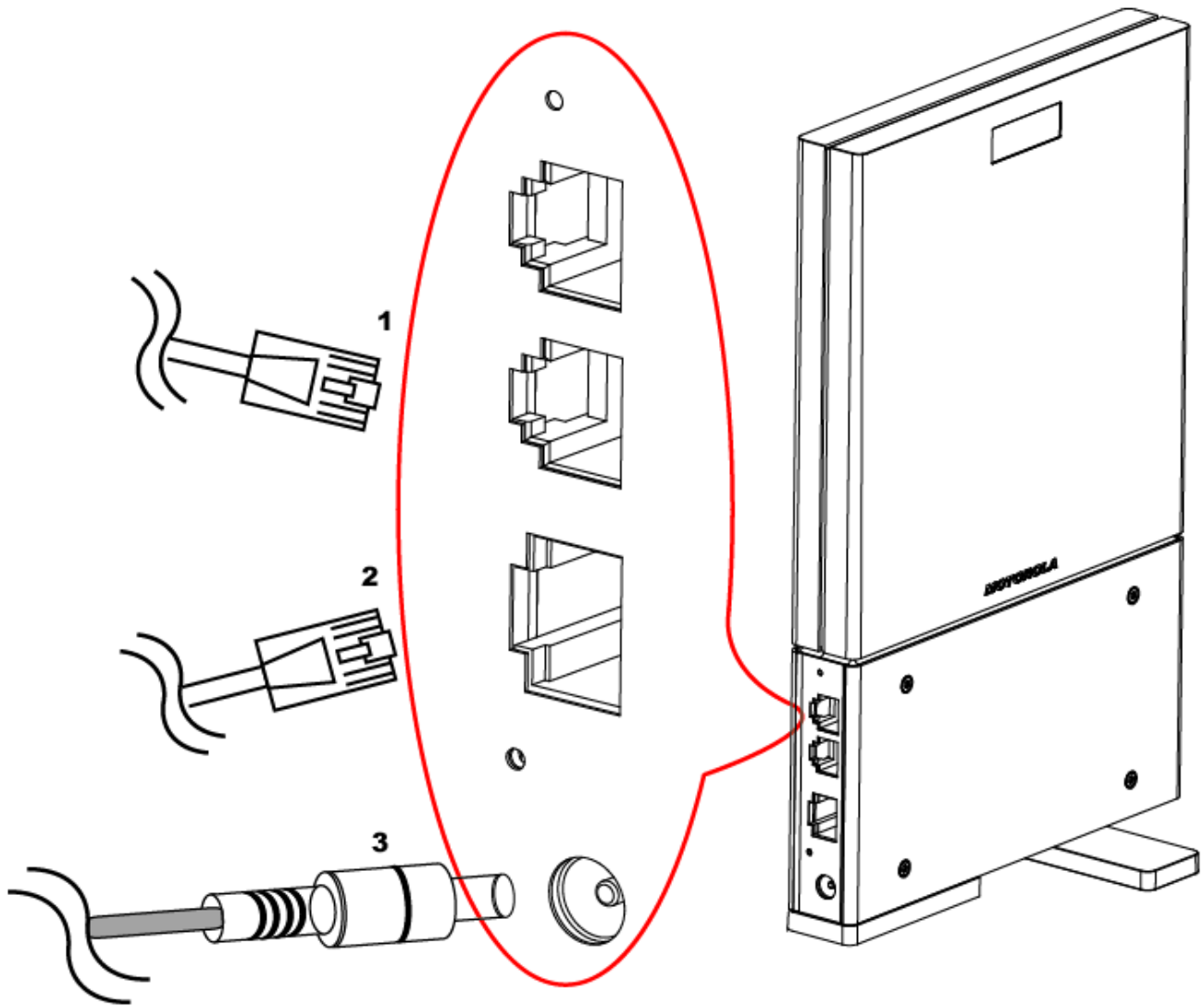
In addition to your Gateway device, you will also need:

- One computer (Windows 2000, Windows XP or Windows Vista)

### Easy Setup

The Motorola WiMAX Wireless Broadband BLADE device is easily set up in your home. Basic installation equipment needed are the power adapter and cord, RJ-45 Ethernet cable, RJ-11 telephone line, a PC or laptop computer and the WiMAX Wireless Broadband BLADE device.

## WiMAX Wireless Broadband BLADE Connections



Perform the following tasks before attaching the power cord or powering up the unit:

- Place the WiMAX Wireless Broadband BLADE vertically on a flat surface.
- Connect one end of a RJ-11 telephone cable to the VoIP port of BLADE (1) and the other end of the telephone line to the phone jack of a telephone set.
- Connect one end of an Ethernet cable to the Ethernet port of BLADE (2). Connect the other end of the same Ethernet cable to an Ethernet port on your PC or laptop computer.

- Connect the power cord and the power adapter together.
- Connect the power adapter to the Power connector on the bottom of the unit (3).
- Plug in the power adapter into an AC power outlet. The WiMAX Wireless Broadband BLADE unit will automatically turn on.

### 3. Basic Configuration

A web based Graphical User Interface is used to configure the features of the WiMAX Wireless Broadband BLADE. There are six main menus in the User Interface.




### User Interface Overview

The user interface includes the following:

Item	Click To
Personalize	Set up the password, device time and device name. You can also abandon your personal settings by clicking " <b>Restore Factory Settings</b> ".
Internet	Internet connection settings, including authentication, protocol, firewall and dynamic DNS.
Status	Display network status, including WiMAX, Internet, LAN and Device info.
Port Forwarding	Enables Universal Plug and Play (UPnP) Internet Gateway Device (IGD) profile to allow certain Windows applications setup the port forwarding rule dynamically when NAT is enabled on this device.

Item	Click To
Local Address	Display the IP address and netmask address in local network.
Control Panel	Manage the device software. Click Browse button to locate the software package on your computer. Then click upgrade button to upgrade the softare to the device.

The following buttons appear at the bottom of each configuration page:

Item	Click To
Apply	Save your changes. If you restart your Gateway without saving your changes, all of your changes are lost. After the device restarts, the last saved configuration is used.
Undo	Clear your changes on the current page and return to the main menu. After you click Apply, Undo does not clear your changes.
Next	Confirm the current setting and move on to the next one.
Back	Want to revise the previous setting.
Refresh	Update to the new configurations and settings.
Auto Refresh	Update automatically without needing you to refresh repeatedly.
Wizard	Start Setup Wizard manually if your BLADE did not run the setup program automatically.
 Star Sign	Restart BLADE

**Note:** Illustrations in this manual containing an image of what you see on your computer screen are for reference purposes only. Values shown in the illustrations in this manual may be different from what you see on your computer screen.

## 4.Procedure to Log into the WiMAX Wireless Broadband (BLADE Series)



Your Internet browser should support JavaScript.

### Before you Begin Configuration

Ensure that your service provider has registered your unit.



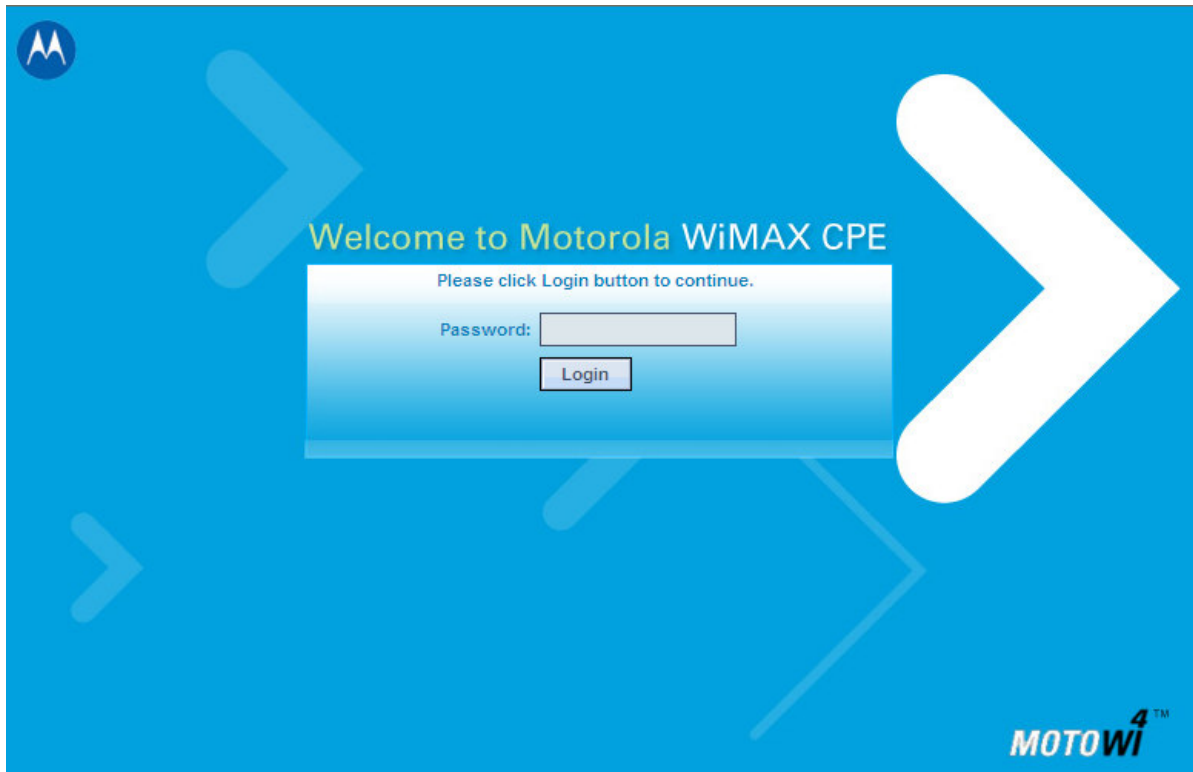
One of following two types of protocols are used to connect the unit to the provider's network. Your system service provider determines the method to use.

- Ensure that you know which protocol you will need to enter in the Setup Wizard procedure, either EAP-TLS, or EAP-TTLS. If EAP-TTLS is to be used, the service provider will give you a Username and Password. Some settings on your computer must be verified or changed to ensure that your computer configuration can support the Wireless Broadband BLADE.
- Verify that the IP addresses and DNS settings are automatically generated in your Local Area connection of your Internet Protocol (TCP/IP) properties. The procedure to verify your computer's configuration is found in the section titled "Configuring TCP/IP" on Chapter 11. Use the appropriate procedure for your computer.

Use the following procedure to log into the WiMAX Wireless Broadband BLADE.

- 1 On a computer that is connected to the BLADE, open a web browser.
- 2 In the Address or Location field, type `http://192.168.15.1` and press ENTER to display the login screen.
- 3 There is no Username field, just type the password (default password is **motorola**)





4 Click **Login** to display the Status page.

This table shows the status of WAN connection.

<b>WiMAX Radio Interface:</b>	Enabled	<b>Gateway Mode:</b>	Disabled
<b>WiMAX Radio Overheat:</b>	none	<b>IP Address:</b>	
<b>WiMAX Radio Temperature:</b>	normal	<b>IP Subnet Mask:</b>	
<b>WiMAX Service Provider:</b>		<b>IP Default Gateway:</b>	
<b>WiMAX Iietwork State:</b>	Scanning	<b>IP Connection:</b>	Not Connected
<b>WiMAX Iietwork Status:</b>	Downlink Sync	<b>Firewall:</b>	Enabled
<b>WiMAX Iietwork Security:</b>	Unauthorized	<b>Lease Obtained:</b>	
<b>WiMAX Provisioning State:</b>	Provisioned	<b>Lease Expires:</b>	
<b>WiMAX RSSI:</b>	-128 dBm	<b>DHS Servers:</b>	
<b>WiMAX CIIR:</b>		<b>Time Server:</b>	pool.ntp.org

After the Setup Wizard steps are successfully completed, and you have logged into your Gateway unit, you can check the network status by clicking the **Status** button.

You can see the sample status and statistics of WiMAX network interface from the page above. When your BLADE successfully connects to the Internet, you will see actual linking status and statistics from your own page.

Below is the LAN page for your reference. It shows the transmit and receive statistics. Click Refresh to update the data. If you click Auto Refresh button, the data will be updated on a regular time-frame basis.

The star sign on the left bottom of the web page is **Reboot** key.

This table shows the status of WAN connection.

<b>WiMAX Radio Interface:</b>	Enabled	<b>Gateway Mode:</b>	Disabled
<b>WiMAX Radio Overheat:</b>	none	<b>IP Address:</b>	
<b>WiMAX Radio Temperature:</b>	normal	<b>IP Subnet Mask:</b>	
<b>WiMAX Service Provider:</b>		<b>IP Default Gateway:</b>	
<b>WiMAX Network State:</b>	Scanning	<b>IP Connection:</b>	Not Connected
<b>WiMAX Network Status:</b>	Downlink Sync	<b>Firewall:</b>	Enabled
<b>WiMAX Network Security:</b>	Unauthorized	<b>Lease Obtained:</b>	
<b>WiMAX Provisioning State:</b>	Provisioned	<b>Lease Expires:</b>	
<b>WiMAX RSSI:</b>	-128 dBm	<b>DNS Servers:</b>	
<b>WiMAX CIIR:</b>		<b>Time Server:</b>	pool.ntp.org

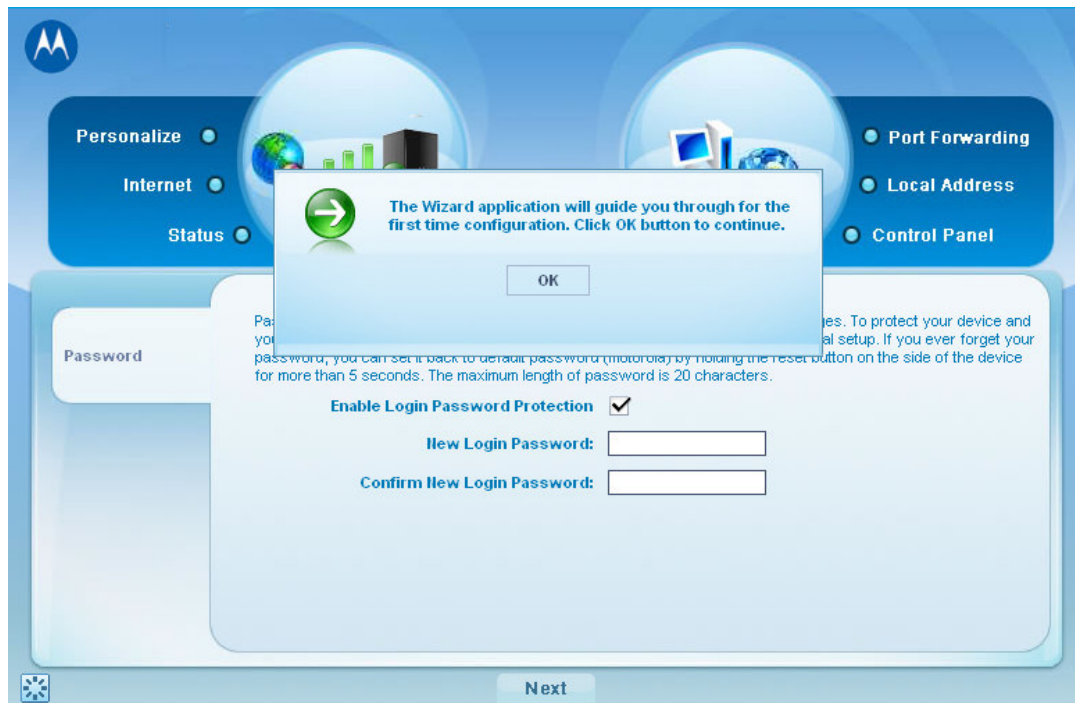
Wizard Refresh Auto Refresh

## 5.Setup Wizard and Authentication

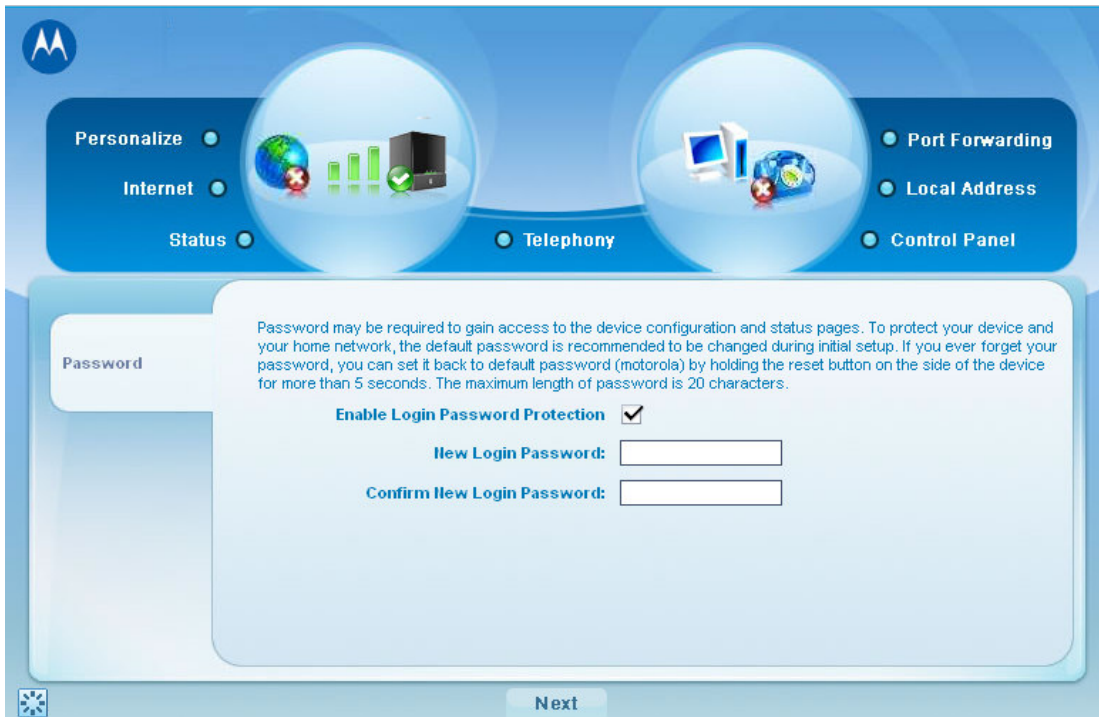
Your Internet should support Javascript.

### Procedure to Login to the Network

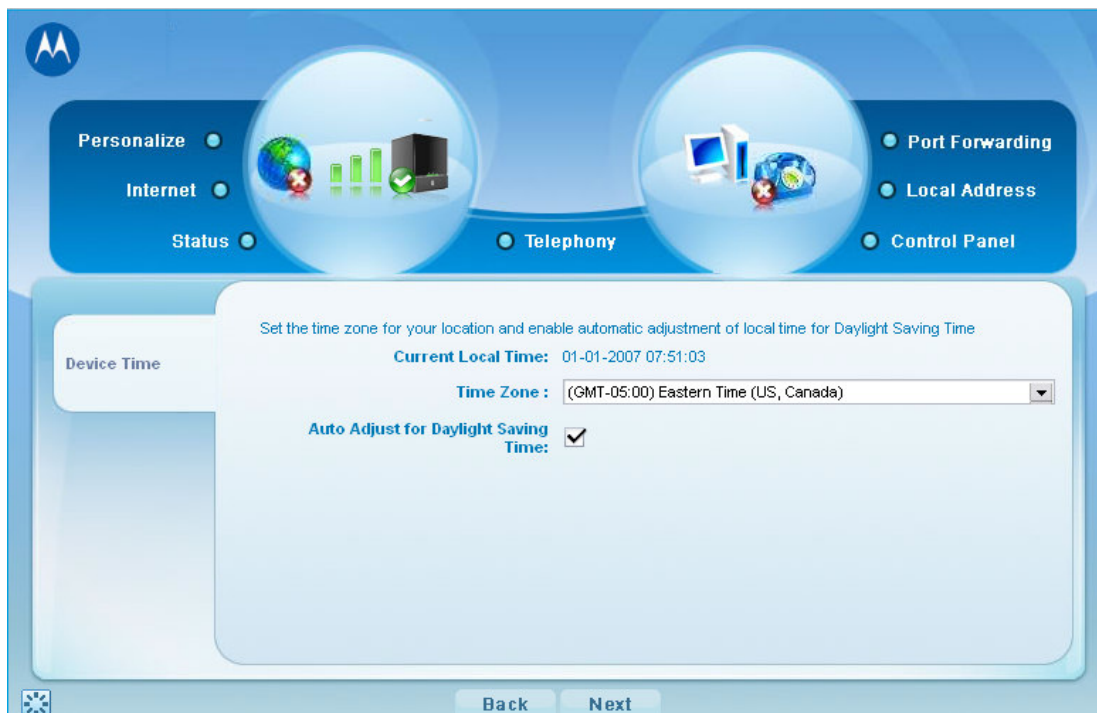
- 1 Log into the WiMAX Wireless Broadband BLADE using the login procedure shown in Chapter 4.
- 2 The Setup Wizard automatically starts. If it does not start, select Wizard tab on the left bottom corner of the Status web page.



- 3 Change the password to your own to ensure the home network security. The maximum length of the password is 20 characters. Click **Next** to continue.



- 4 Select the Time Zone, and click **Next**.



- 5 The next setting requires you to select from EAP-TLS to EAP-TTLS authentication methods. Click on the one methods used by your service provider.

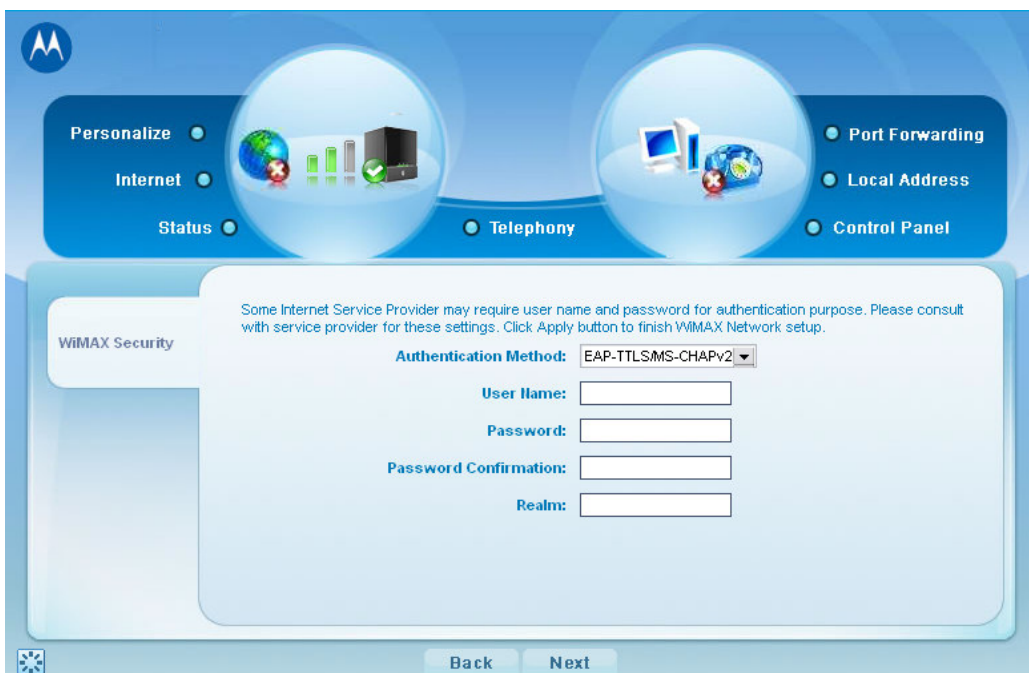
- EAP-TLS

If you are directed to use EAP-TLS, you will not need to enter the user name and password. Simply click **Apply** to save the setting.



- EAP-TTLS

If you are using EAP-TTLS, enter the username and password supplied by your network provider in the appropriate boxes.





## Telephony Account

Enter the realm, user name and password provided by the telephony service provider to complete the settings. The BLADE has two VoIP ports and allows two persons to use the VoIP function at the same time.



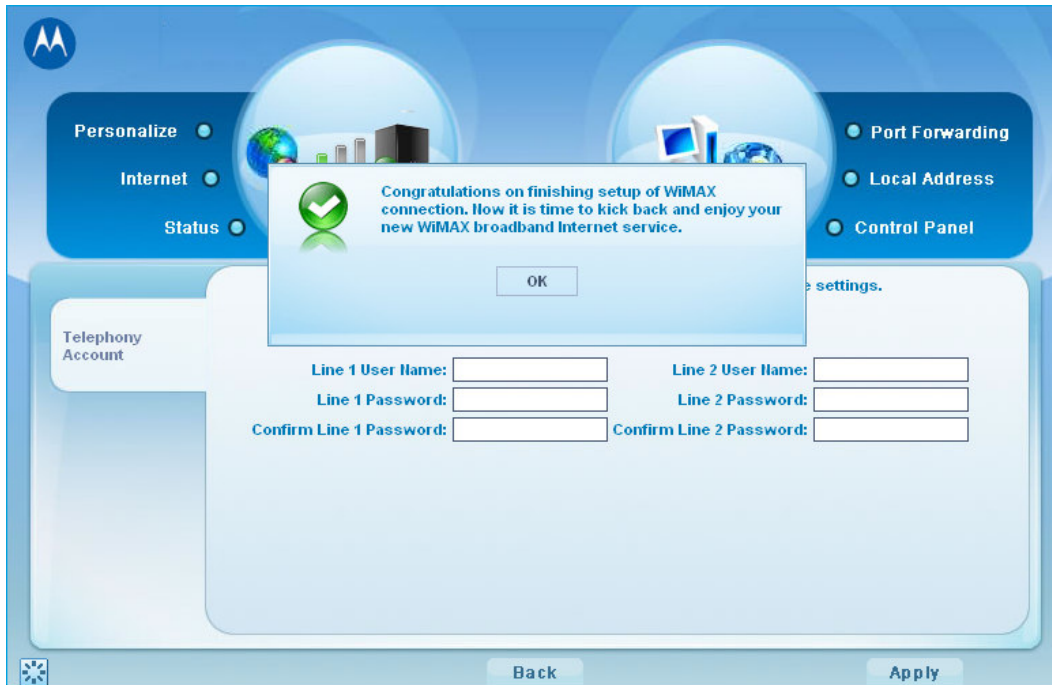
The screenshot shows a web-based configuration interface for a telephony account. At the top, there is a navigation bar with several options: Personalize, Internet, Status, Telephony (which is selected), Port Forwarding, Local Address, and Control Panel. Below the navigation bar, there is a main content area with a title "Telephony Account" on the left. The main content area contains a form with the following fields:

Please consult with telephony service provider for these settings.

Line 1 Realm:	<input type="text"/>	Line 2 Realm:	<input type="text"/>
Line 1 User Name:	<input type="text" value="76531"/>	Line 2 User Name:	<input type="text" value="76532"/>
Line 1 Password:	<input type="password"/>	Line 2 Password:	<input type="password"/>
Confirm Line 1 Password:	<input type="password"/>	Confirm Line 2 Password:	<input type="password"/>

At the bottom of the form, there are two buttons: "Back" and "Apply".

- 6 Click **Apply** to continue the setup process.
- 7 The Authentication process begins and the following screen will display:



## 8 Successful Authentication.

### Setup Complete

When the Authentication Setup process is complete you will be connected to the network. The setup of your BLADE is complete.



**Tip:** If you experience any issues when logging into your Gateway, see “Troubleshooting” on Chapter 10 for additional information.


## 6.WAN Configuration (Internet)

This section allows you to set up the configurations for WLAN connection. It includes WiMAX, Internet Protocol, Firewall, Dynamic DNS and EMS. Each field will be described below.

### WiMAX

The **Enable WiMAX Radio Interface** box is default checked. Leave it as default value or this BLADE will not connect to any Internet service.

There are two choices in the **Authentication Methods**: EAP-TLS and EAP-TTLS. If you select EAP-TLS, the system will not require you to input any user name or password. However, some Internet Service Provider may require user name and password for authentication purpose. In this way, you have to select EAP-TTLS and consult with service provider for these settings. Click **Apply** button to finish WiMAX Network setup.

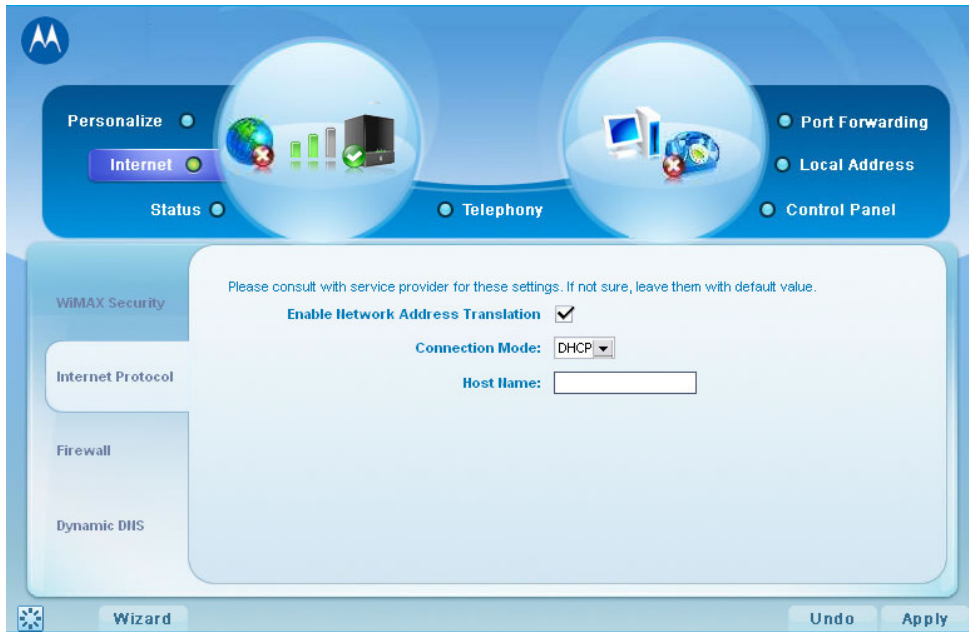


The screenshot displays a web-based configuration interface for WAN settings. At the top, there is a navigation bar with a logo on the left and several menu items: Personalize, Internet (highlighted), Status, Telephony, Port Forwarding, Local Address, and Control Panel. Below the navigation bar, there is a sidebar on the left with links for WiMAX Security, Internet Protocol, Firewall, and Dynamic DNS. The main content area is titled 'WiMAX Security' and contains a warning message: 'Some Internet Service Provider may require user name and password for authentication purposes. Please consult with service provider for these settings. If not sure, leave them with default value.' Below the warning, there are four input fields: 'Authentication Method' (a dropdown menu set to 'EAP-TLS'), 'User Name', 'Password', and 'Password Confirmation'. At the bottom of the interface, there are two buttons: 'Wizard' and 'Apply'.

### Internet Protocol

This field is for Internet protocol setting. Please consult your service provider for these settings. If you are not sure about how to modify the settings, leave them with the default settings.

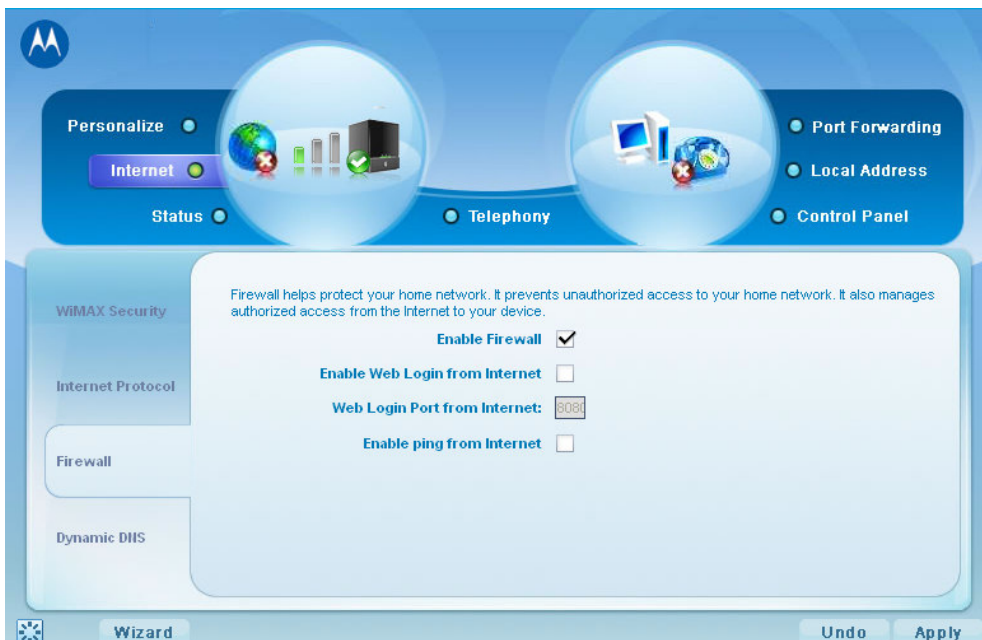




## Firewall

Firewall helps protect your home network. It prevents unauthorized access to your home network and manages authorized access from the Internet to your device.

The **Enable Web Login from Internet** and **Enable Ping from Internet** are default turned off because it allow unknown user to access your computer from the Internet and it is not safe. However, if there is something wrong with your BLADE and Internet connection, you may turn on this function to allow the service provider to access your computer remotely and check what the problem is. If you turn on this function, fill in the number of the port that is allowed to access.



## Dynamic DNS

Configure the Dynamic Domain Name Service (DDNS) for this device from your desired DDNS/TZO service providers. DDNS/TZO service provides a fixed mapping between a fully qualified host name and a dynamic IP address assigned to this device by the WiMAX network. Once you register to the two service providers, they will assign a set of user name, password and host name to you.



The screenshot shows a network configuration wizard interface with a blue header and a light blue main area. The header contains navigation buttons: Personalize, Internet (selected), Status, Telephony, Port Forwarding, Local Address, and Control Panel. The main area is titled 'Dynamic DNS' and contains the following text: 'Configures the Dynamic Domain Name Service (DDNS) for this device from your desired DDNS service provider. DDNS service provides a fixed mapping between a fully qualified host name and a dynamic IP address assigned to this device by the WiMAX network.' Below this text are the following fields: 'Enable DDNS' (checkbox), 'DDNS Service Provider' (dropdown menu with 'DynDNS' selected), 'DDNS User Name' (text input), 'DDNS Password' (text input), and 'DDNS Host Name' (text input). At the bottom of the wizard, there are buttons for 'Wizard', 'Undo', and 'Apply'.

Personalize  Internet  Status  Telephony  Port Forwarding  Local Address  Control Panel

WiMAX Security

Internet Protocol

Firewall

Dynamic DNS

Configures the Dynamic Domain Name Service (DDNS) for this device from your desired DDNS service provider. DDNS service provides a fixed mapping between a fully qualified host name and a dynamic IP address assigned to this device by the WiMAX network.

Enable DDNS

DDNS Service Provider: DynDNS

DDNS User Name:

DDNS Password:

DDNS Host Name:

Wizard Undo Apply

## 7.Telephony

The Motorola WiMAX Wireless Broadband Residential Subscriber Unit (BLADE series) has VoIP function, which allows user for telephone over IP. As long as the device is connected to the Internet, user can use the telephony function. This feature allows user to forward the phone call, reject any anonymous call, select ring tone, and choose how to react to different situations.

### Account

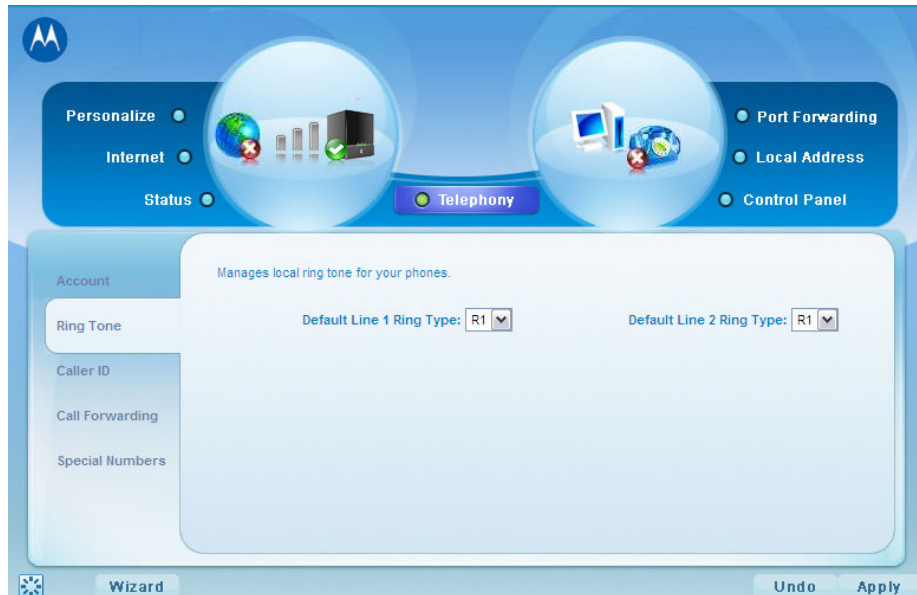
Please consult your telephony service provider for information.

- Realm: refers to the domain name of the user
- User name: refers to the account number the telephony service provider assigns to you when you registered
- Password: refers to the password for the account number the telephony service provider assigns to you when you registered
- Confirm Password: re-enter the password for confirmation

The screenshot shows the Motorola WiMAX web interface. At the top, there is a navigation menu with the following options: Personalize, Internet, Status, Port Forwarding, Local Address, and Control Panel. The 'Telephony' option is highlighted. Below the navigation menu, there is a sidebar with the following options: Account, Ring Tone, Caller ID, Call Forwarding, and Special Numbers. The main content area is titled 'Account' and contains a wizard for configuring telephony settings. The wizard includes a message: 'Please consult with telephony service provider for these settings.' Below this message, there are two columns of input fields for Line 1 and Line 2. The fields are: Line 1 Realm, Line 2 Realm, Line 1 User Name (pre-filled with '76531'), Line 2 User Name (pre-filled with '76532'), Line 1 Password, Line 2 Password, Confirm Line 1 Password, and Confirm Line 2 Password. At the bottom of the wizard, there are three buttons: 'Wizard', 'Undo', and 'Apply'.

## Ring Tone

You can set up the ring tone for both lines here. Select the tone from the scroll-down menu and click **Apply** to activate it.



## Caller ID

This feature allows user to decide if any anonymous incoming call is answered or rejected. Simply check the **Enable Line 1/2 Anonymous Incoming Call Rejection** check box and click **Apply** if you do not mind any anonymous incoming call.

If any user does not wish the VoIP number to be shown, check the **Enable Line1/2 Permanent Anonymous Outgoing Call** check box and click **Apply** to activate the setting.



## Call Forwarding

This feature forwards the incoming calls to your designated numbers. Select one from the 3 options or the call forwarding feature will be disabled.

- Basic Forwarding: Active the call forwarding feature.
- Basic Forwarding To Number: key in the number you want the call to be forwarded to
- Forwarding on No Answer : Active the call forwarding feature when the incoming call is not answered.
- Forwarding on No Answer To Number : key in the number you want the call to be forwarded to when the incoming call is not answered.
- Forwarding on Busy : Active the call forwarding feature when this line is busy.
- Forwarding on Busy To Number : key in the number you want the call to be forwarded to

Make your decision and click **Apply** to activate the settings.

Manages Call Forwarding feature for your calls.

Enable Line 1 Basic Forwarding <input checked="" type="checkbox"/>	Enable Line 2 Basic Forwarding <input type="checkbox"/>
Line 1 Basic Forwarding To Number: 76533	Line 2 Basic Forwarding To Number: [empty]
Enable Line 1 Forwarding on No Answer <input type="checkbox"/>	Enable Line 2 Forwarding on No Answer <input checked="" type="checkbox"/>
Line 1 No Answer Forwarding To Number: [empty]	Line 2 No Answer Forwarding To Number: 76533
Enable Line 1 Forwarding on Busy <input type="checkbox"/>	Enable Line 2 Forwarding on Busy <input type="checkbox"/>
Line 1 Busy Forwarding To Number: [empty]	Line 2 Busy Forwarding To Number: [empty]

Wizard Undo Apply

## Special Numbers

The feature provides with multiple phone services for different situations. For example, you may dial certain number for emergency or you may activate the “do not disturb” function when you are not available to answer the call.

- Emergency Numbers: key in the emergency numbers
- Redial: when the party you call is busy, use this special number to redial
- Blind Call Transfer Number: when you answer a call, use this function to forward the call to a third party without asking for the third party's permit.
- Consultation Call Transfer: when you answer a call, use this function to consult the third party if he/she wishes to answer the forwarded call before you forward the call.
- Call Forwarding Activate: the call will be forwarded under any condition.
- Call Forwarding Deactivate: deactivate this function
- Call Forwarding Busy Activate: activate the call forwarding when the line is busy
- Call Forwarding No Answer Activate: activate call forwarding when an incoming call is not answered.
- Automatic Callback Activate: Automatically dial the previous callout number
- Do Not Disturb Activate
- Call Waiting Toggle
- Anonymous Call Rejection Activate
- Anonymous Call Rejection Deactivate

Enter the necessary information and click **Refresh** to activate the settings.