

RigExpert[®] WTI-1

Operating via the Internet

Table of content

1. Operating via the Internet	3
IP address	3
Data forwarding	3
2. Dynamic DNS configuration	6
3. Delays and buffering	7
WTI-1 buffering configuration.....	7
ShackLink buffering configuration.....	8

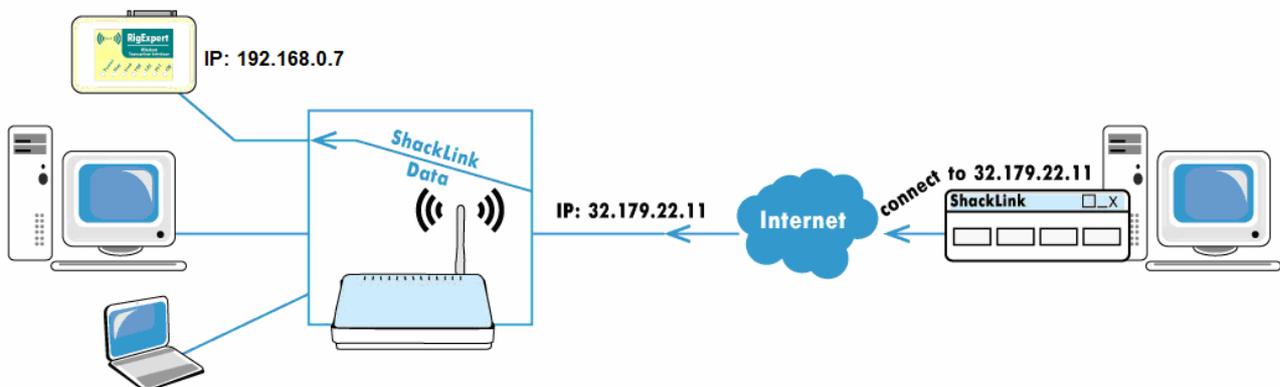
1. Operating via the Internet

IP address

For connecting to your WTI-1 via the Internet, you should have a routable (or “public” or “external”) IP address (either static or dynamic) at a place where your WTI-1 is installed. You may receive information about your IP address from your ISP (Internet Service Provider). As an example, your public IP address may be 32.179.22.11. To operate via the Internet, you should configure your ShackLink software to connect to this IP address.

Data forwarding

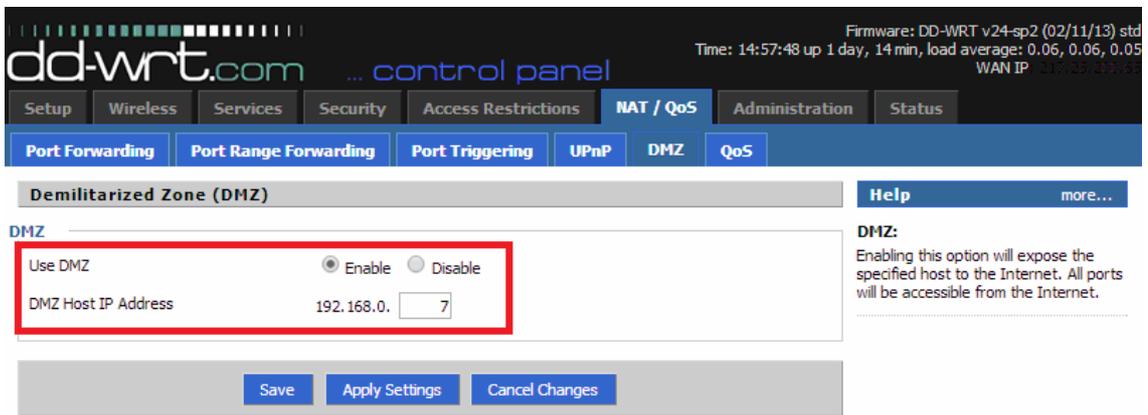
Typically, a home network has the following structure: all desktops, laptop computers, tablets, as well as smart TVs and other equipment are connected to a Wi-Fi router. The router provides access to the Internet for all these devices. To access your WTI-1 from the Internet, you will need to configure your wireless router. This will allow the ShackLink software running on a remote computer exchange data with a WTI-1 device located in your local network.



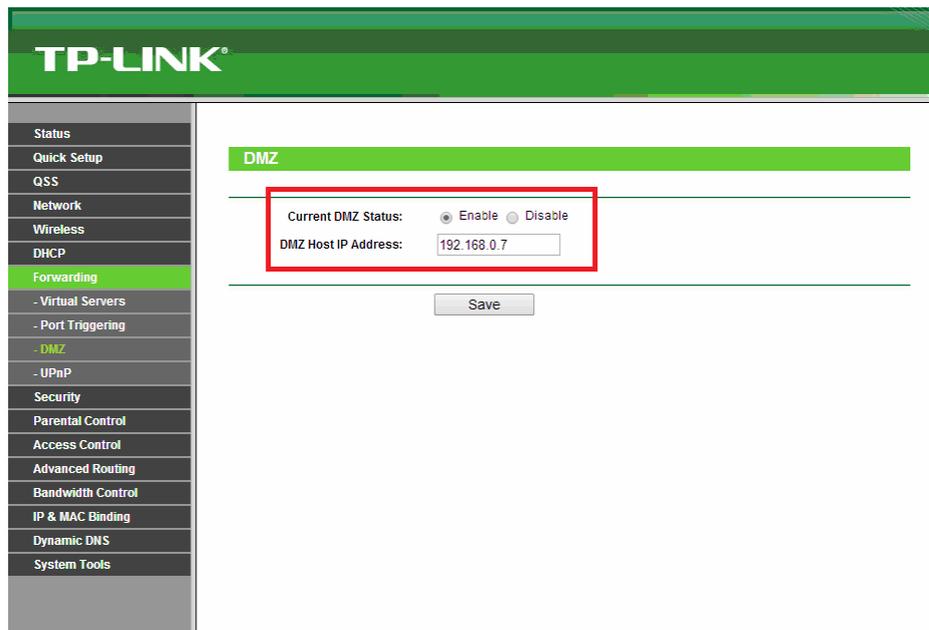
There are at least two ways of doing this:

1. Enable the DMZ (“Demilitarized Zone”) feature in your router, so all incoming data requests are redirected to a specified device in your local area network.

Here is an example configuration for wireless routers based on the DD-WRT software:



Another example shows a similar configuration for a TP-Link router:



The settings for other models of wireless routers are very similar. In both examples, the ShackLink software will access your WTI-1 device with the IP address of 192.168.0.7.

2. If you do not wish to forward all data traffic to your WTI-1 device, use a “port forwarding” method.

The following picture shows settings for a DD-WRT based routers:

dd-wrt.com ... control panel

Firmware: DD-WRT v24-sp2 (02/11/13) std
Time: 15:51:11 up 1 day, 1:08, load average: 0.00, 0.02, 0.04
WAN IP

Setup | Wireless | Services | Security | Access Restrictions | **NAT / QoS** | Administration | Status

Port Forwarding | Port Range Forwarding | Port Triggering | UPnP | DMZ | QoS

Port Forwarding Help more...

Forwards

Application	Protocol	Source Net	Port from	IP Address	Port to	Enable
WTI cmd	TCP		11000	192.168.0.7	11000	<input checked="" type="checkbox"/>
WTI audio	UDP		11000	192.168.0.7	11000	<input checked="" type="checkbox"/>
WTI CW/PTT	UDP		8765	192.168.0.7	8765	<input checked="" type="checkbox"/>

Add Remove

Save Apply Settings Cancel Changes

Port Forwarding:
Certain applications may require to open specific ports in order for it to function correctly. Examples of these applications include servers and certain online games. When a request for a certain port comes in from the Internet, the router will route the data to the computer you specify. Due to security concerns, you may want to limit port forwarding to only those ports you are using, and uncheck the *Enable* checkbox after you are finished.

Another example is for a TP-Link router:

TP-LINK

Status
Quick Setup
QSS
Network
Wireless
DHCP
Forwarding
- Virtual Servers
- Port Triggering
- DMZ
- UPnP
Security
Parental Control
Access Control
Advanced Routing
Bandwidth Control
IP & MAC Binding
Dynamic DNS
System Tools

Virtual Servers

ID	Service Port	Internal Port	IP Address	Protocol	Status	Modify
1	11000	11000	192.168.0.7	TCP	Enabled	Modify Delete
2	11000	11000	192.168.0.7	UDP	Enabled	Modify Delete
3	8765	8765	192.168.0.7	UDP	Enabled	Modify Delete

Add New... Enable All Disable All Delete All

Previous Next

In the above examples, all incoming requests to a TCP port 11000, as well as to UDP ports 11000 and 8765, are forwarded to your WTI-1 device with IP address of 192.168.0.7. Wireless routers from other manufacturers may be set up in a similar way.

Please refer to the User's Manual of your WTI-1 device if you need to find or change TCP and UDP port numbers. However, it is recommended to use default values.

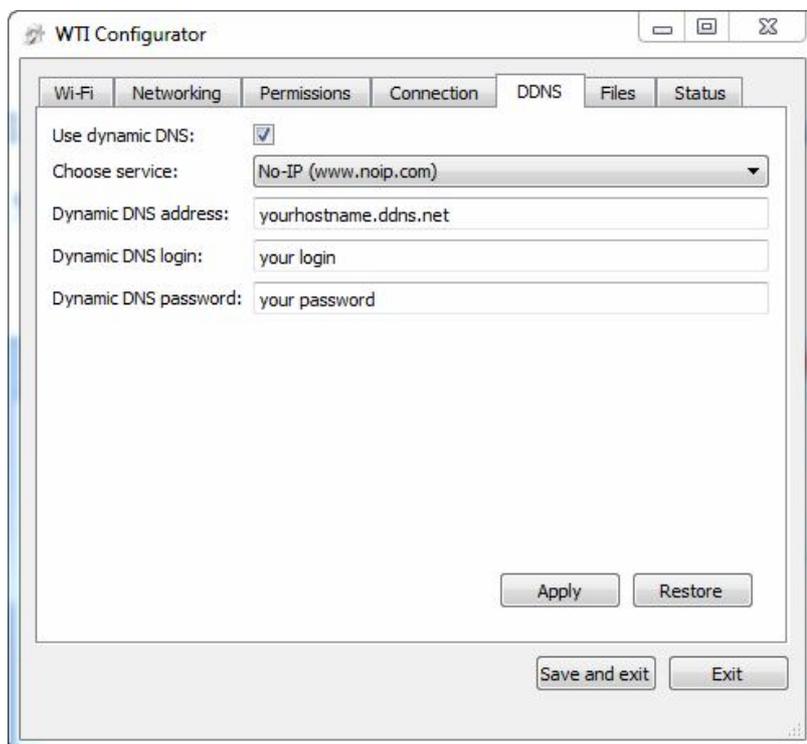
2. Dynamic DNS configuration

In some cases, an ISP (Internet Service Provider) is only offering a so-called “dynamic” IP address to their customers. This means that this IP address may change periodically (once a day, for instance). RigExpert WTI-1 implements a “Dynamic DNS” feature which is able to track these changes. A free Dynamic DNS service, www.noip.com, is used in the WTI-1.

Advantage of Dynamic DNS is that you do not need tracking the changes of the external IP address. It is enough to remember the name of the host. WTI will update the IP address automatically when it changes.

First, register at the www.noip.com website and receive a host name for your WTI-1 device (such as “yourhostname.ddns.net” in this example). Do not forget your login and the password.

Connect the WTI-1 to your computer by using a USB cable and run the WTI Configurator program. Switch to the “DDNS” tab:



Enable the Dynamic DNS client by checking the corresponding check box. Enter the host name, as well as the login and the password and press Apply. Disconnect your WTI-1 from your computer to enable normal operation.

In the ShackLink software, use “yourhostname.ddns.net” (without quotes) instead of a numerical IP address of your WTI-1 device.

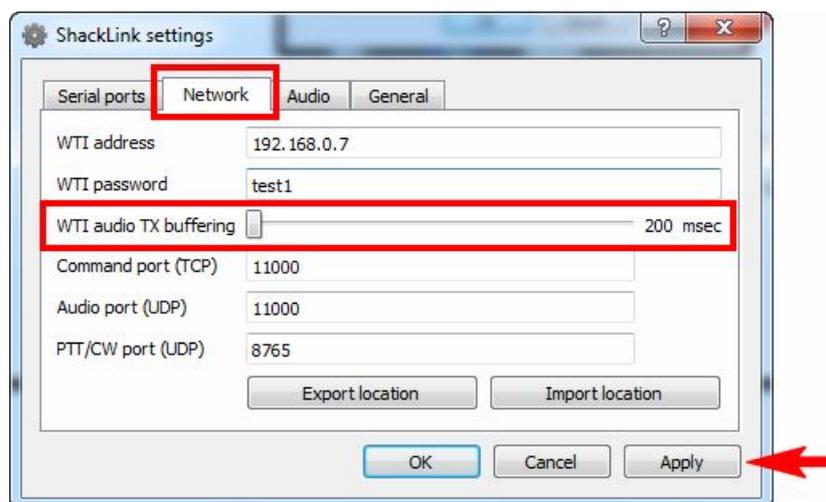
3. Delays and buffering

Audio data from your WTI-1 is sent to the ShackLink software in a form of packets of data, generated with regular intervals of time. The same format is used for sending data in reverse direction. However, due to delay in the Internet channels, packets are arriving irregularly.

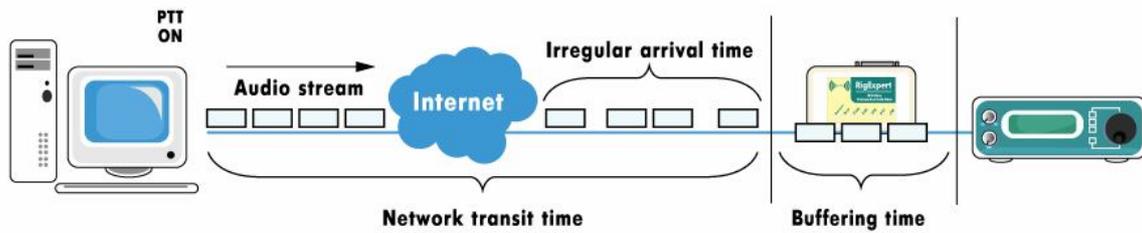
To compensate this effect, these packets are buffered at the receiving side. The size of the buffer should be increased if the audio quality is not good enough. There are two buffers in the system: one of them is located in the memory of your WTI-1, and another one is allocated by the ShackLink software.

WTI-1 buffering configuration

To change the size of the transmit buffer, open the ShackLink Settings window (Tool → Settings) and choose the Network tab.

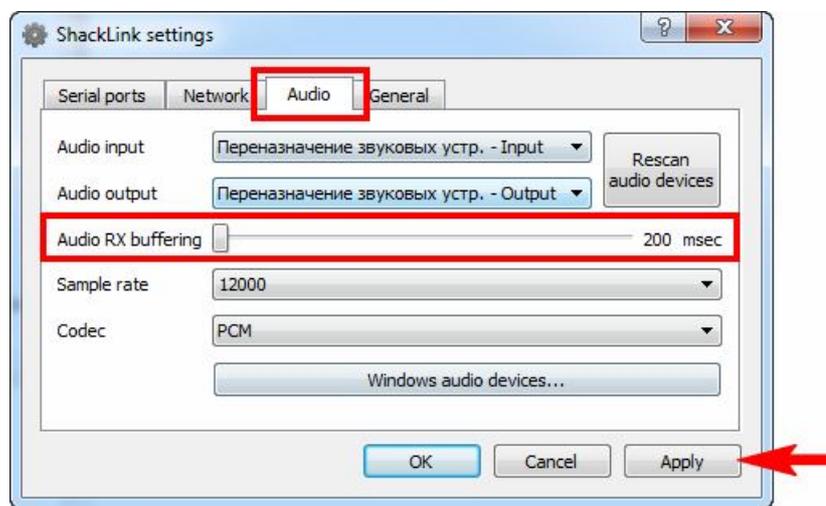


Select a buffer size in milliseconds and press the Apply button. The total audio delay will be the sum of a regular Internet delay plus the buffer size:

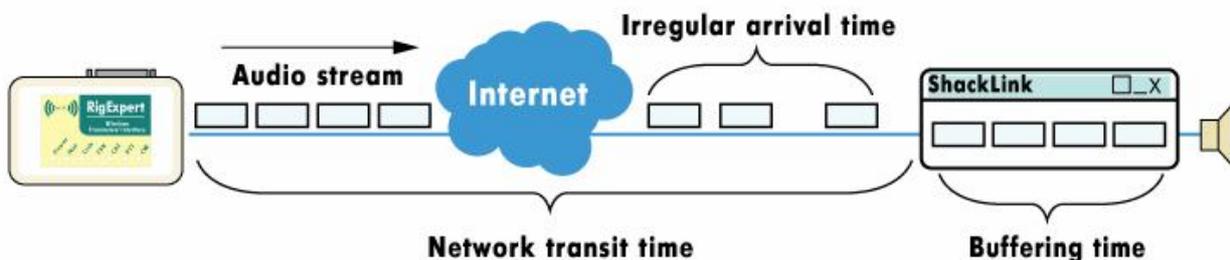


ShackLink buffering configuration

For the receiving buffer configuration, open the ShackLink Settings window (Tool→Settings) and choose the Audio tab:



Select a buffer size and press Apply to make this setting active. The following picture illustrates delays of the audio received from your transceiver:



Copyright © 2014 Rig Expert Ukraine Ltd.

<http://www.rigexpert.com>

RigExpert is a registered trademark of Rig Expert Ukraine Ltd.

RigExpert WTI-1 Wireless Transceiver Interface
is made in Ukraine.



24-Nov-2014