



# ***Haxial NetFone 1.400 Documentation***

Haxial Software

<http://www.haxialsoftware.com/>

## **Description**

Haxial NetFone is an encrypted multi-user Internet telephone. ie it lets you talk (literally, without typing), to 1 or more people over the Internet. You can talk to multiple people at the same time, and your security and privacy is protected by encryption. Not surprisingly, if you want to talk, you will need a working microphone for your computer. If you do not have a microphone, you can still listen, but of course you cannot talk.

Unfortunately, internet telephones are not as simple and easy to use as real physical telephones. However, internet telephones offer some other compelling advantages:

- You can make long distance or international calls for free. You only pay for your normal internet access, and then any calls you make with NetFone are free, even if you talk to someone on the other side of the world for 10 hours. You can save a lot of money this way.
- You can have multi-way conversations with NetFone, also known as "Conference Calls". In other words, you can talk to multiple people at once and have a group discussion, instead of only one-to-one.
- NetFone encrypts your conversations for security and privacy. People will not be able to eavesdrop on your conversations (provided you choose good passwords).
- You can use NetFone during an internet game, which would be impractical with a normal telephone.
- NetFone gives you lots of options to tweak the performance of the call. While this can be seen as a disadvantage (complications), it is also advantageous because it allows you to squeeze the best performance out of your internet connection.

Cable modem or ADSL/DSL or better is recommended. You can still use NetFone with a regular modem, but of course the quality will not be as good. Also, being an Internet telephone, NetFone's performance is very much subject to the performance of your Internet access combined with the performance of

the Internet access of the person you are speaking to. You do not need a heap of bandwidth, mainly you need a connection that is fast with little delay.

Note that Haxial NetFone talks only with other copies of Haxial NetFone -- ie it does not call a real physical telephone. NetFone is cross-platform, meaning that the Mac version can speak to the MS Windows version, or vice-versa.

## System Requirements

- MS Windows 95 or better, or
- MacOS 9 with CarbonLib 1.3.1 or better, or
- MacOS X (10) or better.

## Quick Start Guide


First, check that your microphone is working:

MS Windows: You can use the program “Sound Recorder” that comes with Windows (look in the Start menu under “Accessories” then “Entertainment”).

MacOS 9: You can use the “SimpleText” application that comes with MacOS. Use the “Record” command under the “Sound” menu.

MacOS X: You can use the “iMovie” application that comes with MacOS. Open iMovie. Make a new project. Click the “Audio” button. Click the “Record Voice” button.

NOTE: If you cannot record your voice in that program, then of course you are not going to be able to record your voice in NetFone either.

Once you have your microphone working, run NetFone on your computer, and also the person you want to talk to has to be running NetFone as well of course. One of you will then need to connect to the other person. In NetFone, click the icon that looks like this . Choose the command “Copy Address To Clipboard”. You will then need to paste that and send it to the other person (via e-mail or another method). Once you have the address of the other person, click “Connect”, then “Connect To”. Enter the address of the other person where it says “Address”. You can leave “Login” and “Password” empty. Click “Connect”.

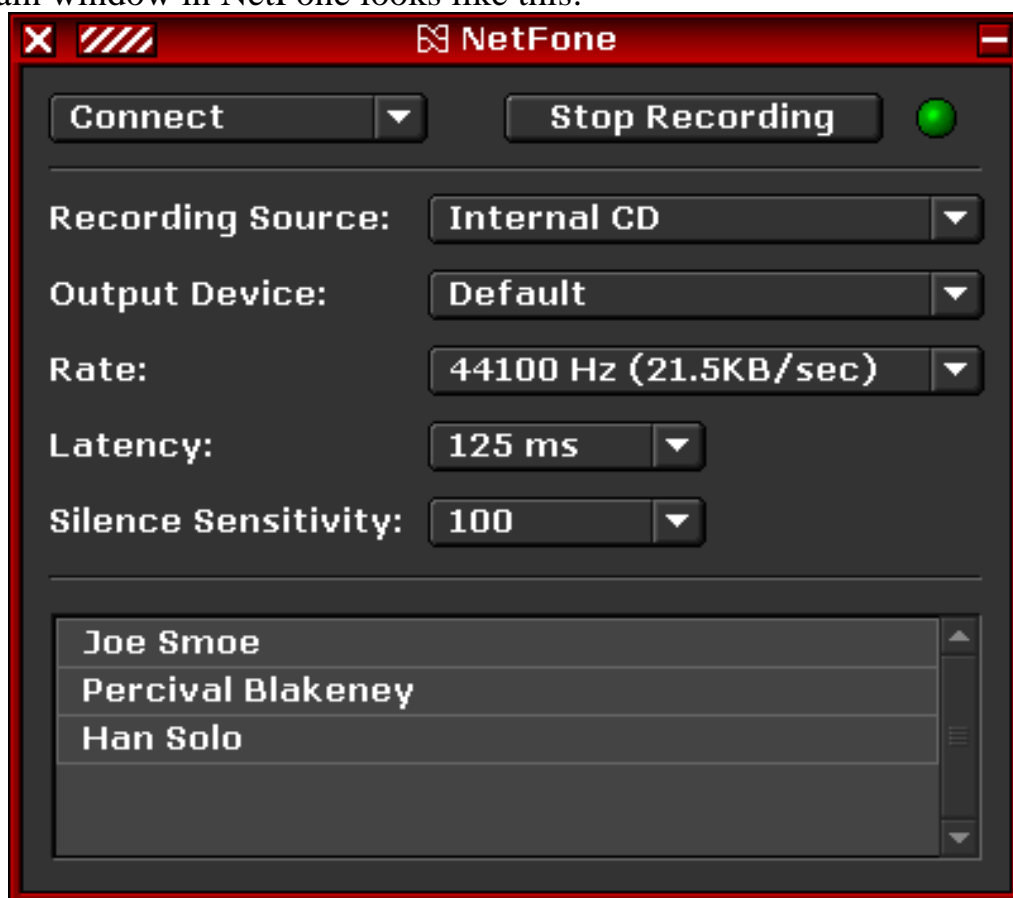
Note: Both of you should NOT attempt to connect, or then you would be

connected twice. Only one person should connect to the other. ie connecting is like calling someone on the telephone. You must know their telephone number (IP Address), and you must call them using that number.

Once you are connected, you can click “Start Recording” when you want to talk. If sound is detected, the “light” next to the button will change to green. You may need to select your microphone device in the “Recording Source” menu.

## The Main NetFone Window

The main window in NetFone looks like this:



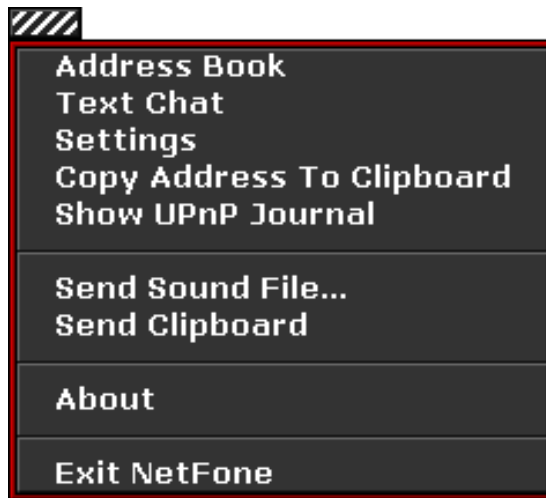
The title bar of the window contains a few buttons:



Close Button: Click this to close the window.



Window Menu Button: Click this to show a popup menu with commands that affect the window or its contents. It looks like this:



This is what each command in the menu does:

Address Book:	Shows the Address Book window where you can keep a list of the names and addresses of people that you can call (explained further ahead in this documentation).
Text Chat:	Shows the Chat window, which is used if you need to type a message to someone (explained further ahead in this documentation).
Settings:	Shows the Settings window where you can set some options for NetFone (explained further ahead in this documentation).
Copy Address To Clipboard:	Copies your computer's "IP Address" to the clipboard. This is the address that other people use to connect to you with (connecting is like calling someone on the phone).
Show UPnP Journal:	Please see the description of the UPnP option in the Settings window.
Send Sound File:	You can send a sound file (WAV or AIFF) to the other people that are connected to you, and they will hear the sound played on their computer (explained further ahead in this documentation).
Send Clipboard:	Same as "Send Sound File", except it sends a sound that you have copied to the clipboard.
About:	Shows the version number of NetFone, and the address of the Haxial website.
Exit NetFone:	Exits/quits/closes the NetFone program.



**Zoom Button:** Click this to expand the window to display all of its contents.



Click this to dock/minimize the window to get it out of your way. The window is hidden, and a button to represent it is added to a dock window, like this:

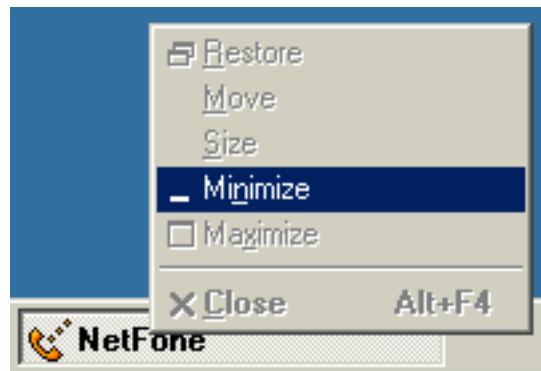


To restore the window, click the button representing it in the Dock window. If multiple windows are docked, they are all added to the same Dock window.

MS Windows Only: You can second-click any minimize button to minimize the whole program to the system tray. All NetFone windows hide, and an icon is placed in the system tray (example following). Click the icon to restore the windows.



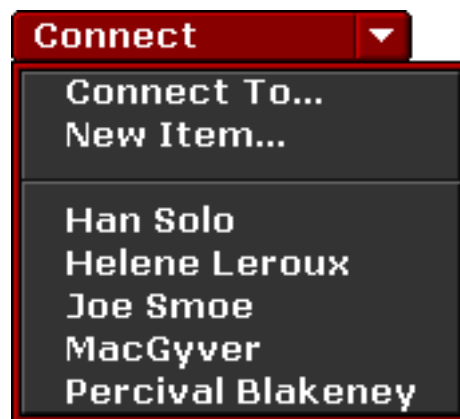
You can also second-click the NetFone item in the task bar to show the standard Context Menu. Choose Minimize to hide all windows. Alternatively, if you click the NetFone item in the task bar when it is already selected, it will deselect it and minimize the program.





**Resize Button:** Press the mouse button in this button and drag the mouse to change the size of the window. Also note that the window can be moved by dragging the title bar, OR by dragging one of the edges of the window.

The Connect button in the main window shows a drop-down menu which looks like this:



The lower part of the menu (below the separator line) is a copy of the contents of your Address Book. You can click on a person to connect to that person (like calling the person on the telephone). The “Connect To” command is used if you do not have an Address Book item for the person you want to connect to. If you want to add to the Address Book (and this menu), then click “New Item”.

At the bottom of the main NetFone window is a list that looks like this:



This is a list of everyone that you are connected to. These are the people that

you can talk to, and who can talk to you. A person appears in this list as a result of you connecting to them, OR as a result of that person connecting to you. Click a person in the list to show information about that connection (explained further ahead in this documentation).

## Recording Light



Next to the Start/Stop Recording button you can see the ubiquitous WonderLight™ which changes colors.



When it is gray, NetFone is not recording.



When it is red, NetFone is recording, but it is detecting silence, so it is not sending the sound to other people.



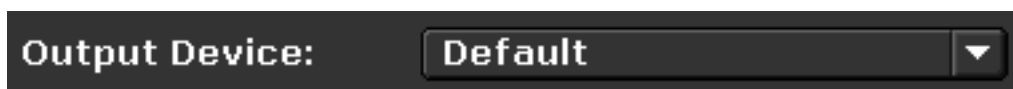
When it is green, NetFone is recording and it has detected sound and it will send that sound to everyone you are connected to.

## “Recording Source” Menu



This menu allows you to select from which device NetFone will record (if you have multiple devices that can record audio). For example, if your operating system allows it, you can record from an audio CD that you are playing instead of the microphone. You are then streaming an audio CD across the net. By the way, if you are going to stream an audio CD, you can increase the latency to a high value because for music, there is no penalty in having a high latency, and a higher latency will decrease any break-up of the sound.

## “Output Device” Menu



This menu allows you to select which device the audio will be sent to for playing, for example speakers or headphones. This is only useful if your

computer supports multiple output devices.

## “Rate” Menu



This menu allows you to select at what quality NetFone records and sends sound. The higher the rate, the better the sound quality. However, as you would expect, higher quality consumes more bandwidth, which your net connection may or may not be able to handle. Each menu item has the amount of bandwidth it consumes in brackets after the rate.

For example, if you are on a regular 56K modem, then you will probably want to use 5512 Hz or 6000 Hz because the higher rates are more data than your modem can send. If you are on a cable modem, the higher rates are of course fine. Note this rate only affects how YOUR sound is recorded and sent to other people, it has no affect on how sound is received from other people.

## “Latency” Menu



This is how many milliseconds NetFone records for before it sends the data. When using NetFone to talk, ideally you want this value to be low. However, your net connection may not be able to handle the lowest setting, causing your sound to break-up when it is received, making you difficult to understand. If this happens, then you have to increase your latency and/or decrease your rate.

Note if someone starts talking while you are talking, please do NOT assume that they are being impolite and interrupting you. The Internet has delays (also known as lag), and thus depending on network conditions and the quality of the connection between yourself and other people, there will be anywhere from a very small to a very large delay before what you say is received/heard by other people.

Thus if someone starts talking while you are talking, it is probably because they could not hear you talking when they started talking. ie they did not purposely interrupt you. This is an irritating fact of Internet communications — NetFone is only as good as the net connection between yourself and the other person, and



there is not much NetFone can do to improve that connection.

Note when you change the Latency, it is like the rate — it only affects how YOUR sound is recorded and sent to other people, it has no affect on how sound is received from other people.

## **“Silence Sensitivity” Menu**



If the recording light is constantly green even when you are not talking, that is very bad, because it means that NetFone is sending data constantly, whereas for better performance, it should stop sending when you stop talking. It is important that NetFone stops transmitting audio when you stop talking because otherwise insignificant Internet delays will accumulate into multi-second delays.

What is "silence" depends on how much background noise there is in your room. It is never completely silent, for example the computer generates some noise, or there may be noises outside. Thus NetFone allows you to adjust how sensitive it is to silence using the "Silence Sensitivity" menu. Higher numbers mean louder sounds will be treated as silence.

For example, 25 requires only little noise before it starts sending. 600 requires a much louder noise before it will send the sound, and anything quieter than a rating of 600 will be ignored. You will know when NetFone is sending because the recording light will change to green.

If the recording light is constantly green while you are not talking, try increasing the Silence Sensitivity until it changes to red. If you set it to the maximum and it is still green, then the amount of background noise is too loud. Try decreasing the noise in the room, or moving the microphone further away from noise sources such as the computer, or getting a better quality microphone.

Your operating system may also have an option for configuring the "gain" on the microphone in one of its control panels. You can try turning the gain down if the microphone is picking up too much noise.

## The Connection Information Window

Click once on someone in the list at the bottom of the main NetFone window to show a window like this:



Name:	The name of the person as entered in their Settings window.
Address:	The IP Address of the computer including the port number. This is selectable so you can copy it to the clipboard.
Login:	If the person connected to you, this is the login that they used. You should be able to find this in your Address Book.
Rate:	What rate the person is using to send sound.
Latency:	What latency the person is using to send sound.
Data Sent:	The number of bytes of sound data you have sent to this person.
Received:	The number of bytes of sound data you have received from this person.
Volume:	Drag the slider (or click a point in it) to change how loud this person's sound is played. Drag left to decrease the volume, or right to increase the volume. 100% means full volume (no change is applied to loudness of the sound). The volume can be

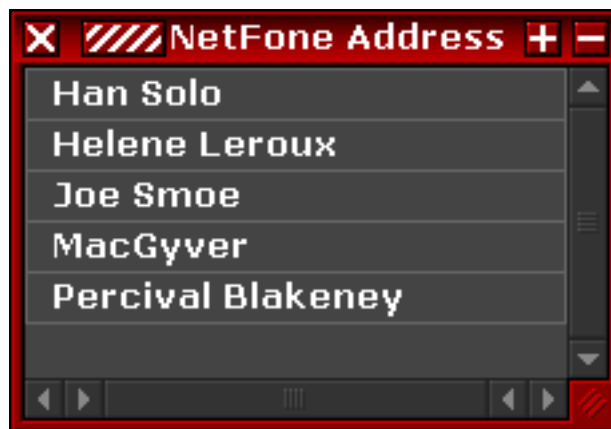
overdriven (set greater than 100%) which is useful to boost a person who is talking too quietly or who is too far away from their microphone

**Disconnect:** Click this to disconnect the person. They will be removed from the list in the main window and will not be able to hear what you say or talk to you anymore. This is like hanging up the telephone.


**Close:** Click this to close the window.

## The Address Book Window

The Address Book window is accessible from the Window Menu on the main window, and looks like this:



The purpose of this window is to edit the items that appear in the “Connect” menu on the main window. Address Book items allow you to enter the details of a person and save those details so that you can use them later without having to type them in again.

To add an item to the Address Book, click the icon that looks like , then click “New”. To change an existing item, click once on the item. An Edit window appears like this:



NetFone uses strong encryption, so everything you say and hear when talking with NetFone is encrypted. However, in order for the encryption to be secure, you must use a password. Passwords can be entered in the Address Book as you can see above. You and the person you wish to talk to agree on a password, and then you both put the same password into your Address Book.

Also, the encryption is only as strong as your password. If you choose a weak (guessable) password, such as a single dictionary word (for example "Swordfish"), that is NOT a secure password. A secure password uses multiple words or random letters mixed with numbers and symbols.

When you connect to someone using an Address Book item, NetFone will attempt to connect to the specified address using a login of what you typed for "Outgoing Login", and with a password of whatever you typed for "Password". When the remote computer detects the incoming connection, it will search the Address Book on that computer for an item with an "Incoming Login" matching the login that it received. It will then require that the password it received match the password in the Address Book item. If login is successful, automatic encryption will begin.

In other words, "Outgoing Login" is the login that you send when you actively initiate a connection, whereas "Incoming Login" is a login that you will accept if received from someone. Combined with the password, this authenticates the identity of each person and enables encryption. If you are familiar with Accounts in KDX, then you can think of NetFone's Address Book as combining

an Address Book with Accounts. This is because NetFone is a peer-to-peer program, unlike KDX which is a client/server program.

For example, if Joe and Fred want to talk securely, then Joe might have an Address Book item like this:

Name:	Fred
Address:	10.20.30.40
Outgoing Login:	joe
Incoming Login:	fred
Password:	where's#my%Chestnut42Tea8

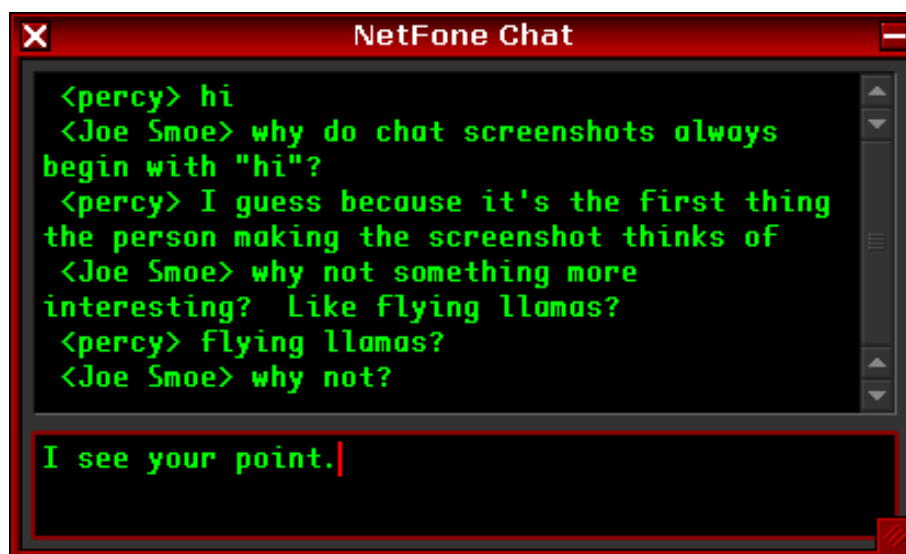
And Fred would have an Address Book Item like this:

Name:	Joe
Address:	50.60.70.80
Outgoing Login:	fred
Incoming Login:	joe
Password:	where's#my%Chestnut42Tea8

Note that if you do not care about security, you can leave the logins and password EMPTY. NetFone will then connect as a “guest”.

## The Text Chat Window

The Text Chat window is accessible from the Window Menu on the main window, and looks like this:



The purpose of the Chat window is so that you can communicate by typing if your microphone is not working or another reason prevents you from talking. Or alternatively, you may want to paste a URL or other text into the chat for the other people. To use the Chat window, type into the lower box, then hit the return key. Your text and the text from other people appears in the upper box.

## The Settings Window

The Settings window is accessible from the Window Menu on the main window, and looks like this:



The Settings window allows you to set a few options for NetFone:

Your Name:

Type your name here! Other people will see this when they connect to you.

Port Number:

For advanced users, see “Firewalls/Routers” further ahead in this documentation.

Ring Sound:

What sound is played when someone connects to you.

#### Allow Guest Connections:

If ticked, people are allowed to connect to you by leaving the login and password empty. If you untick this, then people can only connect to you by using an “Incoming Login” and password that you have configured in your Address Book.

#### Transmit only when key is down:

If you tick this option and type a key into the box, then people will only be able to hear you talk when you hold down that key. Any audio recorded while the key is up will be discarded. For example, this is useful if there is a lot of background noise or sounds from a game that you do not want the other people to hear.

You can also second-click (or control-click) the box to show a context menu with a list of all keys, allowing you to select a key using the mouse. The second half of the menu lists modifiers which you can add to the selected key.

If you want to set the transmit key to a modifier key only, then you need to use the context menu because modifiers do not work like other keys. If you want the Control key only, then you would tick only the menu-item "LeftControl".

#### Allow volume overdrive up to 400%:

This option allows you to increase the volume of a person up to 400% (see notes on the Connection Information window), but 400% is very high and could be very loud, so you must be careful that you do not damage your speakers by setting the volume too high. Also, overdriving the volume (increasing above 100%) may cause crunchy distortions. Use at your own risk!

#### Configure UPnP Router:

If you are using a router to access the internet, it may need to be configured to allow incoming calls. If your router supports UPnP (Universal Plug and Play), NetFone can configure it automatically. You can see the results of UPnP configuration by clicking the “Show UPnP Journal” command in the Window Menu on the main window.

#### Start NetFone Hidden:

MacOS: If this option is ticked, NetFone will hide itself immediately after being opened/started. You can show it by bringing NetFone to the front, as you would normally do for any Mac application.

Windows: If this option is ticked, NetFone will minimize itself immediately after being opened/started. You can restore it by clicking the NetFone icon in the system tray (in the right

bottom of the screen).

**Auto-Start/Stop Recording:**

This causes NetFone to automatically start recording when you connect to someone or when someone connects to you, and to stop recording when no-one is connected.

**Record At 44.1KHz, Then Downsample:**

This causes NetFone to always record at 44.1KHz (best quality), and then reduce it to the rate selected in the main window. This may result in better quality than recording at the desired rate directly if you are using a cheap and nasty soundcard. Also, if your soundcard does not support the rate you want to use, enabling this option should allow you to use that rate (unless your soundcard is so nasty that it does not support 44.1KHz either).


**Appearance:**

This lets you change the appearance of NetFone to something that is more aesthetically pleasing to you. Please note that more appearance options are available than shown in this menu — you can download more Appearance files (“.hap” files) from the Haxial website or other sources. Place your “.hap” files into a folder named “Appearances” in the same folder as the NetFone program, and then show the Settings window in NetFone, and the contents of the Appearances menu will be replaced with the contents of the folder. For more information, please visit this website:

<http://www.haxialsoftware.com/appearance/>

## **Sending a Sound File**

You can send a sound file to the people that you are connected to. The sound will be played on their computer as it is received. People receiving a sound do NOT have to wait until it is fully received — the sound begins playing as soon as the start of the sound arrives, in much the same way that it works when you are using the microphone.

Click the Window Menu  on the main window, and click the “Send Sound File” command. A File Chooser window appears to let you choose a file on your hard disk to send. NetFone can read uncompressed/normal WAV format or AIFF format files. If you selected a WAV or AIFF file and NetFone said it was



an unknown format, it is probably because it was a compressed WAV/AIFF that NetFone does not understand. You could try using a utility to convert the sound to normal uncompressed WAV or AIFF format.

Once you have successfully selected a file, NetFone shows a window with the progress (as follows). At the same time, NetFone plays the sound on your computer. The bar progresses at the speed of the sound. After the sound has finished playing, the window will automatically close. If you wish to stop before the sound has finished playing, click the Stop button.



The sound is converted to the rate that you have selected in the main window, so you do not have to worry if you are sending a very high quality sound file that would otherwise be greater than your bandwidth. The Latency setting is ignored when sending a file, it is only used for recording.

The “Send Clipboard” command works the same as the “Send Sound File” command, except that it retrieves the sound from the clipboard instead of a file. You must have copied a sound to the clipboard before you can use the “Send Clipboard” command.

## **Microphones**

NetFone works better if you have a good microphone. When NetFone is recording and it detects silence or near-silence, it stops sending data, which improves performance. However, some really cheap microphones record a lot of background noise, which sounds like a constant hiss or hum even when no-one is talking. If this background noise is too loud, NetFone will not be able to distinguish it from normal talking, in which case it will be constantly sending all the time, which will degrade your performance.

Microphones that are built-in to the computer will work with NetFone, but they are not very good because they pick up the noise of the computers internals. A proper external microphone is better.

For best results, use headphones when using NetFone. If you hear yourself echoing, it is because your voice is being sent to the other person, being played on their computer speakers, then their microphone is hearing the speakers, recording your voice and sending it back to you. The solution is to use headphones which stops your microphone from hearing and recording the other persons voice (so if you are echoing, the OTHER person needs to wear headphones).

## **Conference Calls**

NetFone allows you to have a 3-way (or more) conversation. You are not limited to talking to one person at a time, you can connect to multiple people and have a conference call. You can connect to as many people as you like provided that you have the bandwidth to support it.

The list at the bottom of the NetFone window shows who you are connected to. If you do not see someone in that list, then you cannot talk or listen to that person. For example, if you hear Joe talking to Fred but you cannot hear what Fred says, it is probably because you are not connected to Fred (but Joe is).

So in order for everyone in the conversation to hear everyone else, they must connect to everyone else. It is not sufficient to connect to only 1 member of the conversation.

## **Keyboard Shortcuts**

You can press the following keyboard combinations instead of using the menus:

Control-Q or Command-Q:	Quit/exit the program.
Control-K or Command-K:	Show the Connect window.
Control-B or Command-B:	Show the Address Book window.
Control-H or Command-H:	Show the Chat window.
Control-F or Command-F:	Same as “Send Sound File” command.

If you tap the space bar key in the main window, recording will be started/stopped (toggled). If you hold down the space bar key, recording will be started/stopped UNTIL you release the space bar (and then it will return to its previous setting).

## Firewalls/Routers


If you are behind a firewall that prevents incoming connections (for example at some schools), then you will not be able to receive incoming calls, but you will still be able to make outgoing calls (you connect to Joe instead of Joe connecting to you).

If both of you are behind different firewalls that both prevent incoming connections, then you cannot use NetFone because there is no way to establish a connection between you. The only solution is to ask your Network Administrator to allow access. Note this does not apply if you are both behind the SAME firewall. For example, NetFone does work within a LAN -- even if it cannot receive incoming connections from the Internet, it can probably receive incoming connections from another computer on the local network. Just try it and see if it works.

If you are using a NAT router (Network Address Translation, where multiple computers share the same Internet address), then to enable incoming connections from the Internet, you need to configure your router with a port mapping entry.

For example, if your public/real internet address is 10.20.30.40, and the computer you want to run NetFone on is 192.168.0.5, and you are using the default NetFone port number of 10200, then you would add a mapping like this:

```
TCP    10.20.30.40:10200    to    192.168.0.5:10200
```

If you want to use NetFone on multiple computers, you can still do this and you can still have all computers able to accept incoming calls. The way to do this is to give each copy of NetFone a unique port number. Open NetFone, click Window Menu  icon, click "Settings", then you can change the port number. So if you have 3 computers each with the port number set to 10200, 10201 and 10202 respectively, then the port mapping on your NAT router would look like this:

```
TCP    10.20.30.40:10200    to    192.168.0.5:10200
TCP    10.20.30.40:10201    to    192.168.0.6:10201
TCP    10.20.30.40:10202    to    192.168.0.7:10202
```

Then when someone on the Internet wants to call a certain computer, they select which computer by including the port number in the address they connect to, for example 10.20.30.40:10202 to connect to the third computer.

For more information about routers, please see:  
<http://www.haxial.com/faq/routerconfig/>

## Troubleshooting

*I'm speaking but the other person cannot hear me.*

Check that your microphone is working by using another program. On Windows, you can use the program “Sound Recorder” that comes with Windows (look in the Start menu under “Accessories” then “Entertainment”). On Mac, you can use SimpleText, which has a “Record” command under its “Sound” menu. If you cannot record sound in that program, then of course you are not going to be able to record your voice in NetFone either.

Check that you have clicked “Start Recording”, and that you have selected the correct recording device in the “Recording Source” menu (if you do not know which, try each one until you find the one that works). If NetFone detects sound, the light next to the “Start Recording” button will change to green. If it is red, it is detecting silence.

*I can't hear the other person properly because the sound is breaking up.*

The internet connection is not fast enough. Ask the other person to reduce his/her rate, and/or increase his/her latency (in the “Rate” and “Latency” menus).

*The longer I talk with someone, the more the delay increases before I hear the other person*

Check the “Silence Sensitivity” setting (see the “Silence Sensitivity” section in this documentation). It is important that the Silence Sensitivity be set correctly because if a person is transmitting constantly, the delay will accumulate over time, making the connection worse and worse. For best performance, every person in the conversation should check that their recording light is changing to red when they stop talking.

*There is a delay before the other person hears what I said.*

First check the “Silence Sensitivity” setting (see the “Silence Sensitivity” section in this documentation). It is important that the Silence Sensitivity be set correctly, otherwise delays will be increased. If fixing your Silence Sensitivity setting does not eliminate the delay, then your internet connection is not fast enough. You can try reducing the Latency, which will also reduce the delay. Although if you reduce it too much, your internet connection might not be able to handle it and the sound will break up. You have to find a balance.

*I can hear myself echoing.*

For best results, use headphones when using NetFone. If you hear yourself echoing, it is because your voice is being sent to the other person, being played on their computer speakers, then their microphone is hearing the speakers, recording your voice and sending it back to you. The solution is to use headphones which stops your microphone from hearing and recording the other persons voice (so if you are echoing, the OTHER person needs to wear headphones).

*I can hear someone talking to someone else that I can't hear.*

The list at the bottom of the NetFone window shows who you are connected to. If you do not see someone in that list, then you cannot talk or listen to that person. For example, if you hear Joe talking to Fred but you cannot hear what Fred says, it is probably because you are not connected to Fred (but Joe is). So in order for everyone in the conversation to hear everyone else, they must connect to everyone else. It is not sufficient to connect to only 1 member of the conversation.

*I can hear background noise / hiss / hum / buzzing.*

Please see the section “Microphones” above in this documentation.

*NetFone is showing an error message. What does it mean?*

Please see this webpage:

<http://www.haxial.com/faq/error/>

## **Any questions/suggestions/feedback?**

Your feedback and suggestions are welcomed. Feel free to send a message to Haxial using the form on this webpage:

<http://www.haxialsoftware.com/contact/>

## **Please support the development of this product**

Please support the development of this program and other Haxial products by paying for it. NetFone is not free, but it only costs \$20. Your money funds the development of this product and others. You can pay at the Haxial website, which is <http://www.haxialsoftware.com> . Thank you.

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