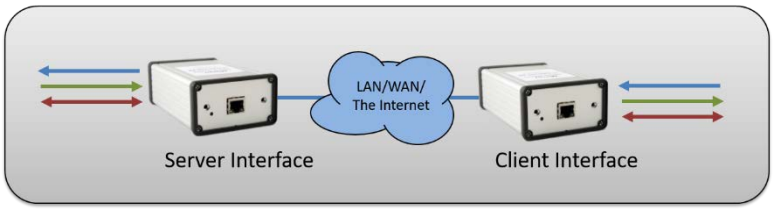
Mimer SoftRadio

Connecting radios all over the world

Mimer SoftLine

Technical description and set-up instructions



Rev D

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Mimer SoftLine is a special version of the Mimer SoftRadio network interfaces, where connection is point to point without having a PC as a dispatcher.

This is for example useful in cases where you need to upgrade from old leased lines to IP connections but still keep the radio equipment at each end.

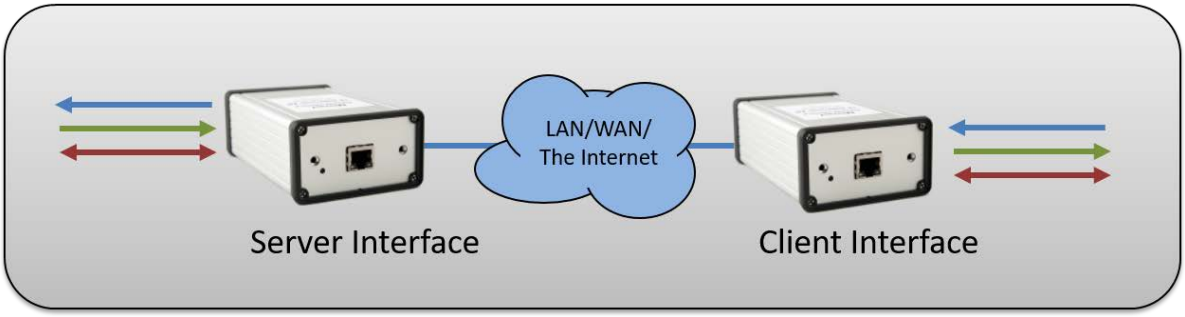
This paper describes the basics and how to set up the system.

1 Table of Contents

2 General

The Mimer SoftLine interfaces basically transfers three types of signals between two points using an IP network connection.

- Audio input and output.
- Full duplex RS232 serial data at 1200-19200 baud.
- Digital I/O. There are two inputs and two outputs that are connected back-to-back.



This can be used in a number of ways, both for radio systems and for other purposes. Often the setup is used for eliminating old 2 or 4-wire leased lines and instead use LAN, WAN or the Internet.

2.1 Audio input and output

The gain is factory set to 1:1 and the maximum level is set to +2dBm@600 ohm.

Interface type 3009/10, includes line transformers, is factory set to -10dB@600 ohm (typically replacing a land line).
Interface type 3009/21 is factory set for microphone and speaker levels (typically connecting two radios back to back).

A number of readymade cable kits are available for different use.

The default setting is that Audio data starts when the internal AF detector senses an AF signal at the input. The threshold for this can be set using the Mimer Network Interface Setup program.

When audio data is received over the network from the remote end it is forwarded to the audio output.

2.2 Asynchronous RS232

The Baud rate for this link can be set to from 1200baud to 19200baud using the Mimer Network Interface Setup program.

There is an internal buffer in the interface that collects data from the input and transfers it to the other end within 50ms if the data stream stops.

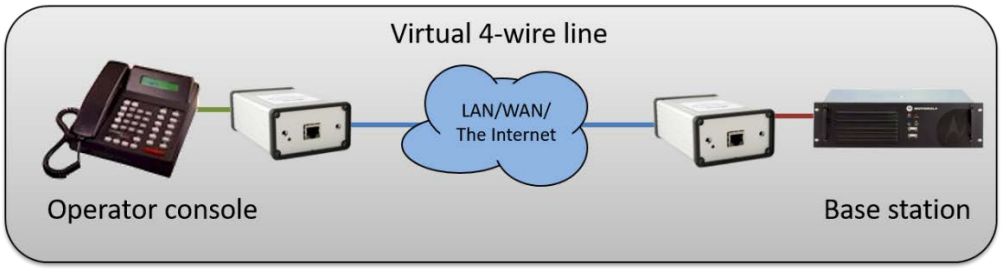
2.3 Digital I/O

There are two inputs and two outputs that are connected back-to-back.

When connecting two radios back to back over a SoftLine the squelch (or other logic receive indication) on one radio will trigger PTT on the other radio and vice versa. This can be changed for using the audio detect signal from the radio instead to do the PTT triggering.

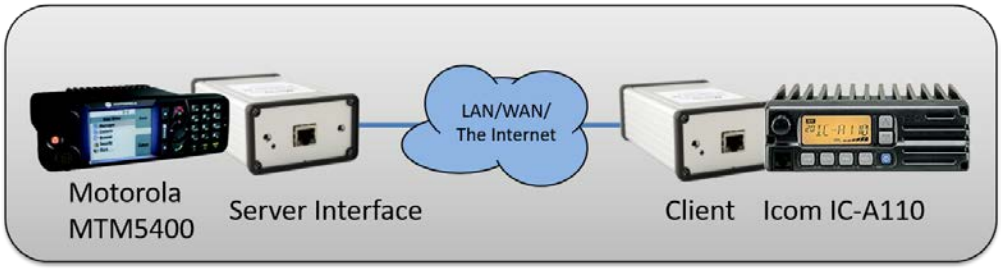
3 Examples of SoftLine use

Below are some examples of how to use SoftLine in your radio systems.

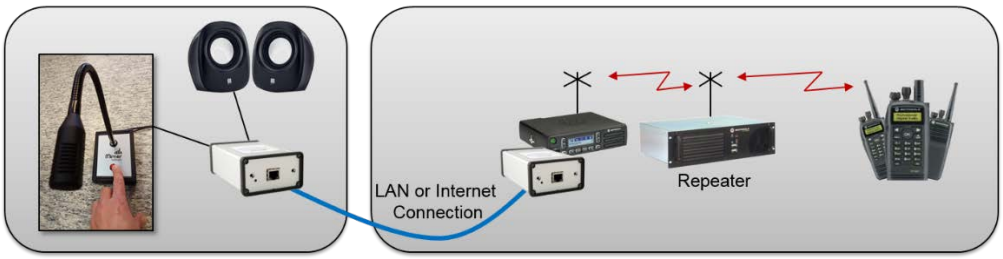


Using IP instead of an old analogue leased line connection between operator and base station.

This is also useful if you cannot use copper connections and need to convert the connections to fibre.



Connection of two radios as a cross patch. The radios can be at the same location or at totally different locations. In this case a Tetra radio and an Airband radio.



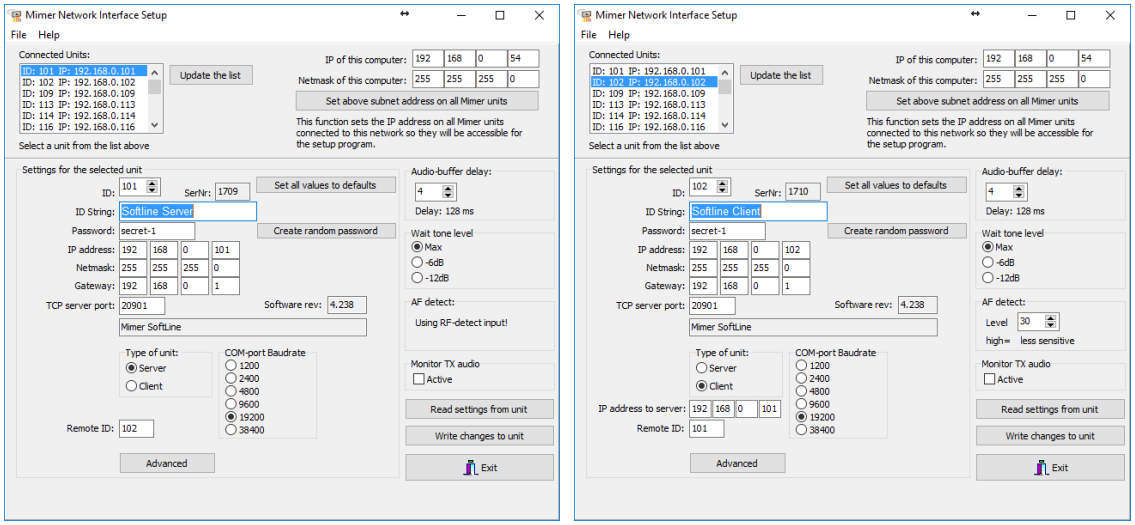
Remote operation of a radio using only a microphone and speakers. For operators that do not want to have a PC as the operator interface.

4 Setting up the interfaces

Before the interfaces are installed they need to be configured using the program Mimer Network Interface Setup.

This configuration involves setting the IP-addresses that are going to be used.

The interfaces are normally delivered to work as a pair over a LAN or with a direct cable, with the format 192.168.0.xxx, in the IP settings. If this is adequate no settings needs to be done.



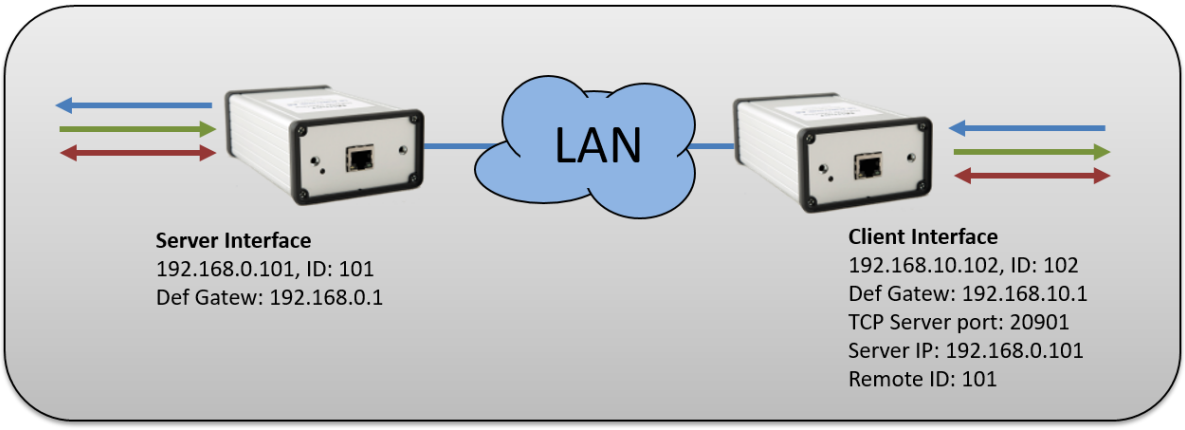
Typical settings in the Server and Client interfaces.

4.1 Server – Client

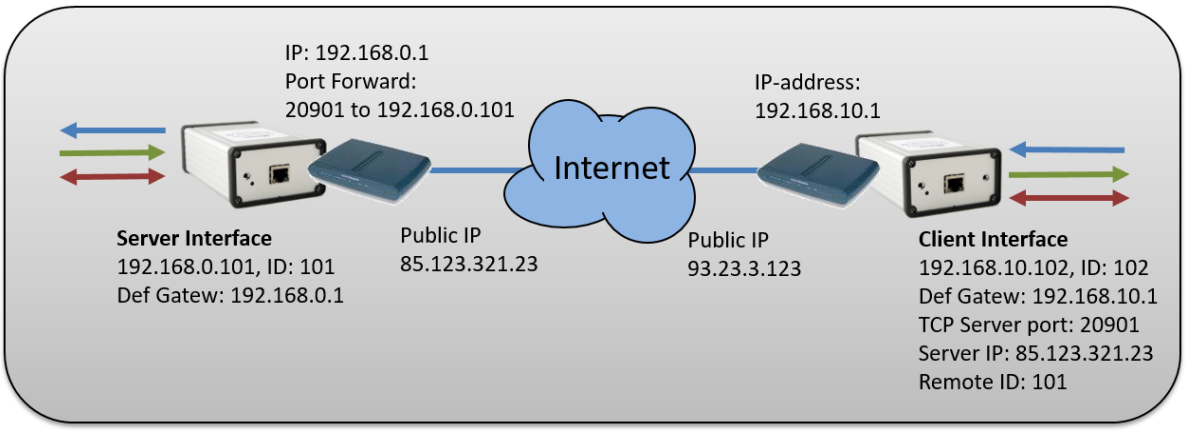
One of the interfaces shall be set as a server and the other as a client. The IP address of the server needs to be known. The client can have any IP address, although it needs to be set to an address that fits in the network where it is connected.

Typically one interface (the client) is placed in a local network and accesses the other interface through a router. In this case the address of the router needs to be set in the Default Gateway parameter of the client.

The other interface may be placed at a remote site and is usually connected through a router that interfaces to the internet connection. This remote router need to be configured to forward IP data on a specific IP port to the local IP address of that SoftLine interface. That interface shall be configured as a server and set to listen to the same port that is forwarded. Also the address of the router needs to be set in the Default Gateway parameter of the interface.



Example of setting in a local LAN. (Also the default setting when delivered)



Example of settings for a Mimer SoftLine connection over internet via routers in both ends.

4.2 Buffer Delay

Another parameter that may need an adjustment is the buffer delay. For use in a local network or over a microwave link it can be set to a low value like 2-4. For a connection over internet that may show large time jitters the buffering delay may need to be set as high as 16 to achieve a stable audio transfer. The buffer delay need only be set on the client. The server will use the same delay setting as the client after the connection is established.

5 Special versions of Mimer SoftLine

SoftLine has been tailor made to specifically connect some radios to their standard control heads over long distances.

Usually only a distance of up to 10 meters is possible with the standard equipment from the manufacturers.

With SoftLine you can have the control head on the other side of the world.

5.1 Mimer SoftLine Motorola

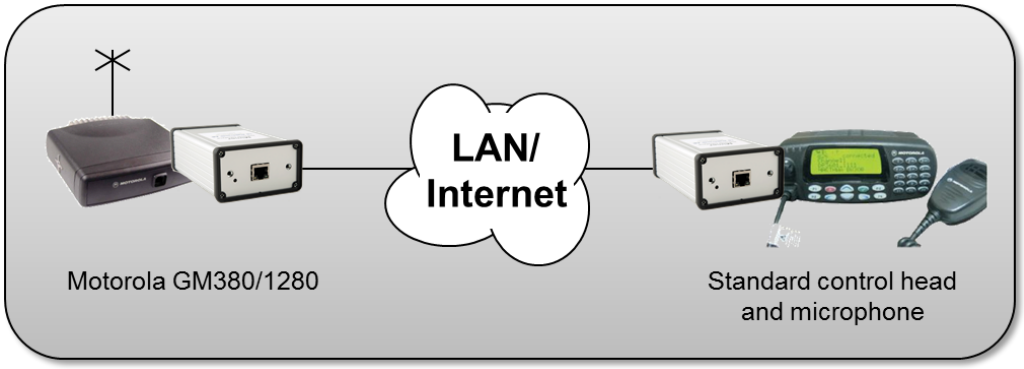
Through the use of a specially designed version of the Mimer SoftLine Network Interface, a remote control can be set up for a Motorola GM380 or GM1280 radio and its standard control head.

The radio and the control head can be separated by a standard CAT5 cable of up to 150m or you can use a standard LAN to expand the range even further. You can also use the Internet for longer expansions.

With SoftLine Motorola you can have more than one control head attached to one radio and even mix control heads with the software solution Mimer SoftRadio.

At the control head side, the standard speaker and microphone can be used.

The Mimer Network Interface has a built in speaker amplifier to get the audio level right.



Remote control of Motorola radio with standard control head.

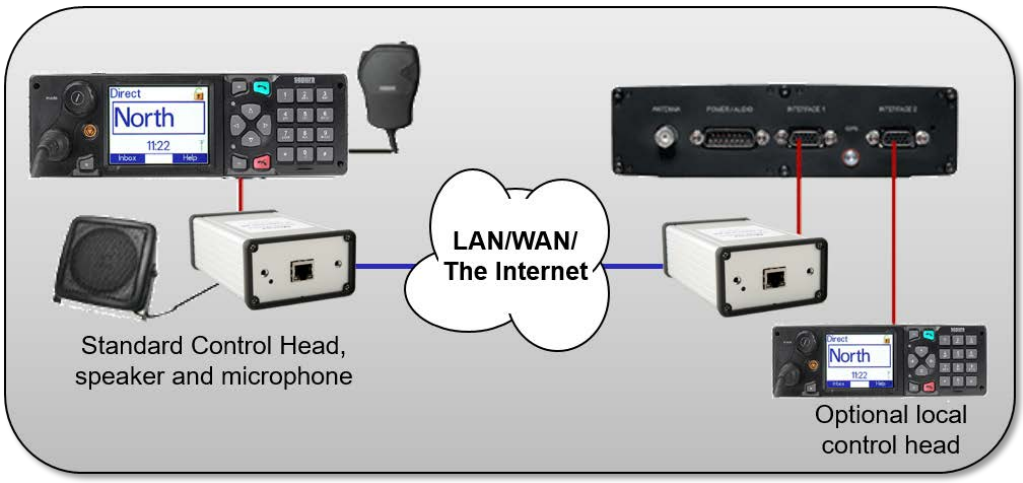
5.2 Mimer SoftLine Sepura

Through the use of a specially designed version of the Mimer SoftLine Network Interface, a remote control can be set up for the Sepura SRG3500/3900 Tetra terminal and its standard control head.

The radio and the control head can be separated by a standard CAT5 cable of up to 150m or you can use a standard LAN to expand the range even further. You can also use the Internet for longer expansions.

At the control head side, the standard speaker and microphone can be used.

The Mimer Network Interface has a built in speaker amplifier to get the audio level right.



Remote control of Sepura Tetra radio with standard control head.

Mimer SoftLine Setup

THIS MANUAL WILL HELP WITH:

- UNDERSTANDING THE SOFTLINE PRODUCT
- EXAMPLES OF USE
- SETUP INSTRUCTIONS FOR LAN, WAN AND THE INTERNET

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