Mimer SoftRadio

Connecting radios all over the world

3132/03

Virtual Mimer InfoServer

Technical description and setup instructions for a
Mimer InfoServer delivered as a virtual image file

Rev C

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A Mimer SoftRadio system can be configured in many ways. This paper describes the basics of setting up a **Virtual Mimer InfoServer**.

Please also refer to the standard setup instructions for SoftRadio and to the information provided on the web pages.

www.lse.se

www.lse.se/info-server

In the illustrations in this manual, a picture of the InfoServer as it looks when sold as a hardware box, is used.

Table of Contents

Table of Contents 3
1 General 5
2 The InfoServer 6
3 Setup of the Virtual InfoServer 6
3.1 Setup instructions 6
4 Available Information 7
5 Settings of Devices 9
5.1 Setting up connections to the devices 9
5.2 Device Zone 9
5.3 Device ID 10
5.4 IP Address 10
5.5 Submit changes 10
5.6 Save and Load from file 10
5.7 Configuration history 10
6 Settings of operators 11
6.1 Edit Expected Operators 11
6.1.1 Zone 11
6.1.2 Operator ID 11
6.1.3 IP Address 11
7 Change network settings 12
7.1 Static IP – DHCP-Mode not active 12
7.1.1 IP address 12
7.1.2 Netmask 12
7.1.3 Gateway 12
7.2 Dynamic IP – DHCP-Mode active 13
7.3 Important note regarding Gateways 13
8 Other commands 14
8.1 Change password 14
8.2 Show server status page 14
8.3 Show the server log 14
8.4 Change InfoServer name 15
8.5 Edit SNMP Notification settings 15
8.5.1 Notification Destination IP 15
8.5.2 SNMP Version 15

9 SNMP 16
9.1 Standard SNMP requests 16
9.2 Additional SNMP requests 16
9.3 SNMP notifications (previously called traps) 16
10 SNMP daemon settings in the Debian OS 16
11 Settings in the operator PC 18
11.1 Installing the option 18
11.2 Settings 18
11.2.1 Operator in local LAN 18
11.2.2 Remote operator 18
12 Settings in Mimer VoiceLog 19

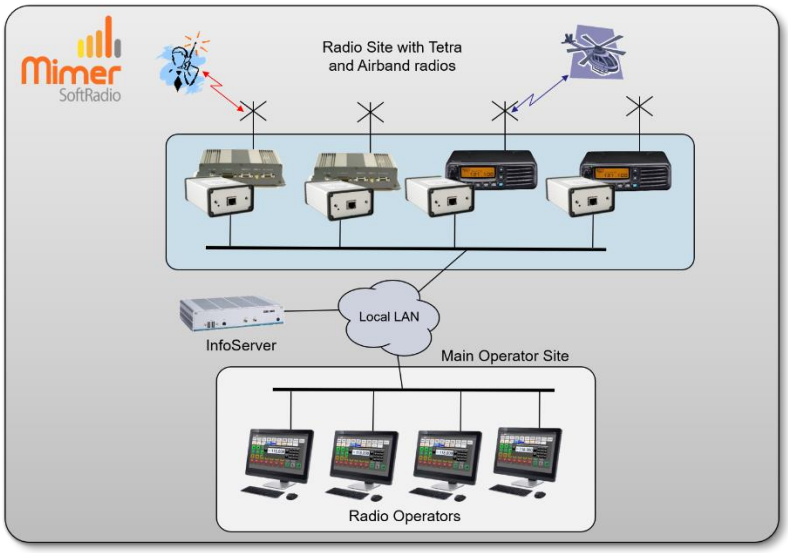
1 General

Mimer InfoServer is a component in the Mimer family of products for network operated 2-way radios.

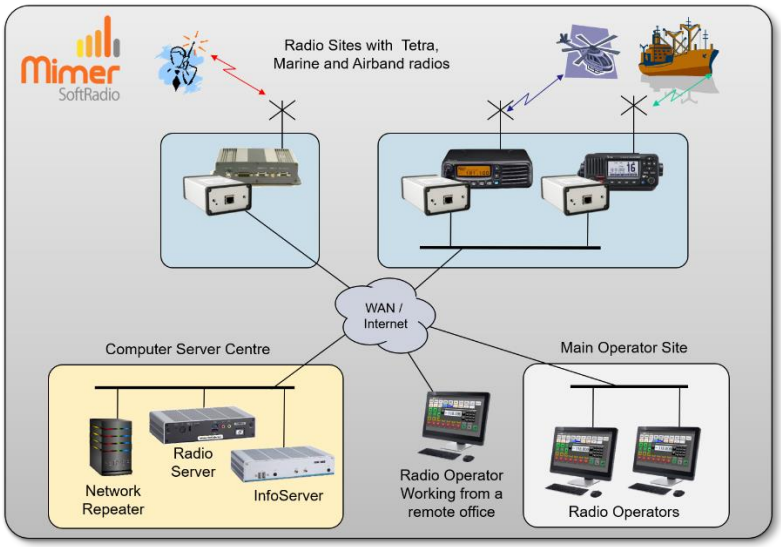
The InfoServer is used to monitor the system health.

Most faults that might occur in a SoftRadio system are indicated in the operator GUI so that the operator can either solve the problem or call for technical help.

With an **InfoServer** in the system, it will monitor the complete system and report the system health and faults found as SNMP messages. These can then be gathered by other IP systems.



Local system with all radios and operators in the same LAN



Mixed type of radio system, with an InfoServer at the server centre.

2 The InfoServer

Your delivery consists of a VMDK-file to be used as a disk image for your preferred virtualization platform.

The InfoServer is alternatively delivered on a rugged industrial x86 PC that runs a Debian based Linux operating system. See separate setup instructions.

3 Setup of the Virtual InfoServer

The VDMK-file can be run on a virtual computer using Oracle Virtual Box or VMWARE. The Virtual machine will run a 32-bit Debian Linux machine. The virtual disk will be up to 4GB in size and requires at least 1GB of RAM (2GB recommended).

The current virtual machine file has been created and tested using Virtual Box version 6.1.

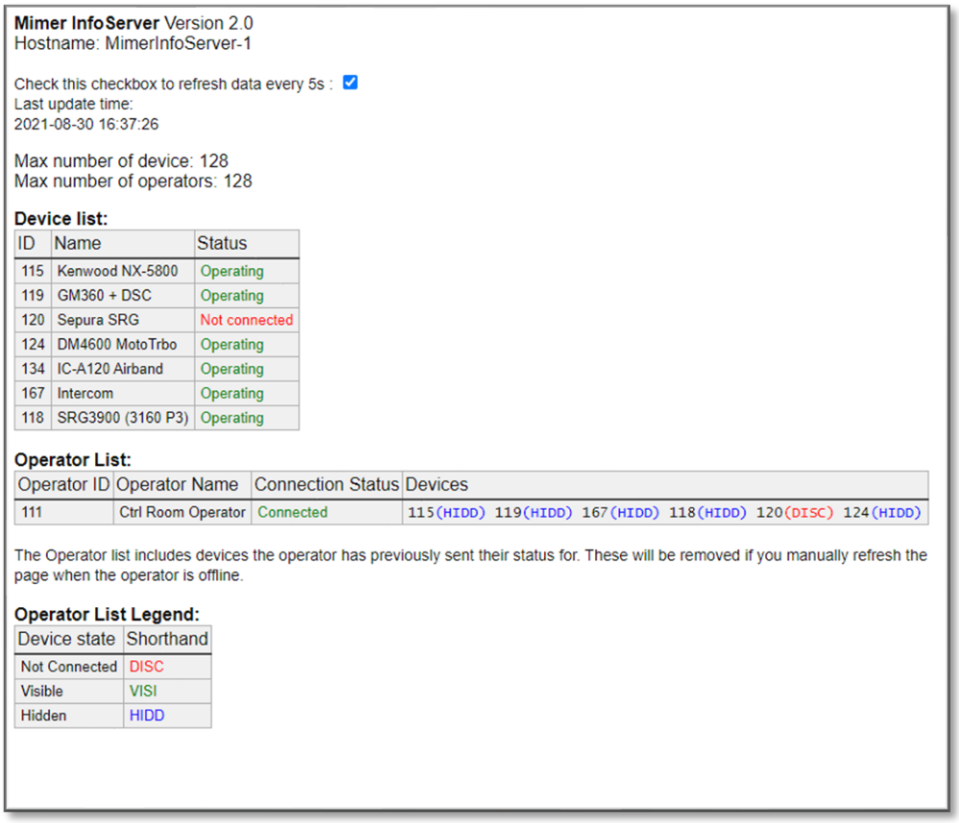
3.1 Setup instructions

Please refer to the documentation for your virtualization platform for how to set up a new virtual machine using an already existing VMDK file.

4 Available Information

The InfoServer software is designed to collect information about radio units and other devices in a Mimer SoftRadio system and about the operators and the connections they have.

The information is displayed on a HTML page by connecting a web-browser to the IP-address of the InfoServer.



Mimer InfoServer Version 2.0
Hostname: MimerInfoServer-1

Check this checkbox to refresh data every 5s :
Last update time:
2021-08-30 16:37:26

Max number of device: 128
Max number of operators: 128

Device list:

ID	Name	Status
115	Kenwood NX-5800	Operating
119	GM360 + DSC	Operating
120	Sepura SRG	Not connected
124	DM4600 MotoTrbo	Operating
134	IC-A120 Airband	Operating
167	Intercom	Operating
118	SRG3900 (3160 P3)	Operating

Operator List:

Operator ID	Operator Name	Connection Status	Devices
111	Ctrl Room Operator	Connected	115(HIDD) 119(HIDD) 167(HIDD) 118(HIDD) 120(DISC) 124(HIDD)

The Operator list includes devices the operator has previously sent their status for. These will be removed if you manually refresh the page when the operator is offline.

Operator List Legend:

Device state	Shorthand
Not Connected	DISC
Visible	VISI
Hidden	HIDD

Example of the InfoServers web browser page

For each connected device there will be information about ID, IP address, Name and the current status.

Device List

The devices listed here are those configured in the Web interface settings, and are locally accessible, that is, they send UDP status in the local subnet because they are either placed locally, or their status messages are provided via a Network Repeater in the local subnet.

Operator List

For clients (SoftRadio operators) there will be ID, Name and a list of available radio- and phone devices at the operator. These devices can be both local UDP connected devices and remote TCP connected devices.

The list of devices is divided in three parts:

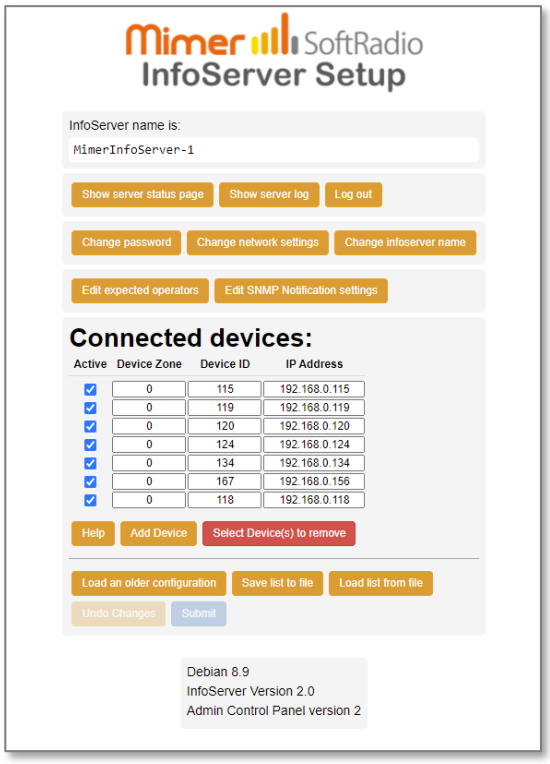
VIEWED devices. These are the devices that are visible on the current tab at the operator.
HIDDEN devices. These are the devices that are active at the operator but are hidden on a non-selected tab.
DISCONNECTED devices. These are the devices that are listed in the Connections Setup, but the connection currently fails.

5 Settings of Devices

Most settings for the InfoServer are made using a web-interface.

This is accessed by logging in from a WEB browser by entering the IP of the server and port :8080, for example 192.168.0.27:8080.

Log in for the web interface user is “admin” and the password as noted in the documentation included with the delivery of the server.



The settings include a list of all expected radios, a list of all expected operators, IP address and Name of the InfoServer and authentication and IP settings for the SNMP notifications that are defined in the MIMER-INFOSERVER-MIB.

All further described below.

Note: authentication and user settings for SNMP requests and notifications for system events are not set in the web-interface. These are instead defined in the SNMP-daemon settings in the Debian OS, see chapter 7-8 below.

5.1 Setting up connections to the devices

The first page is the list of devices that shall be monitored by the InfoServer. This can be radios, phones, intercoms, VoiceLog and other types of devices in the Mimer SoftRadio system.

The server will listen for communication from the devices over UDP in the local LAN.

First click the button “Add Radio” so the number of lines corresponds with the number of devices that you would like to connect.

5.2 Device Zone

The Zone number is used in large system connecting over 240 nodes. For all standard systems the zone number shall be “0”.

A separate guide describes using Zones.

5.3 Device ID

This is the ID number used in the Mimer SoftRadio system for the device. In Mimer SoftRadio every device and every operator need to have a unique ID number between 10-240. It is common practice for the SoftRadio clients to have numbers from 10-99 and all other devices numbers from 100-240.

Enter the ID number of all devices that you need to monitor.

5.4 IP Address

This is the IP address used in the local LAN by the device that is being monitored by the InfoServer.

Instead of an IP address a URL can be used if you have an IP setup that allows local URL's.

If the devices are local, in the same LAN subnet, you shall enter the IP to each device. If the devices are remote and connected through a NetworkRepeater, you shall enter the IP to the NetworkRepeater. This will then be the same IP for all devices.

5.5 Submit changes

After entering your changes in the list of devices you need to click [Submit] to store them as the new InfoServer configuration. A confirmation window will show that the InfoServer has accepted the new settings.

If you don´t want to submit the changes, you can just click the [Undo changes] button.

5.6 Save and Load from file

The buttons [Save list to file] and [Load list from file] gives you the possibility to have several different settings in files on your PC that you easily can switch between.

5.7 Configuration history

The button [Load an older configuration] will present a list of older settings with time and date for setup. Any of these settings can be opened for review by selecting them. They will not be used until the [Submit] button is clicked again.

6 Settings of operators

6.1 Edit Expected Operators

You need a list of expected operators so that the InfoServer will know which operators to monitor, and can show which ones are not online.

6.1.1 Zone

The Operator Zone is only used in large systems, normally enter “0”. A separate guide describes using Zones.

6.1.2 Operator ID

Enter the operator ID as set in each operator´s “Connections Setup”.

6.1.3 IP Address

Enter the IP address of each operator PC. The IP and the ID needs to match otherwise the server will ignore any data from that Operator ID.

Leaving the setting with 0.0.0.0 will allow any IP (dynamic IP) for the operator PC.

For operators that are remote, enter their public IP. Or leave the setting with 0.0.0.0.

InfoServer – Expected Mimer Operators menu

7 Change network settings

The standard settings delivered with the InfoServer are:

- Eth0 – Static IP address, used for the local LAN to the devices.
- Eth1 – DHCP-mode. Normally not used.

InfoServer - IP setup page

After you have done your changes, click the [Submit] button.

7.1 Static IP – DHCP-Mode not active

Unticking the box means that you will use a Static IP, and that you define all the settings for the IP address yourself.

7.1.1 IP address

The static IP address of the InfoServer. You can change this to any address that suits your net. If you change the subnet part (often the three first groups) you must remember to also change the Mimer Network Interfaces accordingly.

7.1.2 Netmask

Defines what part of the address that is the subnet address. The standard setting 255.255.255.0 tells that the first three groups are the subnet address. In this case it is 192.168.0.
If you only want to change the IP, you normally do not need to change this setting.

7.1.3 Gateway

This is the address of your gateway out of the local subnet, normally the address of the Internet router. This field must usually be cleared if you use DHCP on the other Ethernet interface – see 7.3.

7.2 Dynamic IP – DHCP-Mode active

Ticking the box means that you will use a Dynamic IP, and the network you connect to have a DHCP-server that can assign an address and all IP settings to a computer that connects to it. The DHCP-server has a range of addresses that are assigned to a client when it sends a request. This is called dynamic address assignment.

7.3 Important note regarding Gateways

Typically only one ethernet port (eth0) is used on the server. However, if using both ethernet ports, only one of them shall have a gateway assigned (when it is set to DHCP it gets a gateway automatically). Leave the Gateway field of the other ethernet port blank.

8 Other commands

8.1 Change password

Pushing the “Change password” button will lead you to this page.

InfoServer – Change password

If you wish to change your password for the admin account of the InfoServer, just enter the new password in both boxes and push “Submit”.

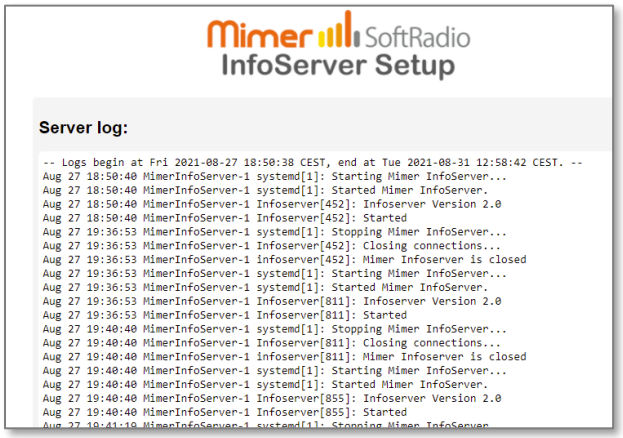
If you change the password, please don´t forget to make a note of your changes, it might otherwise be hard to reconnect to the InfoServer.

8.2 Show server status page

This leads to the status page described above.

8.3 Show the server log

The server has a built-in log function that can show eventual errors, for use when troubleshooting. This can be useful when setting up a system or when fault finding a system.



InfoServer log window

8.4 Change InfoServer name

The name of the InfoServer can be changed by entering the “Change InfoServer name” menu.

Change server name menu

8.5 Edit SNMP Notification settings

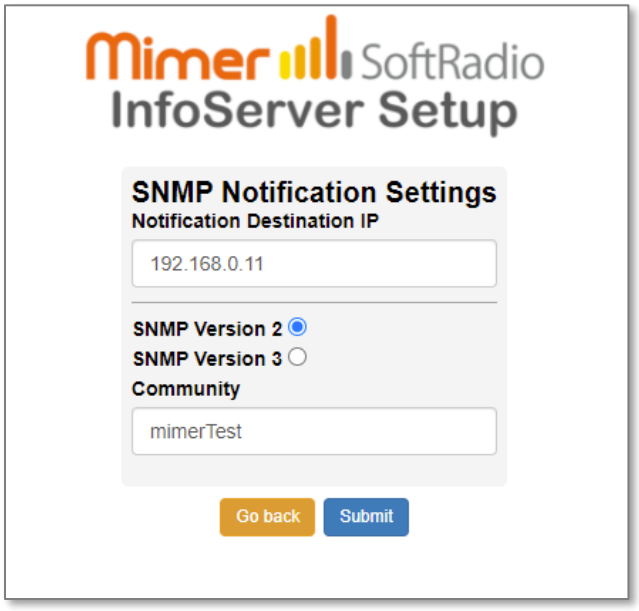
Here you configure the authentication settings for SNMP notifications.

8.5.1 Notification Destination IP

This will set where the SNMP notifications are sent.

8.5.2 SNMP Version

Here you can select SNMP version 2 or 3. The page will show the relevant settings fields depending on which version you choose. Please refer to your SNMP Trap Receiver's configuration to determine which version to use and the appropriate values to configure.



SNMP version 2 Notifications settings

9 SNMP

9.1 Standard SNMP requests

The InfoServer implements an SNMP agent that supports SNMP v2c and v3.

It is configurable to respond to all standard requests supported by a standard Debian Linux system's SNMP daemon (including the System objects from RFC-1213).

9.2 Additional SNMP requests

The InfoServer also has Mimer-specific objects, as described in the MIB file MIMER-INFOSERVER-MIB.

These include, but are not limited to:

- number of expected devices
- number of devices with failing connection
- number of expected operators
- number of devices not visible at any operator
- number of devices not connected to any operator

9.3 SNMP notifications (previously called traps)

SNMP notifications for events such as devices going offline or online or losing connection to any operators can be generated and these are also described in the MIB file.

10 SNMP daemon settings in the Debian OS

SNMP requests are handled directly by the snmp daemon in the Debian OS. User and authentication settings for this are made in the file:
/etc/snmp/snmpd.conf

Also, if you wish to configure SNMP notifications for monitoring the Debian system that runs the InfoServer, such as disk space notification, then these must be defined in the file.

Please refer to the net-snmpd manuals online for more information on how to configure the snmp daemon and how to create SNMP users.

The configuration can either be viewed and changed by using the "nano" editor to edit the file, or by using the various snmp command line tools that are available in Debian.

The InfoServer comes with default configurations for the snmp daemon that should be analysed and changed manually in any new setup.

The configuration files have the following Mimer InfoServer-specific modifications, that must be preserved:

1. In the file **/etc/snmp/snmp.conf** (obs, not snmpd.conf) there is an "include" of the MIB file /etc/mimer/MIMER-INFOSERVER-MIB.mib in order to parse our own MIB. Do not change this!
2. There is a "passthrough" defined in the file **/etc/snmp/snmpd.conf**, in order to make the InfoServer respond to SNMP requests. The passthrough is set to call a python script that fetches and parses the information from the InfoServer according to the definitions in MIMER-INFOSERVER-MIB. Do not change this!

Important Notes:

The configuration files also have a test-community and a test-user that you can use for evaluation but must remove before deployment in order to not allow unauthorized access:

3. There is a predefined SNMP v2 community with full read access to our LS-Elektronik MIB tree named "**mimerTest**" configured in the file **/etc/snmp/snmpd.conf**.
4. There is a predefined SNMP v3 user, named "**mimerTest**" that is configured for both authentication and encryption (using SHA and DES respectively), with both authentication and encryption **passphrases set to "mimerTest".**
   The user access definition for this user is in **/etc/snmp/snmpd.conf**, while the user authentication definition is in the file: **/var/lib/snmp/snmpd.conf**

<u>These are only for evaluation and testing purposes and should be removed before deploying the InfoServer.</u> Simply delete the relevant lines in the two files and replace with your own preferred definitions as needed.

If you wish to use SNMP v3 with encryption you shall define your own new user with a strong password. Please refer to Net-SNMP manuals and guides online for information on how to create a new user.

Even if you only intend to use SNMP v2, you should still remove the "**mimerTest**" user.

11 Settings in the operator PC

The operator PC needs to be set up so that it reports its connections etc to the InfoServer. This is done in two steps.

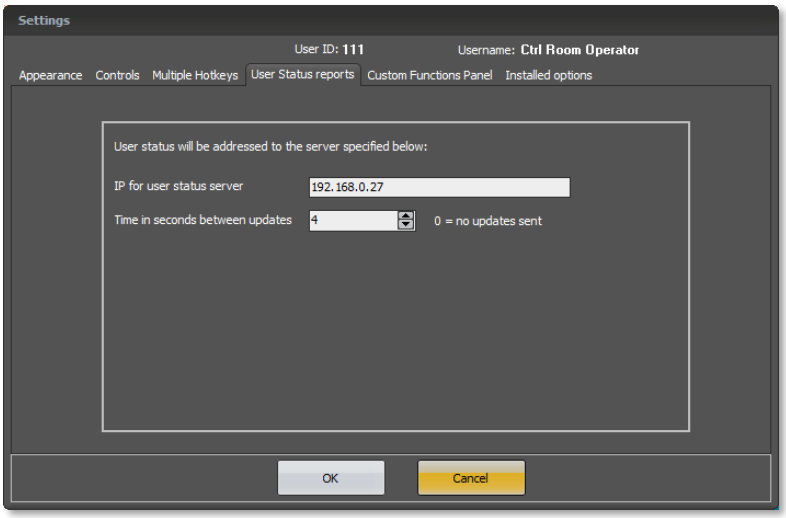
11.1 Installing the option

After setting up SoftRadio XL, also install the option “Mimer User Status Reports”.

Note. The option only works with the XL-version of SoftRadio.

11.2 Settings

Under Settings in SoftRadio you will find a new tab called “User Status Reports”. Here you need to set the IP-address to the InfoServer and how often you would like reports to be sent.



Settings tab in SoftRadio

11.2.1 Operator in local LAN

When the operator PC is in the same local LAN as the InfoServer, enter the IP address of the server.

11.2.2 Remote operator

When the operator PC is remote, enter the public IP address (or WAN address) of the InfoServer. You can also use a URL.

Please note that if the InfoServer is hidden behind a router, as seen from the network of the remote operator, that router needs a port forwarding to be set, so port 20005 is forwarded to the local IP of the InfoServer.

12 Settings in Mimer VoiceLog

If you have a VoiceLog in the system and it shall be monitored by the InfoServer, there is a tick box that needs to be checked in the VoiceLog settings. See the VoiceLog manual for details.

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www.lse.se

info@lse.se