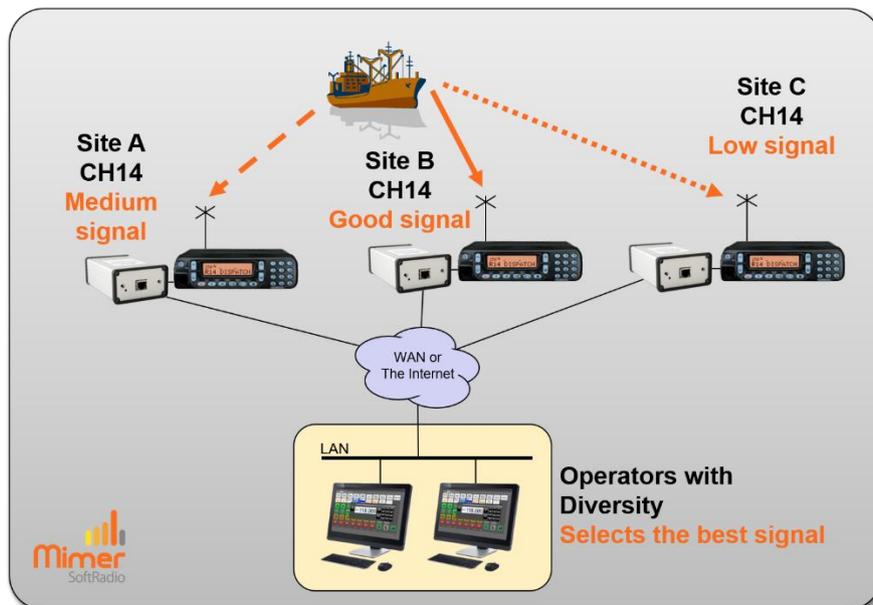


Mimer SoftRadio

Connecting radios all over the world

Mimer Option 3103

Diversity



Release date April 07, 2020

This guide will help with the use and setup of your Mimer option 3103 giving Diversity function (a.k.a. Voting) between radio receivers. Please also refer to the web pages www.lse.se, www.lse.se/voting and the setup instructions for SoftRadio.

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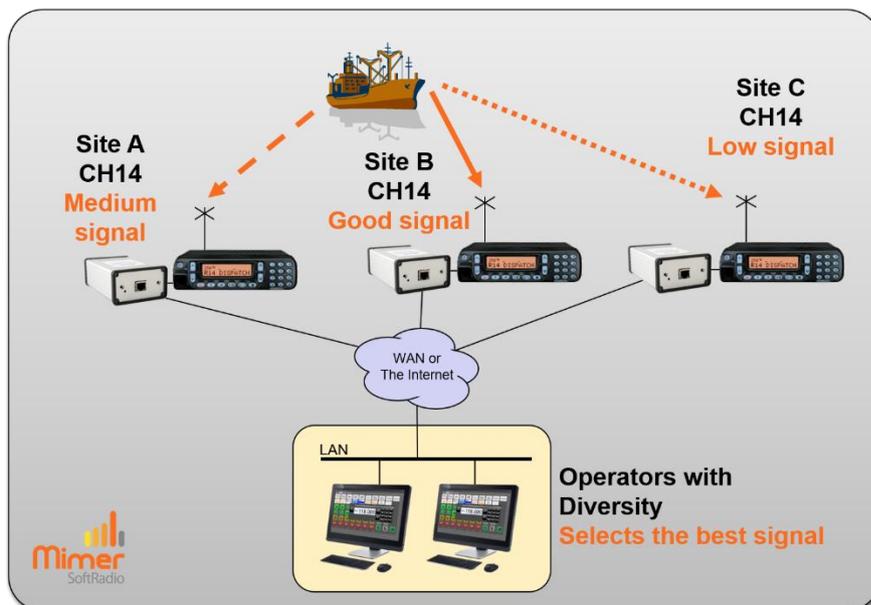
2 General

This option will automatically select one radio receiver out of a number of receivers, using the same radio channel, when two or more of the receivers are hearing the same radio signal. At the beginning of each message the radio with the strongest signal is selected.

This is typically used in marine environments where a ship travels along a coast line or a river and the ships radio signal can be heard by many coastal radio stations at the same time.

This is a per operator option, each operator needs to have the option installed and configured to be able to use the diversity function.

2 to 30 receivers can be connected in the same diversity group and each operator can have up to 16 groups active.



Example of system with three base stations on CH14 and the ship travelling between the radios coverage areas.

3 Needed hardware

The radios used for diversity needs to have an RSSI-signal output. On older type radios this is mostly an analogue signal, on modern radios it is a data message.

For this reason, the network interface at each radio needs to either listen to the RSSI data and distribute it on the Mimer IP-network or for older radios be extra equipped with the option 3102 that fetches the RSSI-signal from the radio receiver and distributes it on the Mimer IP-network.

Always check that you have a radio and an interface that is compatible for this.

All radios in the same diversity group needs to be of the same type for the diversity to function.

4 Needed software

The clients shall have Mimer SoftRadio installed.

5 Installation

Install the Option 3103 "Mimer Diversity", from the supplied USB stick or download, into all SoftRadio clients that shall have the diversity function.

6 Settings in Mimer Connections Setup

6.1 Diversity Group column

In Mimer Connection Setup, after installation of the option, there is a column for setting of the diversity group numbers. All radios that shall work in one diversity group shall be given the same group number, 1-16 are valid group numbers. If you have more than one diversity group, just repeat with a new group number.

Radios not belonging to a diversity group are set as “Disabled”.

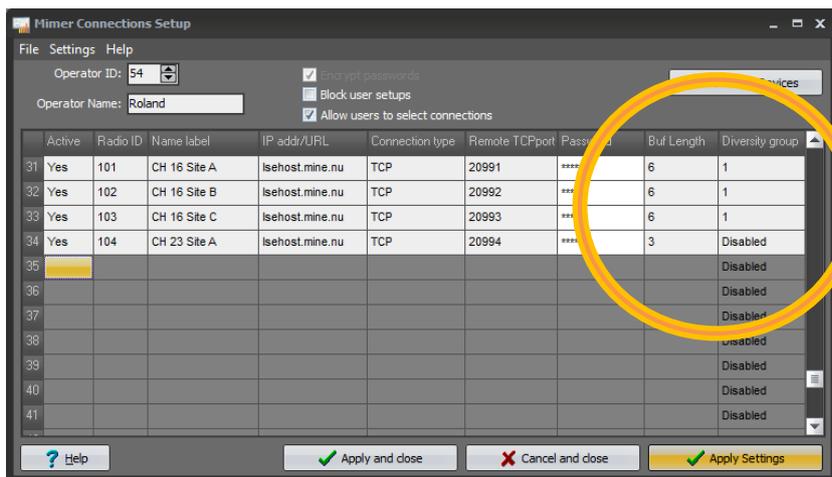
6.2 Buffer Length column

The Buffer length is the number of audio packages that are collected before the audio is presented to the operator. In a Diversity system the buffer needs some extra time so that the software has time to compare the signal strength before presenting the correct audio to the operator.

When using fully analogue radios like Motorola GM-series or Kenwood TK7180 the buffer can be set to 3 and upwards. But when using digital radios like Motorola MotoTrbo we recommend that the buffer is set not lower than 6 packages when using Diversity.

It is also recommended to set the same buffer length for all radios in the same diversity group. This minimizes the risk that the diversity selects a receiver for listening before all signals have reached the diversity software.

The buffer length value for the least good IP path shall be used.

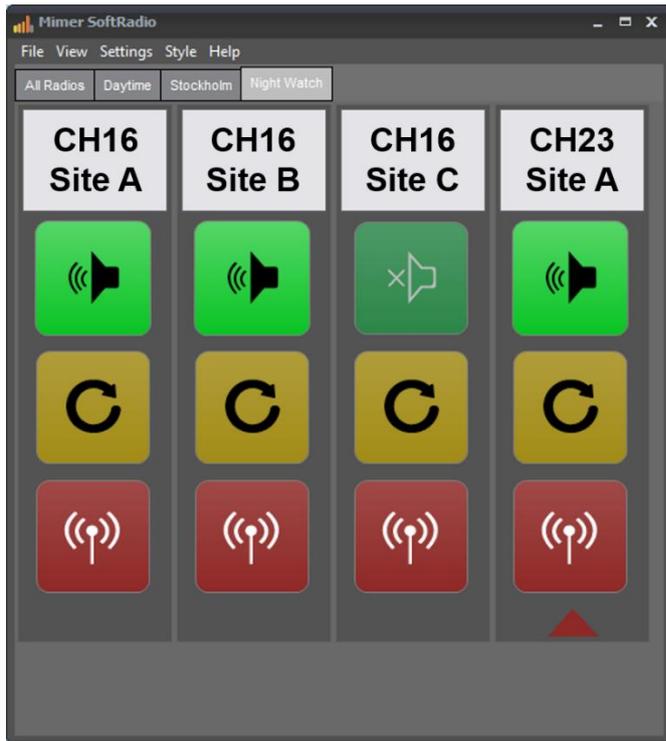


Example with three radios all working on CH16, connected in one diversity group.

7 Operation

The operator will have all radios visible on the GUI. If more than one radio in a diversity group receives a signal, only one will open the speaker path and show the yellow indication of reception. The other radios, on other sites, in the same diversity group, will stay muted.

Since the yellow indication shows which site has the best reception, this will also be the best choice for the operator to answer the call on.



Mimer SoftRadio with three CH16 connected in one diversity group.

7.1 Active Arrow

In SoftRadio settings it is possible to select that the "Active Arrow" (red arrow) moves to the selected radio, making it easier to answer on the correct base radio.

8 Blocking of feedback

In cases where the diversity grouped radios have simplex radio channels (same transmit and receive frequency) and are within coverage of each other, the operator transmitting on one site will lead to the other sites in the diversity group receiving the transmitted signal, and the operator hearing himself as a feedback.

This is automatically blocked in the Mimer Diversity option so that the operator will not get the acoustic feedback from his own voice.



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