MARPORT M4 System with Mx Computer and Mac Mini User Manual

M4 System with Mx Computer and Mac Mini
User Manual

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History

V1	04/08/19	First release
V2	07/16/20	Now documents Mosa2 version 02.03, Scala version 01.06.34 and Scala2 version 02.02. TE SC sensor is no longer documented in this guide.
V3	03/08/21	• Now documents Mosa2 version 02.05. • Added guidance on how to prevent computer and receiver from being damaged b y water in Installing the System on page 15. •Added contact details for the sales offices in South Africa and Norway in Support Contact on page 36.
V4	01/06/22	• Added list of supported Apple operating systems for Scala and Mosa2 in Compati bility with Apple Operating **Systems** on page 11.

Introduction and Presentation

Read this section to get a basic knowledge of your M4 system.

Tip: Click Marport logo at the bottom of pages to come back to the table of contents.

Introduction

The M4 is our heavyweight acoustic receiver, combining the latest digital signal processing with the smartest software. This means that true multifunction channel operation is available and there is no compromise between transmission range and signal detection. We have designed the M4’s multifunctional capacity to accommodate a series of full-function channels allowing simultaneous use of standard sensors, net sounders – including narrow band – and high resolution net sounders. All of these are available over an extended frequency range and with selectable configurations for ultramodern net monitoring systems.

The M4 incorporates a host of features that are ready to be implemented, including sensor crossreferencing for positioning and distance, and sensor remote control.

The M4 receiver is built to be configured and upgraded using standard software tools and operated with Mac OS, Firefox® web browser and Java™ Runtime Environment (JRE).

Note: This system is not sold anymore, but it can be upgraded with an Mx computer.

Note:

Scala These labels tag topics or actions that are specific to Scala and/or Scala2.

Scala2 Depending on the version you have, you may follow either one of these labels.

Safety Guidelines

Important: To ensure proper and safe use of this equipment, carefully read and follow the instructions in this manual.

Basic good practices

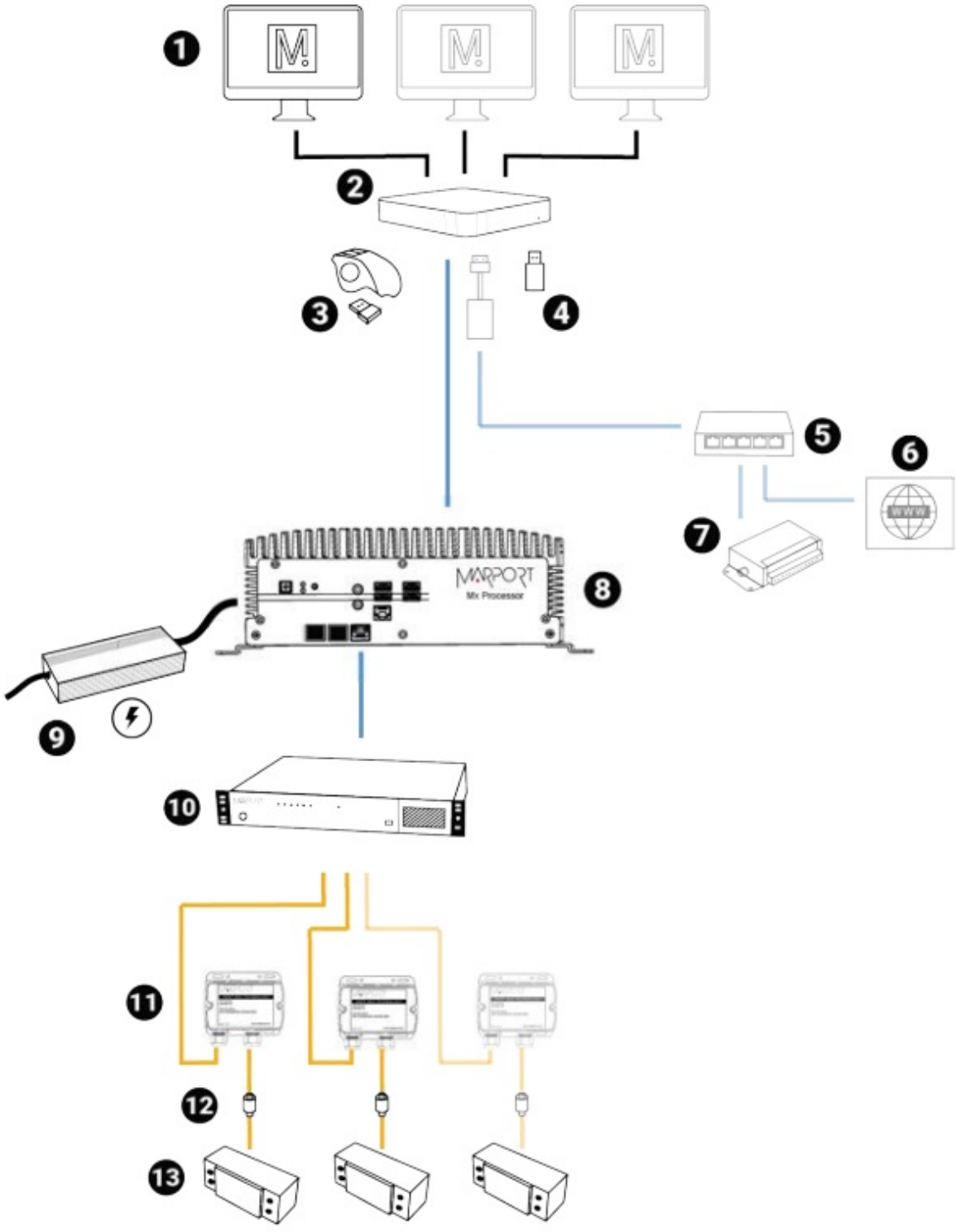
When using the product, be careful: impacts can cause damage to the electronic components inside.
Never place the product in a hazardous and/or flammable atmosphere.

Product installation and use

Install and use this product in accordance with this user manual. Incorrect use of the product may cause damage to the components or void the warranty.

Description

M4 and Mx computer System Overview



Ethernet cable
Marport junction box extension cable & hydrophone cable
Manufacturer standard cable

(Blurred) Optional elements

1. Screens
2. Mac computer
3. Wireless trackball mouse
4. Scala/Scala2 software dongle
5. Ethernet switch
6. Internet

7. NMEA multiplexer
8. Mx computer
9. Power supply (recommended power supply: MEAN WELL HEP-150-24 A)
10. M4 receiver (ref. M4REC)
11. Junction boxes (x2) (ref. 46-055-01)
12. Thru-hull penetration (ref. TH-1-XX)
13. Hydrophones (ref. NC-1-XX)

Equipment List
Here are the hardware and software you need to install a system with a Mx computer.
Computer

- 1 Mac mini i7 computer
- 1 wireless trackball mouse
- 1 Mac mini power cord
- 2 Thunderbolt to HDMI/VGA/DVI adapters
- 1 Ethernet cable for connection with Mx computer
- 1 Scala/Scala2 software dongle

Receiver

- 1 M4 receiver

Mx computer
Aaon compact fanless box PC. Reference: PO boxer-6639M
Power supply: MEAN WELL HEP-150-24 A
Optional Equipment (not included)

- 1 to 3 monitors
- 1 Uninterruptible Power Supply (UPS) to prevent problems if the mains power fails (recommended). Size: 500VA.
- Additional hydrophone junction boxes
- 1 test hydrophone that you can keep on board and connect to the receiver to do functional tests.
- 1 NMEA converter junction box (ref. NC-2-TEMP) to receive temperature data from hydrophones
- 1 NMEA multiplexer to receive NMEA data and display them in Scala/Scala2: ShipModul MiniPlex-3E-N2K if using NMEA2000 and NMEA0183 or Miniplex-3E if using only NMEA0183.
- If using Mosa2 on a tablet computer: refer to Marport sales offices to know the recommended model.

Software

Software Application Name	Definition
Marport validated MacOS	Operating system on computer
Scala/Scala2	Marport software application collecting, processing, storing and displaying d ata received from sensors, sounders and other connected devices.
Scala Replay/ScalaReplay2	Marport software application replaying data recorded in Scala/Scala2.
Mosa2	Marport software application used to configure sensors. Can be used on de sktop or tablet computers.
Marport Tools	Marport software application used to manage the receiver firmware.
Mozilla Firefox (from version 22 t o 51)	Web browser
Java (version 7 or lower)	To correctly display the system web page. The system web page provides a ccess to the Mx receiver and Mx Processor configuration.
FileZilla	File management tool.
TeamViewer	To give remote access of your computer to support service

Technical Specifications

Frequency range	30-60 kHz
Active bandwidth	24 kHz
Number of Rx/Tx channels	6 Rx / 1 Tx
Hydrophones	Up to 6
Bearing to sensor measurement	Yes
Distance to sensor measurement	Yes
Number of simultaneous data reception	100
Number of high resolution sounders (NBTE, HDTE)	10
Temperature input	2 NMEA
Network cables	CAT5e, 100 meters max., U/FTP shielding*

Important: *Make sure to respect these specifications if installing a new Ethernet network cable.

Mx computer

Product reference	PO boxer-6639M
Dimension (W x H x D)	264.2 mm x 186.2 mm x 96.4 mm (10.4” x 3.8” x 6.1”)
Weight	4.5 kg (8.8 lb)
Operating temperature	Ambient with Airflow -20°C ~ 50°C
Storage temperature	-45°C ~ 70°C (-49°F ~ 185°F)
Storage humidity	5~95% @ 40°C, non-condensing
Power supply	9 – 36V with 3-pin terminal block

Compatibility with Apple Operating Systems
This topic lists the supported Apple operating systems for Scala/Scala2 and Mosa2.
Scala/Scala2

OS name	OS release	Scala 1.x	Scala 2.0.x	Scala 2.2.x	Scala 2.4.x	Scala 2.6.x
Big Sur	macOS 11.0				Yes	Yes
Catalina	macOS 10.15		Yes	Yes	Yes	Yes
Mojave	macOS 10.14	Yes	Yes	Yes	Yes	Yes
High Sierra	macOS 10.13	Yes	Yes	Yes	Yes	Yes
Sierra	macOS 10.12	Yes	Yes	Yes	Yes	
El Capitan	OS X 10.11	Yes	Yes	Yes	Yes	
Yosemite	OS X 10.10	Yes				
Mavericks	OS X 10.9	Yes				

Mosa2

OS name	OS release	Mosa 2.0.x	Mosa 2.3.x	Mosa 2.5.x	Mosa 2.7.x	Mosa 2.9.x
Big Sur	macOS 11.0				Yes	Yes
Catalina	macOS 10.15	Yes	Yes	Yes	Yes	Yes
Mojave	macOS 10.14	Yes	Yes	Yes	Yes	Yes
High Sierra	macOS 10.13	Yes	Yes	Yes	Yes	Yes
Sierra	macOS 10.12	Yes	Yes	Yes	Yes	Yes
El Capitan	OS X 10.11	Yes	Yes			
Yosemite	OS X 10.10	Yes	Yes			
Mavericks	OS X 10.9	Yes	Yes			

Computer Configuration

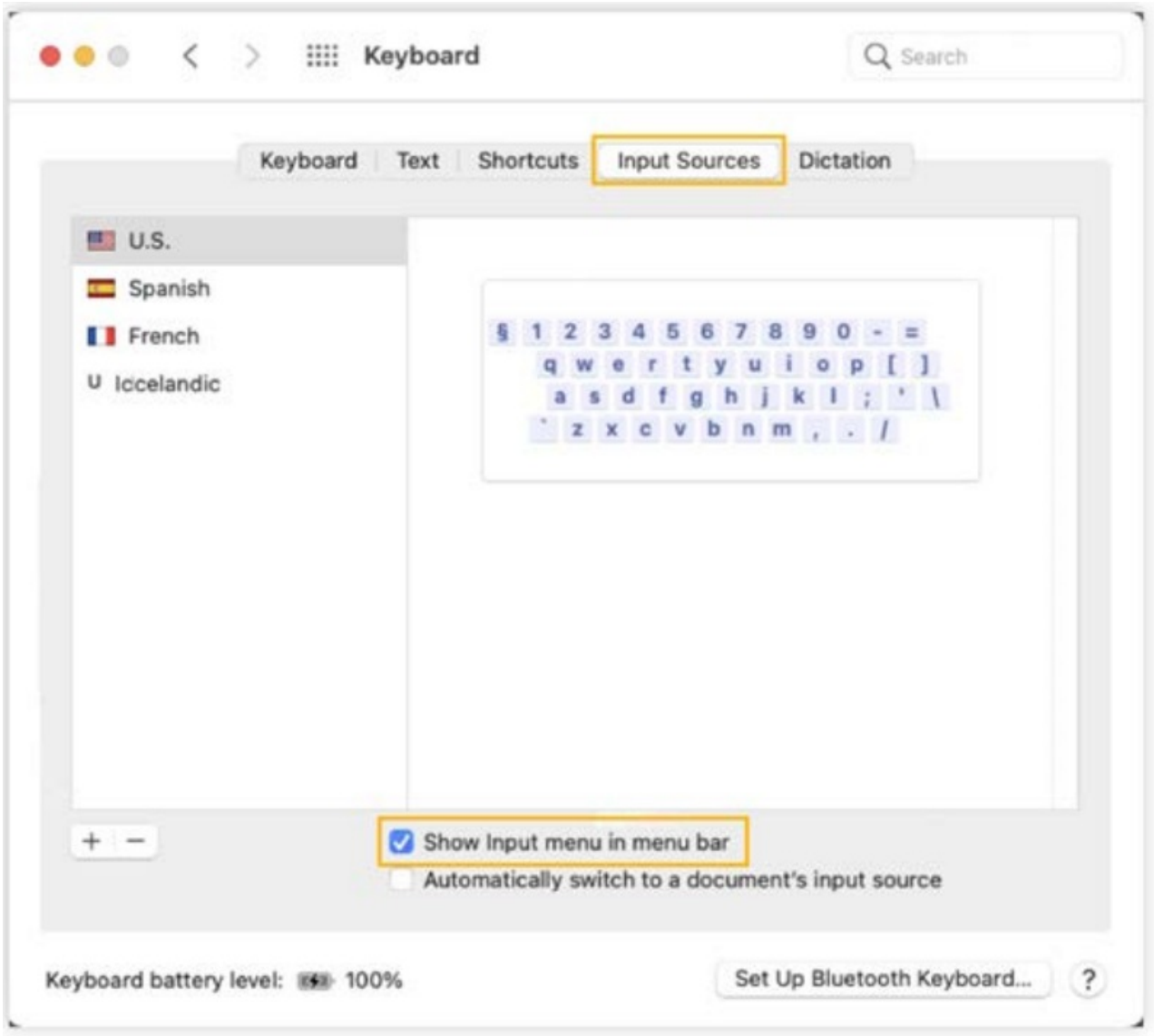
Read this section to learn how to configure the Mac computer.

Adding a Virtual Keyboard

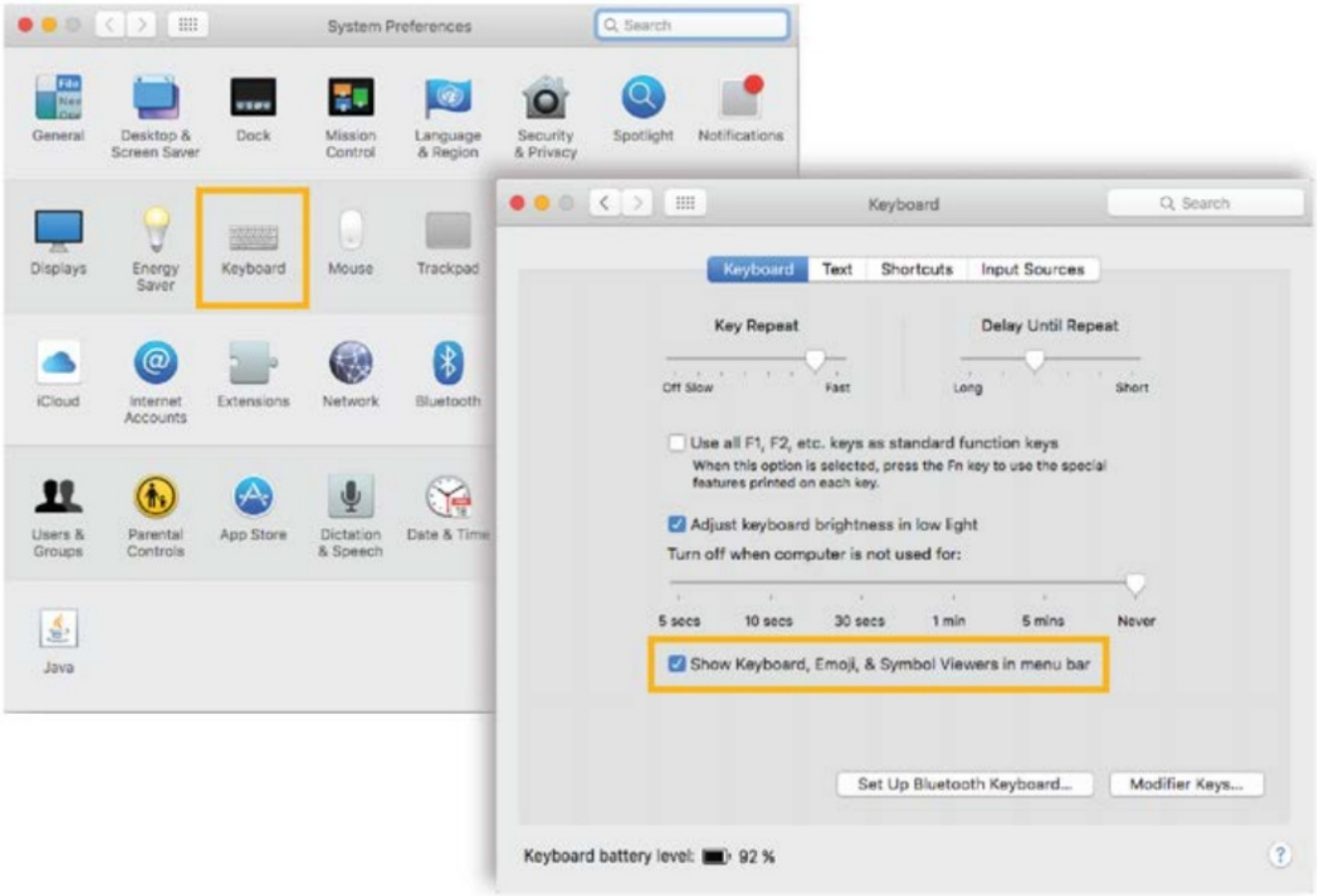
If you do not have a keyboard, you can add a virtual keyboard to the screen and type words using the mouse.

Procedure

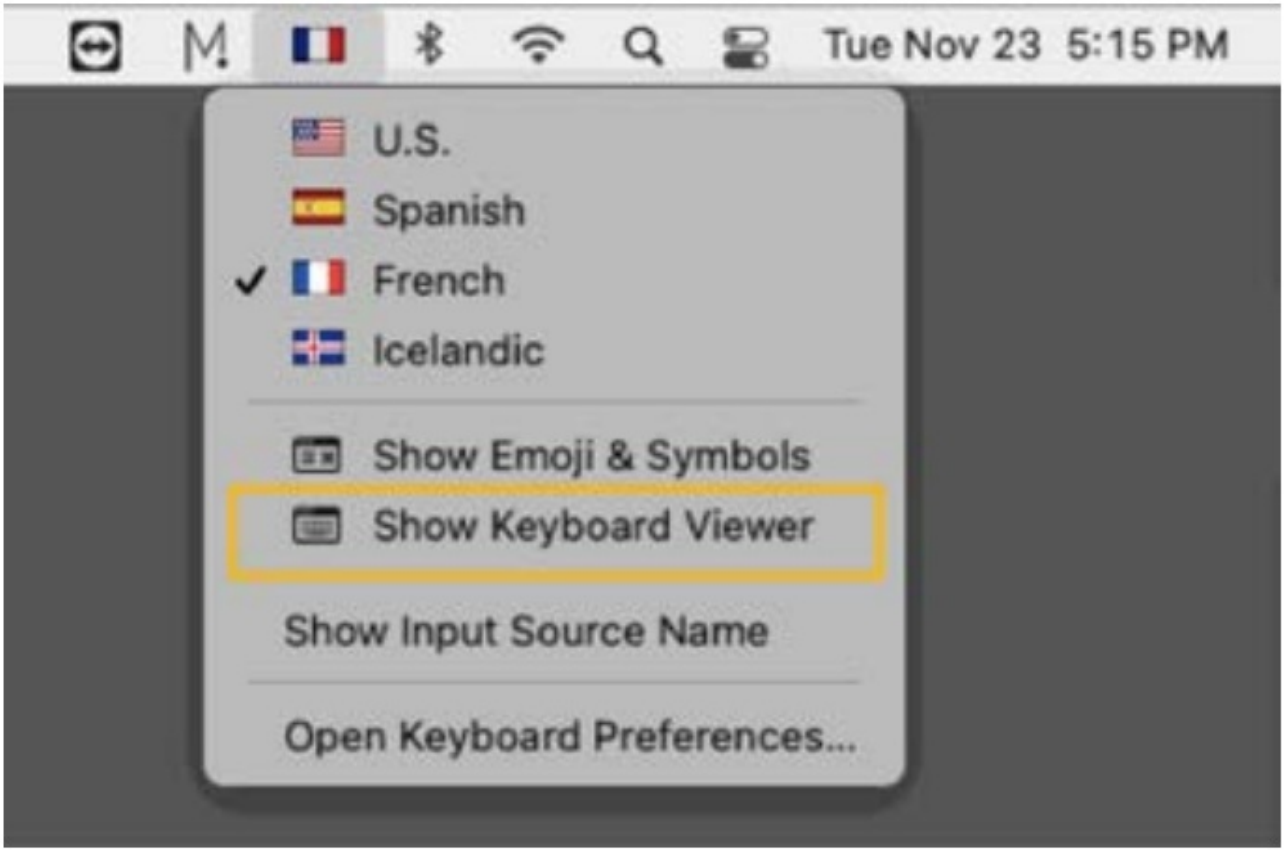
1. From the top left corner of the screen, click Apple Menu  > System Preferences > Keyboard.
2. macOS Big Sur or later: Click the tab Input Sources and select Show Input menu in menu bar.



3. macOS Catalina or earlier: Select Show Keyboard, Emoji, & Symbol Viewers in menu bar.

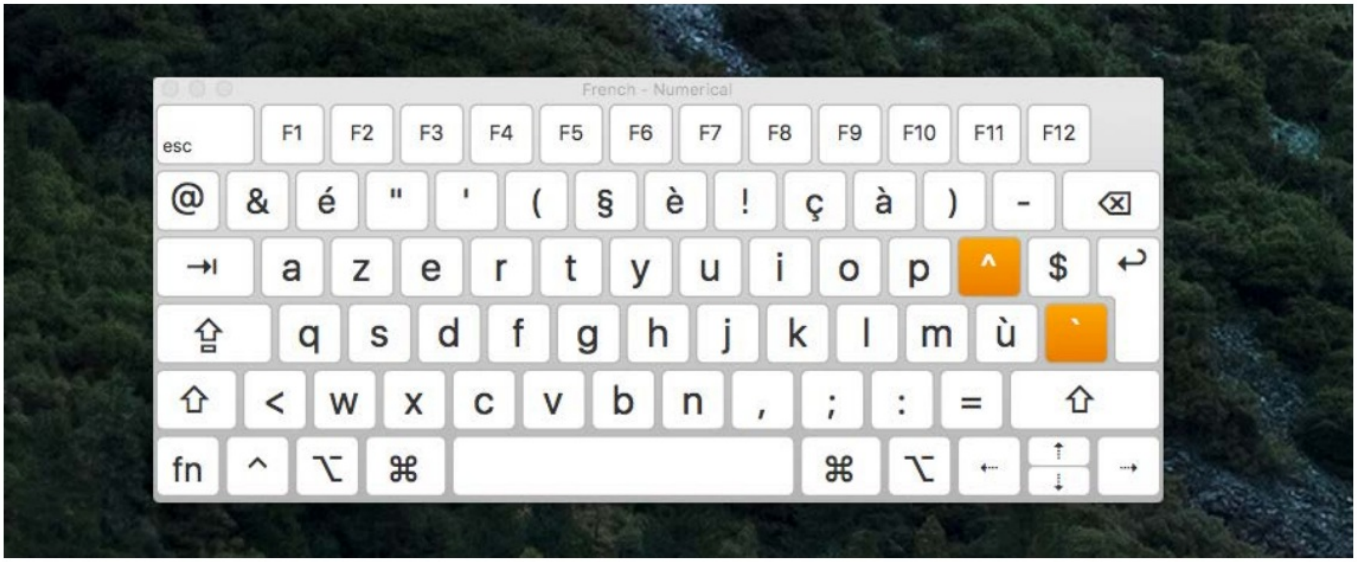


4. Close the window.
5. From the top right corner of the screen, click the flag corresponding to the keyboard language preferences, then select Show Keyboard Viewer.



Results

A virtual keyboard is displayed on the screen. You can change its size by dragging its corners.



Installation

Read this section to learn how to connect and configure the equipment of the M4 system.

Installing the System

Marport technicians or dealers need to connect the different components of the system.

About this task

Note: The system is installed by Marport or by a dealer. If there is a problem, you can read these installation steps to check the system installation.

Procedure

1. Check that you have all the items needed for the installation (See Equipment List on page 9)
2. Install the hydrophones and their cables, or find the cables from hydrophones that have already been installed.
3. Route the hydrophone cables toward the junction boxes.
4. Put the receiver elevated in a dry and clean area, as close as possible to the hydrophones. If the receivers are in a closed environment, make sure it is enough ventilated and that the ambient temperature does not exceed 55 °C (131 °F).

   Note: Make sure that the cables from the junction boxes are long enough to reach the receiver.
5. Install the Mac computer and Mx computer elevated and/or fixed vertically on a wall, in a dry and ventilated area, without dust, in the wheelhouse.

   CAUTION: The receivers are water resistant but not waterproof. The computers are not water resistant. In order to prevent the equipment from being damaged by water:

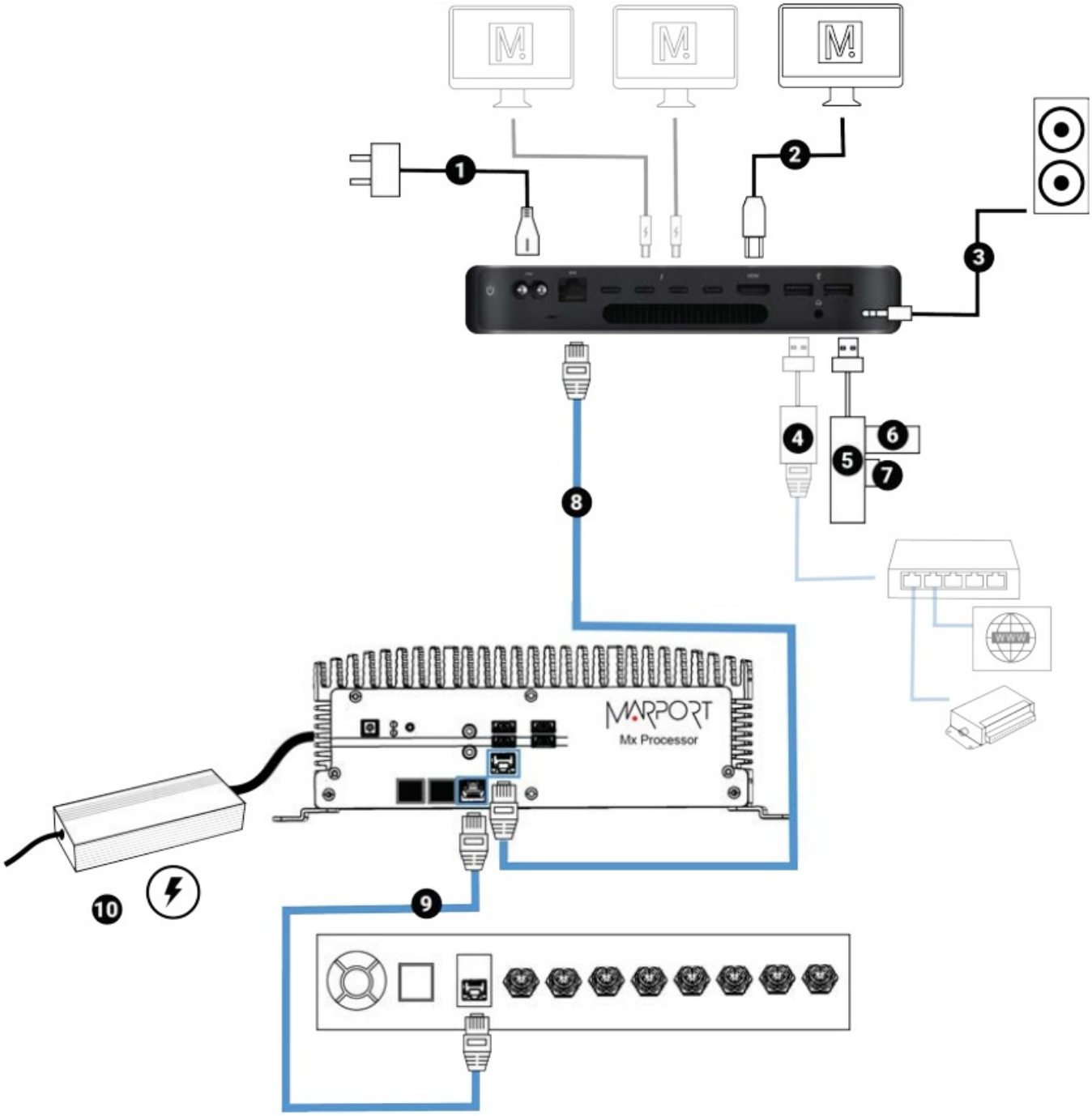
   • Do not install the receiver and computer directly on the floor.

   • The cable connectors must not point upwards.
6. Install the monitor(s).
7. Install the loudspeakers, if applicable.
8. Connect the Mac, Mx computer and receiver according to System Cabling on page 15.
9. You can switch on the computer.
10. Configure the networks and the receiver.
11. Connect the hydrophone cables to the junction boxes and connect the junction boxes to the hydrophone connectors on the receiver. Refer to Hydrophone installation manual for detailed guidelines.

12. When adding sensors to the system, refer to the Frequency Plan on page 37 to help you allocating frequencies.

System Cabling

Connect the components of the system according to the following cabling.



1	Power cable, connected to 100-240V AC power supply*
2	Up to 3 screens (HDMI or thunderbolt cable)
3	Loudspeakers (if applicable)
4	Connection to an Ethernet switch if you need to be connected to both an Internet connection and external devices. Use a USB to Ethernet adapter.
5	USB splitter
6	Scala/Scala2 software dongle
7	USB trackball transmitter of the wireless trackball mouse
8	Connection to Mx computer using CAT5e network cable
9	Connection to M4 receiver using CAT5e network cables
10	Power supply (recommended power supply: MEAN WELL HEP-150-24 A)

* We recommend to use an Uninterruptible Power Supply (UPS) to prevent problems if the mains power fails.

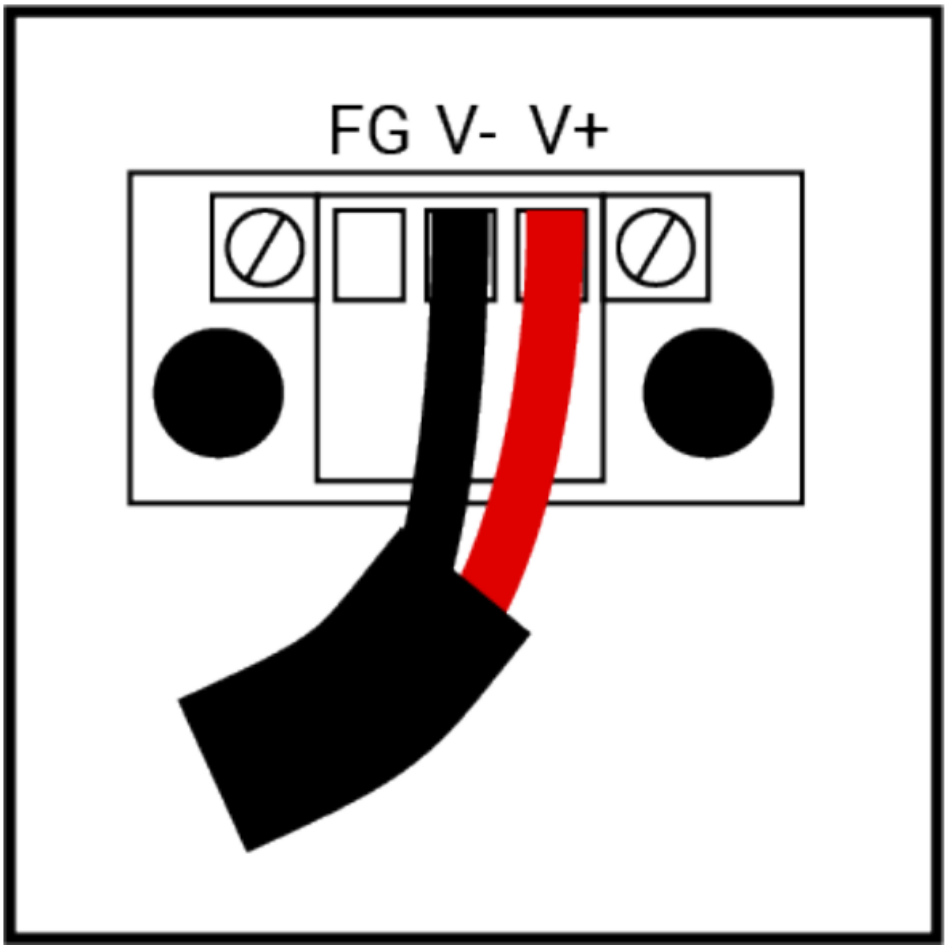
Powering the Mx computer

About this task

Important: Only use recommended power supply MEAN WELL HEP-150-24 A. Marport cannot not be held responsible for dysfunction of the system if recommended equipment is not used.

Procedure

1. Connect the power cable to the Mx computer.



2. Connect MEAN WELL power supply to a power socket.
3. Press on the Mx computer to switch it on.

Configuring Mac Mini Network

You need to change the IP address of the computer to be able to communicate with the Mx computer.

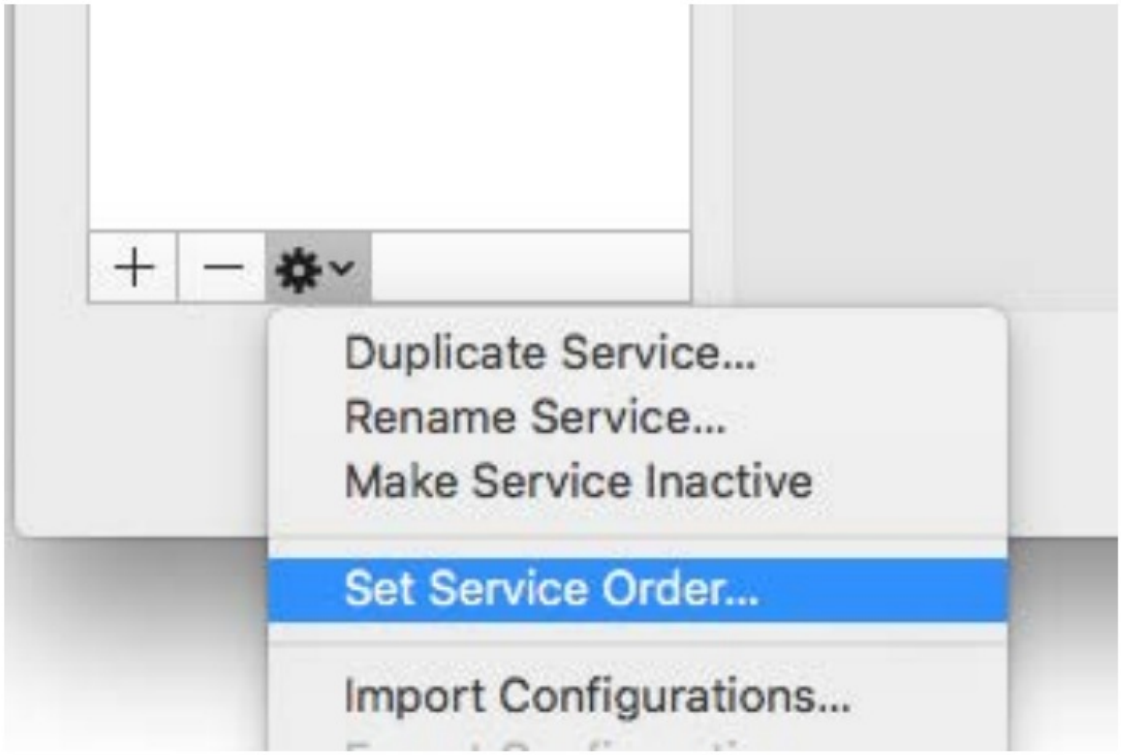
About this task

Note: If you are moving from a system without the Mx computer, you need to switch off the virtual machine:

- Open VMware Fusion, then click Virtual Machine > Shut Down in the toolbar.
- Cancel the automatic opening of VMware Fusion: Apple Menu > System Preferences > Users & Groups > Login Items and remove VMware from the list.

Procedure

1. From the top left corner of the screen, click Apple Menu > System Preferences > Network.
2. If using an internet router, it must be connected to the port named Apple USB Ethernet Adapter. In order to connect to the internet, make sure that Apple USB Ethernet Adapter network is at the top of the list of networks, then is followed by Ethernet. If it is not at the top of the list, click the tooth wheel icon at the bottom of the list and select Set Service Order.



3. In the network list, click Ethernet, then:
   a) In Configure IPv4 menu select Manually.
   b) In IP Address, enter 192.168.10.165.
   c) In Router, enter 192.168.10.1.
4. Click Apply.

Installing Hydrophones

You need to connect hydrophones to the system.

Note: For more information about Marport hydrophones, please refer to Hydrophone Installation Manual.

List of Marport Hydrophones

These are technical specifications for hydrophones currently sold by Marport. For information about obsolete hydrophones, please contact Marport support.

Product reference	Name	Use case	Bandwidth (3 dB)	Typical current consumption	Cable*
NC-1-05	Passive widebandhydrophone (no preamplifier)	• Vessel with very low level of noise (below-110 dBV). •Sensors close to the vessel (approx. 300m) • For positioning systems with Slant Range/pinger (one passive hydrophone is necessary for transmission).	33-60 KHz	0.0 mA	Blue
NC-1-05+ NC-2-02	Passive hydrophone + Wideband preamplifier box	• Vessel with normal level of noise (below-100 dBV). • Large number of sensors.† • Use at great depths (>500 m). • Gain configurable (Low or High) • Filters configurable (38 and/or 50kHz). • Low noise environment between passive hydrophone and wideband preamplifier box	33-60 KHz	25-29 mA	Blue
NC-1-07	Active hydrophone (integrated preamplifier)	• Vessel with normal level of noise(below-100 dBV). • Limited number of sensors.† • No filtering options. • Not used for positioning system	41-44 KHz	4-6 mA	Green
NC-1-06	Active wideband hydrophone (integrated preamplifier)	• Vessel with normal level of noise (below -100 dBV). • Large number of sensors.† • Use at great depths (> 500 m). •Gain configurable (Low or High) • Filters configurable (38 and/or 50kHz)	30-60 KHz	25-29 mA	Yellow
NC-1-08	Active wideband hydrophone (integrated preamplifier)	• Vessel with normal level of noise (below-100 dBV). • Large number of sensors.† • Use at great depths (> 500 m). • Gain configurable (Low or High) • Filters configurable (38 and/or 50kHz)	30-60 KHz	18-22 mA	Yellow

NC-1-09‡	Active hydrophone (integrated preamplifier)	• **For use on a paravane only** • Vessel with normal level of noise (below-100 dBV). • Limited number of sensors.† • No filtering options. • Not used for positioning system	41-44 KHz	4-6 mA	Blue, heavyduty

*Note that cables are colored according to the type of hydrophone: blue for passive, green for active narrowband and yellow for active wideband.
† Standard active hydrophones have an available bandwidth of 6kHz. So, if: (PRP_number * 100) + (NBTE_number * 800) < 6000 you have enough place. If: (PRP_number * 100) + (NBTE_number * 800) > 6000 then you need a wideband hydrophone.
‡ Add as NC-1-07 in the system web page.

Connecting the Hydrophone to the Receiver

You need to connect the hydrophone to the receiver to be able to display sensor data received by the hydrophones.

Procedure

- Connect the extension cable of the junction box to a hydrophone input on the receiver:
- Using an NMEA converter junction box (P/N: NC-2-TEMP), connect to the hydrophone input 1 or 2 at the back of the receiver to be able to receive water temperature from Marport hydrophones.

Note: Hydrophone inputs 1 and 2 allow to receive temperature from an NMEA connection, so you need an NMEA converter junction box. If you connect to other hydrophone inputs or have no NMEA converter, you will not have temperature data from Marport hydrophones.

Adding Temperature Data from the Hydrophones to the System

You can add the hydrophone to the receiver as a sensor in order to display in Scala/Scala2 the temperature of the water surface.

Before you begin

Important: In order to receive temperature data, make sure the hydrophone is connected to an NTC input on the receivers or is connected using an NMEA converter junction box. See Connecting the Hydrophone to the Receiver on page 22 for guidelines.

Procedure

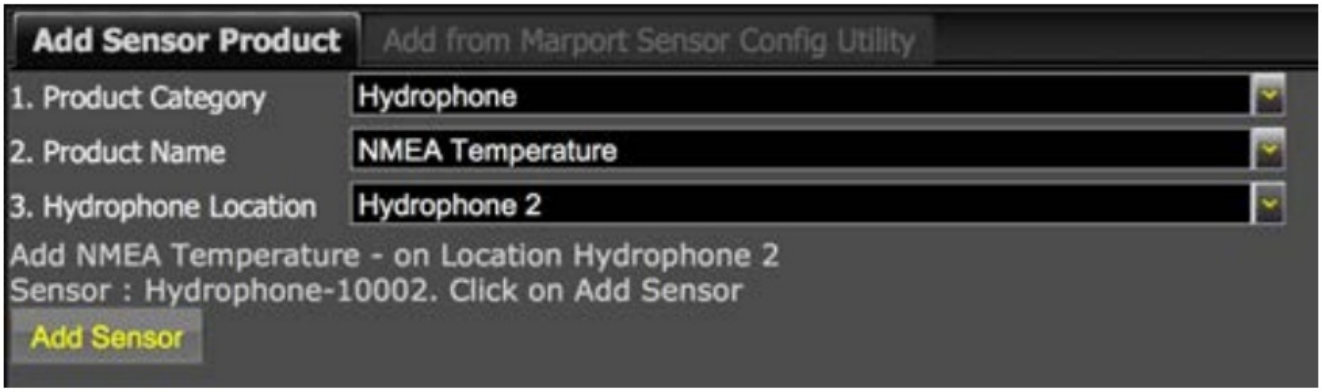
1. From Scala/Scala2, click Menu > Expert Mode and enter the password copernic.
2. Scala Click Menu > Receivers.
3. Scala2 Right-click the IP address of the receiver at the bottom of the page, then click Configure Receiver.
4. From the left side of the page, click Sensors.

5. Under Add Sensor Product:

   a) Select Hydrophone in the Product Category menu.

   b) In the Product Name menu, select NMEA temperature if using an NMEA converter junction box, or NTC temperature if the hydrophone is connected to an NTC input.

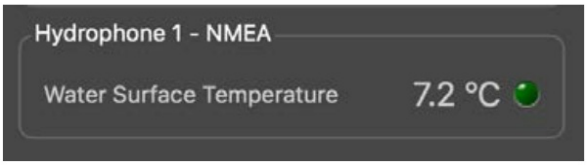
   c) In Hydrophone Location, select the number of the receiver's port on which the hydrophone is connected.

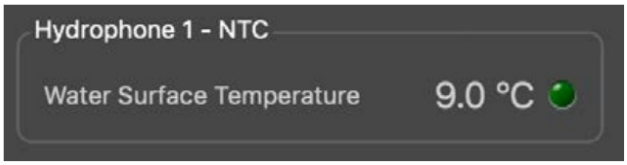


d) Click Add Sensor.

Results

The water temperature is displayed in Scala/Scala2, in the control panels, under Scala Sensors Data Scala2 / Mx.





Understanding Receiver LEDs

Boot sequence

When you power on the receiver, the LEDS on the receiver must light up the following way:

- Hydrophone LEDs become blue / red / green.
- LED in the letter A becomes blue / green / red, then stays red.
- When data are emitted or received, ETH LED blinks green.

Hydrophone LEDs

The LEDs on the hydrophone inputs identify the type of hydrophone that is connected to the receiver.

- Blue: passive hydrophone
- Red: active hydrophone
- No light: no configured hydrophone

Maintenance and Troubleshooting

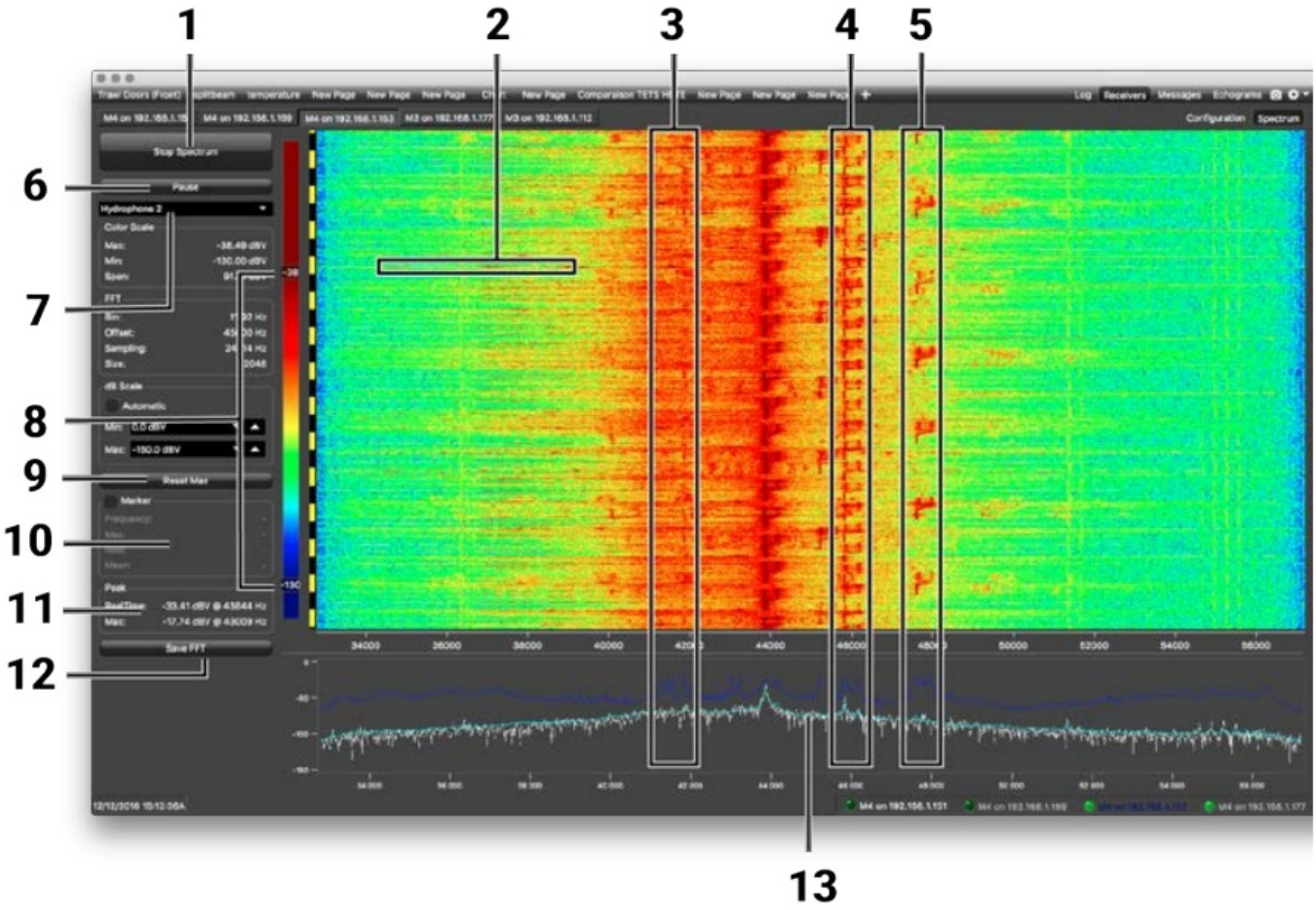
Read this section for troubleshooting and maintenance information.

Interference Check

You can check if there is noise interfering with the reception of signals.

Scala Spectrum Analyzer Display

The following picture explains the main parts of the spectrum analyzer page on Scala/Scala2.



1. Start/Stop spectrum analyzer
2. Noise interference
3. Pulses of the sensors (PRP)
4. Narrow band/HDTE signals
5. Door sounder signals
6. Pause spectrum analyzer
7. Select hydrophone
8. Drag to adjust color scale
9. Reset the Max line.
10. Marker: display frequency and levels of noise (dB) at the mouse pointer location on the graph.
11. Peak:
    - RealTime: latest highest level of noise recorded.
    - Max: highest level of noise recorded since the beginning of the spectrum.
12. Export recorded max, mean and real time noise levels in a txt file.
13. Dark blue line: maximum signal level
    - Cyan line: average signal level

• White line: last received signal level

Scala Checking Noise Interference

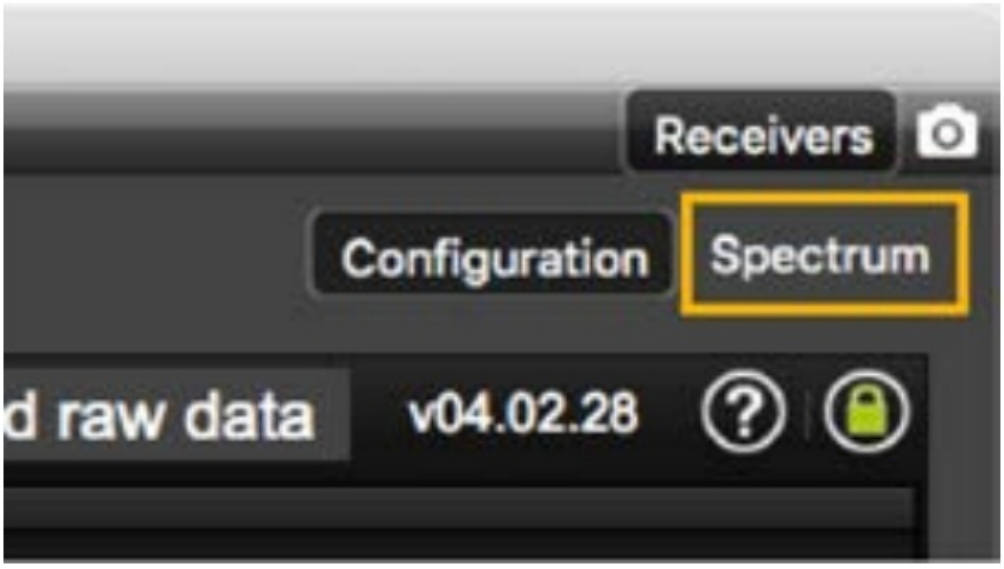
You can use the spectrum analyzer to check the noise level of the hydrophones and check for interference.

About this task

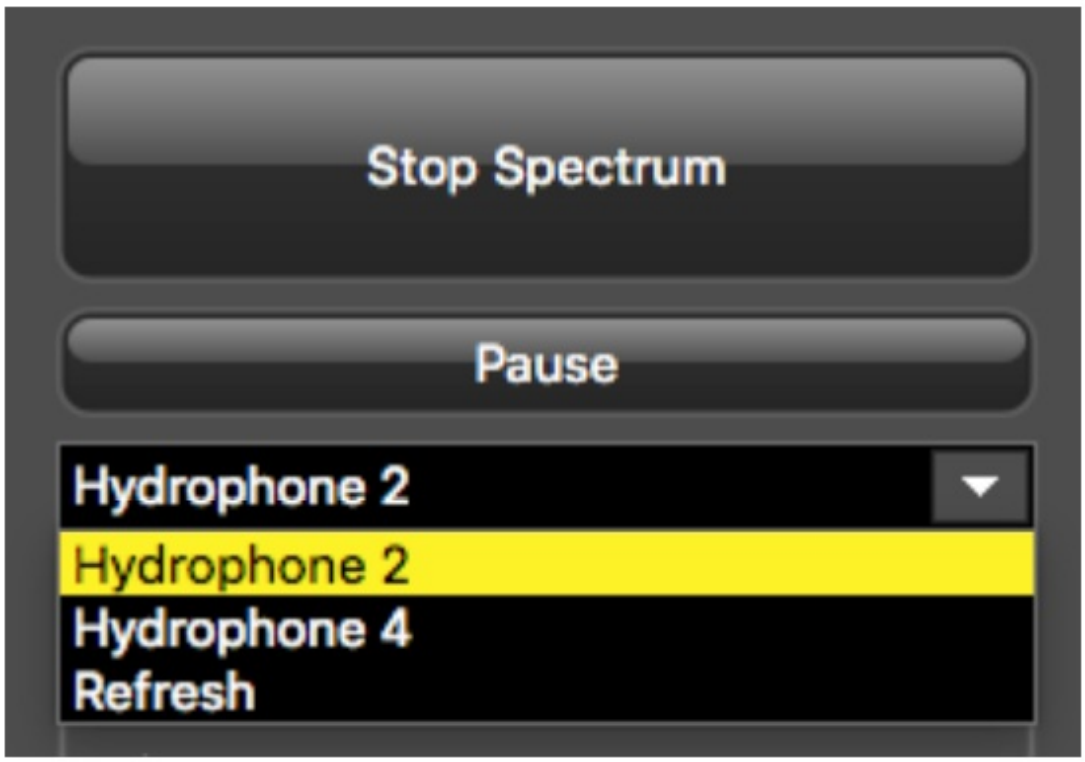
See Spectrum Analyzer Display on page 25 for details about the spectrum analyzer display.

Procedure

1. Click Menu > Expert Mode and enter the password copernic.
2. Again in the menu, click Receivers.
3. From the top right corner of the screen, click Spectrum.



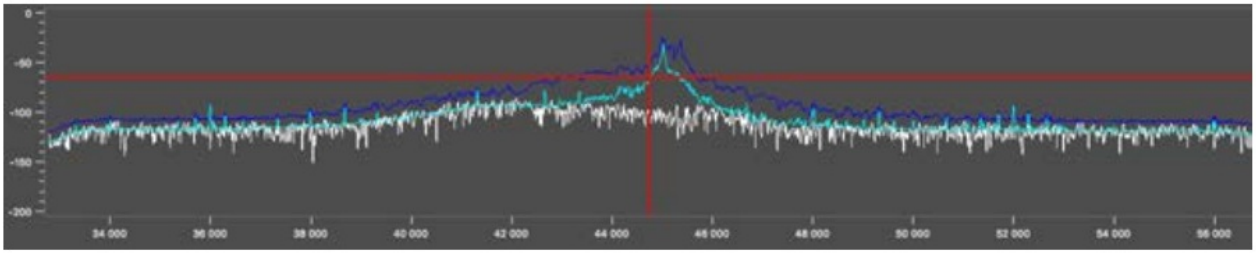
4. Select the hydrophone you want to test. Only the hydrophones that are switched on are displayed. Select refresh to update the list.



5. From the top left corner of the screen, click Start Spectrum.

   The graph at the bottom of the page shows three levels of noise in dBV:

1. RealTime (white): level of noise recorded in real time.
2. Mean (cyan): mean recorded level of noise. It is useful to assess the noise floor.
3. Max (dark blue): shows the latest highest level of noise recorded. It is useful to see on which frequencies are the sensors.



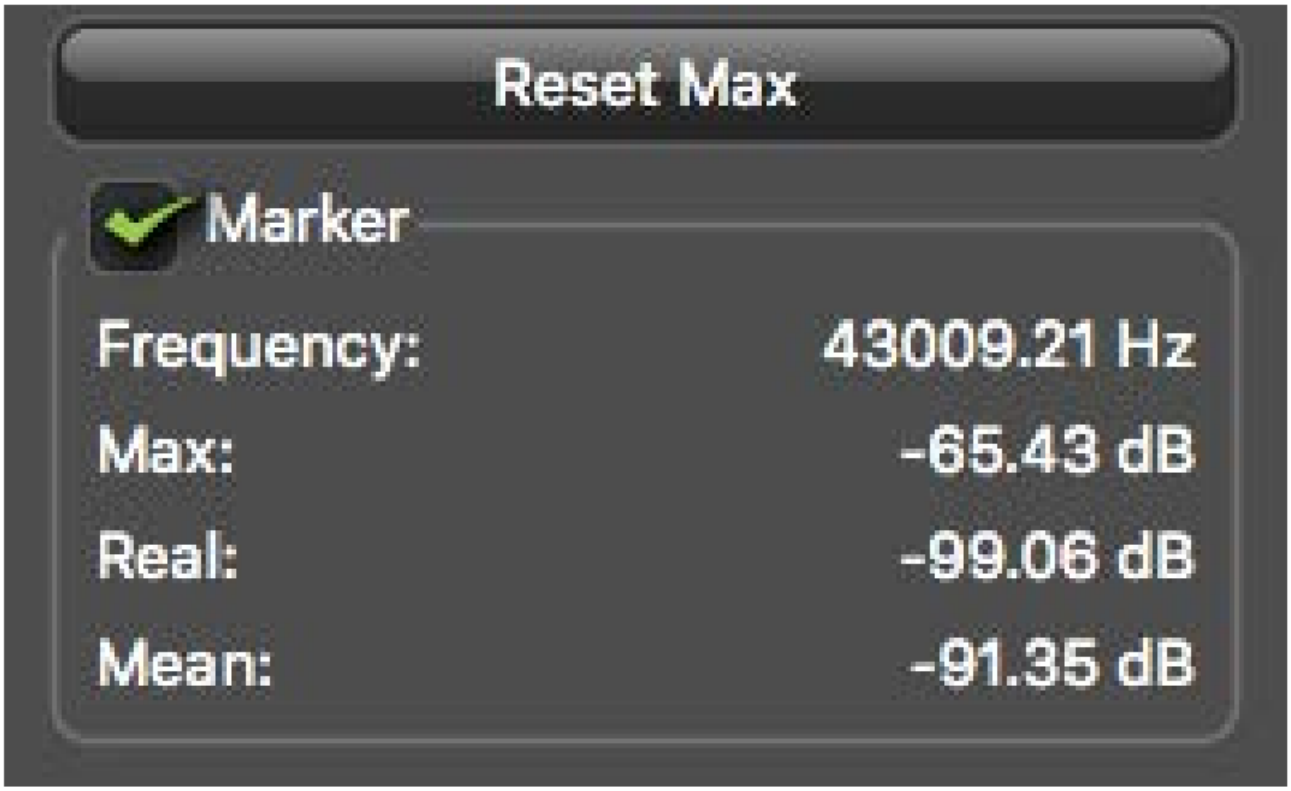
The acceptable average level of noise depends on the conditions (distance from the sensor to the hydrophone, fishing method, type of hydrophone). You can have better performance with the following levels:

• Active wideband hydrophone with high/low gain: below -100 dBV

• Active narrowband: NC-1-04 below -80 dBV / NC-1-07 below -100 dBv

• Passive hydrophone: below -110 dBV

6. To see the maximum, mean and real time measures of noise level at a specific frequency, select Marker on the left side of the screen and move the mouse over the graph.



Frequency and levels of noise (dB) at the mouse pointer location are displayed under Marker.

7. Under Peak, you can check:

• RealTime: the latest highest level of noise recorded.

• Max.: the highest level of noise recorded since the beginning of the spectrum.

8. Check that there is more than 12dBV between the maximum noise level (dark blue line) and the average noise level (light blue line) on the peak of sensor frequencies.
9. If you changed the configuration of the hydrophone or sensors, click Reset Max to reset the dark blue line showing the maximum level of noise.
10. To save data recorded by the spectrum in a *.txt file, click Save FFT.

The FFT file lists for the entire bandwidth used by the hydrophone (frequencies are in Hz) the maximum and mean levels of noise since the FFT export has started and the last real time level of noise before the export (dBV).

FFT level for Hydrophone 1 of Receiver 192.168.1.153			
Freq	Max	RealTime	Mean
32793	-129.07	-136.64	-138.50
32804	-129.31	-138.41	-139.65
32816	-128.72	-142.89	-139.02
32828	-128.09	-147.78	-139.86
32840	-127.95	-143.07	-140.06

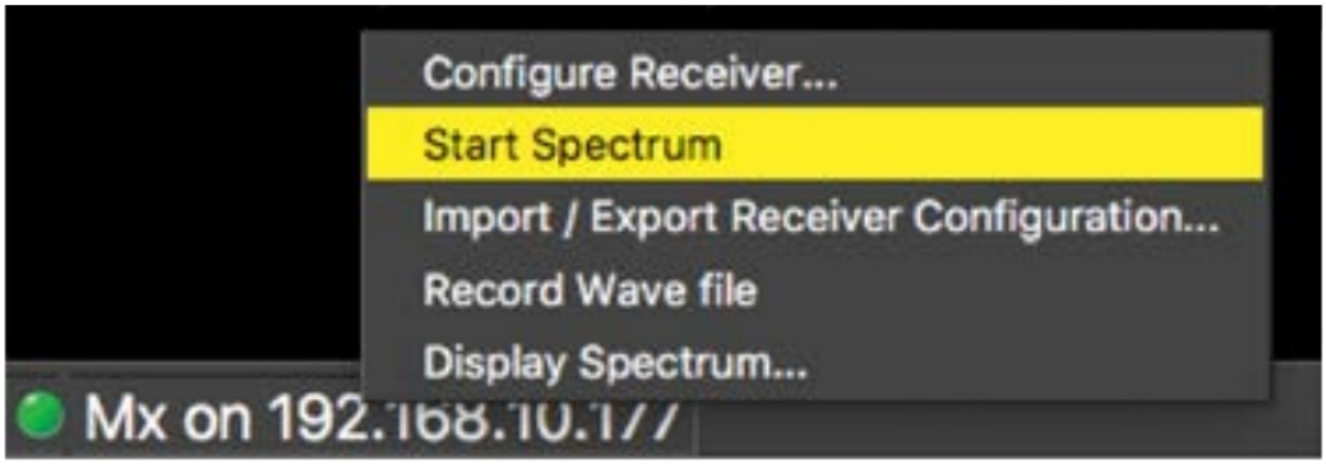
11. When you have enough data, click Stop Spectrum.

Scala2 **Checking Noise Interference**

Use the spectrum analyzer to check the noise level of the hydrophones and check for interference.

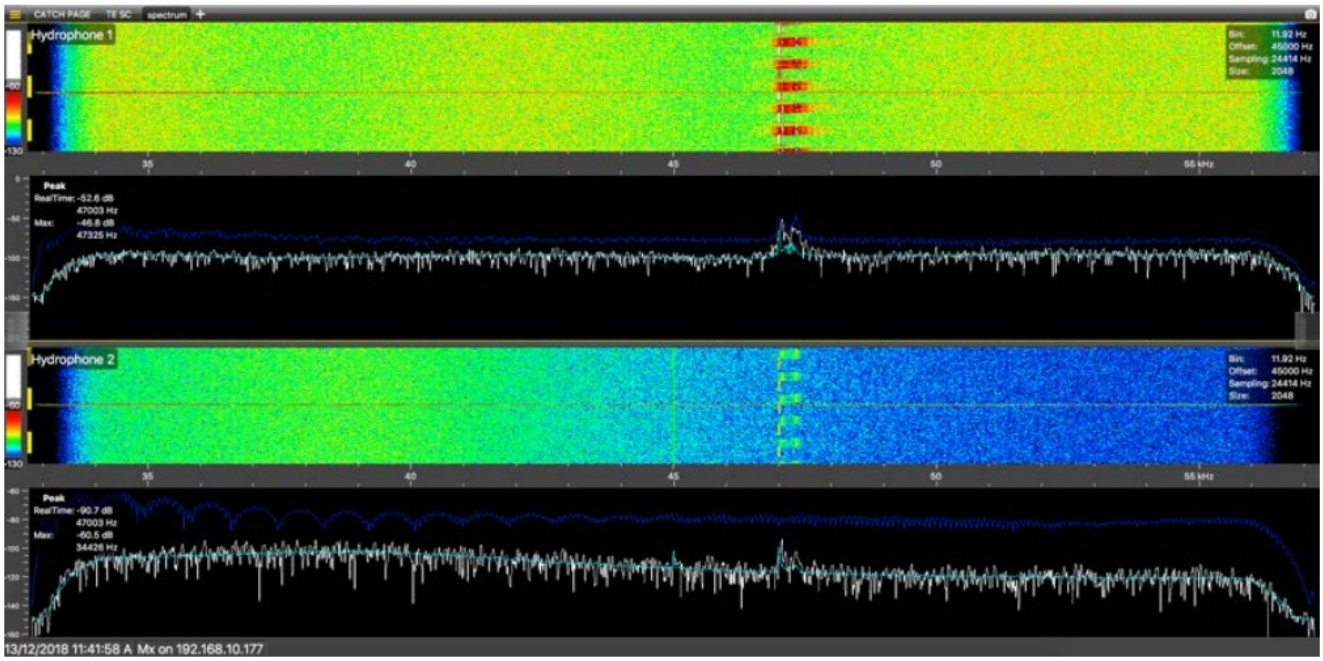
Procedure

1. Click Add  to create a new page on which you will add the spectrum analyzer(s).
2. Right-click the IP address of the receiver in the status bar and click Start Spectrum.



3. Open the control panels and go to the Mx panel.
4. Go to Hydrophone data, then drag and drop Spectrum data to a page. These data appear only when the spectrum has been started.

5. The spectrum analyzer is displayed. You can display up to 6 spectrum analyzers at the same time. Below is an example of a page with two spectrum analyzers.



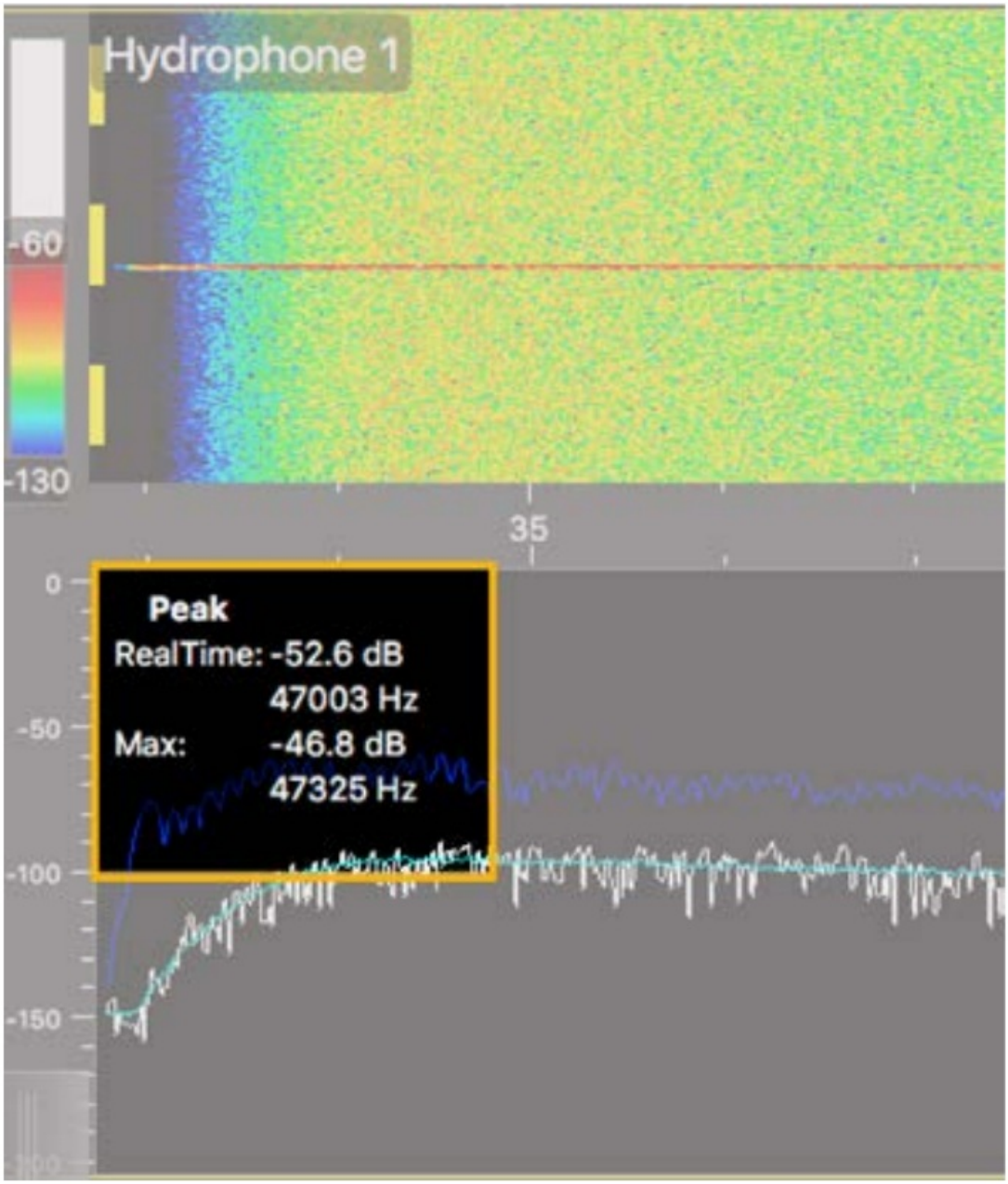
The FFT plot shows three levels of noise in dBV:

1. RealTime (white): level of noise recorded in real time.
2. Mean (cyan): mean recorded level of noise. It is useful to assess the noise floor.
3. Max (dark blue): shows the latest highest level of noise recorded. It is useful to see on which frequencies are the sensors.

   The acceptable average level of noise depends on the conditions (distance from the sensor to the hydrophone, fishing method, type of hydrophone). You can have better performance with the following levels:

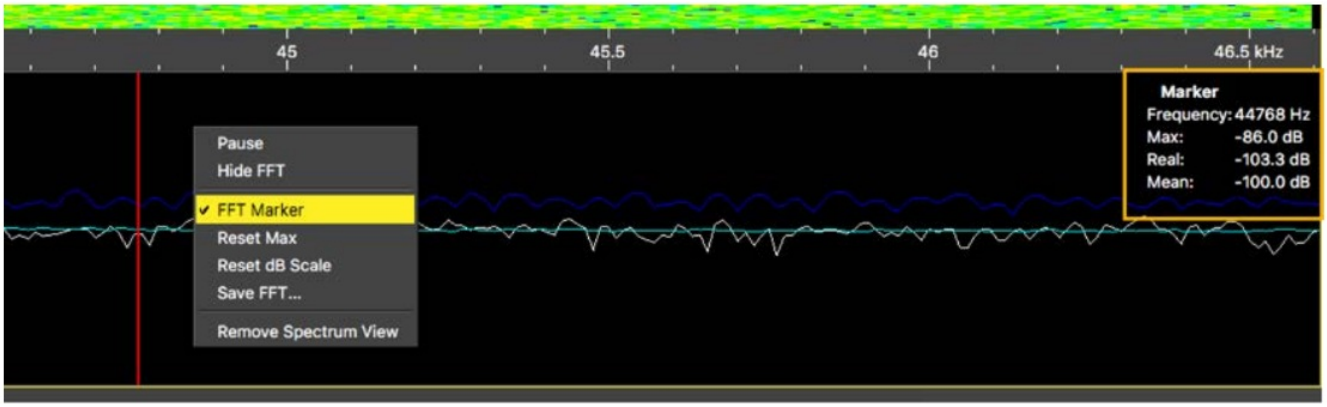
   • Active wideband hydrophone with high/low gain: below -100 dBV
   • Active narrowband: NC-1-04 below -80 dBV / NC-1-07 below -100 dBv
   • Passive hydrophone: below -110 dBV

6. Scroll on the frequency or dBV scales to zoom in and out.
7. Under Peak, you can check:



- RealTime: the latest highest level of noise (dBV) recorded and its frequency.
- Max: the highest level of noise recorded since the beginning of the spectrum and its frequency.

8. Check that there is more than 12 dBV between the maximum noise level (dark blue line) and the average noise level (cyan line) on the peak of sensor frequencies.
9. If you changed the configuration of the hydrophone or sensors, right-click the graph and click Reset Max to reset the dark blue line showing the maximum level of noise.
10. To check the maximum, mean and real time measures of noise level at specific frequencies:
    a) Right-click the FFT plot and click FFT Marker.
    b) Click and drag the marker at a specific point.
    Frequency and levels of noise at the marker position are displayed on the right side of the graph.



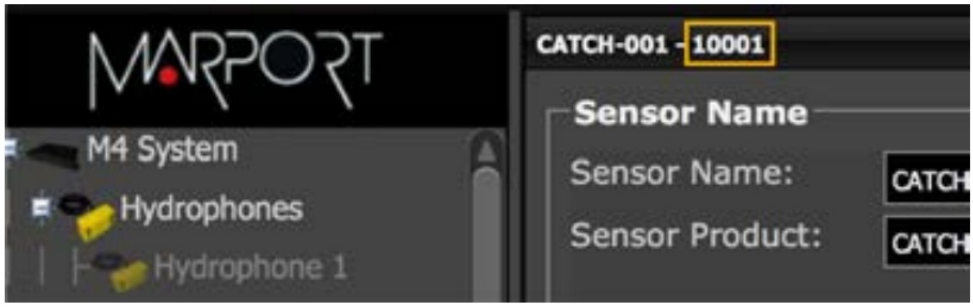
11. Right-click the spectrum and click Pause if needed.
12. To save data recorded by the spectrum in a *.txt file, right-click the FFT plot and click Save FFT.
    The FFT file lists for the entire bandwidth used by the hydrophone (frequencies are in Hz) the maximum and mean levels of noise since the FFT export has started and the last real time level of noise before the export (dBV).

FFT level for Hydrophone 1 of Receiver 192.168.1.153			
Freq	Max	RealTime	Mean
32793	-129.07	-136.64	-138.50
32804	-129.31	-138.41	-139.65
32816	-128.72	-142.89	-139.02
32828	-128.09	-147.78	-139.86
32840	-127.95	-143.07	-140.06

13. Right-click the spectrum analyzer and click Hide FFT to hide the FFT plot.
14. Right-click the IP address of the receiver in the status bar and click Stop Spectrum.

Estimating the Efficiency of Hydrophones

You can use the page Messages to check the efficiency of the hydrophones.

1 Noise (dBv)	You will have better performance with the following levels: • Active wideband hydrophone with high/low gain: below -100 dBV • Active narrowband: NC-1-04 below -80 dBV / NC-1-07 below -100 dBv • Passive hydrophone: below -110 dBV
2 SNR	• SNR is correct above 20 fro PRP sensors, above 10 for NBTE sensors. • Below these levels, SNR is low, causing a discontinuous signal
3 Period of data	This is the interval between 2 signals that have been well received. It should be 1 to 6 seconds for NBTE signals. For PRP signal, it should correspond to the telegr am intervals.
4 ID of the sensor	This is the ID of the sensor transmitting data. To know the ID of a sensor, go to th e system web page, then click the name of the sensor in the system tree view on t he left side of the page.  You can use this ID to filter the messages.
5 Hydrophone	Number of the hydrophone.
6 Autoswitch selection	• DIFFUSE: Hydrophone chosen by the autoswitch. The chosen hydrophone is th e one having the higher SNR and least variation of data. Received data are used i n Scala/Scala2. • DELETED: Data are received but they are not used in Scala/Scala2.
7 Console	Select to see hydrophone messages.
8 Filter	Use to filter messages.

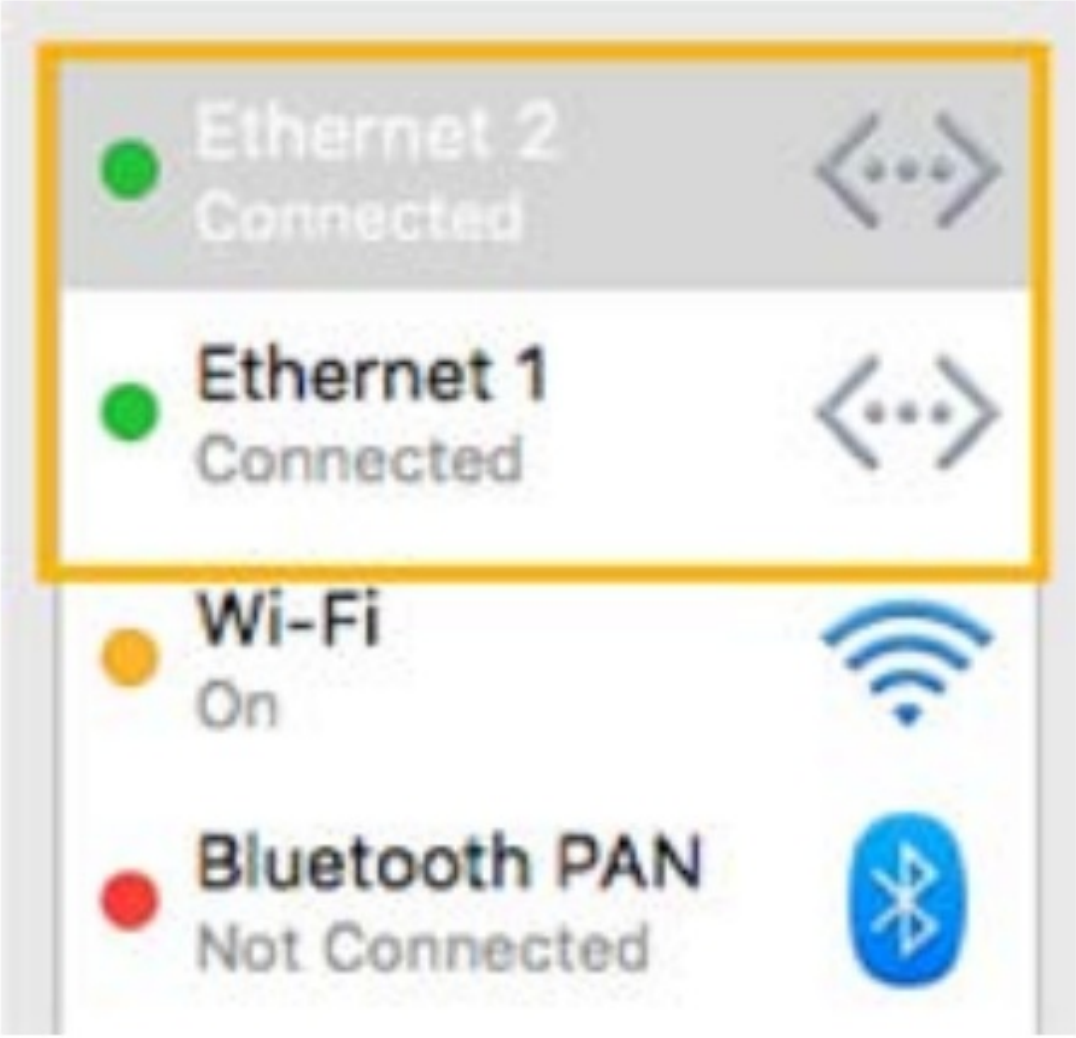
Troubleshooting

Learn how to solve common problems.

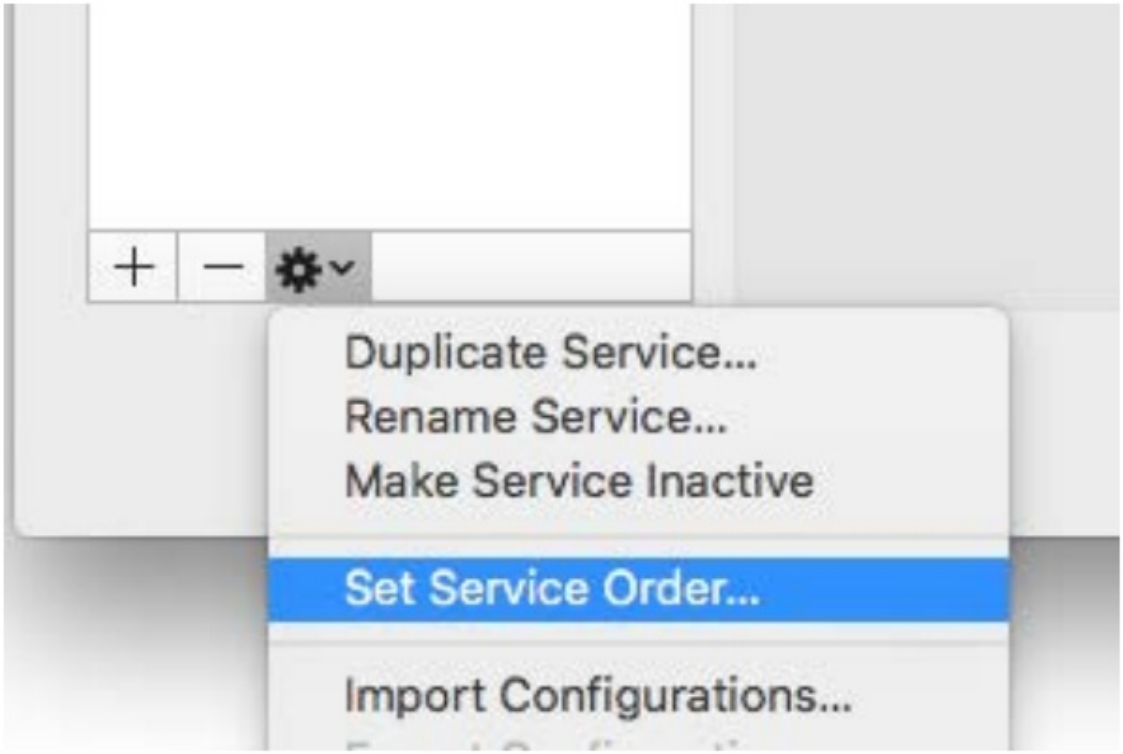
No Internet Access

You cannot connect to the internet or see the system control panel page on Firefox web browser.
The order of the computer networks is wrong.

1. From the top left corner of the screen, click Apple Menu > System Preferences > Network.
2. Make sure that the network called Ethernet 2 is at the top of the list, then is followed by the network called Ethernet 1.

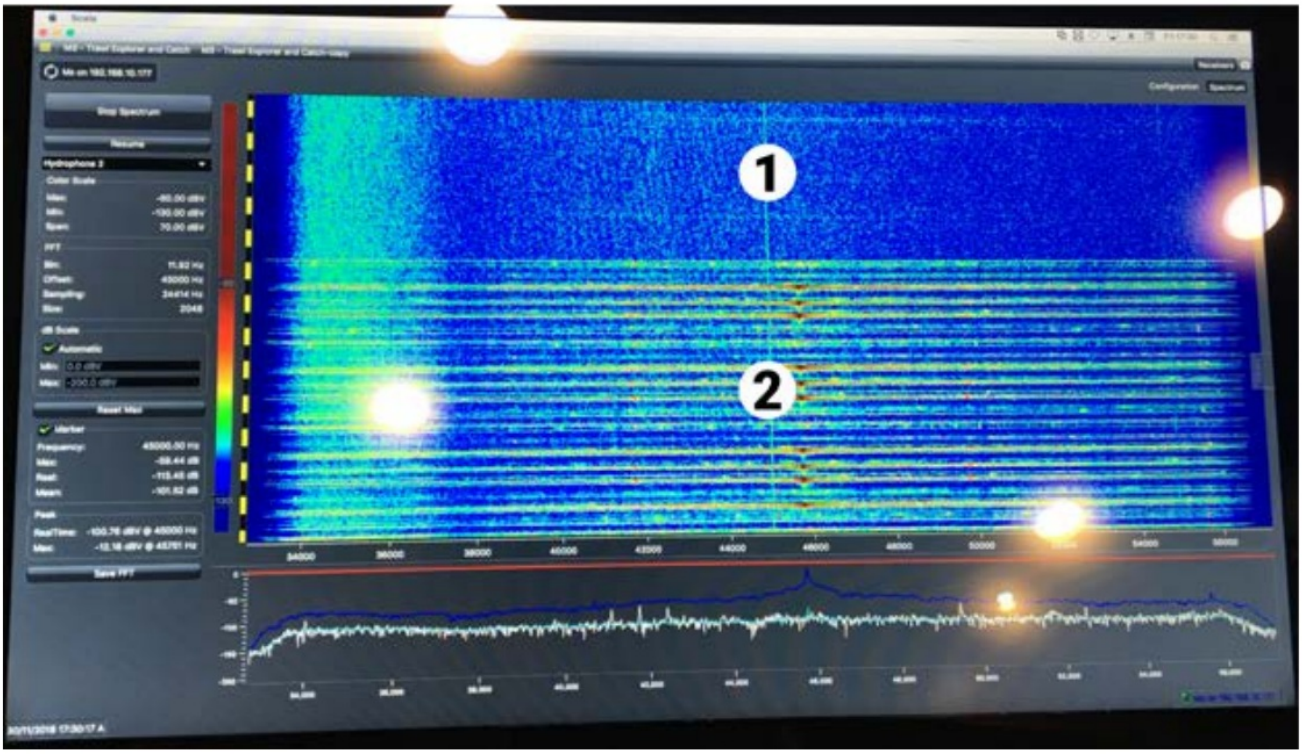


3. If not, to change the order click the tooth wheel icon at the bottom of the list and select Set Service Order.



Antifouling System Causes Interferences

Sonihull™ Ultrasonic Antifouling System causes important noise interference. You can see below an example of spectrum on a hydrophone when Sonihull™ system is off (1) and when it is switched on (2).



You need to switch off Sonihull™ system while fishing.

Giving Remote Access to the Computer

If you have an issue with the system, you may need to give remote access to the computer to the support team with TeamViewer application.

Before you begin

You need to have access to a good internet connection.

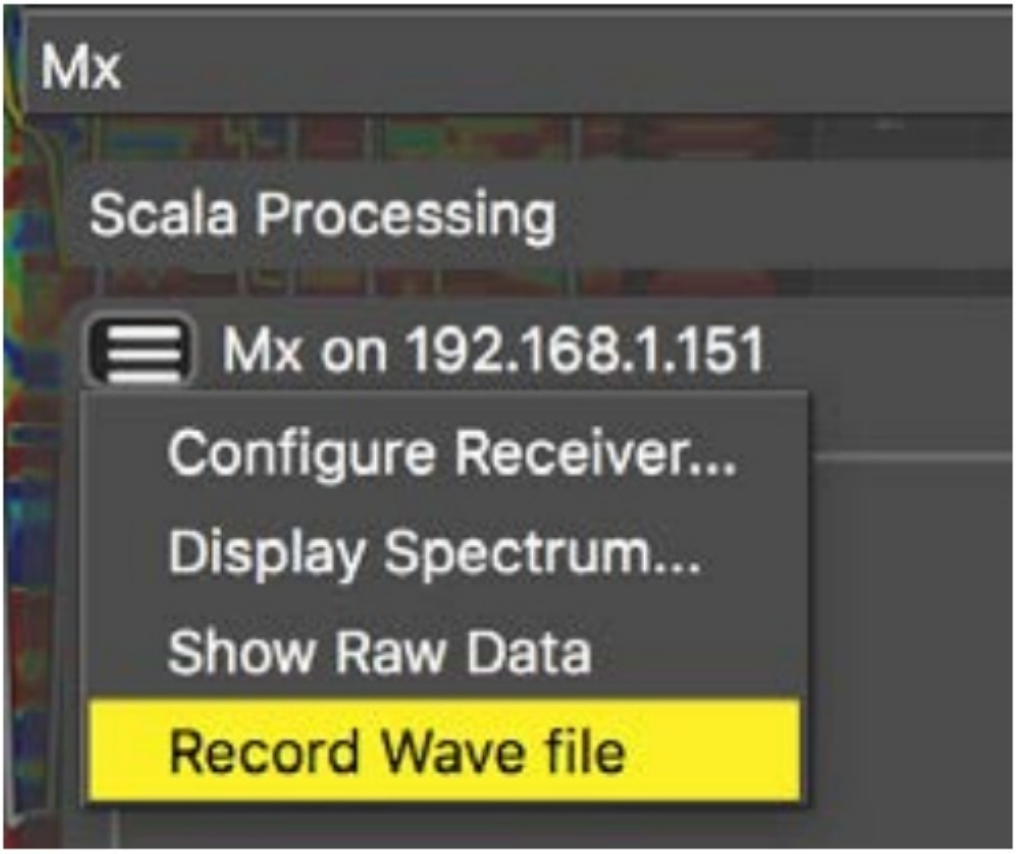
Procedure

1. From the Launchpad or Dock, click TeamViewer.

2. Check that you have the message Ready to connect at the bottom left corner of TeamViewer. If the message is Not ready it means you have no internet connection.
3. You can give access to your computer to the support team by giving them the ID and Password displayed under Allow Remote Control.

Recording Audio Files
If there are issues with the reception of sensor data or with noise interference, the support service may need a recording of the system noise in order to analyze it.
Procedure

1. From the lower right corner of Scala/Scala2 window, right-click the receiver name, then click Record WAV Files. The receiver name becomes yellow. The recording lasts 180 seconds.
2. Open the control panels and go to the Mx panel. Click the menu icon next to the name of the receiver and click Record Wave file.



3. When the recording is finished, click OK to download it. The audio file is saved in:
4. Send the recording to Marport support service for a diagnosis.

Support Contact

You can contact your local dealer if you need maintenance on your Marport products. You can also ask us at the following contact details:

FRANCE Marport France SAS 8, rue Maurice Le Léon 56100 Lorient, France **supportfrance@marport.com**	**ICELAND** Marport EHF Fossaleyni 16 112 Reykjavik, Iceland **supporticeland@marport.com**
NORWAY Marport Norge A/S Breivika Industrivei 69 6018 Ålesund, Norway **ggrimsson@marport.com**	**SOUTH AFRICA** Marport South Africa Cape Town, Western Cape 11 Paarden Eiland Road Paarden Eiland, 7405 **csanter@marport.com**
SPAIN Marport Spain SRL Camino Chouzo 1 36208 Vigo (Pontevedra), Spain **supportspain@marport.com**	**USA** Marport Americas Inc. 12123 Harbour Reach Drive, Suite 100 Mukilteo, WA 98275, USA **supportusa@marport.com**

Appendix

Frequency Plan
It is important to carefully plan the setup of your sensors before adding them to the system. You can create a table with a list of frequencies and complete it when you add sensors.
Boat & Channel Codes
This list shows the standard frequencies for PRP telegrams. When you configure boat codes, make sure to respect the correct interval between frequencies (see table above).

Codes		
BC/CH	Frequency	FID (Scanmar)
C-1/CH1	42833	45
C-1/CH2	41548	32
C-1/CH3	41852	35
C-1/CH4	40810	25
C-1/CH5	42500	42
C-1/CH6	43200	49
C-2/CH1	42631	43
C-2/CH2	41417	31
C-2/CH3	41690	33
C-2/CH4	40886	26
C-2/CH5	42300	40
C-2/CH6	43100	48
C-3/CH1	42429	41
C-3/CH2	41285	30
C-3/CH3	41548	32
C-3/CH4	40970	27
C-3/CH5	42100	38
C-3/CH6	43000	47
C-4/CH1	42226	39
C-4/CH2	41852	35
C-4/CH3	41417	31
C-4/CH4	41160	29

C-4/CH5	42700	44
C-4/CH6	43300	50
C-5/CH1	42024	37
C-5/CH2	41690	33
C-5/CH3	41285	30
C-5/CH4	41060	28
C-5/CH5	42900	46
C-5/CH6	43400	51
C-6/CH1	39062	3
C-6/CH2	39375	7
C-6/CH3	39688	11
C-6/CH4	40000	15
C-6/CH5	40312	19
C-6/CH6	40625	23
C-7/CH1	38906	1
C-7/CH2	39219	5
C-7/CH3	39531	9
C-7/CH4	39844	13
C-7/CH5	40156	17
C-7/CH6	40469	21

Frequencies and intervals

The diagrams below show the bandwidth of the different types of Marport sensors and intervals you must respect when adding other sensors.

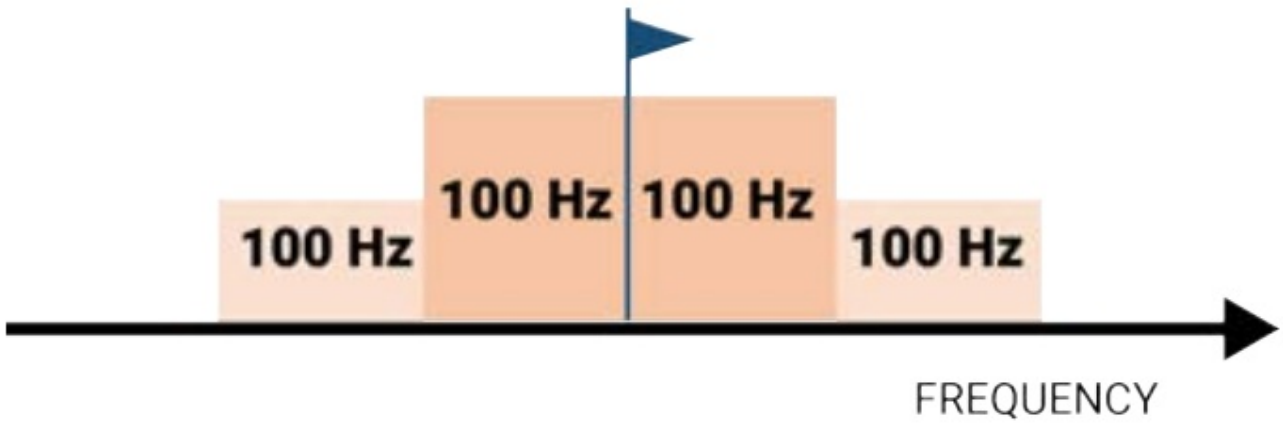


Figure 1: PRP sensors (e.g. Catch sensor, Trawl Speed, Spread sensor…)
Example: If the frequency of the sensor is 40kHz, there should be no sensors between 39.9-40kHz and 40-40.1kHz.

Figure 2: NBTE sensors (e.g. Speed Explorer, Trawl Explorer, Catch Explorer, Door Sounder)
Example: If the frequency of the sensor is 40kHz, there should be no sensors between 39.8-40kHz and 40-40.6kHz.

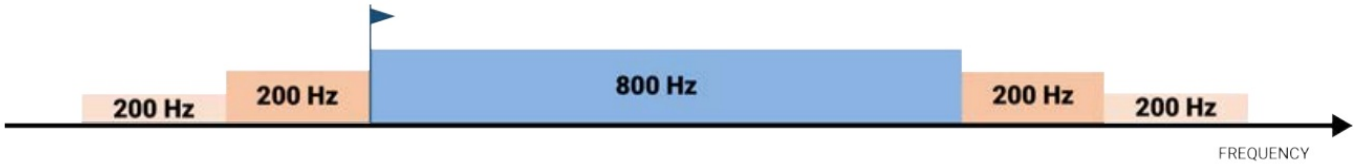


Figure 3: HDTE narrow band mode
Example: If the frequency of the sensor is 40kHz, there should be no sensors between 39.8-40kHz and 40-41kHz.

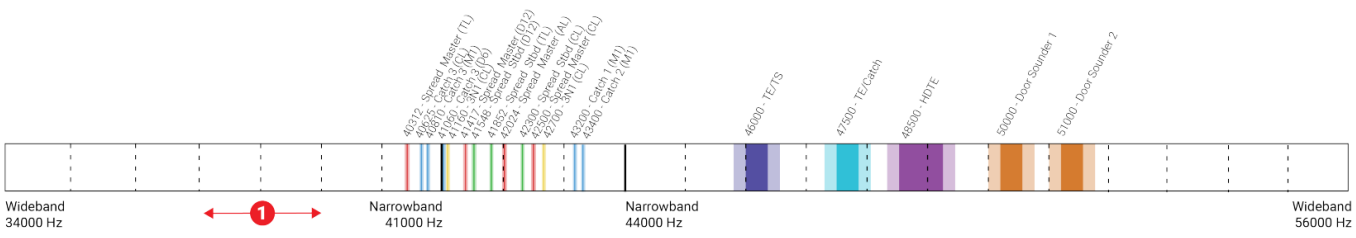
Figure 4: HDTE wide band mode
Example: If the frequency of the sensor is 40kHz, there should be no sensors between 39.8-40kHz and 40-42.6kHz.

	Frequency of the sensor
	Bandwidth
	Mandatory distance with other sensors
	Recommended distance with other sensors

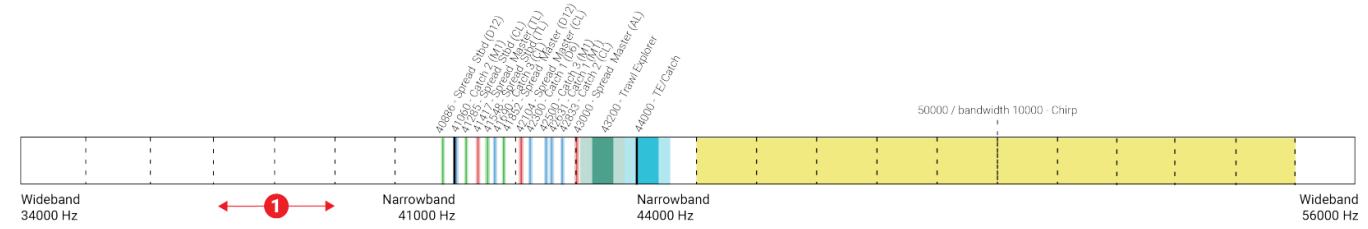
Examples of frequency allocations

- We recommend to allocate frequencies between 34 and 56 kHz for wideband hydrophones and between 41 kHz and 44 kHz for narrowband hydrophones.
- Echosounders are usually placed around 38 kHz, make sure to allow enough distance with them.

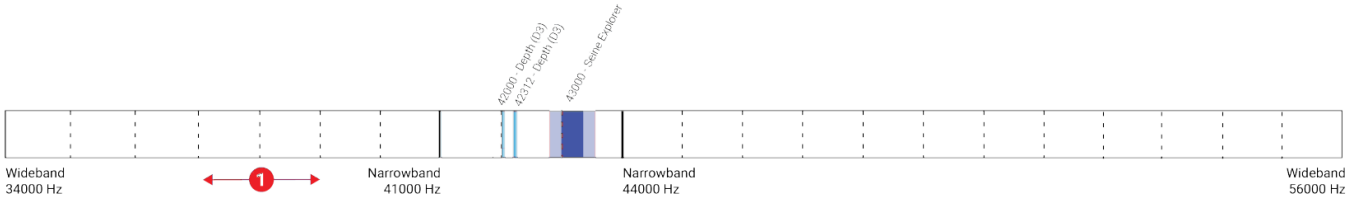
Example of a system with Spread, Catch, Trawl Speed sensors and Speed Explorer, Catch Explorer, HDTE and Door Sounder.



Example of a system with Spread sensors with positioning, Catch sensors, Trawl Explorer and Catch Explorer.



Example of a system for purse seining, with a Seine Explorer and depth Seine sensors.

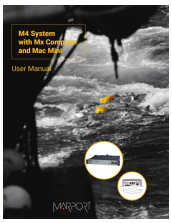


Bandwidth

Mandatory distance with other sensors

1 Avoid allocating frequencies between 37 and 39 kHz because this range is generally used by echosounders.

Documents / Resources

	MARPORT M4 System with Mx Computer and Mac Mini [pdf] User Manual M4 System with Mx Computer and Mac Mini, M4, System with Mx Computer and Mac Mini, Computer and Mac Mini