

# **BLUE OCEAN VDR / S-VDR**

## **Chapter 2 Crew Supported Maintenance**

## 2. Normal Operation

### Purpose

The purpose of this manual is to explain the basic functionality of the **BlueOcean Software** for the trained user and the actions that it will allow for simple system testing or setup. The software has categorized functions available to users according to their user privileges.

This manual is not intended for the officer on duty.

NOTE: The screens can vary according to configuration and dimming conditions.

### BlueOcean modes and privileges

This software is highly protected in order to achieve its main goal, the uninterrupted recording of ship data. For this reason it will not allow any unauthorised users to interfere with its recording performance. Even if a user legally changes his privileges to the highest possible type, the system will keep record of this change, to protect system performance and data integrity.

There are three user modes available:

- **User mode:** The user can only perform special diagnostic tests to check the systems performance. A user of this kind will usually check the current status and readings of the system.
- **Supervisor mode:** The user can check incoming data in raw form and even make changes in certain system basic configuration properties.
- **Service mode:** The user has full unlimited access to the system and its data. This mode is only available during installation or system service to highly trained personnel and is out of this manual's scope.

In normal operation the BlueOcean VDR- SVDR is working without the need of human intervention and with front door closed. A key opens the front case. These key should be handled to the officer on duty and are used to reset the audible malfunction alarm and for alarm lamp test. Inside there is the keyboard and the mouse, used in adjustments and servicing. Only trained personnel should use these facilities. The power button under the cover is the emergency power off of the main unit and should be used only for servicing the unit.

The **BlueOcean Software** consists of three different applications:

**2.1 BlueBox.exe:** This is the main program that is responsible for the VDR functionality of the system. Needless to say this application is absolutely critical for the system's performance.



Picture 1.1. **BlueBox** main window

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**Note** This application is started or restarted by another module of the BlueOcean Software, called “BlueOcean **WatchDog**”. The user either in Normal or Supervisor mode is not allowed to exit or start BlueBox.exe.

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The main window displays the basic ship properties as they are currently being recorded by the ship sensors and electronic equipment. If any of these values is Null then the corresponding source is out of order or it is not connected properly to the system.

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**Note** The displayed Date and Time are taken from a reliable on-line time/date source such as the GPS. In case that this device is currently not available the system will display the time/date from its own clock.

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- The **Alarms** table displays all the ongoing alarms coming from the ship and the time of their last activation.
- The **Mic Test** button initiates a microphone functionality test for all the present microphones of the system. The test runs automatically every 12 hours.
- The **Radar** button shows/hides the radar picture window.
- If the word “NMEA” appears in orange at the left side of the screen then at least one NMEA channels exhibits CRC errors. If it is of a red colour then at

least one channel is not functioning for at least 30 seconds. If either of these alarms persists for more than 2 minutes then contact service.

The Menu bar contains the following items:

- **File:** This sub-menu is available to all users.



Picture 1.2. The **File** menu items

The first item “**File/Log on**” opens the form shown below that allows the user to submit a valid password and update the programs mode and his own status.

Picture 1.2.1. The Log On form

The second item “**File/Change Password**” allows a supervisor to change the program password.

The item “**File/Exit**” closes the program.

- **Setup:** This sub-menu is only available to Supervisors.

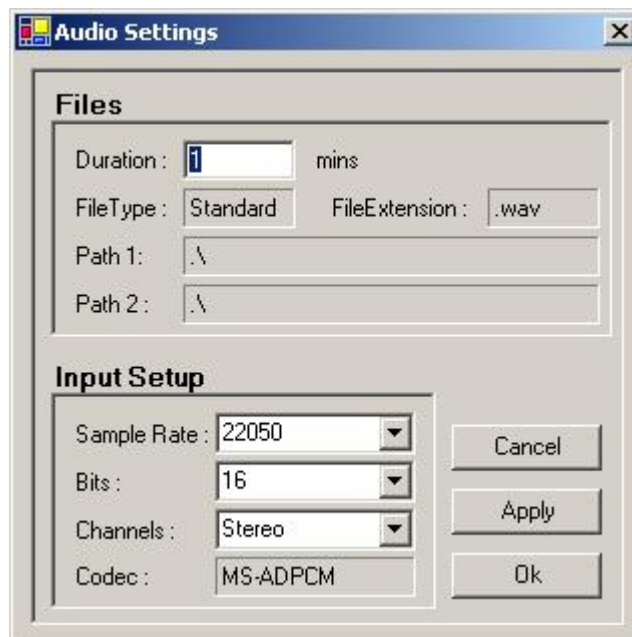


Picture 1.3. The **Setup** menu items

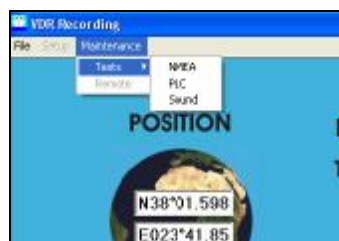
The item “**Setup/Radar**” opens the video setup page from which the supervisor can configure the system video grabber card. The operation of this form is described in “S5 - Video Manual”.

Picture 1.4. The **Radar Setup** form

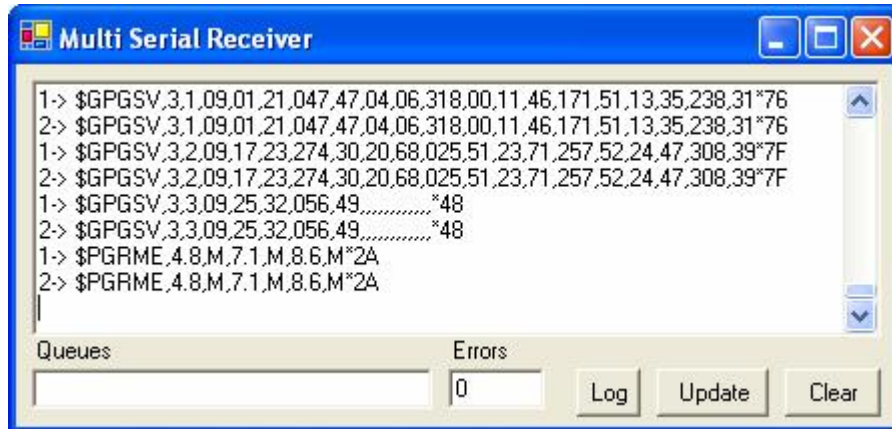
The item “**Setup/Sound**” opens the sound setup page from which the supervisor can configure the system sound capture. The operation of this form is described in “S6 – Sound Manual”.

Picture 1.5. The **Audio Setup** form

- **Maintenance:** This sub-menu gives access to for some windows that may be used for checking the system functionality or debugging. No special permission is needed for these windows.

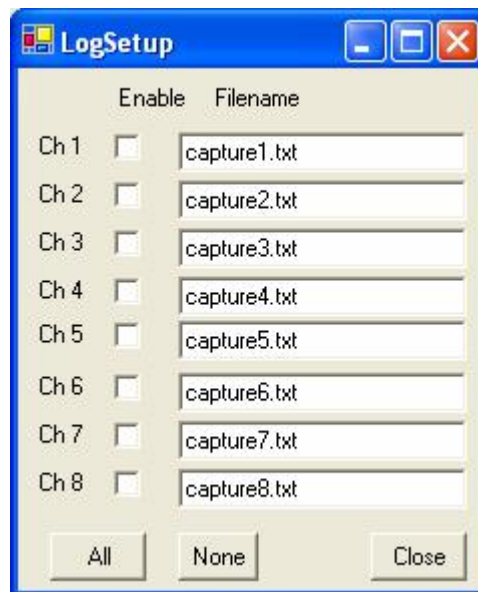
Picture 1.6. The **Maintenance** menu items

The “**Maintenance/NMEA**” command opens the window called **Multi Serial Receiver** that shows all the serial data coming from the NMEA hardware modules of the system.



Picture 1.7. The Multi Serial Receiver

The button “**Maintenance/NMEA/Log**” opens the following form from which the user may select a file to save the incoming data in.



Picture 1.7.1. LogSetup Form

The button “**Maintenance/NMEA/Update**” shows the number of queued up serial data strings.

The button “**Maintenance/NMEA/Clear**” clears the Queues Textbox.

The button “**Start/Stop**” stops and restarts the scrolling of the data to help locate the phrases that the equipment use.

On the right side you can see the status of the serial ports.

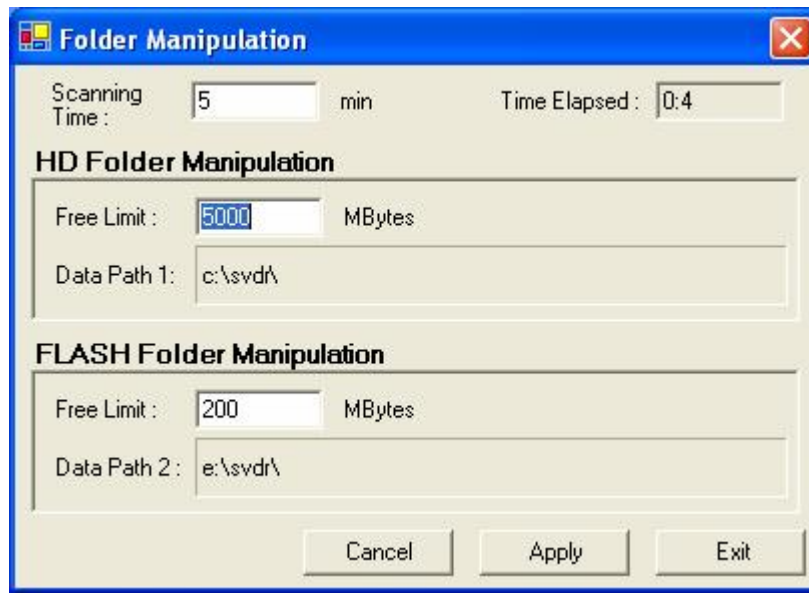
The “**Maintenance/PLC**” command opens the PLC – communications form in which the user may check the system PLC raw values.



Picture 1.8. PLC – Communications Form

The “Maintenance/NMEA” command opens the form “Capture Sound” that controls the sound software module. The operation of this module is described in “S6 – Sound Manual”.

**2.2 FolderManipulation.Exe:** This application is handling the free space of the recording devices (hard disk, capsule disk). It scans both disks in regular intervals and cleans up the oldest data files always leaving a minimum free space available for writing. This application is critical to the system's performance and for this reason it is handled and maintained from the BlueOcean WatchDog. The user normally should never need to access this application.



Picture 2.1. PLC – Communications Form

More information about this module can be found in the manual “U3. Folder manipulation and data storage”.



**2.3 WatchDog.Exe:** This application is an intentionally simple thus steady program that monitors the state of the previous two critical applications. Its purpose is to diagnose their condition and if it decides that one or both of the above applications is not responding properly (or it does not even exist) it will restart it. The activation intervals are the following:

Start up interval for **BlueBox** if it not running at all: 20 secs,

Start up interval for **FolderManipulation** if it not running at all: 10 secs,

Restart interval for **BlueBox** if it not responding: 30 secs,

Restart interval for **FolderManipulation** if it not responding: 90 secs.

When the **WatchDog** runs in normal mode (default) the Task Manager is locked and no unauthorized user can access the system or its functionality. In order to gain access the service engineer must select the **Service User** mode and provide the proper password to unlock this mode.



Immediately after the program switches to Service User mode the Task Manager will be unlocked and the authorised user may now start the Explorer.Exe through the menu **Start/Run/Explorer.Exe**.



The Service User can prohibit the **Watchdog** from constantly restarting the critical applications by unselecting the **Respawn S-VDR** label. When exiting, the **Watchdog** automatically locks the Task Manager. To prohibit that select the **Set Exit Without Locking** label.

### 3. Alarms

The BlueOcean VDR-SVDR has a comprehensive alarm structure. We speak here about the alarms that the unit generates because of internal malfunctions, not the alarms that come from the ship. The ship's alarms require no action on the SVDR and are displayed as a help to the crew.

Over the control unit there are 2 buttons and 3 lamps:

- The green lamp is the "auxiliary power on". It is lit when the 24V come from the ship's auxiliary power. If it is off, the system relies only on ship's 220V ac. The green lamp is tested by pressing the test button, as with all lamps.
- The red lamp is the main control unit "malfunction alarm".
- The yellow lamp is the secondary alarm, generated by the control computer.
- The "test" button lights the lamps and sounds the alarm.
- The "alarm off" button acknowledges the alarm and closes the buzzer.

The alarm sounds if:

- If the main unit stops its normal operation for more than 30 seconds an audible alarm is sounded and the red lamp is on.
- Similarly, when the storage capsule either fails or exhibits high error rate. If the data signals (radar, audio and data) are not being correctly recorded on the final recording medium, the alarm is activated. The bit error rate for digital signals shall not exceed 1 in  $10^8$ .
- If external power to the VDR fails. The alarm sounds for 2 minutes and then stops in order to conserve power.
- Similarly, the alarm sounds if the microphone test fails.

When the red button is pressed it resets the audible alarm.

The alarm indicators are protected by the first level keys of the case. Only the officer on duty should have these keys and be allowed to reset an alarm.

### 4. Night Operation

VDR/SVR equipment is likely to be fitted in places which need to have low levels of ambient lighting, namely in the bridge. Adequate adjustable illumination is provided in the equipment to enable identification of controls and facilitate reading of indicators at all times. For the dimming the output of the screen a potentiometer is provided at the lower right corner of the screen so that the light of the screen will be adjusted in order not to interfere with navigation.

An external adjustable illumination is required as described in installation manual.

The illumination is adjustable to extinction, except from warning and alarm indicators on screen, which are illuminated in the warning/alarm condition.

There are not indicators required for switching on/off or resetting the equipment: The VDR must be constantly on and is self-resetting, if a reset, due to a malfunction, is needed.

The alarm indicators ("distress alerting") are clearly visible in all appropriate conditions of ambient illumination.

It is not recommended to do maintenance or testing of the equipment under bad lighting conditions. Particularly, the officers are clearly and positively warned NOT to allow service or repair of the equipment under bad lighting conditions: line voltages of 220V are present which could be lethal if not appropriately handled.