

## SKYWAVE IDP 690 PAYS TERMINAL - QUICK START GUIDE

Pay As You Sail (PAYS) is a system to collect payment for the use of ENC charts.

SKYWAVE IDP-690  
MARITIME TERMINAL



The vessel location is tracked and then vessel is charged for each ENC chart that has actually been sailed on. The actual charts used are determined by the Chart Agent using only the position of the ship.

A Skywave terminal is used to securely send the position of the ship back to the Chart Agent. The terminal contains a GPS receiver to determine location and a transmitter which communicates via a satellite. This is the only equipment that needs to be installed on the vessel.

This guide explains briefly how to install the Skywave terminal and power it up.

## LOCATION

Just like any GPS antenna the Skywave terminal needs a reasonably clear view of the sky. Try to find somewhere with good all round visibility. The communications satellite is geostationary over the equator. From Northern Europe this will be about 20° above the horizon to the south east. Almost any position will have a funnel or mast blocking visibility in some directions. This is not a problem so long as only a small angle of visibility is blocked.



## POWER

The terminal requires low voltage DC power. Any voltage between 9V and 32V is suitable.

Recommended installation is direct to ships 12VDC or 24VDC fused (2A) supply using the 25 m cable supplied with the Skywave box. One end has a plug on it – this goes into the Skywave box, the other end is 2 bare wires. The blue wire with black tip is ground (0V) and the brown wire with red tip is +9..32V.



The cable will must be routed to the power supply. If you are lucky there will be one close to the Skywave terminal mounting location.

Sometimes it may be possible to use the supply to some existing equipment, such as a light, mounted nearby. The cable may need to be routed to inside a cabin or the bridge. Look at how other cables have been installed. There may be a swan neck, cable gland or some other way through the bulkhead than can be used. Very

occasionally it may be necessary to create a new entry point. It is recommended that only a trained technician attempts this.

If you have a DC power supply available then connect the ground and +V wires to a suitable DC plug and the job is done.

If only mains power (110VAC or 240VAC) is available then an AC power supply must be used. This is a small box which will provide the required DC power.



The mains plug must be permanently and securely connected to a suitable socket

Identify the correct type of mains plug for your vessel and fit it into the power supply. It should click into place securely.



The power supply also accepts standard IEC C7 connector

Use the connection box to connect the Skywave terminal cable to either the AC power supply or the ships DC power (if required).

Secure the connectors inside the box with the adhesive hook and loop fastenings.

Secure the connector box firmly with the grey bracket and screws.

The connection box is not weatherproof and must be mounted below deck.

Additional cables, connectors, power supplies

and installation accessories are available worldwide and can also be ordered through your chart agent. Specific cable assemblies can be made to order if required.





## IDP 600 Terminal Series Installation Guide

IDP 600 series terminals are integrated IsatData Pro communications terminals manufactured by SkyWave Mobile Communications Inc. SkyWave distributes the terminals through Solution Providers who activate the terminal on the SkyWave IsatData Pro network. The 10-pin terminals are available with side or bottom connectors.

This guide provides information required for a successful installation of the terminal on a vehicle, boat or other platform. This guide does not address the terminal's commissioning procedures as these procedures vary depending upon the Solution Provider and their specific application.

Check <https://support.skywave.com/Install> to see if this guide is available in other languages.

Figure 1 View of IDP-680 (A) and View of IDP-690 (B)



### Shipping Box Contents

SkyWave ships the terminal in an individual packaging box with the following parts:

|  |                         |
|--|-------------------------|
| IDP-680 or IDP-690 terminal                          | - Qty 1                 |
| Duplicate Mobile ID labels and clear overlays        | - Qty 2                 |
| Installation Guide                                   | - Qty 1 (this document) |
| Mating connector kit*                                | - Qty 1 bag             |
| Tube of dielectric grease (e.g., silicone lubricant) | - Qty 1                 |

\*Solution Provider may provide a cable instead of the mating connector kit.

### Required Tools

Installation of the terminal requires the following tools:

- Drill and 5.5 mm drill bit
- 30 mm diameter hole punch or hole saw (bottom connector version only)
- Screwdriver
- Socket wrench set

### Required Materials

Installing a terminal requires the following recommended materials. These materials do not ship with the terminal since they differ for each installation.

- Qty 4 - M4 (8-32) 18-8 stainless steel screws (length depends on mounting surface thickness)
- Qty 4 - M4 (8-32) nuts with 18-8 stainless steel flat and lock washers
- Waterproof sealing tape
- Waterproof sealing compound such as RTV silicone (bottom connector version only)
- Qty 1 - Custom cable provided by your Solution Provider

### Terminal Cable

Although SkyWave ships the terminal with a mating connector kit, the Solution Provider may provide a custom terminal cable instead. Contact your Solution Provider if you did not receive a terminal cable, since the instructions for properly building this cable are beyond the scope of this guide.

### Recording Mobile ID

Each mobile device has a unique serial number, termed a mobile ID, used by SkyWave to register it on the IsatData Pro network. This is a 15- digit alphanumeric identifier in the format "NNNNNNNNSKYXXXX" The mobile ID is located on the bottom of the terminal and on the shipping box. Record this number before the terminal is mounted. You need it later for commissioning the terminal on the network.



## Installation Steps

**CAUTION** *Most users install the terminals on a vehicle. It is very important for installers to install the terminals in a safe and secure way to avoid danger or damage to persons or property.*

### Selection of Mounting Location

Mount the terminal where it has a clear view of the sky/satellite. For a mobile installation, this means at the highest point on the vehicle or vessel where it has a clear view of the sky in all directions.

Mount the terminal on a flat surface for mobile installations such that the elevation angle does not change with rotation.

*Note: For fixed installations, the terminal can be pointed at the Inmarsat satellite to improve performance. This is not necessary for IDP-690 terminals.*

Mount the terminal so that the terminal's line of sight with the sky is clear of obstructions.

Fasten the terminal securely so that it is not loose and does not move easily.

Mount the terminal on a solid, stable surface. If necessary, use a mounting bracket (not supplied) or other suitable support.

Mount the terminal on a surface that does not get hotter than the maximum operating temperature (+85°C). If the surface may get hotter, mount the terminal with a thermal barrier between it and the mounting surface.

**CAUTION** *Mount the terminal at least 20 cm away from humans.*

Do not mount the terminal close to other electrical equipment due to possible radiated and/or conducted electromagnetic interference.

Do not mount the terminal close to radar or other communications antennas. Use the following guidelines:

- > 1 m from VHF/UHF antenna
- > 3 m from loop antenna
- > 4 m from MF/HF antenna
- > 5 m from other satellite antennas
- Not within a radar beam

Do not mount the terminal where water may build-up or collect.

Ensure that any paint above the terminal is non-metallic and non-metallic flake, if the installation is under fiberglass or composite wind fairings.

Check that the terminal's cable reaches the power source before you drill any mounting holes.

Do not mount the terminal close to an exhaust pipe due to the excessive heat and the potential for the exhaust pipe causing satellite blockage.

Do not mount the terminal close to air horns or any tractor roof hardware (e.g., emergency lights) that could interfere with satellite communications.

Mount the terminal on the driver's side of the vehicle, if possible, when there is a possibility of strikes by overhanging tree branches.

Do not install the terminal inside the truck under the roof liner.

### Installation

Once you have selected the mounting location, mount the terminal. Select either bottom connector mounting (Figure 2) or the side connector mounting (Figure 3) depending on the terminal's connector type.

The duplicate mobile ID labels, shipped with the terminal, can be placed on the asset where the terminal is mounted and/or on any customer paperwork. For outdoor applications these labels should be protected by applying the clear overlays provided.

In some cases, the Solution Provider may provide a mounting bracket with the terminal. In this case, the following instructions are not required. Refer to the instructions with the mounting bracket.

- 1) Use the drill template (Figure 6) to mark the location of the four mounting holes and the connector hole (if bottom connector). The orientation of the terminal with a bottom connector is not important.



- 2) Fill the ribbed channel around the connector (Figure 4) with waterproof sealing compound (bottom connector only). You can also apply waterproof sealing compound to the drilled mounting holes before inserting the screws.
- 3) Secure the terminal in place with the mounting hardware using the screwdriver and socket set.

**CAUTION** Do not over-tighten.



Figure 2

Bottom Connector IDP-680 Shown



Figure 3

Side Connector IDP-680 Shown

- 4) Cut off one end of the tube of silicone lubricant. Adding the silicone lubricant (grease) makes sure that there is a watertight seal.
- 5) Insert the tube into the male end of the mating connector and squeeze the lubricant into the mating connector opening (Figure 4) until it is full. Some lubricant will spill out.

**CAUTION** Do not apply pressure to the cable/connector during the installation.

- 6) Connect the cable connector to the terminal by aligning the corresponding connector key slot (Figure 5) and gently squeezing together.

**CAUTION** Do not force the connector pins to mate since this may damage the pins.

Figure 4 Terminal Connector

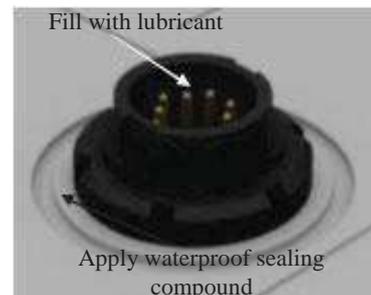
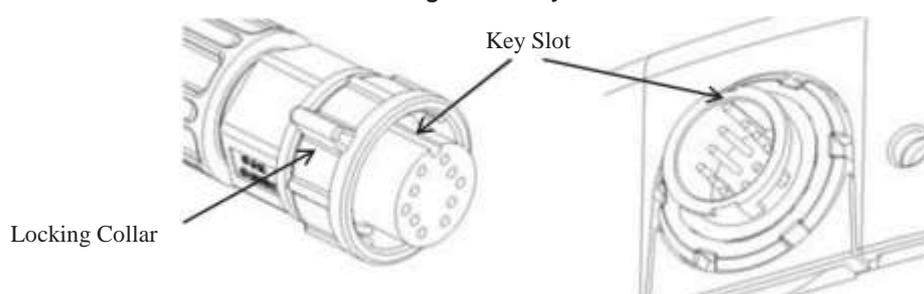


Figure 5 Key Slot



- 7) Tighten the cable connector with hand pressure by rotating the locking collar on the cable connector clockwise. **Do not use a wrench.** A tactile click is felt when the collar is properly engaged.
- 8) Wipe off any extra lubricant around the connector and wrap the mating connector with waterproof sealing tape if using the connector in changing weather conditions.

### Applying Power

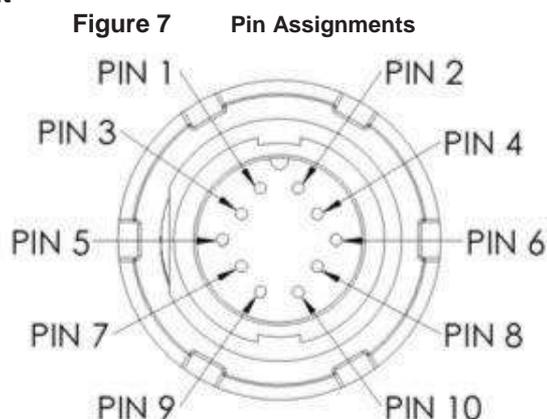
Before connecting the terminal to an external voltage source, ensure that the polarity is correct and the voltage source is between 9 and 32 VDC. Refer to the connector pin-out description. Connect the ground connection at the same time or before applying power. This is especially true when using the RS-232 lines along with power and ground.

### Verification

The terminal has an integral LED to indicate that the terminal has successfully powered up. The visual indicator (LED) does not indicate satellite status. Its only purpose is to confirm terminal start-up.

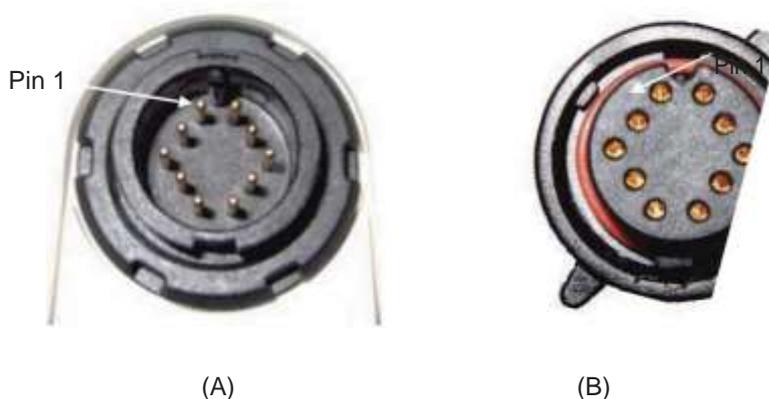


## Connector Pin Assignment



| Pin | Functionality      | Pin | Functionality     |
|-----|--------------------|-----|-------------------|
| 1   | RS-485/J1708 A     | 2   | RS-485/J1708 B    |
| 3   | GND                | 4   | VIN (9 to 32 VDC) |
| 5   | I/O 02             | 6   | I/O 03            |
| 7   | I/O 01             | 8   | I/O 04            |
| 9   | RS-232 Tx (Output) | 10  | RS-232 Rx (Input) |

**Figure 8 View of Terminal Male Connector (A) and Front View of Mating Connector (B)**



**Mating Connector Kit:** SkyWave p/n SA901020-001

## Warranty Information

### Warranty

SkyWave provides a manufacturer's warranty to the original purchaser (Solution Provider) that its products and services will perform in accordance with SkyWave's specifications and will be free from defects in material and workmanship for a limited period of time. This warranty is limited to the repair and/or replacement of any defective components experienced under normal specified operating use and storage conditions, at SkyWave's discretion. It does not cover any damages caused or associated with the product's misuse. The end-user's only remedy or recourse is as against the Solution Provider, and any experience with defective products should be communicated to your Solution Provider. Shipping of defective product, back to the Solution Provider will be in accordance with the Solution Provider's instructions and should be accompanied with a fault report. SkyWave is not responsible for corrosion damage caused by improperly assembled or installed cables. **Warranty is void if unit is opened.**

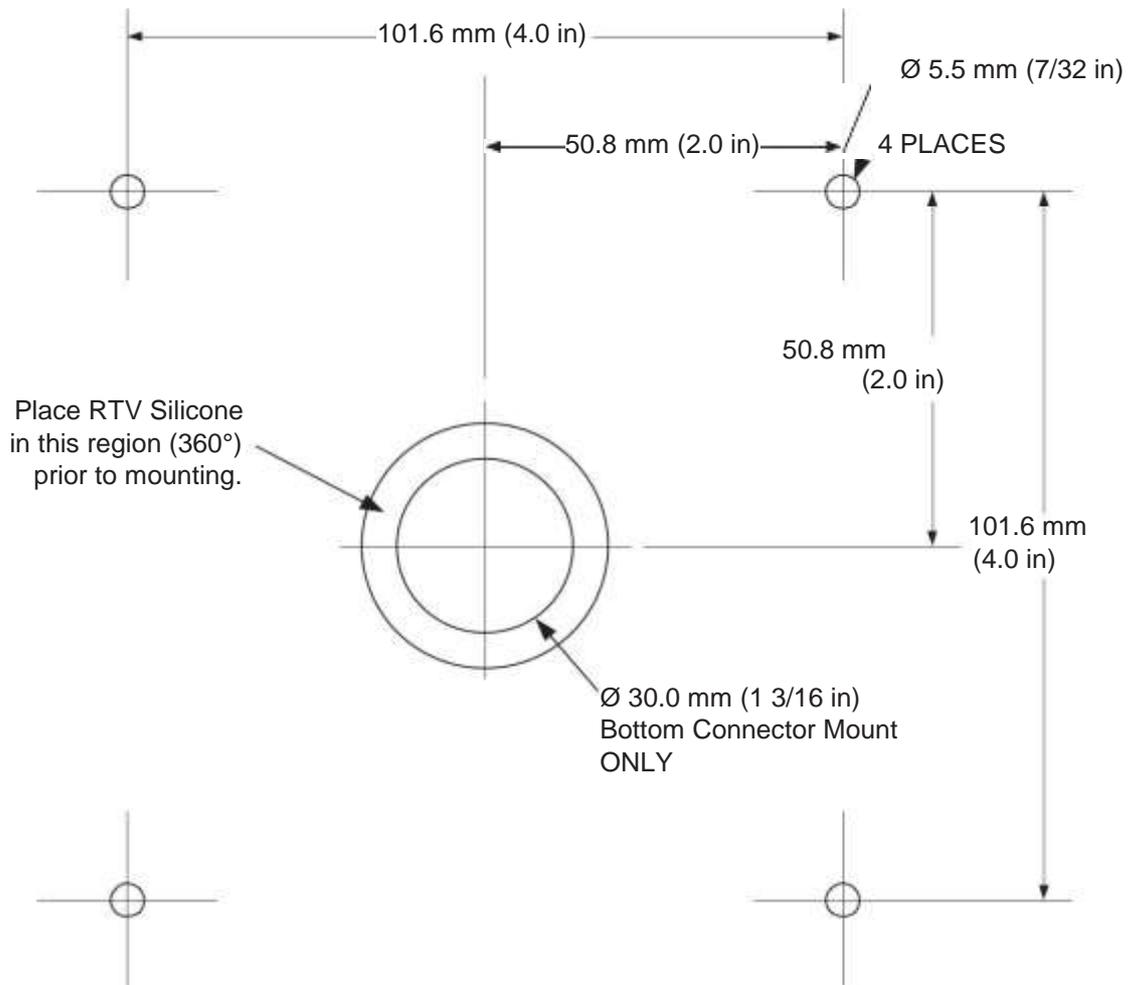
A fault report is required for each unit returned under warranty. Please contact SkyWave's Customer Support for additional information.

### Limited Liability

SkyWave's liability is limited to the cost of repair or replacement of any of SkyWave's products during the warranty period. In no event will SkyWave be responsible for incidental, special, consequential, indirect or similar damages associated with product application and usages. SkyWave's products are not suitable for life critical applications. SkyWave's aggregate liability shall in no circumstances exceed the product's original price paid by the Solution Provider to SkyWave and this limitation of liability is reasonable given the price of SkyWave's products, which reflect reasonable risk allocation.



**CAUTION** Before drilling check the template against actual hardware for dimensional accuracy. If is not correct, **DO NOT USE THIS TEMPLATE.**



Nominal Dimensions Shown

# WENDIS Update User Guide

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## Version 1.1

WENDIS Update is an application designed to allow the easy download of navigational charts on to vessels at sea. Chart data is compressed using patented compression technology to minimise download costs. All chart data can be exported to the standardised format used in ECDIS.

## 1 System Requirements

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This software only supports devices using Windows 7 or above. Older versions of Windows or other devices (such as Apple or Android) are not supported.

This software requires 150MB of disk space to install. However, the purpose of this application is to download chart data through an internet connection. The full world chart data set currently consumes around 4.3GB of space on the device's main disk. Disk space is used as required, the application does not pre-allocate any disk space for downloaded charts.

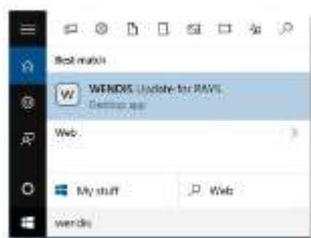
An internet connection is required to activate the system, download charts and to check whether there are chart updates available for download.

## 2 Setup and Activation

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WENDIS Update can be installed by running **setup.msi** supplied as part of this release. Please follow the on-screen instructions to complete the installation of the software. Administrator permissions on the device are required to install this software, you will be prompted accordingly to enter credentials when required.

To run the application, either type "WENDIS" into the start menu, or open the start menu, navigate to "Weilbach" and then click on "WENDIS Update for PAYS".



## 2.1 Activation

WENDIS Update needs to be activated the first time you run it. Activation requires an internet connection and the identity of the SkyWave box installed on your vessel.



The SkyWave identity can be found on the box itself and is usually also supplied by your distributor in an information pack. An identity is a sequence of 15 numbers or characters and will contain the letters "SKY" as part of the sequence:

**xxxxxxxxSKYxxxx**

If activation is unsuccessful then your vessel may not be correctly registered for PAYS support. Please contact your distributor.

Once activation has completed, WENDIS Update will download the latest list of available chart updates from the internet. Once this download has completed the software is ready to use.

## 2.2 Import Base Charts

Downloading a full set of world charts over the internet is a costly and time-consuming process. It is therefore highly recommended that WENDIS Update is provided with an initial set of base charts from AVCS DVDs.

Once the software is activated and the chart list has been downloaded, insert the AVCS DVD into your machine. You will be asked whether you want to import charts from the disc provided. Charts from multiple DVDs can be safely imported at any time. See [Chart Import](#) for more information.

## 3 Key Features

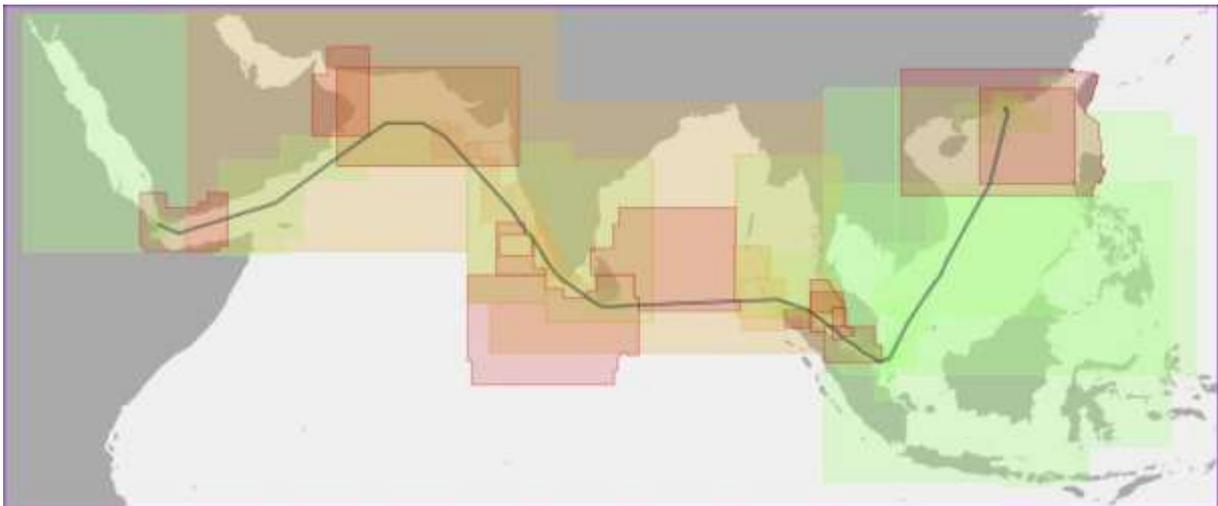
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### 3.1 Display

Charts where updates are available for download are displayed with a red border and background. Only charts within a selected area displayed (see [Chart Selection](#) for more information).

Charts where updates are available but you do not have a licence to use (for example, non-PAYS charts) will be displayed with a yellow border. Charts without a licence cannot be updated using WENDIS Update. Please contact your distributor if you require a licence to download these charts.

Charts which have no updates available (i.e. they are fully up to date) will be displayed with a green background when the selection does not cover the whole world. When the whole world is selected, these charts will not be displayed.



Charts which are outside the selected area are not displayed on the map.

The world map can be panned and zoomed using the mouse or, with a touch sensitive display, the normal pinch and zoom touch actions.

Zooming in to a specific area will show the gazetteer of ports in that area. Holding the mouse over a port will display the name of the port.

### 3.2 Chart Import

Charts can be imported into WENDIS Update using the AVCS base DVDs supplied by your chart distributor. This is a convenient way to avoid downloading large amounts of chart data over the internet for charts you already have available.

Insert a disc into your DVD-ROM drive to start importing charts from disc. To import charts from a network location or some other device, select "Import Exchange Set" from the main menu.



You can then enter the location to the root of the exchange set you wish to import.

### 3.3 Chart Selection

The chart selection bar provides the ability to limit the charts which will be downloaded. There are four primary choices available: the whole world; a specific area; an imported route file; or a generated route. Each of these are described in more detail below.

#### 3.3.1 World

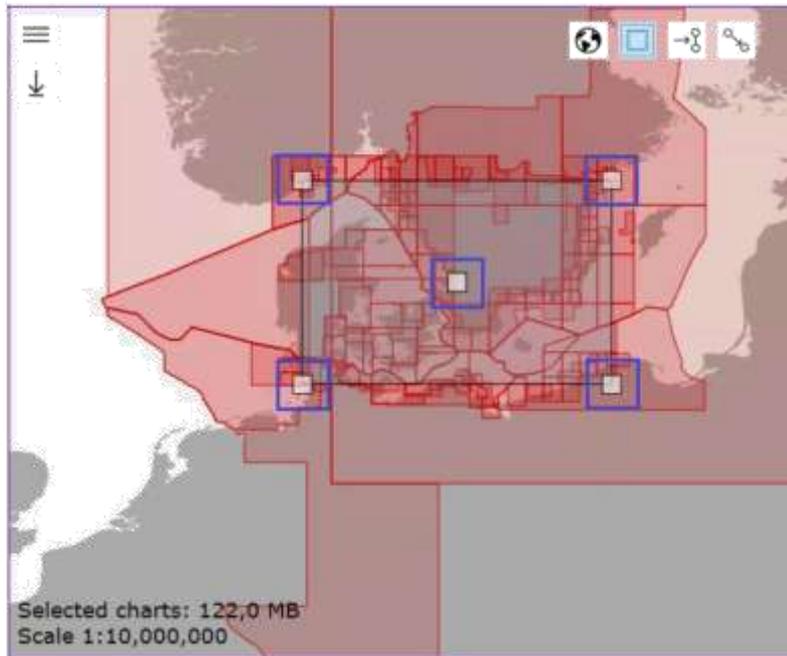
World selection can be enabled by pressing: 

This is the default selection when first starting the application. This will display all charts which have an update available on the map. Charts which are currently up to date will not be displayed when the whole world is selected.

#### 3.3.2 Area

Area selection can be enabled by pressing: 

When restricting the selection by area, a rectangle is used to identify the charts selected for download. The selection can be moved by dragging the corners or centre of the rectangle around the screen until the desired area is selected.



All charts which intersect with the selection area will be displayed on the world map. Charts in red require updates to be downloaded; charts in yellow are unlicensed and cannot be downloaded; charts in green are up-to-date.

### 3.3.3 Import Route

A route file can be imported by pressing:



This option can be used to download charts for a route exported from an ECDIS. The following file formats are currently supported.

| Manufacturer | File Format              |
|--------------|--------------------------|
| Transas      | RT3, RT4                 |
| Chartworld   | RTE                      |
| Furuno       | TXT                      |
| JRC          | RTM, RTN, CSV            |
| Sperry       | ROUTE, VP                |
| Kongsberg    | RUT, RUX                 |
| MARIS        | ROU, RTU, TXT, XLS, XLSX |
| Raytheon     | ROUTE                    |
| SAM          | SAM, XML                 |
| Tokyo Keiki  | CSV                      |
| Others       | NMEA TXT, RTZ, RTZP      |

Multiple route files can be selected and imported at once. It is also possible to drag a file, group of files, or a directory on to the world map to import routes.

All charts which intersect with the imported route will be displayed on the world map. Charts in red require updates to be downloaded; charts in yellow are unlicensed and cannot be downloaded; charts in green are up-to-date.

### 3.3.4 Generated Route

A route can be generated between two ports by pressing: 

An internet connection is required to generate routes. Enter the starting port and the destination port and press the generate button.



The route and all of the charts which intersect with it will be displayed on the world map. Charts in red require updates to be downloaded; charts in yellow are unlicensed and cannot be downloaded; charts in green are up-to-date.

### 3.3.5 Advanced Selection

A more fine-grained approach to chart selection can be taken by using the Chart Holdings view. See [Charts Selected for Download](#) for more information.

## 3.4 Download

Press the "Download Selected Charts" button to start downloading charts: 

An internet connection is required to download charts. If no internet connection is available when the download button is pressed (or the internet connection is lost during download) then WENDIS Update will wait until an internet connection is available before automatically continuing the download. Chart compression is automatically applied to charts when using WENDIS Update to ensure the minimal download cost.

If there are no chart updates available in the current selection then the download button will be disabled.

## 3.5 Export

The "Export Exchange Set" button will export all selected charts to the chosen location in a format suitable for import into an ECDIS.

Enter the location of a folder or external drive to export the exchange set into. This can be the location of a USB memory stick plugged into the computer to aid easy transfer on to an ECDIS. If an exchange set already exists at the location provided it will be deleted before

export begins. Once the export is complete you can transfer the folder to your ECDIS and import the exchange set into it.

WENDIS Update will export all of the charts within the current chart selection. See [Chart Selection](#) for more details on how to change selection modes. All chart exports are full updates from the latest base version, partial updating is not supported.

Permits supplied by your distributor will be automatically included in an Exchange Set export and can be found in the "Permits" folder.

## 3.6 Chart Holdings

The "View Chart Holdings" button will open the Chart Holdings pane, allowing you to see the charts currently selected for download and the availability status of all charts in the world.

### 3.6.1 Charts Selected for Download

This table lists all the charts which will be downloaded if you press the "Download Selected Charts" button. This list will change whenever you change your [Chart Selection](#).

Charts can be manually added and removed from this list. If you want to download specific charts you can search for them in the All Charts table and drag them on to this table. They will then be added to the download list. Individual charts can be downloaded immediately by right-clicking and selecting "Download now".

If you do not want to download a specific chart, you can select it in the list and press the delete button: 

Deleted charts will appear greyed out and will not be downloaded. Deleted charts will always appear greyed out on the list until they are restored. Charts can be restored to the download list by pressing the restore button: 

### 3.6.2 All Charts

This table lists all the charts currently available to WENDIS Update and their status. The background colour of each chart in the list reflects the current status on the world map: red charts require an update and are selected for download; yellow charts are not currently licensed; green charts are up to date; white charts are not in the current selection.

This list can be sorted, grouped and easily searched to find specific charts. Once a required chart has been found it can be dragged to the "Charts Selected for Download" table and it will be selected for download.

Alternatively, charts can be moved to the download list by right-clicking and selecting "Add to download list" on the menu. Individual charts can be downloaded immediately by right-clicking and selecting "Download now".

## 4 Internet Access Requirements

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Access is required to the following URLs.

| URL   | Port |
|---|------|
| <a href="https://wb-pays.azurewebsites.net/">https://wb-pays.azurewebsites.net/</a>                     | 443  |
| <a href="https://ucs.chersoft.co.uk/">https://ucs.chersoft.co.uk/</a>                                   | 443  |
| <a href="https://ucs.blob.core.windows.net/">https://ucs.blob.core.windows.net/</a>                     | 443  |
| <a href="https://wbpaysstorage.blob.core.windows.net/">https://wbpaysstorage.blob.core.windows.net/</a> | 443  |

This can be tested by using a web browser to go to <https://wb-pays.azurewebsites.net/test>

If connections are possible to the list above a page showing three green ticks indicating success will be shown.

If the updater application (catenc.exe) still does not work even though this test returns three green ticks there may be additional restriction from firewall software. It will require further configuration to allow traffic to the software.