



# SnakeWays

**E-Mail**

**Routing**

**Security**

**Remote Access**

**Crew Services**

**Tracking**

# The Team

## Innovation Meets Experience

SnakeWays has been founded by a team of maritime technology professionals with decades of experience. We know what works – and what doesn't.



**Peter Schulze**

Managing Director

After 30 years in the industry, be it software, hardware or technology, Peter has the answer.



**Barbara Jansen**

Director of software development

Need the perfect solution? If it can be done, Barbara will do it, as she did for 25 years.



**Sidney Townsend**

Customer support manager

Looking for happy customers? Let Sid do the job, he has done this for more than 20 years.

# The Concept

## Today's Technology for Today's Challenges

SnakeWays provides state-of-the-art connectivity services to every type of seagoing vessel. At the heart of the SnakeWays concept, there are two core elements:

### SnakeCloud

The shore-based management server

### SnakeBox

The shipboard router and application host

### SnakeExtender

Additional ports for the SnakeBox

### SnakeMail

Innovative maritime E-Mail in perfection

### SnakeStore

E-Mail archive and access in the SnakeWays cloud

### SnakeSwitch

Smart network switching

### SnakeWall

The intelligent solution to shipboard firewalling

### SnakeDoor

Remote access to your ship's network

### SnakeCrew

Powerful crew services

### SnakeTrack

Feature rich vessel tracking

# The SnakeBox

## Reliability Now Has a Name

The SnakeBox is the shipboard device that provides the platform for the SnakeWays services.

The majority of shipboard “comms boxes” in service today are built on classic network devices using technologies that have been around for a decade and more. SnakeBox is different. Based on the latest technology, designed initially for smartphones, the SnakeBox is the most cost-effective device of its kind on the market today. The SnakeBox comes in 2 styles to meet all your requirements. SnakeBox S and SL, although small and light, are robust and can fit even in confined spaces. SnakeBox X and XL are sturdy steel devices for rack mounting.

Additional hardware modules, such as the 4G/LTE card that gives you access to GSM networks, are available to extend SnakeBox functionality. All of these hardware extension modules are installed inside the SnakeBox and require no external connections other than antennas if needed.

Configuration and operation of the extensions' features are fully integrated into the SnakeWays user interface, enabling remote configuration through SnakeCloud or SnakeBox.



## Features

- Industry unique fan-less low-power design runs at 2W with no noticeable heat dissipation
- Highly integrated for long lifespan
- Five standard Auto MDI-X Ethernet ports
- Mounting bracket for secure rack, bulkhead or table installation
- Sturdy metal frame case with ABS cover (S/SL) or 1U steel rack case (X/XL)
- Integrated Wi-Fi usable as an access point (LAN) or managed interface to connect to an external Wi-Fi network (WAN). Single port on S/SL, 4 Wifi-6 MiMo Ports on X/XL models.
- Minimal configuration effort: a true self-install

## Additional hardware module

- 4G/LTE Mobile network interface with GPS on SL and XL models.

## Technical specifications

	SnakeBox S / SL	SnakeBox X/XL
Memory	1G DDR3 SDRAM	
Internal SSD	8G eMMC flash	
Data storage	SD card 32GB (optional 128 GB, 256 GB or 512 GB)	
Ethernet ports	5x Auto MDI-X	
CPU	1.3 GHz ARM Cortex-A7	1.35 GHz ARM Cortex-A53
USB port	1 x USB 3.0	
Dimensions	170 x 120 x 50 mm 0.4 kg	44.4 mm (1U) x 406 mm x 250 mm 2.4 kg
Power supply	External adapter 100-240V AC, 12V 2A DC	
Approvals	CE FCC RoHs	
Operating	-10°C to 70°C, 15% to 95% relative humidity (non condensing)	

# SnakeExtender

## Additional fully managed network ports

The SnakeExtender hardware extensions give customers more flexibility when it comes to the design and support of a network around the SnakeBox family of intelligent routers. With eight ethernet ports plus a dedicated uplink connection, the new SnakeExtender brings the total number of fully managed ethernet ports to 12S.

## More than an external switch connected to the SnakeBox

Not just a network switch connected to the SnakeBox, the SnakeExtender adds fully managed and controlled Gigabit ports to the SnakeBox. The additional interfaces work in every respect like the internal SnakeBox ports. All circuits are configurable through the intuitive SnakeBox web interface as WAN, LAN or Crew, each with its own IP configuration, firewall settings, and switching rules.



SnakeBox Standard with SnakeExtender

## Designed to meet the demands of next-gen LEO, VSAT, L-Band, and Hybrid networks

Every additional port supports Gigabit connection speeds under full control of the powerful SnakeBox. Adding a SnakeExtender provides a perfect platform to support the most demanding network configurations. SnakeBox and SnakeExtender deliver the performance that today's fast networks require, making a perfect fit to upgrade existing installations with minimum effort.

## Ready to power all your VoIP phones, Webcams, and Wi-Fi access points

The SnakeExtender P not only adds more ethernet ports, it also provides the best power over ethernet (PoE) capabilities in the industry. All eight ports support standard 802.3af/at active PoE with autodetection and voltage management as well as passive PoE. With an impressive total PoE-out budget of 140 W, the SnakeExtender P can support the most intense scenarios.

Technical Specification		
SnakeExtender & SnakeExtender P		
	SnakeExtender	SnakeExtender P
Dimensions	200 x 164 x 44 mm	272 x 216 x 50 mm
Weight	0,52 Kg	1,4 Kg
Rack mount brackets	✓	✓
Operating temperature	-20°C to 60°C ' '	-40°C to +70°C'
Max power consumption	11 W	162 W
AC input range	100-240 V	100-240 V
1G Ethernet ports	8	8
PoE-out	-	802.3af/at & Passive PoE
PoE-out ports	-	max out per port ( < 30 V): 1000 mA max out per port ( > 30 V): 625 mA
Total PoE output power	-	140 W
Certification	CE, EAC, ROHS	CE, EAC, ROHS

# SnakeMail

## Maritime E-Mail in Perfection

### Efficient

Industry leading compression and connection management

### Reliable

Parcel like message tracking

### Secure

Integrated virus and spam filter

### Flexible

Corporate domain support

### Cost-cutting

Extensive filter options

### Crew friendly

Quotas and limits

### Redundant

Built in backup service

### Easy

Built in fully featured webmail service

# SnakeMail

SnakeMail is one of the system's core elements, providing a fully-featured and reliable E-Mail service.

## Efficient

SnakeMail operates over any TCP capable network connection, fast or slow, dependable or erratic, expensive or affordable. SnakeWays will always get your traffic across. Regardless of your connectivity, our proprietary transfer technology will assure reliable, secure, and efficient real-time message delivery to and from your ships.

## Reliable

As an Industry first, SnakeMail provides real-time parcel like end-to-end E-Mail tracking. Check on either ship or shore where your mail is. Going beyond traditional delivery notifications, it reports about the reading and forwarding of a message for each recipient and allows you to act on failed or delayed messages. Check on either ship or shore where your mail is.

## Secure

SnakeMail protects and safeguards your messages. All mail traffic is filtered for viruses and spam, protecting you from unwanted and dangerous content. All communications support and prioritize the secure E-Mail protocols SSL, TLS, STARTTLS and OAuth2 (Microsoft modern authentication). VPN or leased line connections are available for end-to-end secure communications between ships and customer premises.

## Flexible

With SnakeMail, you can choose between E-Mail addresses provided by SnakeWays or keep your corporate mail identity. SnakeCloud receives E-Mail directly from the internet using encrypted IMAP, POP3 and SMTP protocols. It collects your messages from a wide choice of E-Mail services, including Office 365, Microsoft Exchange, and many others. SnakeMail goes one step further and also keeps the 'Sent' mailbox folder on the ship in sync with your corporate mail account, without additional overhead.

## Cost-cutting

With SnakeMail, you have complete control over your messaging. A choice of mail filter settings keeps you in control of your traffic both in- and outbound.

## Crew friendly

Crew E-Mail accounts can be subject to message size limits and quotas to give your crew reliable, and affordable E-Mail services.

## Redundant

The SnakeBox stores your mail data on an encrypted SD card that can be easily moved to a spare SnakeBox. The automated backup system silently stores a password-protected copy of your valuable mailbox content on a storage device of your choice.

## Easy

SnakeMail makes accessing your E-Mail easy. Use your favourite mail client or the mobile device aware webmail service. You can use SnakeMail with any PC, laptop, tablet, or mobile phone and even switch seamlessly between devices.



# SnakeStore

## E-Mail Archive and Access

### Unlimited

Add unlimited, long-term message archiving to all your SnakeMail E-Mail accounts

### Convenient

Access your ships E-Mail through our Web interface or standard protocols

### Flexible

Reply to and forward any message at any time

### Accessible

Choose from a variety of access methods to best suit your operation needs

### Compliant

Comply with government requirements with no effort

### Protected

Encrypted SSL connections are imposed on all protocols

### Secure

Hosted on our fully redundant Cloud service

### Easy

User friendly zero config setup



# SnakeStore

SnakeStore extends the SnakeMail service by archiving E-Mail messages in the SnakeWays cloud. SnakeStore adds long term storage of E-Mail messages. It keeps copies of all messages sent and received by a SnakeMail account and makes them accessible on shore. SnakeStore operates in real-time and is fully independent of the SnakeMail E-Mail delivery process.

## Unlimited

SnakeStore gives you unlimited, long-term storage and online access to all your SnakeMail E-Mail messages, both sent and received.

## Convenient

SnakeStore provides shore side access to all messages using either the SnakeStore Webmail interface or an E-Mail client application. You can view all messages that have been sent and received using the vessel's SnakeMail accounts.

## Flexible

In case of a connectivity failure on the vessel, you can reply to incoming messages using a PC, smartphone or tablet. You can hand over control to your superintendent to manage and direct communications and keep the ship up to date.

## Accessible

All messages are accessible through our easy-to-use Web interface, which provides a unique functionality to bulk download messages as compressed archives. Using secured standard IMAP, POP3, and SMTP protocols, you can access the SnakeStore archive using your preferred E-Mail application and copy or transfer messages into third-party mail services like Gmail, that support sharing messages from multiple accounts.

## Compliant

SnakeStore makes it easy for you to comply with government requirements for long-term message archiving. No need to set up your own storage systems or manage external services SnakeStore does it all for you with zero effort.

## Protected

Independent of your chosen access method, all connections to the SnakeStore data are only possible using SSL-encrypted protocols.

## Secure

SnakeStore is running on our SnakeCloud service with fully redundant server and storage instances.

## Easy

We set it all up for you. No user configuration is needed.

# SnakeSwitch

## Intelligent Network Switching

### Flexible

Manage any number of internet connections

### Economic

Data usage-based switching

### Dependable

Smart circuit quality detection

### Reliable

Flexible fallback configurations

### Secure

Firewall settings follow network selection

### Transparent

Clear status indication on dashboard

### Manageable

Manual and emergency override options

# SnakeSwitch

SnakeSwitch provides dynamic uplink switching for multiple wide area network (WAN) circuits. These can be satellite connections, mobile, Wi-Fi, or any other IP network. SnakeSwitch monitors circuit availability and provides manual or automated switching between WAN circuits based on a wide choice of criteria.

## Flexible

Operate as many network WAN connections as your ship's installation requires. External satellite or other IP connections are equally well supported as are the LTE and Wi-Fi circuits provided by the SnakeBox. SnakeBox LTE and Wi-Fi fully support roaming and automatically connect to available networks once in range. Assign WAN connections to any LAN and use multiple WANs simultaneously.

## Economic

SnakeSwitch supports route changes based on circuit availability, and it extends the concept to quota-based switching. This combination caters for connection reliability as well as cost effectiveness. Define a quota for any circuit over a given time frame and SnakeSwitch will fall back to the next defined circuit once the quota has been reached. Make full use of your service provider plan while still assuring permanent network connectivity.

## Dependable

Smart circuit sensing assures that only networks, that can reliably transfer data, are selected. Unstable circuits, such as a link over a weak mobile network signal, are not chosen until they can assure reliable service.

## Reliable

Flexible fallback patterns, quotas and intelligent circuit changes combine to bring you a reliable automated switching service that assures uninterrupted and economic network access.

## Secure

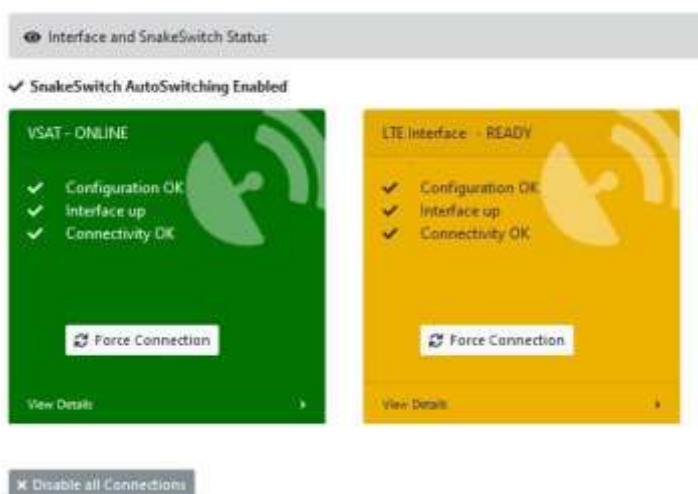
Whilst fully independent, SnakeSwitch works in harmony with the SnakeWall service. A network connection change automatically triggers a switch to the firewall rules defined for the active circuit by SnakeWall. It assures full network security across any network path and protects you against unwanted usage and surprise bills.

## Transparent

The SnakeBox control panel is easily accessible from any PC or mobile device and gives you instant status information. Detailed information and circuit check options assist you in controlling your network devices and connections.

## Manageable

A manual circuit selection, a temporary WAN suspension, and an emergency network disconnect option are provided to cater for exceptional circumstances. To troubleshoot your satellite terminal or network router, the SnakeBox provides access to the device configuration screen through an easily accessible network URL.



# SnakeWall

## The Clever Solution to Shipboard Firewalling

### Cutting Edge

Uses AI to track content distribution networks

### Dynamic

Auto tracks a domain as it switches IP

### Comprehensive

Set different rules for each LAN/WAN configuration

### Independent

Completely standalone from the shipboard network

### Easy

Pick an address – click allow or block

### Flexible

Whitelist, blacklist or a combination

### Remote Control

Configured on board or from ashore

# SnakeWall

SnakeWall brings a ground-breaking approach to firewalling of shipboard networks.

Establishing, configuring, and maintaining the firewall of a remote, globally mobile, shipboard IT network presents a challenge to any IT professional. Magnify that challenge by adding multiple LANs on board combined with a variety of WANs using satellite and terrestrial services to connect to the outside world. Then consider that a ship in mid-ocean has no qualified IT personnel on board and can't call the local IT shop to send someone around for support. It becomes a very special challenge indeed.

SnakeWall was launched precisely to meet that challenge. Designed and developed by an expert team with decades of experience in maritime IT, it not only meets the challenge but goes beyond. SnakeWall deploys machine learning techniques that will automatically track the shifting targets on the internet of today whilst simultaneously simplifying the task of maintaining the security of the IT on board.

## Independent

SnakeWall is hosted on the SnakeBox, SnakeWays smart shipboard device. As such the firewall service is entirely independent of existing shipboard networks. SnakeWall does not require any installation on, or reconfiguration of, the ship's existing networks.

## Intelligent

SnakeWall deploys artificial intelligence to keep the shipboard firewall up to date. An increasing number of key services to the vessel, navigation updates, weather services, statutory notices, are making use of content distribution networks to deliver their data. These can be extremely difficult to handle with traditional firewalling techniques.

## Intelligible

SnakeWall is configured using pre-defined rulesets. Each rule within a ruleset can be defined in everyday language using the domain name of the selected service. Knowledge of IP addressing, protocols, or port number allocation is unnecessary. SnakeWall comes with a number of rulesets pre-defined for commonly used maritime services.

The screenshot shows the 'Network Setup for SnakeWays Europa' interface. It includes a status bar at the top right indicating 'Status: Online - Iridium Certus' and 'Time (UTC): Apr 22, 2022, 09:38'. Below this is a breadcrumb 'Network Setup / Firewall'. The main content is divided into two sections: 'LAN Firewall Settings' and 'WAN Firewall Settings', each with a table of configurations.

Edit	LAN	Firewall Status	Block	Allow
<input checked="" type="checkbox"/>	Business LAN	<input type="radio"/> Allow Everything	N/A	N/A
<input checked="" type="checkbox"/>	Crew Wifi	<input checked="" type="radio"/> Use Rulesets - Default Block		Twitter - Chat Web browsing Whatsapp and other apps Voice and Video

Edit	WAN	Firewall Status	Block	Allow	DNS
<input checked="" type="checkbox"/>	Iridium Certus	<input checked="" type="radio"/> Use Rulesets - Default Block		Admiralty (UKHO) Updates Coast and Sea - Met Office UK eNOAD ( <a href="https://enoad.nvnc.uscg.gov/">https://enoad.nvnc.uscg.gov/</a> ) NOAA ( <a href="http://www.weather.gov/marine/">www.weather.gov/marine/</a> ) WhatsApp Chat	<input type="radio"/> Auto
<input checked="" type="checkbox"/>	L1: Interface	<input checked="" type="radio"/> Use Rulesets - Default Allow	Apple Updates Google Chrome Updates Windows Updates		<input type="radio"/> Auto

## Infinite

Specifically designed for the marine environment, SnakeWall lets you configure separate rulesets for the multiple WAN and LAN connections on board and any combination of the two. An infinite number of combinations, Crew via Iridium, Ship's business via VSAT, Crew via 4G, can be configured and maintained by SnakeWall. The ability to blacklist services on the primary WAN/LAN while simultaneously whitelisting services on the secondary WAN/LAN is a unique feature of SnakeWall.

# SnakeDoor

## Remote Access to Your Ship's Network

### Easy

Access to any device on your ship's network from shore

### Flexible

Configure your sat terminal, access a PC desktop, view a webcam and more

### Efficient

On demand connections, no data usage while off-line

### Economical

Data compression and TCP optimisation

### Ready

No need to install anything on the ship's network

### Autonomous

No configuration or assistance by ship personnel required

### Automated

See all discovered devices and connect with a click

### Reliable

No matter the link, you can rely on SnakeDoor

### Secure

Encrypted connections between ship and shore

# SnakeDoor

SnakeDoor is literally the door to your ship's network. The service provides an easy to use and cost-efficient way to access any PC or network device connected via the SnakeBox smart device.

Independent of your operating system, you can use your preferred remote access tool to connect to any device on your ship's network. SnakeDoor takes care to establish your connection, and run it reliably and efficiently while keeping your data protected against intrusion, eavesdropping and cyber-attacks.

## Easy

To start a connection, you simply log into the SnakeCloud web interface, select the remote site and service you wish to use and then click to establish a remote session. SnakeCloud maintains a list of devices and services that the SnakeBox has detected at the remote location.

## Flexible

SnakeDoor supports any TCP based protocol giving you:

- Remote PC desktop access using RDP or VNC protocols
- Access to configuration pages on terminals, routers, machines and other devices
- Remote terminal sessions using telnet, SSH or other protocols
- Webcam or recorded video viewing
- Entry to machines and IoT devices for data, control and management

... and a lot more

## Efficient & Economical

All links are compressed utilizing a custom protocol designed by the SnakeWays developers. The protocol minimizes the data consumption and makes sure that only required data is transferred. There is no data consumption once a connection has been terminated or timed out.

## Convenient

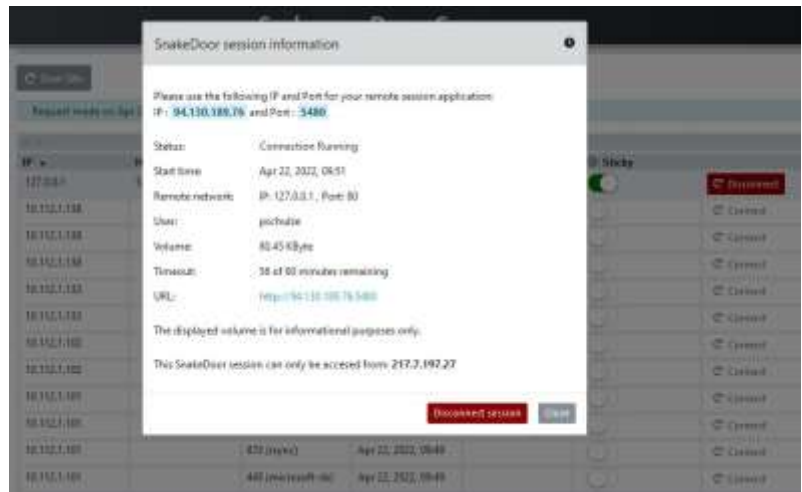
There is nothing to install, setup, configure or enable at the ship. Without the need of any user input on the vessel, you do not depend on the working hours and knowledge of users onboard.

## Reliable

SnakeDoor is designed for use with all types of internet connection, be it a fast 4G link or a low bandwidth, high cost, or unreliable internet connection. It performs flawlessly across firewalled and network translated services and supports providers that exit to the internet using shared IP's.

## Secure

All connections are completely managed and secured by the SnakeDoor service. SnakeDoor fully protects your data using the latest encryption standards on the connection between your SnakeCloud instance and the SnakeBox at the remote location.



# SnakeCrew

## Powerful Crew Services

### Easy

Captive portal for quick connections to the internet by PC, tablet, or mobile phone

### Controlled

Scheduled, manual or voucher-based credits

### Integrated

Single sign-on for Crew Mail and other services

### Flexible

Static or switched crew traffic routing using SnakeSwitch

### Secure

Fully integrated with the SnakeWall dynamic firewall service

### Efficient

Traffic prioritisation, DNS management, network optimisations

### Friendly

Web interface for crew and captain

### Accessible

Local and remote management and reporting



# SnakeCrew

Providing internet access to the ship's crew while maintaining security and controlling costs is challenging. SnakeCrew leverages the power of the SnakeBox to bring the internet to your crew while you stay in the pilot's seat.

## Easy

Crew access is controlled by a login screen that pops up when a user attempts to access the internet. With full support of mobile phones as well as PC's and tablets, authentication is not only simple but also very quick. The same permanent credentials open access to the internet, SnakeMail and other SnakeWays services.



## Controlled

All usage is subject to available credit in the crew member's SnakeWays account. A user's account can be automatically credited or adjusted at scheduled intervals by the system. Optionally credit is provided using vouchers given or sold by the captain or company. The captain can directly assign a voucher, add or adjust credit. Automatic credit and voucher denominations can be configured to match the company's policies and requirements. The daily time a user is allowed to access the internet can be restricted.

## Flexible

SnakeCrew fully integrates with the SnakeSwitch feature. Crew traffic can be routed following the standard WAN switching rules with the additional option to disallow all crew traffic on specific circuits. Alternatively, crew traffic can be forced through a specific WAN port independent of the normal traffic routing. If required, multiple crew LAN interfaces can be defined, each with separate settings.

## Secure

Tightly controlled by the SnakeWall firewall feature, crew traffic can be restricted to a limited set of services like WhatsApp, specific web pages or services. SnakeCrew supports the most demanding crew traffic management scenarios. It can provide full internet access while on a low-cost circuit, restrict the crew to text only services like WhatsApp over satellite and completely block the crew over an expensive fallback path.

## Efficient

The SnakeBox manages all IP traffic to prioritize business over crew data. Intelligent DNS management and optimised IP handling ensures that only data needed to provide the required services is sent. Data is only consumed when a crew member is actively using the service. Crew traffic can be limited to specific Internet circuits with data consumption restricted individually.

## Friendly

The SnakeBox web interface provides the captain and users with a single login for all services. Crew can review credit and consumption reports, redeem vouchers and manage the connection. The captain has access to the reporting and the voucher management systems.

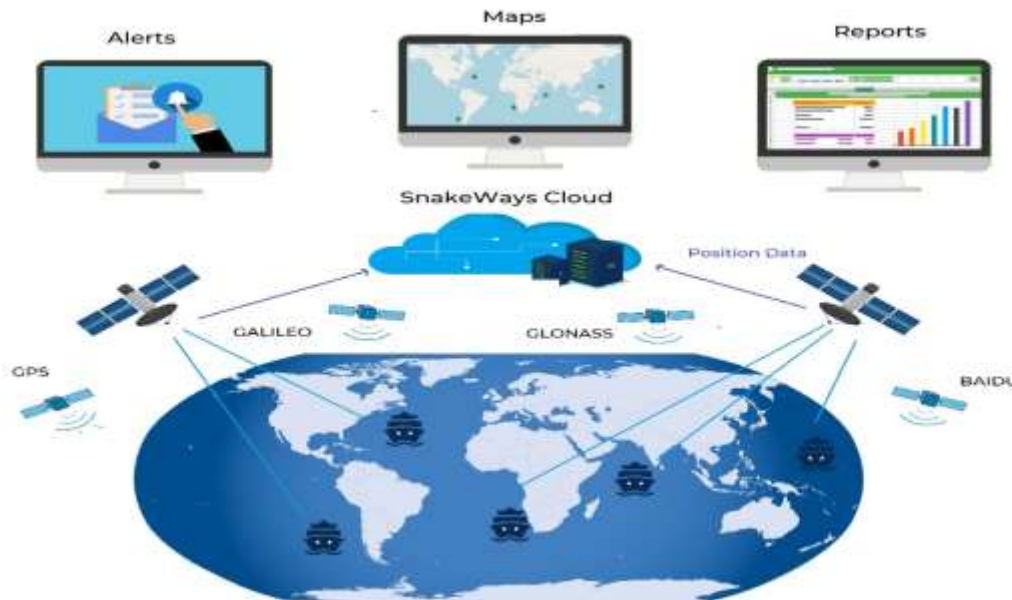
## Accessible

Integrated with the SnakeCloud service, SnakeCrew can be managed on either ship or shore.

# SnakeTrack

## Feature-Rich Vessel Tracking

Reliable



### Tracking

Dependable position data collection, transfer, and storage

### Economic

Background data transfer

### Easy setup

Integrated SnakeBox modules or auto detect external devices

### Map display

View position, track history, geofences, and events

### Reporting

Flexible passage reporting and data export options

### Geofencing

Set your own or import geofences, set alerts, and review past events

# SnakeTrack

SnakeTrack extends the SnakeBox capabilities with location and tracking functionality.

## Reliable

SnakeTrack is fully integrated into the SnakeBox smart router. All data is stored locally and sent to shore at user defined intervals. If there is a break in the communications path, the data is queued for delivery once connectivity resumes, thus ensuring gap-free position data.

## Economic

Position data is highly compressed and sent to shore as part of the SnakeBox background data service, typically at no extra costs.

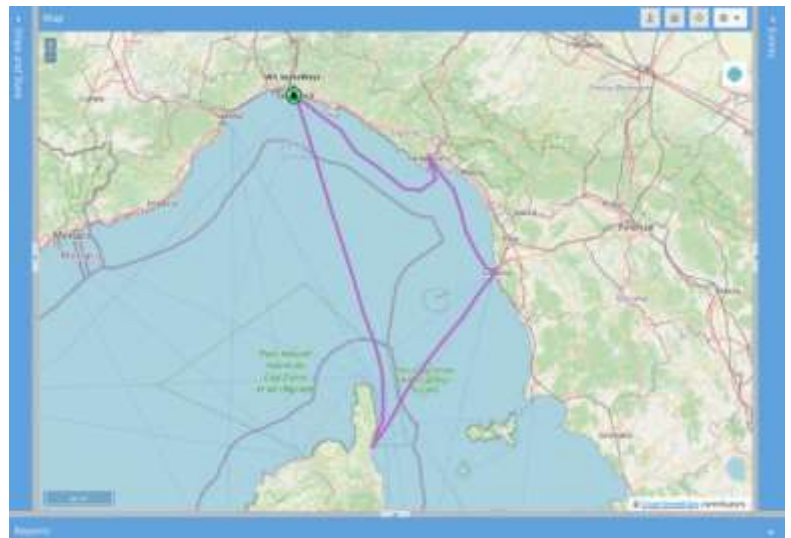
## Easy setup

Position data is sourced from either the internal GPS or LTE/GPS modules of the SnakeBox or external devices like a sat terminal. Detection of the correct hardware is automatic.

The SnakeWays internal devices use the latest chip sets and receive signals from GPS, Baidu, Glonass and Galileo satellite constellations. The SnakeBox GPS hardware supports active antennas, allowing for extended cable lengths.

## Map

The SnakeCloud shore server provides a convenient, fully featured, mobile aware display of your vessel positions. The map provides a live view of tracks and current positions as well as visualisation of past data. A global view of the whole fleet is available for display or integration into your website.



## Reporting

SnakeTrack provides live and historical reporting in Excel format as well as NMEA standard data for import into third party systems. Options to report on passages, stoppages, and voyage summaries complete the rich features like distance, maximum and average speed calculations.

## Geofencing

SnakeTrack supports a rich set of geofencing features. Fences can be defined manually or data for fishing and danger zones, territorial waters and many others can be imported.

Alerts are triggered upon entering and leaving a zone. Zones and alerts can be set for individual vessels, a group or the fleet. All events are stored in the database and can be reviewed and exported in excel format.

# Why SnakeWays?

## There Are Many Reasons

### Reliable

- Single low power stand-alone device
- Fewer points of failure
- Simplified network layout
- Build in Redundancy
- Independent of Windows
- Single point of support
- Multiple circuits with automatic failover

### Efficient

- Network optimisation
- Smart least cost routing
- Traffic filter and management

### Secure

- Firewalling
- Network isolation
- Access control
- Encryption
- Antispam and Antivirus

### Cost cutting

- Convenient software and hardware as a service
- Pay only for the services that you need
- Avoid engineer visits
- Minimal up-front costs
- Save expenses for support
- Reduce airtime costs

# Get Yours

## Where to Get SnakeWays

SnakeWays services are distributed and supported by our global network of resellers.

To find your nearest dealer, please visit

<https://www.snakeways.com/get-yours/>

contact us by E-Mail:

[sales@snakeways.com](mailto:sales@snakeways.com)

or phone:

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