VESSEL TRAFFIC MANAGEMENT SOLUTIONS
The task of managing vessel traffic in ports, harbours and coastal areas places significant demands on those responsible for safety, security and protection of the environment. Higher traffic densities and greater vessel speeds mean that good outcomes increasingly depend on proven high tech vessel monitoring solutions. The Transas family of Vessel Traffic Management (VTM) solutions has been developed to support planning, traffic monitoring, environmental protection and coastal security, even in the most demanding situations. In this brochure we provide you with a brief introduction to the Transas VTM product family and an overview of capabilities.

Transas offers solutions with different capabilities that we will tailor to meet your exact needs:

**TrAN Viewer** is designed for use in small ports, by rescue services and AIS Network users.

**AIS-Monitor** is intended for use in medium sized ports and harbours, where radar is not required.

**Navi-Monitor** is a highly efficient and customisable solution for small and medium sized ports and harbours.

**Navi-Harbour** is a powerful and configurable solution for large ports and regional and national scale systems.

**TrAN Viewer**

For small ports, rescue services, AIS Network users

TrAN Viewer is intended for the reception, display and analysis of data from different AIS sources. Although TrAN Viewer is an inexpensive and easy-to-use solution, it contains all the functionality for AIS data display and analysis.

**MAIN OBJECTIVES:**
- Provides enhanced Situational Awareness
- Information exchange with AIS equipped vessels
- Provision of information about AIS equipped vessels
- Traffic analysis

**FUNCTIONALITY:**
- Single and Multiple AIS sensor support
- Multi-AIS data filtering and integration
- Automatic AIS targets identification
- AIS dynamic and static data presentation
- Reception and Transmission of AIS text telegrams (Transmission requires base station)
- Record and Playback
- Extensive Chart functionality including S-57 support

**REFERENCE:**
5 TrAN Viewers installed as an extension of the AIS Network for Koper port Slovenia.
**AIS-MONITOR**

*For medium sized ports and harbours where radar is not required*

Transas AIS-Monitor provides a powerful and intuitive AIS capability. AIS-Monitor has a user-friendly interface and sophisticated functionality for AIS traffic control. AIS-Monitor can display up to 500 real-time target tracks.

**MAIN OBJECTIVES:**
- Provides enhanced Situational Awareness and assistance in target tracking
- Provision of information about AIS equipped vessels
- AIS dynamic information exchange on vessel movements to prevent dangerous situations
- AIS static information exchange to assist ship-to-ship communication
- VTS data storage for administrative and incident analysis purposes
- Distribution of AIS-related information to interested parties
- Reduces risks associated with marine operations

**CONFIGURATION**

- CCTV System
- Radio Direction Finder
- Weather System
- AIS Base Station
- Central Server
- VHF Communication System
- Operator Workstation

**FUNCTIONALITY:**
- AIS, CCTV, RDF, Meteo-Hydro sensors support and control
- Multi-AIS data filtering and integration
- Automatic AIS targets acquisition and target drop
- Automatic AIS targets identification
- AIS dynamic and static data presentation
- Transmission/reception of AIS text telegrams
- Sophisticated zones configuration e.g. traffic, guard, auto-acquisition, responsibility etc.
- Comprehensive configurable Alarms management including Navigation and Sensor alarms
- Record and Playback
- Extensive Chart functionality including chart editing and S-57 support

**REFERENCE:**

AIS Monitor upgrade to Venezuela Navi-Monitor system.

AIS Monitor based Ferry tracking system in Copenhagen, Denmark.
**VEESSEL TRAFFIC MANAGEMENT SOLUTIONS**

**NAVI-MONITOR**

*For small and medium sized ports and harbours*

Navi-Monitor is an advanced integrated solution suitable for monitoring and surveillance purposes. The range of Navi-Monitor’s functions, interfacing with sensors and system flexibility makes it a highly efficient and configurable solution for small and medium sized ports and harbours.

**MAIN OBJECTIVES:**

- Efficient utilisation of port infrastructure (supports ISPS code compliance)
- Monitoring and identification of vessels and other navigational objects
- Ensures efficient transit
- Detection of illegal activity (terrorism, piracy, illegal immigration, illegal fishing, smuggling)
- Collision Avoidance Provision
- Assistance in search and rescue and to coastguard activities
- VTS data storage for administrative purposes and incident analysis
- Environmental protection

**FUNCTIONALITY:**

- Radar, AIS, CCTV, RDF, Meteo-Hydro sensors support and control
- Multi-radar tracking integration
- Multi-sensor (Radar and AIS) tracking integration
- Multi-AIS data filtering and integration
- Manual or automatic target acquisition and drop
- Manual or automatic target identification
- Radar video presentation
- AIS dynamic and static data presentation
- Transmission and reception of AIS text telegrams
- Target manoeuvre prediction (radar tracking in “shadow areas”)
- Sophisticated zones configuration e.g. traffic, guard, auto-acquisition, responsibility etc.
- Comprehensive configurable Alarms management including Navigation and Sensor alarms
- Record and Playback
- Extensive Chart functionality including chart editing and S-57 support
- Full system and sensor diagnostics
REFERENCE:

Tanjung Balai Karimun VTMS, Indonesia

The system is installed to support safety and security in a Free Trade Zone area. It can identify and monitor small targets as far as 40 nautical miles away. The VTMS is equipped with Navi-Monitor Software, Record & Playback capability, an AIS Base Station, CCTV, a 25kW Radar with an 8 foot antenna array and VHF Marine Radio. The solution has one local operator desk on site and one remote monitoring station at the Jakarta HQ linked using VSAT communications.

NAVI-HARBOUR

For large ports and Regional and National Scale Systems

Transas Navi-Harbour is a state of the art expandable solution designed to enhance maritime safety and efficiency of navigation and to protect the marine environment and adjacent shore areas from the possible adverse effects of marine traffic.

MAIN OBJECTIVES:

• Vessel traffic management and safety provision in large-scale high-density ports
• Efficient utilisation of port infrastructure (supports ISPS code compliance)
• Improve the quality of port services
• Improve economic performance by operational cost savings and increased efficiency of port operations
• Large scale planning and traffic coordination in regional or national areas
• Detection of illegal activity
• To enhance safety of life and property
• Reduce risk associated with marine operations
• Provide primary support for collision avoidance
• Mitigate consequences of incidents, accidents and disasters
• Environmental protection
• Distribute VTS-related information to interested parties
• Store VTS data for administrative purposes and analysis of incidents
• Provide assistance in search and rescue and to coastguard
FUNCTIONALITY:
• Radar, AIS, CCTV, RDF, Meteo-Hydro sensors support and control
• Multi-radar tracking integration
• Multi-sensor (Radar and AIS) tracking integration
• Multi-AIS data filtering and integration
• Manual or automatic target acquisition and drop
• Manual or automatic target identification
• Radar video presentation
• AIS dynamic and static data presentation
• Transmission and reception of AIS text telegrams
• Target simulation (creation, modification, tracking)
• Route management (creation of route lines, routes, route targets mode - associated alarms generation, route point ETA calculation, Route Profile tool)
• Target pairs mutual calculations/operations (target pairs table, target pairs operations)
• Target manoeuvre prediction (radar tracking in 'shadow areas')
• Sophisticated zones configuration e.g. traffic, guard, auto-acquisition, responsibility etc.
• Comprehensive configurable Alarms management including Navigation and Sensor alarms
• Record and Playback
• Extensive Chart functionality including chart editing and S-57 support
• Full system and sensor diagnostics
• Multi-operator concept — define workspace configuration independently for each operator on watch
• Secure system configuration — operators accounts are protected by name/password
• Network planning for large-scale and geographically spread systems with complex communication networks (Regional VTM, National VTM)

REFERENCE:
Republic of Cyprus National VTMIS
Cyprus VTMIS is a national scale system. It monitors sea traffic at the eastern boundary of the EU in order to improve safety, minimise the number of accidents at sea and combat illegal immigration, smuggling and similar activities.

Republic of Malta Coastal Surveillance System
The system, which includes radars and optical surveillance tracks all activity around the Malta coast including small targets. It has been instrumental in a number of operations which have led to the interception of craft carrying illegal migrants or engaged in the smuggling of controlled substances and contraband items.
## MAIN COMPONENTS

### Core components

<table>
<thead>
<tr>
<th>Component</th>
<th>Function</th>
<th>Technology</th>
<th>AIS</th>
<th>NM</th>
<th>NH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central server</td>
<td>Collection and processing of information from all system sensors. Distribution and display of this information among various operator workstations</td>
<td>TrAN</td>
<td>AIS</td>
<td>NM</td>
<td>NH</td>
</tr>
<tr>
<td>Operator workstation</td>
<td>Displays situation in the system operating area, presenting the sensor data and sensor control, monitoring operation of system units, generating alarms and handling system database</td>
<td>TrAN</td>
<td>AIS</td>
<td>NM</td>
<td>NH</td>
</tr>
<tr>
<td>Sensor server</td>
<td>Recept of data from various system sensors, processing of data from various system sensors, data transmission to central server using TCP/IP protocol</td>
<td>TrAN</td>
<td>AIS</td>
<td>NM</td>
<td>NH</td>
</tr>
<tr>
<td>Audio registration server</td>
<td>Digitising, compressing and transferring audio information to the central server for re-recording and playback</td>
<td>TrAN</td>
<td>AIS</td>
<td>NM</td>
<td>NH</td>
</tr>
<tr>
<td>Radar processor</td>
<td>Radar signal processing, clutter suppression, initiative target tracking, radar remote control, sensor status monitoring, radar maintenance functionality</td>
<td>TrAN</td>
<td>AIS</td>
<td>NM</td>
<td>NH</td>
</tr>
</tbody>
</table>

### Sensors

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Function</th>
<th>Technology</th>
<th>AIS</th>
<th>NM</th>
<th>NH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radar sensor</td>
<td>Generation and display of the traffic image in the System observation area, detection and tracking of the targets</td>
<td>TrAN</td>
<td>AIS</td>
<td>NM</td>
<td>NH</td>
</tr>
<tr>
<td>AIS Base station</td>
<td>Automatic identification of ships IMO number, MMSI, callsign and name, reception of messages on coordinates, course, speed over the ground, reception of data on the rate of turn, ship type, port of destination and time of arrival in this port, route plan, availability of dangerous cargo, reception of static and dynamic data and binary messages</td>
<td>TrAN</td>
<td>AIS</td>
<td>NM</td>
<td>NH</td>
</tr>
<tr>
<td>CCTV, Night vision camera</td>
<td>Manual or automatic focusing on a target or geographical point in the Chart Window, automatically following the selected target with the CCTV</td>
<td>TrAN</td>
<td>AIS</td>
<td>NM</td>
<td>NH</td>
</tr>
<tr>
<td>VHF Communication System</td>
<td>Provides shore to ship VHF communications for operators</td>
<td>TrAN</td>
<td>AIS</td>
<td>NM</td>
<td>NH</td>
</tr>
<tr>
<td>Radio direction finder</td>
<td>Scanning of the marine VHF channels, presentation of the bearing lines on the Chart window</td>
<td>TrAN</td>
<td>AIS</td>
<td>NM</td>
<td>NH</td>
</tr>
<tr>
<td>Hydro-Meteostation / Buoy</td>
<td>Presentation of the different weather data (temperature, wind speed, direction, humidity, rainfall), presentation of the hydro data (current speed, direction, wave height)</td>
<td>TrAN</td>
<td>AIS</td>
<td>NM</td>
<td>NH</td>
</tr>
</tbody>
</table>
TURNKEY SOLUTIONS

Transas is dedicated to providing a high-quality service to its customers. The company is built around an 'Anything, anywhere, anytime' attitude to meeting our customers' needs. The Transas Service Network is strategically located worldwide to deliver fast and efficient service to our customers.

Transas is a supplier of turnkey integrated solutions, from initial design phase to through-life support.

Whenever you need to extend the scope of existing installations and to update to a higher level of technology, we are ready to help and support you.

Transas is always there, when you need us.

ADDED VALUE

Port Management Information System

The Transas PMIS is an advanced information system providing extensive functionality for managing and storing different types of data related to ships, ship visits and port activities.

The PMIS interfaces to VTM software (Navi-Harbour, Navi-Monitor, AIS Monitor) to receive real-time information and for data exchange with external agencies (for example, ship agents) via the Internet.

Features:

- Input, storage and editing of data on VTM System information objects (ships, berths, channels etc.)
- Automatic input of information on AIS equipped vessels
- Automatic recording of ship visit data
- Automatic recording of ship position in the System area
- Search for information by the set criterion
- Provision of information on the ship calls to other services
- Automated electronic Log Book
- Use of database information to identify acquired radar targets
- Generation of Vessel Positioning report for a specific moment in time

Remote terminal

Transas Remote Terminal provides real time permanent remote access to information available in the System. The System is considered by the Remote Terminal as a sensor from which it receives radar video, all the ship’s AIS data and identification and motion parameters.

The operator can simultaneously connect to several systems from one Remote Terminal and display data received from all the systems.
Web Access

Web Access Server
Web Access Server provides a web based view of the navigational situation in the area covered by the existing VTM System. It provides remote user access to the System tracking data via a standard Internet browser. Such access presents tracked targets on a background of electronic charts and as a tabular list.

This kind of access to the System information can be used as a remote terminal by the Rescue Coordinating Centres (RCC), by the military, managers, ships agents and charterers.

Features:
• Full information provided on the system-tracked targets
• Data updated automatically or at user command
• Control of the display area on the chart
• No dedicated software required, except Microsoft Internet Explorer and Microsoft Java Virtual Machine
• Password-protected access

Database Web Server
Database Web Server provides remote access to PMIS via a standard Internet browser. Users get access to data viewing, query, editing and saving of changes depending on a password-protected user authorisation.

Web Access to PMIS can be used by the managers, charterers and shipping company agents for entering data on the planned ship visits, for receiving data on the stay of ships in ports and on the shipping companies and ships.

Features:
• Read and edit access to the PMIS reference books
• Remote access login to PMIS with various access rights (read only, read and edit)
• Option to restrict access for particular users and/or database sections
• Full information provided on targets tracked by the System
• Data updated automatically or at user command

Debriefing station
Debriefing station is designed for a real time, fast or slow playback of the recorded information on the targets’ positions and motion vectors, as well as on the alarms generated by the system, in the normal graphics environment of an operator workstation.

Features:
• Presentation of all recorded data (playback) in an operator workstation graphic environment (all the usual operations such as radar image control, scaling, off-centring, electronic measurements are accessible in the process of playing back)
• Archive volume selection for playback
• Display of date/time of the recording parameters in the archive volume selected for playing back
• Selecting playback fragment from a recording time in a specific archive volume
• Positioning on particular time within selected fragment
• Setting the time acceleration (up to 20 times)/slow down coefficient in the playback process
• Continuous display of time corresponding to the played back situation
• Search for recorded fragment by user specified criteria (vessel name, Alias, MMSI, Call Sign)
• Save selected fragment to specified drive/folder
• Export tracked target data from selected fragment to text format
• Capture and print graphic image during playback
• Record movie files during playback
Control & Monitoring System
Transas Control & Monitoring system enables the remote monitoring and control of equipment for the following tasks:
- Continuous monitoring via the SNMP (Simple Network Management Protocol) of the equipment status and parameters
- Turning on/off the equipment power supply
- Computer status monitoring and remote restart
- Monitoring the state of connection with an arbitrary network device with the set IP address
- Monitoring the status of system software components
- Generation of alarms triggered by the detection of equipment faults and monitored parameters exceeding the permitted limits
- Graphical presentation of information on the state of monitored equipment in the program window
- Keeping event logs
- Sending SMS messages to the defined mailing list in the event that equipment faults and failures are detected
- Recording all events and the parameters/values of monitored equipment

Transas Control & Monitoring can be used within any Transas VTM system and any Transas AIS Networks.

Dedicated keyboard
Extended VTS Keyboard is an additional facility for the prompt input of the most frequently used commands. The use of dedicated keys on this keyboard enhances the efficiency and ease of the program.
- VTS Keyboard has 71 keys from a standard PC keyboard and 48 colourful special System function keys
- The keys are grouped according to functionality: Target functions, Display functions, Chart functions, other frequently used functions

AIS Network
Transas AIS Network is the shore based AIS infrastructure designed to support AIS communication between ocean-going vessels, port vessels, Vessel Traffic Management System, and various clients requiring data exchange with the vessels.

Functions:
- Transparent connection of AIS Network clients to Multi AIS Base Station environment
- AIS data management and routing
- Centralised control and diagnostics of AIS Base Stations
- Services to AIS Network clients, such as online data reception for surveillance, binary and safety related data exchange between ships and clients
- AIS data exchange with other National or International AIS Network systems
- AIS data logging for later retrieval and data processing
- Centralised system configuration, control and diagnostics
- Presentation of AIS information on the Client Workstations over electronic charts