

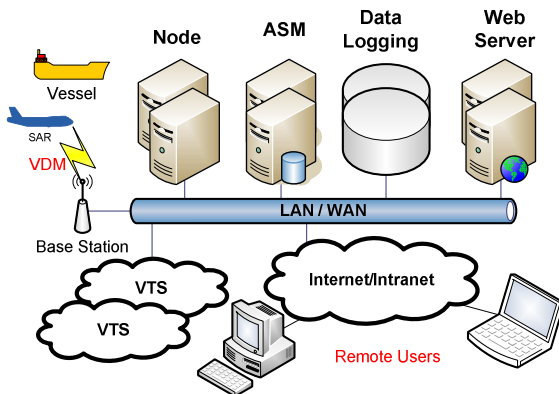


## C-Scope AIS Network Software

**The Kongsberg Norcontrol IT (KNC) C-Scope AIS Network Software is a state of the art system based on commercial-off-the-shelf (COTS) computer hardware and software. An open architecture system design provides for future expansion of additional base stations, workstations and functionality.**

### Introduction

The C-Scope AIS Network Software provides a tool to manage and communicate between various AIS systems and components while maintaining an integral data store of all the AIS data. The system is scalable from a simple single server to multiple servers with full redundancy. The system has a fully configurable filtering, routing and data storage network allowing for unique tailored systems to suit any needs. Any hierarchical system structure can be supported allowing for regional, provincial and central coverage or control. Complying with the IALA definitions of PSS, LSS and ASM, the C-Scope AIS Network Software provides the backbone infrastructure and network linking base stations, VTS centres, MRCC's and any system requiring AIS data.



### Features

- ✦ Mature - Third Generation software product that has been commercially available for over 10 years
- ✦ Provides complete AIS coverage in a designated area
- ✦ Enhance safety within the Service Area
- ✦ Interface to Aids to Navigation equipment
- ✦ Assist in ensuring the highest possible level of security & efficiency for the vessel traffic in the designated area
- ✦ Provides for flexible filtering and redistribution of AIS data to external systems
- ✦ Complies with IMO, ITU, IEC specifications including ITU-R M.1371, IEC 61993, IEC 62320-1
- ✦ Follows IALA A-124 recommendations

### Components

#### ➤ Node Manager

Is an application that runs as an operating system service in the background on all network servers, and provides:

- ✦ Real time filtering and routing of data
- ✦ Authentication and authorisation of client data connections
- ✦ Secure distribution of data in a deterministic manner
- ✦ Built in web server for diagnostic and administration
- ✦ Intelligent routing of addressed messages
- ✦ Hot standby support for mission critical application
- ✦ High speed message processing - minimal latency

#### ➤ AIS Database

The AIS Database provides the store for all AIS messages as sent from the Node Managers. All the standard AIS messages are supported such as position reports, static data, safety messages, AtoNs, channel management, Class B position reports, interrogation, ITU/IMO binary messages, mode assignments, navigation routes, and VTS targets.

#### ➤ AIS Service Management (ASM)

The ASM provides the facility to manage users and system resources, and view data. The ASM is not a physical entity such as a computer, but rather a software process that controls the AIS Service and allows the user to manage the network and add functionality. The main ASM modules include:

- ✦ User Access Manager
- ✦ Network Configuration Manager
- ✦ AIS Base Station Manager
- ✦ Area Manager
- ✦ Data Integrity
- ✦ Data Maintenance
- ✦ Data Holes Tool
- ✦ Data Query Tool
- ✦ Data Replay Tool
- ✦ Data Monitoring Tool
- ✦ VDL Coverage monitor
- ✦ Text Messenger Tool
- ✦ Vessel Channel Manager
- ✦ Vessel Assignment Tool
- ✦ Interrogation Tool
- ✦ Latency Tool

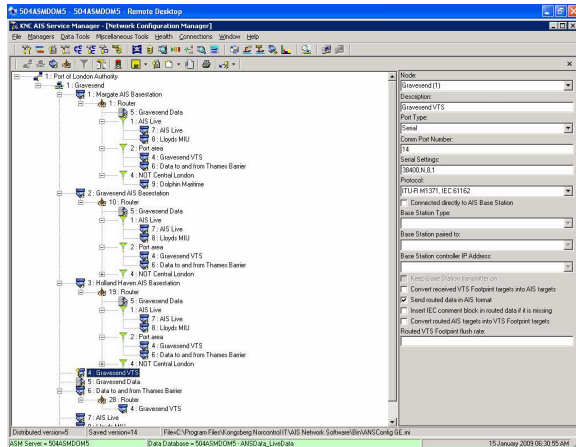
## Data Maintenance

Provides archiving and maintenance of AIS databases in a fully automatic configuration. Data can be copied, deleted and retrieved via a simple user interface and utilising Media logs. No SQL skills are required and the Media log format is future proof (stored in time-stamped native AIS format) and can be used to import historical data from other systems.

## User Access Manager

Integrated with Microsoft™ Windows Active Directory it provides the Administrator with role based access rights via Active Directory User Groups. Access is only granted to authenticated and authorised users to Increase the robustness and the integrity of the system.

## Network Configuration Manager



Provides a graphical design of network topology with easy visualisation of routing logic, routers, ports and filters. Provides a comprehensive version control with rollback facility with secure and controlled process to reconfigure the AIS Network.

## AIS Base Station Manager

Provides central configuration (with confirmation) and viewing of base station properties with support for IALA and IEC base stations that can co-exist in any numbers. Has a secure and controlled process to reconfigure the base stations with intelligent warnings for misaligned FATDMA configurations.

## Data Replay Tool

Provides an instant streaming of AIS stored data with forward, reverse and speed control. Useful during incident investigations to review replayed data on an ENC or captured to disk file. Has advanced time control (real time, pseudo real time and fast as possible mode).

## Text Messenger Tool

Any text telegram or safety message can be created and sent from this application. Messages are sent to selected vessels, vessels in a geographical area or broadcast from selected base stations, and can be used in an operational environment.

## Vessel Assignment Tool

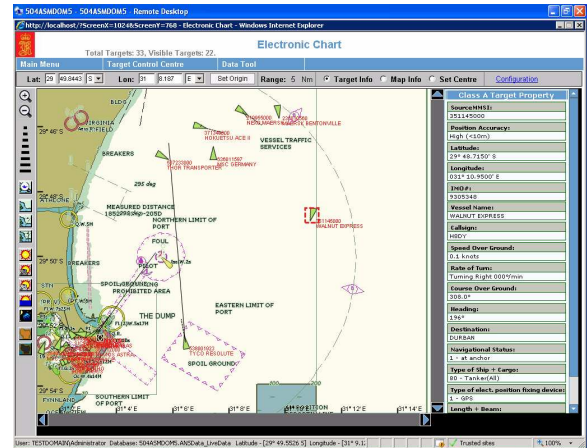
Allows a vessel's reporting rate to be configured and adjusted autonomously, controlled by geographical area or permanently set to allow accurate tracking of vessel movements in dangerous areas or hotspots. With IEC base station support for group assignments.

## In General

Each of the tools provided allows for the system administration of the entire AIS Network from a single application. The system administrator can use these tools on an "ad-hoc" basis to manage the operation and control of the AIS Network.

## Web Interface

The Web Interface provides a Microsoft Internet Explorer interface for graphical display of targets, a Data Query and a Data Replay tool. Being web based no software installation is required to access this application. All AIS targets (vessels, base stations, AtoNs, aircrafts) are displayed with different symbols on a S57 chart, and provides for the display of AIS information for each target. Authenticated access with authorised control of features and data.



## Redundancy

To ensure maximum level of reliability, the AIS Network can be set up using redundant servers. Upon detection of failure, automatic failover ensures there is no "Single point of failure".

## Benefits

- ✦ Simple to install, setup and manage
- ✦ Graphical Administration Tools - the graphical management tools provide a simple and intuitive way of setting up the complete AIS Network.
- ✦ Limited training required to become a proficient user
- ✦ High availability of AIS data using hot-standby and load balancing
- ✦ Secure distribution of data in a deterministic manner using real time AIS filters
- ✦ Centralised management control and diagnostics
- ✦ Real time filters to reduce data content thereby exposing relevant data
- ✦ High data integrity and security
- ✦ High speed real time routing of data
- ✦ Increases the availability of the AIS service
- ✦ Centralised software maintenance
- ✦ Logging of system availability
- ✦ Manage internet bandwidth for data distribution

