



1st Extraordinary Meeting ROPME Sea Area Hydrographic Commission (RSAHC)

**United Arab Emirates G.H.Q Armed Forces
Military Survey Dept
Abu Dhabi, UAE**

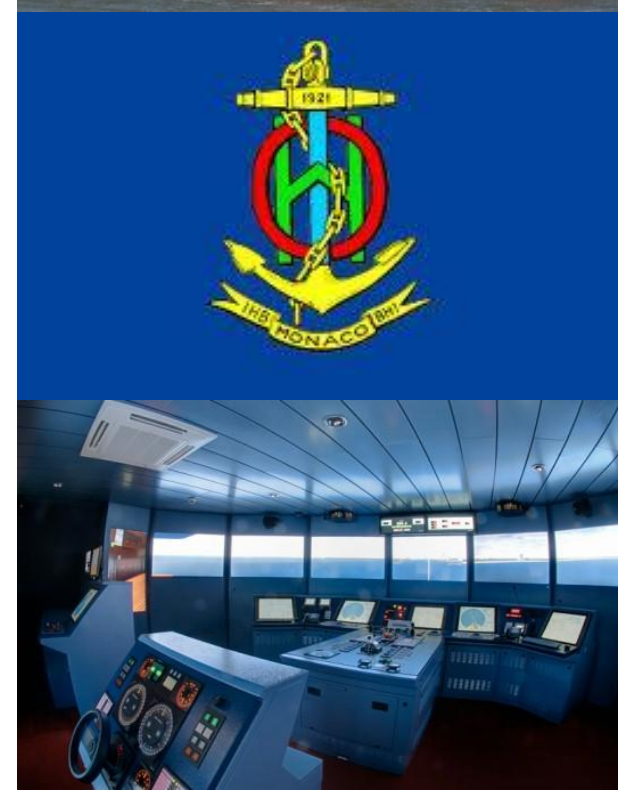
09-11 February 2014





Company History

- **Founded in 1992**
- **Ex-UKHO owned company**
- **Created S-57 and S-52 Standard as used today for the IHO**
- **Part of the core working group for defining S-100 and beyond, along with Transas, Jeppesen, Esri, IIC, Furuno, Geomod, and Caris.**
- **Experience along the entire value chain of ENCs – Production Software, Production and Encryption, Data Management, Distribution and Navigation**

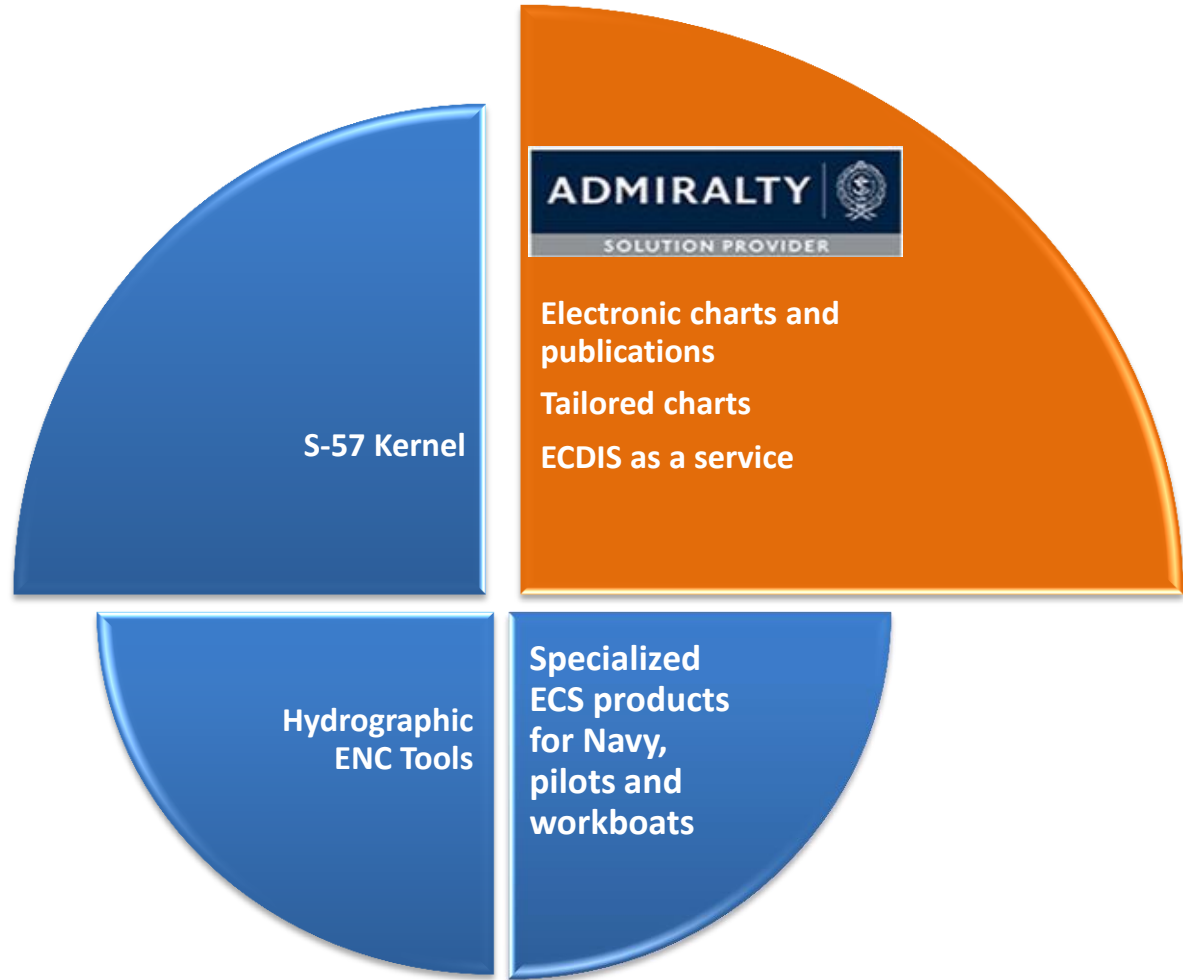


SevenCs and ChartWorld



SevenCs and ChartWorld

More than 100 chart producing clients in various fields such as Hydrographic Offices, Waterway Authorities, Ports, Pilots, private ENC producers, simulators and Universities.



Products

ENC Designer with ENC Manager



ENC Contour Generator



ENC Optimizer



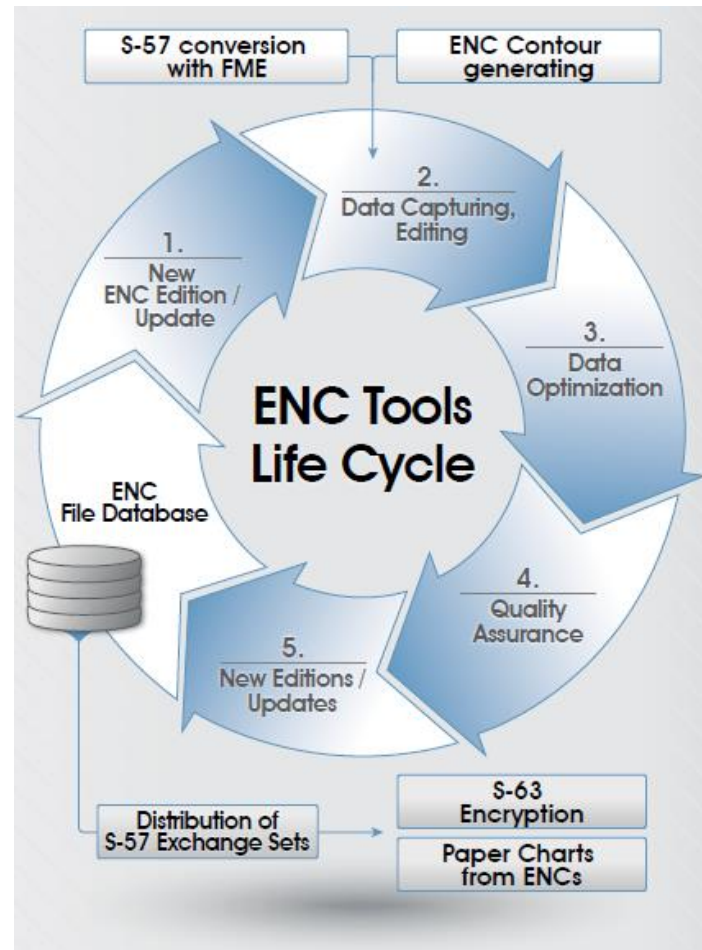
ENC Analyzer



ENC Cartographer

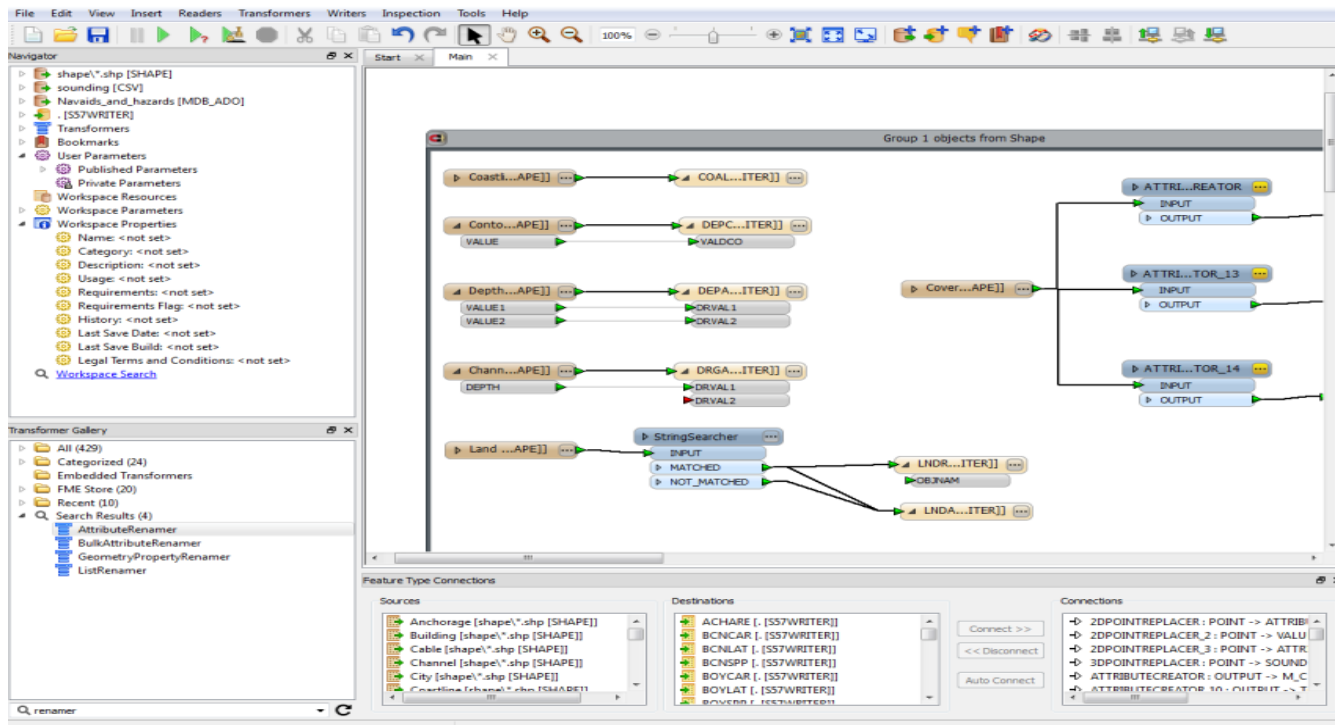


ENC Encryptor



ENC S-57 Writer

- Safe Software FME including S-57 Writer Plug-In allows you to convert any Geo-Information into S-57 format;
- FME = integrated collection of spatial ETL (Extract, Transform, and Load) tools for data transformation and translation.

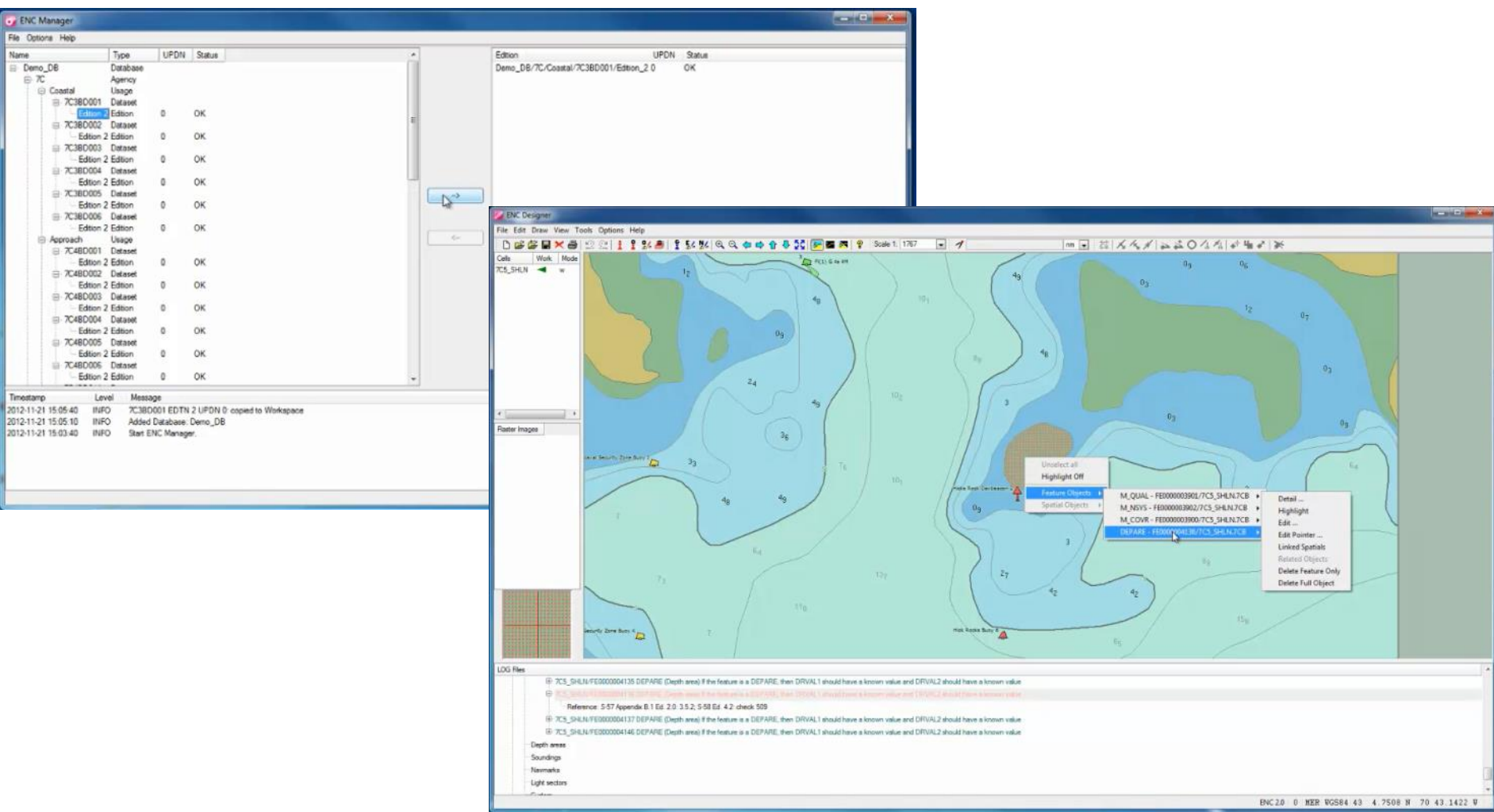




ENC Designer with ENC Manager

- **ENC Designer is a graphical tool which allows you to create, edit and update ENC, IENCs and AMLs;**
- **The powerful software allows S-57 data or geo-referenced raster data objects to be created, modified, and edited whilst providing a plot function for visual data verification.**
- **ENC Manager is a workflow environment for the maintenance of S-57 data.**
- **It can be used in the production of new ENC, IENCs, AMLs, updates, new editions and S-57 Exchange Sets.**



ENC Designer with ENC Manager



The image displays two software windows: ENC Manager and ENC Designer.

ENC Manager (left window) shows a project tree on the left and a table of data on the right. The table lists various datasets and their status.

Name	Type	UPDN	Status
Demo_DB	Database		
7C	Agency		
Coastal	Usage		
7C380001	Dataset	0	OK
7C380002	Dataset	0	OK
7C380003	Dataset	0	OK
7C380004	Dataset	0	OK
7C380005	Dataset	0	OK
7C380006	Dataset	0	OK
Approach	Usage		
7C480001	Dataset	0	OK
7C480002	Dataset	0	OK
7C480003	Dataset	0	OK
7C480004	Dataset	0	OK
7C480005	Dataset	0	OK
7C480006	Dataset	0	OK

The right pane of ENC Manager shows the current edition: Demo_DB/7C/Coastal/7C380001/Edition_2 0, with a status of OK.

ENC Designer (right window) displays a bathymetric chart with depth contours. A context menu is open over a feature, showing options like 'Highlight Off', 'Feature Objects', and 'Spatial Objects'. The 'Feature Objects' menu is expanded, listing several objects with their IDs and names, such as M_QUAL, M_NSYS, M_COVR, and DP/ARE.

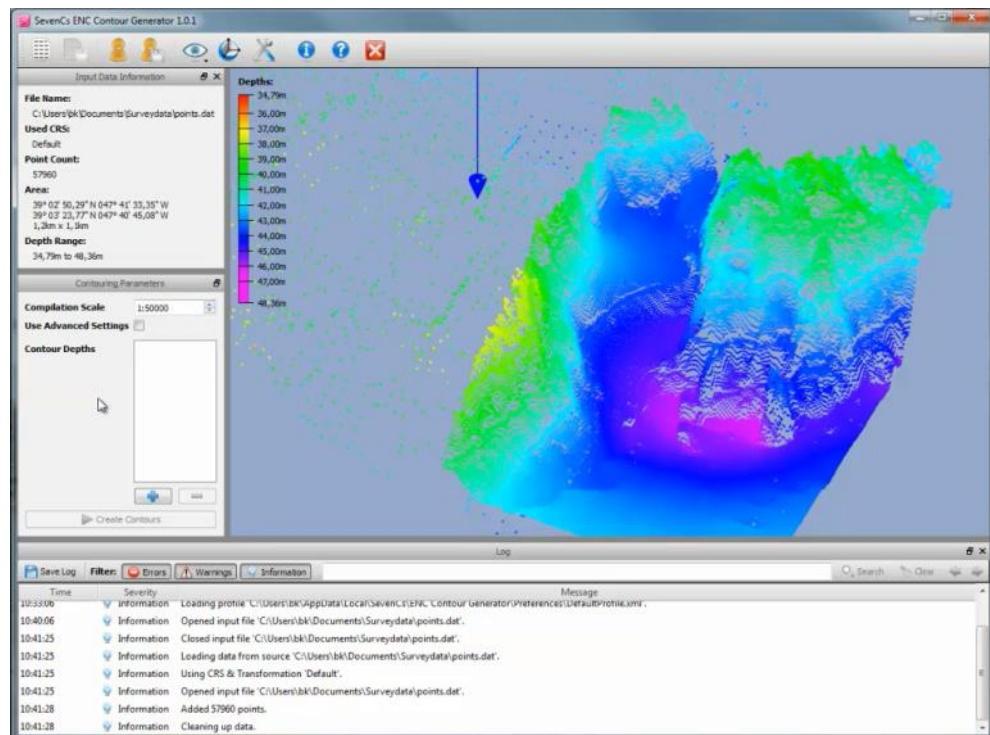
The bottom pane of ENC Designer shows a LOG Files window with the following text:

```

@ TCS_SHLN/FE000004135 DEPART (Depth area) If the feature is a DEPART, then DRVAL1 should have a known value and DRVAL2 should have a known value
@ TCS_SHLN/FE000004137 DEPART (Depth area) If the feature is a DEPART, then DRVAL1 should have a known value and DRVAL2 should have a known value
Reference: 5-57 Appendix B.1 Ed. 2.0 3.5.2, 5-58 Ed. 4.2 check 528
@ TCS_SHLN/FE000004137 DEPART (Depth area) If the feature is a DEPART, then DRVAL1 should have a known value and DRVAL2 should have a known value
@ TCS_SHLN/FE000004146 DEPART (Depth area) If the feature is a DEPART, then DRVAL1 should have a known value and DRVAL2 should have a known value
  
```


ENC Contour Generator

- ENC Contour Generator allows automatic generation of depth contours at user defined intervals from xyz data;
- 3D visualisation of source data and contouring results;
- Includes a comprehensive Coordinate Reference System (CRS) Manager;
- Supports “safe side” contour smoothing and contour generalisation.



ENC Optimizer

- **RENC recommended tool to reduce data volumes and maximize display performance;**
- **Automatic setting of official or user defined SCAMIN values;**
- **Automatic correction of digitizing errors, e.g. duplicate geometry, non significant characters etc.**
- **Logfile allows single optimizations to be stepped through in ENC Designer;**
- **Filter function allows the application of single optimization functions to particular objects.**



ENC Analyzer








Oceania

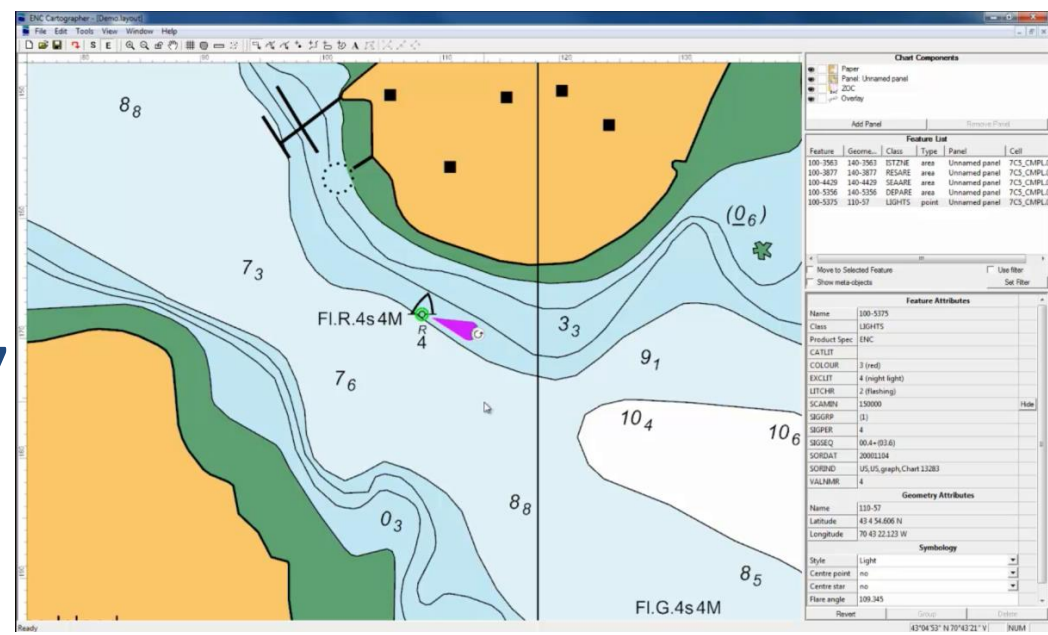
- **ENC Analyzer is a joint development between L-3 Oceania and SevenCs;**
- **Powerful data validation tool which performs over 600 checks according to IHO S-58 (Recommended ENC validation checks);**
- **Works as a stand alone tool or in combination with ENC Designer and ENC Manager;**
- **Individual results can be checked via the log file and highlighted in ENC Designer.**





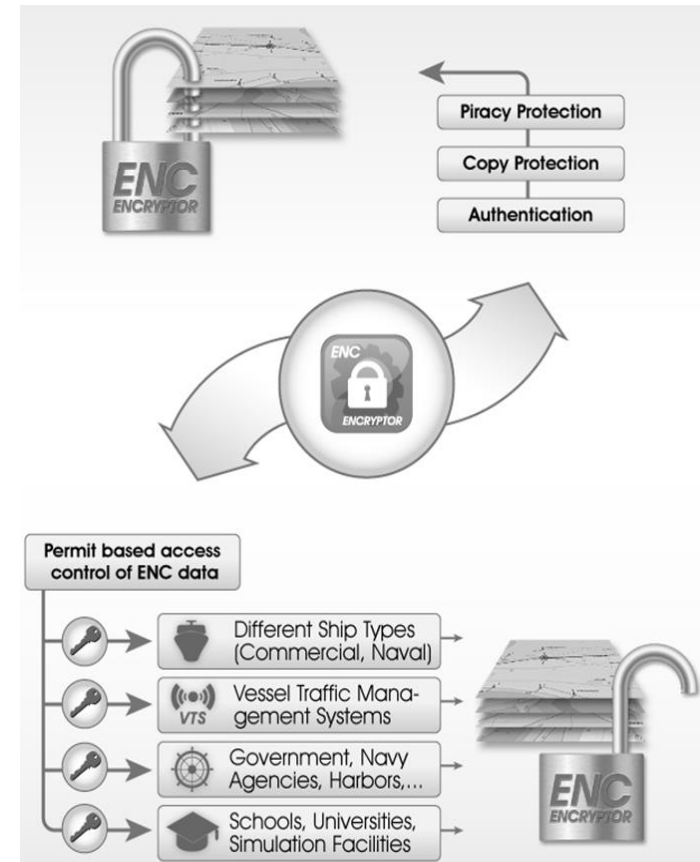
ENC Cartographer

- 
ENC Cartographer allows the derivation of INT1/INT2 paper charts from one or more S-57 ENC cells;
- 
Creation of Zones of Confidence (ZOC) diagrams using S-57 quality objects;
- 
Support of INT2 borders and graticules, & generation of marginalia and text;
- 
Tidal Stream and Compass Rose paper symbols derived from S-57 objects;
- 
Spatial Vector Graphics (SVG) generated file for cartographic editing.



ENC Encryptor

- ENC Encryptor allows S-57 ENC producers to encrypt and sign their data according to the IHO S-63 Data Protection Scheme;
- ENC Encryptor is delivered together with the ENC Permit Generator;
- ENC Permit Generator generates the respective chart keys needed by the data users to access the data. A Data Client database can also be created and maintained;
- Supports S-63 1.0 and 1.1



Capacity Building

- **SevenCs recently launched our new IHO Capacity Building programme which offers comprehensive and practical guidance for States embarking on ENC production or who concerned with future production and data supply of S-57 ENC data.**

- **The 10 day training course covers topics such as:**
 - IHO S-57, S-52, S-58, S-63, and S-65
 - Creating and editing ENCs
 - Georeferencing and Digitising Data
 - Data optimisation and ENC management
 - S-63 data encryption and creation of chart permits
 - Bathymetric data processing and contour generation

- **The course is highly practical and enables delegates to demonstrate knowledge and aptitude through a series of progressive exercises using SevenCs ENC Production Tools.**

Capacity Building

- Following the training, SevenCs will support the HO by cross-checking the ENC data produced as an additional quality check, before the data is sent to the RENC
- Montenegro demonstrate a 'Best Practice' approach to Capacity Building going from zero to an ENC producing RENC member in just 3.5 months. They are now equipped with SevenCs ENC Tools for ENC Production and have just completed the Capacity Building Training Programme.



Hydrographic Production System

- 🌐 **Based on the ENC Tools, SevenCs offers a full scale Hydrographic Production System**
- 🌐 **Database driven data management and customized workflow optimization**
- 🌐 **Easy management of survey data with Bathymetry Management Module**
- 🌐 **Low installation and maintenance costs**
- 🌐 **Consultancy and quality management services available**



The Future?

- **Cloud storage / sharing of data?**
- **'Live' production of ENC's – from survey to bespoke ENC?**
- **Ship to shore data sharing?**
- **S-100 ready**
- **Software as a service**

.....it's all possible!

Commercial aspect

- **SevenCs is supporting emerging countries and their hydrographic offices with its easy to use and cost efficient ENC Tools;**
- **Software support based purchase programs;**
- **Web-based and cost efficient one-on-one ENC production training;**
- **Future solutions for ENC production and ENC use.**



THANK YOU!