



Case Study: SevenCs



Key Facts:

Industry: Hydrography

Problem: Time-consuming data conversion

Solution: FME

Results: Rapid development of a new plug-in with flexible data format conversion

The Organization

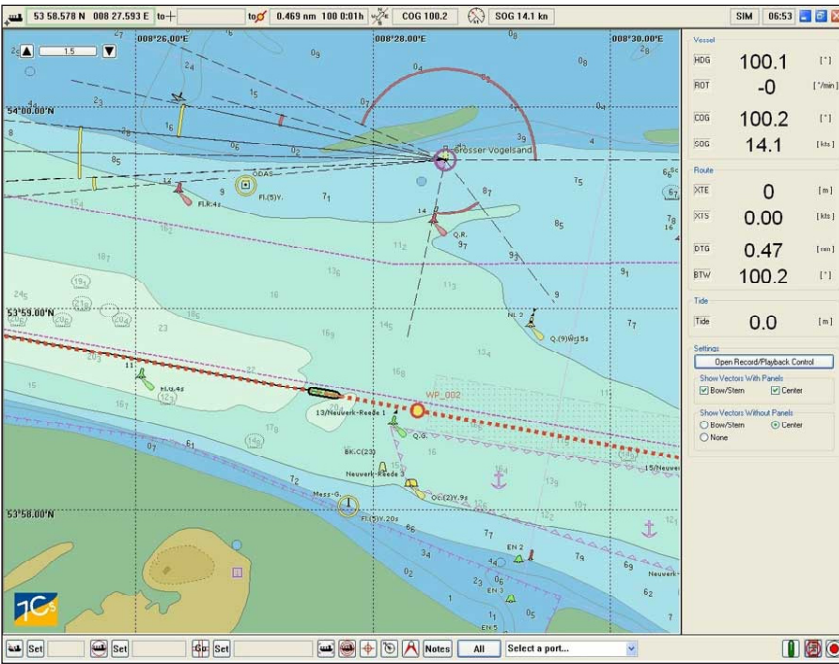
SevenCs is an internationally respected provider of kernel software for Electronic Chart Display and Information Systems (ECDIS) used for marine navigation by naval vessels, commercial fleets, and cruise liners. In addition to the development of navigational software, SevenCs core business activities include development of chart production software, production and distribution of navigational charts, and training and consulting services. Based in Hamburg, Germany, SevenCs has worked with over 33 Hydrographic Offices to produce Electronic Navigational Charts (ENCs) for harbors and local waterways all over the world. The company was acquired by the United Kingdom Hydrographic Office in November 2005.

The System

Established in 1992, SevenCs was one of the earliest pioneers in developing core software for marine digital navigation systems. These “smart” navigation aids, which are known as Electronic Chart Display and Information Systems (ECDIS), not only display data normally associated with traditional paper charts, but enhance safety by continuously monitoring the ship’s position with respect to other system information on shipping lanes, local traffic, submerged obstacles, and water depth. The system issues an early warning if a potential collision is detected. As an important accompaniment to their ECDIS Kernel software, SevenCs also provides a toolkit for creating and updating Electronic Navigational Charts (ENCs) – the data used within ECDIS systems.

The Challenge

The first step in the creation of an ENC requires conversion of the client’s dataset to S-57, a standard model for ENCs specified by the International Hydrographic Organization (IHO). Prior to 2006, SevenCs had maintained their own set of readers for their ENC toolkit to convert client data to S-57 from either ESRI Shapefiles, DXF, NTX or VPF. On evaluating Safe Software’s FME® however, SevenCs discovered that FME provided a far more ideal solution for conversion of data into S-57. FME offered access to data stored in any of over 200 formats, as well as sophisticated data transformation capability controlled via a graphical user interface, making it easier to restructure data into the complex model presented by S-57. With technical assistance from Safe Software’s Professional Services team, SevenCs developed their own S-57 writer plug-in for FME 2006 to manage the data translation.



An Electronic Navigation Chart created by SevenCs is shown here displayed in SevenCs' ORCA Master navigation tool.



“Doing much of the work at Safe’s office was far more efficient... All the expertise we needed was right on site and Safe staff were tremendous about making themselves available to us.”

“In the past, we often had to use our existing converters or find another solution to convert the client’s data to one of the four formats that our readers could handle – either ESRI Shape, DXF, NTX or VPF,” explains Eric Rottmann, ENC Tools Product Manager for SevenCs. “With every conversion, we would always lose some information. When we discovered FME software - with Workbench’s graphical representation of the data pipeline and all the transformers - we couldn’t believe it could be so easy. Immediately we had a solution that handled every format conversion problem we had ever faced. We very quickly decided to develop our own S-57 writer for FME and let Safe take care of maintaining all the format updates for us.”

When FME 2007 was released, SevenCs sought an opportunity to enhance the usability of the S-57 writer, and to also test the compatibility of the writer with FME 2007. This time, however, SevenCs wanted to streamline the development process; although Safe staff had been prompt to respond to SevenCs’s enquiries during the initial work on the S-57 writer integration, the difference in time zones between Canada and Germany meant the work frequently had to be put on hold while waiting for technical assistance.

The Solution

After discussing their work proposal with Safe Software, and the need to complete the enhancements and testing of the S-57 writer as efficiently as possible, Safe Software suggested that SevenCs staff do much of the work at Safe’s offices in Surrey, BC, Canada – a suggestion that was welcomed by SevenCs.

The Benefits

Within just a few days of being onsite at Safe’s offices, Eric Rottmann and Jörn Hauser of SevenCs had made significant progress in improving the integration between FME and the S-57 writer. As anticipated, Eric and Jörn’s presence at Safe fast-tracked development by allowing them instant access to Safe’s entire team as needed; Safe provided a certified FME training course instructor who explained details of typical FME plug-in integrations, as well as developers who provided the technical expertise needed to

address some of the unique challenges associated with supporting the S-57 format. Working together, SevenCs and Safe staff were able to enhance the usability of the FME/writer interface to allow users to automatically import feature types for the destination S-57 dataset, instead of manually adding each feature type. Safe staff also provided valuable advice on approaches to further development work, and how SevenCs could best support clients who are moving towards storing S-57 data in spatial databases. With the input provided by Safe, SevenCs were able to make a more informed decision about the appropriate level of integration they should consider – whether to maintain the writer as an extra-cost plug-in to FME, or make FME available as an optional extension to their ENC toolkit to manage import of additional formats, or even pursue a full OEM integration that would allow disconnected editing of the source data. Disconnected editing would enable users to check data out from a database, edit data within the ENC toolkit, then upload the data back to the database.

Hosting Eric and Jörn on site was beneficial for Safe Software as well. Consultations with the SevenCs representatives provided helpful insights into how to improve FME to better support plug-ins and writing to S-57 and other complex formats, and also streamlined a support process that would have been more difficult and labor-intensive to provide by email. SevenCs also provided valuable feedback on Safe’s FME Plug-in SDK; the plug-in SDK had recently been updated and extended to provide a comprehensive resource for easier plug-in development.

Learn More

To find out how FME can help address your data interoperability challenge, or to download a free evaluation copy of FME, visit www.safe.com.



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