

Maritime Source Data Collection, Management and Integration

John K KLIPPEN, Norway
Product Manager Jeppesen Norway AS

Topic: D, E, G

INTRODUCTION

A maritime navigational product today originates from a variety of different sources, data formats, data qualities and data providers. All this different data is used to compile, produce and maintain high quality navigational products as well as different nautical publications.

Data providers may be different governmental bodies/organizations, departments and private industry. Product compilations will also in many cases require compilation and processing of data with different qualities, from different data formats which must result in a complete and high quality product.

The requirement for source control, quality control of sources and traceability from products and their changes to original source is vital to ensure the quality value chain.

Jeppesen has a system allowing an (semi) automatic source registration, from local and remote locations, into a combined and complete Source data storage system. The system has a controlled registration process ensuring data conformity and quality allowing data recipient an assurance that received data is correct.

When a source is received it is processed by an expert and dispatched to a designated department and/or product/publication. The system may be set up to automatically dispatch received sources, depending upon predefined success criteria. Dispatching may be directly to following products:

- Electronic charts
- Paper charts
- Other nautical/cartographic products (e.g. Leisure charts, Special task charts, etc)
- Notice to Mariners products
here also including the different NtM Sections/paragraphs
- List of Lights
- Sailing directions
- Pilot books
- Other services/systems

The different production departments production system is then "picking up" the dispatched source message (with attached source files) and processing the source to the different affected products. Once the source is processed and quality control is accepted, the source is flagged completed and logged within the system. Logging is made to the different products, databases and to the source registry itself. This ensures full traceability from source to end product and vice versa.

The source message dispatched for publications is also collected within desired department and will form a draft notice for misc. chapters of e.g. the NtM booklet. The source message metadata and information is processed automatically to a NM (section) template, allowing the operator to focus on textual editing and presentation. A NM item may also require a product update before the booklet may be released, such as Tracing and/or Block.

The controlled processes and their different predefined quality control routines ensure the highest possible control of the data flow and the product change the source create. No products or publications are released before all defined QC steps are completed and accepted.

This system allows a data producer to release products and product updates directly, and the producer will not have to wait until the NtM booklet is released (or at least the specific NM is created).

The main difference between this system and a traditional NtM based updating regime is that the source is not only used to create the NM item, but is actually used for product creation and correction. In most cases the source will also have a much higher data quality and resolution than what one will find in the NM message. The NM message has been created mainly to handle updates and corrections to paper charts.

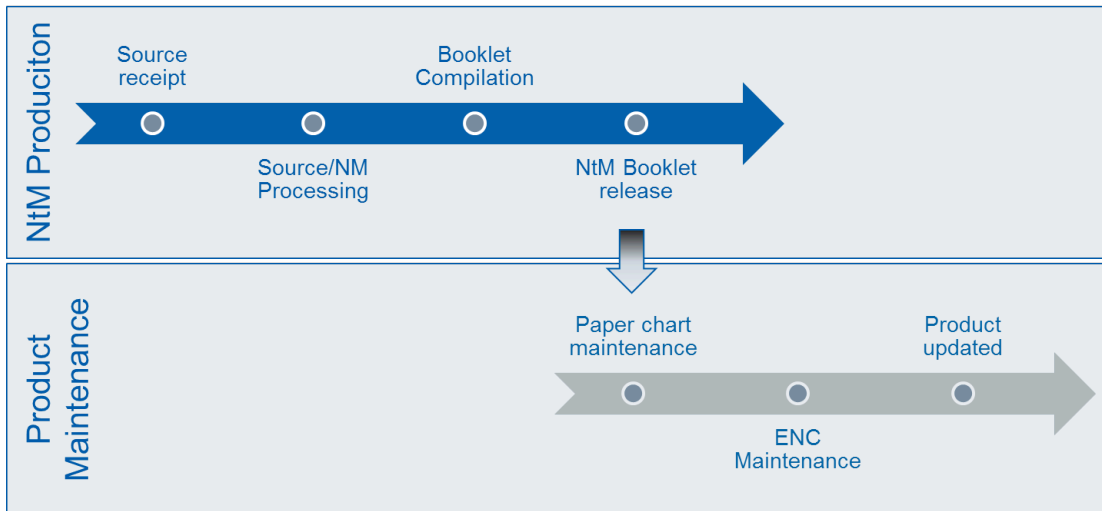


Figure 1 - Traditional NtM based updating

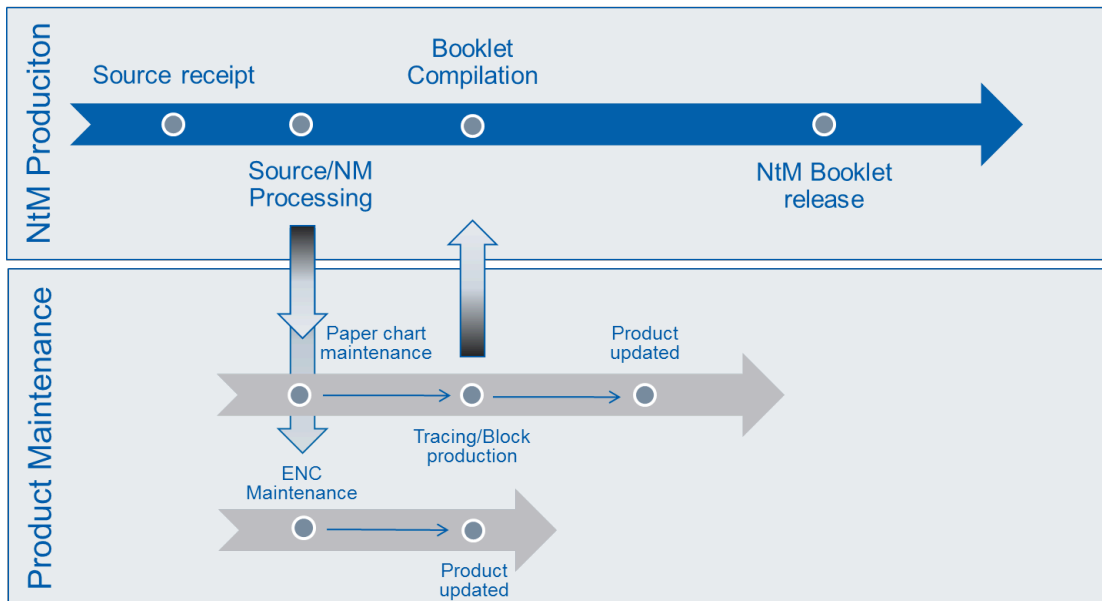


Figure 2 - Source based updating

The use of this system has proven to be an effective way to handle small to large product portfolios and to allow a quick and controlled update process without compromising on quality. Print on Demand paper chart services and a very quick ENC update distribution have been proven possible using this system, together with an integrated and effective NtM booklet production and distribution.

SOURCE DATA COLLECTION

Source data is collected, constructed and registered into a Source Message. A Source Message comprise of (minimum) Mandatory Metadata, Additional Metadata defined by the pre-defined template, actual source data files and time/date and operator details.

The operator is guided through the Source registration by the pre-defined metadata templates. These templates define mandatory attributes and data as well as defined available attributes for a Source message. The template also defined quality control criteria.

All templates used by a system is national customizable, ensuring a wide use of the system.

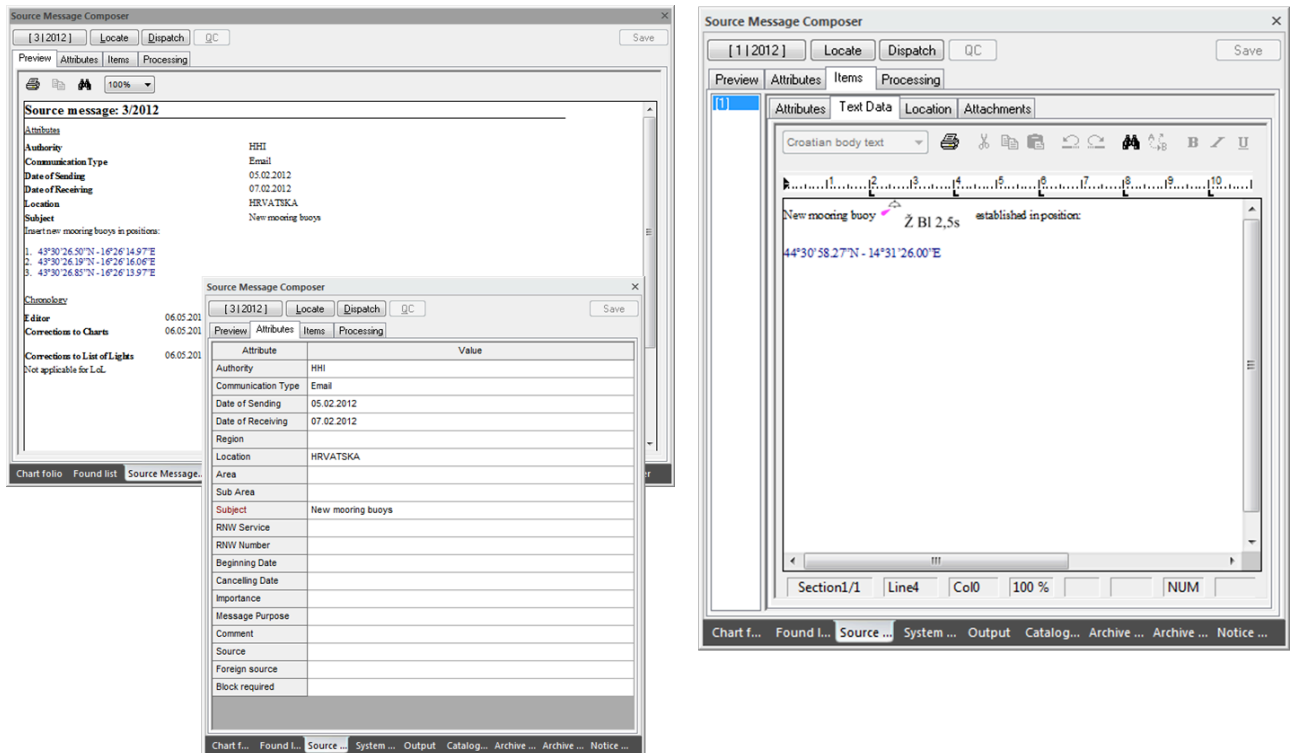


Figure 4 - Sample of Source Message screens

Once a source is registered, locally or remotely, it is checked against defined quality control measurements and if found accepted, the source message is flagged "Registration completed" and made available for "Dispatching"

Dispatching a source message is a system trigger operation.

The Dispatch allow a Zero-to-Many dispatching, where Zero would be to Archive or to Delete if no further action is required and Many is dispatching to defined departments for further product processing.

SOURCE DATA PROCESSING

Once a source is received by the production environment, which is a semi-automatic product dependent process, the different operators process the source for each product. The processing will, of course, be different depending upon product type, scale, format etc.

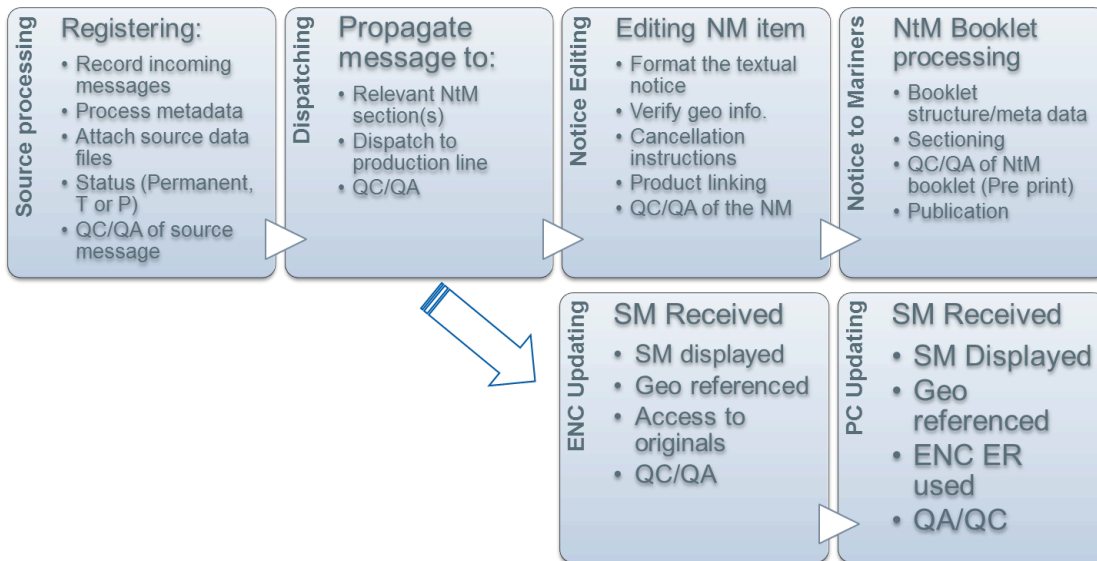


Figure 5 - Process description of Source handling

Processing Sources for Nautical Cartographic products

Within the production environment the operator checks the source message for any new updates for a series of products. All relevant sources are listed and the operator processes the corrections in a chronological order. Once the source message is processed and quality control is accepted, the SM is flagged Completed. This will then store process information to the specific product, database as well as to the Source Message system ensuring a full traceability.

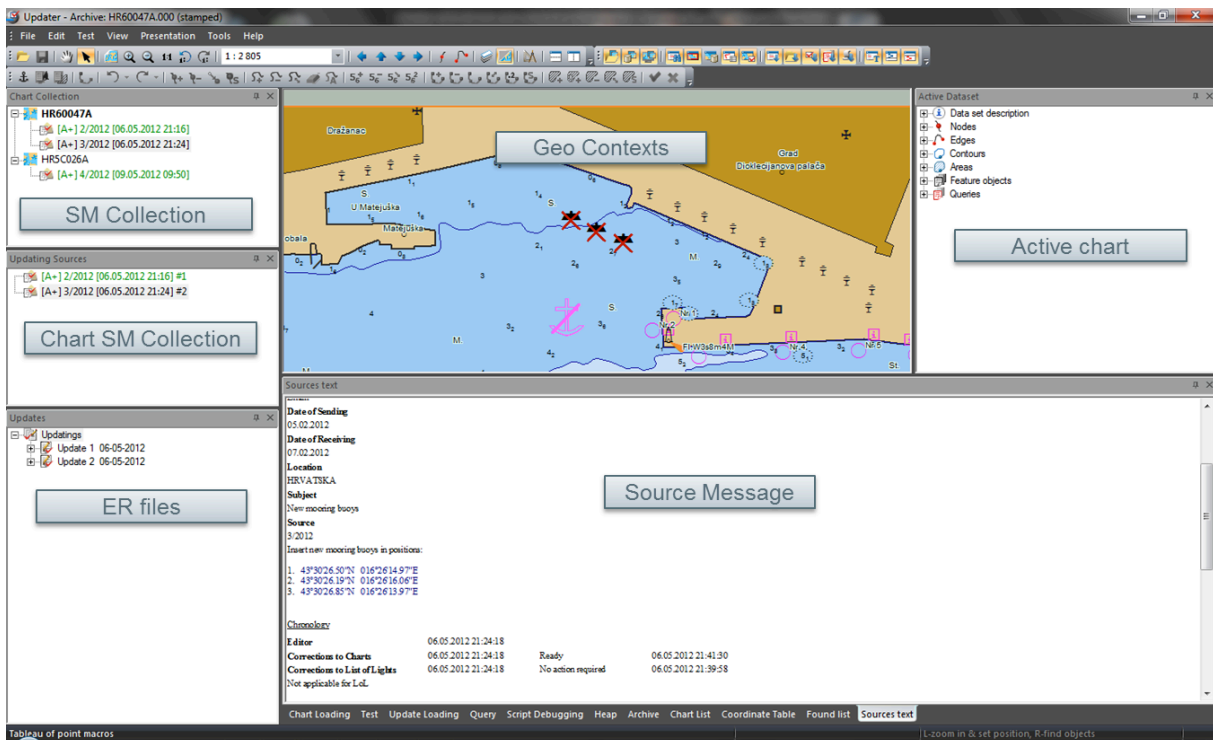


Figure 6 - Screen sample of source based ENC updating

Processing Sources for Publications

As for the production environment, as soon as a Source Message is dispatched to a publication is made available for the Publication editor. For NtM Publication following process would be valid. The source message has already been prefilled with most of the metadata needed to construct the Notice. So once the Source message is selected for a Notice, the system will convert the attribute based source message to a draft Notice textual message.

The operator will then perform textual editing ensuring that the content is formatted and presented as one would expect. The System will also automatically propose affected (paper) charts and allow the NtM editor to create cancelation messages etc. The Notice may be of Permanent, T/P or other categories.




Roles/Profiles		
	Process	Description
 Dispatcher	Source Message processing	This role is responsible for the Source Message database, metadata collection and have full editing ability for the SM. Only this role can add/edit, QC and Dispatch a SM. This role have Read rights to Draft NtM database and NtM database
 Notice Editor	Notice compilation and preparation	This role is holding all rights for Notice processing, editing, QC and finalizing. This role have Read access to SM's and published Notice to Mariners booklets with its notices. This is utilizing and improving the quality for the editorial work and the QC phase.
 NtM Booklet Publisher	NtM Booklet preparation and completion.	This role create the NtM booklet, compile the booklet by including ready notices, setting order and layout and creating Pre-printing. When Pre-print is accepted and approved, NtM Booklet is created. This role have Read rights to SM's and the draft NtM database

Figure 7 - Roles for Source processing to Publication

If the Notice Editor defines that the notice must be accompanied with one or more Blocks and/or Tracings, this will be flagged here. The production of Tracings will be an integral part of the product maintenance for the specific paper charts, which the Block creation may be done either in production department (as part of the actual update) or the Notice editor may create the block him/herself when the source has been applied.

CONCLUSION

Jeppesen has successfully rolled out the Source Message system at several hydrographic offices. The system has proven to provide an effective storage handling, where several processes may be configured to proceed fully automatically. The system is modular and tunable so that it will serve the needs of a small as well as a large hydrographic office.

Jeppesen has implemented automatic integration with buoyage system monitoring, ensuring an efficient paper chart update process enabling Print on Demand to run a biweekly released schedule. Jeppesen has also implemented full featured Notice to Mariners system handling source to booklet in addition to ensuring the product maintenance.

REFERENCES

Jeppesen and dKart documentation.

BIOGRAPHIES

John K KLIPPEN has worked for Jeppesen Norway since 1994. He has been product manager for the dKart Office software products since 1998. John K Klippen has also been the project manager for several Hydrographic Office projects during this period. John K Klippen holds a degree in Computer Science from the NITH in Oslo.

CONTACT DETAILS (of corresponding author only)

John K KLIPPEN

Jeppesen Norway AS

Hovlandsveien 52,

Postbox 212, N-4379

Egersund

NORWAY

Tel.: +47 51464700

Fax: +47 51464701

Email: john.klippen@jeppesen.com

Web site: www.jeppesen.com/marine

LinkedIn account: John K Klippen

Facebook account:

Twitter account: