

Hydro 2015, Cape Town

# from Bathymetric Data Management to Chart Products

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# Content

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- **Concept**
- **Managing Bathymetric data**
- **Handling Surveys**
  - Individual Model
  - Virtual Continuous Model
  - Products
- **Export formats**

# Concept...

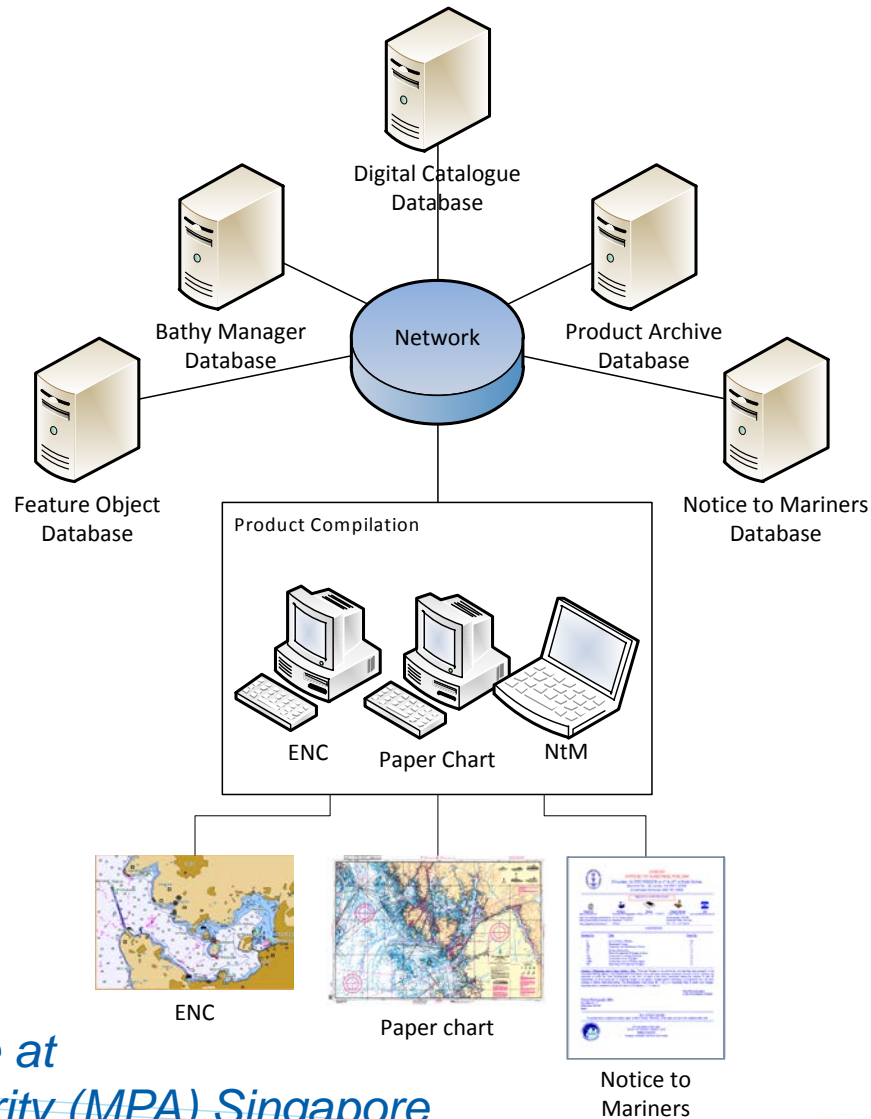
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Effective management of Hydrographic data, survey data and other data sources, is important to ensure quality and effectiveness for product compilation and quality.

dKart Bathymanager System allow management, storage, processing and quality control of :

- Individual models
- Continuous models
- Other models (e.g. Sediment profiles, Contours and Areas, etc.)
- Fairsheet
- Metadata control
- Integration with Chart compilation

# Integrated Hydrographic Management System



*As installed and in use at  
Maritime & Port Authority (MPA) Singapore*

# Bathymetric Concepts

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- **Individual model:**
  - Configurable metadata schema (for IM)
  - Configurable nodal schema (for soundings in IM)
  
- **Virtual continuous model**
  
- **Bathymetric workflow**
  
- **Other models**
  
- **Task scheduling**

# Individual and Continuous Models

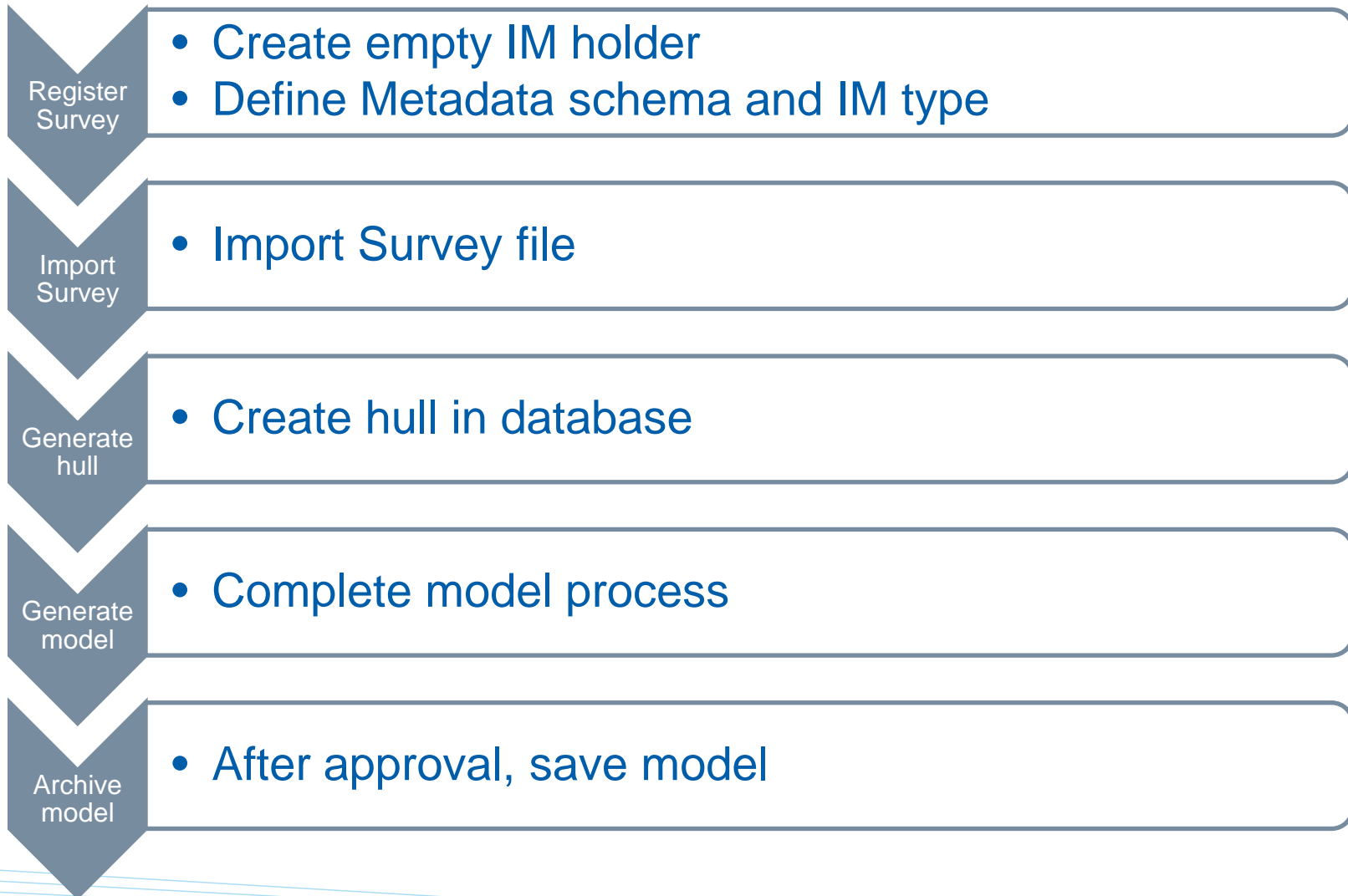
- An Individual Model (IM) contains the data of an individual hydrographic survey. Depending on what stage of the processing cycle an IM is at, it may contain metadata, a hull and measured depths or heights which may or may not have been interpolated or resampled.
- A Continuous Model (CM) is a continuous bathymetric surface which theoretically may cover the entire earth. The surface is represented by X, Y, Z points. X and Y are projectionless (WGS84) lat/lon co-ordinates. Z represents depths (if negative relatively to the vertical datum of the CM) or heights (if positive relatively to the vertical datum of the CM). Z-values are recalculated to the vertical datum of the CM

# Individual Models

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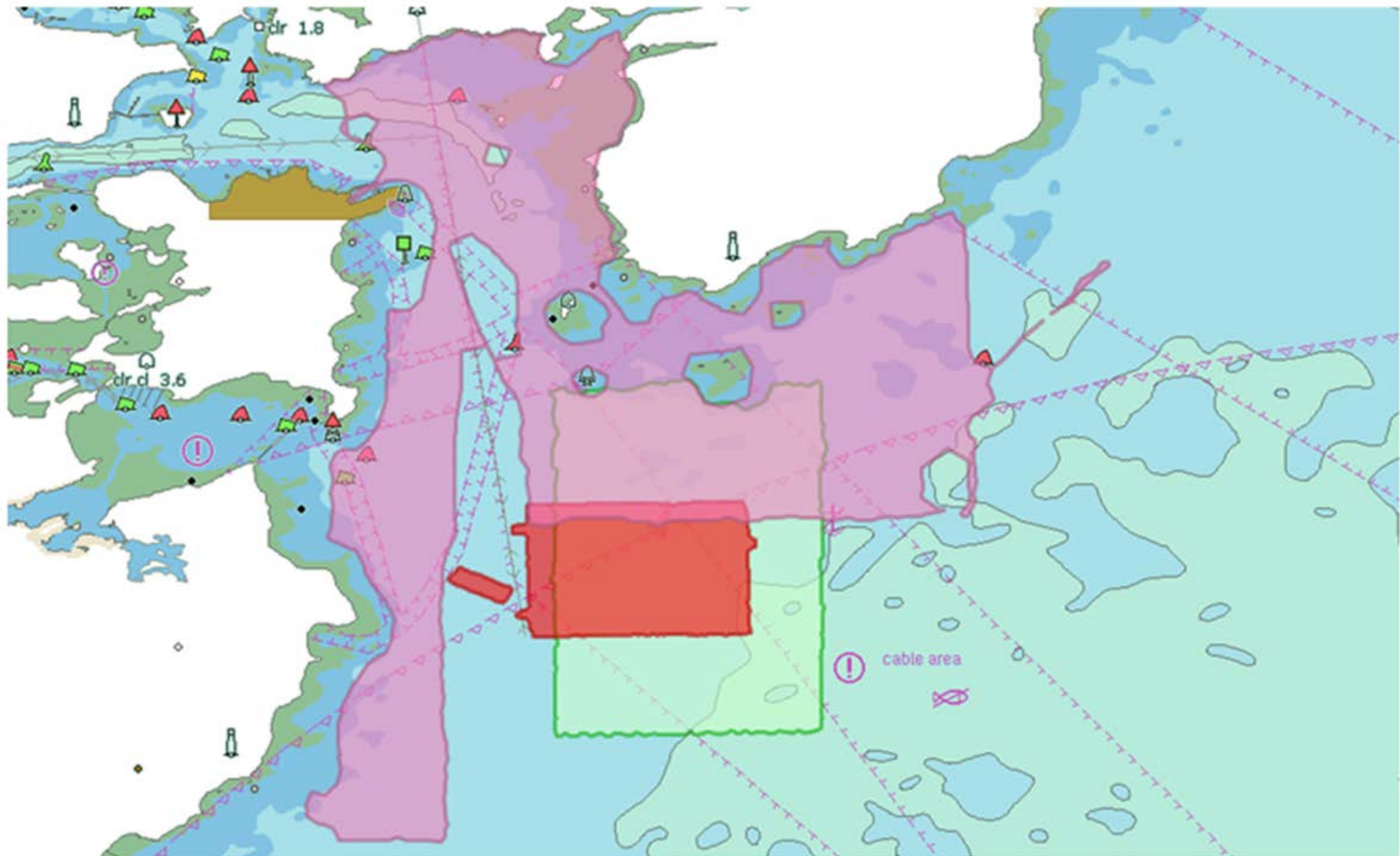
- **Five types:**
  - Multi beam
  - Single beam
  - Laser altimetry
  - Track line
  - Model
  
- **Individual models can be grouped into groups**

# Individual Models





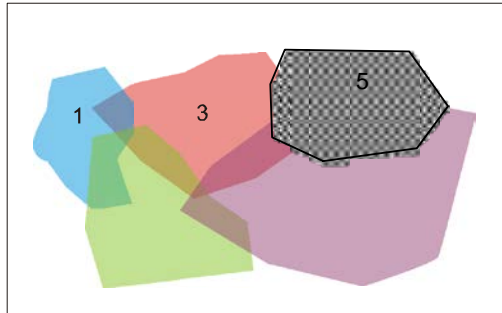
# Building Individual Models



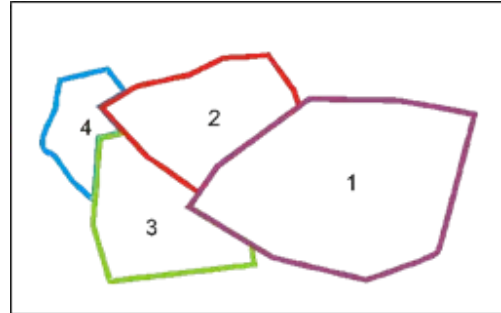
- **Seamless coverage**
- **One depth and uncertainty at each location**
- **De-conflicting individual models**
- **Survey priority definition**
- **IM segment generation**

- **IM selection:**
  - System auto selects IM not included into a VCM
  
- **IM priorities:**
  - System apply default sorting of IM's priority
  - Verified by operator, prior to VCM rebuild
  
- **IM segment generation:**
  - Creates as seamless coverage : VCM

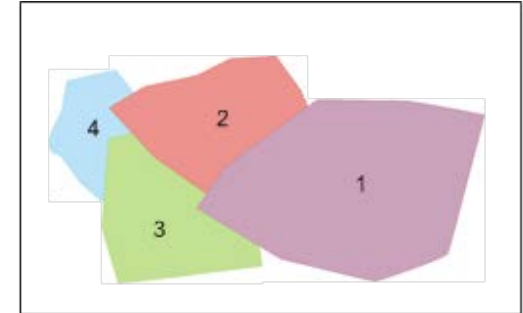
# Continuous Model Management cont.



IM Sources

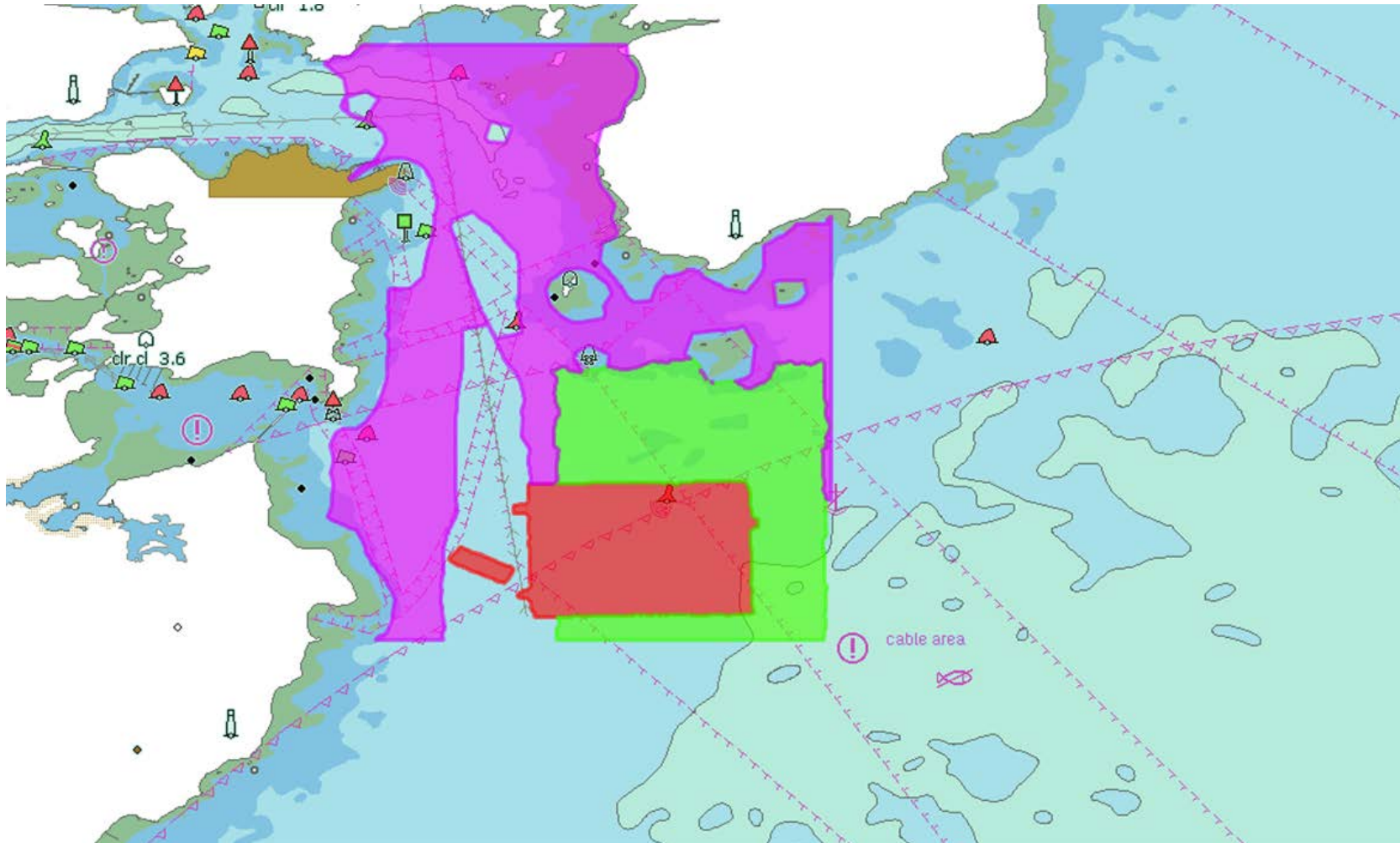


Defined priority



VCM Result

# Virtual continuous Model

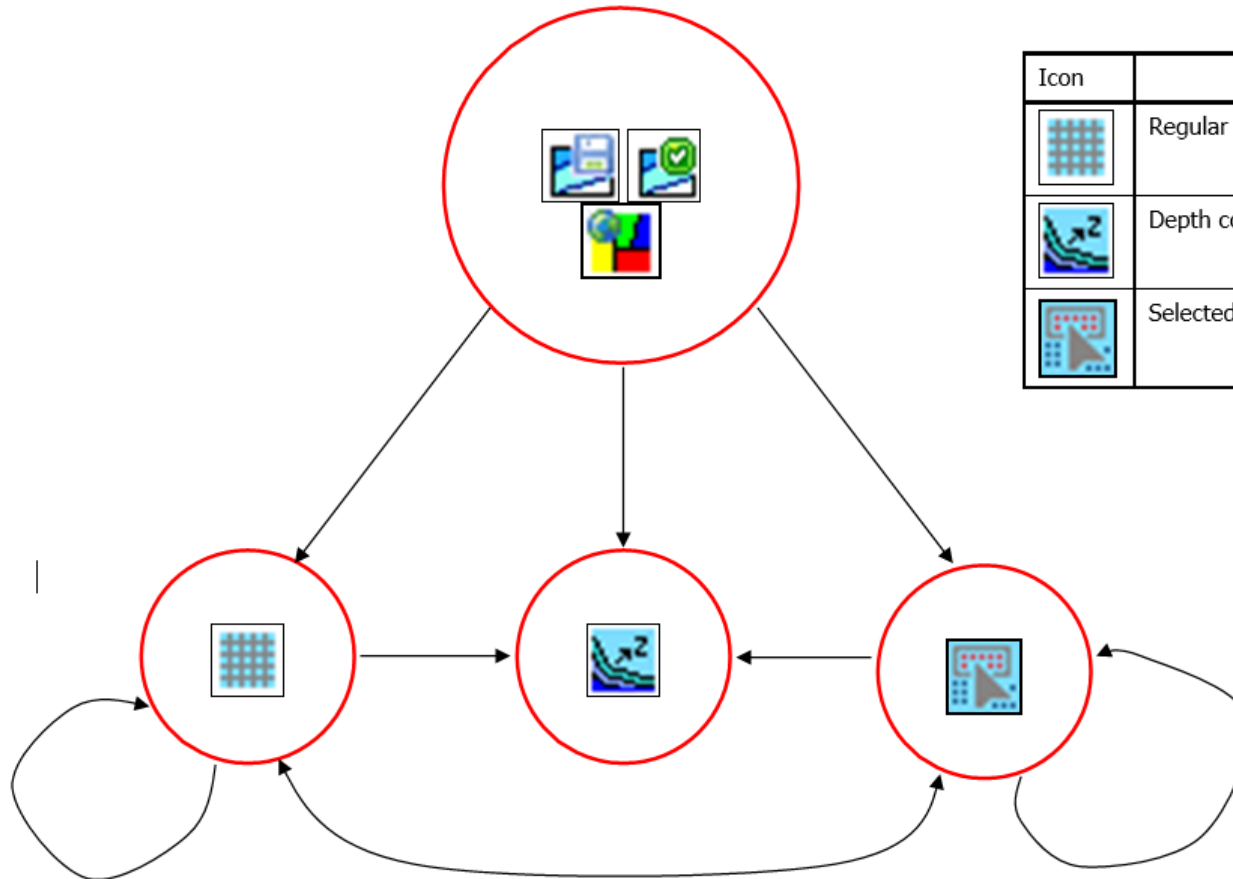





# Bathymetric Workflow

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- Register, import, model, archive, publish IM
  
- Define and activate VCM
  
- **Generate bathymetric products from IM and VCM:**
  - Gridded products
  - Selected sounding products
  - Contour and depth areas products

# Bathymetric Product Tree



Icon	
	Regular grid product
	Depth contour product
	Selected sounding product

# Enumerated color scale

- Color assigned based on enumeration class

dKart Administration Portal

▼ Users and authorizations

- Users
- Groups

▼ Metadata objects

- Business objects
- Reference objects
- User domains
- Domains
- System domains
- System reference objects
- Nodal schemes
- Nodal domains
- Nodal attributes

▼ Miscellaneous

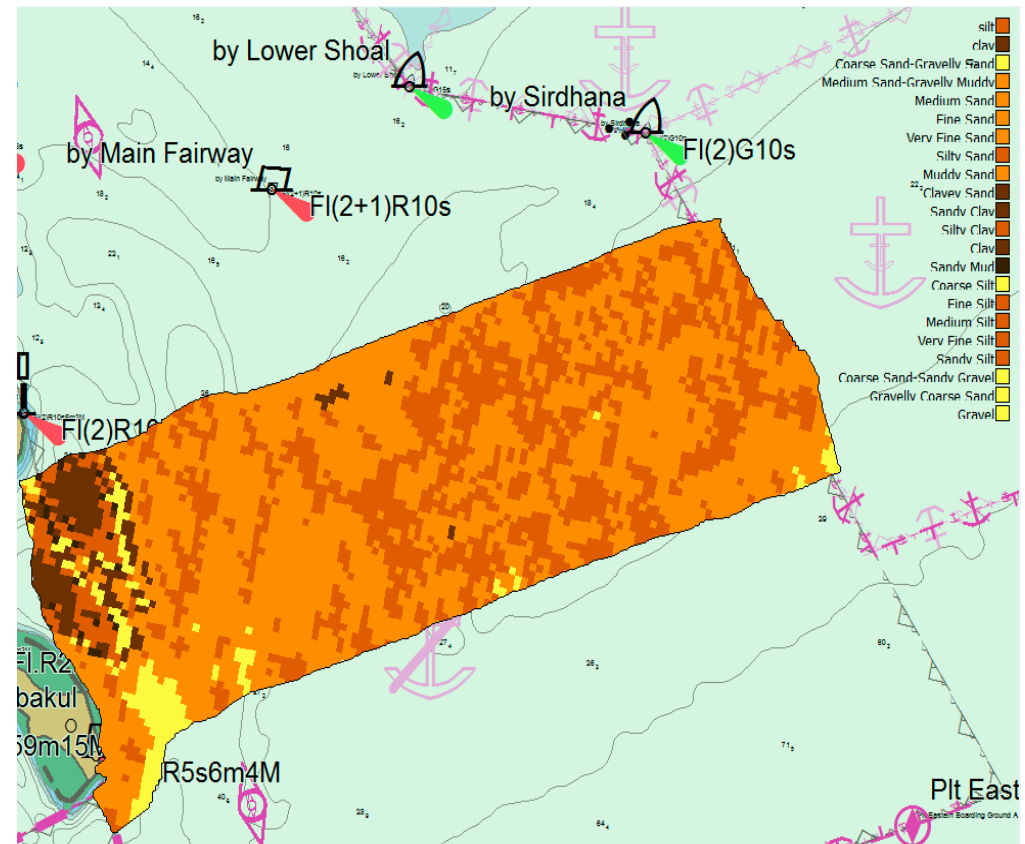
- DKart messaging
- Tasks

**Nature of Surface**

Nodal domains » Nature of Surface

Filter Add instance Show disabled instances

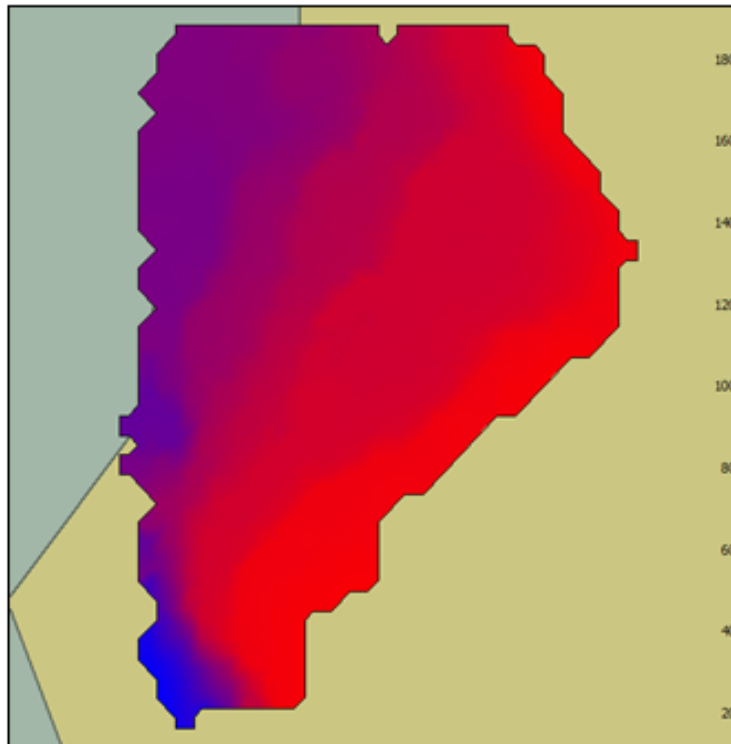
<input type="checkbox"/>	Name
<input type="checkbox"/>	silt
<input type="checkbox"/>	clay
<input type="checkbox"/>	Coarse Sand-Gravelly Sand
<input type="checkbox"/>	Medium Sand-Gravelly Muddy Sand
<input type="checkbox"/>	Medium Sand
<input type="checkbox"/>	Fine Sand
<input type="checkbox"/>	Very Fine Sand
<input type="checkbox"/>	Silty Sand
<input type="checkbox"/>	Muddy Sand
<input type="checkbox"/>	Clayey Sand
<input type="checkbox"/>	Sandy Clay
<input type="checkbox"/>	Silty Clay
<input type="checkbox"/>	Clay
<input type="checkbox"/>	Sandy Mud
<input type="checkbox"/>	Coarse Silt
<input type="checkbox"/>	Fine Silt
<input type="checkbox"/>	Medium Silt
<input type="checkbox"/>	Very Fine Silt
<input type="checkbox"/>	Sandy Silt
<input type="checkbox"/>	Coarse Sand-Sandy Gravel
<input type="checkbox"/>	Gravelly Coarse Sand
<input type="checkbox"/>	Gravel



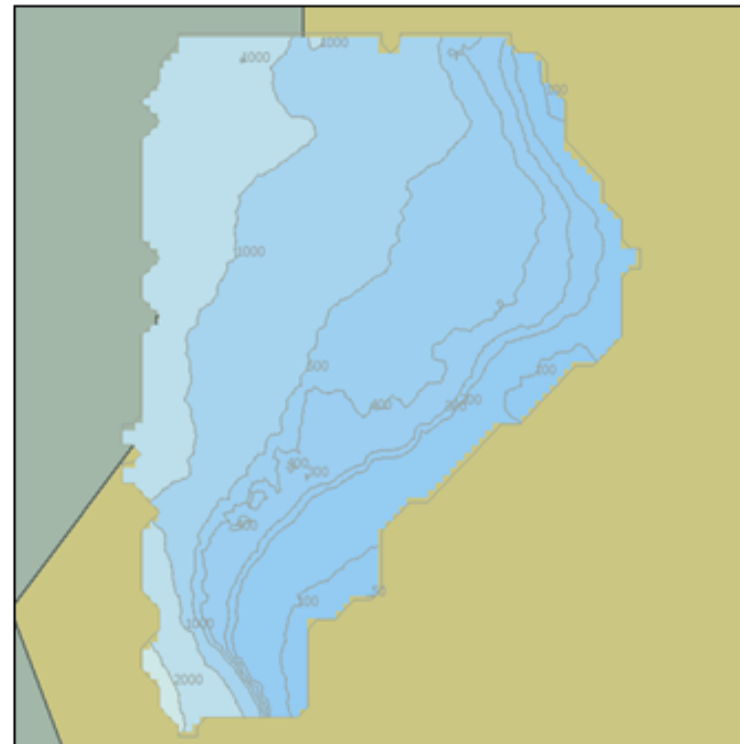


# Contours and depth areas

Input



Product



# dKart Office Integration

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- Bathymetry database available from production systems
- Products can be extracted, on fly, from production system
- Fairsheet, Updates and other add-hoc products can be collected from BM Database
- Special products, such as
  - Seabed classification charts
  - High resolution Coastline (and other objects)
- Integrated with Feature Object database
- Product Maintenance process fully integrated

# Thank you for your attention

For further information or questions,  
please contact:

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## Please visit us at booth #9...

# Individual and Continuous Models

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