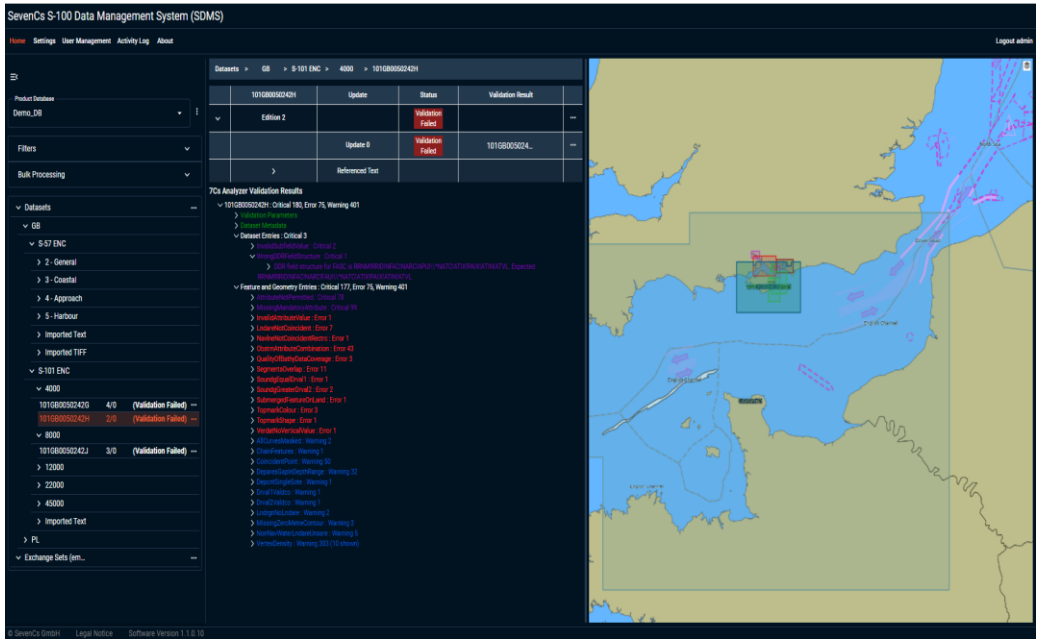
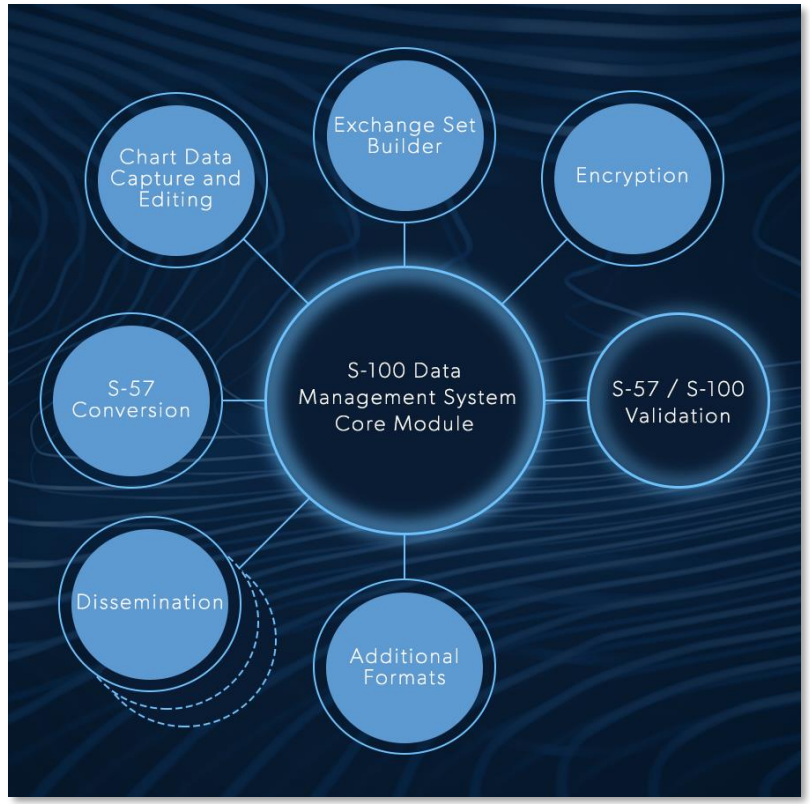
S-100 DATA MANAGEMENT

S-100 Data Management System

- The S-100 Data Management System (SDMS) is a modular, and scalable Management System for S-57 and S-100 Workflows

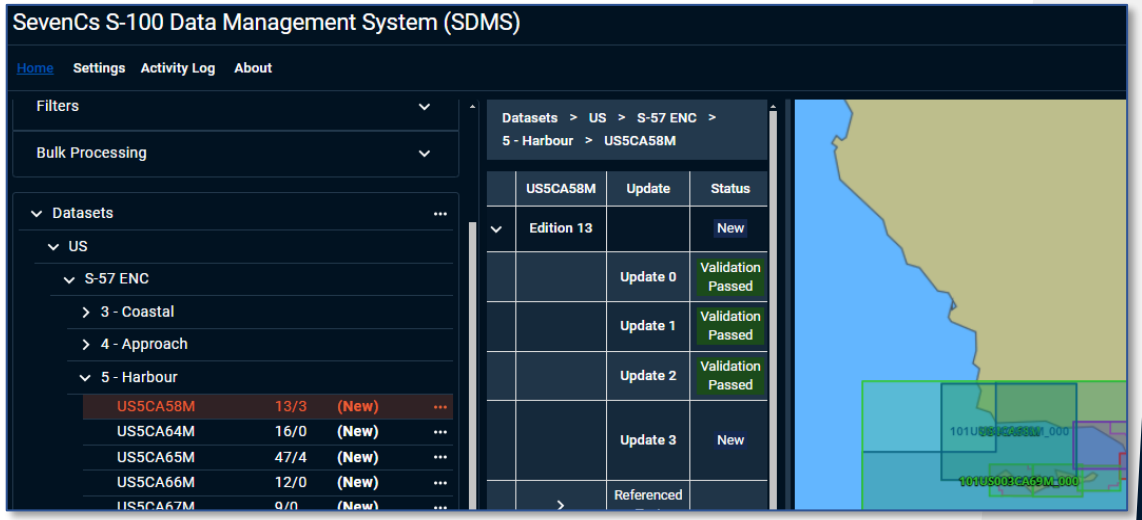


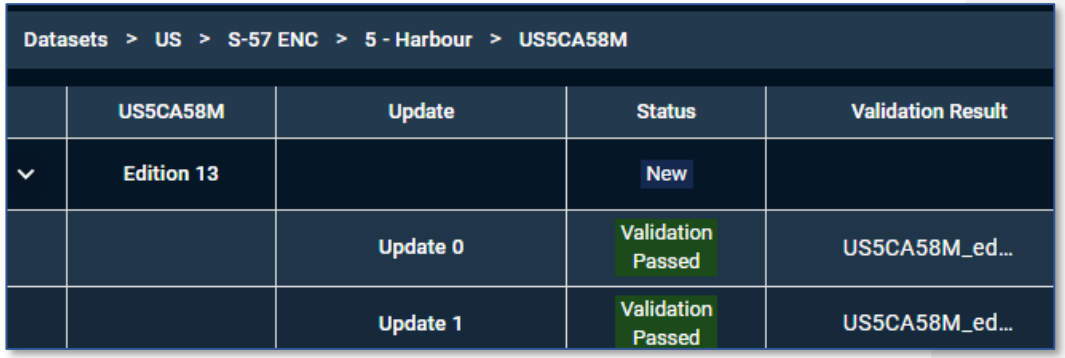


SevenCs

SDMS Concept

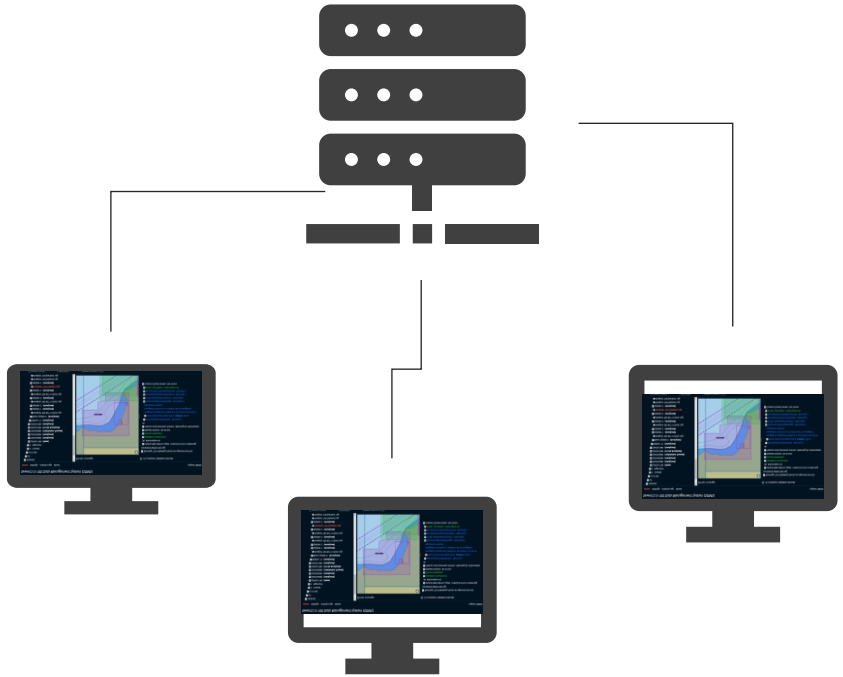
- SDMS serves as the central point of all S-57 and S-100 data assets of an organization
- detailed information (status, meta information, geographic coverage, processing results) about individual datasets can be retrieved by users
- users are guided through individual processing steps by means of defined workflows and dependencies



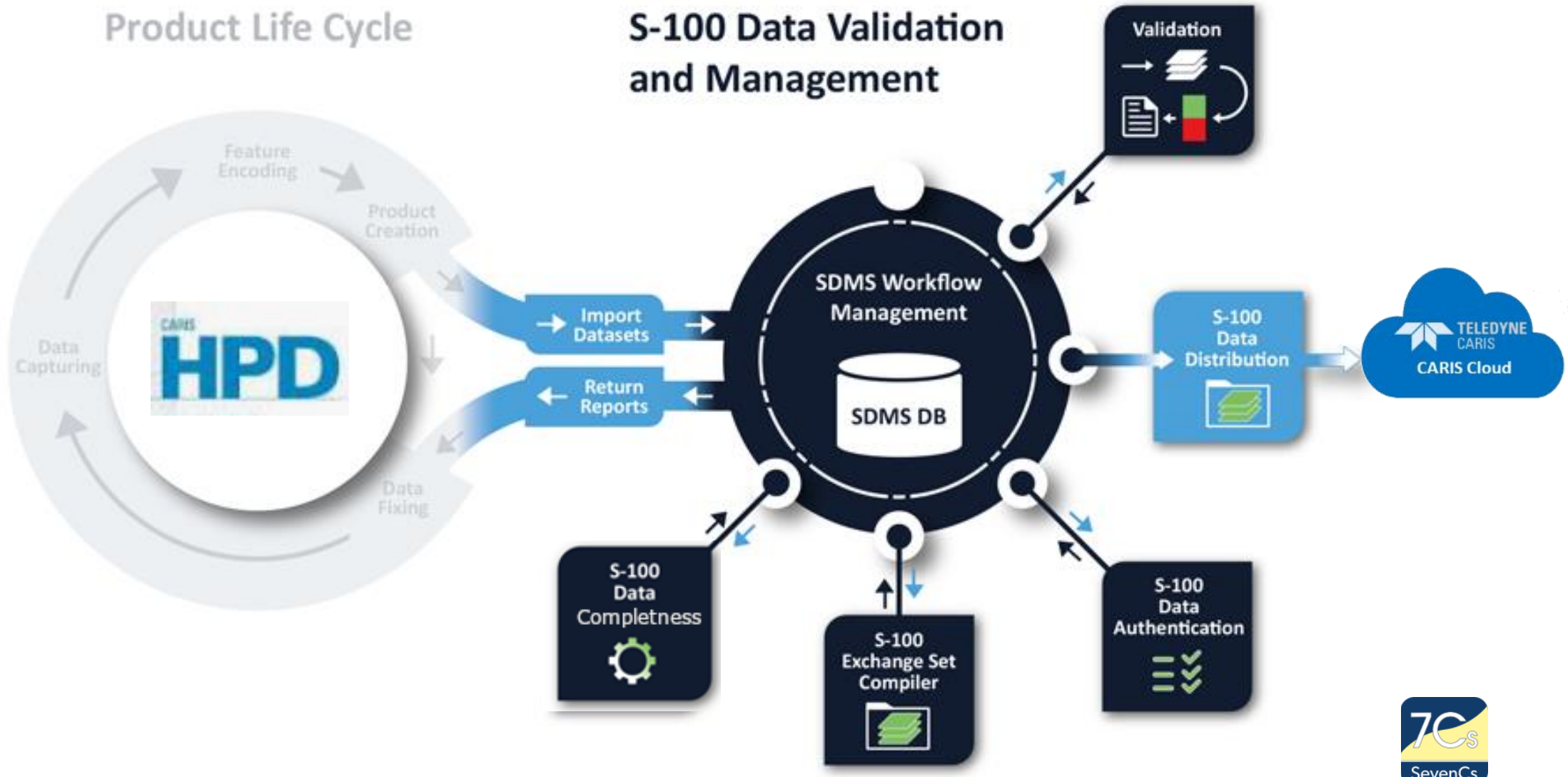


SDMS – main features

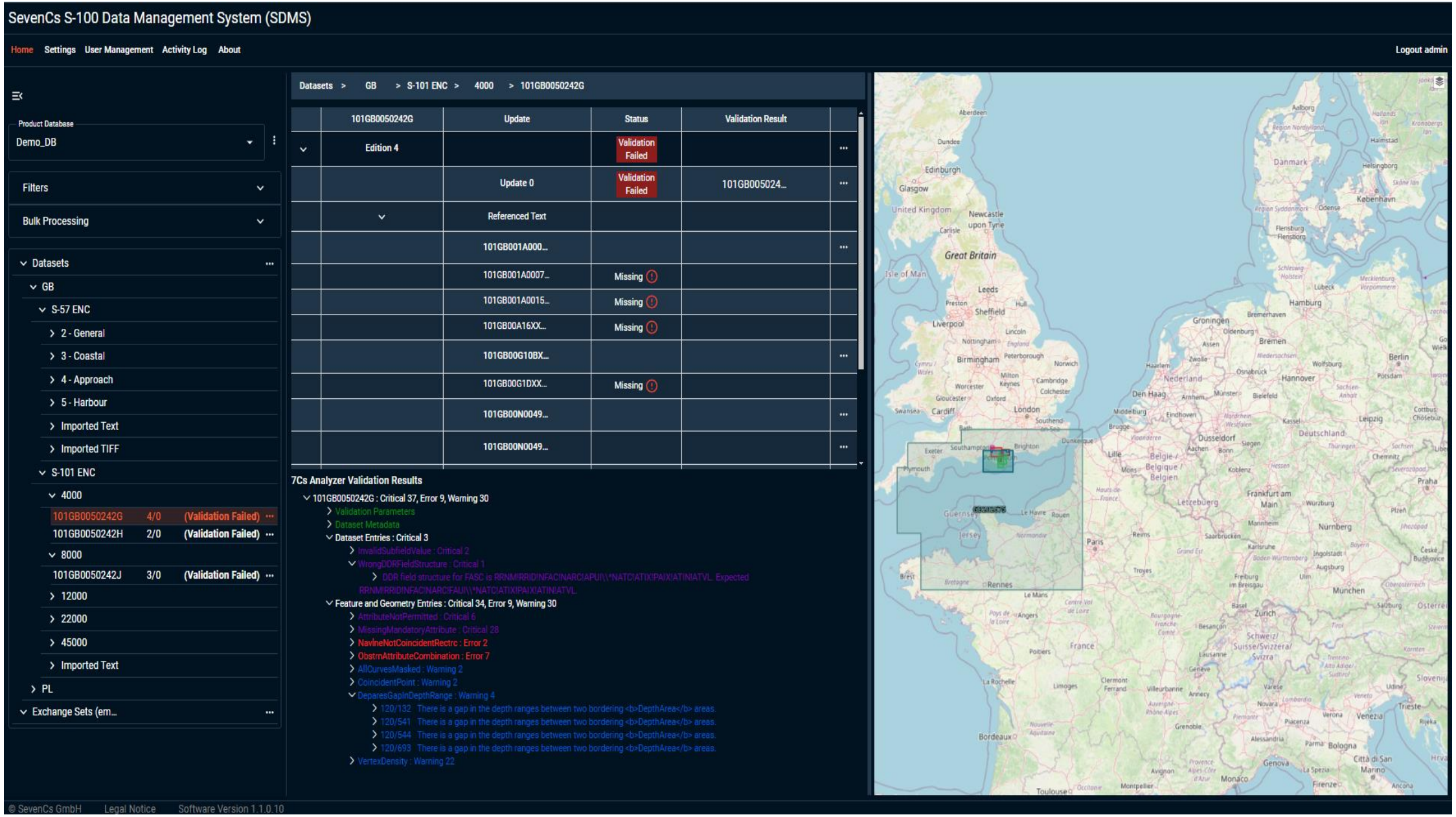
- focus on ‘after-editing’ processes and workflows
- works as client-server application
- single or multi-user operation
- physical or cloud-based environment
- self-deployed or hosted
- Web Browser operated GUI
- API Service



SDMS position in the ENC production



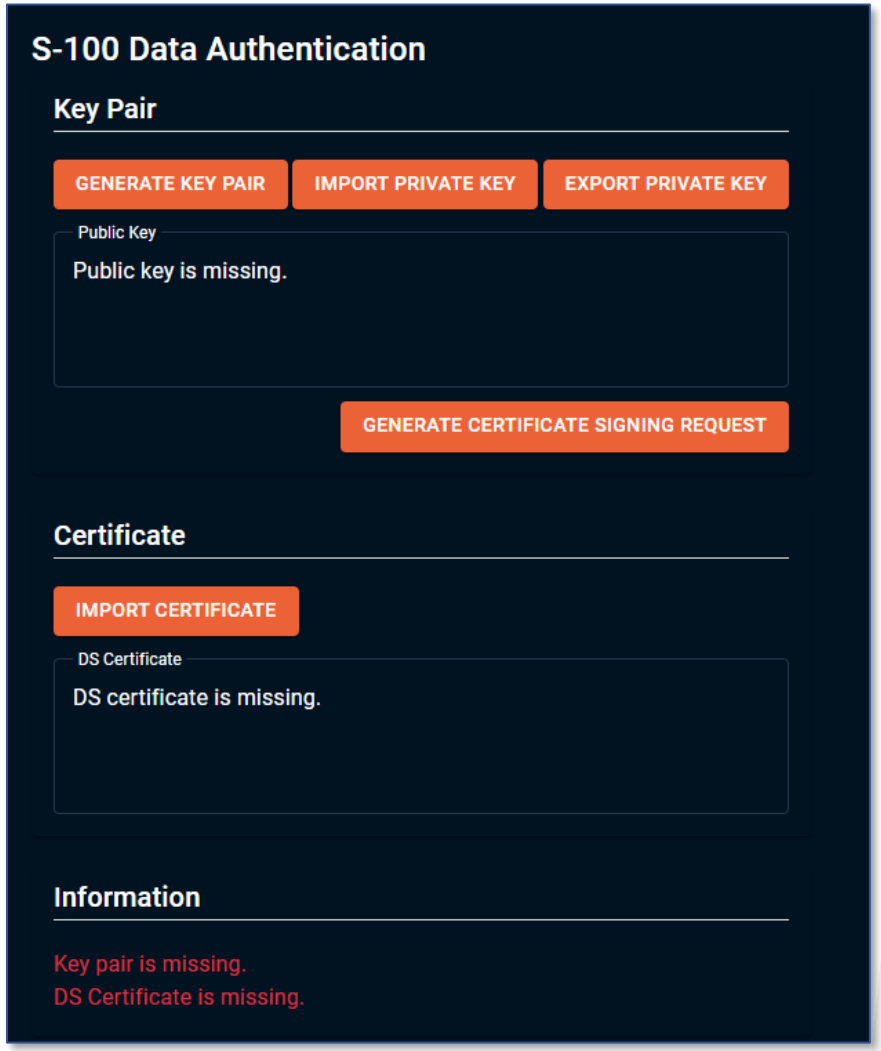
S-100 Data Management System -GUI




S-100 Authentication

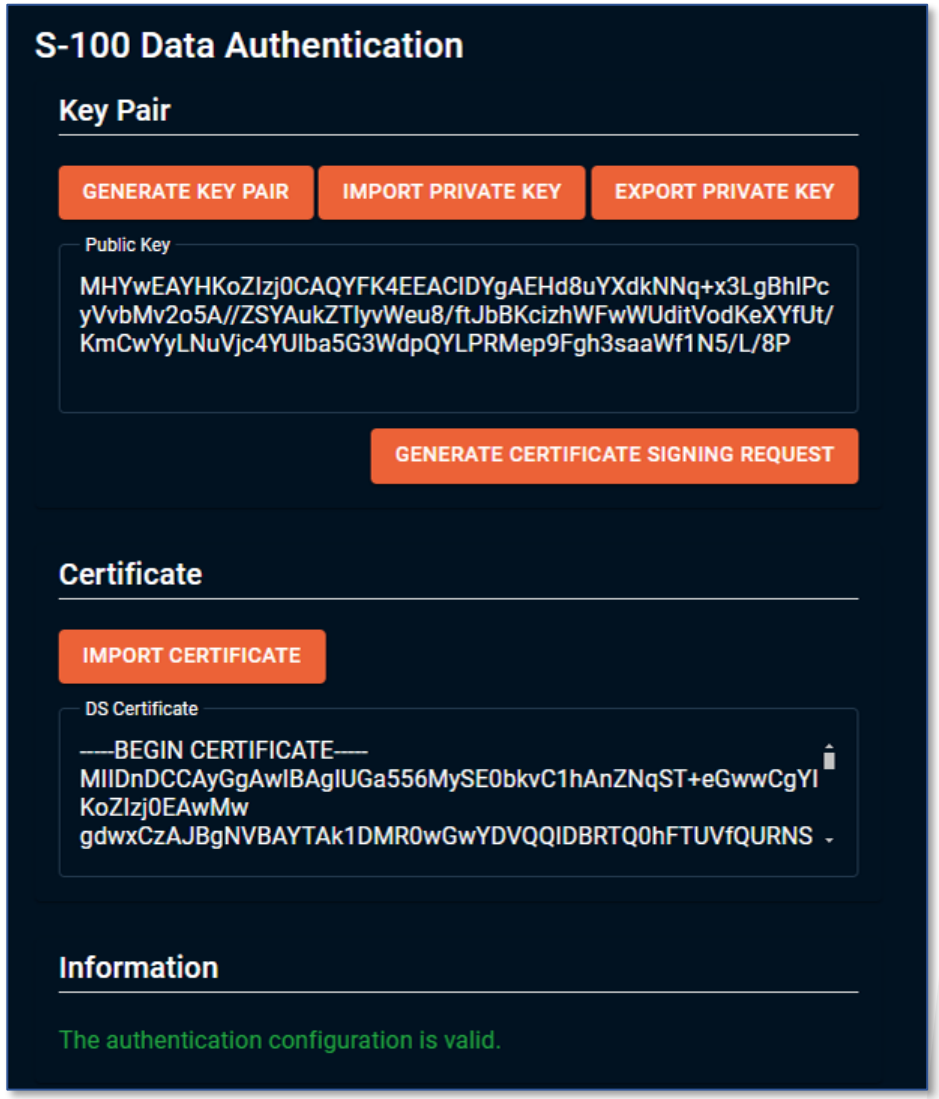
S-100 authentication with SDMS

- Create private/public key pair (or import an existing private key)
- Fill-in form of Certificate Signing Request (according to S-98) and export it
- Send Certificate Signing Request to IHO
- Import returned IHO certificate into SDMS

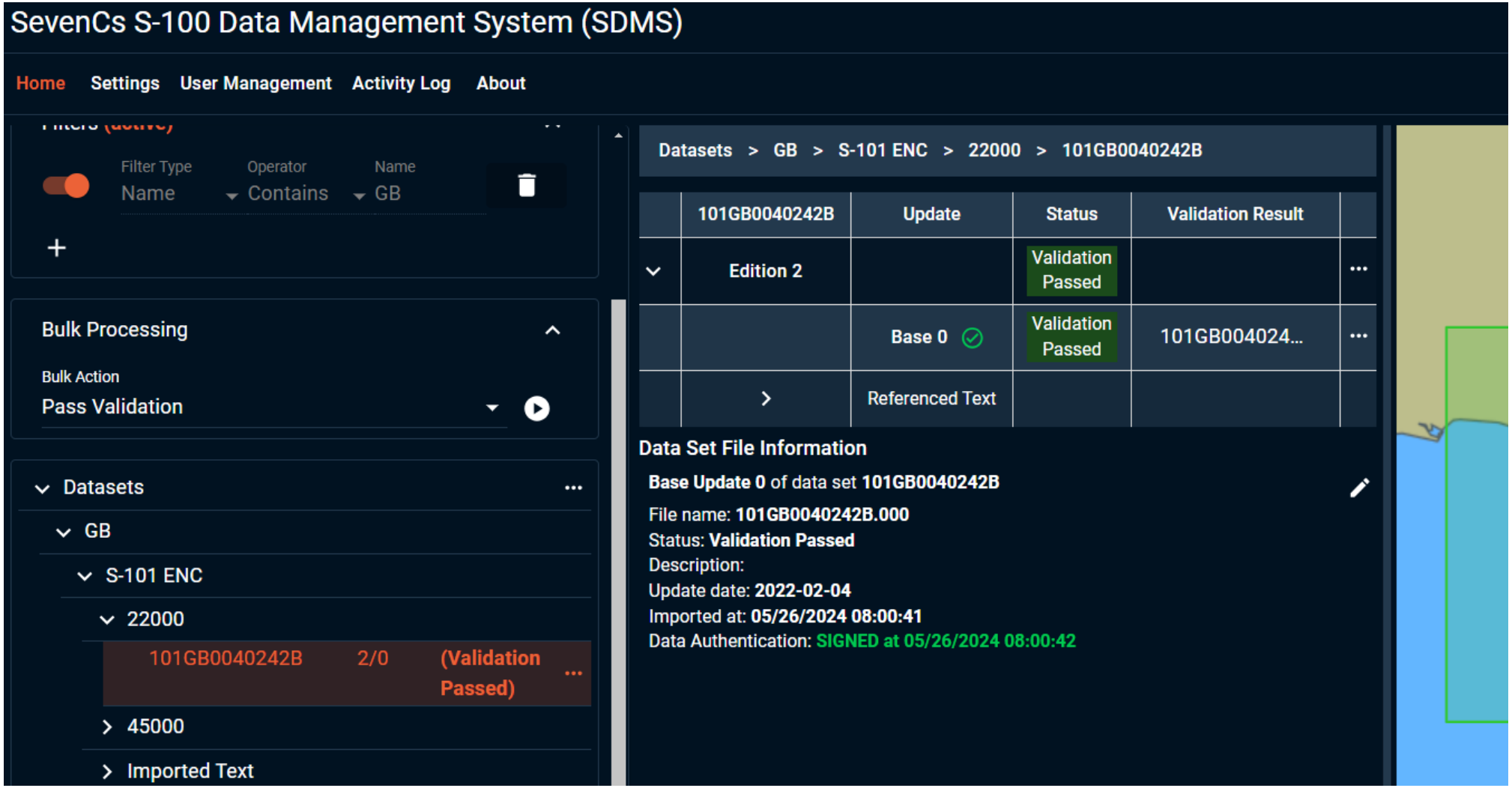


Configuration of S-100 authentication

- SDMS can sign the imported S-100 datasets and
- create S-100 Exchange Sets
- on the condition that a valid set of configuration parameters has been specified



SDMS – Data Authentication (Signing)

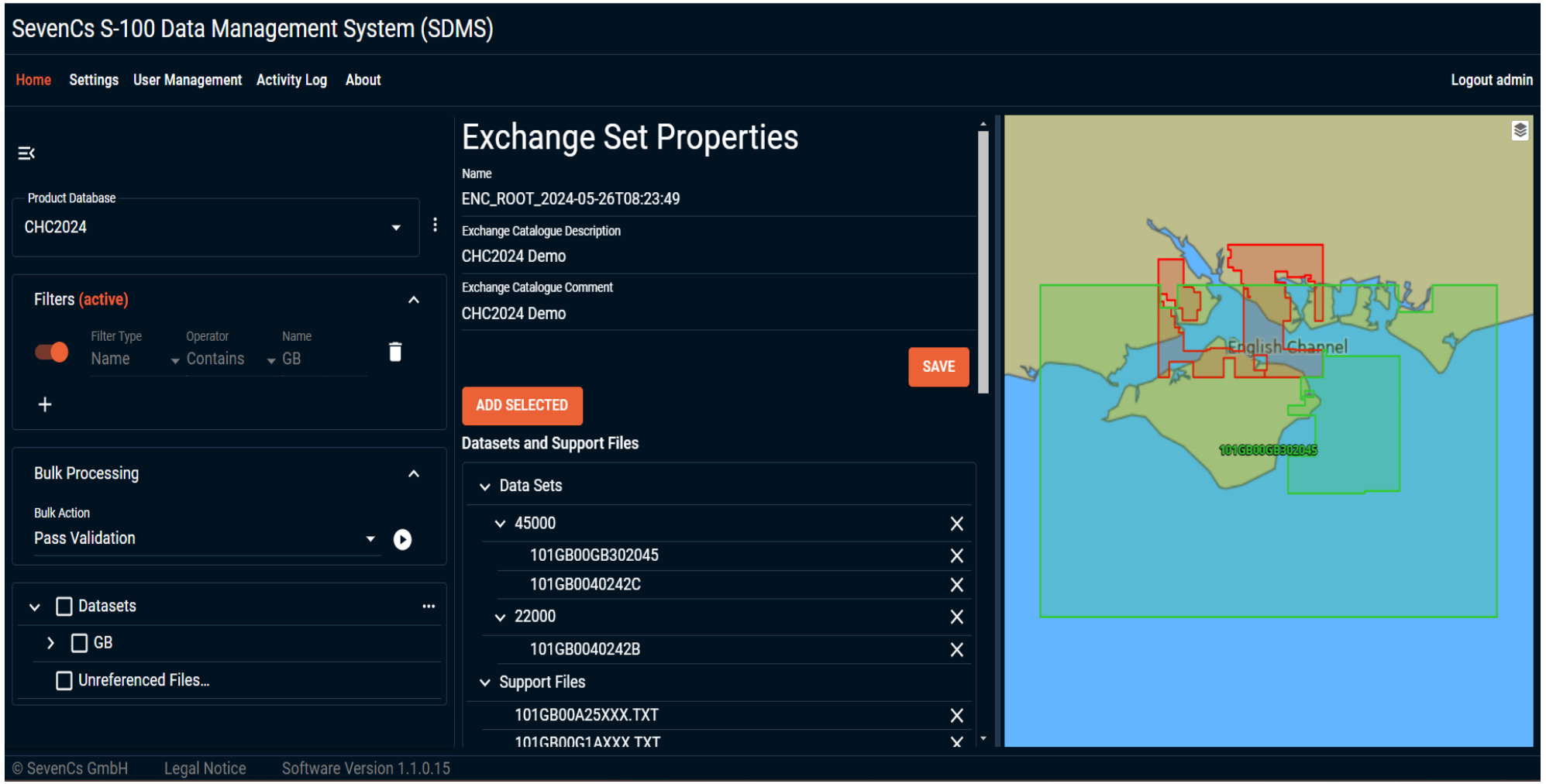



SDMS S-100 Exchange Set
Creation

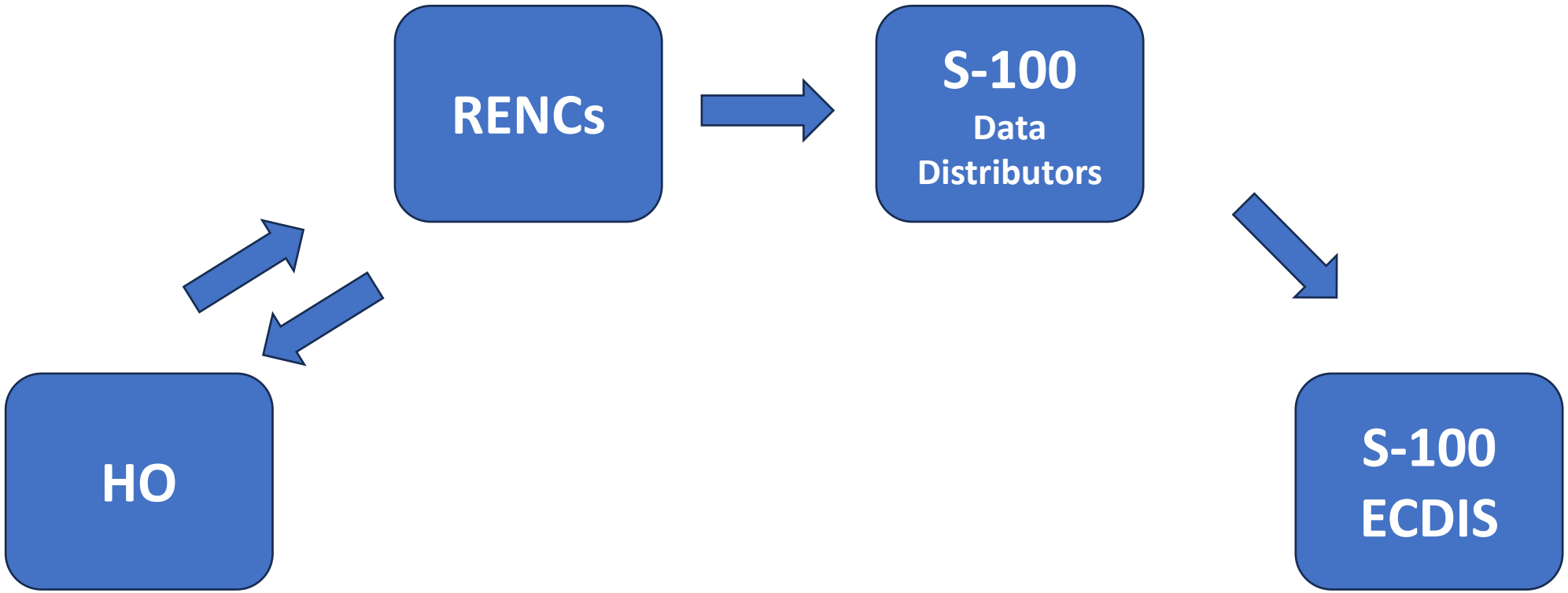
S-100 Data Distribution

- Some of the metadata is stored in the Exchange Set Catalog File
- This additional information must be stored in a database
- The data must be shared only in Exchange Sets format and not as single datasets
- The data signatures and certificates must be verified by the organization that receives that Exchange Set.

SDMS – Exchange Sets Creation for S-100 Datasets



Expected S-100 Data Distribution Workflow



The S-100 data is expected to be signed and verified on each location


7Cs S-57vsS-101 Consistency
Service
7Cs
SevenCs

Conversion Quality Assurance

- How to make sure that the S-57 to S-101 conversion went well and no data was lost during the process?
- The goal is to increase the conversion completeness confidence level
- Independent service for Conversion Completeness Quality Assurance (as part of SDMS)

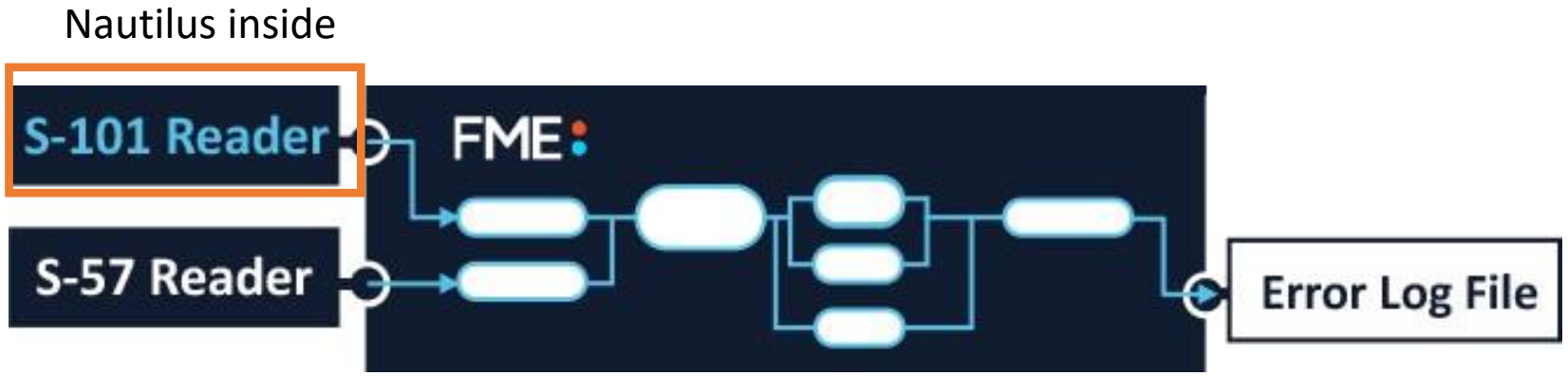
S-57vs101 Consistency Services - Background

- IHO will publish S-101 Edition 2.0.0 (operational version) in 2025
- According to the Dual Fuel concept S-100 ECDIS must support S-57 and S-100
- Legacy ECDIS does not support S-100, transition will not happen overnight
- Conversion will be required in both directions S-57 <-> S-101
- Conversion process to complex to be executed on-the-fly (configuration requires constant fine-tuning)
- This is why we chose FME as basis and developed necessary S-101extensions (S-101 Reader, S-101 Writer)
- FME gives us the flexibility we require

Components S-57 vs. S-101Consistency Service

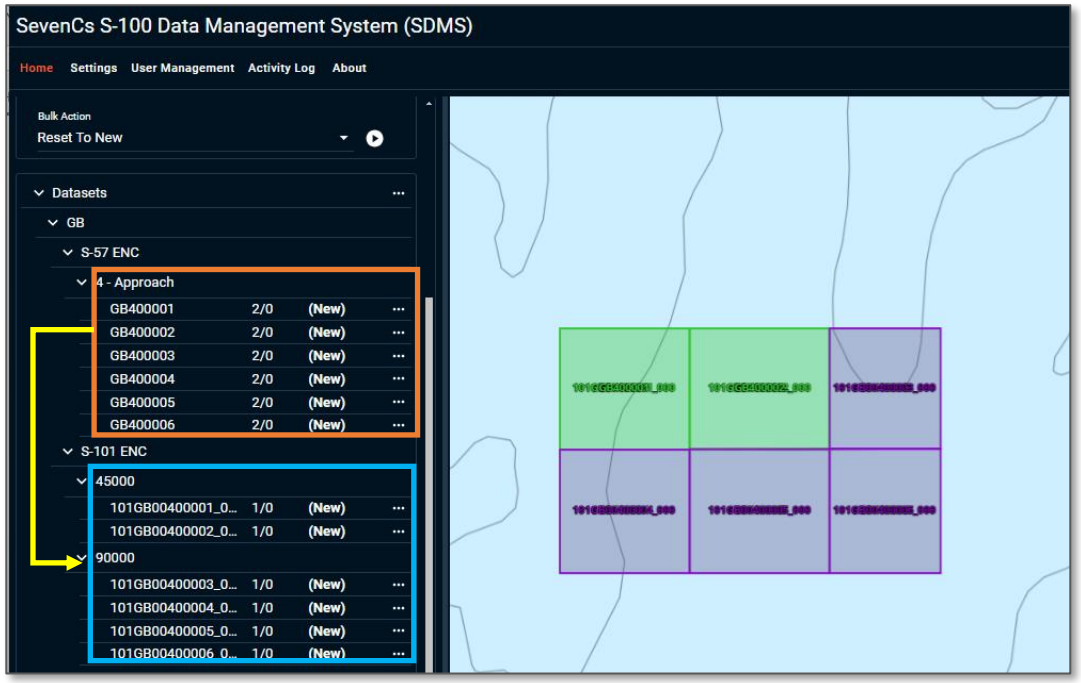
- Software Components and their roles
  - FME main application, used to configure and execute the logic of the consistency checks (comparison of features and attributes, detection of discrepancies, log file generation)
  - FME native S-57 reader, import of S-57 data set(s) and feature parsing
  - 7Cs S-101 Reader Plug-in, import of S-101 data set(s) and feature parsing
  - S-57 Writer, S-101 Writer, optional components useful for further analysis
- Additional services
  - user specific technical training workshop
  - software support

S-57 vs S-101 Consistency Checks



- used to verify that all the relevant content of an S-57 dataset is content-consistent with its S-101 equivalent
- currently one-to-one comparison, can be extended to do one-to-many

SDMS integration

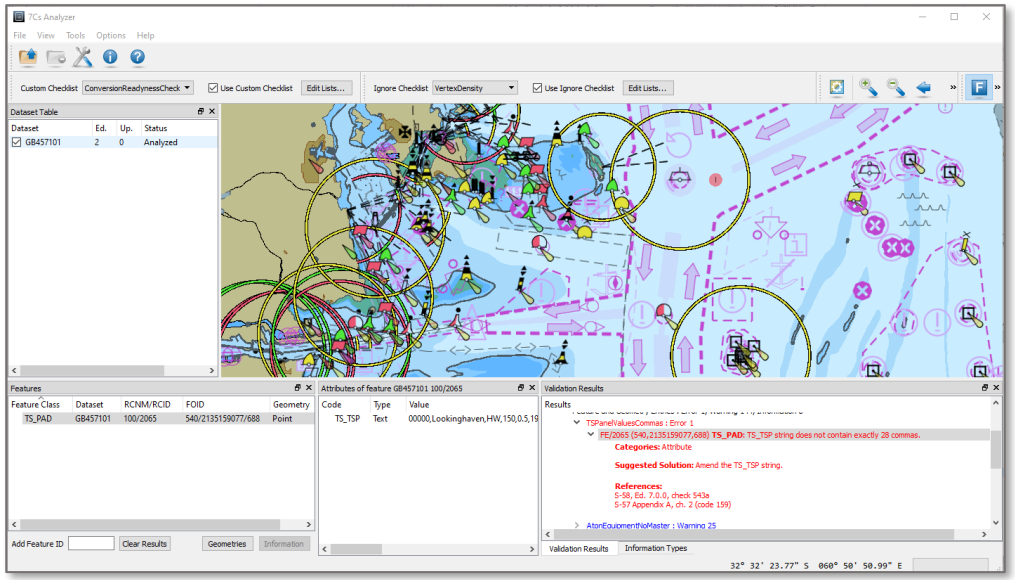


- This will allow users to drive the FME process from SDMS without directly interacting with the FME user interface

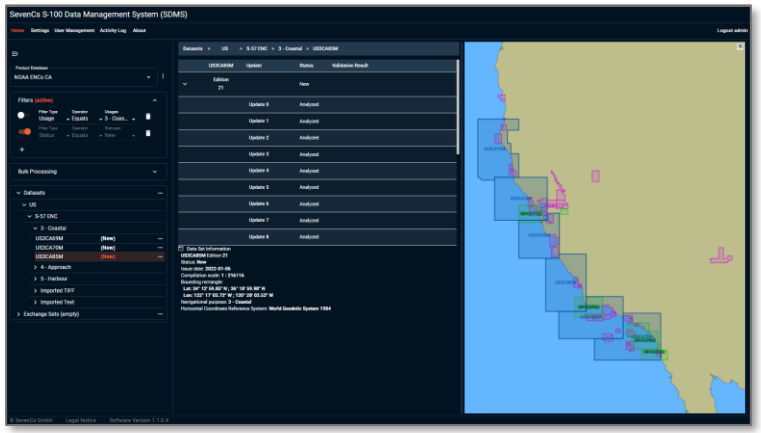

Datasets Validation

7Cs Analyzer for S-57/S-101 validation – latest updates

- Version 5.3.0 released in August 2024
  - S-58 Edition 8.0.0
  - Alignment of S-101 checks with official IHO checks (S-100/S-101)
  - S-102 support

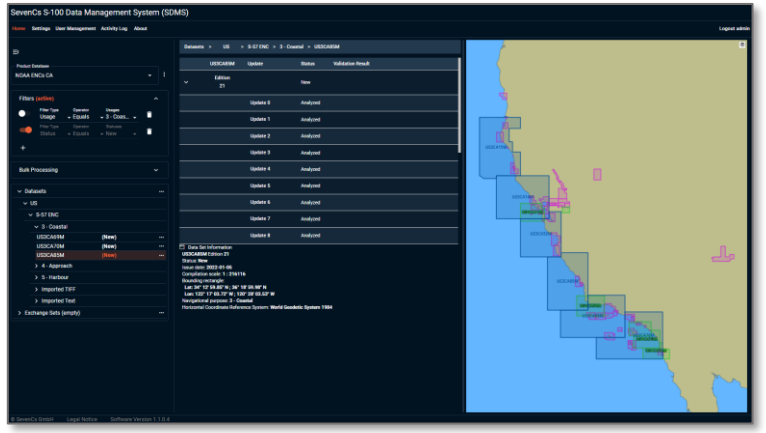


- Next release (Q1 2025)
  - Alignment of S-101 checks with official IHO checks (S-100/S-101)
  - S-102 support more validation checks
  - S-100 Exchange Sets Validation
  - Integration with HPD

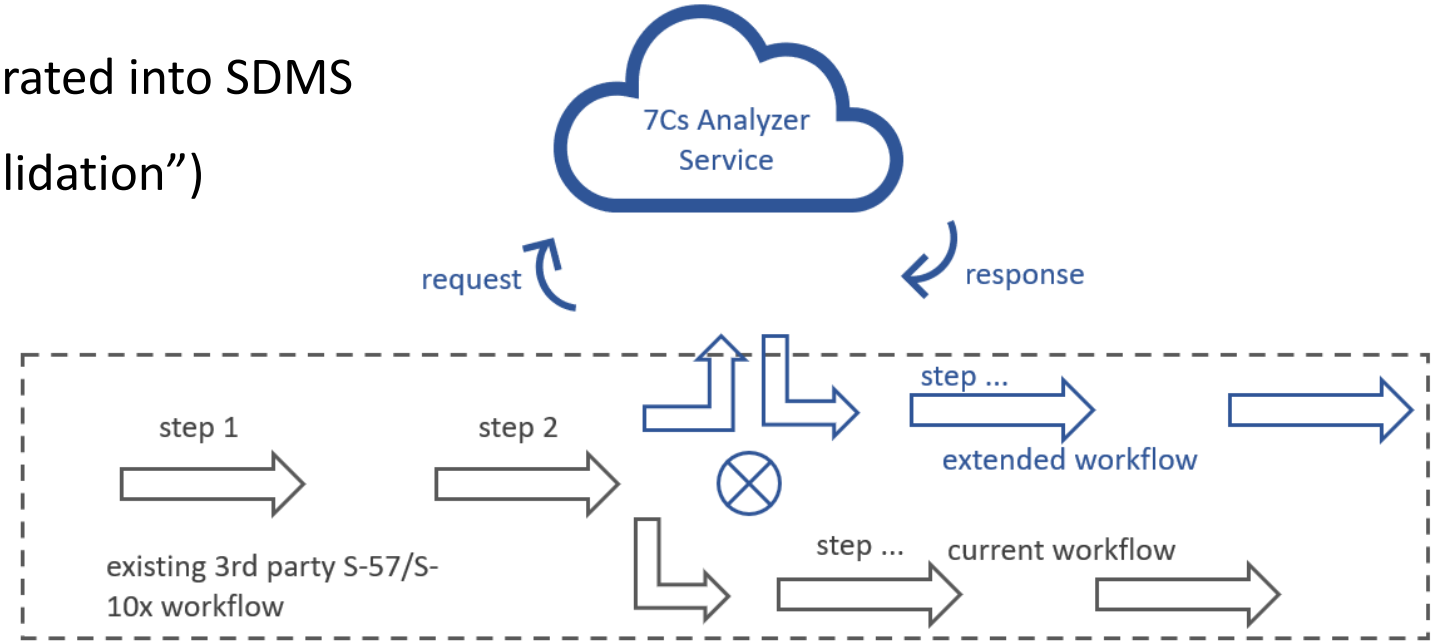


SevenCs

7Cs Analyzer Service API

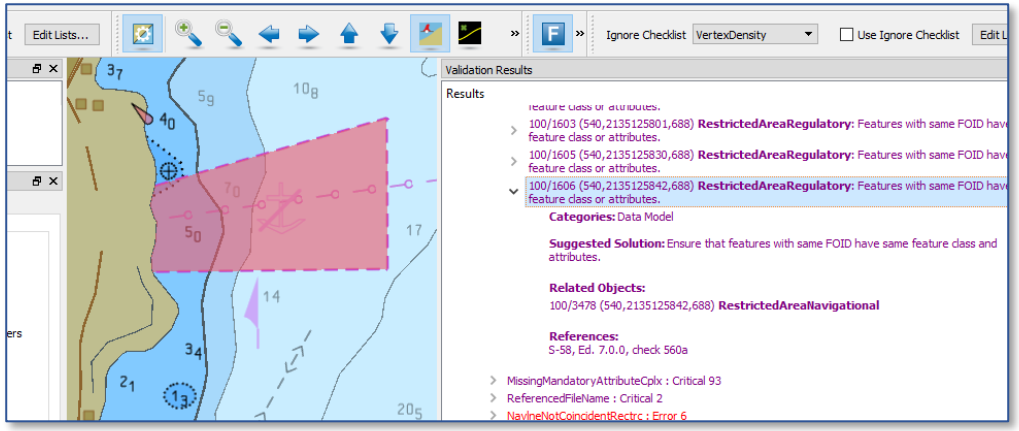


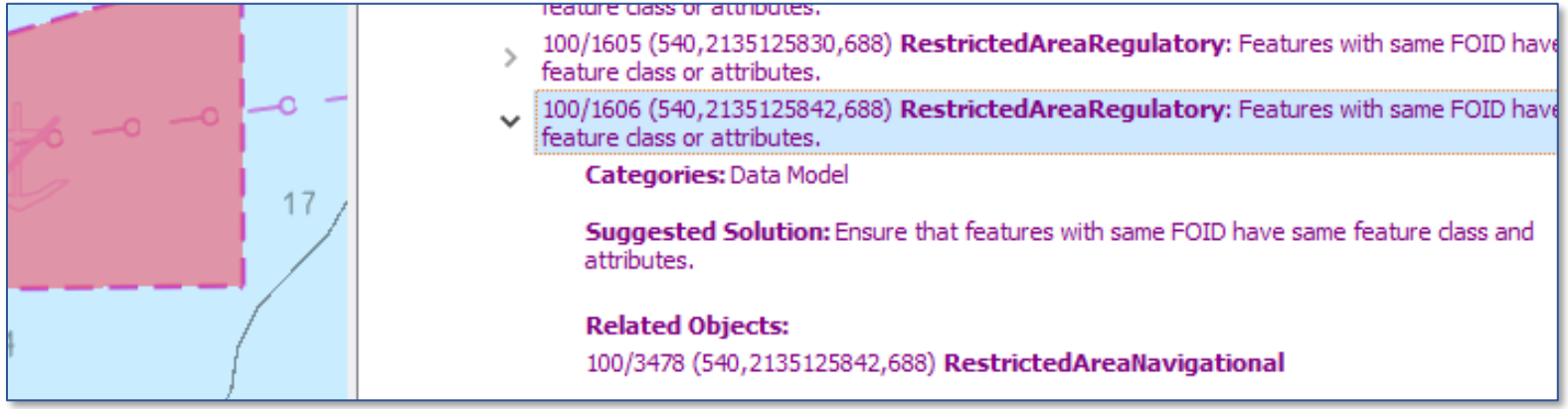
- Release version has been completed
- Several trials have been set up to test the automation of the validation process
- Currently being integrated into SDMS (to support “silent validation”)



S-101 validation

- S-101 validation rules in progress (S-158)
- 7Cs Analyzer uses S-101 checks as far as they have been defined already
- very useful to assess status of conversion results
- and a huge amount of derived S-58 checks
  - iso checks
  - geometry
  - valid feature types
  - valid attributes, values






Thank You
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