TSMAD27 4.4.3

Paper for Consideration by TSMAD27

S-100/S-101 Test Strategy Workshop outcomes

Submitted by:	TSMAD Vice Chair
Executive Summary:	One of the guiding principles for developing IHO standards is the requirement to follow TR 2/2007. As part of the standard development lifecycle there is a need for a holistic test strategy. This paper reports out on the initial test strategy development meeting held in September 2013.
Related Documents:	S-100, S-101
Related Projects:	S-100 related product specifications

Introduction / Background

At TSMAD 26 and initial draft of the S-100 test strategy was presented and it was determined that there needed to be a small meeting with interested OEMs to further flesh out the strategy and develop a methodology for the way forward.

Analysis/Discussion

At TSMAD26 it was noted that there would be a small two day test strategy meeting to go over the preliminary documents and outline and overarching test strategy for S-100 and more specifically for S-101.

The main focus of the meeting was to review the overarching test strategy flow diagram, to further develop the draft test framework document and to begin to scope out various types of test scenarios and datasets that will be needed throughout the test bed process.

One of the key outcomes from this strategy meeting was a revised phased approach to the test bed development. This revised approach allows for more of an iterative development process rather than a linear process.

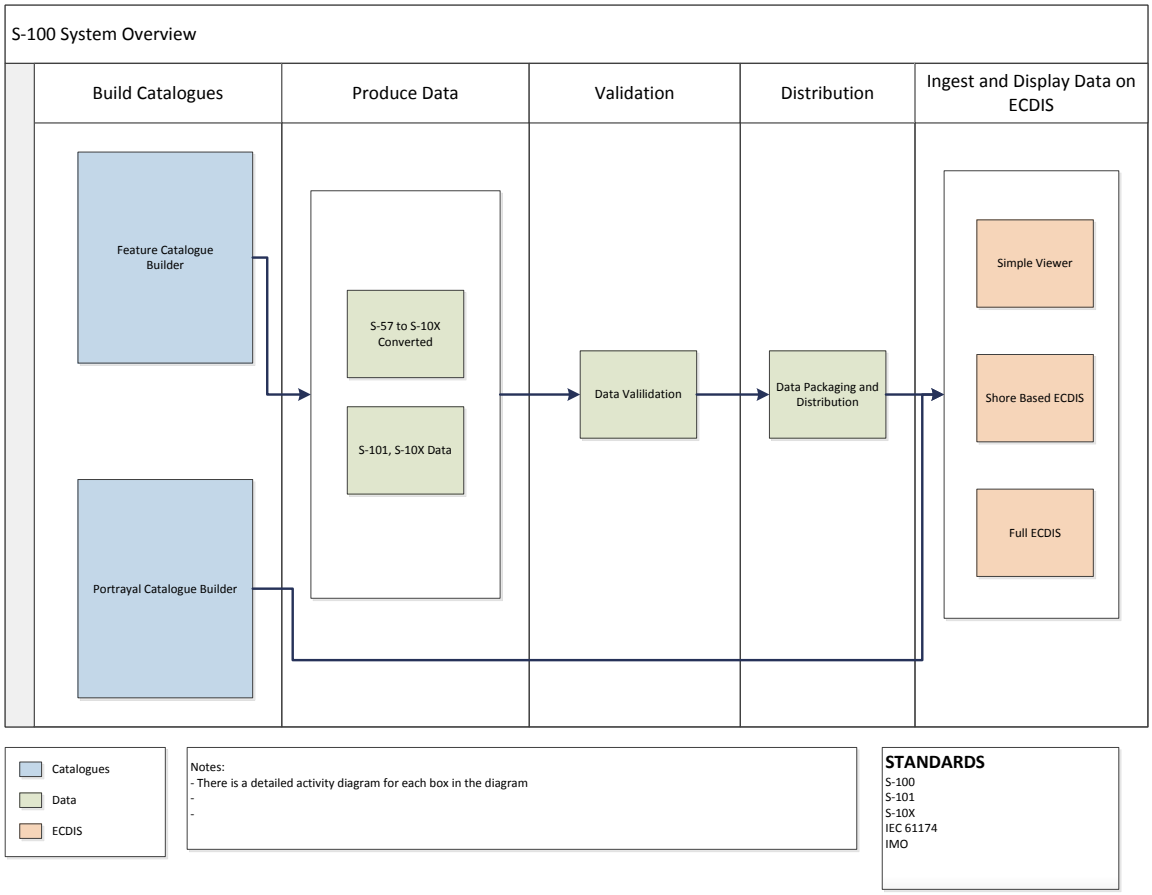

Figure 1 – S-100 System Overview – Pre Meeting

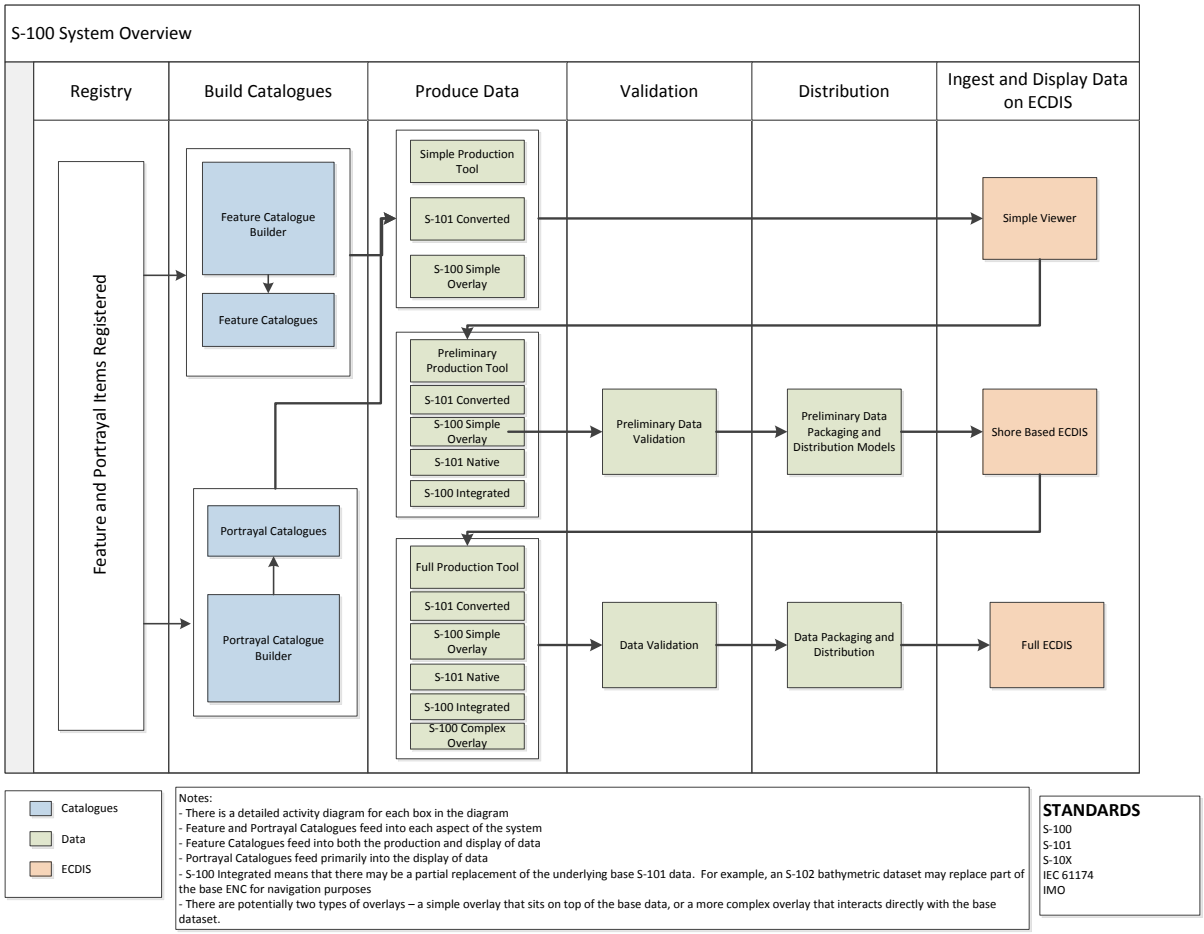

Figure 2- S-100 System Overview Post Meeting

Furthermore, it was suggested that the S-100 overarching strategy be divided up into different phases in order to help manage the overall nature of the test project.

In order to manage the number of sub systems and complexity involved this framework will break the overall S-100 system testing into 9 phases. These are shown in figure 2 and follow a logical progression from catalogue creation through to use within ECDIS.

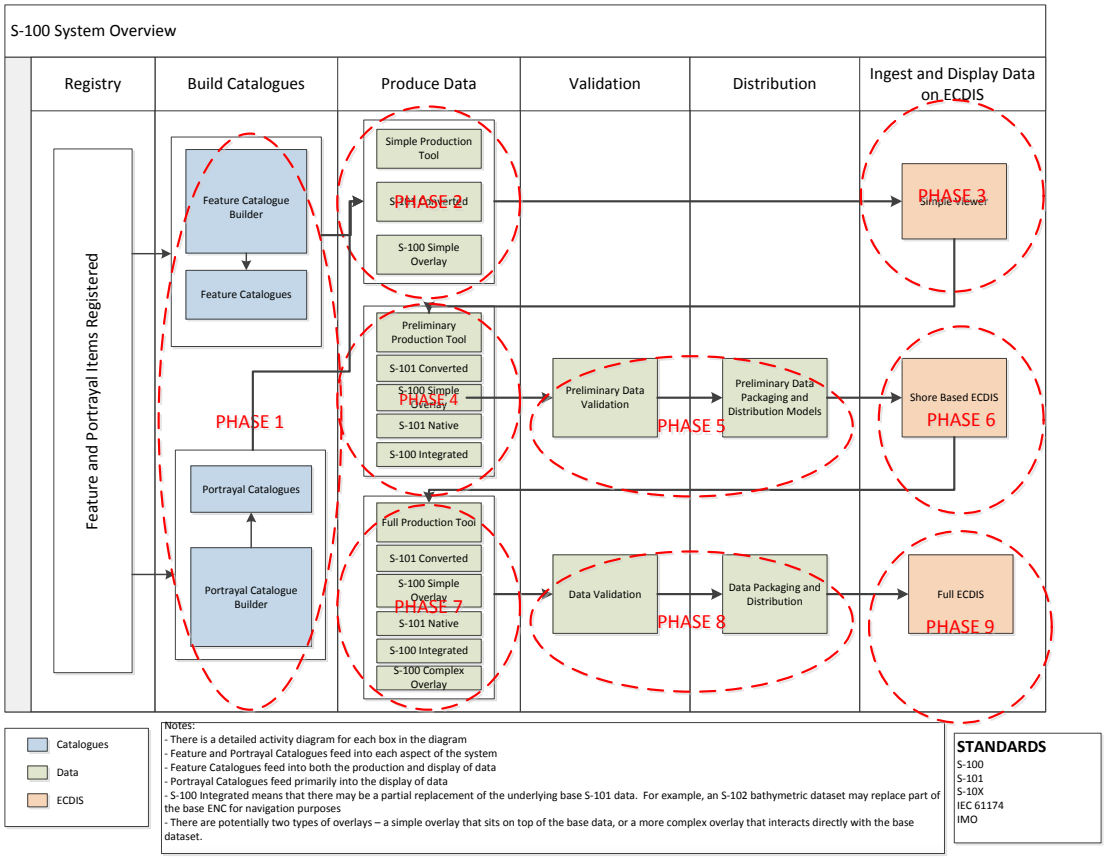

Figure 3 - S-100 System Overview with phases

Breaking out the testing through phases allows for the iterative development of future ECDIS as a system by gradually expanding requirements and test bed. At a high level the phases are as follows:

Phase 1: Feature and Portrayal Catalogue Generation. This phase concentrates on the feature and portrayal catalogue builders and the generation of catalogues to support the S-101 product specification and S-10X overlays.

Phase 2: Simple Production Tool. This phase deals with creating S-101 ENCs by using the S-57 convertor. In addition, it will also look to create an S-100 simple overlay file for use in testing.

Phase 3: Simple Viewer. This phase creates a simple viewer that will ingest feature and portrayal catalogues, along with an S-101 dataset to validate if the dataset displays according to what is defined in the portrayal catalogue. At this phase S-101 updates will not be tested.

Phase 4: Preliminary Production Tool. This phase deals with creating a tool that can edit and produce S-101 data and updates. In addition, there may be a secondary tool that will have the ability to produce S-10X data that is meant to be integrated within an S-101 dataset.

Phase 5: Preliminary Data Validation and Distribution. This phase will put in place draft data validation rules and test data packaging and distribution models.

Phase 6: Shore-Based ECDIS. This phase deals with the creation and testing of several shore based ECDIS.

Phase 7 – 9: Full Production Tool, Data Validation, Distribution, and Full ECDIS. These final three phases deal with the full system testing and implementation of S-100 and S-101.

NOTE: TSMAD Paper 4.4.4 will go into further detail regarding the test framework and test scenarios

Conclusions
The September meeting represented a start in the overall test planning process, however, it was noted that there will need to be involvement from multiple stakeholders throughout the entire test bed, including IHO member states, other IHO working groups, software manufacturers, OEM's, and other liaison organizations such as IEHG and the WMO for the testing of other product specifications.

Recommendations

The one driver is that there should be a single test framework that is agreed to by TSMAD and different pieces would be handled by multiple OEMs and other interested parties. For example, there might be only one convertor to ensure that data is converted in a consistent manner – however, there is a clear need for utilizing multiple simple viewers, shore-based ECDIS, production toolsets and data validation systems. This will enable the system as a whole to be tested through different types of implementations to help provide a common implementation guidance for the wider stakeholder community. This will enable S-100 and associated product specifications to lessen the chance of anomalous behaviour, because it was caught during the test process utilizing a range of tools.

Action Required of TSMAD
The TSMAD is invited to:

a. endorse the phased approach as the way forward for the test framework
b. invite all interested parties to participate in test bed development