Paper for Consideration by S100WG TSM

S-100 Test Framework

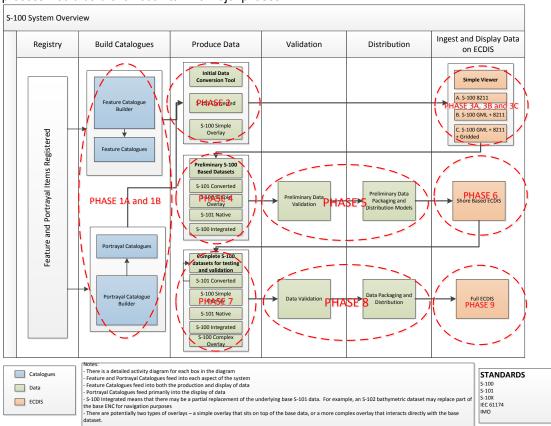|	
Submitted by:	S-100 WG Chair
Executive Summary:	This paper summarizes the status of the S-100 Test Framework and the potential next steps.
Related Documents:	S-100 Test Framework and associated Test Cases
Related Projects:	Any related projects that may impact upon considerations

Introduction / Background

In 2013 the initial S-100 Test Framework was drafted to support the testing of S-100 based product specifications that are under development. Due to the scope and size of the S-100 test bed it was decided that the entire process would be broken out into nine major phases.

At each Test Strategy Meeting the S-100 Framework is reviewed for gaps and updated as items in the project progress.

Analysis/Discussion

The S-100 Test Framework represents the documentation aspect of the S-100 test bed. The framework attempts to document the following processes for each of the nine phases:

a) Stakeholder Requirements Definition Process;
b) Requirements Analysis Process;
c) Architectural Design Process;
d) Implementation Process;
e) Integration Process;
f) Verification Process;
g) Transition Process;
h) Validation Process;
i) Operation Process;
j) Maintenance Process;

The following table outlines the documentation status of the S-100 test framework:

Phase	Description	Requirements Scoped	Test Cases	Comment
1A	Feature Catalogue Builder	Yes	Yes	
1B	Portrayal Catalogue Builder	Yes	Yes	
2	Initial Data Conversion Tool	Yes	No	It was decided that there didn't need to be formal test cases for this phase
3A	Simple Chart Viewer (S-100 8211)	Yes	Yes	
3B	Simple Chart Viewer (S-100 8211 + S-100 GML)	Yes	No	
3C	Simple Chart Viewer (S-100 8211 + GML + Gridded Data)	Yes	No	
4	Preliminary S-100 Based Test Datasets	Yes	N/A	Test cases and test datasets will be developed for each product specification.
5A	Preliminary Data Validation	No	-	
5B	Preliminary Data Packaging and Distribution Models	No	-	
6	Shore Based ECDIS	No	-	
7	Test Datasets for Full Production and ECDIS Validation	No	-	
8	Data Validation and Distribution	No	-	
9	Full ECDIS	No	-	

In addition, to the actual framework document there are supporting documents for test cases (if applicable) for each phase. Product specifications that are being developed under S-100 should maintain a separate set of test cases and test datasets in order to test the functionality of the products within the S-100 framework.

Currently, Phases 1-4 are sufficiently scoped out for the S-100 test bed, however, the next few phases have not had not had any type of detailed discussion by the Test Bed participants now the greater S-100 working group.

The next phase that needs some detailed discussion is the Preliminary Data Validation, Data Packaging and Distribution Models and Shore Based ECDIS. Below are some initial thoughts as a starting point for discussion.

Phase 5A Preliminary Data Validation

At a high level, data must conform to the S-100 based product specification rather than S-100. So in the case of S-101 there will be extensive data validation rules (similar to S-58) that allows for the checking of the dataset and exchange sets in conformance to the product specification. While there may be some commonality for the most part this means that the validation rules are unique to the product specification.

The question is how to document this as part of the test framework?

> Does the Framework need detailed requirements similar to what has been done for phase 3?

> Does the Framework need a general statement regarding that each product specification will develop a set of validation rules to test conformance?

Phase 5B – Preliminary Data Packaging and Distribution

Currently, the only spot that S-100 talks about data exchange is in Part 4A-D Discovery Metadata for Information Exchange Catalogues which specifies the metadata needed to facilitate the exchange of S-100 information. According to S-100 the exchange set may include S-100 based datasets, files, feature catalogues and portrayal catalogues. In order to test how data is packaged and distributed the S-100 framework needs to outline a minimum set of requirements.

Ref	Requirement	Comment
1.0	Create XML metadata catalogue for a single S-100 dataset	
2.0	Create XML metadata catalogue for multiple S-100 datasets using the same product specification	
3.0	Create XML metadata catalogue for multiple S-100 datasets from different product specifications	Eg. S-101 and S-102

Phase 6 – Shore Based ECDIS

While it may seem that were are still a way's off from developing a shore-based ECDIS as part of the test bed, the S-100 test framework needs to begin scoping the requirements for this part of the process. Many of the shore based ECDIS requirements may be derived from IEC 61174 and tweaked for S-100.

Conclusions

As noted above the phase 5 and 6 need to have some preliminary scoping work for theS-100 test bed. This paper starts as a discussion point for the test strategy team members and the results of the discussion should be incorporated into the S-100 test framework for review by the S-100 Working Group meeting in March 2015.