Paper for Consideration by the S-100 Working Group

SPAWAR S-100 Viewer 1.3 Update

Submitted by:	SPAWAR Atlantic
Executive Summary:	Summary of changes to the S-100 Viewer
Related Documents:	S-100 Version 3.0 Specification
Related Projects:	IHO S-100/S-101 Test Bed Project

Introduction / Background

In previous versions of the S-100 Viewer, the internal design was focused on browsing and viewing S-101 datasets. In order to ensure support for other S-100 based products, SPAWAR performed a complete review of the codebase against the S-100 Version 3.0 draft specification. This review led to the discovery of several deficiencies in the implementation which, in turn, led to a rewrite of the codebase.

At the same time, SPAWAR committed to demonstrating the feasibility and value of using Lua as an alternative to XSLT for encoding the portrayal rules. While the above rewrite was progressing, initial Lua support was integrated to allow experimentation.

During the effort, SPAWAR discovered several issues with the S-100 draft specification. These issues have been summarized in separate papers. This paper summarizes interface and functional changes made to the S-100 Viewer.

Analysis / Discussion

1. The user interface of the Viewer has been modified and is now based on modern web browser layouts, as shown below. A calibration function has been added to assist in accurate review of portrayal catalogue rules and symbols, see **Figure 1. S-100 Viewer Start-up Screen**.

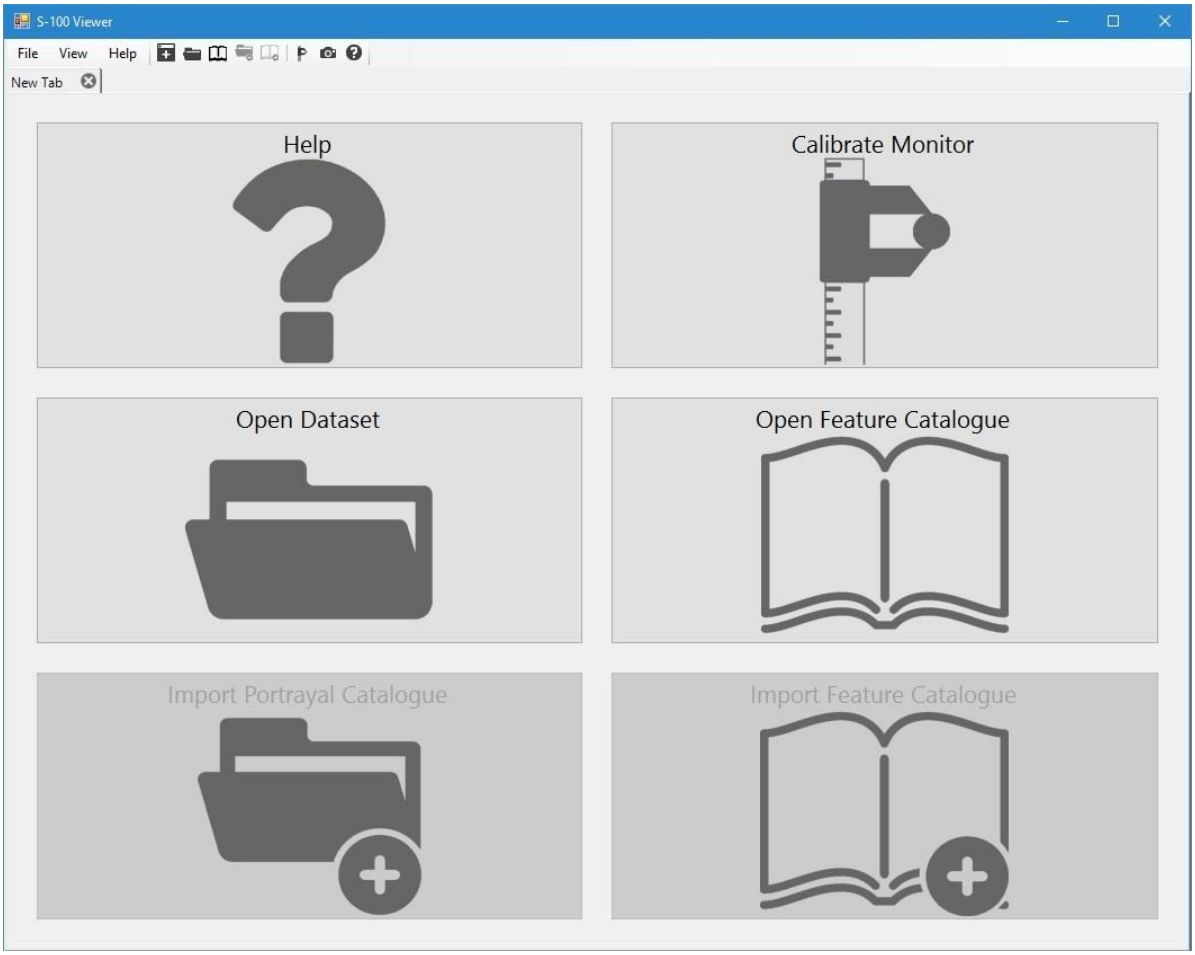


Figure 1. S-100 Viewer Start-up Screen.

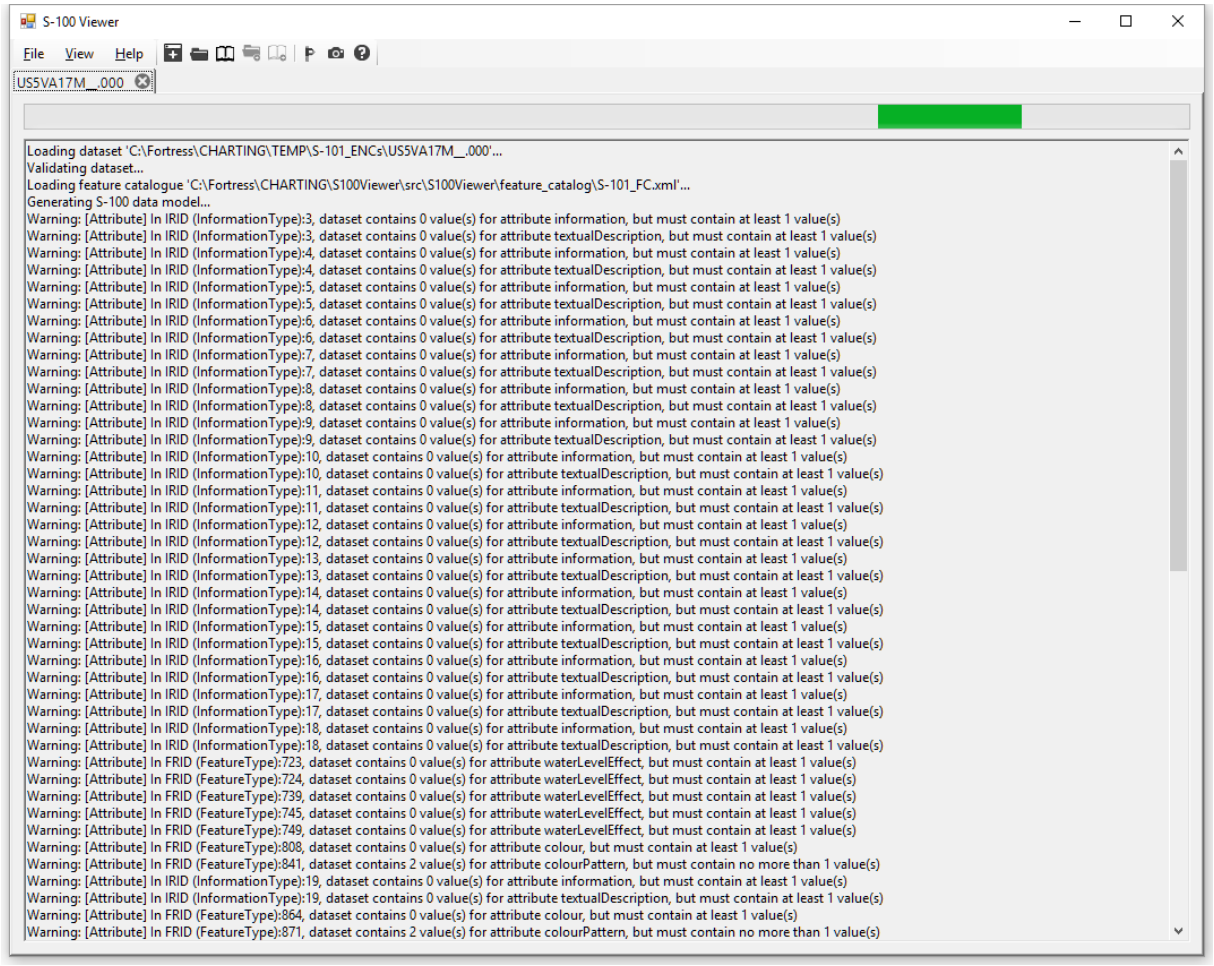
As stated above, initial Lua support has been added. To use the Lua portrayal rules, simply open a dataset and when prompted for a portrayal catalogue, select one that contains Lua rule files. To compare the Lua and XSLT portrayals of a given dataset, open the same dataset twice; selecting different portrayal catalogues each time.

Opening multiple browser tabs, each showing different files, or different views of the same file is now supported. The following combination of files can now be viewed within a tab:

- ISO 8211 Dataset
- ISO 8211 Dataset, Feature Catalogue
- ISO 8211 Dataset, Feature Catalogue, Portrayal Catalogue
- Feature Catalogue

NOTE: It is possible to open the same files multiple times (e.g. the same dataset with different portrayal catalogues).

2. When loading a dataset, the Viewer now performs *some* additional validation. For ISO 8211 datasets, the validation step reports when the encoding deviates from the S-100 specification (e.g. a required point reference is missing from a curve record). When also loading a Feature Catalogue, some additional validation is performed to detect situations where the dataset is not properly encoded according to the product specification (e.g. a mandatory information association is missing). This validation is reported during the load process, as well as in the diagnostic tab once the appropriate view is loaded.



3. As with prior versions, there is a Dataset view that allows browsing of the “raw” dataset. The particular organization of the view is dependent on the encoding format. Apart from the relevant section of S-100 Part 10, no additional S-100 Parts or product specifications are used for this view, see **Figure 2. ISO 8211 Encoding View**.

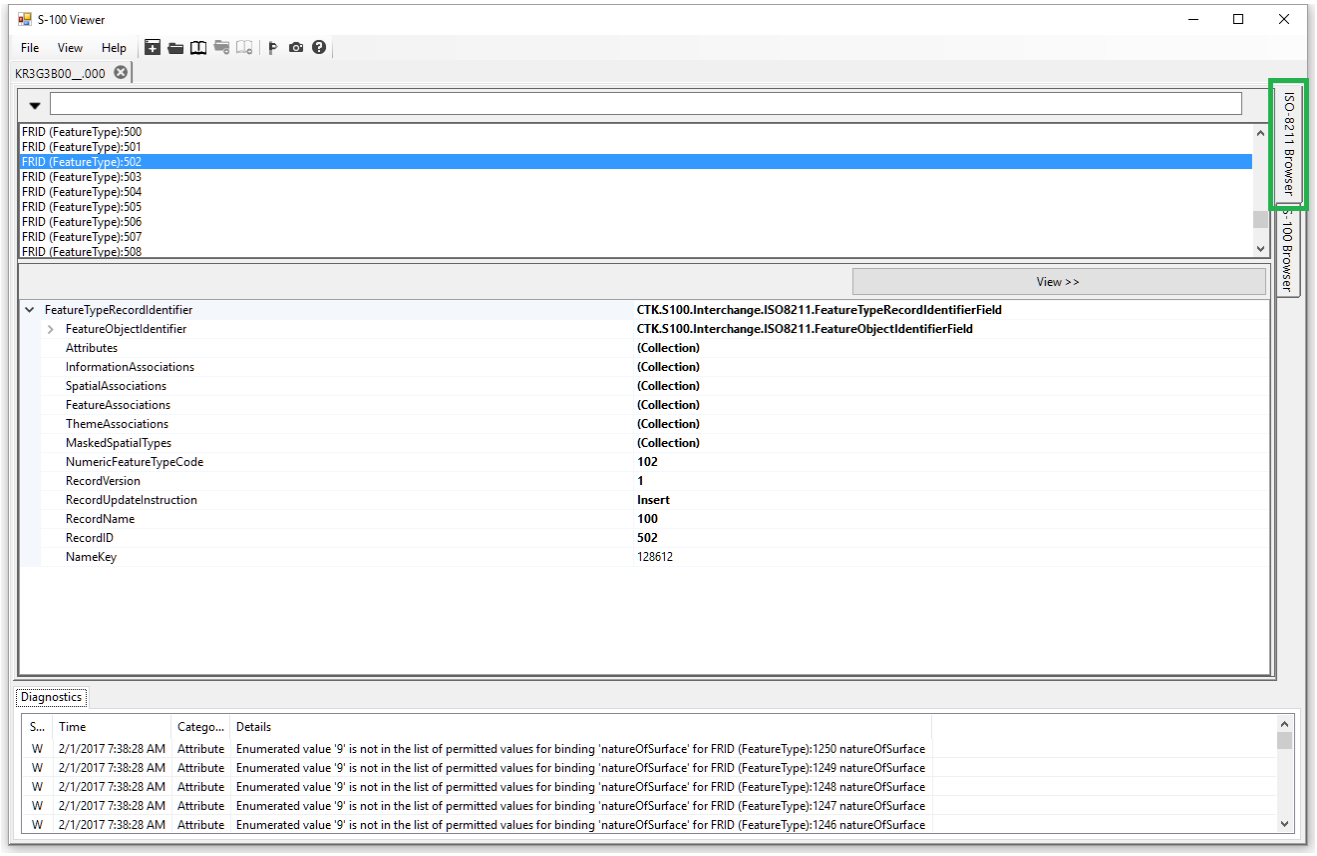


Figure 2. ISO 8211 Encoding View.

4. An S-100 Data Model view has been introduced, which allows browsing of the dataset independent of the interchange format or product specification. This data model only relies on the S-100 specification and the associated product's feature catalogue, see **Figure 3. S-100 Data Model View**.

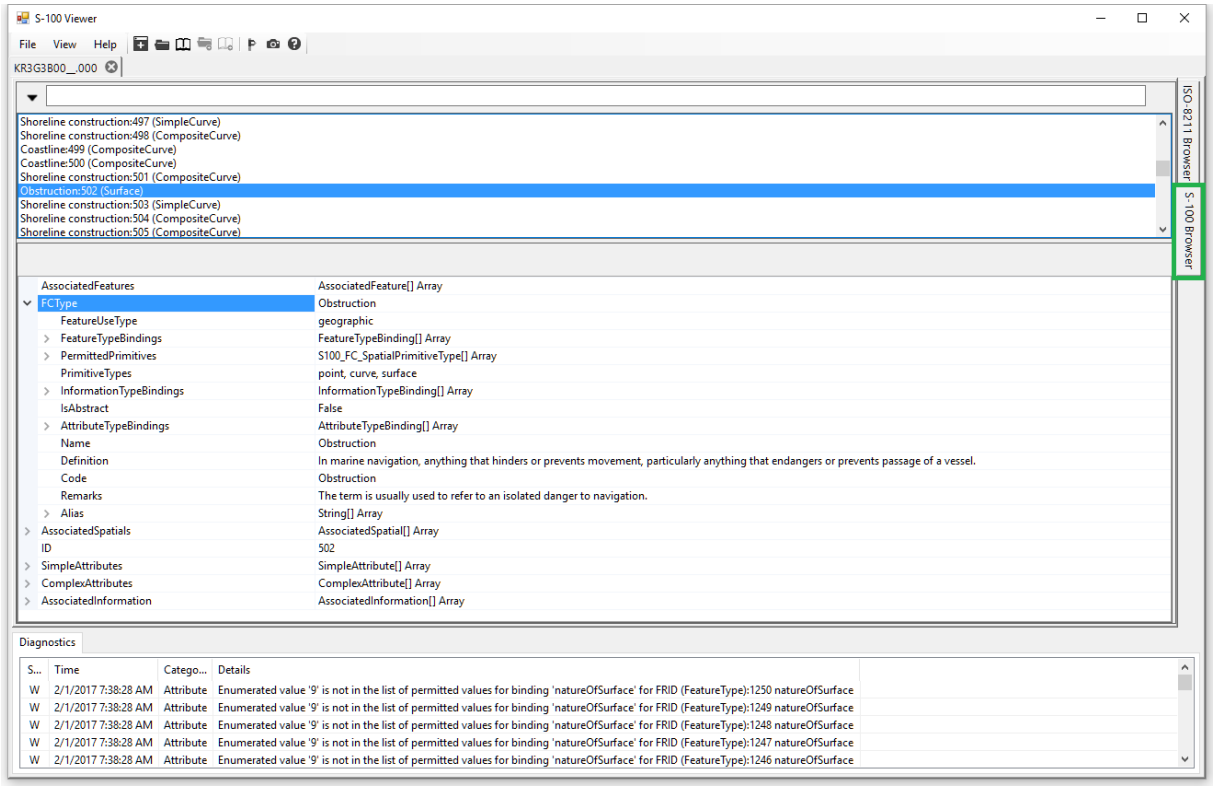


Figure 3. S-100 Data Model View.

5. The third view, Portrayal, includes a tab that allows the user to interact with the various elements of the portrayal catalogue, subject to limitations described in the companion paper “Recommended Changes to the S-100 Portrayal”. This tab allows selection of the ColorPalette (Day, etc.), DisplayMode (Base, Standard, etc.), and TopLevelTemplate. Each portrayal context parameter can be modified (SAFETY_DEPTH, etc), and the Viewing Group Layers, and Viewing Groups can be toggled on or off.

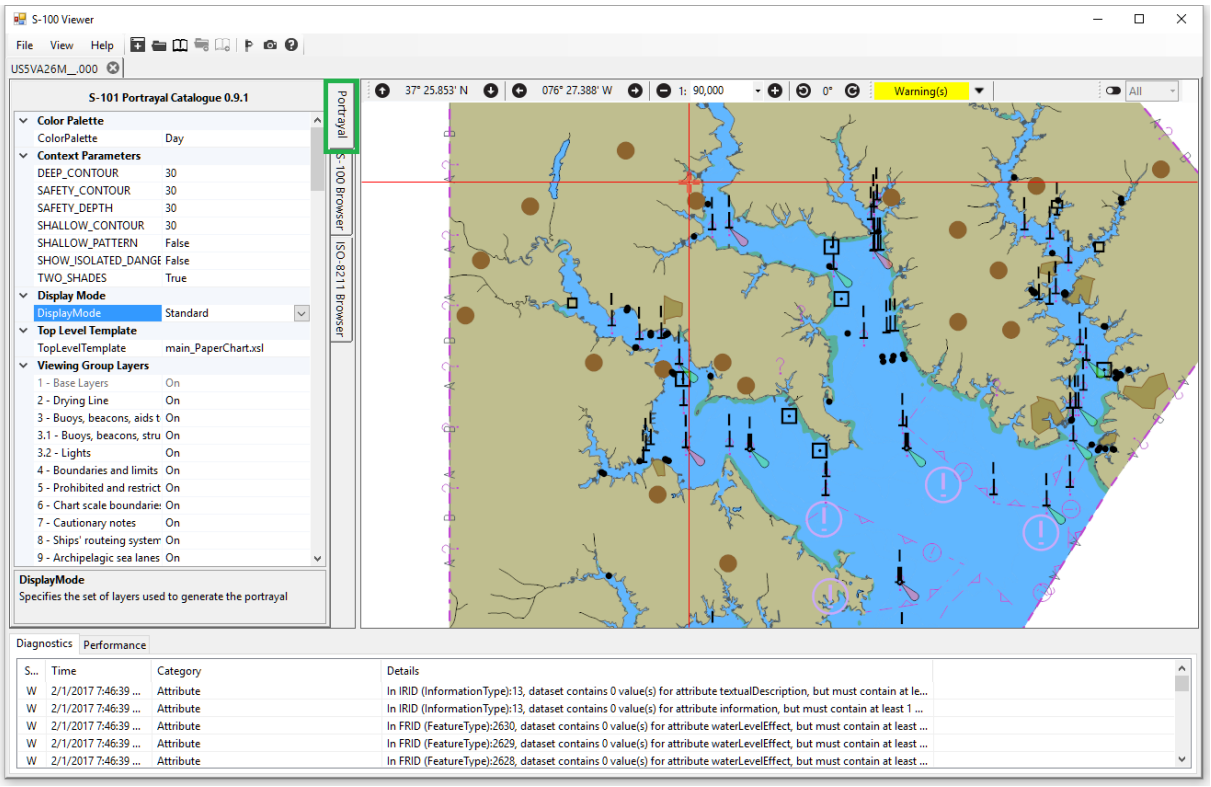


Figure 4. Portrayal Catalog View.

6. The Feature Catalogue view allows browsing of a feature catalogue as shown in **Figure 5. Feature Catalog View.**

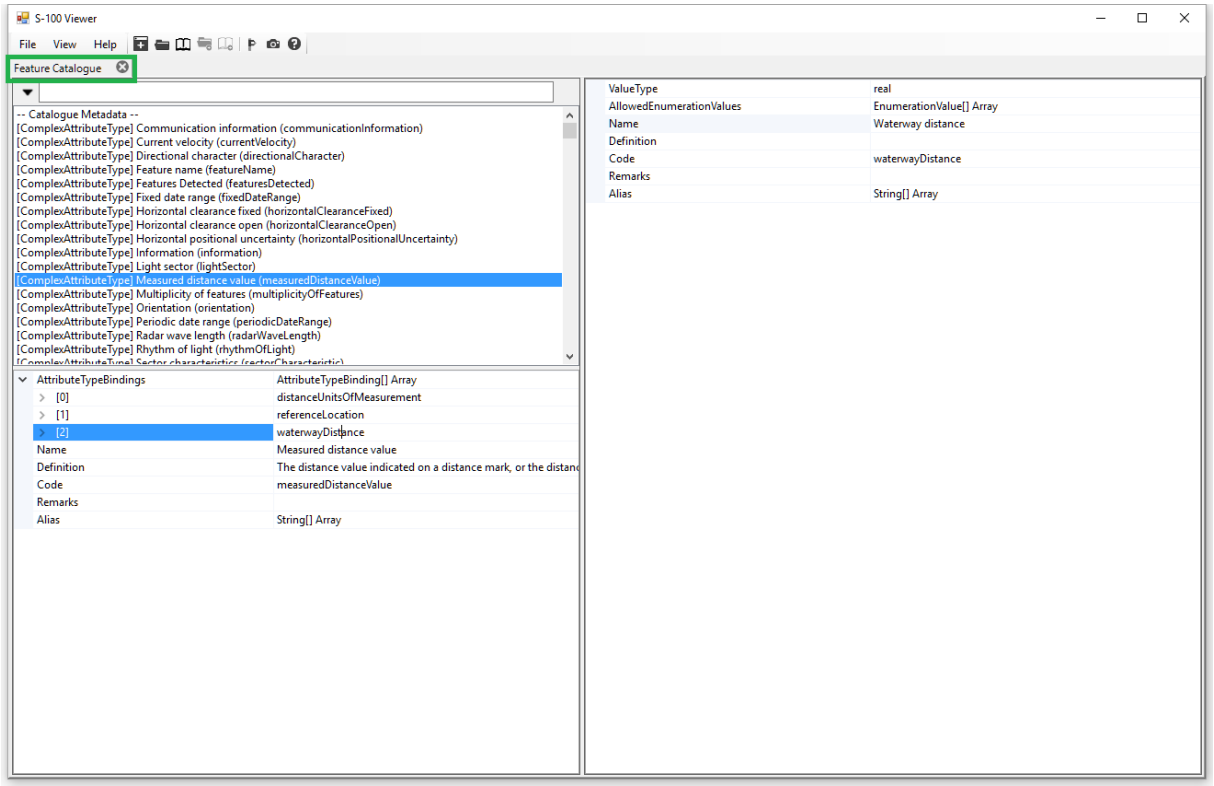


Figure 5. Feature Catalog View.

7. As a troubleshooting aid, the ISO8211 "dump" functionality has been integrated. In prior releases, this functionality was available as a separate command-line tool. Now, in the event that a user opens a corrupt or incorrectly encoded ISO8211 file, a text-based "dump" of the file will be shown (instead of the above browser views) to help with troubleshooting efforts. See notional output in **Figure 6. ISO8211 Diagnostic Explorer.**

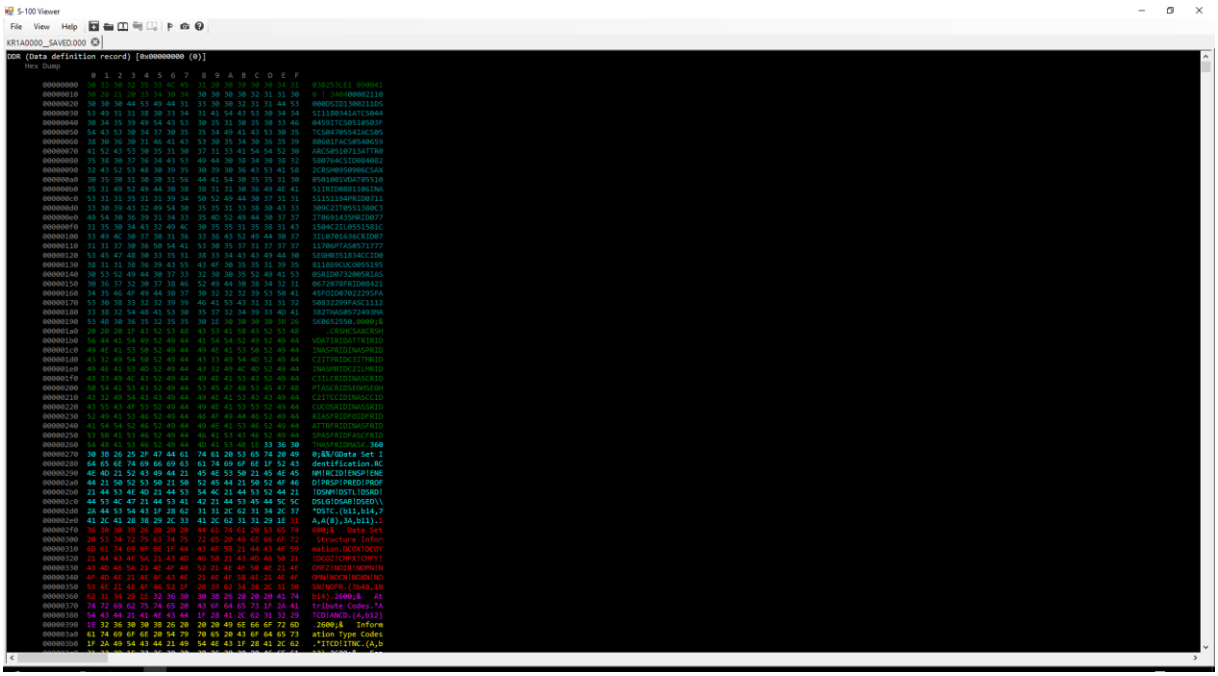


Figure 6. ISO8211 Diagnostic Explorer.

Action Required of S-100 WG

The S-100 working group is invited to:

a. note the paper

b. download the latest version of the S-100 Viewer from basecamp