Information Paper for the S-101PT

Tiny to IHO SVG Translator and CSS Inline Styling Removal

Submitted by:	UNH Center for Coastal and Ocean Mapping (UNH/CCOM)
Executive Summary:	Tiny to IHO SVG Translator and CSS Inline Styling Removal

Introduction

ENC symbols in the IHO Portrayal catalogue follow the IHO specific SVG format. Development of simple symbols (e.g., lines or dots) is straightforward and can be accomplished by manipulating the XML code of similar, existing, ENC symbology. However, the development of more complex symbols directly into the IHO format can become cumbersome. For complex tasks, powerful software for symbology design, such as Adobe Illustrator (AI), can be used. However, there is no available option for exporting SVGs from AI to the IHO format. Furthermore, the 'style' attribute was included in previous versions of the IHO SVG Profile as it was part of previous basic SVG versions. However, CSS inline styling is absent in SVG Tiny 1.2 and therefore will not be further supported in ENC symbology.

In PT10 meeting, S-101 PT identified the benefits of a tool for converting tiny SVGs to the IHO specific format and the need for updating all registered symbols in the GI Registry to conform to the S-100 Edition 5.1.0 Portrayal Schema for the CSS inline styling. Accordingly, UNH, KHOA, and IHO Secretariat were tasked to complete the above actions (S-101PT Action 10-06).

This paper presents the progress to-date and seeks feedback and guidance for future work from the PT members.

Progress

UNH (Christos Kastrisios and Cody McBride), with the support of US Navy (David Grant), IHO (Jeff Wootton), and S101PT Chair (Thomas Richardson), worked on the development of two automated tools, one that converts Tiny to the IHO SVG specific format and one that replaces the style attribute from the IHO ENC symbols.

The current version of the *Tiny-to-IHO SVG Translator* tool supports simple geometric shapes (polygons and ellipses), basic transformations of the above shapes (rotation, translation), non-standard shapes created using AI's line drawing tool, style information (line weight / color, shape fill / color), and embedded text for setting Title and Description. Figure 1 shows the user interface and Figure 2 the XMLs of an exported symbol from AI in Tiny format (top) and its translation to the IHO format (bottom).
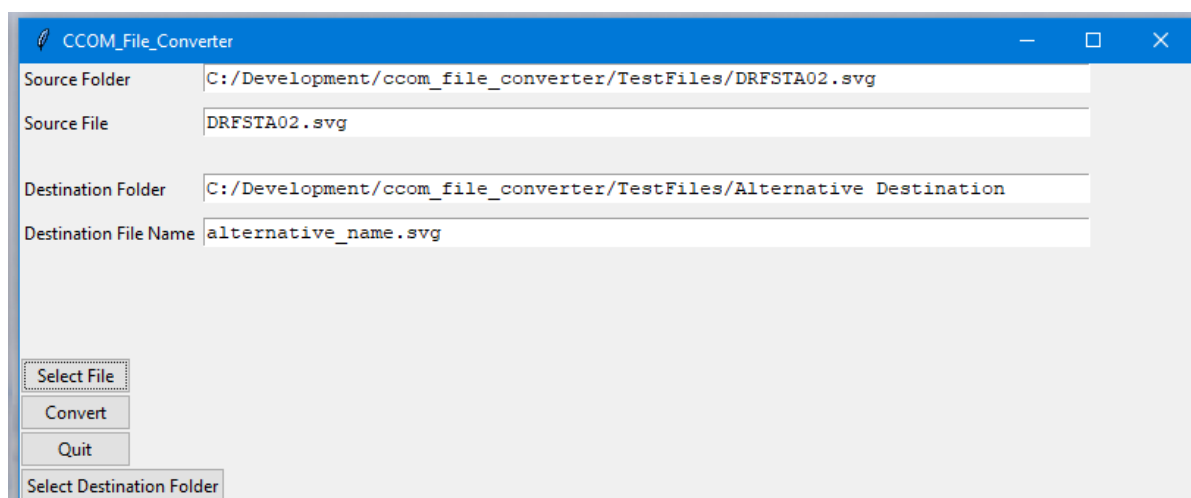

Figure 1. User interface of the tiny-to-IHO SVG translator tool.

```
ARCHARE03.svg
 1  <?xml version="1.0" encoding="utf-8"?>CRLF
 2  <!-- Generator: Adobe Illustrator 27.8.1, SVG Export Plug-In . SVG Version: 6.00 Build 0)  -->CRLF
 3  <svg version="1.1" id="Layer_1" xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink" x="0px" y="0px"CRLF
 4      viewBox="0 0 612 792" style="enable-background:new 0 0 612 792;" xml:space="preserve">CRLF
 5  <style type="text/css">CRLF
 6      .st0{fill:none;stroke:#000000;stroke-width:8.5039;stroke-miterlimit:10;}CRLF
 7  </style>CRLF
 8  <line class="st0" x1="291" y1="279.6" x2="291" y2="481.3"/>CRLF
 9  <line class="st0" x1="357" y1="319.6" x2="224.9" y2="319.6"/>CRLF
10  <line class="st0" x1="357" y1="477.9" x2="224.9" y2="477.9"/>CRLF
11  <line class="st0" x1="382.7" y1="449.2" x2="354" y2="477.9"/>CRLF
12  <line class="st0" x1="199.2" y1="449.2" x2="227.9" y2="477.9"/>CRLF
13  </svg>CRLF
```

```
converted_ARCHARE03.svg
 1  <?xml version="1.0" encoding="utf-8"?>CRLF
 2  <?xml-stylesheet href="SVGStyle.css" type="text/css"?>CRLF
 3  <svg xmlns="http://www.w3.org/2000/svg" version="1.2" baseProfile="tiny" xml:space="preserve" style="shape-rendering:geometricPrecision; CRLF
 4      fill-rule:evenodd;" width="3.33mm" height="2.78mm" viewBox="-0.5 -0.5 3.33 2.78">CRLF
 5      <title>This is the default title</title>CRLF
 6      <desc>This is the default description</desc>CRLF
 7      <metadata>CRLF
 8          <iho:S100SVG xmlns:iho="http://www.iho.int/SVGMetadata">CRLF
 9              <iho:Description publisher="IHO" creationDate="8/25/2023" source="S52Preslib4.0" format="S100SVG" version="0.1" />CRLF
10          </iho:S100SVG>CRLF
11      </metadata>CRLF
12  <circle class="pivotPoint layout" fill="none" cx="0.00" cy="0.00" r="0.4" />CRLF
13  <path d="M -0.209,-1.618 L -0.209,1.186" fill="none" class="s1 f0 sCHBLK" style="stroke-width:0.8192;" />CRLF
14  <path d="M 0.709,-1.062 L -1.127,-1.062" fill="none" class="s1 f0 sCHBLK" style="stroke-width:0.8192;" />CRLF
15  <path d="M 0.709,1.139 L -1.127,1.139" fill="none" class="s1 f0 sCHBLK" style="stroke-width:0.8192;" />CRLF
16  <path d="M 1.066,0.74 L 0.667,1.139" fill="none" class="s1 f0 sCHBLK" style="stroke-width:0.8192;" />CRLF
17  <path d="M -1.485,0.74 L -1.086,1.139" fill="none" class="s1 f0 sCHBLK" style="stroke-width:0.8192;" />CRLF
18  </svg>
```

Figure 2. XMLs of an AI Tiny SVG sample symbol (top) and its translation to the IHO format (bottom) using the *Tiny-to-IHO SVG Translator* tool.

The *CSS Inline Style Removal* tool removes CSS inline styling information from otherwise IHO-compliant SVG tools. The tool currently targets the style attribute removal from individual SVG files input to the tool and their replacement with the respective styling properties (e.g., stroke-width and fill-opacity). Figure 3 shows six sample symbols (from left to right and from top to bottom rows: BUIREL04, BUIREL05, BOYSPR31, UWTROC03, WRECKS05, BUIREL14) in S100 Viewer in their original format (with CSS inline styling) (left) as well as those modified by the removal tool (right). Figure 4 shows an example (BOYNDM02) of XML of the source (top) and modified (bottom) symbols.
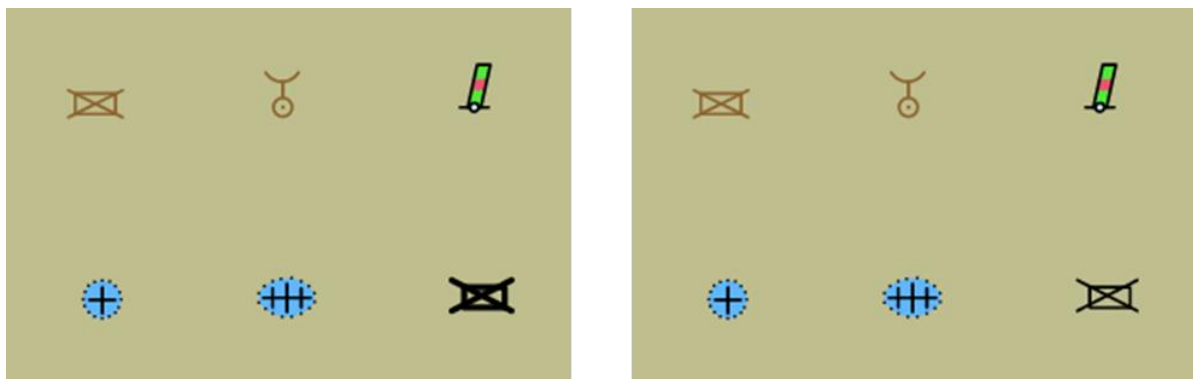

Figure 3. Six sample IHO symbols in S100 Viewer before (left) and after (right) CSS inline styling removal with the *CSS Inline Style Removal* tool.

Figure 4. Example of an IHO symbol before (top) and after (bottom) CSS inline styling removal with the *CSS Inline Style Removal* tool.

Action Required by the S-101PT

The S-101PT is invited to:

a. Note this paper,
b. Suggest subsequent steps for tools' testing and implementation.