Paper for Consideration by S-100TSM

KHOA Test Bed Projects – Viewer Update

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Submitted by:	Republic of Korea (KHOA)
Executive Summary:	This paper reports on the results of KHOA Test Bed Projects
Related Documents:	S-100, S-99
Related Projects:	IHO S-100/S-101 Test Bed Project

Introduction / Background
KHOA is conducting the S-100 test bed project to cope with S-100 development of IHO and e-Navigation of IMO. One of research topics is the development of S-100 test bed. This paper describes major updates of KHOA S-100 Viewer.
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Analysis

In the past, KHOA S-100 Viewer used XSLT Rule, which was originally developed for S-101 Portrayal Process. Recently, the S-101 Portrayal Process developed the Lua Rules as per agreed to apply Lua at S-100 WG. LUA Rule processing uses LuaScriptingReference provided by SPAWAR. And KHOA tested the TextPlacement feature added in S-100.

Use of Lua Scripting Reference

KHOA uses the rules of XSLT format as S-10X (GML) and S-101 (ISO / IEC8211) uses LUA format Rule. The experiment environment builds the same IN / OUT data as the LuaScriptingReference to fully follow the LuaScriptingReference.
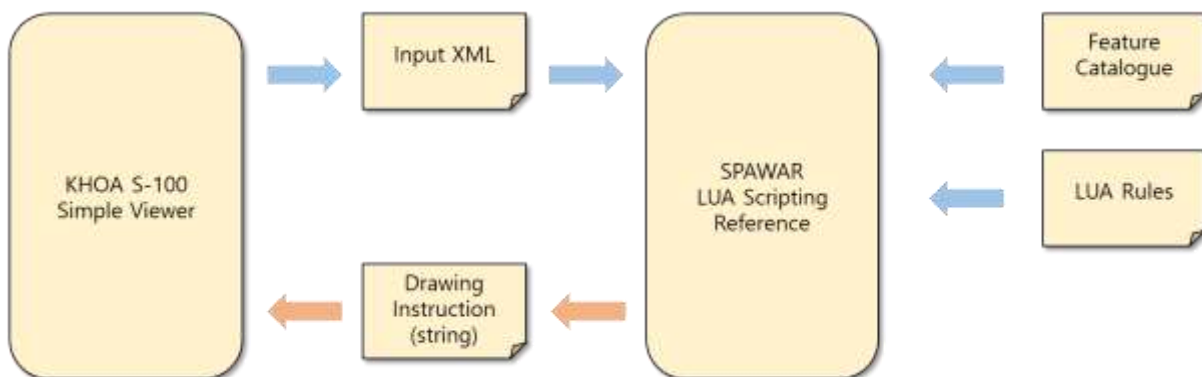
Result of applying Lua Scripting Reference.
We analyzed the LUA Rules, Lua Drawing Instruction, and the results of KHOA S-100 Simple Viewer with LUA and SPAWAR Viewer.

1) KHOA make attribute tag and value about blank attribute: Unknown(Blank) or Not Define is not treated in the LUA Rules.

KRISO Input XML

```xml
<Obstruction id="31" primitive="Point">
    <Point ref="Point|85"/>
    <categoryOfObstruction>1</categoryOfObstruction>
    <qualityOfVerticalMeasurement>2</qualityOfVerticalMeasurement>
    <reportedDate>200608--</reportedDate>
    <valueOfSounding></valueOfSounding>
    <waterLevelEffect>3</waterLevelEffect>
    <defaultClearanceDepth>1.8</defaultClearanceDepth>
    <surroundingDepth>1.8</surroundingDepth>
</Obstruction>
```

SPAWAR Input XML

```xml
<Obstruction id="31" primitive="Point">
    <Point ref="Point|85" />
    <categoryOfObstruction>1</categoryOfObstruction>
    <qualityOfVerticalMeasurement>2</qualityOfVerticalMeasurement>
    <reportedDate>200608--</reportedDate>
    <waterLevelEffect>3</waterLevelEffect>
    <defaultClearanceDepth>1.8</defaultClearanceDepth>
    <surroundingDepth>1.8</surroundingDepth>
</Obstruction>
```

2) Sequential processing in output string of LUA Rules: Can I process Drawing Instructions sequential? If It is described the common property once, can apply it to the following Instruction?

1: "DisplayPlane:OverRADAR"
2: "ViewingGroup:31031"
3: "DrawingPriority:8"
4: "PointInstruction:INFORM01"
5: "LineInstruction:INFORM01"

1: "DisplayPlane:OverRADAR"
2: "ViewingGroup:31031"
3: "DrawingPriority:8"
4: "PointInstruction:INFORM01"
5: "ViewingGroup:31010"
6: "DrawingPriority:4"
7: "DisplayPlane:UnderRADAR"
8: "Dash:0,3.6"
9: "LineStyle:,5.4,0.64,CHGRD"
10: "LineInstruction:"
11: "ScaleFactor:0.311"
12: "PointInstruction:DQUALD01P"

3) No have Area Instruction: Generally, LUA Rules make out in Instruction unit. But, Area Instruction is now have instruction tag, just have ColorFill, AreaFillReference.

1: "DisplayPlane:OverRADAR"
2: "ViewingGroup:31031"
3: "DrawingPriority:8"
4: "ColorFill:DEPVS"

4) Need a Description of Drawing Instruction's multi value: It not defined proper meaning.

```
TextInstruction:bn Alligator River Light 16,21,8
LineStyle:,,0.32,CSTLN
AugmentedRay:GeographicCRS,24,GeographicCRS,16668
AugmentedPath:LocalCRS,GeographicCRS,LocalCRS
Dash:0,3.6
ArcByRadius:0,0,20,24,199
```

5) Contact Line Instruction In case of Line Instruction, if Line Style is defined in advance, there is no value as "LineInstruction:" but there is a value in "LineInstruction: MARSYS51 " which is supposed to represent a symbolized line.
If not exist the value : Simple Line Style
If exist the value : Symbolled Line Style

```
"LineInstruction:"

"LineInstruction:MARSYS51"
```

6) Check Drawing Instruction ResultSPAWAR S-100 Viewer ver. In 1.6.1.0, the Bridge seems to be displayed normally, DrawingInstruction results are different in LuaScriptReference.Spatial Relation function is the only host function not currently implemented, but currently Spatial Relation function is not used in LUA Script. Then, SPAWAR S-100 Viewer ver. Screen output of 1.6.1.0 and Drawing Instruction should be same. The result of using the electronic chart file/inputXML provided by SPAWAR is different from the drawing instruction result.(inputXML.xml, S-101 FC, Lua mian.Lua all have same condition)

- This content occurs in multiple feature types

7) Issue in LUA Rule files

    Feature : TrafficSeparationSchemeLanePart

    Feature : AnchorageArea

    Feature : MarineFarmCulture

    Feature : TrafficSeparationSchemeCrossing

    Feature : TerritorialSeaArea

    Feature : DumpingGround

    : Defined INFARE71, RSRDEP51 in CSP, but no have Symbols.

    Feature : Obstruction

    Feature : SpanFixed

    Feature : UnderwaterAwashRock

    Feature : Wreck

    : real value attributes issue (I guess this issue comes from 1. Issue)

    Feature : CableOverhead

: All conditional statements are the same twice.

Text Placement

The S-101 Portrayal Catalog contains TextPlacement, which was tested in this experiment. During the test, we applied TextPlacement to KHOA S-100 Viewer and derived the following implications.

1) If the TextPlacement is a Geometric Position that is different from the associated object, it will be displayed in an unexpected position according to the scale. It needs to be created in the same Geometric Position as the associated object, and the position adjustment should be set to OFFSET.

2) If text is rotated and expressed using TextPlacement, it can be expressed in accordance with the direction of the object.

An example is shown below.
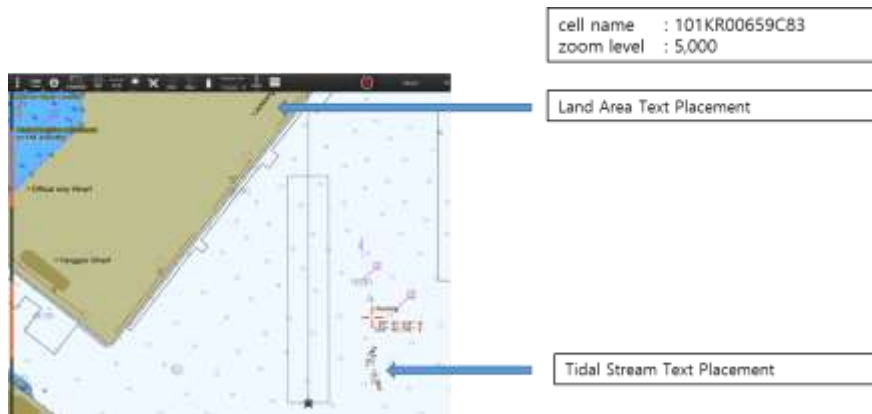
Discussion/Conclusions

The research team carried out KHOA S-100 Viewer, applied Lua Rules as the main points, and focused on the development of functions to check TextPlacement. Since the improvement was identified in the LUA Script and Reference code during the application of Lua Rules, it would be necessary to consult with organizations and experts related to S-101 PC.

Action Required of S-100TSM

The S-100TSM7 is invited to:

    a.   Note the progress reported in this paper

    b.   Need to discussion subject in this paper