

ISO/IEC JTC 1/SC 24/WG 8 "Environmental representation"

Convenorship: BSI

Convenor: Mamaghani Farid Mr

**Presentation on SEDRIS to X3D Conversion**

Document type	Related content	Document date	Expected action
Meeting / Working documents for discussion	Meeting: VIRTUAL 19 Jul 2021	2022-01-25	INFO by 2021-07-19

Description

Presentation slides on SEDRIS to X3D Conversion (Implementation)

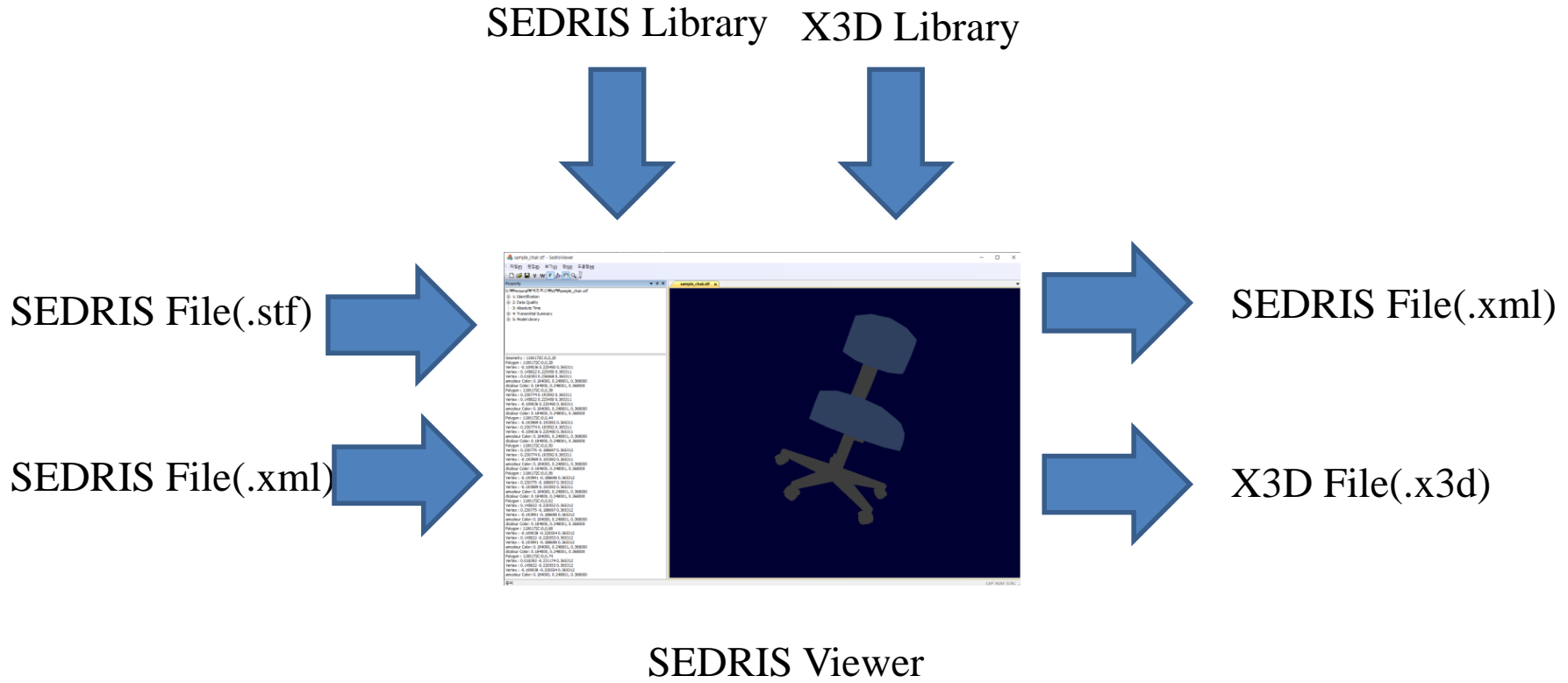
SEDRIS to X3D Conversion (Implementation)

ISO/IEC JTC 1/SC 24 Plenary & WG Meetings
(Online Meeting)

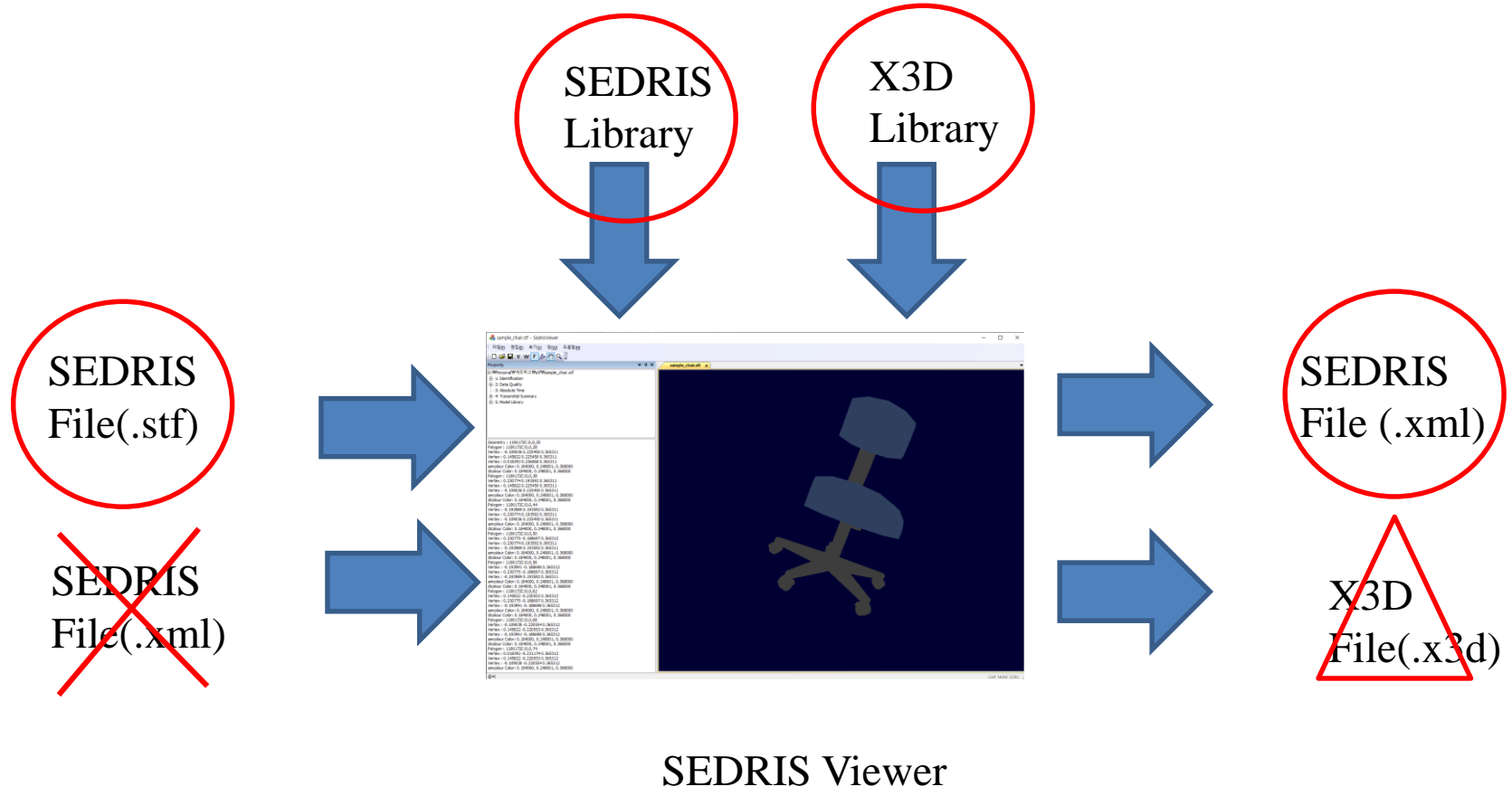
July 12 - August 4, 2021 UTC

Myeong Won Lee (U. of Suwon)

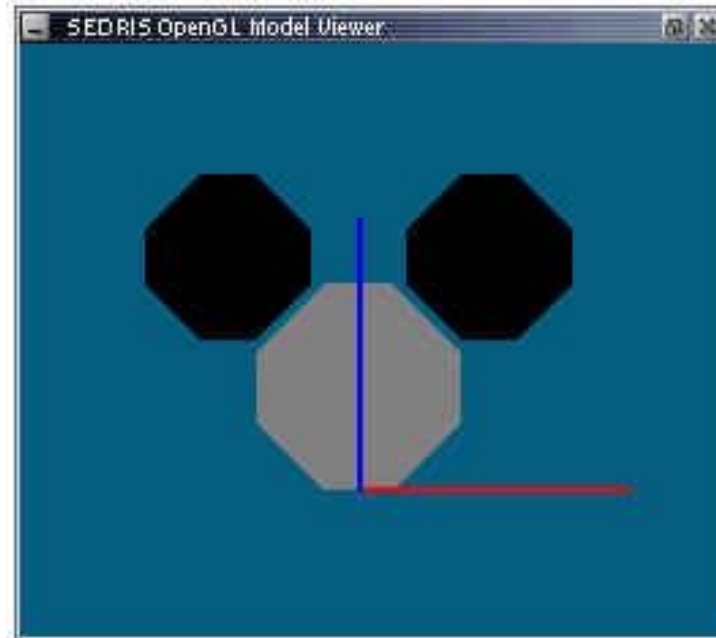
SEDRIS Viewer and Data Flow



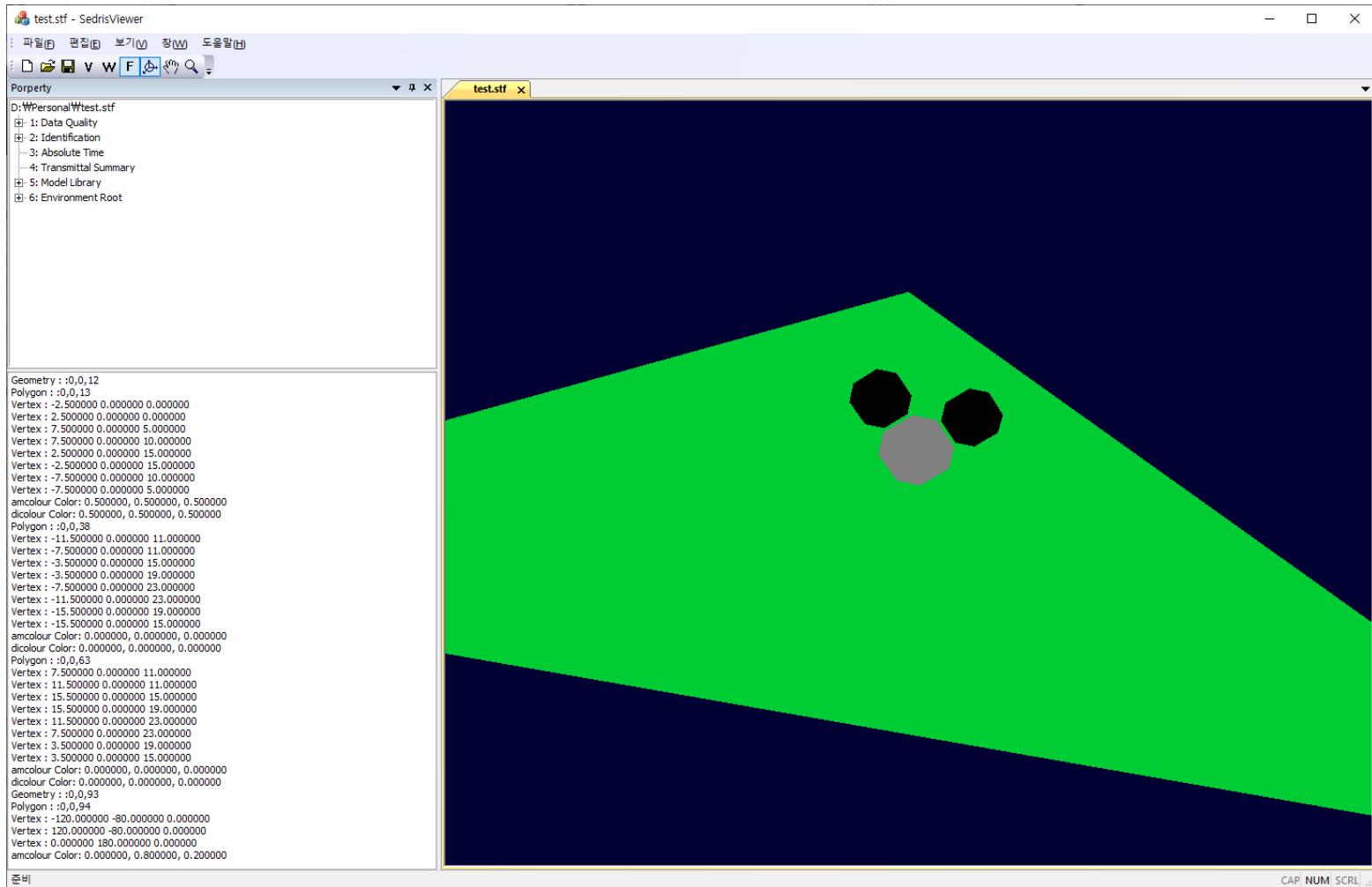
Current Status of Development



SEDRIS file example (test.stf) – rendering by the STF viewer



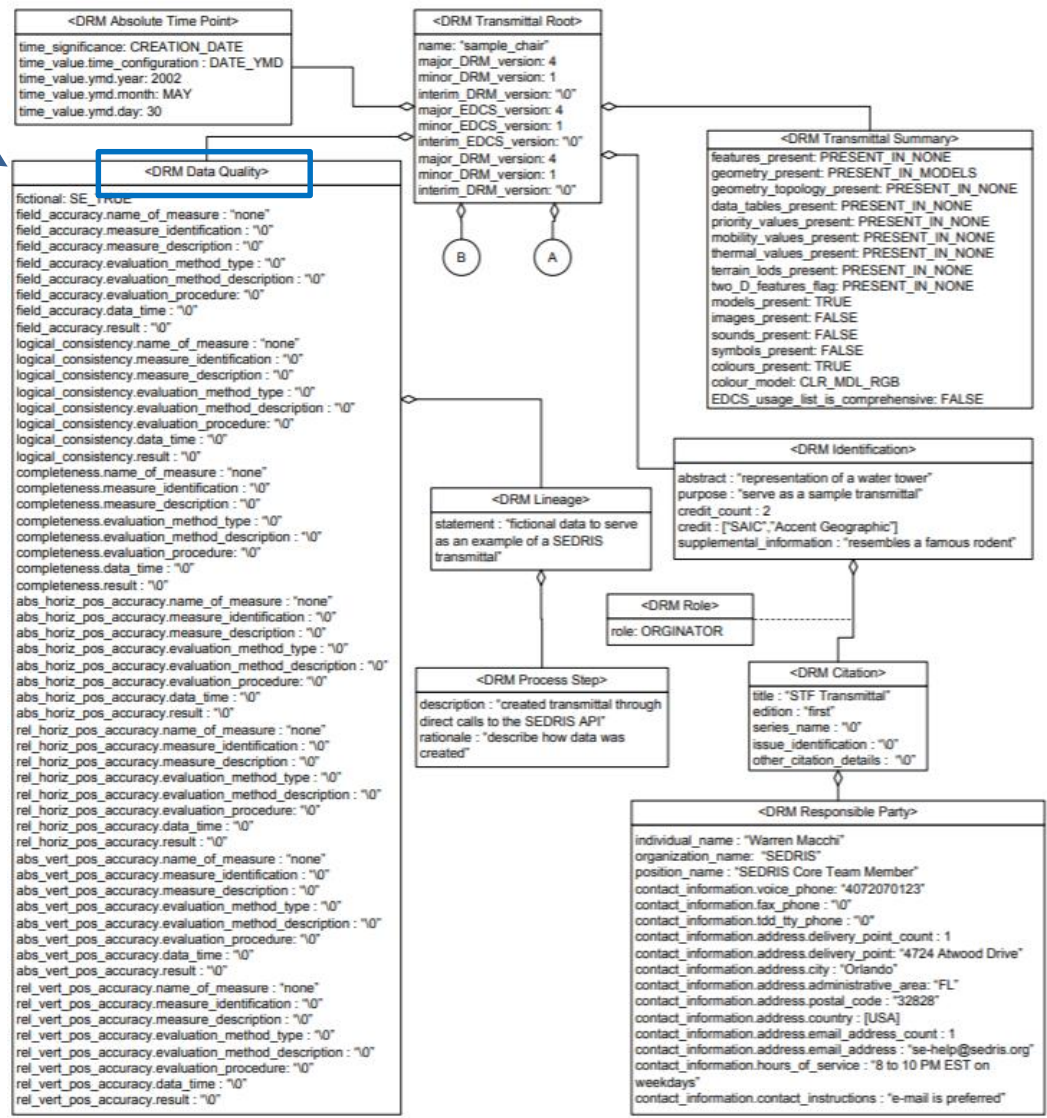
STF to X3D Conversion (test.x3d) and SEDRIS Viewer



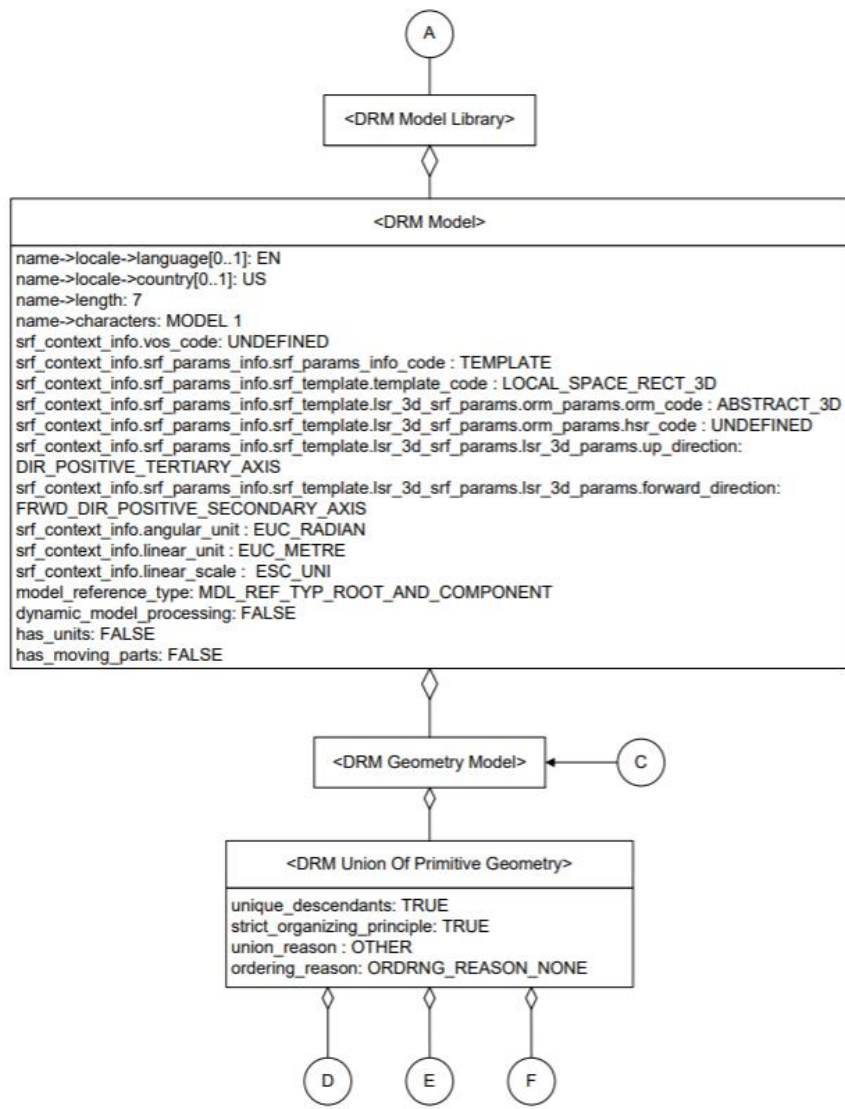
UML : Transmittal Root and metadata

DRM

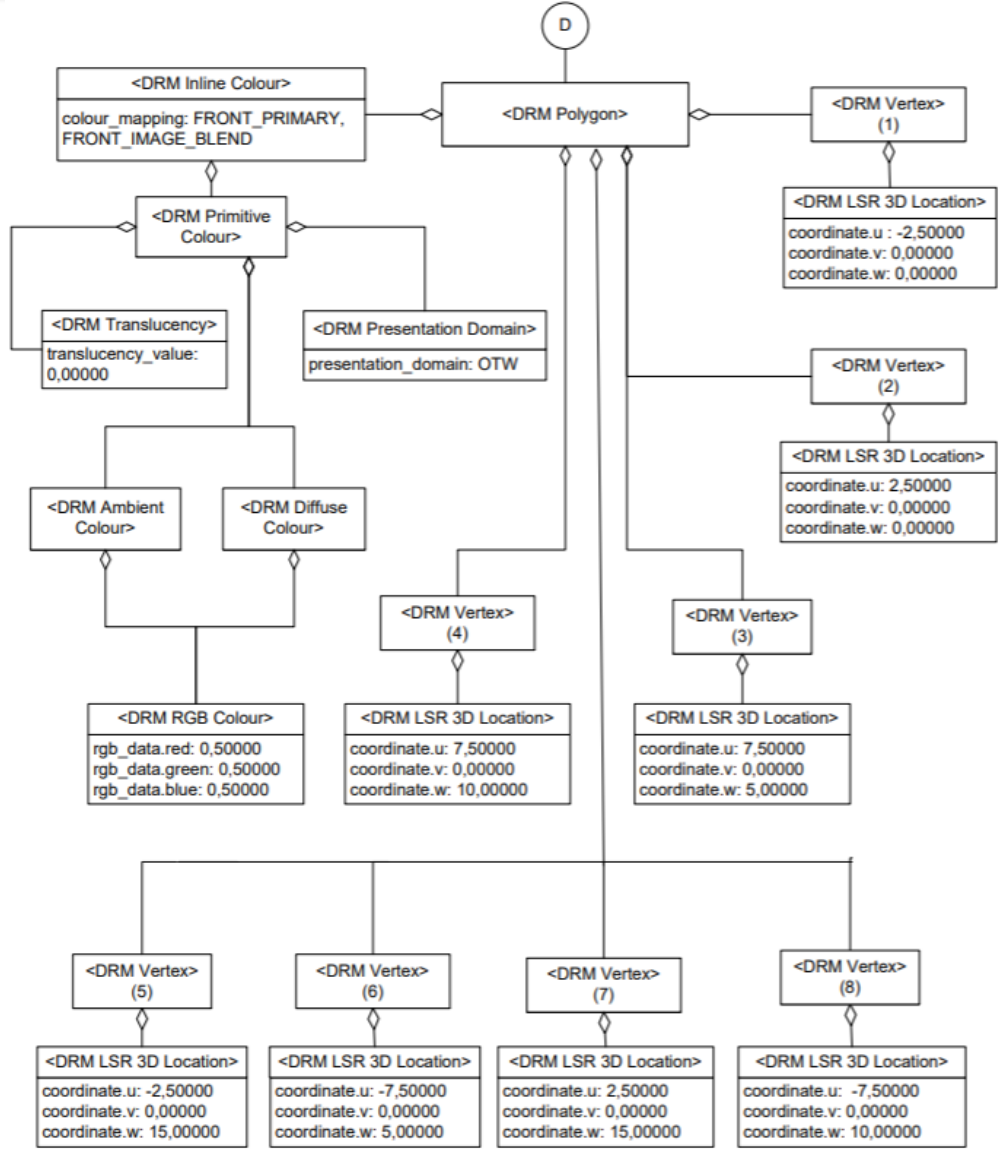
Fields



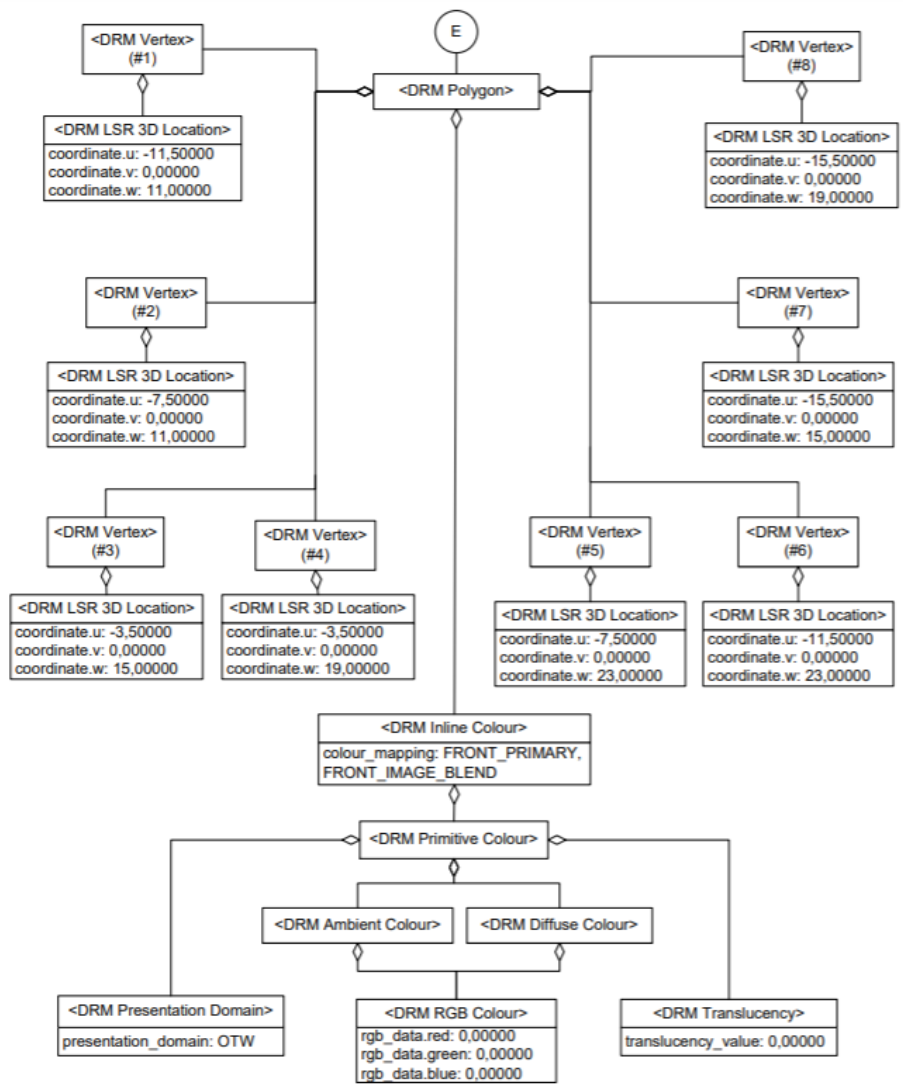
UML : Model



UML : Polygon



UML : Polygon



UML : Polygon

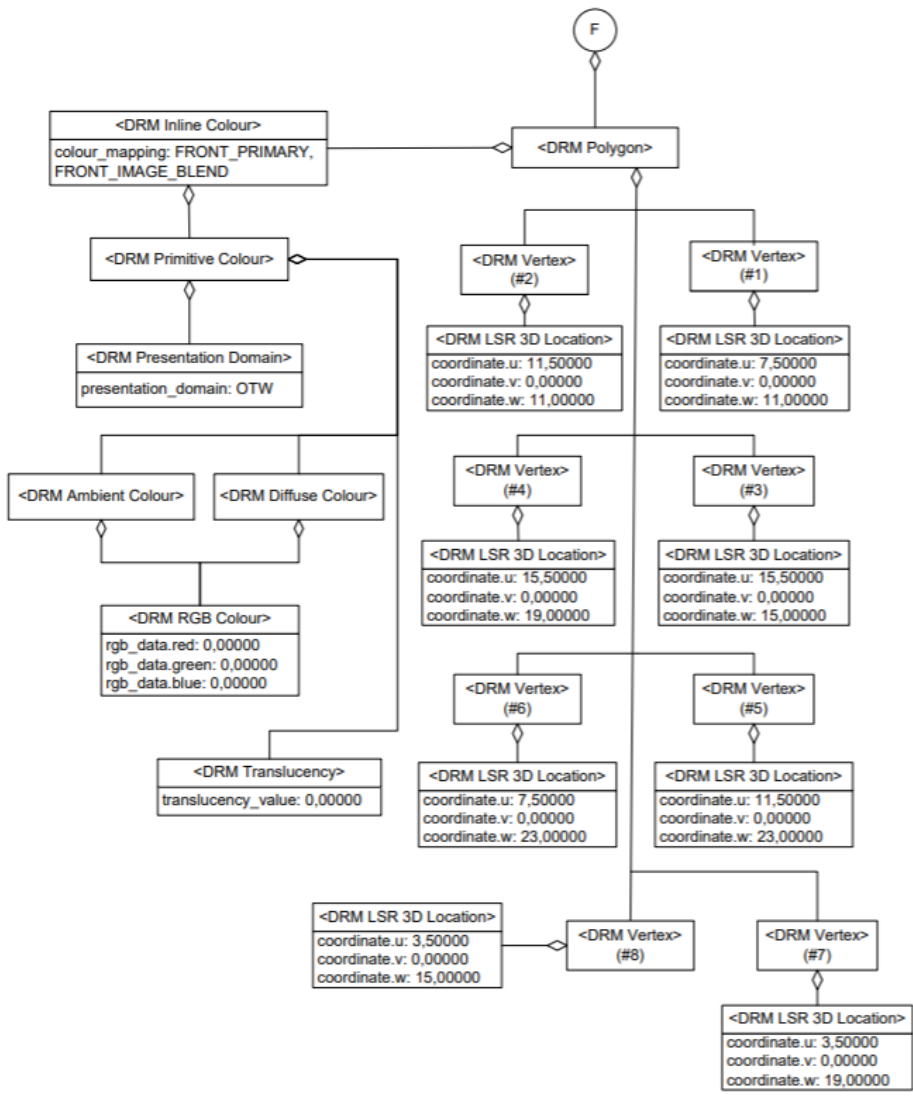


Figure B.6 - Right black polygon

UML : Environment Root

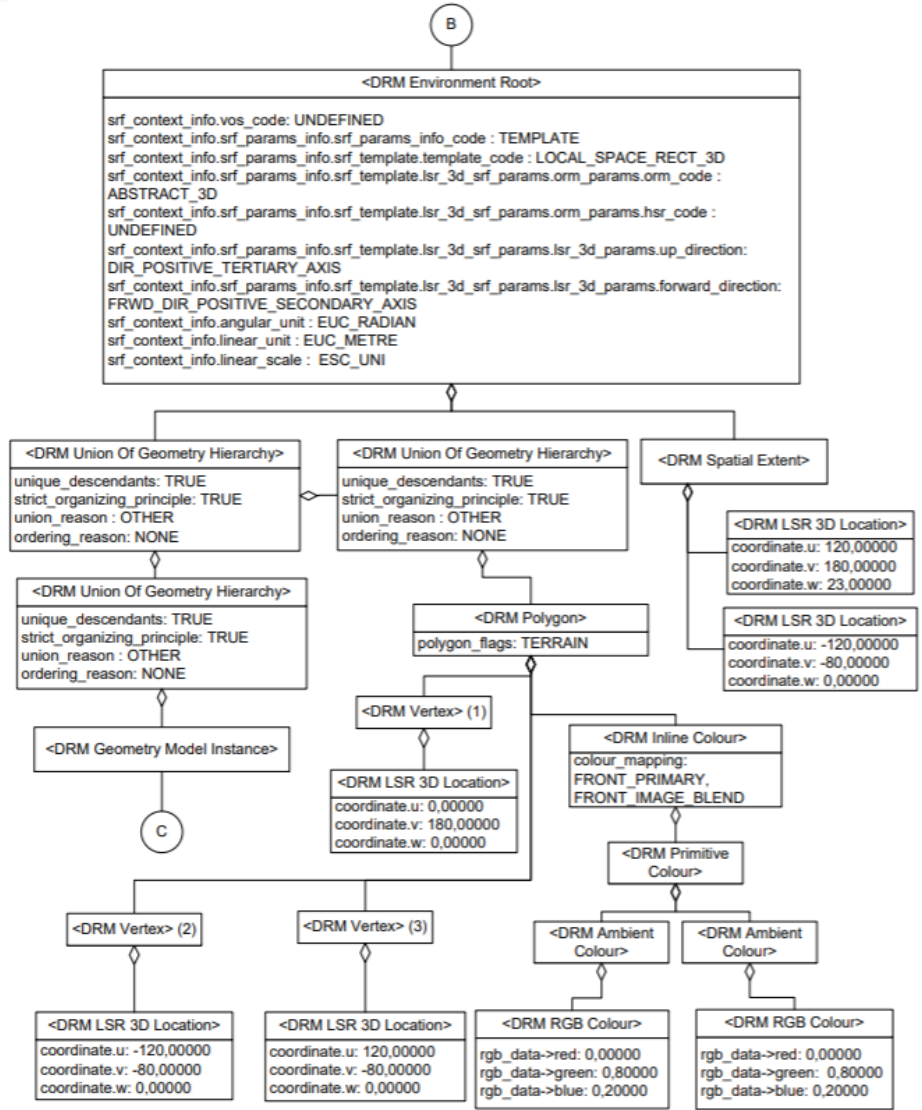


Figure B.7 – Root of the environment

XML encoding data

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- ISO/IEC 18023-1:2006(E) Annex B. Example Transmittal -->
- <drm:transmittalRoot xsi:schemaLocation="http://www.example.org/TransmittalStructure ../XSD/TransmittalStructure.xsd
http://www.example.org/TimeAndMetadata ../XSD/TimeAndMetadata.xsd
http://www.example.org/GeometryRepresentation ../XSD/GeometryRepresentation.xsd
http://www.example.org/PrimitiveGeometry ../XSD/PrimitiveGeometry.xsd http://www.example.org/SpatialConcepts ../XSD/SpatialConcepts.xsd
http://www.example.org/ModelInstance ../XSD/ModelInstance.xsd http://www.example.org/ColourRepresentation ../XSD/ColourRepresentation.xsd "
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:colrep="http://www.example.org/ColourRepresentation"
xmlns:modins="http://www.example.org/ModelInstance" xmlns:spacon="http://www.example.org/SpatialConcepts"
xmlns:prigeo="http://www.example.org/PrimitiveGeometry" xmlns:georep="http://www.example.org/GeometryRepresentation"
xmlns:tam="http://www.example.org/TimeAndMetadata" xmlns:drm="http://www.example.org/TransmittalStructure">
  <!-- Figure B.2: DRM transmittal root and metadata -->
  <name>sample_chair</name>
  <major_DRM_version>4</major_DRM_version>
  <minor_DRM_version>1</minor_DRM_version>
  <interim_DRM_version/>
  <major_EDCS_version>4</major_EDCS_version>
  <minor_EDCS_version>1</minor_EDCS_version>
  <interim_EDCS_version/>
  <major_SRM_version>4</major_SRM_version>
  <minor_SRM_version>1</minor_SRM_version>
  <interim_SRM_version/>
- <dataQuality fictional="true">
  - <field_accuracy>
    <name_of_measure>none</name_of_measure>
    <measure_identification/>
    <measure_description/>
    <evaluation_method_type/>
    <evaluation_method_description/>
    <evaluation_procedure/>
    <data_time/>
    <result/>
  </field_accuracy>
  - <logical_consistency>
    <name_of_measure>none</name_of_measure>
    <measure_identification/>
    <measure_description/>
    <evaluation_method_type/>
    <evaluation_method_description/>
    <evaluation_procedure/>
    <data_time/>
    <result/>
  </logical_consistency>
```

XML encoding data

```
- <completeness>
  <name_of_measure>none</name_of_measure>
  <measure_identification/>
  <measure_description/>
  <evaluation_method_type/>
  <evaluation_method_description/>
  <evaluation_procedure/>
  <data_time/>
  <result/>
</completeness>
- <absolute_horizontal_positional_accuracy>
  <name_of_measure>none</name_of_measure>
  <measure_identification/>
  <measure_description/>
  <evaluation_method_type/>
  <evaluation_method_description/>
  <evaluation_procedure/>
  <data_time/>
  <result/>
</absolute_horizontal_positional_accuracy>
- <relative_horizontal_positional_accuracy>
  <name_of_measure>none</name_of_measure>
  <measure_identification/>
  <measure_description/>
  <evaluation_method_type/>
  <evaluation_method_description/>
  <evaluation_procedure/>
  <data_time/>
  <result/>
</relative_horizontal_positional_accuracy>
- <absolute_vertical_positional_accuracy>
  <name_of_measure>none</name_of_measure>
  <measure_identification/>
  <measure_description/>
  <evaluation_method_type/>
  <evaluation_method_description/>
  <evaluation_procedure/>
  <data_time/>
  <result/>
</absolute_vertical_positional_accuracy>
- <relative_vertical_positional_accuracy>
  <name_of_measure>none</name_of_measure>
  <measure_identification/>
  <measure_description/>
  <evaluation_method_type/>
```

XML encoding data

```
<evaluation_method_description/>
<evaluation_procedure/>
<data_time/>
<result/>
</relative_vertical_positional_accuracy>
- <lineage>
  <statement>fictional data to serve as an example of a SEDRIS transmittal</statement>
  - <processStep>
    <description>created transmittal through direct calls to the SEDRIS API</description>
    <rationale>describe how data was created</rationale>
    - <absoluteTime>
      <time_significance>3</time_significance>
      <!-- 3: CREATION_DATE -->
      - <time_value time_configuration="4">
        <!-- 4 : DATE_YMD -->
        <ymd day="30" month="MAY" year="2002"/>
      </time_value>
    </absoluteTime>
  </processStep>
</lineage>
</dataQuality>
- <identification>
  <abstract>representation of a water tower</abstract>
  <purpose>serve as a sample transmittal</purpose>
  <credit_count>2</credit_count>
  <credit>SAIC</credit>
  <credit>Accent Geographic</credit>
  <supplemental_information>resembles a famous rodent</supplemental_information>
- <citation>
  <title>STF Transmittal</title>
  <edition>first</edition>
  <series_name/>
  <issue_identification/>
  <other_citation_details/>
  - <responsibleParty>
    <individual_name>Warren Macchi</individual_name>
    <organization_name>SEDRIS</organization_name>
    <position_name>SEDRIS Core Team Member</position_name>
    - <contact_information>
      - <phone>
        <voice_count>1</voice_count>
        <voice>4072070123</voice>
        <facsimile_count>0</facsimile_count>
        <facsimile/>
        <tdd tty count>0</tdd tty count>
```

XML encoding data

```

    <tdd_tty/>
  </phone>
- <address>
  <delivery_point_count>1</delivery_point_count>
  <delivery_point>4724 Atwood Drive</delivery_point>
  <city>Orlando</city>
  <administrative_area>FL</administrative_area>
  <postal_code>32828</postal_code>
  <country>USA</country>
  <email_address_count>1</email_address_count>
  <email_address>se-help@sedris.org</email_address>
</address>
<online_resources/>
<hours_of_service>8 to 10 PM EST on weekdays</hours_of_service>
<contact_instructions>e-mail is preferred</contact_instructions>
</contact_information>
</responsibleParty>
- <responsiblePartyRole>
  <role>originator</role>
</responsiblePartyRole>
- <absoluteTime>
  <time_significance>3</time_significance>
  <!-- 3: CREATION_DATE -->
  - <time_value time_configuration="4">
    <!-- 4 : DATE_YMD -->
    <ymd day="30" month="MAY" year="2002"/>
  </time_value>
</absoluteTime>
</citation>
</identification>
- <baseTimeData xsi:type="tam:DRMAbsoluteTime">
  <time_significance>3</time_significance>
  <!-- 3: CREATION_DATE -->
  - <time_value time_configuration="4">
    <!-- 4 : DATE_YMD -->
    <ymd day="30" month="MAY" year="2002"/>
  </time_value>
</baseTimeData>
<!-- Figure B.7: Root of the environment -->
- <environmentRoot>
  - <srf_context_info>
    <angular_unit>186</angular_unit>
    <!-- RADIAN -->
    <linear_unit>142</linear_unit>
    <!-- METER -->
```


XML encoding data

```
<linear_scale>11</linear_scale>
  <!-- UNI(10^0) -->
<use_dss_code>false</use_dss_code>
- <srf_parameters_info>
  <srf_parameters_info_code>1</srf_parameters_info_code>
  <!-- TEMPLATE -->
  - <srf_template>
    <template_code>2</template_code>
    <!-- LOCAL_SPACE_RECTANGULAR_3D -->
    <orm_code>2</orm_code>
    <!-- ABSTRACT_3D -->
    - <lsr_3d_srf_parameters>
      <forward_direction>POSITIVE_SECONDARY_AXIS</forward_direction>
      <up_direction>POSITIVE_TERTIARY_AXIS</up_direction>
    </lsr_3d_srf_parameters>
  </srf_template>
</srf_parameters_info>
</srf_context_info>
- <baseTimeData xsi:type="tam:DRMAbsoluteTime">
  <time_significance>3</time_significance>
  <!-- 3: CREATION_DATE -->
  - <time_value time_configuration="4">
    <!-- 4 : DATE_YMD -->
    <ymd day="30" month="MAY" year="2002"/>
  </time_value>
</baseTimeData>
- <geometryHierarchy xsi:type="georep:DRMUnionOfGeometryHierarchy" strict_organizing_principle="true" unique_descendants="true">
  <union_reason>OTHER</union_reason>
  <ordering_reason>NONE</ordering_reason>
  - <geometryHierarchy xsi:type="georep:DRMUnionOfPrimitiveGeometry" strict_organizing_principle="true" unique_descendants="true">
    <union_reason>OTHER</union_reason>
    <ordering_reason>NONE</ordering_reason>
    - <primitiveGeometry xsi:type="prigeo:DRMPolygon" polygon_flags="TERRAIN">
      - <colour xsi:type="colrep:DRMInlineColour" colour_mapping="FRONT_PRIMARY FRONT_IMAGE_BLEND">
        - <primitiveColour>
          - <ambientColour>
            - <colourData xsi:type="colrep:DRMRGBColour">
              <rgb_data blue="0.20000" green="0.80000" red="0.00000"/>
            </colourData>
          </ambientColour>
          - <diffuseColour>
            - <colourData xsi:type="colrep:DRMRGBColour">
              <rgb_data blue="0.20000" green="0.80000" red="0.00000"/>
            </colourData>
          </diffuseColour>
```

XML encoding data

```

    </primitiveColour>
  </colour>
  - <vertex>
    - <location xsi:type="spacon:DRMLSR3DLocation">
      <coordinate w="0.00000" v="180.00000" u="0.00000"/>
    </location>
  </vertex>
  - <vertex>
    - <location xsi:type="spacon:DRMLSR3DLocation">
      <coordinate w="0.00000" v="-80.00000" u="-120.00000"/>
    </location>
  </vertex>
  - <vertex>
    - <location xsi:type="spacon:DRMLSR3DLocation">
      <coordinate w="0.00000" v="-80.00000" u="120.00000"/>
    </location>
  </vertex>
</primitiveGeometry>
</geometryHierarchy>
- <geometryHierarchy xsi:type="georep:DRMUnionOfGeometryHierarchy" strict_organizing_principle="true" unique_descendants="true">
  <union_reason>OTHER</union_reason>
  <ordering_reason>NONE</ordering_reason>
  <geometryHierarchy xsi:type="modins:DRMGeometryModelInstance" geometryModel="geoModel1"> </geometryHierarchy>
</geometryHierarchy>
</environmentRoot>
- <spatialExtent>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="23.00000" v="180.00000" u="120.00000"/>
  </location>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="0.00000" v="-80.00000" u="-120.00000"/>
  </location>
</spatialExtent>
</environmentRoot>
<!-- Figure B.3: DRM model instanced within the DRM environment root -->
- <modelLibrary>
  - <model model_reference_type="ROOT_AND_COMPONENT" has_moving_parts="false" has_units="false" dynamic_model_processing="false">
    <name>MODEL 1</name>
    - <srf_context_info>
      <angular_unit>186</angular_unit>
      <!-- RADIAN -->
      <linear_unit>142</linear_unit>
      <!-- METER -->
      <linear_scale>11</linear_scale>
      <!-- UNI(10^0) -->
    </srf_context_info>
  </model>
</modelLibrary>

```

XML encoding data

```
<use_dss_code>false</use_dss_code>
- <srf_parameters_info>
  <srf_parameters_info_code>1</srf_parameters_info_code>
  <!-- TEMPLATE -->
  - <srf_template>
    <template_code>2</template_code>
    <!-- LOCAL_SPACE_RECTANGULAR_3D -->
    <orm_code>2</orm_code>
    <!-- ABSTRACT_3D -->
    - <lrs_3d_srf_parameters>
      <forward_direction>POSITIVE_SECONDARY_AXIS</forward_direction>
      <up_direction>POSITIVE_TERTIARY_AXIS</up_direction>
    </lrs_3d_srf_parameters>
  </srf_template>
</srf_parameters_info>
</srf_context_info>
- <geometryModel id="geoModel1">
  - <geometryHierarchy xsi:type="georep:DRMUnionOfPrimitiveGeometry" strict_organizing_principle="true" unique_descendants="true">
    <union_reason>OTHER</union_reason>
    <ordering_reason>NONE</ordering_reason>
    <!-- Figure B.4: Grey polygon -->
    - <primitiveGeometry xsi:type="prigeo:DRMPolygon" polygon_flags="TERRAIN">
      - <colour xsi:type="colrep:DRMInlineColour" colour_mapping="FRONT_PRIMARY FRONT_IMAGE_BLEND">
        <presentationDomain presentation_domain="OTW"/>
        <translucency translucency_value="0.00000"/>
      - <primitiveColour>
        - <ambientColour>
          - <colourData xsi:type="colrep:DRMRGBColour">
            <rgb_data blue="0.50000" green="0.50000" red="0.50000"/>
          </colourData>
        </ambientColour>
        - <diffuseColour>
          - <colourData xsi:type="colrep:DRMRGBColour">
            <rgb_data blue="0.50000" green="0.50000" red="0.50000"/>
          </colourData>
        </diffuseColour>
      </primitiveColour>
    </colour>
  - <vertex>
    - <location xsi:type="spacon:DRMLSR3DLocation">
      <coordinate w="0.00000" v="0.00000" u="-2.50000"/>
    </location>
  </vertex>
  - <vertex>
    - <location xsi:type="spacon:DRMLSR3DLocation">
```

XML encoding data

```
        <coordinate w="0.00000" v="0.00000" u="2.50000"/>
    </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="5.00000" v="0.00000" u="7.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="10.00000" v="0.00000" u="7.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="15.00000" v="0.00000" u="-2.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="5.00000" v="0.00000" u="-7.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="15.00000" v="0.00000" u="2.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="10.00000" v="0.00000" u="-7.50000"/>
  </location>
</vertex>
</primitiveGeometry>
  <!-- Figure B.5: Left black polygon -->
- <primitiveGeometry xsi:type="prigeo:DRMPolygon" polygon_flags="TERRAIN">
  - <colour xsi:type="colrep:DRMInlineColour" colour_mapping="FRONT_PRIMARY FRONT_IMAGE_BLEND">
    <presentationDomain presentation_domain="OTW"/>
    <translucency translucency_value="0.00000"/>
  - <primitiveColour>
    - <ambientColour>
      - <colourData xsi:type="colrep:DRMRGBColour">
        <rgb_data blue="0.00000" green="0.00000" red="0.00000"/>
      </colourData>
    </ambientColour>
```

XML encoding data

```
- <diffuseColour>
  - <colourData xsi:type="colrep:DRMRGBColour">
    <rgb_data blue="0.00000" green="0.00000" red="0.00000"/>
  </colourData>
</diffuseColour>
</primitiveColour>
</colour>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="11.00000" v="0.00000" u="-11.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="11.00000" v="0.00000" u="-7.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="15.00000" v="0.00000" u="-3.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="19.00000" v="0.00000" u="-3.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="23.00000" v="0.00000" u="-7.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="23.00000" v="0.00000" u="-11.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="15.00000" v="0.00000" u="-15.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="19.00000" v="0.00000" u="-15.50000"/>
  </location>
</vertex>
```

XML encoding data

```
- <diffuseColour>
  - <colourData xsi:type="colrep:DRMRGBColour">
    <rgb_data blue="0.00000" green="0.00000" red="0.00000"/>
  </colourData>
</diffuseColour>
</primitiveColour>
</colour>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="11.00000" v="0.00000" u="-11.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="11.00000" v="0.00000" u="-7.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="15.00000" v="0.00000" u="-3.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="19.00000" v="0.00000" u="-3.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="23.00000" v="0.00000" u="-7.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="23.00000" v="0.00000" u="-11.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="15.00000" v="0.00000" u="-15.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="19.00000" v="0.00000" u="15.50000"/>
  </location>
</vertex>
```

XML encoding data

```
    </location>
  </vertex>
</primitiveGeometry>
<!-- Figure B.6: Right black polygon -->
- <primitiveGeometry xsi:type="prigeo:DRMPolygon" polygon_flags="TERRAIN">
  - <colour xsi:type="colrep:DRMInlineColour" colour_mapping="FRONT_PRIMARY FRONT_IMAGE_BLEND">
    <presentationDomain presentation_domain="OTW"/>
    <translucency translucency_value="0.00000"/>
  - <primitiveColour>
    - <ambientColour>
      - <colourData xsi:type="colrep:DRMRGBColour">
        <rgb_data blue="0.00000" green="0.00000" red="0.00000"/>
      </colourData>
    </ambientColour>
    - <diffuseColour>
      - <colourData xsi:type="colrep:DRMRGBColour">
        <rgb_data blue="0.00000" green="0.00000" red="0.00000"/>
      </colourData>
    </diffuseColour>
  </primitiveColour>
</colour>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="11.00000" v="0.00000" u="7.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="11.00000" v="0.00000" u="11.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="15.00000" v="0.00000" u="15.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="19.00000" v="0.00000" u="15.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="23.00000" v="0.00000" u="11.50000"/>
  </location>
</vertex>
```

XML encoding data

```
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="23.00000" v="0.00000" u="7.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="19.00000" v="0.00000" u="3.50000"/>
  </location>
</vertex>
- <vertex>
  - <location xsi:type="spacon:DRMLSR3DLocation">
    <coordinate w="15.00000" v="0.00000" u="3.50000"/>
  </location>
</vertex>
</primitiveGeometry>
</geometryHierarchy>
</geometryModel>
</model>
</modellibrary>
- <transmittalSummary>
  <features_present>NONE</features_present>
  <geometry_present>MODELS</geometry_present>
  <geometry_topology_present>NONE</geometry_topology_present>
  <data_tables_present>NONE</data_tables_present>
  <priority_values_present>NONE</priority_values_present>
  <mobility_values_present>NONE</mobility_values_present>
  <thermal_values_present>NONE</thermal_values_present>
  <terrain_lods_present>NONE</terrain_lods_present>
  <two_D_features_flag>NONE</two_D_features_flag>
  <models_present>true</models_present>
  <images_present>>false</images_present>
  <sounds_present>>false</sounds_present>
  <symbols_present>>false</symbols_present>
  <colours_present>true</colours_present>
  <colour_model>RGB</colour_model>
  <EDCS_usage_list_is_complete>>false</EDCS_usage_list_is_complete>
</transmittalSummary>
</drm:transmittalRoot>
```


X3D file conversion

```
<?xml version="1.0"?>
- <X3D profile="Immersive" version="3.0">
  - <Scene>
    - <Transform>
      - <Shape>
        - <Appearance>
          <Material shininess="0.200000" ambientIntensity="0.200000" diffuseColor="0.500000 0.500000 0.500000"/>
        </Appearance>
        - <IndexedFaceSet coordIndex="0, 1, 2, 3, 4, 5, 6, 7">
          <Coordinate point="-2.500000, 0.000000 0.000000 2.500000, 0.000000 0.000000 7.500000, 0.000000 5.000000 7.500000, 0.000000 -2.500000, 0.000000 15.000000 -7.500000, 0.000000 10.000000 -7.500000, 0.000000 5.000000 5.000000"/>
        </IndexedFaceSet>
      </Shape>
    </Transform>
    - <Shape>
      - <Appearance>
        <Material shininess="0.200000" ambientIntensity="0.200000" diffuseColor="0.000000 0.000000 0.000000"/>
      </Appearance>
      - <IndexedFaceSet coordIndex="0, 1, 2, 3, 4, 5, 6, 7">
        <Coordinate point="-11.500000, 0.000000 11.000000 -7.500000, 0.000000 11.000000 -3.500000, 0.000000 15.000000 -3.500000, 0.000000 19.000000 -7.500000, 0.000000 23.000000 -11.500000, 0.000000 23.000000 -15.500000, 0.000000 19.000000 -15.500000, 0.000000 15.000000"/>
      </IndexedFaceSet>
    </Shape>
    - <Shape>
      - <Appearance>
        <Material shininess="0.200000" ambientIntensity="0.200000" diffuseColor="0.000000 0.000000 0.000000"/>
      </Appearance>
      - <IndexedFaceSet coordIndex="0, 1, 2, 3, 4, 5, 6, 7">
        <Coordinate point="7.500000, 0.000000 11.000000 11.500000, 0.000000 11.000000 15.500000, 0.000000 15.000000 15.500000, 0.000000 19.000000 11.500000, 0.000000 23.000000 7.500000, 0.000000 23.000000 3.500000, 0.000000 19.000000 3.500000, 0.000000 15.000000"/>
      </IndexedFaceSet>
    </Shape>
  </Transform>
- <Transform>
  - <Transform>
    + <Shape>
    </Transform>
  </Transform>
  - <Shape>
    - <Appearance>
      <Material shininess="0.200000" ambientIntensity="0.200000" diffuseColor="0.500000 0.500000 0.500000"/>
    </Appearance>
    - <IndexedFaceSet coordIndex="0, 1, 2, 3, 4, 5, 6, 7">
      <Coordinate point="-2.500000, 0.000000 0.000000 2.500000, 0.000000 0.000000 7.500000, 0.000000 5.000000 7.500000, 0.000000 10.000000 2.500000, 0.000000 15.000000 -2.500000, 0.000000 15.000000 -7.500000, 0.000000 10.000000 -7.500000, 0.000000 5.000000"/>
    </IndexedFaceSet>
  </Shape>
  ..

```

<IndexedFaceSet>

<Coordinate>

<Scene>

<Transform>

<Shape>

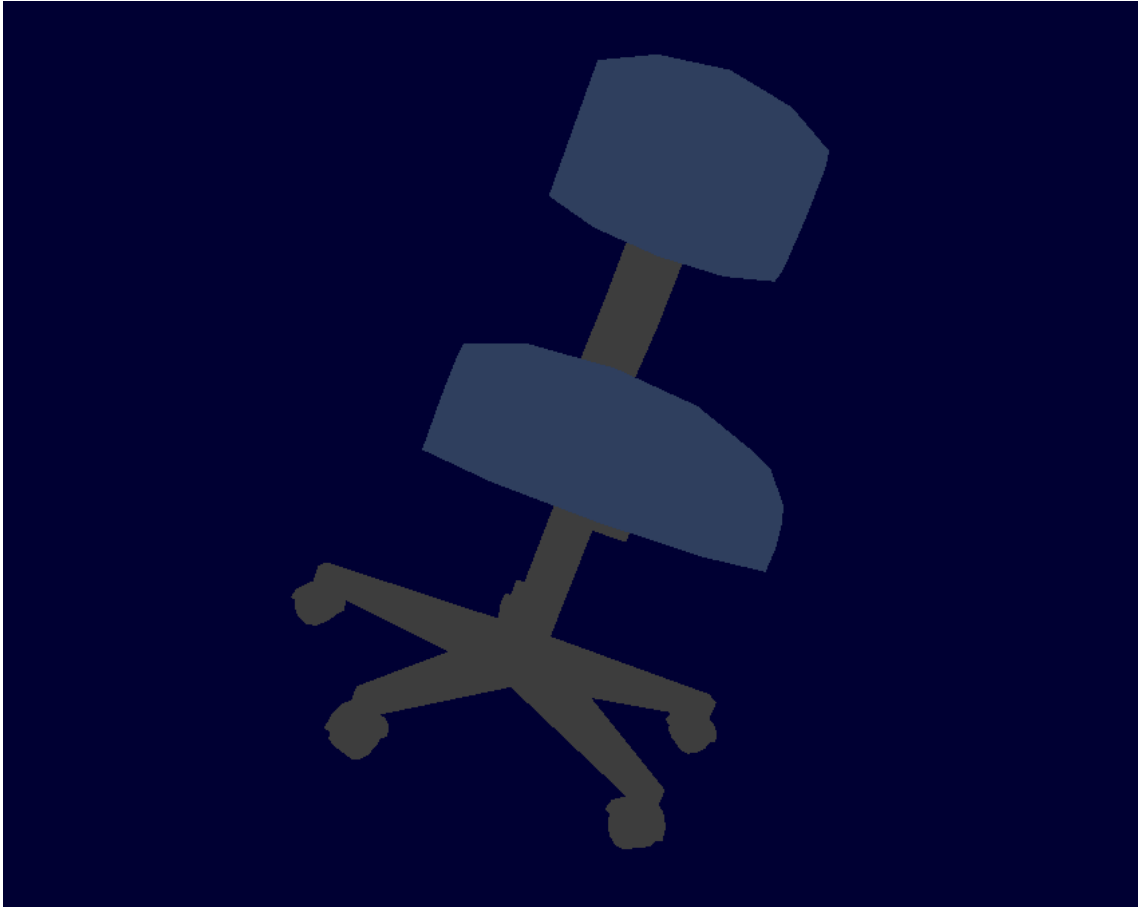
<Appearance>

<Material>

X3D file conversion

```
- <Transform>
- <Shape>
- <Appearance>
  <Material shininess="0.200000" ambientIntensity="0.200000" diffuseColor="0.500000 0.500000 0.500000"/>
</Appearance>
- <IndexedFaceSet coordIndex="0, 1, 2, 3, 4, 5, 6, 7">
  <Coordinate point="-2.500000, 0.000000 0.000000 2.500000, 0.000000 0.000000 7.500000, 0.000000 5.000000 7.500000, 0.000000 10.000000
  2.500000, 0.000000 15.000000 -2.500000, 0.000000 15.000000 -7.500000, 0.000000 10.000000 -7.500000, 0.000000 5.000000"/>
</IndexedFaceSet>
</Shape>
- <Shape>
- <Appearance>
  <Material shininess="0.200000" ambientIntensity="0.200000" diffuseColor="0.000000 0.000000 0.000000"/>
</Appearance>
- <IndexedFaceSet coordIndex="0, 1, 2, 3, 4, 5, 6, 7">
  <Coordinate point="-11.500000, 0.000000 11.000000 -7.500000, 0.000000 11.000000 -3.500000, 0.000000 15.000000 -3.500000, 0.000000 19.000000
  -7.500000, 0.000000 23.000000 -11.500000, 0.000000 23.000000 -15.500000, 0.000000 19.000000 -15.500000, 0.000000 15.000000"/>
</IndexedFaceSet>
</Shape>
- <Shape>
- <Appearance>
  <Material shininess="0.200000" ambientIntensity="0.200000" diffuseColor="0.000000 0.000000 0.000000"/>
</Appearance>
- <IndexedFaceSet coordIndex="0, 1, 2, 3, 4, 5, 6, 7">
  <Coordinate point="7.500000, 0.000000 11.000000 11.500000, 0.000000 11.000000 15.500000, 0.000000 15.000000 15.500000, 0.000000 19.000000
  11.500000, 0.000000 23.000000 7.500000, 0.000000 23.000000 3.500000, 0.000000 19.000000 3.500000, 0.000000 15.000000"/>
</IndexedFaceSet>
</Shape>
</Transform>
</Transform>
</Scene>
</X3D>
```

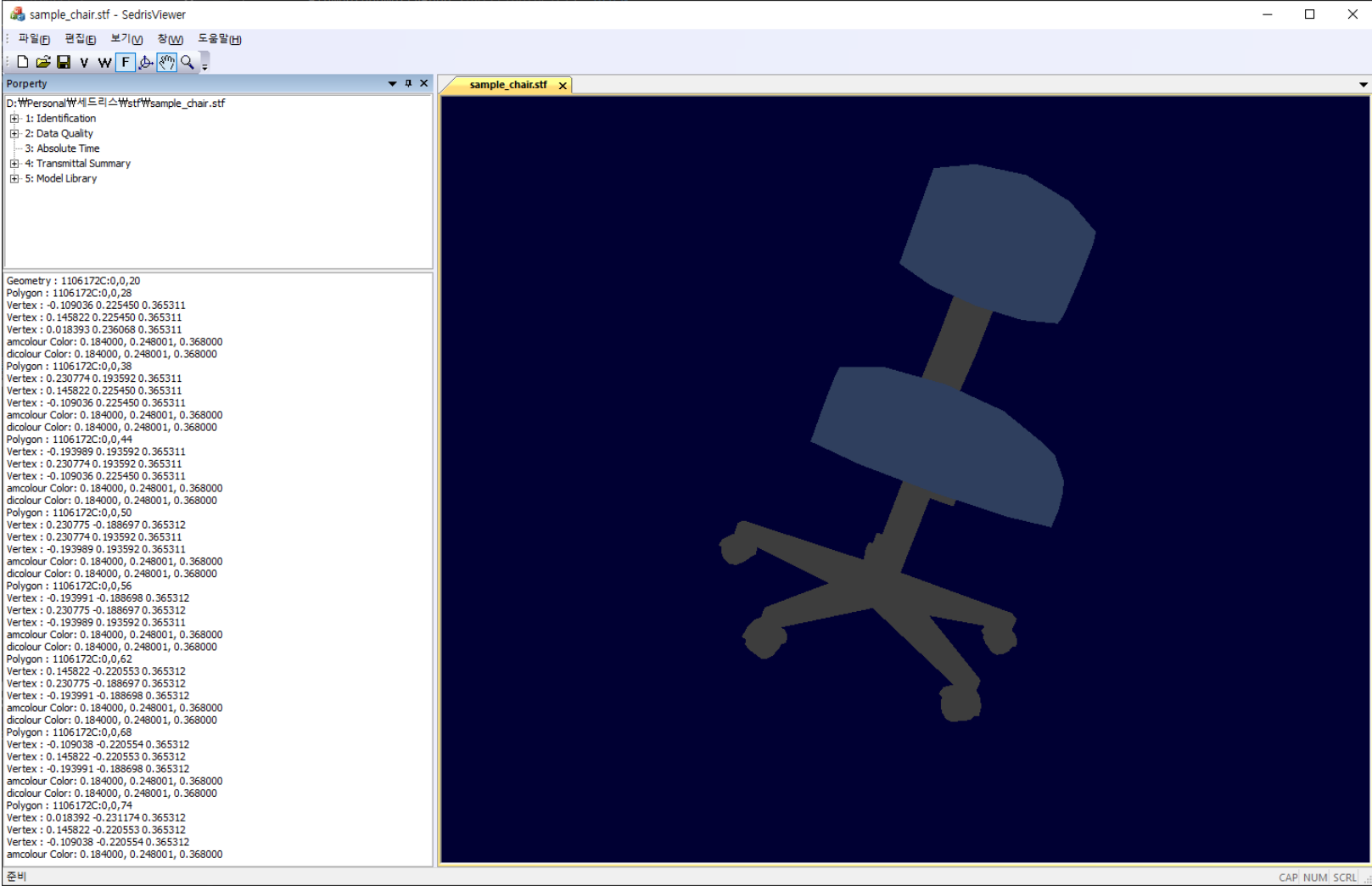
STF to X3D Conversion and SEDRIS Viewer



X3D Library

- IndexedFaceSet
- Material
 - Diffuse

SEDRIS Viewer



Conclusions

- Implementation
 - SEDRIS STF viewer using SEDRIS SDK
 - SEDRIS XML generation using SEDRIS SDK
 - SEDRIS to X3D conversion
- Preparation of two new work item proposals
 - SEDRIS to X3D conversion
 - SEDRIS mapping to X3D
 - SEDRIS XML encoding