Enabling Information Sharing thru Common Services

OGC SAA Dissemination Pilot

Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)
August 30, 2011 - September 1, 2011
NOAA Science Center & Auditorium
Silver Spring, Maryland

Presented By: Jim Perkins, Glen Landry
Date: September 1, 2011
Agenda

• Background
• SAA Pilot Architecture
• Demonstration
• Summary
Open Geospatial Consortium

- Not-for-profit, international standards development consortium
- Implementation standards
  - WFS, WMS (SLD/FPS), WPS, Event Service draft
- Interoperability Program
  - SAA Pilot - demonstrate the feasibility of automating the dissemination and portrayal of SAA information via OGC Web Services.
Special Activity Airspace

- Airspace with defined dimensions
- Activities within this airspace may pose a hazard or increased flight risk to non-participants.
- Rules and/or restrictions may be placed upon both participants and/or non-participants with regard to that specific airspace.
- Airspace status is published or broadcast to increase situational awareness for non-participants.
- Establishment of the airspace is coordinated between user and controlling agency.
Special Use Airspace

- Military training and other activities
**SAA System Architecture**

**Subscriber File:**
- SAA baseline data (Airspace boundaries, Times of Use, military units, etc)
- Published in advance of effective date, provided on 56 day cycle

**Schedule feed:**
- SAA operational scheduling data
- Published on FAA web page, updated every minute
### Web Registry Service

#### Table: Service Details

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capabilities document for SAA AIXM 5.1 Demonstrator WFS</td>
<td>ServiceProfile</td>
<td>An OGC Styled Layer Descriptor (SLD v1.0.0) is attached as a repository item</td>
</tr>
<tr>
<td>Capabilities document for Luciad Web Feature Server</td>
<td>ServiceProfile</td>
<td></td>
</tr>
<tr>
<td>Capabilities document for LuciadFusion SAA Pilot FPS Service</td>
<td>ServiceProfile</td>
<td></td>
</tr>
<tr>
<td>Portrayal details for AIXM 5.1</td>
<td>DataProductPortrayal</td>
<td>Portrayal details for AIXM 5.1. An OGC Styled Layer Descriptor (SLD v1.0.0) is attached as a repository item</td>
</tr>
<tr>
<td>Styling details for Time to SUA activation</td>
<td>DataProductPortrayal</td>
<td>Portrayal details for AIXM 5.1. An OGC Styled Layer Descriptor (SLD v1.0.0) is attached as a repository item</td>
</tr>
</tbody>
</table>

```xml
<ogc:Filter>
  <ogc:PropertyIsEqualTo matchCase="true">
    <ogc:Property Name="Airspaces active now"/>
    <ogc:Literals>ACTIVE</ogc:Literals>
  </ogc:PropertyIsEqualTo>
</ogc:Filter>
```

#### Feature Type

<table>
<thead>
<tr>
<th>Feature Type</th>
<th>Symbology</th>
<th>Filter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Active: Airspaces active now</td>
<td>Red</td>
<td>evaluateDuring</td>
</tr>
<tr>
<td>2. 0h: Airspaces active within 0 hours</td>
<td>Green</td>
<td>evaluateDuring</td>
</tr>
<tr>
<td>3. 4h: Airspaces active within 4 hours</td>
<td>Yellow</td>
<td>evaluateDuring</td>
</tr>
<tr>
<td>4. 8h: Airspaces active within 8 hours</td>
<td>Orange</td>
<td>evaluateDuring</td>
</tr>
<tr>
<td>5. 12h: Airspaces active within 12 hours</td>
<td>Purple</td>
<td>evaluateDuring</td>
</tr>
<tr>
<td>6. 16h: Airspaces active within 16 hours</td>
<td>Blue</td>
<td>evaluateDuring</td>
</tr>
<tr>
<td>7. Airspace</td>
<td>(no filter)</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The XML code snippet illustrates a filter condition for identifying active airspaces.
Web Feature Service 2.0

- Queries – FES 2.0
- Full features or select elements

valueReference="/aixm:frequencyTransmission"
...
<wfs:Query typeName="aixm:RadioCommunicationChannel" handle="Q01">  
<fes:Filter>   
<fes:PropertyIsEqualTo>   
<fes:ValueReference>"/gml:identifier"</fes:ValueReference>   
<fes:Literal>9C0D0B68-A8CD-3E45-E044-00212803DA06</fes:Literal>   
</fes:PropertyIsEqualTo>  
</fes:Filter>  
</wfs:Query>  
<wfs:GetFeature>

<wfs:member>  
<aixm:frequencyTransmission uom="MHZ">134.45</aixm:frequencyTransmission>  
</wfs:member>
Event Service

Schedule Feed

Adapter

Event Service

Subscriber

WFS
Application Client

• GetFeature Info
• WPS
Application Client Videos

- Luciad
- Lufthansa Systems
Summary / Conclusion

• Dissemination, portrayal of SAA data
• OGC standards, AIXM
  • Web Feature Service
  • Feature Portrayal Service (WMS/SLD)
  • Registry
  • Event Service (WS-Notification)
  • Web Processing Service
• Future work
  • Military scheduling
  • Airline flight planning
More Information

- SAA demo site
- SAA Pilot participants
  CNA
  Concept Solutions
  Envitia
  Galdos Systems
  Luciad
  Lufthansa Systems
  Snowflake Software
  University of Muenster - IfGI
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Questions & Answers / Feedback
Extra Slides
Application Client
Application Client