Airport Status Service

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Problem Statement

- **AirportStatus** service is a public RESTful service that provides airport status of the major airports in USA.

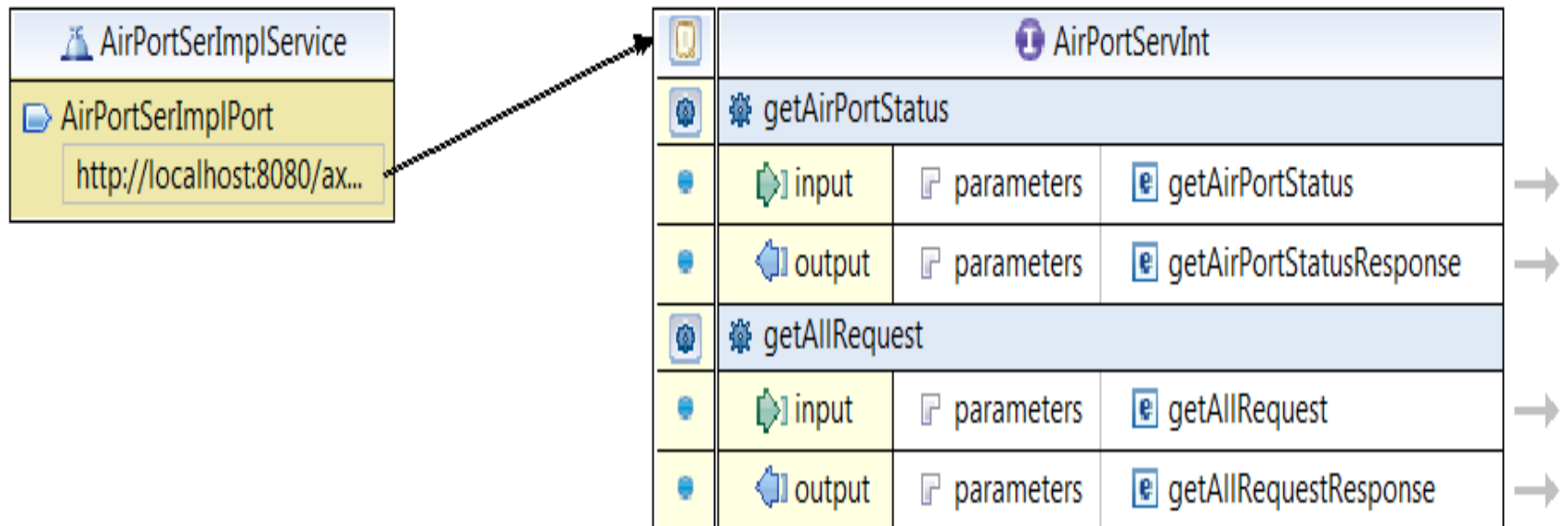 - Also, it gives the current weather, Max delay, and the reason of the delay.

External Service

- It's a RESTfull service
- it can be accessed :
- http://services.faa.gob/airport/airportcode
  - We can specify the response format
    - format=application/xml
- its REST-client
  - construct the **URL**
  - open an http-connection
  - Map the response to java objects

My Service

- It has a data layer to map the response to my java classes.

- It has an abstraction to have the choice to work with more than one service.

- It has Interface and the implementation

My Service - WSDL

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<!-- Generated by JAX-WS RI at http://jax-ws.dev.java.net. RI's version is JAX-WS RI 2.2.4-b01. -->
<definitions targetNamespace="http://airportService.project.jaxws/" name="AirPortSerImplService" xmlns="http://schemas.xmlsoap.org/wsdl/" xmlns:wsp="http://www.w3.org/ns/ws-
  <types>
    <xsd:schema>
      <xsd:import namespace="http://airportService.project.jaxws/" schemaLocation="AirPortSerImplService_schema1.xsd"/>
    </xsd:schema>
  </types>
  <message name="getAirPortStatus">
    <part name="parameters" element="tns:getAirPortStatus"/>
  </message>
  <message name="getAirPortStatusResponse">
    <part name="parameters" element="tns:getAirPortStatusResponse"/>
  </message>
  <message name="getAllRequest">
    <part name="parameters" element="tns:getAllRequest"/>
  </message>
  <message name="getAllRequestResponse">
    <part name="parameters" element="tns:getAllRequestResponse"/>
  </message>
  <portType name="AirPortServInt">
    <operation name="getAirPortStatus">
      <input wsam:Action="http://airportService.project.jaxws/AirPortServInt/getAirPortStatusRequest" message="tns:getAirPortStatus"/>
      <output wsam:Action="http://airportService.project.jaxws/AirPortServInt/getAirPortStatusResponse" message="tns:getAirPortStatusResponse"/>
    </operation>
    <operation name="getAllRequest">
      <input wsam:Action="http://airportService.project.jaxws/AirPortServInt/getAllRequestRequest" message="tns:getAllRequest"/>
      <output wsam:Action="http://airportService.project.jaxws/AirPortServInt/getAllRequestResponse" message="tns:getAllRequestResponse"/>
    </operation>
  </portType>
  <binding name="AirPortSerImplPortBinding" type="tns:AirPortServInt">
    <soap:binding transport="http://schemas.xmlsoap.org/soap/http" style="document"/>
    <operation name="getAirPortStatus">
      <soap:operation soapAction=""/>
      <input>
        <soap:body use="literal"/>
      </input>
      <output>
        <soap:body use="literal"/>
      </output>
    </operation>
    <operation name="getAllRequest">
      <soap:operation soapAction=""/>
      <input>
        <soap:body use="literal"/>
      </input>
      <output>
        <soap:body use="literal"/>
      </output>
    </operation>
  </binding>
  <service name="AirPortSerImplService">
    <port name="AirPortSerImplPort" binding="tns:AirPortSerImplPortBinding">
      <soap:address location="http://localhost:8080/axis2/services/AirPortSerImplService"/>
```

XML Response Sample

```xml
<?xml version="1.0" encoding="UTF-8"?>
<AirportStatus>
    <Delay>false</Delay>
    <IATA>BOS</IATA>
    <State>Massachusetts</State>
    <Name>General Edward Lawrence Logan International</Name>
    <Weather>
        <Visibility>10.00</Visibility>
        <Weather>A Few Clouds</Weather>
        <Meta>
            <Credit>NOAA's National Weather Service</Credit>
            <Updated>10:54 PM Local</Updated>
            <Url>http://weather.gov/</Url>
        </Meta>
        <Temp>50.0 F (10.0 C)</Temp>
        <Wind>Southeast at 6.9mph</Wind>
    </Weather>
    <ICAO>KBOS</ICAO>
    <City>Boston</City>
    <Status>
        <Reason>No known delays for this airport.</Reason>
        <ClosureBegin/>
        <EndTime/>
        <MinDelay/>
        <AvgDelay/>
        <MaxDelay/>
        <ClosureEnd/>
        <Trend/>
        <Type/>
    </Status>
</AirportStatus>
```

```xml
<xs:complexType name="AirportStatus">
  <xs:sequence>
    <xs:element name="Delay" type="xs:string" minOccurs="0"/>
    <xs:element name="IATA" type="xs:string" minOccurs="0"/>
    <xs:element name="State" type="xs:string" minOccurs="0"/>
    <xs:element name="Name" type="xs:string" minOccurs="0"/>
    <xs:element name="Weather" type="tns:Weather" minOccurs="0"/>
    <xs:element name="ICAO" type="xs:string" minOccurs="0"/>
    <xs:element name="City" type="xs:string" minOccurs="0"/>
    <xs:element name="Status" type="tns:Status" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="Weather">
  <xs:sequence>
    <xs:element name="Visibility" type="xs:string" minOccurs="0"/>
    <xs:element name="Weather" type="xs:string" minOccurs="0"/>
    <xs:element name="Meta" type="tns:Meta" minOccurs="0"/>
    <xs:element name="Temp" type="xs:string" minOccurs="0"/>
    <xs:element name="Wind" type="xs:string" minOccurs="0"/>
    <xs:element name="Error" type="xs:string" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>

<xs:complexType name="Meta">
  <xs:sequence>
    <xs:element name="Credit" type="xs:string" minOccurs="0"/>
    <xs:element name="Updated" type="xs:string" minOccurs="0"/>
    <xs:element name="Url" type="xs:string" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="Status">
  <xs:sequence>
    <xs:element name="Reason" type="xs:string" minOccurs="0"/>
    <xs:element name="ClosureBegin" type="xs:string" nillable="true" minOccurs="0"/>
    <xs:element name="EndTime" type="xs:string" nillable="true" minOccurs="0"/>
    <xs:element name="MindDelay" type="xs:string" nillable="true" minOccurs="0"/>
    <xs:element name="AvgDelay" type="xs:string" nillable="true" minOccurs="0"/>
    <xs:element name="MaxDelay" type="xs:string" nillable="true" minOccurs="0"/>
    <xs:element name="ClosureEnd" type="xs:string" nillable="true" minOccurs="0"/>
    <xs:element name="Trend" type="xs:string" nillable="true" minOccurs="0"/>
    <xs:element name="Type" type="xs:string" nillable="true" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
```

City and Map	Official AirportWebsite	State	IATA-Code
Atlanta	Hartsfield-Jackson Atlanta International	Georgia	ATL
Anchorage	Ted Stevens Anchorage International Airport	Alaska	ANC
Austin	Austin-Bergstrom International	Texas	AUS
Baltimore	Baltimore/Washington International – BWI Airport	Maryland	BWI
Boston	Logan International	Massachusetts	BOS
Charlotte	Charlotte Douglas International	North Carolina	CLT
Chicago	Chicago Midway Airport	Illinois	MDW
Chicago	Chicago O'Hare International	Illinois	ORD
Cincinnati	Cincinnati/Northern Kentucky International	Ohio	CVG
Cleveland	Cleveland Hopkins International	Ohio	CLE
Columbus	Port Columbus International	Ohio	CMH
Dallas	Dallas/Ft. Worth International – DFW Airport	Texas	DFW
Denver	Denver International Airport	Colorado	DEN
Detroit	Detroit Metropolitan Wayne County Airport	Michigan	DTW
Fort Lauderdale	Fort Lauderdale/Hollywood International	Florida	FLL
Fort Myers	Southwest Florida International	Florida	RSW
Hartford	Bradley International	Connecticut	BDL
Honolulu	Hawaii Honolulu International	Hawaii	HNL
Houston	George Bush Intercontinental	Texas	IAH
Houston	William P. Hobby Airport	Texas	HOU
Indianapolis	Indianapolis International	Indiana	IND
Kansas City	Kansas City International	Missouri	MCI
Las Vegas	McCarran International	Nevada	LAS
Los Angeles	Los Angeles International – LAX Airport	California	LAX
Memphis	Memphis International	Tennessee	MEM
Miami	Miami International Airport	Florida	MIA
Minneapolis	Minneapolis/St. Paul International	Minnesota	MSP
Nashville	Nashville International	Tennessee	BNA
New Orleans	Louis Armstrong International	Louisiana	MSY
New York	John F. Kennedy International	New York	JFK
New York	LaGuardia International	New York	LGA
Newark	Newark Liberty International	New Jersey	EWR
Oakland	Metropolitan Oakland International	California	OAK
Ontario	Ontario International	California	ONT
Orlando	Orlando International	Florida	MCO
Philadelphia	Philadelphia International	Pennsylvania	PHL
Phoenix	Sky Harbor International	Arizona	PHX
Pittsburgh	Pittsburgh International	Pennsylvania	PIT
Portland	Portland International	Oregon	PDX
Raleigh-Durham	Raleigh-Durham International	North Carolina	RDU
Sacramento	Sacramento International	California	SMF
Salt Lake City	Salt Lake City International	Utah	SLC
San Antonio	San Antonio International	Texas	SAT
San Diego	Lindbergh Field International	California	SAN
San Francisco	San Francisco International	California	SFO
San Jose	Mineta San José International	California	SJC
Santa Ana	John Wayne Airport, Orange County	California	SNA
Seattle	Seattle-Tacoma International – Seatac Airport	Washington	SEA
St. Louis	Lambert-St. Louis International	Missouri	STL
Tampa	Tampa International	Florida	TPA
Washington D.C.	Dulles International Airport	Washington D.C.	IAD
Washington D.C.	Ronald Reagan Washington National	Washington D.C.	DCA

Demo

References

- http://faa.gov
- http://www.nationsonline.org/oneworld/major_US_airports.htm
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