



AIXM 5 NAVAID Use Case

AIXM 5 Public Design Review
February 7-8, 2006
Washington DC



Worked example

Planned NAVAID upgrade - Narrative

On the October 27, 2005 AIRAC cycle, Armel (AML) Navaid has a frequency of 126.00MHz. This NAVAID is published as part of the FAA NASR NFDC subscriber files on October 27, 2005.

FAA Facilities is planning an upgrade to AML Navaid. As part of the upgrade, AML frequency will change to 132.50MHz and the power output will be boosted to improve signal reception. The changes will become effective at the next AIRAC cycle. Facilities sends the new frequency change and power output to a NAVAID coverage area service to get the new service volume. Facilities sends NASR advanced notice of this pending change.

NASR receives the pending changes and stores the changes in the database to be included in the November 23, 2005 NFDC publication.

Early in November 2005, Facilities notifies the NOTAM Office that AML NAVAID will be offline for upgrades from November 22 to November 23. Then starting November 23 until November 25, AML will be in test mode. After November 25 AML will be operating normally.

The NOTAM office reviews the information and issues two NOTAMS describing the AML status changes. The NOTAM office also analyzes the airspace system to see how the AML outage will affect other features. One route, J10, contains the NAVAID so the NOTAM office issues a NOTAM for J10 as well.

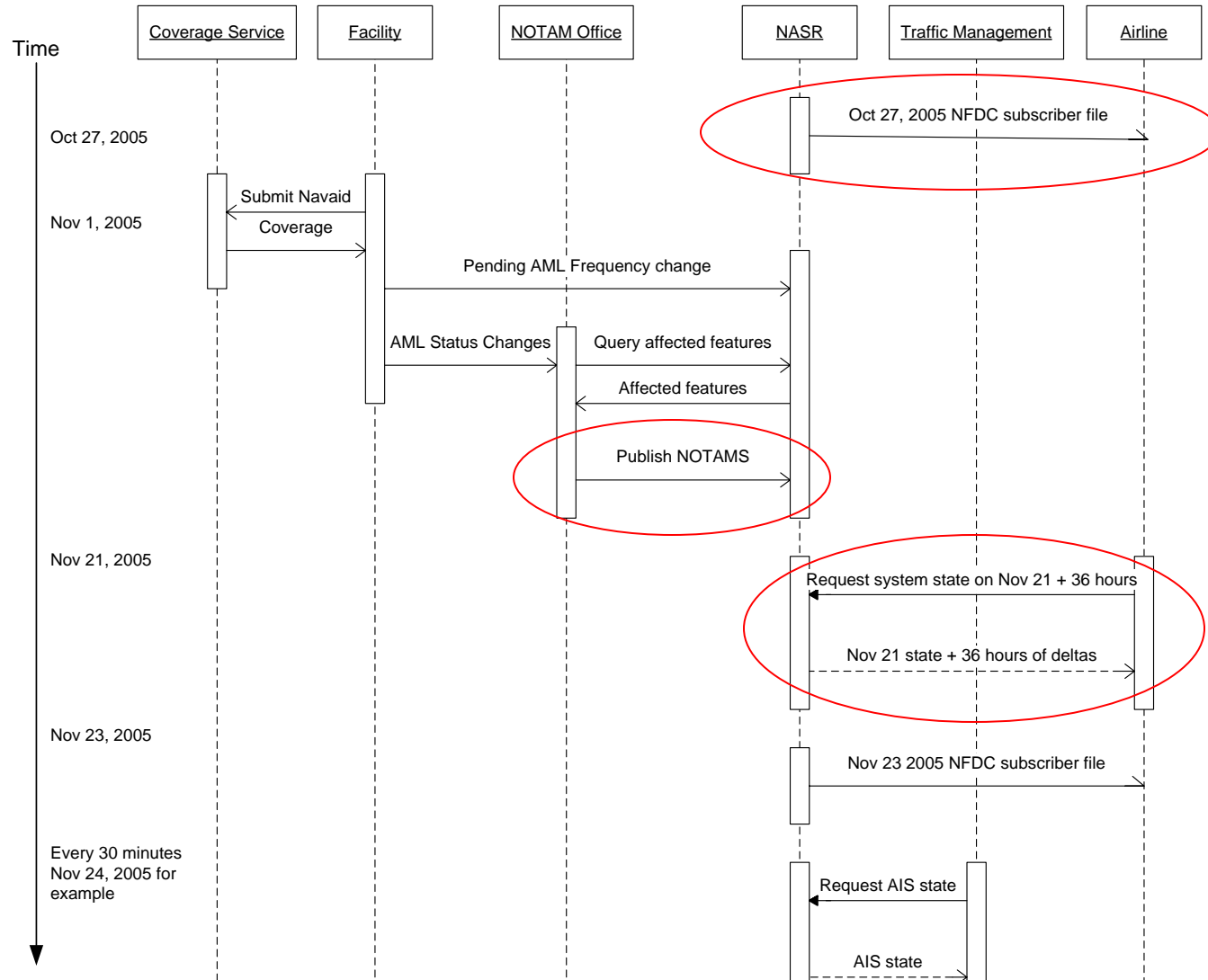
Meanwhile on November 21, 2005 a United Airlines flight prepares to depart Tokyo for Dulles Airport, Washington DC. The airline operation center requests the latest aeronautical information plus any changes occurring over the next 36 hours. The data, including the change in AML operational status and the changed J10, are uploaded to the flight computer and used for flight planning purposes.

On November 23, 2005 the NASR publishes the November 23 NFDC subscriber files. This new file includes the AML frequency change that Facilities submitted earlier.

Finally imagine a future FAA Traffic Management “dashboard” that provides a graphical view of the airspace system state. Every 30 minutes this system requests system state from the aeronautical information system (AIS). On November 24 the system state shows AML is ONTEST.

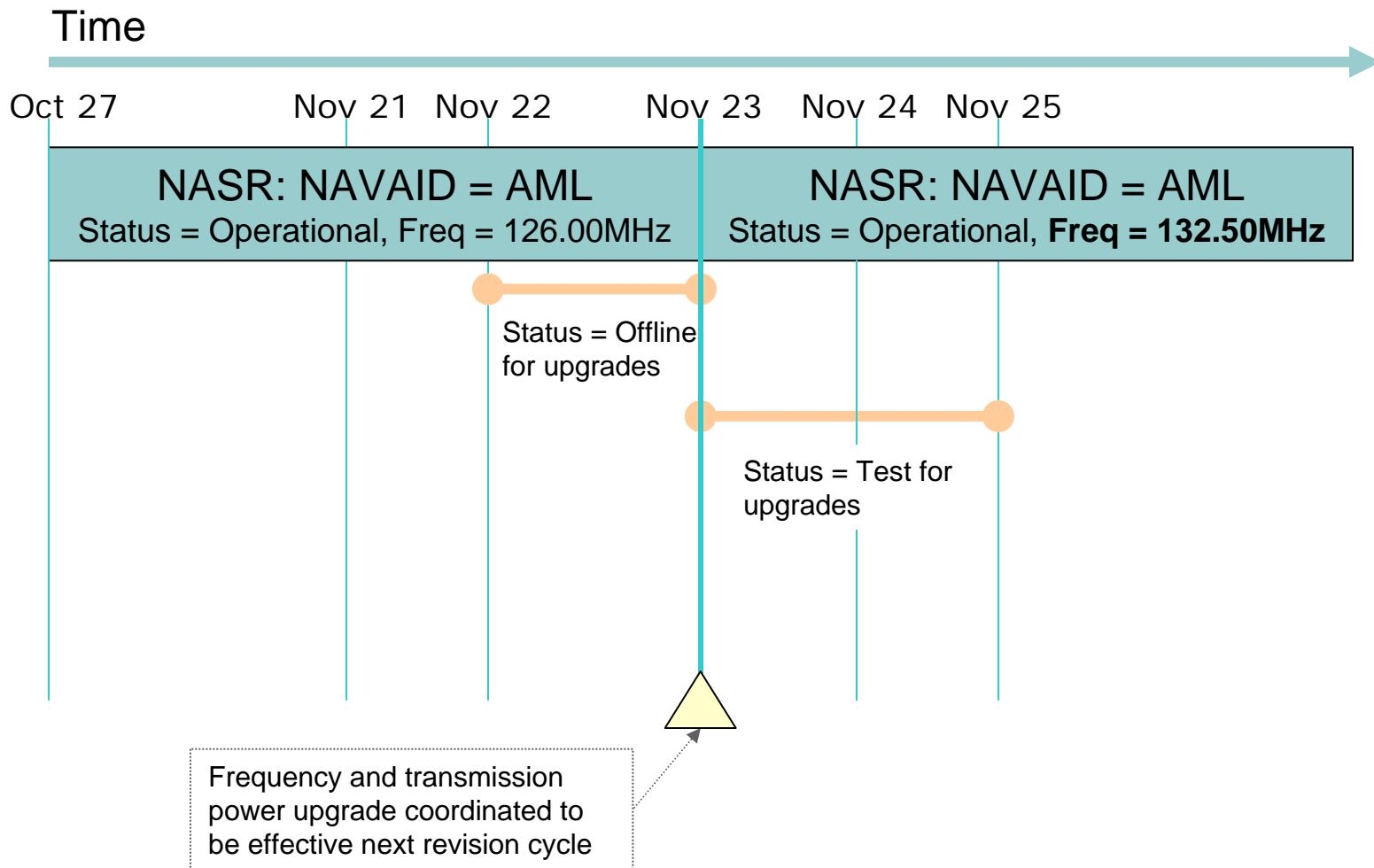
Worked example

Planned NAVAID upgrade – Sequence Diagram



Worked example

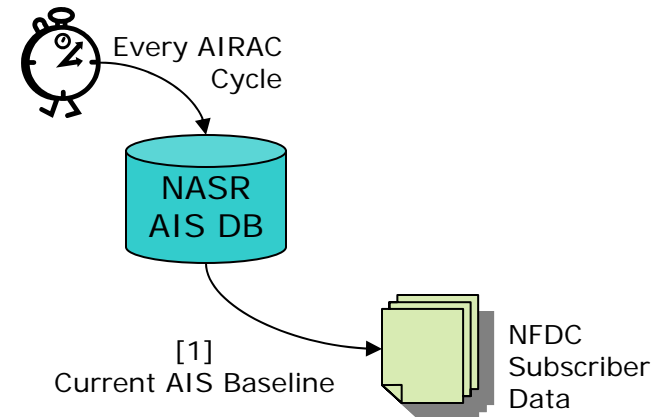
AML NAVAID state



Worked example

October 27, 2006 – NASR NFDC Subscriber file

Purpose	Distribute permanent aeronautical information to subscribers.
Message [1]	
Provider	NASR AIS database
Receiver	Subscribe file end users
Triggering Event	AIRAC Cycle
Message Content	Copy of NASR AIS DB at the AIRAC cycle. Collection of AIXM Baseline Features
Message Processing	Baseline data published to a variety of end users. Processing is end user specific.



Worked example

October 27, 2006 – NASR NFDC Subscriber file

Message [1]: NFDC Subscriber file

Message Identifier

Message Time

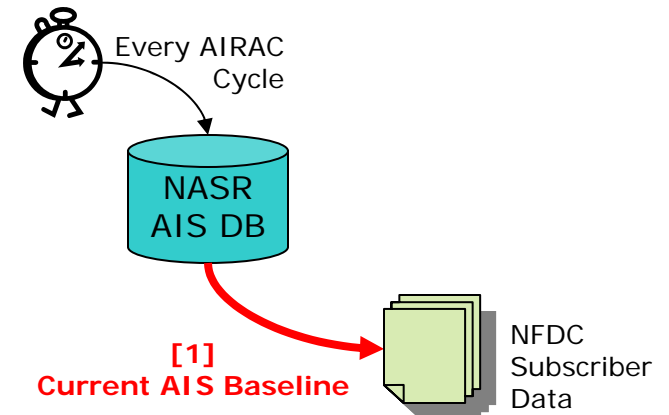
Area of Coverage

Feature Set

AIXM Feature 1
(*BASELINE*)

⋮

AIXM Feature n
(*BASELINE*)



Worked example

October 27, 2006 – NASR NFDC Subscriber file

Message [1]

```
<?xml version="1.0" encoding="UTF-8"?>
<faa:NFDSubscriberFile xmlns:faa="http://www.faa.gov" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml" xmlns:aixm="http://www.aixm.aero"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.faa.gov
TestApplicationSchema.xsd http://www.aixm.aero/AIXM-GML-ObjectTypes.xsd" gml:id="_001">
  <aixm:identifier codeSpace="http://www.faa.gov/ato/aim/nasr">18F</aixm:identifier>
  <gml:validTime>
    <gml:TimeInstant>
      <gml:timePosition>2005-10-27T00:00:00</gml:timePosition>
    </gml:TimeInstant>
  </gml:validTime>
  <faa:coverage>ALL</faa:coverage>
  <aixm:featureMembers>
    <aixm:VOR gml:id="_002">
      <aixm:identifier codeSpace="http://www.faa.gov/ato/aim/nasr">939</aixm:identifier>
      <aixm:timeSlice>
        <aixm:VORTimeSlice> ... </aixm:VORTimeSlice>
      </aixm:timeSlice>
    </aixm:VOR>
  </aixm:featureMembers>
</faa:NFDSubscriberFile>
```

Message Identifier

Message Time

Area of Coverage

Feature Set

AML VOR
(identifier, start of
existence)

Worked example

October 27, 2006 – NASR NFDC Subscriber file

Message [1] - continued

```
<aixm:VOR gml:id="_002">
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">939</aixm:identifier>
  ...
  <aixm:timeSlice>
    <aixm:VORTimeSlice>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>2005-10-27T00:00:00</gml:beginPosition>
          <gml:endPosition>2005-11-23T00:00:00</gml:endPosition>
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:interpretation>BASELINE</aixm:interpretation>
      <aixm:codeID>AML</aixm:codeID>
      <aixm:location>
        <gml:Point>
          <gml:pos>-101.3929 25.323</gml:pos>
        </gml:Point>
      </aixm:location>
      <aixm:name>ARMEL VORTAC</aixm:name>
      <aixm:type>VOR</aixm:type>
      <aixm:frequency uom="Hz">126.00</aixm:frequency>
      <aixm:operatingTo>
        <aixm:TimeTable>
          <aixm:workingHoursCode>H24</aixm:workingHoursCode>
        </aixm:TimeTable>
      </aixm:operatingTo>
      <aixm:underAuthorityOf xlink:href="www.faa.gov/ato/aim/nasr#
        //aixm:Organization[aixm:identifier='232' or
        (aixm:timeSlice/OrganizationTimeSlice/interpretation = 'BASELINE'
        and aixm:timeSlice/OrganizationTimeSlice/ID='FAA')"]/>
      <aixm:extension>
        <faa:VorExtension>
          <faa:power uom="W">50000</faa:power>
        </faa:VorExtension>
      </aixm:extension>
    </aixm:VORTimeSlice>
  </aixm:timeSlice>
</aixm:VOR>
```

BASELINE Time
Period
(AIRAC Cycle)

Location
(GML)

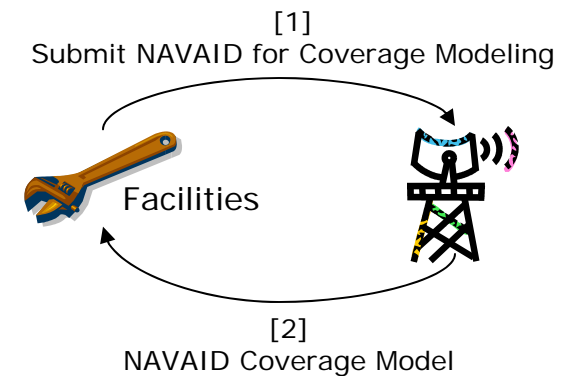
Reference to
organisation

Extension
containing
transmission
power

Worked example

November 1, 2006 – Facilities models AML upgrade

Purpose	Calculate the new NAVAID service volume area when power is boosted from 50kW to 500kW
Message [1]	
Submitter	Facilities
Receiver	Coverage Service
Triggering Event	Preparing for change to AML NAVAID
Message Content	AML NAVAID record with new power level
Message Processing	The Coverage Service will model the AML Navaid reception coverage given the Navaid location, frequency and power output. The coverage analysis will consider interference, terrain and other factors.
Message [2]	
Submitter	Coverage Service
Receiver	Facilities
Triggering Event	Modeled AML NAVAID coverage
Message Content	Modeled AML NAVAID coverage
Message Processing	The new model coverage needs to be sent to the NASR system.



Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1]: Navaid Coverage Request

Message Identifier

Message Time

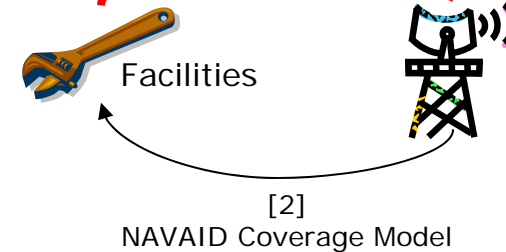
Request Submitter

Calculation Type

Navaid Feature

AIXM Navaid
(Snapshot)

[1]
Submit NAVAID for Coverage Modeling



Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1]

Message Identifier

Message Time

Request Submitter

Calculation Type

Navaid Feature

AML VOR
(Snapshot)

```
<?xml version="1.0" encoding="UTF-8"?>
<faa:NavaidCoverageRequest xmlns:faa="www.faa.gov"
xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:gml="http://www.opengis.net/gml"
xmlns:aixm="http://www.aixm.aero" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="www.faa.gov TestApplicationSchema.xsd
http://www.aixm.aero AIXM-GML-ObjectTypes.xsd " gml:id="_001">
  <aixm:identifier codeSpace="www.faa.gov/ato/facilities">658d</aixm:identifier>
  <gml:validTime>
    <gml:TimeInstant>
      <gml:timePosition>2005-11-01T08:00:00</gml:timePosition>
    </gml:TimeInstant>
  </gml:validTime>
  <faa:submitter>www.faa.gov/ato/facilities</faa:submitter>
  <faa:coverageType>CVR</faa:coverageType>
  <faa:featureMemberNavaid>
    <aixm:VOR gml:id="_002">
      <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">939</aixm:identifier>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>1985-01-01T00:00:00</gml:beginPosition>
          <gml:endPosition indeterminatePosition="unknown"/>
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:timeSlice>
        <aixm:VORTimeSlice>
          ...
        </aixm:VORTimeSlice>
      </aixm:timeSlice>
    </aixm:VOR>
  </faa:featureMemberNavaid>
</faa:NavaidCoverageRequest>
```

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1]

SNAPSHOT
Time Period
(AIRAC Cycle)

New frequency

New
transmission
power

```
<aixm:VOR gml:id="_002">
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">939</aixm:identifier>
  ...
  <aixm:timeSlice>
    <aixm:VORTimeSlice>
      <aixm:validTime>
        <gml:TimeInstant>
          <gml:timePosition>2005-11-23T00:00:00</gml:timePosition>
        </gml:TimeInstant>
      </aixm:validTime>
      <aixm:interpretation>SNAPSHOT</aixm:interpretation>
      <aixm:codeID>AML</aixm:codeID>
      <aixm:location>
        <gml:Point><gml:pos>-101.3929 25.323</gml:pos></gml:Point>
      </aixm:location>
      <aixm:name>ARMEL VORTAC</aixm:name>
      <aixm:type>VOR</aixm:type>
      <aixm:frequency uom="Hz">132.50</aixm:frequency>
      <aixm:operatingTo>
        <aixm:TimeTable>
          <aixm:workingHoursCode>H24</aixm:workingHoursCode>
        </aixm:TimeTable>
      </aixm:operatingTo>
      <aixm:underAuthorityOf
        link:href="www.faa.gov/ato/aim/nasr#
          //aixm:Organization[aixm:identifier='232' or
          (aixm:timeSlice/OrganizationTimeSlice/interpretation = 'BASELINE'
          and aixm:timeSlice/OrganizationTimeSlice/ID='FAA')"/>
      <aixm:extension>
        <faa:VorExtension>
          <faa:power uom="W">100000</faa:power>
        </faa:VorExtension>
      </aixm:extension>
    </aixm:VORTimeSlice>
  </aixm:timeSlice>
</aixm:VOR>
```

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [2]: Navaid Coverage Response

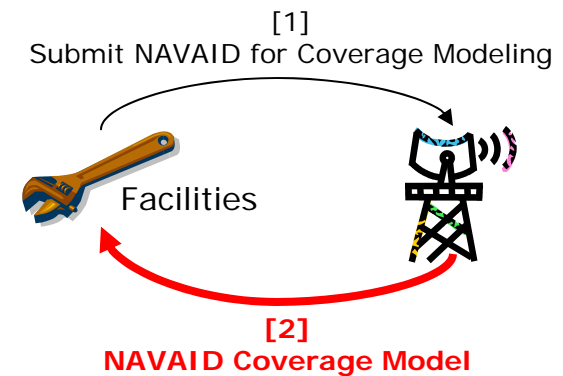
Message Identifier

Message Time

Request Message ID

Coverage Feature

AIXM Navaid
Coverage
(Snapshot)



Worked example

November 1, 2006 – Facilities models AML upgrade

Message [2]

```
<?xml version="1.0" encoding="UTF-8"?>
<faa:NavaidCoverageResponse xmlns:faa="www.faa.gov"
xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:gml="http://www.opengis.net/gml"
xmlns:aixm="http://www.aixm.aero" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="www.faa.gov TestApplicationSchema.xsd http://www.aixm.aero AIXM-GML-
ObjectTypes.xsd " gml:id="_001">
  <aixm:identifier codeSpace="www.faa.gov/ato/spectrum">7897</aixm:identifier>
  <gml:validTime>
    <gml:TimeInstant>
      <gml:timePosition>2005-11-01T08:00:00</gml:timePosition>
    </gml:TimeInstant>
  </gml:validTime>
  <faa:submitter>www.faa.gov/ato/facilities</faa:submitter>
  <faa:modelFor_NavidModelRequestId xlink:href="www.faa.gov/ato/facilities#
    //NavaidCoverageRequest[aixm:identifier='658d']"/>
  <faa:featureMemberNavaidLimit>
    <aixm:VORUsageLimit gml:id="_002">
      <aixm:identifier codeSpace="www.faa.gov/ato/spectrum">7897001</aixm:identifier>
      <gml:validTime>
        <gml:TimeInstant>
          <gml:timePosition>2005-11-01T08:05:00</gml:timePosition>
        </gml:TimeInstant>
      </gml:validTime>
      <aixm:timeSlice>
        <aixm:VORUsageLimitTimeSlice> ... /aixm:VORUsageLimitTimeSlice>
      </aixm:timeSlice>
    </aixm:VORUsageLimit>
  </faa:featureMemberNavaidLimit>
</faa:NavaidCoverageResponse>
```

Message Identifier

Message Time

Request Message ID

Coverage Feature

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [2]

Snapshot

Reference to AML
Navaid

GML shape
description

Aeronautical
shape description

```
<aixm:VORUsageLimitTimeSlice>
  <gml:validTime>
    <gml:TimeInstant>
      <gml:timePosition>2005-11-01T08:05:00</gml:timePosition>
    </gml:TimeInstant>
  </gml:validTime>
  <aixm:interpretation>SNAPSHOT</aixm:interpretation>
  <aixm:type>CVR</aixm:type>
  <aixm:limitsUseOf_VOR xlink:href="www.faa.gov/ato/aim/nasr#
    //aixm:VOR[aixm:identifier='939']"/>
  <aixm:segmentExtent>
    <aixm:NavaidLimitation>
      <aixm:circleSegment>
        <gml:Polygon> ... </gml:Polygon>
      </aixm:circleSegment>
      <aixm:angleFrom>000</aixm:angleFrom>
      <aixm:angleTo>360</aixm:angleTo>
      <aixm:distanceInner uom="NM">0</aixm:distanceInner>
      <aixm:distanceOuter uom="NM">200</aixm:distanceOuter>
      <aixm:distanceVerticalUpper uom="FL">360</aixm:distanceVerticalUpper>
      <aixm:referenceVerticalUpper>STD</aixm:referenceVerticalUpper>
      <aixm:distanceVerticalLower uom="FT">5000</aixm:distanceVerticalLower>
      <aixm:referenceVerticalLower>HEI</aixm:referenceVerticalLower>
    </aixm:NavaidLimitation>
  </aixm:segmentExtent>
</aixm:VORUsageLimitTimeSlice>
```

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [2]

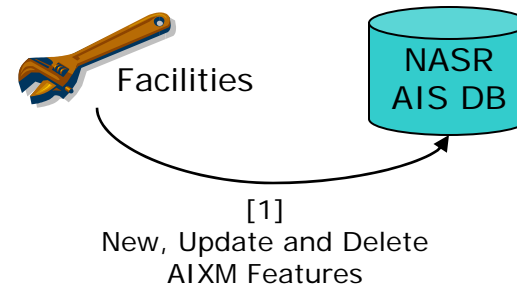
GML shape
description

```
<gml:Polygon>
  <gml:exterior>
    <gml:Ring>
      <gml:curveMember>
        <gml:Curve>
          <gml:segments>
            <gml:CircleByCenterPoint numArc="1">
              <gml:pos></gml:pos>
              <gml:radius uom="nm">200</gml:radius>
              <gml:startAngle uom="degree">0</gml:startAngle>
              <gml:endAngle uom="degree">360</gml:endAngle>
            </gml:CircleByCenterPoint>
          </gml:segments>
        </gml:Curve>
      </gml:curveMember>
    </gml:Ring>
  </gml:exterior>
</gml:Polygon>
```


Worked example

November 1, 2006 – Facilities coordinates AML upgrade

Purpose	Notify NASR of a pending change to the AML NAVAID
Message [1]	
Submitter	Facilities
Receiver	NASR AIS DB
Triggering Event	Change to AML NAVAID frequency, transmission power and coverage
Message Content	Update AML Navaid, Delete old coverage, Add new coverage
Message Processing	The changes will be submitted to the NASR AIS database to be incorporated as permanent changes that take affect at the next publication cycle.



Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1]: AIXM Update Message

Message Identifier

Message Time

Group (Name, Reason)

New

AML Coverage

(Baseline)

Update

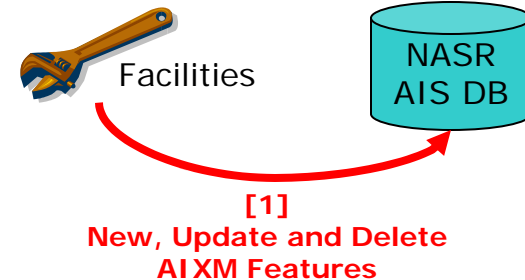
AML Navaid

(Perm Delta)

Delete

AML Coverage

(Query)



Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1]

Message Identifier

Message Time

Group (Name, Reason)

New, Update, Delete

```
<?xml version="1.0" encoding="UTF-8"?>
<faa:AIXM-Update xmlns:faa="www.faa.gov" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml" xmlns:aixm="http://www.aixm.aero"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="www.faa.gov
TestApplicationSchema.xsd http://www.aixm.aero AIXM-GML-ObjectTypes.xsd " gml:id="_001">
  <aixm:identifier codeSpace="www.faa.gov/ato/facilities">20051130001</aixm:identifier>
  <gml:validTime>
    <gml:TimeInstant>
      <gml:timePosition>2005-11-01T13:00:00</gml:timePosition>
    </gml:TimeInstant>
  </gml:validTime>
  <faa:sequenceNumber>1</faa:sequenceNumber>
  <faa:origin>www.faa.gov/ato/facilities</faa:origin>
  <faa:groupMember>
    <faa:Group gml:id="_002">
      <aixm:identifier codeSpace="www.faa.gov/ato/facilities">
        2005113000101</aixm:identifier>
      <faa:name>AML</faa:name>
      <faa:reason>Update AML frequency and power. New reception coverage
area.</faa:reason>
      <faa:new> ... </faa:new>
      <faa:update> ... </faa:update>
      <faa:delete ...>
    </faa:Group>
  </faa:groupMember>
</faa:AIXM-Update>
```

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1]

New

AML Coverage
ID

Baseline

```
<faa:new>
  <aixm:VORUsageLimit gml:id="_003">
    <aixm:identifier codeSpace="www.faa.gov/ato/aim/spectrum">
      7897001</aixm:identifier>
    <gml:validTime>
      <gml:TimePeriod>
        <gml:beginPosition>2005-11-23T00:00:00</gml:beginPosition>
        <gml:endPosition indeterminatePosition="unknown"/>
      </gml:TimePeriod>
    </gml:validTime>
    <aixm:timeSlice>
      <aixm:VORUsageLimitTimeSlice>
        <gml:validTime>
          <gml:TimePeriod>
            <gml:beginPosition>2005-11-23T00:00:00</gml:beginPosition>
            <gml:endPosition indeterminatePosition="unknown"/>
          </gml:TimePeriod>
        </gml:validTime>
        <aixm:interpretation>BASELINE</aixm:interpretation>
        <aixm:type>CVR</aixm:type>
        <aixm:limitsUseOf_VOR xlink:href="www.faa.gov/ato/aim/nasr#
          //aixm:VOR[aixm:identifier='939'"]/>
        <aixm:segmentExtent> ... </aixm:segmentExtent>
      </aixm:VORUsageLimitTimeSlice>
    </aixm:timeSlice>
  </aixm:VORUsageLimit>
</faa:new>
```

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1]

Update

AML ID

Permanent
Delta

```
<faa:update>
  <aixm:VOR gml:id="_004">
    <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">939</aixm:identifier>
    <gml:validTime>
      <gml:TimePeriod>
        <gml:beginPosition>1985-01-01T00:00:00</gml:beginPosition>
        <gml:endPosition indeterminatePosition="unknown"/>
      </gml:TimePeriod>
    </gml:validTime>
    <aixm:timeSlice>
      <aixm:VORTimeSlice>
        <gml:validTime>
          <gml:TimePeriod>
            <gml:beginPosition>2005-11-23T00:00:00</gml:beginPosition>
            <gml:endPosition indeterminatePosition="unknown"/>
          </gml:TimePeriod>
        </gml:validTime>
        <aixm:interpretation>PERMDELTA</aixm:interpretation>
        <aixm:frequency uom="Hz">132.50</aixm:frequency>
        <aixm:extension>
          <faa:VorExtension>
            <faa:power uom="W">100000</faa:power>
          </faa:VorExtension>
        </aixm:extension>
      </aixm:VORTimeSlice>
    </aixm:timeSlice>
  </aixm:VOR>
</faa:update>
```

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1]

Delete

```
<faa:delete xlink:href="www.faa.gov/ato/aim/nasr
  #//VORUsageLimit
    [timeSlice/VorUsageLimitTimeSlice/limitsUseOf_VOR/aixm:identifier = '939'
      and timeSlice/aixm:interpretation='BASELINE'
      and timeSlice/aixm:type = 'CVR'
      and validTime/beginPosition &lt; '2005-11-23T00:00:00'
    ]"/>
```

Delete the old VorUsageLimit for AML where:

limitsUseOf_VOR = AML

interpretation = BASELINE

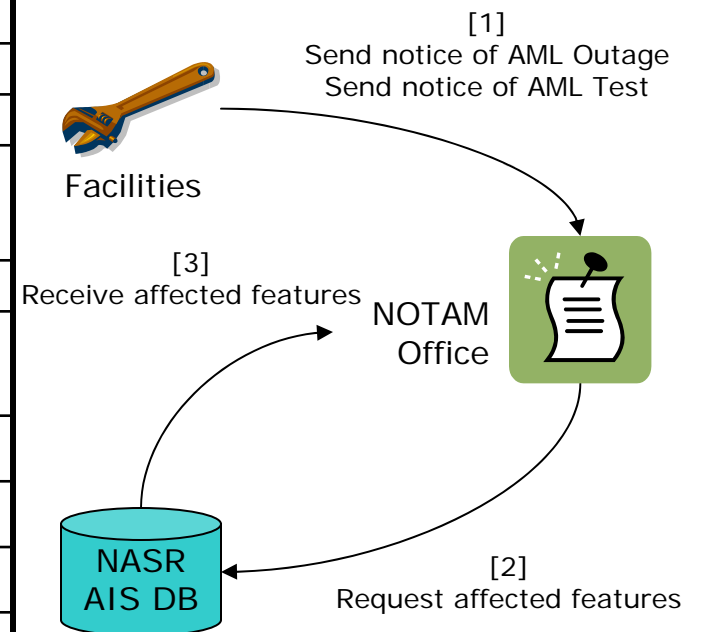
type = CVR

validTime before 2005-11-23

Worked example

November 1, 2006 – Facilities coordinates AML NOTAMS

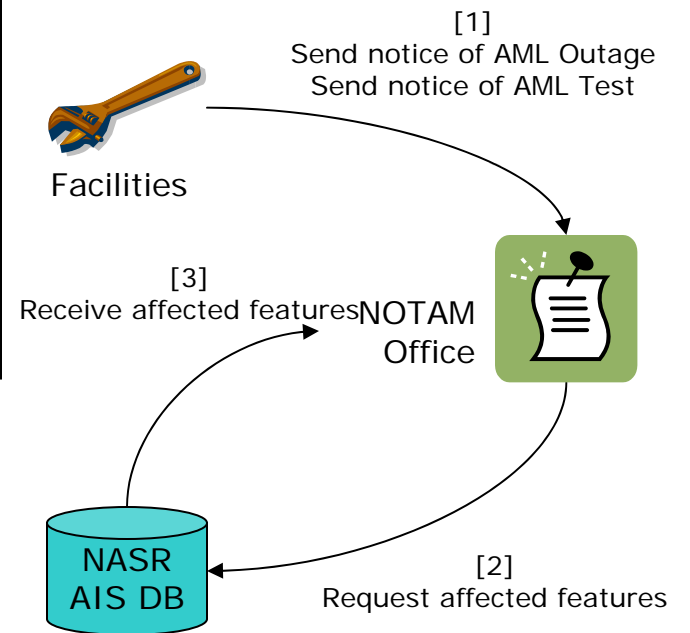
Purpose	Send notice of changes to NOTAM office and identify aeronautical data affected by the change.
Message [1]	
Submitter	Facilities
Receiver	NOTAM Office
Triggering Event	Upgrades to AML will require temporary changes to AML operational status and may affect other aeronautical data also.
Message Content	Notice of a temporary changes
Message Processing	The NOTAM office will need to evaluate the temporary change and issue NOTAM(s)
Message [2]	
Submitter	NOTAM Office
Receiver	NASR AIS DB
Triggering Event	Notice of a system event means NOTAM office needs to analyze system and determine required changes
Message Content	Feature query
Message Processing	Determine which aeronautical features that reference the AML navigation aid.



Worked example

November 1, 2006 – Facilities coordinates AML NOTAMS

Message [3]	
Submitter	NASR AIS DB
Receiver	NOTAM Office
Triggering Event	Request for aeronautical features that use the AML Navaid
Message Content	Feature set
Message Processing	NOTAM office will complete an impact assessment



Worked example

November 1, 2006 – Facilities coordinates AML NOTAMS

Message [1]: Submit status change

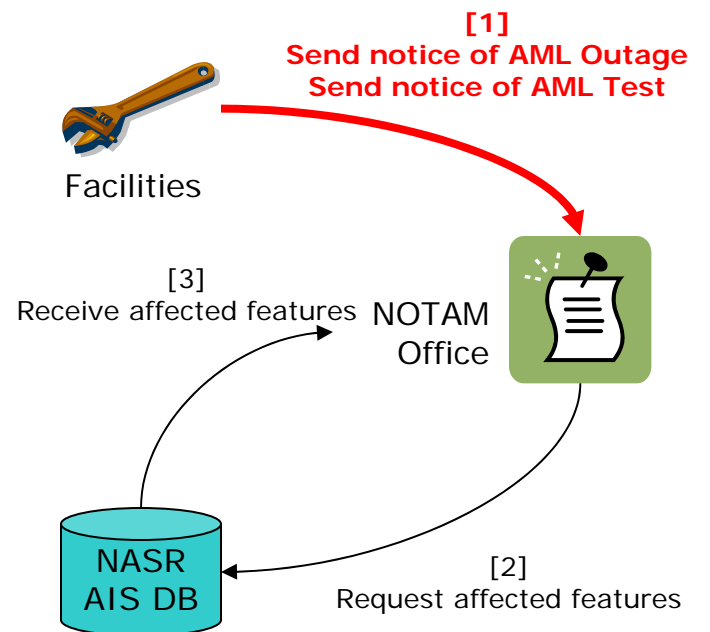
Message Identifier

Message Time

Submitter

Affected Features

AIXM Features
(Temp Delta)



Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1]

```
<?xml version="1.0" encoding="UTF-8"?>
<faa:FacilityOutageNotice xmlns:faa="www.faa.gov"
xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:gml="http://www.opengis.net/gml"
xmlns:aixm="http://www.aixm.aero" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="www.faa.gov TestApplicationSchema.xsd http://www.aixm.aero AIXM-GML-
ObjectTypes.xsd " gml:id="_001">
  <aixm:identifier codeSpace="www.faa.gov/ato/facility">5468</aixm:identifier>
  <gml:validTime>
    <gml:TimeInstant>
      <gml:timePosition>2005-11-21T14:30:00</gml:timePosition>
    </gml:TimeInstant>
  </gml:validTime>
  <faa:submitter>www.faa.gov/ato/facility</faa:submitter>
  <aixm:featureMembers>
    <aixm:VOR gml:id="_002">
      ...
    </aixm:VOR>
    <aixm:VOR gml:id="_003">
      ...
    </aixm:VOR>
  </aixm:featureMembers>
</faa:FacilityOutageNotice>
```

Message Identifier

Message Time

Submitter

Affected Features

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1]

AML VOR
Closed Nov 22 to
Nov 23, 2005

```
<aixm:VOR gml:id="_002">  
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">939</aixm:identifier>  
  <aixm:timeSlice>  
    <aixm:VORTimeSlice>  
      <gml:validTime>  
        <gml:TimePeriod>  
          <gml:beginPosition>2005-11-22T00:00:00</gml:beginPosition>  
          <gml:endPosition>2005-11-23T00:00:00</gml:endPosition>  
        </gml:TimePeriod>  
      </gml:validTime>  
      <aixm:interpretation>TEMPDELTA</aixm:interpretation>  
      <aixm:status>CLOSED</aixm:status>  
    </aixm:VORTimeSlice>  
  </aixm:timeSlice>  
</aixm:VOR>
```

AML VOR
InTest Nov 23 to
Nov 25, 2005

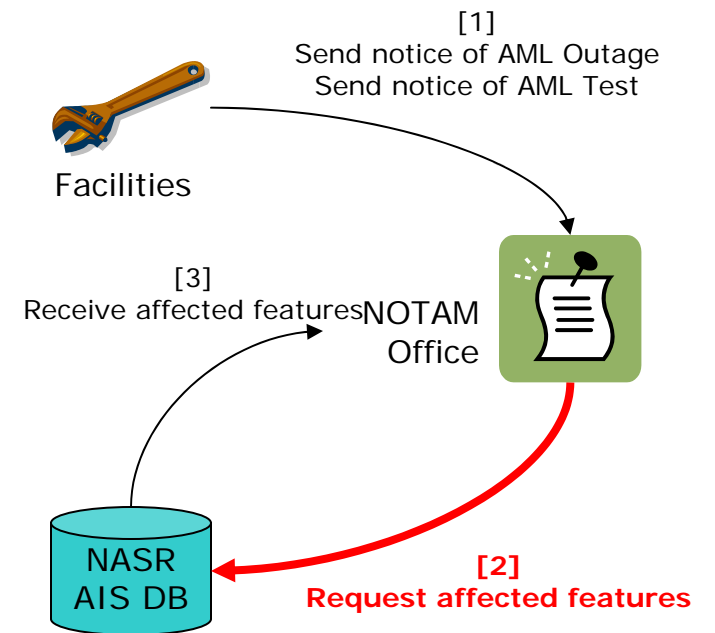
```
<aixm:VOR gml:id="_003">  
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">939</aixm:identifier>  
  <aixm:timeSlice>  
    <aixm:VORTimeSlice>  
      <gml:validTime>  
        <gml:TimePeriod>  
          <gml:beginPosition>2005-11-23T00:00:00</gml:beginPosition>  
          <gml:endPosition>2005-11-25T00:00:00</gml:endPosition>  
        </gml:TimePeriod>  
      </gml:validTime>  
      <aixm:interpretation>TEMPDELTA</aixm:interpretation>  
      <aixm:status>INTEST</aixm:status>  
    </aixm:VORTimeSlice>  
  </aixm:timeSlice>  
</aixm:VOR>
```

Worked example

November 1, 2006 – Facilities coordinates AML NOTAMS

Message [2]: AIS Query Response

Web Feature Service
Query



Worked example

November 1, 2006 – Facilities models AML upgrade

Message [2]

StartingAt = AML
Or
EndingAt = AML

```
<?xml version="1.0" encoding="UTF-8"?>
<wfs:Query typeName="RouteSegment">
  <ogc:Filter>
    <ogc:Or>
      <ogc:PropertyIsEqualTo>
        <ogc:PropertyName>startingAt_SignificantPoint</ogc:PropertyName>
        <ogc:Literal>www.faa.gov/ato/aim/nasr#
          //VOR/aixm:identifier='939'</ogc:Literal>
      </ogc:PropertyIsEqualTo>
      <ogc:PropertyIsEqualTo>
        <ogc:PropertyName>endingAt_SignificantPoint</ogc:PropertyName>
        <ogc:Literal>www.faa.gov/ato/aim/nasr#
          //VOR/aixm:identifier='939'</ogc:Literal>
      </ogc:PropertyIsEqualTo>
    </ogc:Or>
  </ogc:Filter>
</wfs:Query>
```

Worked example

November 1, 2006 – Facilities coordinates AML NOTAMS

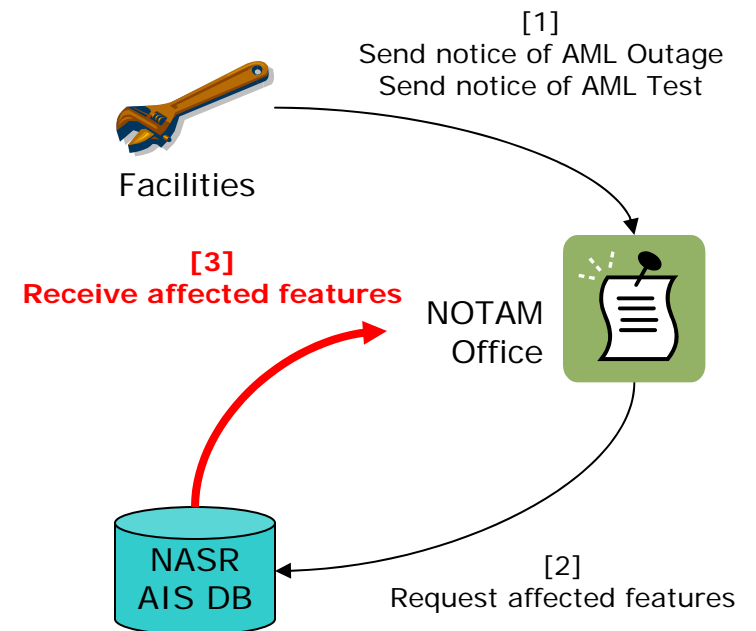
Message [3]: Query AIS Database

Message Identifier

Message Time

Feature Set

AIXM Features
(Baseline)



Worked example

November 1, 2006 – Facilities models AML upgrade

Message [3]

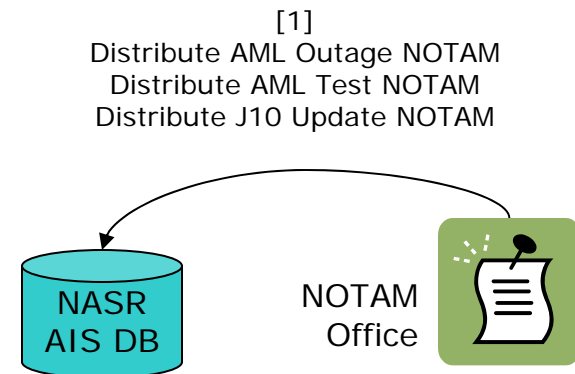
```
<?xml version="1.0" encoding="UTF-8"?>
<faa:FeatureCollection xmlns:faa="www.faa.gov" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml" xmlns:aixm="http://www.aixm.aero"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="www.faa.gov
TestApplicationSchema.xsd http://www.aixm.aero AIXM-GML-ObjectTypes.xsd " gml:id="_001">
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">658d</aixm:identifier>
  <gml:validTime>
    <gml:TimeInstant>
      <gml:timePosition>2005-11-21T14:00:00</gml:timePosition>
    </gml:TimeInstant>
  </gml:validTime>
  <gml:featureMember>
    <aixm:RouteSegment gml:id="_002">
      <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">323</aixm:identifier>
      <aixm:timeSlice>
        <aixm:RouteSegmentTimeSlice>
          <gml:validTime>
            <gml:TimePeriod>
              <gml:beginPosition>2005-10-27T00:00:00</gml:beginPosition>
              <gml:endPosition indeterminatePosition="unknown"/>
            </gml:TimePeriod>
          </gml:validTime>
          <aixm:interpretation>BASELINE</aixm:interpretation>
          <aixm:partOf_EnRouteRoute xlink:href="www.faa.gov/ato/aim/nasr#
//EnRouteRoute[aixm:identifer='232'
or (timeSlice/EnRouteRouteTimeSlice/interpretation='BASELINE'
and timeSlice/EnRouteRouteTimeSlice/designator='J10'"/>
          <aixm:startingAt_SignificantPoint xlink:href="www.faa.gov/ato/aim/nasr#
//VOR/identifier='939'"/>
          <aixm:endingAt_SignificantPoint xlink:href="www.faa.gov/ato/aim/nasr#
//DesignatedPont/identifier='302'"/>
        </aixm:RouteSegmentTimeSlice>
      </aixm:timeSlice>
    </aixm:RouteSegment>
  </gml:featureMember>
</faa:FeatureCollection>
```

One sample
RouteSegment
Feature

Worked example

November 1, 2006 – Facilities coordinates AML NOTAMS

Purpose	Send NOTAMS
Message [1]	
Submitter	NOTAM Office
Receiver	NASR AIS DB and others
Triggering Event	Updates to AML will require temporary changes in operational status.
Message Content	Notice of a temporary changes
Message Processing	Temporary changes will be incorporated into NASR AIS DB and will be used by other clients.



Worked example

November 1, 2006 – Facilities coordinates AML NOTAMS

Message [1]: xNOTAM Messages

Message Identifier

Message Time

NOTAM Number

Q-Code

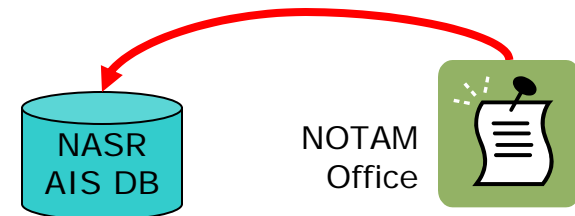
Feature Set

AIXM Features
(Temp Delta)

[1]
Distribute AML Outage NOTAM
Distribute AML Test NOTAM
Distribute J10 Update NOTAM



NOTAM
Office



Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1] – NOTAM #1

Message Identifier

Message Time

NOTAM Number

Q-Code

Feature Set

```
<faa:NOTAM xmlns:faa="http://www.faa.gov" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml" xmlns:aixm="http://www.aixm.aero"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.faa.gov
TestApplicationSchema.xsd http://www.aixm.aero AIXM-GML-ObjectTypes.xsd" gml:id="_001">
  <aixm:identifier codeSpace="http://www.faa.gov/ato/usnof">53232</aixm:identifier>
  <gml:validTime>
    <gml:TimeInstant>
      <gml:timePosition>2005-11-10T00:00:00</gml:timePosition>
    </gml:TimeInstant>
  </gml:validTime>
  <faa:notamYear>05</faa:notamYear>
  <faa:notamNumber>3232</faa:notamNumber>
  <faa:qCode>QNTAC</faa:qCode>
  <faa:accountabilityFacility_Organisation>
    <aixm:Organisation gml:id="_002">
      <aixm:identifier codeSpace="http://www.faa.gov/ato/usnof">ZDC</aixm:identifier>
      <aixm:timeSlice>
        <aixm:OrganisationTimeSlice>
          <gml:validTime>
            <gml:TimePeriod>
              <gml:beginPosition>2005-10-31T00:00:00</gml:beginPosition>
              <gml:endPosition indeterminatePosition="unknown"/>
            </gml:TimePeriod>
          </gml:validTime>
          <aixm:interpretation>BASELINE</aixm:interpretation>
          <aixm:codeID>ZDC</aixm:codeID>
        </aixm:OrganisationTimeSlice>
      </aixm:timeSlice>
    </aixm:Organisation>
  </faa:accountabilityFacility_Organisation>
  <aixm:featureMember> ... </aixm:featureMember>
</faa:NOTAM>
```

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1] – NOTAM #1

AML VOR
BASELINE

AML VOR
Temporary
Change

```
<aixm:VOR gml:id="_003">
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">939</aixm:identifier>
  <aixm:timeSlice>
    <aixm:VORTimeSlice>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>2005-10-27T00:00:00</gml:beginPosition>
          <gml:endPosition>2005-11-23T00:00:00</gml:endPosition>
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:interpretation>BASELINE</aixm:interpretation>
      ...
    </aixm:VORTimeSlice>
    <aixm:VORTimeSlice>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>2005-11-22T00:00:00</gml:beginPosition>
          <gml:endPosition>2005-11-23T00:00:00</gml:endPosition>
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:interpretation>TEMPDELTA</aixm:interpretation>
      <aixm:status>CLOSED</aixm:status>
    </aixm:VORTimeSlice>
  </aixm:timeSlice>
</aixm:VOR>
```

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1] – NOTAM #2

Message Identifier

Message Time

NOTAM Number

Q-Code

Feature Set

```
<faa:NOTAM xmlns:faa="http://www.faa.gov" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml" xmlns:aixm="http://www.aixm.aero"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.faa.gov
TestApplicationSchema.xsd http://www.aixm.aero AIXM-GML-ObjectTypes.xsd" gml:id="_001">
  <aixm:identifier codeSpace="http://www.faa.gov/ato/usnof">53232</aixm:identifier>
  <gml:validTime>
    <gml:TimeInstant>
      <gml:timePosition>2005-11-10T00:00:00</gml:timePosition>
    </gml:TimeInstant>
  </gml:validTime>
  <faa:notamYear>05</faa:notamYear>
  <faa:notamNumber>3233</faa:notamNumber>
  <faa:qCode>QNTCT</faa:qCode>
  <faa:accountabilityFacility_Organisation>
    <aixm:Organisation gml:id="_002">
      <aixm:identifier codeSpace="http://www.faa.gov/ato/usnof">ZDC</aixm:identifier>
      <aixm:timeSlice>
        <aixm:OrganisationTimeSlice>
          <gml:validTime>
            <gml:TimePeriod>
              <gml:beginPosition>2005-10-31T00:00:00</gml:beginPosition>
              <gml:endPosition indeterminatePosition="unknown"/>
            </gml:TimePeriod>
          </gml:validTime>
          <aixm:interpretation>BASELINE</aixm:interpretation>
          <aixm:codeID>ZDC</aixm:codeID>
        </aixm:OrganisationTimeSlice>
      </aixm:timeSlice>
    </aixm:Organisation>
  </faa:accountabilityFacility_Organisation>
  <aixm:featureMember> ... </aixm:featureMember>
</faa:NOTAM>
```

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1] – NOTAM #1

AML VOR
BASELINE

AML VOR
Temporary
Change

```
<aixm:VOR gml:id="_003">
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">939</aixm:identifier>
  <aixm:timeSlice>
    <aixm:VORTimeSlice>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>2005-10-27T00:00:00</gml:beginPosition>
          <gml:endPosition>2005-11-23T00:00:00</gml:endPosition>
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:interpretation>BASELINE</aixm:interpretation>
      ...
    </aixm:VORTimeSlice>
    <aixm:VORTimeSlice>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>2005-11-22T00:00:00</gml:beginPosition>
          <gml:endPosition>2005-11-23T00:00:00</gml:endPosition>
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:interpretation>TEMPDELTA</aixm:interpretation>
      <aixm:status>INTEST</aixm:status>
    </aixm:VORTimeSlice>
  </aixm:timeSlice>
</aixm:VOR>
```

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1] – NOTAM #3

Message Identifier

Message Time

NOTAM Number

Q-Code

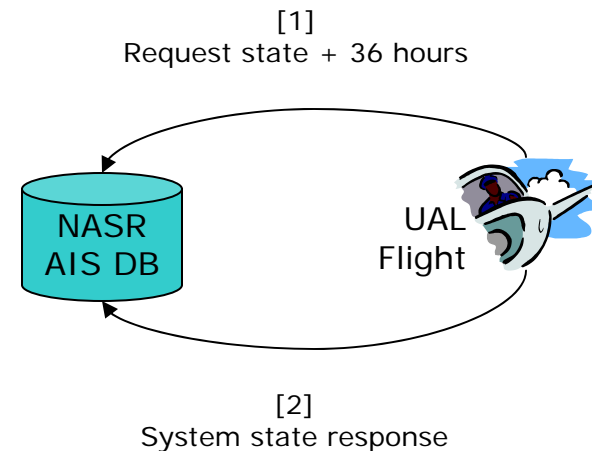
Update to J10
Route
Segments

```
<faa:NOTAM xmlns:faa="http://www.faa.gov" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml" xmlns:aixm="http://www.aixm.aero"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.faa.gov
TestApplicationSchema.xsd http://www.aixm.aero AIXM-GML-ObjectTypes.xsd" gml:id="_001">
  <aixm:identifier codeSpace="http://www.faa.gov/ato/usnof">53232</aixm:identifier>
  <gml:validTime>
    <gml:TimeInstant>
      <gml:timePosition>2005-11-10T00:00:00</gml:timePosition>
    </gml:TimeInstant>
  </gml:validTime>
  <faa:notamYear>05</faa:notamYear>
  <faa:notamNumber>3234</faa:notamNumber>
  <faa:qCode>QARCH</faa:qCode>
  <faa:accountabilityFacility_Organisation>
    <aixm:Organisation gml:id="_002">
      <aixm:identifier codeSpace="http://www.faa.gov/ato/usnof">ZDC</aixm:identifier>
      <aixm:timeSlice>
        <aixm:OrganisationTimeSlice>
          <gml:validTime>
            <gml:TimePeriod>
              <gml:beginPosition>2005-10-31T00:00:00</gml:beginPosition>
              <gml:endPosition indeterminatePosition="unknown"/>
            </gml:TimePeriod>
          </gml:validTime>
          <aixm:interpretation>BASELINE</aixm:interpretation>
          <aixm:codeID>ZDC</aixm:codeID>
        </aixm:OrganisationTimeSlice>
      </aixm:timeSlice>
    </aixm:Organisation>
  </faa:accountabilityFacility_Organisation>
  <aixm:featureMember> ... </aixm:featureMember>
</faa:NOTAM>
```

Worked example

November 21, 2006 – Update for flight departing Tokyo

Purpose	Request aeronautical data update for the next 36 hours
Message [1]	
Submitter	UAL Flight departing Tokyo
Receiver	NASR AIS DB
Triggering Event	Ready to file flight plan 12 hours before departure.
Message Content	Request for aeronautical changes
Message Processing	NASR processes request and queries for system state and changes occurring in next 36 hours.
Message [2]	
Submitter	NASR AIS DB
Receiver	UAL Flight departing Tokyo
Triggering Event	UAL Flight ready to file flight plan 12 hours before departure.
Message Content	Aeronautical data and all changes over next 36 hours
Message Processing	UAL flight uses information to file flight plan.



Worked example

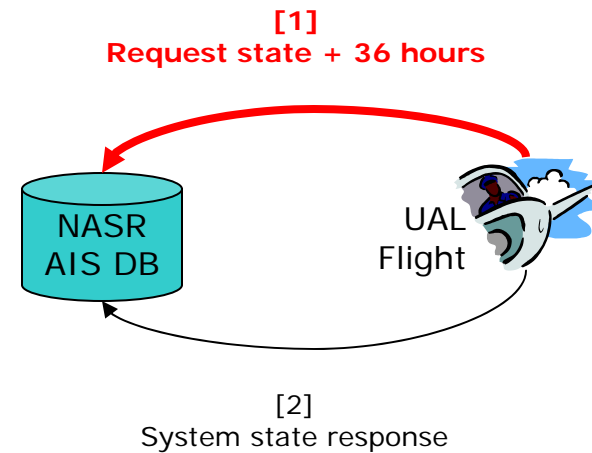
November 21, 2006 – Update for flight departing Tokyo

Message [1]: Query database

Message Identifier

Message Time

Query



Worked example

November 21, 2006 – Update for flight departing Tokyo

Message [1] – Query NASR AIS DB

```
<?xml version="1.0" encoding="UTF-8"?>
<faa:NASRQueryRequest xmlns:faa="http://www.faa.gov" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml" xmlns:aixm="http://www.aixm.aero"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.faa.gov
TestApplicationSchema.xsd http://www.aixm.aero AIXM-GML-ObjectTypes.xsd " gml:id="_001">
  <aixm:identifier codeSpace="http://www.ual.com">121</aixm:identifier>
  <gml:validTime>
    <gml:TimePeriod>
      <gml:beginPosition>2005-11-21T00:00:00</gml:beginPosition>
      <gml:endPosition>2005-11-22T12:00:00</gml:endPosition>
    </gml:TimePeriod>
  </gml:validTime>
  <faa:submitter>www.ual.com</faa:submitter>
  <faa:coverage>ALL</faa:coverage>
</faa:NASRQueryRequest>
```

Message Identifier

Message Time

Query

Worked example

November 21, 2006 – Update for flight departing Tokyo

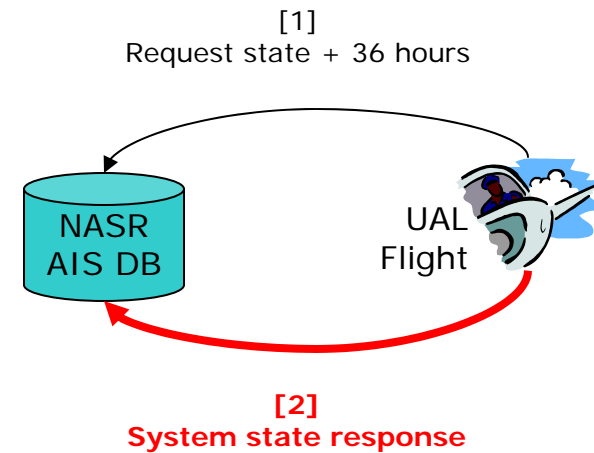
Message [2]: Query response

Message Identifier

Message Time

Feature Set

AIXM Features
(Version + Deltas)



Worked example

November 21, 2006 – Update for flight departing Tokyo

Message [2]

```
<?xml version="1.0" encoding="UTF-8"?>
<faa:NASRQueryResponse xmlns:faa="www.faa.gov" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml" xmlns:aixm="http://www.aixm.aero"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="www.faa.gov
TestApplicationSchema.xsd http://www.aixm.aero AIXM-GML-ObjectTypes.xsd " gml:id="_001">
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">1221</aixm:identifier>
  <gml:validTime>
    <gml:TimePeriod>
      <gml:beginPosition>2005-11-21T00:00:00</gml:beginPosition>
      <gml:endPosition>2005-11-22T12:00:00</gml:endPosition>
    </gml:TimePeriod>
  </gml:validTime>
  <faa:coverage>ALL</faa:coverage>
  <aixm:featureMembers>
    ...
  </aixm:featureMembers>
</faa:NASRQueryResponse>
```

Message Identifier

Message Time

Feature Set
(Baseline and all deltas
over time interval)

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [2]

AML VOR
BASELINE

AML VOR
Temporary
Change

J10

```
<aixm:VOR gml:id="_003">
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">939</aixm:identifier>
  <aixm:timeSlice>
    <aixm:VORTimeSlice>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>2005-10-27T00:00:00</gml:beginPosition>
          <gml:endPosition>2005-11-23T00:00:00</gml:endPosition>
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:interpretation>BASELINE</aixm:interpretation>
      ...
    </aixm:VORTimeSlice>
    <aixm:VORTimeSlice>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>2005-11-22T00:00:00</gml:beginPosition>
          <gml:endPosition>2005-11-23T00:00:00</gml:endPosition>
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:interpretation>TEMPDELTA</aixm:interpretation>
      <aixm:status>INTEST</aixm:status>
    </aixm:VORTimeSlice>
  </aixm:timeSlice>
</aixm:VOR>
<aixm:EnRouteRoute gml:id="_004">
  <aixm:identifier codeSpace=www.faa.gov/ato/aim/nasr>J10993</aixm:identifier>
  <aixm:timeSlice>
    <aixm:EnRouteRouteTimeSlice>...</aixm:EnRouteRouteTimeSlice>
  </aixm:timeSlice>
</aixm:EnRouteRoute>
...
```

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [2]

Route
Segment
(Baseline)

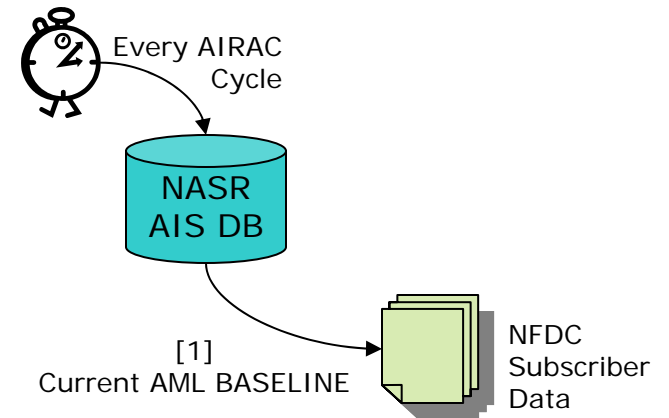
Route
Segment
(tempdelta)

```
<aixm:RouteSegment gml:id="_005">
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">323</aixm:identifier>
  <aixm:timeSlice>
    <aixm:RouteSegmentTimeSlice>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>2005-10-27T00:00:00</gml:beginPosition>
          <gml:endPosition indeterminatePosition="unknown" />
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:interpretation>BASELINE</aixm:interpretation>
      <aixm:partOf_EnRouteRoute xlink:href="www.faa.gov/ato/aim/nasr#
        //EnRouteRoute[aixm:identifer='J10993'
        or (timeSlice/EnRouteRouteTimeSlice/interpretation='BASELINE'
        and timeSlice/EnRouteRouteTimeSlice/designator='J10' "/>
      <aixm:startingAt_SignificantPoint xlink:href="www.faa.gov/ato/aim/nasr#
        //VOR/identifier='939' "/>
      <aixm:endingAt_SignificantPoint xlink:href="www.faa.gov/ato/aim/nasr#
        //DesignatedPont/identifier='302' "/>
    </aixm:RouteSegmentTimeSlice>
    <aixm:RouteSegmentTimeSlice>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>2005-11-22T00:00:00</gml:beginPosition>
          <gml:endPosition>2005-11-23T00:00:00</gml:endPosition>
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:interpretation>TEMPDELTA</aixm:interpretation>
      <aixm:startingAt_SignificantPoint
        xlink:href="www.faa.gov/ato/aim/nasr#
        //VOR/identifier='33332' "/>
    </aixm:RouteSegmentTimeSlice>
  </aixm:timeSlice>
</aixm:RouteSegment>
```

Worked example

November 23, 2006 – NASR NFDC Subscriber file

Purpose	Distribute permanent aeronautical information to subscribers.
Message [1]	
Provider	NASR AIS database
Receiver	Subscribe file end users
Triggering Event	AIRAC Cycle
Message Content	Copy of NASR AIS DB at the AIRAC cycle. Collection of AIXM Revision Features
Message Processing	Revision data published to a variety of end users. Processing is end user specific.



Worked example

November 23, 2006 – NASR NFDC Subscriber file

Message [1]: NFDC Subscriber file

Message Identifier

Message Time

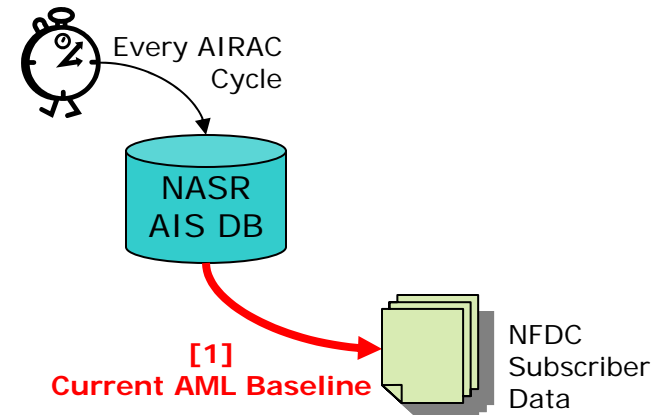
Area of Coverage

Feature Set

AIXM Feature 1
(*BASELINE*)

⋮

AIXM Feature n
(*BASELINE*)



Worked example

November 23, 2005 – NASR NFDC Subscriber file

Message [1]

```
<?xml version="1.0" encoding="UTF-8"?>
<faa:NFDSubscriberFile xmlns:faa="http://www.faa.gov" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml" xmlns:aixm="http://www.aixm.aero"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.faa.gov
TestApplicationSchema.xsd http://www.aixm.aero AIXM-GML-ObjectTypes.xsd" gml:id="_001">
  <aixm:identifier codeSpace="http://www.faa.gov/ato/aim/nasr">18G</aixm:identifier>
  <gml:validTime>
    <gml:TimeInstant>
      <gml:timePosition>2005-11-23T00:00:00</gml:timePosition>
    </gml:TimeInstant>
  </gml:validTime>
  <faa:coverage>ALL</faa:coverage>
  <aixm:featureMembers>
    <aixm:VOR gml:id="_002">
      <aixm:identifier codeSpace="http://www.faa.gov/ato/aim/nasr">939</aixm:identifier>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>1985-01-01T00:00:00</gml:beginPosition>
          <gml:endPosition indeterminatePosition="unknown"/>
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:timeSlice>
        <aixm:VORTimeSlice ... </aixm:VORTimeSlice>
      </aixm:timeSlice>
    </aixm:VOR>
  </aixm:featureMembers>
</faa:NFDSubscriberFile>
```

Message Identifier

Message Time

Area of Coverage

Feature Set

AML VOR
(identifier, start of
existence)

Worked example

October 27, 2006 – NASR NFDC Subscriber file

Message [1] - continued

```
<aixm:VOR gml:id="_002">
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">939</aixm:identifier>
  ...
  <aixm:timeSlice>
    <aixm:VORTimeSlice>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>2005-11-23T00:00:00</gml:beginPosition>
          <gml:endPosition>2006-01-10T00:00:00</gml:endPosition>
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:interpretation>BASELINE</aixm:interpretation>
      <aixm:codeID>AML</aixm:codeID>
      <aixm:location>
        <gml:Point>
          <gml:pos>-101.3929 25.323</gml:pos>
        </gml:Point>
      </aixm:location>
      <aixm:name>ARMEL VORTAC</aixm:name>
      <aixm:type>VOR</aixm:type>
      <aixm:frequency uom="Hz">132.50</aixm:frequency>
      <aixm:operatingTo>
        <aixm:TimeTable>
          <aixm:workingHoursCode>H24</aixm:workingHoursCode>
        </aixm:TimeTable>
      </aixm:operatingTo>
      <aixm:underAuthorityOf xlink:href="www.faa.gov/ato/aim/nasr#
        //aixm:Organization[aixm:identifier='232' or
        (aixm:timeSlice/OrganizationTimeSlice/interpretation = 'BASELINE'
        and aixm:timeSlice/OrganizationTimeSlice/ID='FAA')"/>
      <aixm:extension>
        <faa:VorExtension>
          <faa:power uom="W">100000</faa:power>
        </faa:VorExtension>
      </aixm:extension>
    </aixm:VORTimeSlice>
  </aixm:timeSlice>
</aixm:VOR>
```

BASELINE Time
Period
(AIRAC Cycle)

Location
(GML)

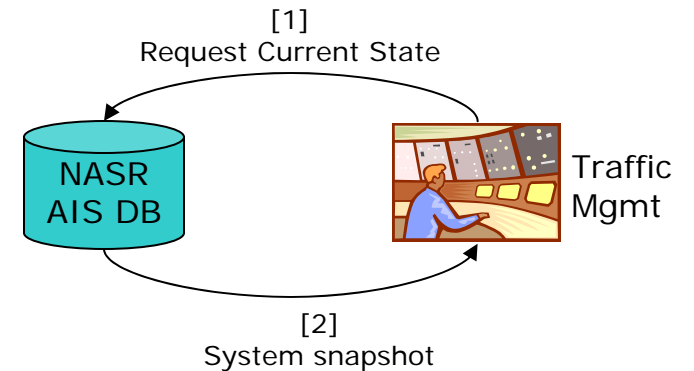
Reference to
organisation

Extension
containing
transmission
power

Worked example

November 24, 2005 – Traffic flow recurring request

Purpose	Update Traffic Flow Management dashboard with information on current system state
Message [1]	
Submitter	Traffic Management
Receiver	NASR AIS DB
Triggering Event	30 minute dashboard update
Message Content	A request for the state of all NAS facilities
Message Processing	NASR will use this message to query the database for the system state.
Message [2]	
Submitter	NASR AIS DB
Receiver	Traffic Management
Triggering Event	Receive update request
Message Content	Snapshot of requested aeronautical data
Message Processing	Traffic management will have the state of the system at a single time. This could be used to update graphical displays.



Worked example

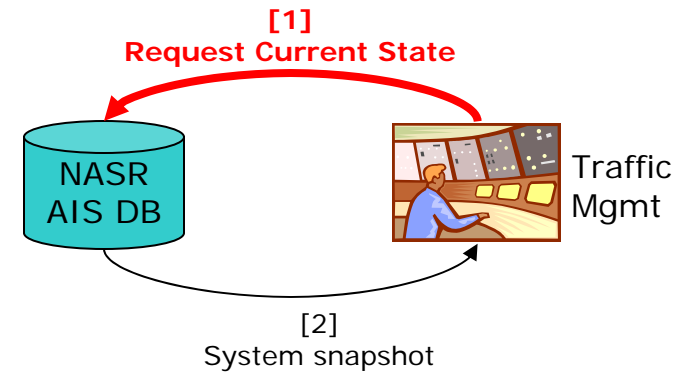
November 24, 2005 – Traffic flow recurring request

Message [1]: Request

Message Identifier

Message Time

Query



Worked example

November 1, 2006 – Facilities models AML upgrade

Message [1]

```
<?xml version="1.0" encoding="UTF-8"?>
<faa:NASRQueryRequest xmlns:faa="www.faa.gov" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml" xmlns:aixm="http://www.aixm.aero"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="www.faa.gov
TestApplicationSchema.xsd http://www.aixm.aero AIXM-GML-ObjectTypes.xsd " gml:id="_001">
  <aixm:identifier codeSpace="www.ual.com">111</aixm:identifier>
  <gml:validTime>
    <gml:TimeInstant>
      <gml:timePosition>2005-11-24T00:00:00</gml:timePosition>
    </gml:TimeInstant>
  </gml:validTime>
  <faa:submitter>www.ual.com</faa:submitter>
  <faa:coverage>ALL</faa:coverage>
</faa:NASRQueryRequest>
```

Message Identifier

Message Time

Query

Worked example

November 24, 2005 – Traffic flow recurring request

Message [2]: System State response

Message Identifier

Message Time

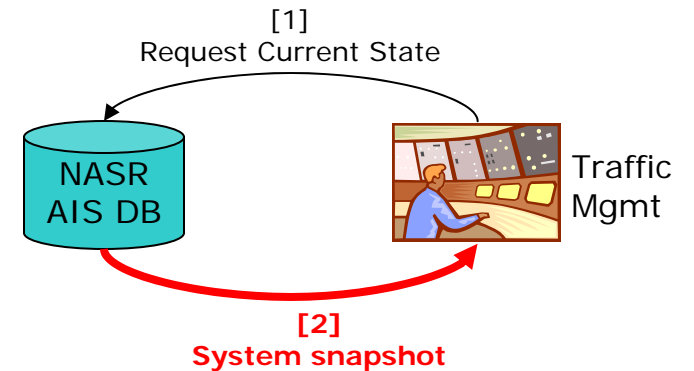
Area of Coverage

Feature Set

AIXM Feature 1
(Snapshot)

⋮

AIXM Feature n
(Snapshot)



Worked example

November 1, 2006 – Facilities models AML upgrade

Message [2]

```
<?xml version="1.0" encoding="UTF-8"?>
<faa:NASRQueryResponse xmlns:faa="www.faa.gov" xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:gml="http://www.opengis.net/gml" xmlns:aixm="http://www.aixm.aero"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="www.faa.gov
TestApplicationSchema.xsd http://www.aixm.aero AIXM-GML-ObjectTypes.xsd " gml:id="_001">
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">1221</aixm:identifier>
  <gml:validTime>
    <gml:TimePeriod>
      <gml:TimeInstant>
        <gml:timePosition>2005-11-24T00:00:00</gml:timePosition>
      </gml:TimeInstant>
    </gml:TimePeriod>
  </gml:validTime>
  <faa:coverage>ALL</faa:coverage>
  <aixm:featureMembers>
    ...
  </aixm:featureMembers>
</faa:NASRQueryResponse>
```

Message Identifier

Message Time

Feature Set
(Snapshot)

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [2]

AML VOR
Snapshot

```
<aixm:VOR gml:id="_003">
  <aixm:identifier codeSpace="www.faa.gov/ato/aim/nasr">939</aixm:identifier>
  <gml:validTime>
    <gml:TimePeriod>
      <gml:beginPosition>1985-01-01T00:00:00</gml:beginPosition>
      <gml:endPosition indeterminatePosition="unknown"/>
    </gml:TimePeriod>
  </gml:validTime>
  <aixm:timeSlice>
    <aixm:VORTimeSlice>
      <gml:validTime>
        <gml:TimePeriod>
          <gml:beginPosition>2005-10-27T00:00:00</gml:beginPosition>
          <gml:endPosition>2005-11-23T00:00:00</gml:endPosition>
        </gml:TimePeriod>
      </gml:validTime>
      <aixm:interpretation>SNAPSHOT</aixm:interpretation>
      <aixm:codeID>AML</aixm:codeID>
      <aixm:location>
        <gml:Point>
          <gml:pos>-101.3929 25.323</gml:pos>
        </gml:Point>
      </aixm:location>
      <aixm:name>ARMEL VORTAC</aixm:name>
      <aixm:type>VOR</aixm:type>
      <aixm:frequency uom="Hz">132.50</aixm:frequency>
      <aixm:operatingTo>
        <aixm:TimeTable>
          <aixm:workingHoursCode>H24</aixm:workingHoursCode>
        </aixm:TimeTable>
      </aixm:operatingTo>
    </aixm:VORTimeSlice>
  </aixm:timeSlice>
</aixm:VOR>
```

Worked example

November 1, 2006 – Facilities models AML upgrade

Message [2]

AML VOR
Snapshot
continued

```
<aixm:underAuthorityOf xlink:href="www.faa.gov/ato/aim/nasr#  
  //aixm:Organization[aixm:identifier='232' or  
  (aixm:timeSlice/OrganizationTimeSlice/interpretation = 'BASELINE'  
  and aixm:timeSlice/OrganizationTimeSlice/ID='FAA')"/>  
<aixm:status>ONTEST</aixm:status>  
<aixm:extension>  
  <faa:VorExtension>  
    <faa:power uom="W">100000</faa:power>  
  </faa:VorExtension>  
</aixm:extension>  
</aixm:VORTimeSlice>  
</aixm:timeSlice>  
</aixm:VOR>
```