



**FNS Digital NOTAM
Progress!**

Industry Day Notices to Airmen

Aeronautical Information Management
System Operations
Air Traffic Organization
Federal Aviation Administration
October 14, 2009



**Federal Aviation
Administration**



Why Modernize?

- **We must respond to customer concerns**
 - ICAO standardization
 - Local NOTAM accessibility
 - Data reliability, accuracy, and timeliness
 - Digital delivery of data
- **We need to operate more efficiently**
 - Resources are limited
 - Improved service delivery without increase in cost



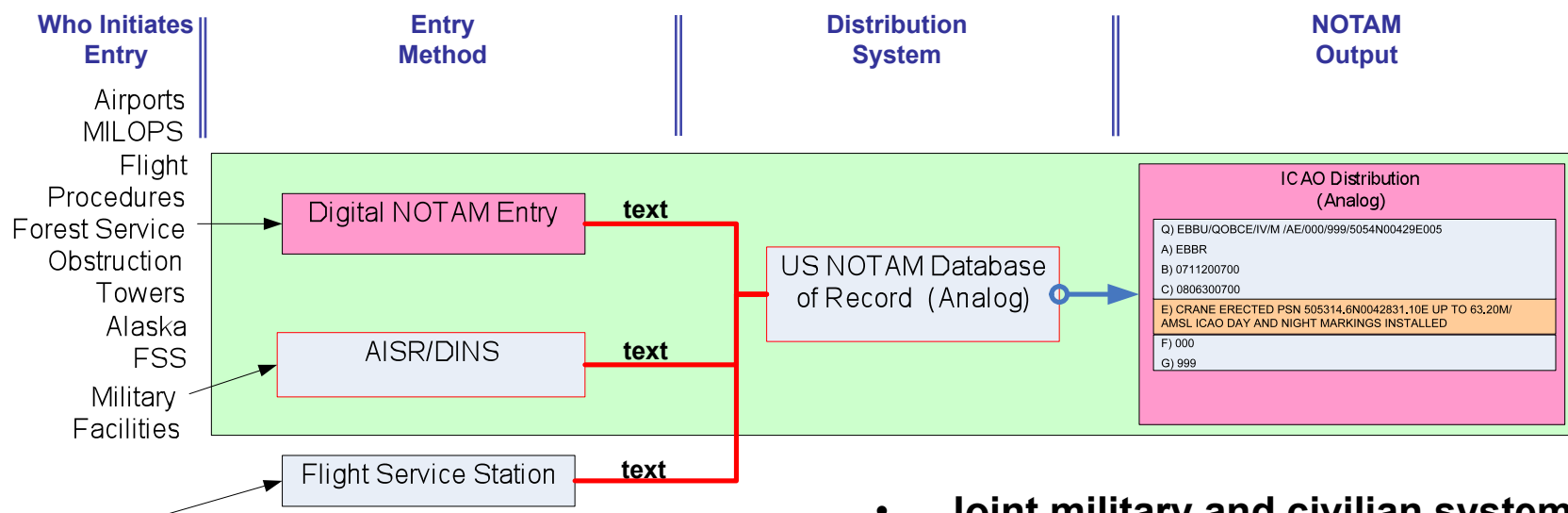
Modernization Goals

- **Improve NOTAM quality**
 - Too much data lacking meaningful information
 - Difficult to understand
 - Lack graphical depiction
 - Standardize policy and procedures
 - Reliability and accessibility improvements
 - Digital data exchange will enhance filtering and sorting
- **Conform to ICAO standards**
- **Centralize storage and distribution**
- **Infrastructure Improvements**
 - Digital data exchange with graphical depiction
- **Provide a single source for all NOTAMs**
 - Consolidate inefficient legacy systems for improved customer service
- **Balance diverse customer needs**
 - General Aviation, Airlines, Military, ATC, International



Federal NOTAM System (Version 1.0)

2008 2009 2010 2011 2012 2013 2014+



USNS = United States NOTAM System
 DINS = Defense Internet NOTAM Service
 AISR = Aeronautical Information Service Replacement

- Joint military and civilian system
- ICAO-compliant NOTAM distribution
- Consolidated NOTAM entry
- Consolidated NOTAM distribution

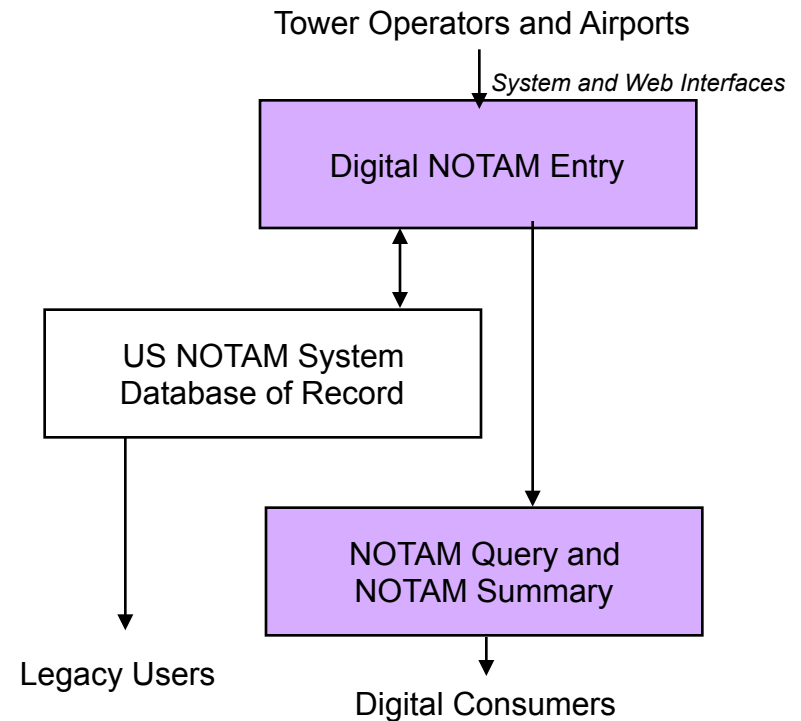


Federal NOTAM System 2009 Demonstration

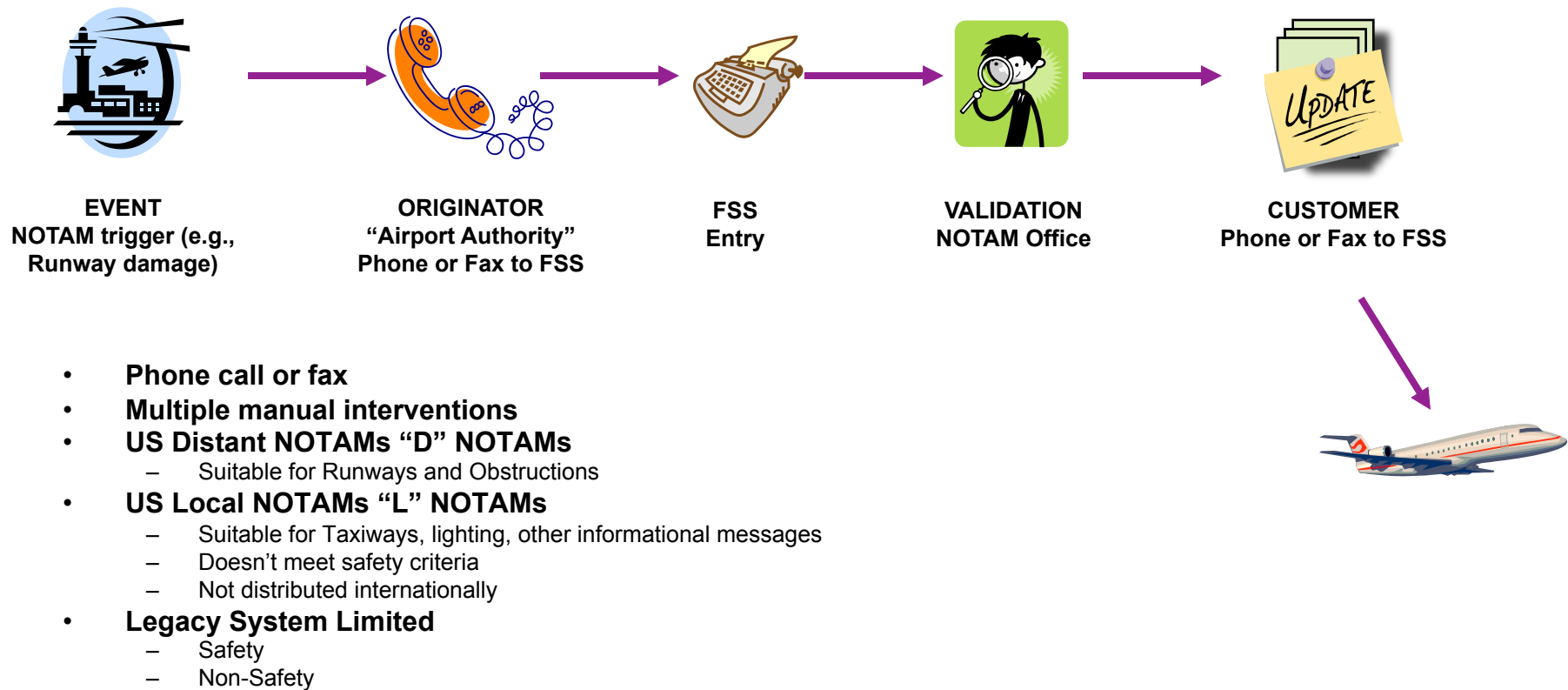
2008 2009 2010 2011 2012 2013 2014+



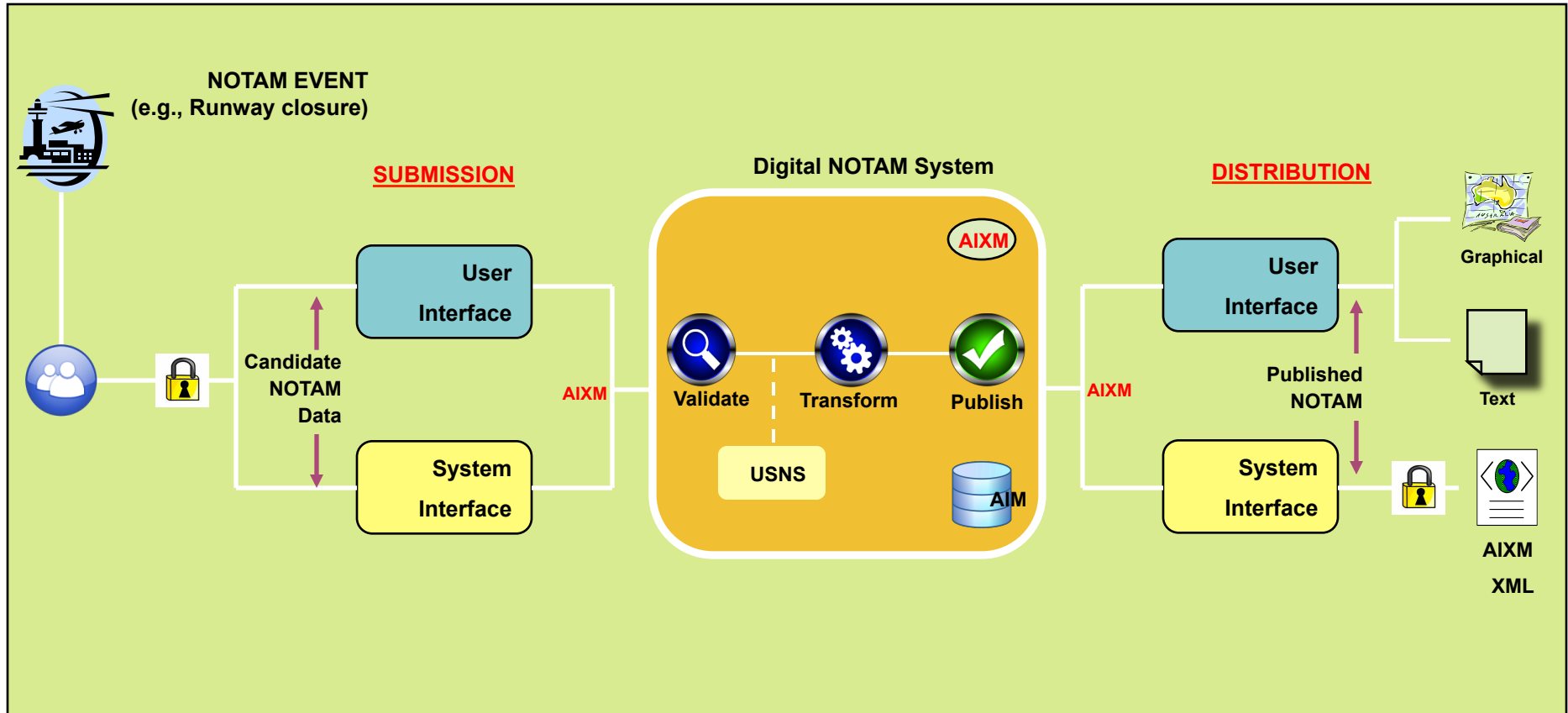
- **Digital Entry**
 - Runway closures and snow conditions
 - Tower lights out
- **Web site concepts**
 - Airport NOTAM summary
 - NOTAM queries
- **Concept validation**
 - Technology, Policy, Safety and Outreach
 - Field studies
 - Limited deployment demonstrations



Airport NOTAMs – As Is

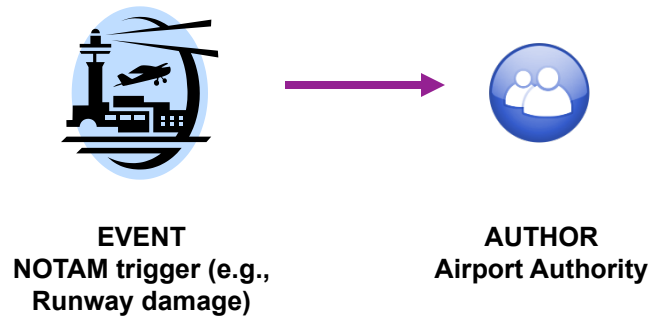


Federal NOTAM System - To Be



Operations

NOTAM Origination



Originate NOTAM at the Source

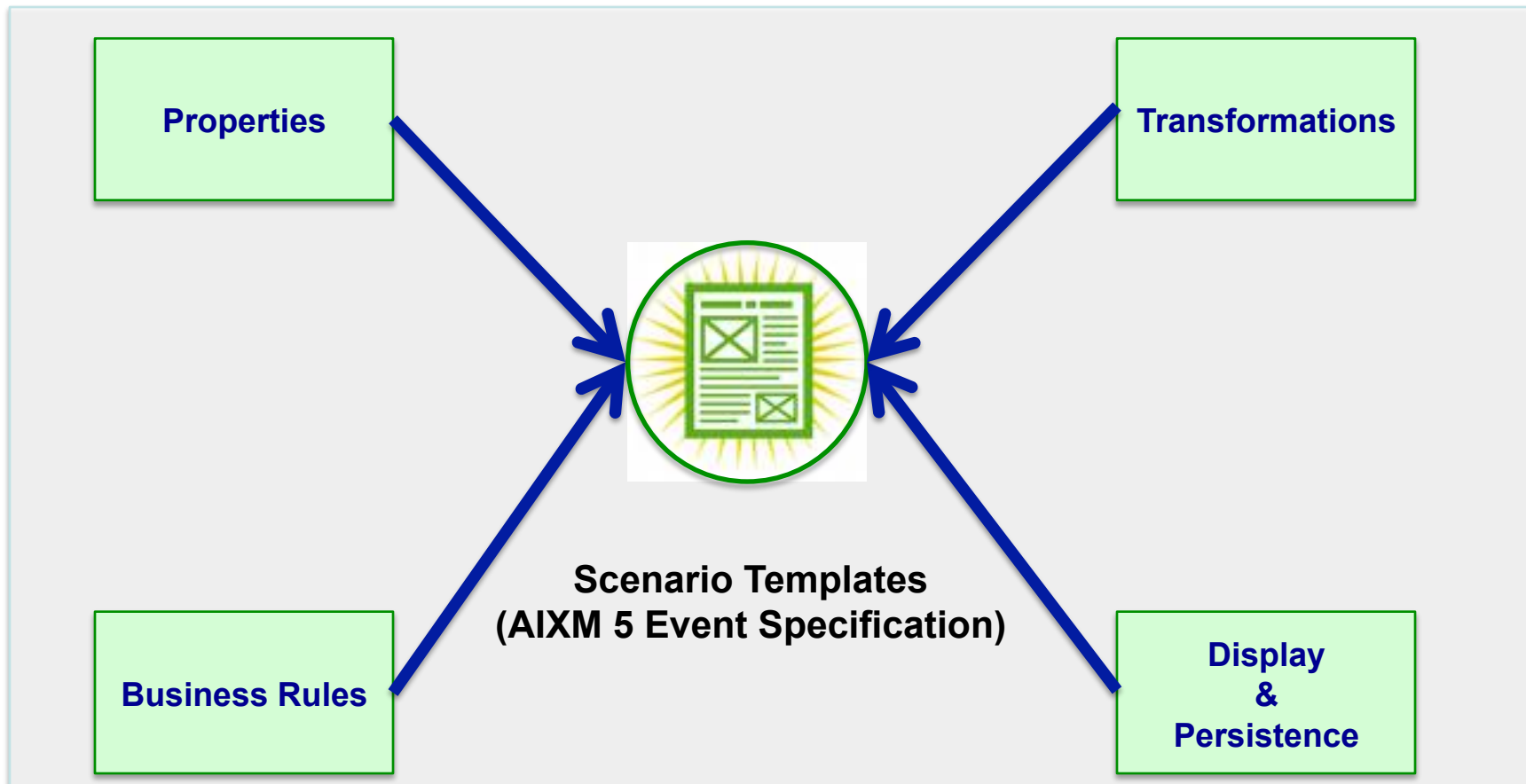
Data integrity
Traceability
Encode digitally

Runway	
Runway:	17R/35L
Runway Operation Status:	Closed
Marking:	
Modify Runway Length:	
	ft from Runway direction

- Minimize free form text
- Pre-populated data scenarios
- Based on NASR data base
- Quality assurance at the source
- Enables direct submission to FAA without manual intervention

FNS Scenario Based Approach

Scenario - A predefined list of properties that can be used to report an event that causes changes to an aeronautical feature.



NOTAM Sentence

Or, What are we trying to capture?

- `<Class/Type> <element><feature/service> <action/message/change>
<reference><exceptions><contact info><start time><end time>`

- **Example**

1

- `<Class/Type>`

- D NOTAMs calculated via **Keyword**

2

- `<element>`

- This is the **where** in the message

- Runway, Taxiway, Apron,

- We can derive the where from the selected object

- `<feature/service>` (Optional)

- Describe **what** part or service of the element

3

- `<action/message/change>`

- `<reference>` (Optional, the **why**)

- `<exceptions>` (Optional)

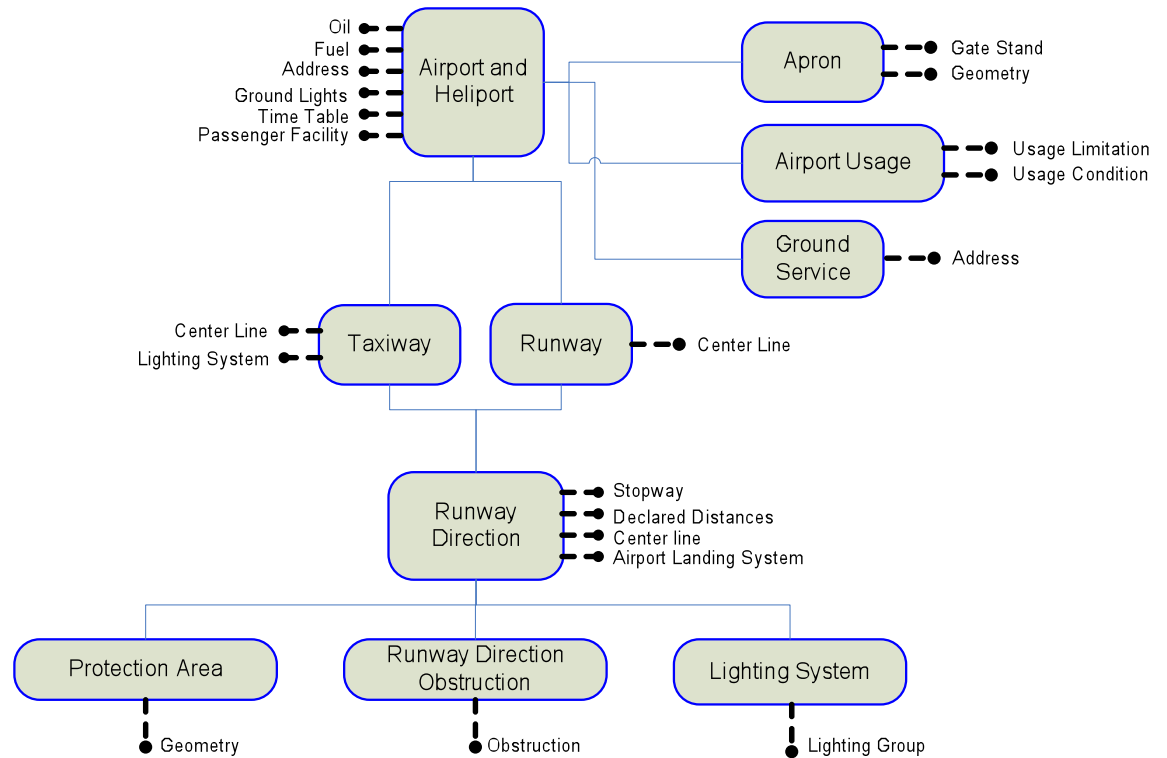
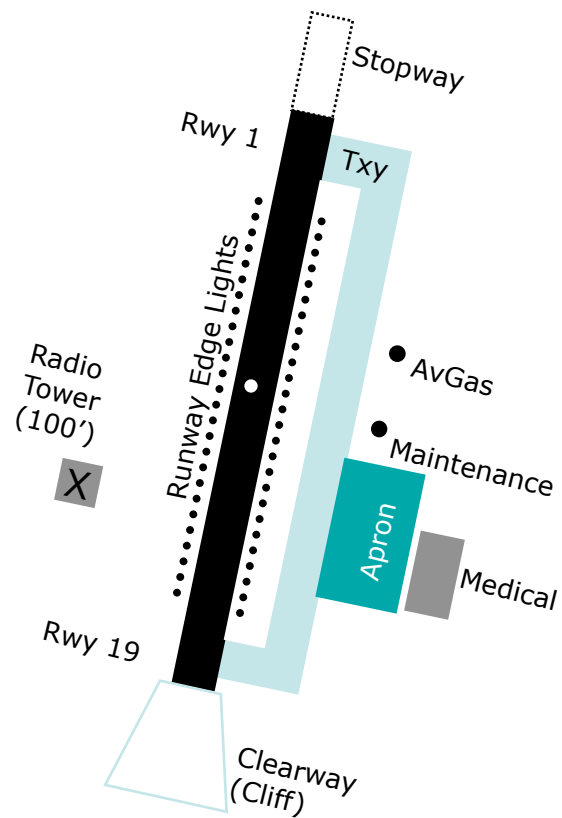
- `<contact info>` (Optional)

- `<start time>` **when**

- `<end time>`

What does Digital mean?

Airports and Runways Example



What does Digital look like?

```
<Rwy>
  <RwyUid>
    <AhpUid><codeId>IR15</codeId></AhpUid>
    <txtDesig>Runway</txtDesig></RwyUid>
    <valLen>7000</valLen>
    <valWid>500</valWid>
    <uomDimRwy>FT</uomDimRwy>
    <codeComposition>ASPH</codeComposition>
    <codeCondSfc>GOOD</codeCondSfc>
  </Rwy>
<Rcp>
  <RcpUid>
    <RwyUid>
      <AhpUid><codeId>IR15</codeId></AhpUid>
      <txtDesig>Runway</txtDesig></RwyUid>
      <geoLat>15.85N</geoLat>
      <geoLong>59.00E</geoLong>
    </RcpUid>
    <codeDatum>WGE</codeDatum>
  </Rcp>
```

XML



Digital Goal

- **Sort - Order the data**
- **Filter - Geographic, temporal, or logical extract**
- **Transpose – Convert data to graphic**
- **Alert - Evaluate the data and take action**
- **Fuse – Ability to merge multiple datasets**



FNS: Using the software

– Website Interface


- Public Search
- NOTAM Manager
 - Secure Login
 - Baseline data
- ATC Search
 - Secure Login

– System Interface

- Representational State Transfer (REST) - based Web Service
- Third Party Software developers can submit NOTAMs



NOTAMS.AIM.FAA.GOV

 Federal Aviation Administration

« Federal NOTAM System (FNS) - Beta

Useful Links

- [AIM News](#)
- [NOTAM Manual](#)
- **NOTAM D**
 - [Poster](#)
 - [Brochure](#)
- **AIXM**
 - [FAA](#)
 - [AIXM.aero](#)

Federal NOTAM System (FNS) - Beta
Welcome!

If you have any questions relating to FNS applications please email fns@faa.gov. If you need an urgent reponse please contact [Daniel Miller](#) 202-385-7040.

FNS Applications (Please read warnings below)

- [Public NOTAM Search](#) (*Public Access*)
- [ATC NOTAM Search](#) (*Restricted*)
- [Digital NOTAM Entry](#) (*Demo*)

NOTAM Industry Day(October 14, 2009 at 800 Independence Ave SW, Washington DC)
The FAA Office of Airspace and Aeronautical Information Management (AIM) is hosting a NOTAM Industry Day on October 14, 2009 from 9 AM to approximately 4 PM in the Bessie Coleman Room of FAA Headquarters, 800 Independence Ave SW, Washington DC. The purpose of the meeting is to update internal and external stakeholders about the FAA's progress and plans towards modernizing the NOTAM system.

Draft Agenda:


- 09:00 AM Introduction
- 09:30 AM AIM Modernization goals
- 10:00 AM Update - GNSS/RAIM/PilotWeb
- 12:00 PM -- lunch on your own --
- 13:30 PM Update - Digital NOTAM
- 14:15 PM Field Implementation - Airports
Field Implementation - ATC
- 15:30 PM ICAO NOTAM Roadmap
- 16:00 PM Conclusions

The meeting is open to the public but space is limited. Please arrive approximately 15-30 minutes early to complete security screening.

Done Trusted sites



Public NOTAM Search (External Page)



Federal Aviation Administration

***** DISCLAIMER: Please note that your official source for NOTAMs is your Flight Service Station. *****

[Leave Feedback](#)

digital - AIM FNS | NOTAM Search

UTC: Thu 27 Aug 2009 1722

Search Criteria A- A+ [Print] [Refresh]

NOTAMs within 10 NM around BOS

Location	NOTAM #	Class	Start Date UTC	End Date UTC	NOTAM Condition
ZBW	07/394	Airspace	09/29/2009 1800	09/29/2009 2000	AIRSPACE W105A 10000-FL500 AVOIDANCE ADVISED WEF 0909291800...
ZBW	07/393	Airspace	09/29/2009 1400	09/29/2009 1600	AIRSPACE W105A 10000-FL500 AVOIDANCE ADVISED WEF 0909291400...
ZBW	07/381	Airspace	09/29/2009 1230	09/29/2009 1400	AIRSPACE ADIRONDACK A MOA 6000-17900 WEF 0909291230-0909291...
ZBW	07/389	Airspace	09/29/2009 1230	09/29/2009 1400	AIRSPACE TUPPER EAST MOA 10000-17900 WEF 0909291230-0909291...
ZBW	07/388	Airspace	09/29/2009 1230	09/29/2009 1400	AIRSPACE TUPPER CENTRAL MOA 8000-17900 WEF 0909291230-09092...
ZBW	07/387	Airspace	09/29/2009 1230	09/29/2009 1400	AIRSPACE LOWVILLE MOA 100-17900 WEF 0909291230-0909291400
ZBW	07/386	Airspace	09/29/2009 1230	09/29/2009 1400	AIRSPACE CARTHAGE WEST MOA 6000-17900 WEF 0909291230-090929...
ZBW	07/385	Airspace	09/29/2009 1230	09/29/2009 1400	AIRSPACE CARTHAGE EAST MOA 100-17900 WEF 0909291230-0909291...
ZBW	07/384	Airspace	09/29/2009 1230	09/29/2009 1400	AIRSPACE ADIRONDACK D MOA 5000-17900 WEF 0909291230-0909291...
ZBW	07/383	Airspace	09/29/2009 1230	09/29/2009 1400	AIRSPACE ADIRONDACK C MOA 100-17900 WEF 0909291230-090929140...
ZBW	07/382	Airspace	09/29/2009 1230	09/29/2009 1400	AIRSPACE ADIRONDACK B MOA 2500-17900 WEF 0909291230-0909291...
ZBW	07/392	Airspace	09/29/2009 1230	09/29/2009 1400	AIRSPACE YANKEE 1 MOA 9000-17900 WEF 0909291230-0909291400
ZBW	07/391	Airspace	09/29/2009 1230	09/29/2009 1400	AIRSPACE TUPPER WEST MOA 8000-17900 WEF 0909291230-090929140...
ZBW	07/390	Airspace	09/29/2009 1230	09/29/2009 1400	AIRSPACE TUPPER SOUTH MOA 8000-17900 WEF 0909291230-0909291...
BOS	08/226	Taxiway	08/26/2009 1734		TWY C PAEW BTWN TWY M AND RWY 4R
BOS	08/225	Taxiway	08/26/2009 1733		TWY PAEW IN GRASS AREA OF TWY A,B BTWN TWY K,N
BOS	08/223	Taxiway	08/26/2009 1015		● TWY D CLSD BTN RWY 15R/33L AND RWY 9/27
BOS	08/222	Taxiway	08/26/2009 0945	09/09/2009 2359	● TWY D NEW EXTENSION CLSD BTN TWY C AND RWY 4R/22L TIL 09090...
BOS	08/209	Taxiway	08/24/2009 1210		● TWY C CLSD BTWN RWY 4R/22L AND RWY 9/27
BOS	08/199	Runway	08/23/2009 1806		● RWY 15L/33R CLSD
BOS	08/187	Taxiway	08/20/2009 1005		● TWY M CLSD TO HEAVY ACFT BTWN TWY C,E
BOS	08/184	Runway	08/20/2009 1000		RWY 9/27 UNGROOVED BTN AER 8 AND TWY C
BOS	08/180	Obstruction	08/19/2009 2338		OBST CRANES (150 AGL) 1 W AER 9 UNLGTD
BOS	08/171	Taxiway	08/19/2009 0256	10/31/2009 2359	● TWY G CLSD TIL 0910312359
BOS	08/133	Runway	08/15/2009 0123		● RWY 14/32 CLSD EXC TXG
BOS	08/126	Obstruction	08/14/2009 1707	04/01/2010 0001	OBST CRANE 647 (630 AGL) 1 WSW AER 14 ON QUARRY HELICOPTER R...
BOS	08/108	Obstruction	08/13/2009 1445	04/01/2010 0001	OBST CRANE 614 (697 AGL) 1 WSW ON QUARRY HELICOPTER ROUTE (...)
BOS	08/098	Taxiway	08/13/2009 1031		TWY E BTN RWY 4R AND RWY 9 UNGROOVED
ZBW	07/435	Airspace	08/01/2009 0000	08/31/2009 2359	AIRSPACE W105A 10000/BLW AVOIDANCE ADVISED WEF 0908010000-0...
ZBW	07/439	Airspace	08/01/2009 0000	08/31/2009 2359	AIRSPACE W106C 5000/BLW AVOIDANCE ADVISED WEF 0908010000-09...
ZBW	07/438	Airspace	08/01/2009 0000	08/31/2009 2359	AIRSPACE W106B 5000/BLW AVOIDANCE ADVISED WEF 0908010000-09...
ZBW	07/437	Airspace	08/01/2009 0000	08/31/2009 2359	AIRSPACE W106A 3000/BLW AVOIDANCE ADVISED WEF 0908010000-09...
ZBW	07/436	Airspace	08/01/2009 0000	08/31/2009 2359	AIRSPACE W105B 5000/BLW AVOIDANCE ADVISED WEF 0908010000-09...
BOS	07/353	Navaid	07/31/2009 1131		NAV VOR UNMNT

Class Filter is OFF

Filter Results

NOTAM Number:

Condition word:

NOTAM Counts

BOS 29

ZBW 40

Showing results 1 to 50 of 69 Page 1 of 2 << < > >>



Digital Capture

Federal Aviation Administration | My Profile | Preferences | Help | Logout

Digital - AIM | NOTAM - Manager

NOTAM Manager [Feedback](#) | Barry Davis | September 10 2009 THU 1232 UTC

Airports

DEN-Denver Intl

ALL (3 / 11)

- Aerodrome (0 / 1)
- Apron (0 / 1)
- Communication (0 / 0)
- Navigation (0 / 0)
- Obstruction (0 / 0)
- Runway (3 / 7)
- Services (0 / 0)
- Taxiway (0 / 2)

Keyword	Designator	Condition	Number	Start Date UTC	End Date UTC	Status
Taxiway	AN	Generic Form	-	09/09/2009 07:42	09/11/2009 10:10	Draft
Taxiway	B	Generic Form	-			Draft
Runway	17R	Runway Visual Range Status	09/042	09/00/2009 20:00	09/30/2009 12:10	Cancelled
Runway	08	Generic Form	-			Draft
Runway	26	Declared Distance	09/051	09/10/2009 12:25	09/11/2009 12:12	Active
Runway	35L	Threshold Displacement	09/039	09/00/2009 19:10	09/09/2009 12:10	Expired
Runway	07/25	Closure	09/050	09/10/2009 12:23	09/11/2009 14:00	Active
Runway	34R	Threshold Displacement	09/038	09/08/2009 18:48	09/22/2009 10:20	Active
Runway	00/26	Generic Form	09/043	09/09/2009 07:36	09/10/2009 12:12	Expired
Runway	34L	Approach Lighting Status	-			Draft
Runway	00/26	Closure	09/044	09/09/2009 14:54	09/11/2009 12:00	Cancelled
Runway	00/26	Closure	09/045	09/09/2009 14:55	09/10/2009 12:00	Expired
Runway	16L/34R	Closure	09/046	09/09/2009 15:16	09/09/2009 15:20	Expired
Runway	16L	Threshold Displacement	09/047	09/09/2009 15:10	09/10/2009 10:00	Expired
Runway	08	Marking Change	-	09/09/2009 20:19	09/30/2009 20:00	Draft
Runway	34R	Marking Change	09/049	09/09/2009 20:21	09/10/2009 10:10	Expired
Runway	34L	Marking Change	-	09/10/2009 12:09	09/24/2009 10:10	Draft
Runway	34L	Marking Change	-			Draft
Runway	25	Runway Visual Range Status	-			Draft
Runway	17R/35L	Closure	-	09/10/2009 08:32	09/10/2009 12:00	Draft
Apron	B Concourse South	Generic Form	-			Draft
Aerodrome	DEN	Generic Form	-	09/08/2009 23:27	09/08/2009 00:00	Draft

NOTAM Summary ALL - All [22 records]

Done Trusted sites



Digital Capture Scenarios

- **Generic Scenario (Simple)**
 - AD/RWY/APRON Closure
 - Service OTS
 - Personnel and Equipment Working (PAEW)
 - Birds in the area
- **Use Case Scenarios (More Complex)**
 - Purpose is to capture the complex information digitally
 - PAPI Out of Service (Simple)
 - Field Condition (Very Complex)
- **Free Text (Mostly Textual)**



Generic Scenario

Federal Aviation Administration | **Digital - AIM | NOTAM - Manager**

My Profile | Preferences | Help | Logout

Barry Davis | September 11 2009 FRI 1218 UTC

NOTAM Manager [Feedback](#)

[New](#) | [Cancel NOTAM](#) | [Replace](#) | [Clone](#) | [Discard](#) | [Save as Draft](#) | [Error Check](#) | [Submit NOTAM](#) | [All](#)

Airports

DEN-Denver Intl

- ALL (7 / 14)
 - Aerodrome (0 / 1)
 - Apron (0 / 2)
 - Communication (0 / 0)
 - Navigation (0 / 0)
 - Obstruction (0 / 0)
 - Runway (7 / 7)**
 - Services (0 / 0)
 - Taxiway (0 / 4)

NOTAM Template: RWY 25 Generic Form

Properties | Schedule | Prior Permission | Comments | Contact Info

Type: Runway

Where: 25

What: PAPI

Action: Out of Service

Additional Text:

Time Duration
 Start Date (UTC) End Date (UTC)
 Start Upon Activation
 MM/dd/yyyy MM/dd/yyyy
 Recurring Schedule

US-FAA | ICAO | Plain Language

DEN XXXXX DEN RWY 25 PAPI OTS

NOTAM Template: RWY 25 Generic Form [View Change Log](#)

NOTAM Summary - ALL - Runway - All [25 records]



Use Case Scenario

The screenshot displays the Federal Aviation Administration's Digital - AIM | NOTAM - Manager interface. The top navigation bar includes the FAA logo, the text "Federal Aviation Administration", and user options: "My Profile", "Preferences", "Help", and "Logout". The main header area shows "Digital - AIM | NOTAM - Manager" and the user's name and date: "Barry Davis | September 11 2009 FRI 1548 UTC".

The interface is divided into several sections:

- NOTAM Manager Feedback:** A secondary header area.
- Toolbar:** Contains actions such as "New", "Cancel NOTAM", "Replace", "Clone", "Discard", "Save as Draft", "Error Check", and "Submit NOTAM".
- Airports:** A sidebar on the left showing a list of airports, with "DEN-Denver Intl" selected. Below it, a list of categories is shown: "ALL (10 / 10)", "Aerodrome (0 / 1)", "Apron (1 / 2)", "Communication (0 / 0)", "Navigation (0 / 0)", "Obstruction (0 / 0)", "Runway (7 / 6)", "Services (0 / 0)", and "Taxiway (2 / 1)".
- NOTAM Form:** The main area displays a form for "NOTAM Template: RWY 25". A dropdown menu is open, showing options: "Marking Change", "Generic Form", "Approach Lighting Status", "Declared Distance", "Marking Change", "Runway Visual Range Status", "Threshold Displacement", "VFR Flight Pattern", and "Free Form". The form includes fields for "Marking Type", "Time Duration" (Start Date and End Date), and a "Recurring Schedule" checkbox.
- Bottom Status Bar:** Shows "NOTAM Template: RWY 25 Marking Change" and "NOTAM Summary - ALL - Runway - All [26 records]".



Free Form Text Scenario

The screenshot displays the 'Digital - AIM | NOTAM - Manager' interface. At the top, the Federal Aviation Administration logo and name are visible on the left, and user navigation links (My Profile, Preferences, Help, Logout) and the system title are on the right. The main header shows the user 'Barry Davis' and the date 'August 27 2009 THU 1736 UTC'. Below this is a toolbar with actions like 'New', 'Cancel NOTAM', 'Replace', 'Clone', 'Discard', 'Save as Draft', 'Error Check', and 'Submit NOTAM'. The left sidebar, titled 'Airports', shows a list of categories: ALL (4 / 3), Aerodrome (0 / 0), Apron (0 / 0), Communication (0 / 0), Navigation (0 / 0), Obstruction (0 / 0), Runway (1 / 3), Services (0 / 0), and Taxiway (3 / 0). The main content area is titled 'NOTAM Manager' and shows a 'Free Form' template for 'RWY 16L/34R' at 'DEN-Denver Intl'. A dropdown menu is open, listing various NOTAM templates such as 'RWY <id> <num> AVBL', 'RWY <id> <num> CMSND', 'RWY <id> <num> FT SNBNK', 'RWY <id> <num> IN BERM', 'RWY <id> <num> IN LSR', 'RWY <id> <num> IN POTHOLES', 'RWY <id> <num> IN PSR', 'RWY <id> <num> IN SIR', 'RWY <id> <num> IN SNBNK', 'RWY <id> AER PAEW', 'RWY <id> AER PAEW ADJ', 'RWY <id> AER WINDSOCK NOT VISIBLE', 'RWY <id> ALS OTS', 'RWY <id> ALS OTS <num> DLY', 'RWY <id> ALS UNMNT', 'RWY <id> ASDA <num>', 'RWY <id> BOW MU <num>', 'RWY <id> BRAF', 'RWY <id> BRAP', 'RWY <id> CLSD', and 'RWY <id> CLSD <num> DLY'. The interface also includes a 'Time Duration' section with 'Start Date (UTC)' and 'End Date (UTC)' fields, and a 'CONTRACTIONS lookup' section with a 'Search contractions' button. The bottom of the interface shows the 'NOTAM Template: RWY 16L/34R | Free Form' and a 'View Chan' link.





New Cancel NOTAM Replace Clone Discard Save as Draft Error Check Submit NOTAM

Airports

DEN-Denver Intl

- ALL (6 / 10)
- Aerodrome (0 / 1)
- Apron (0 / 0)
- Communication (0 / 0)
- Navigation (0 / 0)
- Obstruction (0 / 0)
- Runway (6 / 6)
- Services (0 / 0)
- Taxiway (0 / 3)

Keyword Designator Condition Number Start Date UTC End Date UTC Status

NOTAM Template: RWY 08/26 Runway Condition

Properties Schedule Prior Permission Comments Contact Info

Coverage: Average Depth:

Condition: Braking Action (Optional):

Friction Measurement in thirds from Runway 08

	Touchdown Zone	Midpoint Zone	Rollout Zone
Friction Coefficient:	<input type="text"/> MU	<input type="text"/> MU	<input type="text"/> MU
Friction Measure:	<input type="text" value="BOW - Bowmon"/>		

Clearance (Enter values only if partially cleared)

Cleaning Method: Width: feet

Treatment

Treatment:

Length: feet Width: feet

Snowbank

Depth:

Side of Centerline: Distance from Centerline: feet

Time Duration

Start Date (UTC) End Date (UTC)

Start Upon Activation End in 1 day(s)

Recurring Schedule

US-FAA ICAO Plain Language

IDEN XX/XXX DEN RWY 08/26 SA BOW/WEF
0909101719-0909111719

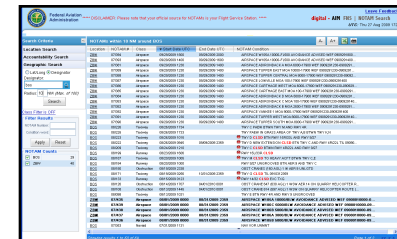
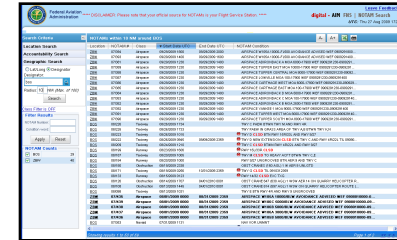
NOTAM Template: RWY 08/26 Runway Condition View Change Log

NOTAM Summary - ALL - Runway - All [22 records]



Distribution

- **Distribution to ATC Facilities**
 - As a Data Service
 - As a Web Page with System Tray
- **External Distribution**
 - With and without a password
- **XML Digital Portal**



Summary

- **NOTAM Entry**
 - Web page and system interface
 - Airport operators – Runway and Snow NOTAMs
 - Tower operators – Tower lights out NOTAMs
 - 2009 Demonstration
- **NOTAM Query and Summary pages**
 - Web pages for distribution
 - Demonstrations available today at <http://notams.aim.faa.gov>
 - Production in 2010
 - After completion of site set up and security



Final Thoughts

- **Digital information management is the key to meeting future air traffic system goals**
 - A clear “Chain of Custody”
 - We can transform data into information usable by customers and computer systems
- **Digital Airport NOTAM**
 - Enable digital entry at the source
 - Improve NOTAM management with the customers



Thank You for your support!



For more information:

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