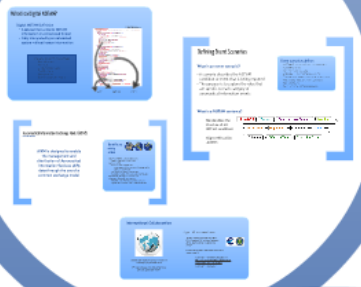
NOTAM Modernization:
Digital NOTAM Event Scenarios



NOTAM Modernization:
NOTAM Origination

NOTAM Modernization:
NOTAM Management

NOTAM Modernization:
NOTAM Distribution

NOTAM Modernization:
Why Modernize?

NOTAM Modernization:
Federal NOTAM System (FNS)
Concept of Operations

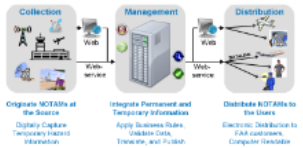
Originate NOTAMs at the Source
Digitally Capture Temporary Hazard Information

Integrate Permanent and Temporary Information
Apply Business Rules, Validate Data, Translate, and Publish

Distribute NOTAMs to the Users
Electronic Distribution to FAA customers, Computer Readable

https://notams.aim.faa.gov

NOTAM Modernization:
FNS Demonstration



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See the progress of digital NOTAMs at the FAA!
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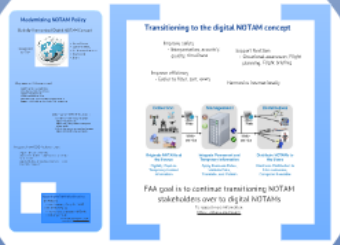
NOTAM Modernization:
What Does the Future Hold?



Global Harmonization Through Collaboration

Federal NOTAM System

Presented By: *Diana Young, FAA, AIM Chief Engineer*
Shaelynn Hales, CNA
Vinod Vallikat, CGH Technologies

Date: *August 30, 2012*

EUROCONTROL

Federal Aviation Administration

AIR TRANSPORTATION INFORMATION EXCHANGE CONFERENCE - (FEATURING AIXM, WXXM AND FIXM)

August 28, 2012 - August 31, 2012
NOAA Auditorium and Science Center
Silver Spring, Maryland

Federal NOTAM System

Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

NOTAMs: Why Modernize?

Digital NOTAMs: Global Foundation

- NOTAM Standardization, AIXM and Event Scenarios

Federal NOTAM System: Today and Tomorrow

- Digital NOTAMs From Origination through Distribution

Digital NOTAM Demonstration

NOTAM Modernization: What Does the Future Hold?

EUROCONTROL

Federal Aviation Administration

NOTAM Modernization: Why Modernize?

Framing the NOTAM Problem

NOTAM Originators

Significant delays

Reporting hazard conditions

NOTAM End Users

Information overload

Irrelevant information

Addressing the NOTAM Problem

NOTAM Originators

Collect information at the source

Standardization supports validation

Reduces delay

NOTAM End Users

Information discovery

Standardization supports understanding

NOTAM Modernization User Benefits

Benefits for the NOTAM Originator

- Quick and easy issuance of NOTAMs
- Improved NOTAM management
- Standardization of NOTAM inputs
- Intuitive user interface
- Instant validation feedback

Benefits for the NOTAM User

- Improved NOTAM understanding through standardized information
- Increased situational awareness
- Improved decision making
- Advanced capabilities

Higher quality NOTAMs

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NOTAM Modernization:
Digital NOTAM Event Scenarios

What is a Digital NOTAM?

Digital NOTAM Definition
- A dataset that contains NOTAM information in a structured format
- Fully interpreted by an automated system without human intervention

Characteristics of Digital NOTAMs
- Geo-referenced
- Temporal
- Linked to static data
- Transformable
- Query-enabled
- Electronically distributable

Defining Event Scenarios

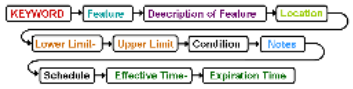
What is an event scenario?
- A scenario describes the NOTAM condition or event that is being reported
- The purpose is to capture the rules that are specific to each category of aeronautical information events

Event scenarios define:
- NOTAM Condition defined in the standard NOTAM sentence
- Minimum required data
- AIXM Mapping of NOTAM elements
- Translations between the digital encoding to FAA legacy, ICAO, and Plain Language
- Business Rules
- Sample Digital NOTAM Messages

What is a NOTAM sentence?

Standardizes the structure of all NOTAM conditions

Aligns with policy updates



Aeronautical Information Exchange Model (AIXM)

AIXM is designed to enable the management and distribution of Aeronautical Information Services (AIS) data through the use of a common exchange model

Benefits to using AIXM

International Collaboration

Digital NOTAM Focus Group

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AIXM (XML) Message

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www.aixm.aero

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Benefits to using AIXM

- Achieve neutrality against applications
  - Display customized for end user
- Improved safety
  - Reduce data inconsistencies
    - Computer readable data means fewer errors for pilots and other users
  - Automated processing of information
  - Ensure the quality of the aeronautical information
- Represents both static and dynamic data
- International Digital Harmonization
  - Establish a set of international standards and specifications for exchanging digital information

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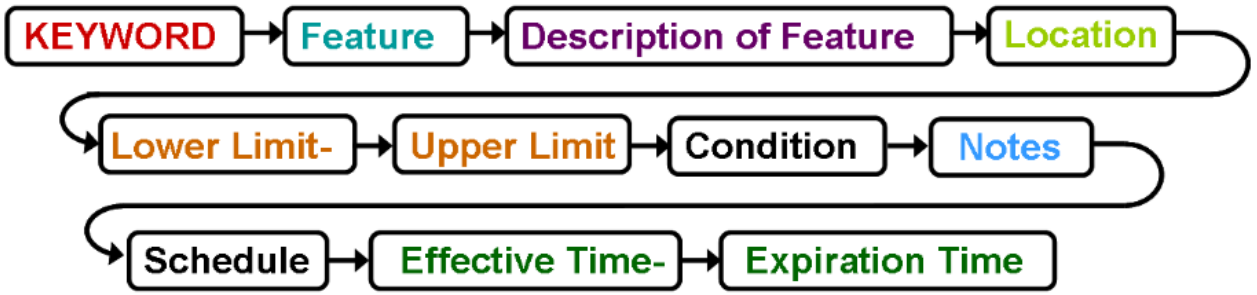

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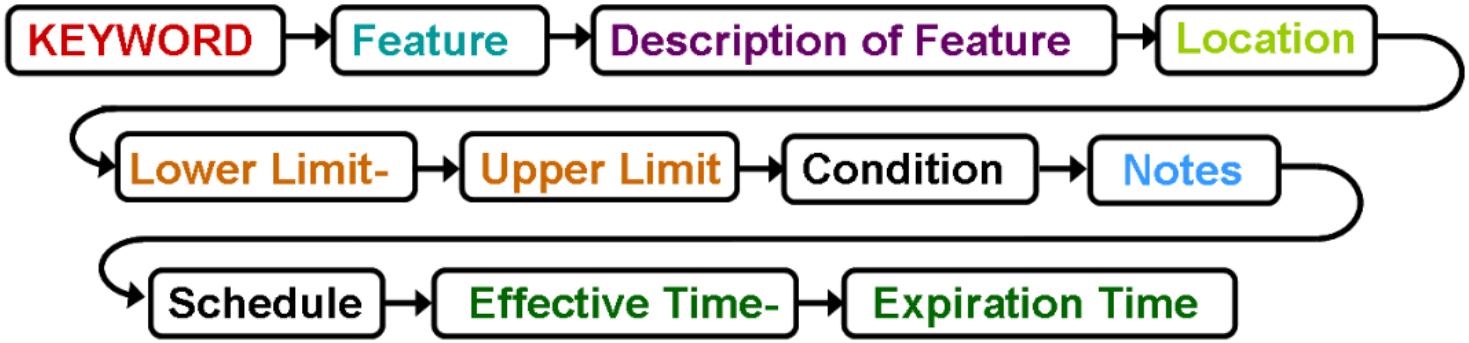

International Collaboration

International standards and specifications for exchanging digital information

Efficient exchange of NOTAM information between operational systems

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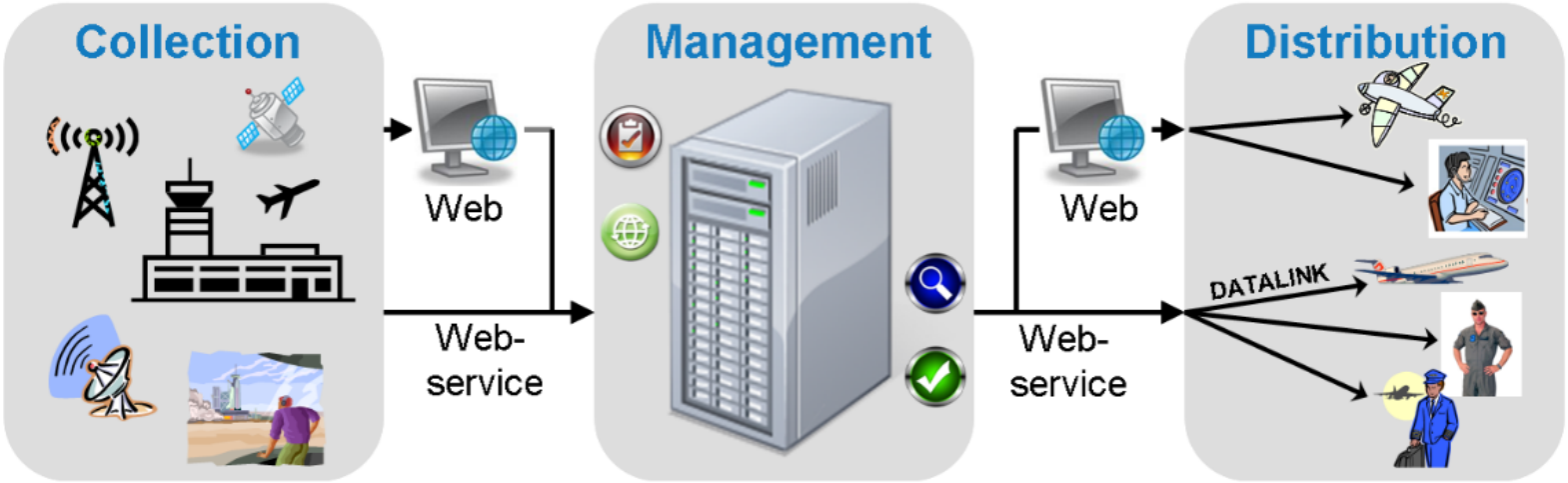
Digital NOTAM Focus Group

- Involves experts from EUROCONTROL, FAA, European Civil Aviation Conference (ECAC) Member States, industry, and airlines

- Defines the digital NOTAM event schema and event scenarios
    - Increment 1 is available to the public at: http://www.aixm.aero/public/standard_page/digital_notam_specifications.html
    - Increment 2 is in progress

NOTAM Modernization: Federal NOTAM System (FNS) Concept of Operations



Originate NOTAMs at the Source

Digitally Capture Temporary Hazard Information

Integrate Permanent and Temporary Information

Apply Business Rules, Validate Data, Translate, and Publish

Distribute NOTAMs to the Users

Electronic Distribution to FAA customers, Computer Readable

https://notams.aim.faa.gov

NOTAM Modernization: NOTAM Origination

Digital NOTAMs
Direct NOTAM Submission
Baseline Data

Analog NOTAMs
Flight Service Approval
Flight Service Coordination

Digital NOTAMs
Direct NOTAM Submission
System-System Interface

NOTAM Modernization: NOTAM Management

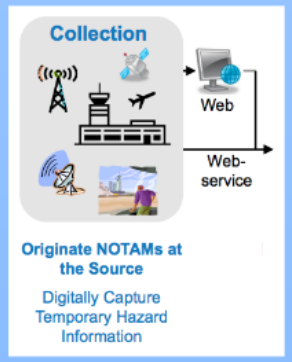
NOTAM Modernization: NOTAM Distribution

NOTAM Search for Public
Graphical NOTAM Display
Contextual Information (Limits)

NOTAM Search for ATC
Search Preferences/Criteria
Assured Delivery

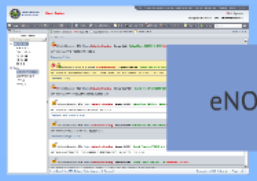
All NOTAMs
System-System Interface
Enables Graphical Display

NOTAM Modernization: NOTAM Origination



NOTAM Manager

Digital NOTAMs
Direct NOTAM Submission
Baseline Data

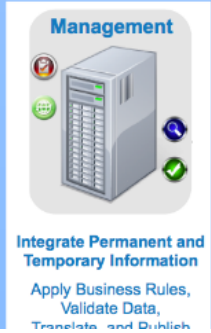


eNOTAM II

Analog NOTAMs
Flight Service Approval
Flight Service Coordination

NOTAM Origination Service

Digital NOTAMs
Direct NOTAM Submission
System-System Interface



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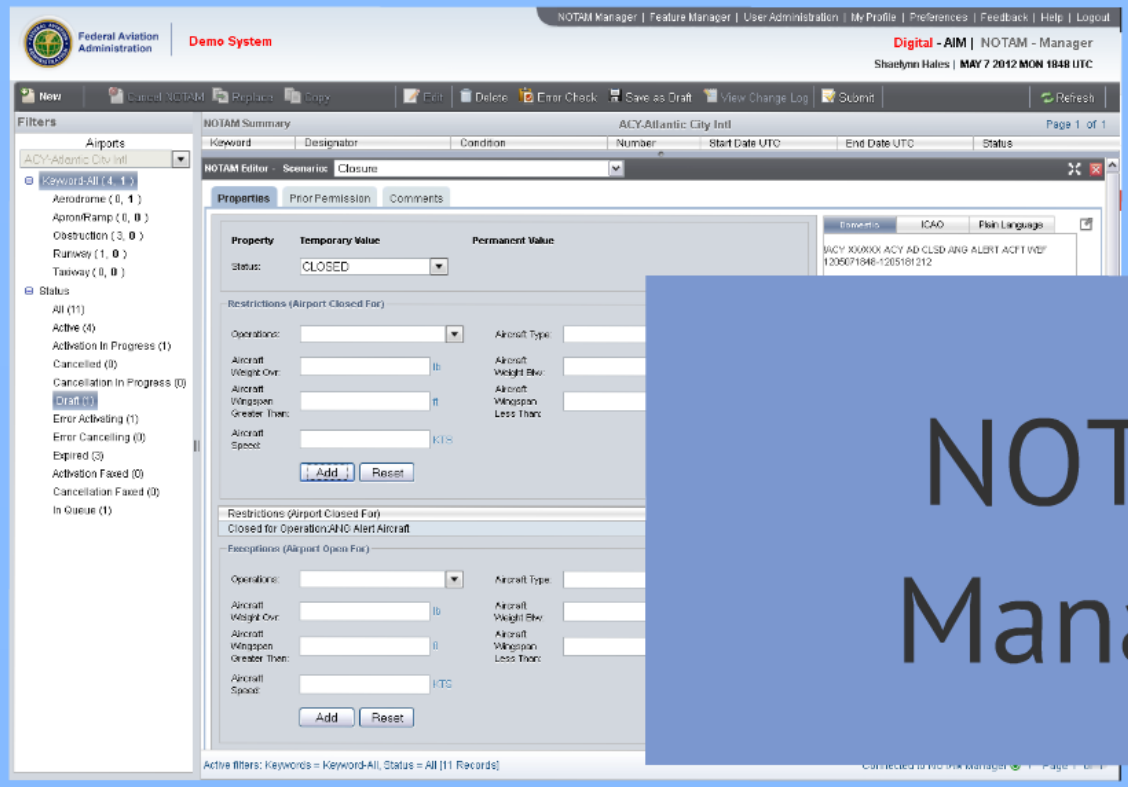

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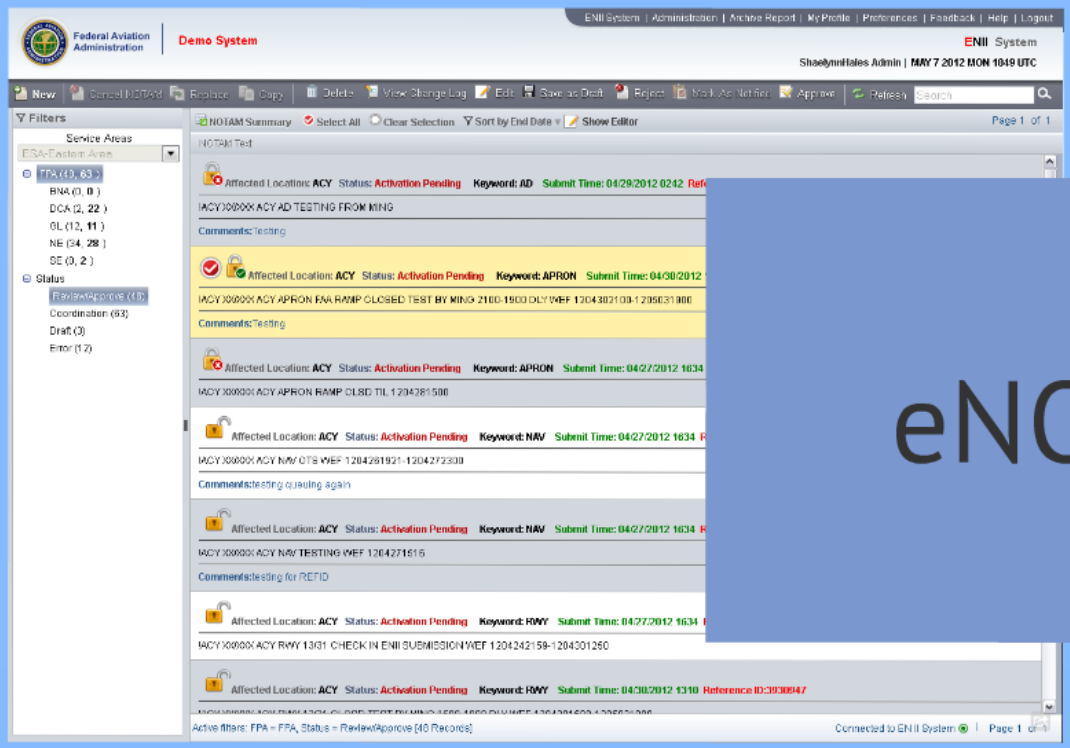
Digital NOTAMs
Direct NOTAM Submission
Baseline Data



eNOTAM II

Analog NOTAMs

Flight Service Approval

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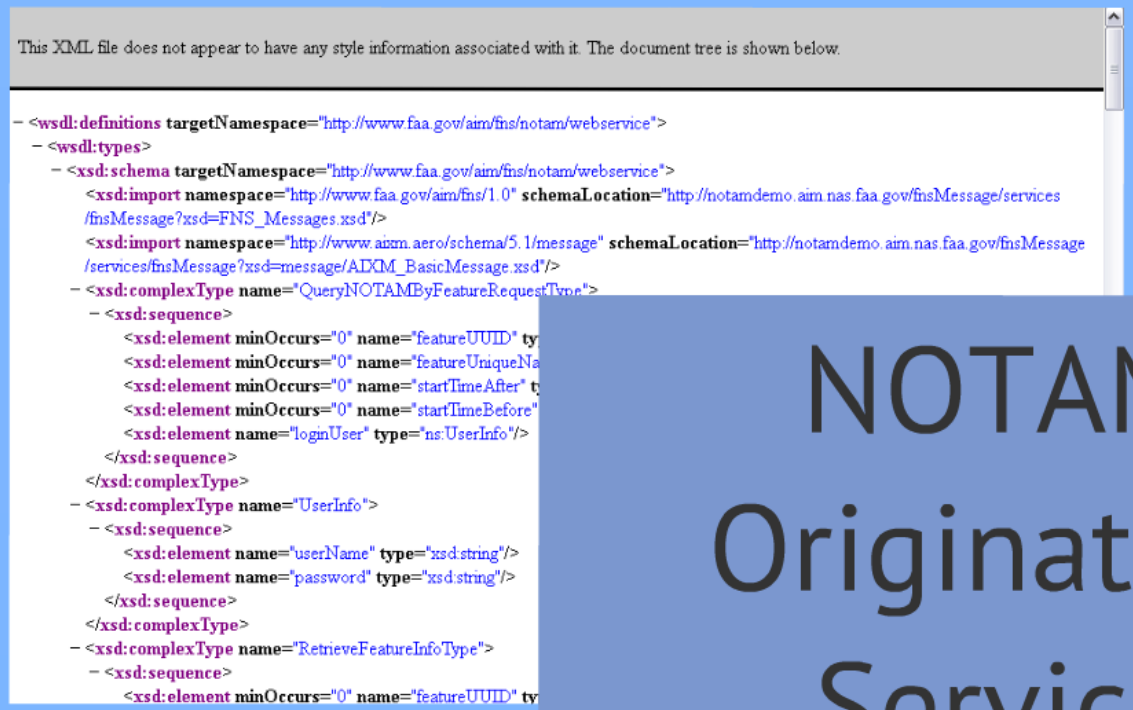


NOTAM Origination Service

Digital NOTAMs
Direct NOTAM Submission
System-System Interface

NOTAM Modernization: NOTAM Management

Integrate Permanent and Temporary Information

Apply Business Rules, Validate Data, Translate, and Publish

FNS Administration

System Monitoring
Event Scenario Management
User Management

Airport Self Certification

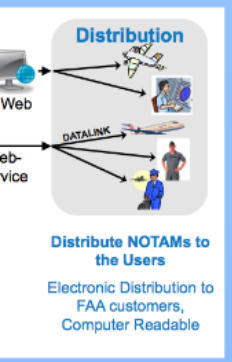
Airport Registration
Agreements
Baseline Data Configuration
User Training Modules
NOTAM Manager Activation

FNS Dashboard

NOTAM Metrics
Safety Case Reports
Digital NOTAM Trends

FNS Database

Legacy NOTAM Sync
Transformation Service



Distribute NOTAMs to the Users

Electronic Distribution to FAA customers, Computer Readable

TAM Search ATC

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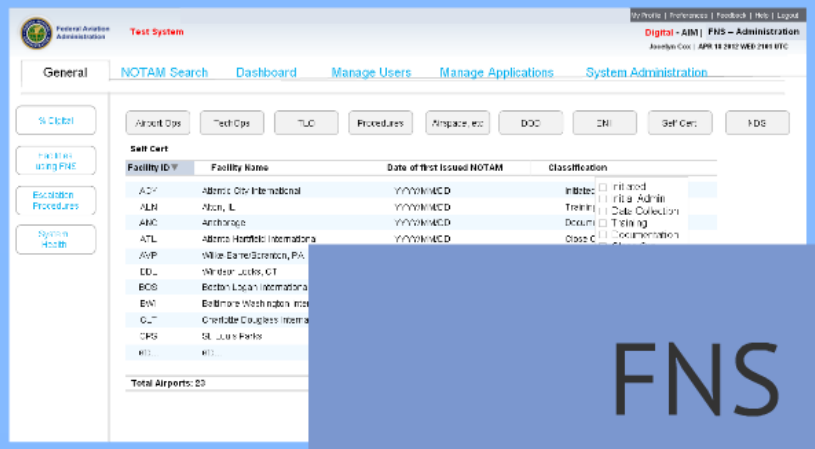

FNS Administration

System Monitoring
Event Scenario Management
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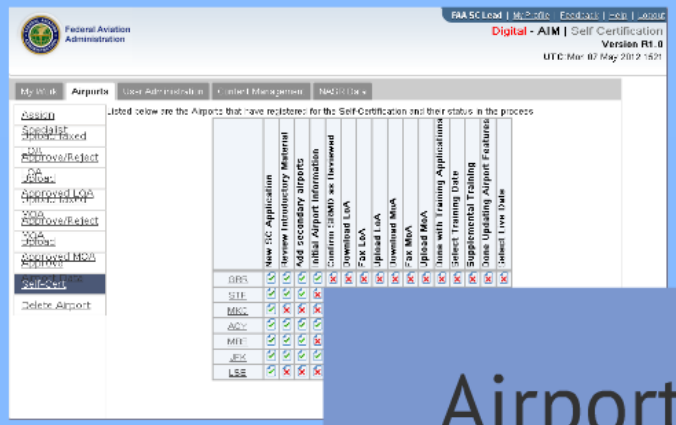

Airport Self Certification

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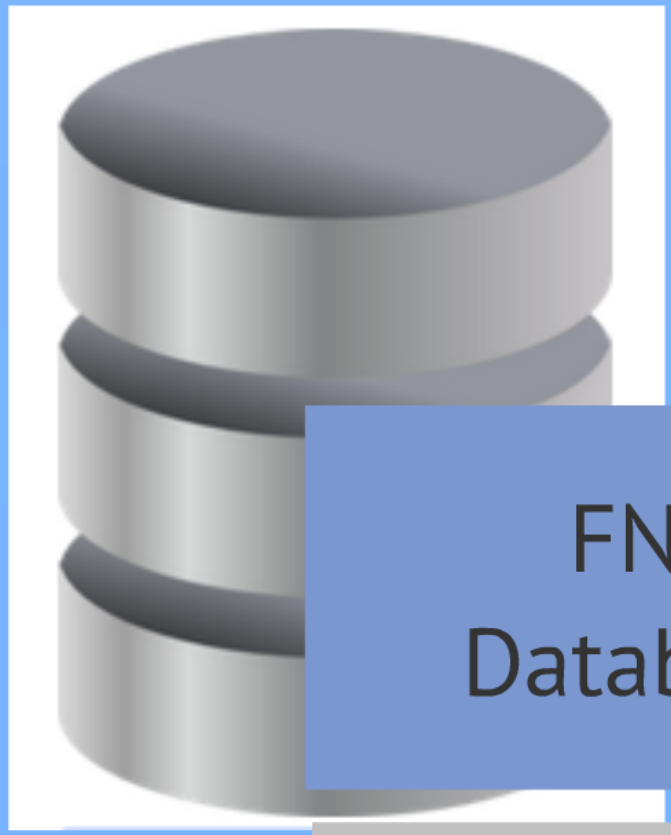

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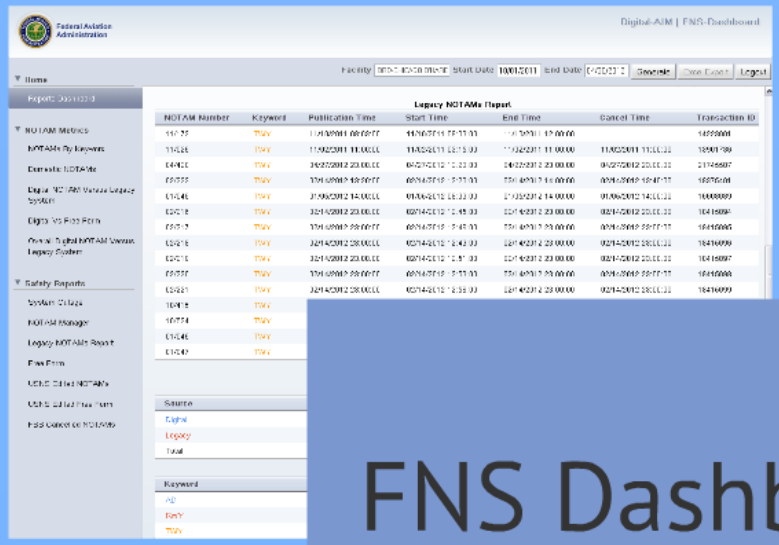

FNS Dashboard

NOTAM Metrics

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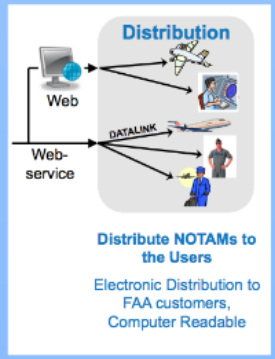
NOTAM Modernization: NOTAM Distribution



NOTAM Search

NOTAM Search for Public
Graphical NOTAM Display
Contextual Information (Links)

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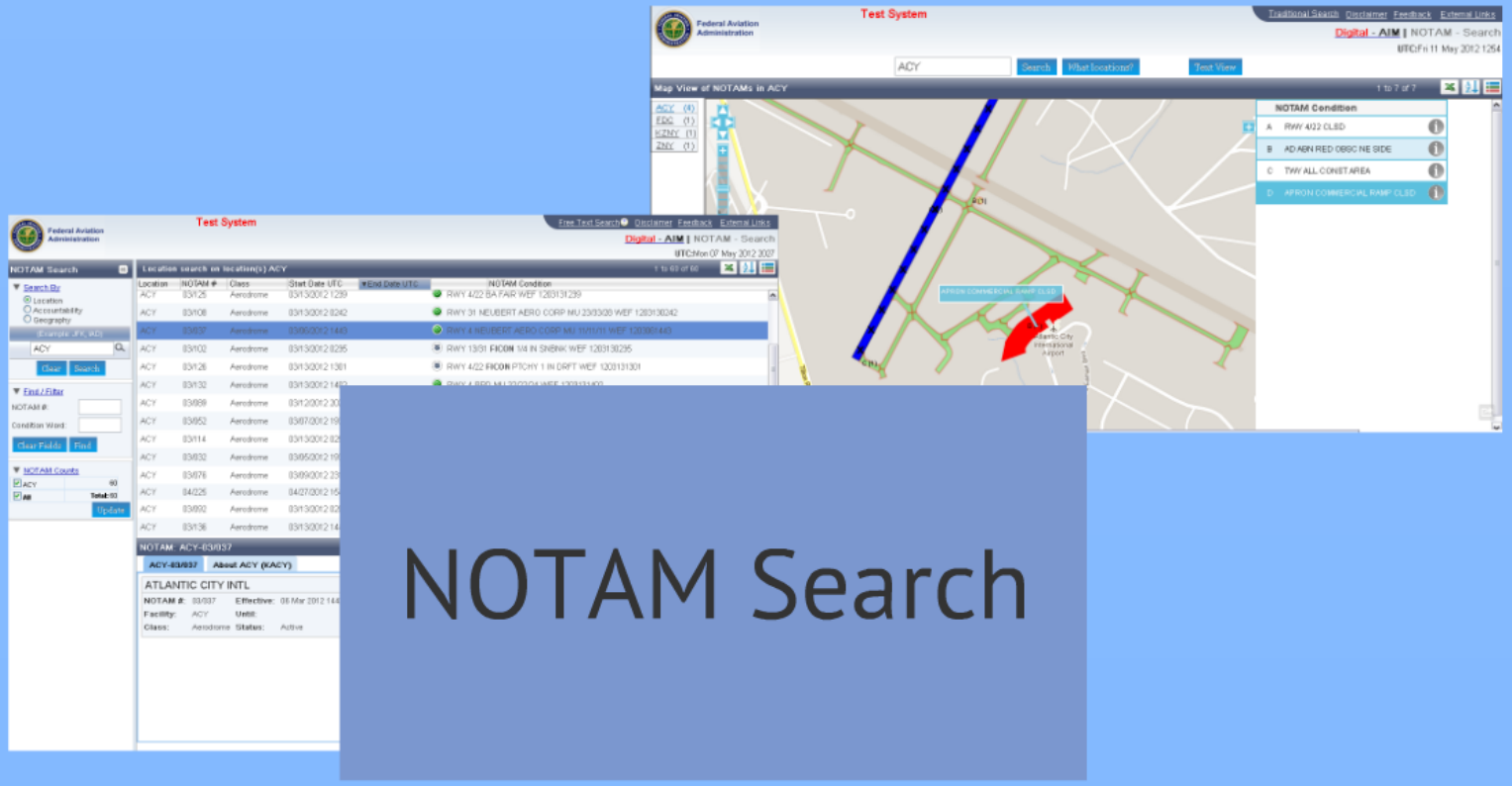

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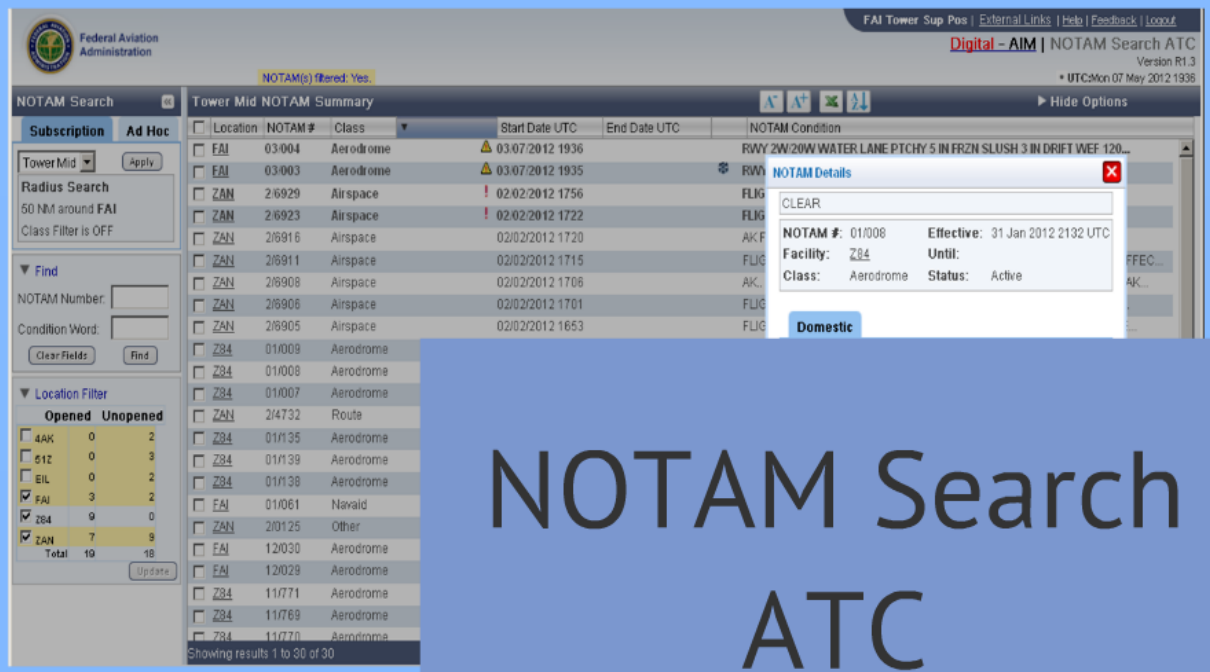

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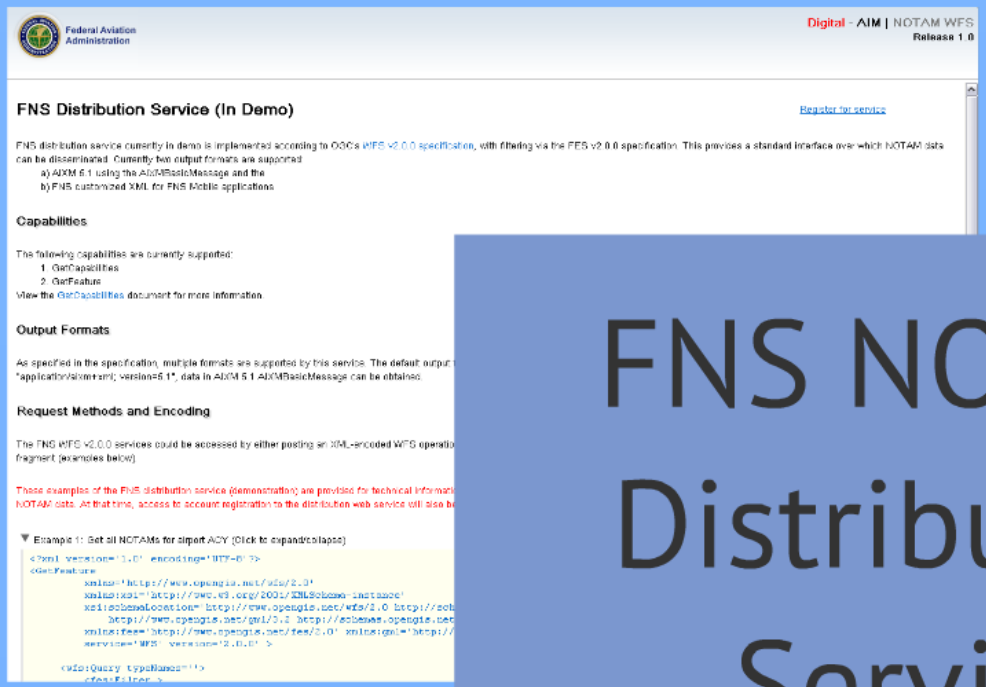

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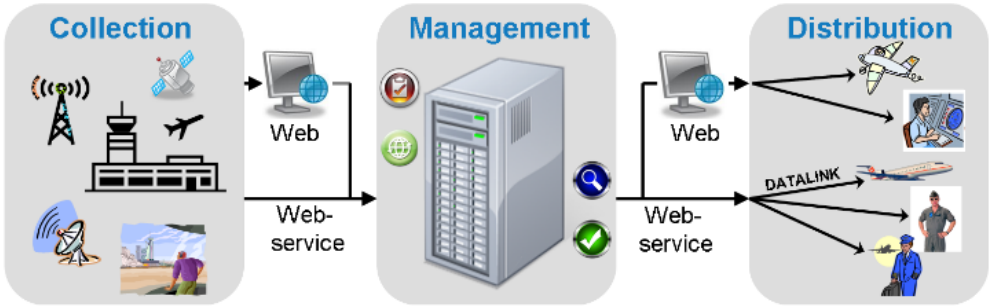

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NOTAM Modernization: What Does the Future Hold?

Modernizing NOTAM Policy

Globally Harmonized Digital NOTAM Concept

Recognized by ICAO

- United States
- EUROCONTROL
- Air Services Australia
- NavCanada
- Japan

Why move to ICAO compliance?

- Foundation for ICAO compliance
- Drives business rules for software
- Improves standard notice
- International Harmonization
- Common NOTAM set recognized by NavCanada and FAA
- Supports AIXM Model for digitizing NOTAM information

Updating the NOTAM Policy will:

- Drive business rules for digital capture
- Improve standard notice
- Improve consistency, both Nationally and Internationally
- NOTAMs that are easier to read and interpret
- Improve delivery based on user query

Impact of new ICAO Policy on user:

- Supports NextGen technology
- Origination of NOTAM 10 days before effective date
- Easier to read
- Improved NOTAM delivery by allowing for filtering unneeded information

Upcoming NOTAM Policy Directives

IO 7930.2N

- Late Summer / Early Fall 2013

~~ICAO NOTAM Policy~~

→ International crossover NOTAMs

- End of year 2014

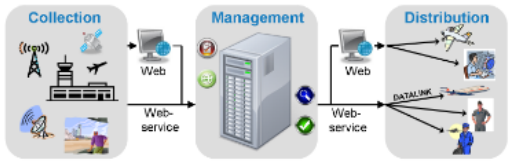
Transitioning to the digital NOTAM concept

Improve safety
- Interpretation, accuracy, quality, timeliness

Support NextGen
- Situational awareness, Flight planning, Flight briefing

Improve efficiency
- Easier to filter, sort, query

Harmonize internationally



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FAA goal is to continue transitioning NOTAM stakeholders over to digital NOTAMs

To request more information:
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Modernizing NOTAM Policy

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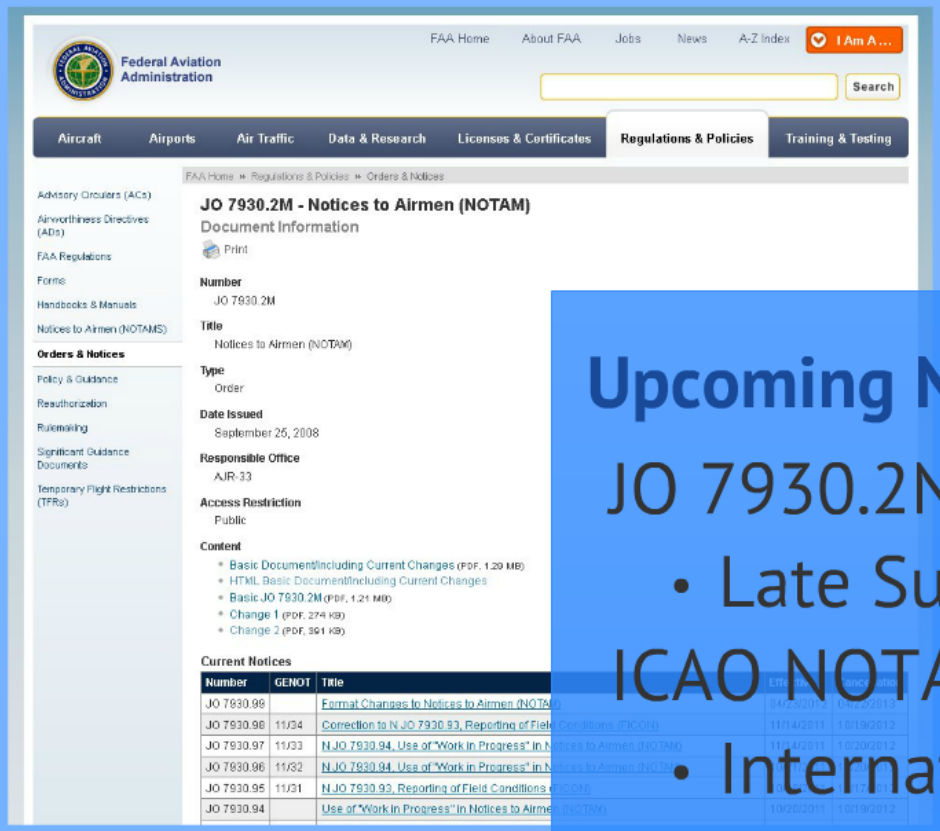

Upcoming NOTAM Policy Directives

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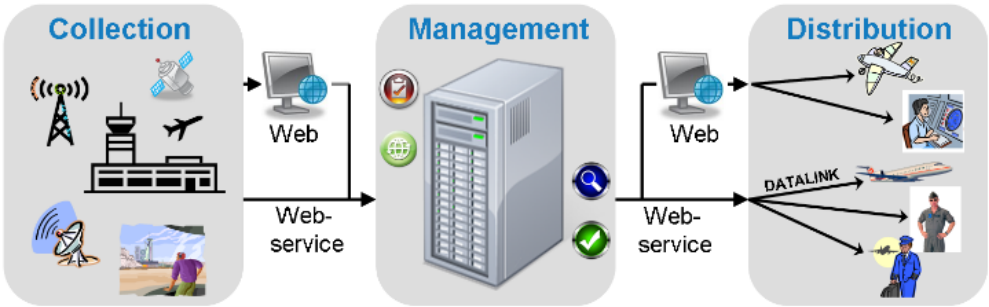
- Easier to filter, sort, query

Harmonize internationally



Originate NOTAMs at the Source

Digitally Capture Temporary Hazard Information

Integrate Permanent and Temporary Information

Apply Business Rules, Validate Data, Translate, and Publish

Distribute NOTAMs to the Users

Electronic Distribution to FAA customers, Computer Readable

FAA goal is to continue transitioning NOTAM stakeholders over to digital NOTAMs

To request more information:
https://notams.aim.faa.gov

Questions?

Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

EUROCONTROL

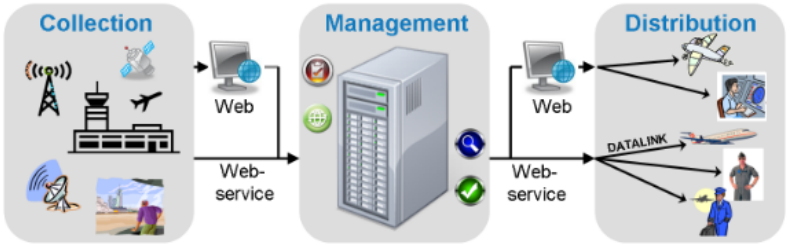
Federal Aviation Administration

Contact Information

Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

For further information:

- **Web: https://notams.aim.faa.gov**
- **Email: fns@faa.gov**



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EUROCONTROL

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