



*International Civil Aviation Organization*

**Fifteenth Meeting of the APANPIRG ATM/AIS/SAR Sub-group  
(ATM/AIS/SAR/SG/15)**

Bangkok, Thailand, 25-29 July 2005

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**Agenda Item 4: Consider problems and make specific recommendations concerning  
the provision of ATM/AIS/SAR in the Asia/Pacific Region**

**WEB-BASED EXCHANGE OF AERONAUTICAL INFORMATION**

(Presented by the United States of America)

**SUMMARY**

This paper describes the Federal Aviation Administration's (FAA's) modernization efforts supporting aeronautical information exchange. The FAA's National Airspace System Aeronautical Information Management Enterprise System (NAIMES) vision is to continuously improve the safety and efficiency of the National Airspace System (NAS) as the provider of on-demand operational aeronautical information and services to our customers worldwide.

**1. Introduction**

1.1 The United States (US) National Airspace System (NAS) is a common network of US airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures, technical information, and manpower and material. Included are system components shared jointly with the military. The NAS is utilized by a wide and diverse range of users with unique operational roles and needs. These users range from commercial air carriers, air taxis/commuters, military and general aviation, and are supported by air traffic controllers, Automated Flight Service Station (AFSS) specialists, FAA and contract tower specialists, and military Base Operations (BASEOPS) specialists. The operations and roles of these users are interdependent and involve all phases of flight, from flight planning, taxi/takeoff, en-route and/or oceanic navigation, to final approach and landing. The goal of the FAA NAS program is to meet the operational needs of all its users of the national airspace while maintaining a safe and efficient flying environment.

1.2 As the NAS has evolved, there is a growing need to increase system capacity, reduce delays, improve individual flight and overall system efficiency, and improve the workload efficiency of air traffic controller operations. The NAS Aeronautical Information Management Enterprise System (NAIMES) is a NAS program that consists of a number of systems and services that directly support the collection, validation, management, and dissemination of aeronautical safety information.

1.3 The vision of the NAIMES Program is to integrate multiple islands of NAS information to achieve a more efficient process, by collecting information at its source and disseminating accurate and timely aeronautical information to all of our FAA, military and civilian users. A vision that is consistent with many of the long-term goals of NAS

modernization is to increase safety, accessibility, flexibility, predictability, capacity, efficiency, and security. NAIMES provides users with real-time access to critical aeronautical data, essential for operations within the NAS. The NAIMES Program Office handles the entire system development lifecycle, from requirements definition through decommissioning. NAIMES is also an “enabler”, providing products and services to support other NAS programs.

## **2. United States NOTAM System (USNS)**

2.1 **The US NOTAM System (USNS)** is a joint FAA/Department of Defense (DOD) safety-critical system for collecting, maintaining, and distributing NOTAMs for the US civilian and military aviation communities. NOTAMs provide information on temporary and immediate changes to the condition of any aeronautical facility, service, procedure, or component (e.g., runways, navigational aids, lighting) involved in flight operations. The legacy USNS underwent a technology refresh of the legacy NOTAM system and rehost of the NOTAM database to an Oracle relational database management system on a Sun platform in 2002. The USNS is now in line with other NAIMES systems and utilizes standard open system interfaces.

2.2 **Aeronautical Information Data Access Portal (AIDAP)** is an enhanced distribution method of NOTAM and weather data using an XML interface. This provides NAS systems and other users with access to an Oracle relational database containing all NOTAMs within USNS and World Meteorological Organization (WMO) weather products, which can be accessed by external servers using secure sockets and an XML query. This server-to-server capability significantly improves the distribution of operational aeronautical information within the NAS and the aviation community.

## **3. Graphical Temporary Flight Restrictions (TFR)/Special Use Airspace (SUA)**

3.1 NAIMES has developed a graphical web-based product which will provide pertinent TFR and SUA advisory information for controllers and pilots. This system will automatically display a TFR upon issuance on a current sectional or IFR chart.

3.2 This tool will continue to be enhanced to provide users with a configurable real-time product that displays the status of the NAS utilizing data from a wide variety of Air Traffic systems. The TFR and SUA sites are in the process of being merged into this system. Initial operational capability (IOC) has already been met for DOD and FAA:

IOC DOD - June 2003

IOC FAA - Sept 2003

IOC TFR/SUA Version 2.0 – FY05

## **4. Aeronautical Information System (AIS)**

4.1 AIS is a robust web-based system that provides: 1) an automated means for flight plan delivery; 2) distribution of weather products and other flight planning data to AIS users and various National Airspace System (NAS) subsystems; and 3) provide the NAS interfaces, protocols and rational databases required for the flight planning process. In particular, the AIS is a platform-independent system where as any workstation could be used to access the AIS servers as long as it has an approved web browser software installed and the proper security and authorization controls implemented.

4.2 The AIS provides an individual user the capability to enter flight plans and to request aeronautical weather products. It also provides interfaces to the National Airspace Data Interchange Network (NADIN) Packet Switched Network (PSN) and Message Switched

Network (MSN) and Weather Message Switching Center Replacement (WMSCR) to perform Service A and Service B message store and forward processing.

4.3 Aeronautical Information System Replacement (AISR) supports entry of domestic and ICAO flight plan filing, entry and distribution of NOTAMs, entry and distribution of weather information and WMO products, users include FAA, National Weather Service, Department of Defense, commercial air carriers, and ICAO locations.

4.4 AISR requires a personal computer, Pentium 1 Processor or higher (preferred), most browsers but Internet Explorer 6.0 or Netscape 7.0 (or higher) preferred, public key encryption with user ID/password provides the security.

4.5 The benefits of AISR are: existing office equipment sufficient to operate the system, eliminated dedicated AFTN circuits, reduces technical risks – no e-mail, reduces lifecycle costs because there is no dedicated hardware, and no need to deploy system upgrades to field users – all server based. Finally, this system provides flexibility and security.

## **5. NOTAM Entry System (NES)**

5.1 The NOTAM Entry System (NES) is a web application that allows authorized users to input new NOTAMs to the USNS. Specialists at the US NOTAM Office (USNOF) will edit/review the draft and send it to USNS for numbering as an official NOTAM, or reject the draft back to the author for rework. Figure 1 below illustrates the NES work flow.

5.2 The NES application is template driven and gives the user ease of ICAO NOTAM entry, NOTAM type, location, effective times and text.

5.3 Pop-up windows assist the user in obtaining Q-code characters, Universal Coordinated Time (UTC), user defined templates and draft NOTAM preview capabilities.

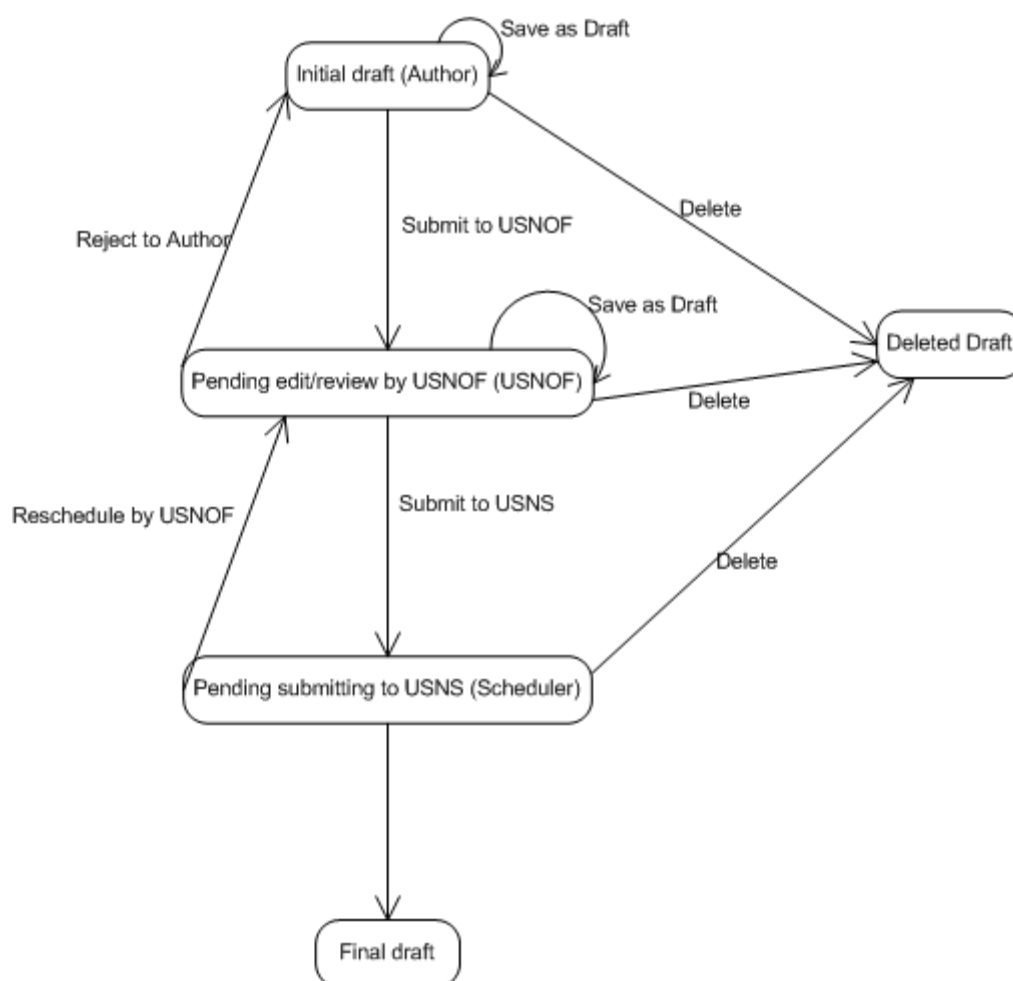


Figure 1. NES work flow.

## 6. Defense Internet NOTAM Service (DINS)

6.1 The Defense Internet NOTAM service is an expanded web application that the Department of Defense has created and gives all aviation users access to the DINS aeronautical services.

6.2 The DINS site includes the following access capabilities: FDC, TFR, Special Notices, Air Route Traffic Control Center NOTAMs, and Graphical TFRs.

6.3 Users also can do a radius search, flight path search, ICAO search, Q-code search and other user friendly data such as RVSM information, Jeppesen Notices and Alerts and linkages to other systems.

6.4 This site was created to give the military pilot access to this information via his personal computer or laptop.

## 7. PilotWeb – FAA Civil Aeronautical Information

7.1 This aeronautical information web site can be accessed through its own site or linked through the home page of the FAA.

7.2 This user friendly web page gives the aviation user current NOTAMs by location, Center NOTAMs, Graphic TFR NOTAMs, NOTAM contractions, access to several NOTAM publications and radius and flight path search capability.

7.3 Other links are available to weather information, aeronautical information, charts and other user groups.

## **8. Conclusions**

8.1 The FAA has given aviation users the capability to access aeronautical information through the use of web applications. Examples of the above mentioned applications are found in the following appendixes. These screen scrapes show the ease of use for any user interested in obtaining aeronautical data.

8.2 The meeting is invited to note the information provided in this paper.

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