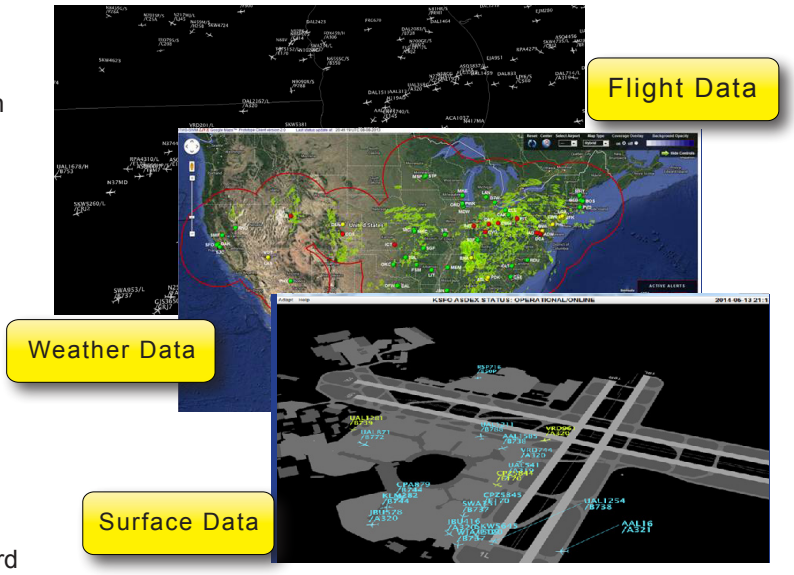
System Wide Information Management (SWIM)

Information Access to Transform the Aviation Community

System Wide Information Management (SWIM), one of the five transformational NextGen programs, is the infrastructure that allows members of the aviation community to access the information needed to facilitate an innovative and efficiently run National Airspace System (NAS). By providing access to real-time or near-real-time, relevant information, SWIM increases collaboration among aviation partners, reduces costs and increases the agility of the air traffic system. Taxpayers, the flying public and the environment all benefit from the increased efficiencies enabled by SWIM.



How SWIM Works

The SWIM infrastructure allows more efficient data sharing among aviation partners than has ever before been possible. This is accomplished through two major SWIM features:

- SWIM streamlines connections among different data systems so users can access multiple systems through one connection.
- SWIM translates data from different systems into standard data formats, thereby supporting collaboration among industry and governments both within the United States and around the world.

Early Successes

The FAA is implementing SWIM in segments. Early implementation efforts have already resulted in significant advancements in aviation management. For example:

- By providing current weather and flight planning information to users of the NAS, SWIM enables airline dispatchers and traffic managers to collaborate on the routing and rerouting of traffic based on real-time information, such as current traffic management initiatives, airport runway configurations and airport deicing activities.
- The SWIM Terminal Data Distribution System converts raw surface data into easily accessible information and sends it from airport towers to the corresponding Terminal Radar Approach Control (TRACON) facility. TRACONs use SWIM to transfer this information to airlines and airports which, in turn, use the information to streamline surface operations and increase efficiency.
- SWIM is accelerating the transition to global harmonization of information standards. Initial implementation of several core information models is underway, including the Aeronautical information Exchange, Weather Information Exchange and Flight Information Exchange Models.

What's Coming Next

The FAA is planning to unveil several new SWIM capabilities in Fiscal Year 2015, when the platform is expected to be largely complete. These include:

- Traffic Flow Management System: This capability provides subscribers with Aircraft Situation Display to Industry (ASDI) data access to traffic flow information.
- SWIM Flight Data Publication Service: This capability provides subscribers flight and related data in the industry standard XML format (FIXM), an easy to use format for modern aviation applications. It also provides airspace data, operational data, and general information messages.
- Time Based Flow Management (TBFM): This capability will provide a variety of aircraft metering information, estimated time of arrivals and scheduled time of arrivals. Atlanta is the first site on line and, over the next year, TBFM will begin the roll out to on-ramp at the remaining EnRoute Centers.

As SWIM evolves, the FAA will continue to expand the SWIM user community and enhance data sharing opportunities to enhance management of the NAS.

Flight and Flow Data

Time Based Flow Management: Provides metering information

- ✓ Scheduled Time of Arrival
- ✓ Estimated Time of Arrival
- ✓ Meter Reference Elements assignments
- ✓ Airport configuration information
- ✓ Satellite airport configurations

Traffic Flow Management System*: Provides flight data and flow information

- ✓ Flow Constrained Area/Flow Evaluation Area
- ✓ Airspace Flow Program
- ✓ Aeronautical Situational Display to Industry
- ✓ Ground Delay Program/Unified Delay Program
- ✓ Ground Stops
- ✓ Reroutes
- ✓ Advisories
- ✓ Collaborative Trajectory Options Program

SWIM Terminal Data Distribution Systems: Collects and publishes data from 100+ airports

- ✓ Airport Surface Detection Equipment, Model X streaming data service and Runway visibility data
- ✓ Surface Movement Events
- ✓ Runway Visual Range Data
- ✓ Tower Departure Events

SWIM Flight Data Publication Service (SFDPS)*: Provides flight data and updates to clients for filed and active flight plans

- ✓ Flight Plan Information
- ✓ Flight Amendment Information
- ✓ Converted Route Information
- ✓ Cancellation Information
- ✓ Departure Information
- ✓ Aircraft Identification Amendment Information
- ✓ Hold Information
- ✓ Progress Report Information
- ✓ Flight Arrival Information
- ✓ Flight Plan Update Information
- ✓ Expected Departure Time Information
- ✓ Position Update Information
- ✓ Tentative Flight Plan Information
- ✓ Tentative Aircraft Identification Amendment Information
- ✓ Tentative Flight Plan Removal
- ✓ Tentative Flight Plan Amendment Information
- ✓ Track Information
- ✓ Drop Track Information
- ✓ Interim Altitude Information
- ✓ Automated Radar Terminal System Flow Control Track/Full Data Block Information
- ✓ Beacon Code Reassignment
- ✓ Beacon Code Restricted
- ✓ Flight Plan Data Bank Fourth Line Information
- ✓ Point Out Information
- ✓ Inbound Point Out Information
- ✓ Handoff Status

Airspace Data Publication Service*: Published by SFDPS

- ✓ Sector Assignment Status
- ✓ Route Status
- ✓ Special Activities Airspace
- ✓ Altimeter Setting

Operational Data Publication Service*: Published by SFDPS

- ✓ Traffic Count Adjustment
- ✓ Instrument Approach Count Adjustment
- ✓ Sign In Sign Out
- ✓ Beacon Code Utilization
- ✓ Geographic Beacon Code Utilization

General Information Message PWublication Service*: Published by SFDPS

- ✓ General Information

Aeronautical Data

Aeronautical Information Management Special Use Airspace (SUA) Data Exchange: Provides notification and status regarding airspace

- ✓ SUA data, dynamically provided in the Aeronautical Information Exchange Model (AIXM) standard
- ✓ AIXM SUA definitions

Notices to Airmen (NOTAM) Distribution Service

- ✓ Digital NOTAMs AIXM 5.1

* Service in development and on-ramping process

Weather Data

Integrated Terminal Weather System (ITWS) Data Publication: Provides metering information

- ✓ Airport Lightning Warning
- ✓ Configured Alerts
- ✓ Forecast Accuracy
- ✓ Forecast Contour
- ✓ Forecast Image
- ✓ Gust Front TRACON Map
- ✓ Microburst TRACON Map
- ✓ Precipitation 5 nm
- ✓ Precipitation Long Range
- ✓ Precipitation TRACON
- ✓ Storm Motion (SM) Storm Extrapolated Positions (SEP) 5 nm
- ✓ SM SEP Long Range
- ✓ SM SEP TRACON
- ✓ Terminal Weather Text Normal
- ✓ Tornado Alert
- ✓ Tornado Detections Wind Profile
- ✓ Anomalous Propagation (AP) Indicated Precipitation
- ✓ AP Status
- ✓ Gust Front Estimated Time to Impact
- ✓ Hazard Text 5 nm
- ✓ Hazard Text Long Range
- ✓ Hazard Text TRACON
- ✓ ITWS Status Information
- ✓ Microburst Automatic Terminal Information Service (ATIS)
- ✓ Runway Configuration
- ✓ Storm Motion 5 nm
- ✓ Storm Motion TRACON
- ✓ Terminal Weather Text Special
- ✓ Wind Shear ATIS

Corridor Integrated Weather System Data Publication: Provides specialized 3-D storm related weather information in the enroute area

- ✓ Vertically Integrated Liquid (VIL) Mosaic (1 km resolution)
- ✓ VIL 2 hour. Forecast
- ✓ Echo Tops Mosaic (1 km resolution)
- ✓ Echo Tops 2 hour Forecast
- ✓ Satellite Mosaic
- ✓ Storm Info: Echo Top Tags
- ✓ Storm Info: Leading Edges
- ✓ Storm Info: Motion Vectors
- ✓ VIL Forecast Contours (Std. Mode)
- ✓ VIL Forecast Contours (Winter Mode)
- ✓ Echo Tops Forecast Contours
- ✓ Growth and Decay Contours
- ✓ Forecast Accuracy: Echo Tops
- ✓ Forecast Accuracy: Std. Precip
- ✓ Forecast Accuracy: Winter Precip

Weather Message Switching Center Replacement (WMSCR) Publications: Provides NWS textual aviation weather products

- ✓ Transmission of voice Pilot Reports (PIREP) to WMSCR
- ✓ Stored PIREPs
- ✓ Altimeter settings

Enhanced Weather Information Network System

- ✓ Current Icing Product
- ✓ Weather Research and Forecasting-Rapid Refresh Model Data
- ✓ North American Mesoscale
- ✓ Model Data
- ✓ Global Forecast System
- ✓ Model Data
- ✓ Airmen's Meteorological Information
- ✓ National Convective Weather Forecast
- ✓ National Convective Weather Diagnostic
- ✓ Aviation Routine Weather Report
- ✓ Significant Meteorological Information
- ✓ Collaborative Convective Forcast Product

Weather and Radar Processor Publications

- ✓ WARP Maintenance and Sustainment Services
- ✓ Next Generation Weather Radar

Getting started...Email your request to: Data-To-Industry@faa.gov

Connect at: www.faa.gov/nextgen/swim