SWIM Users Forum

Presented by:
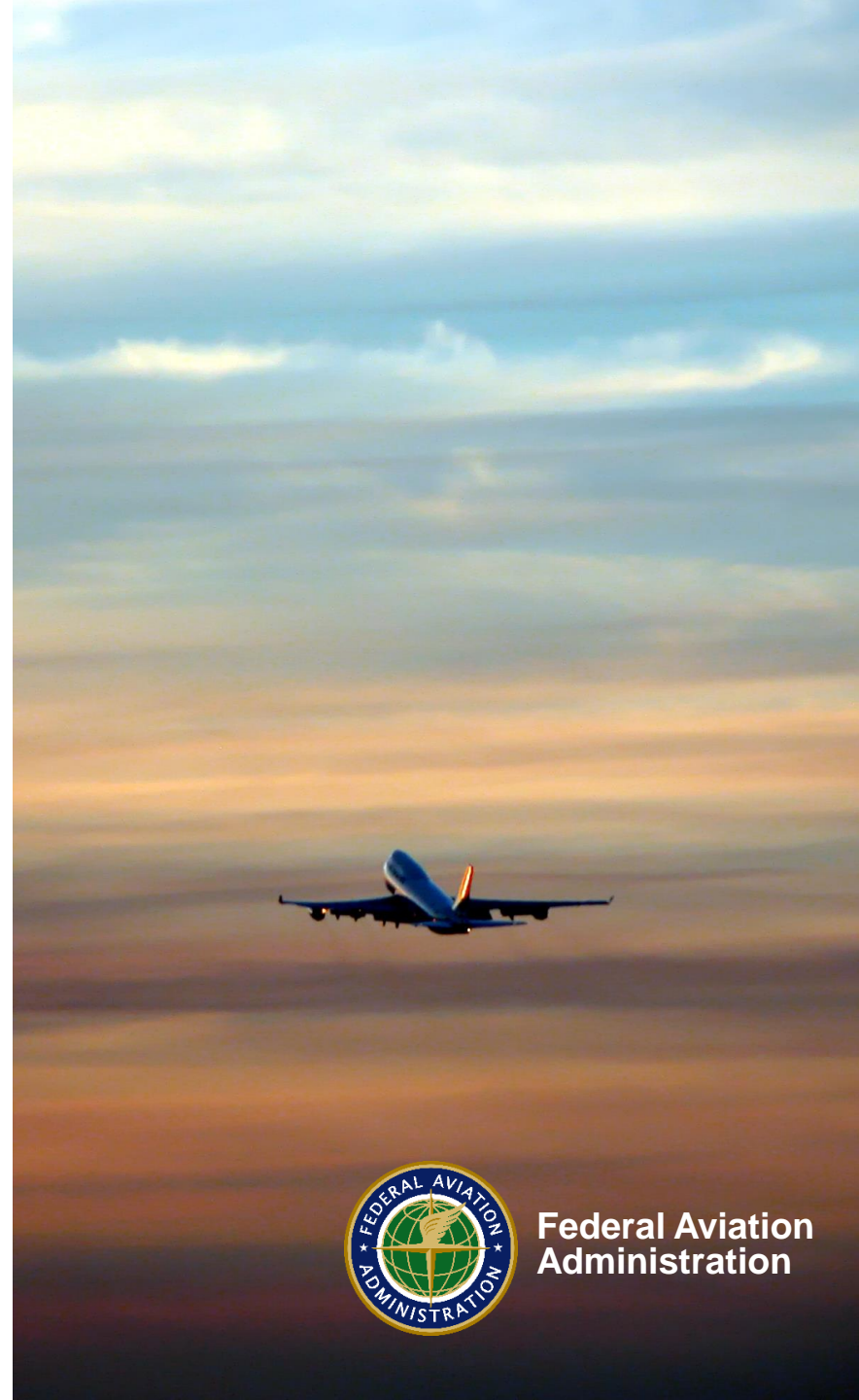
SWIM Program Office

May 19, 2022

**Federal Aviation
Administration**

Agenda

- **Welcome New SWIM Program Staff**

- **SWIM Cloud Distribution Service** (SCDS) Updates and **SWIM Industry-FAA Team (SWIFT) Portal** Enhancements

- **Enhanced SWIM Cloud Service** (ESCS) Overview

- **SWIM Terminal Data Distribution System** (STDDS) Updates

- **Common Support Services – Flight Data** (CSS-FD) Overview

  – CSS-FD Risk Reduction Activities Updates

- **Feedback Requested:** Search and Rescue Pilot Contact Information Data Update

Meet Our New SWIM Program Staff!

SWIM Cloud Distribution Service (SCDS) Updates

SWIM Industry-FAA Team (SWIFT) Portal Enhancements

Presented by:
Kevin Dement
SWIM Engineering Support

Lucas Curns
SWIM Program Office

May 19, 2022

System Wide Information Management
AJM-316

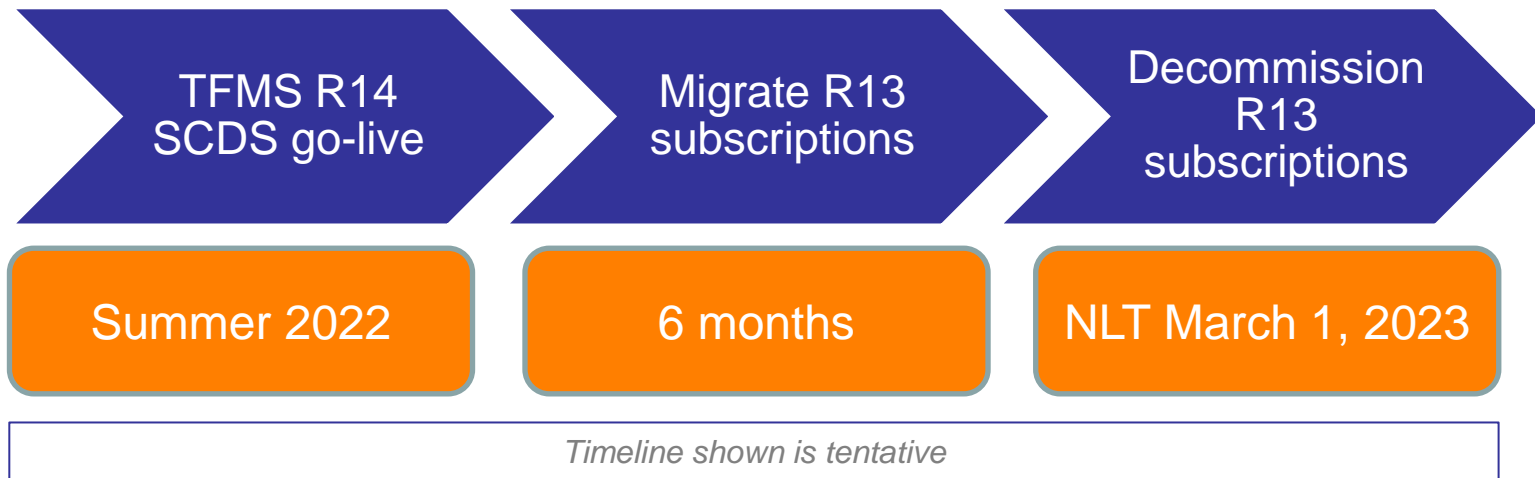**Federal Aviation Administration**

TFMS R14 Coming Soon to SCDS

Functional changes from R13:

- TFMData - Update_Cancel_Schedule-Timeout is no longer a valid trigger name

- TFMData – EDCT Time must be required in NEMS CTOP OVERRIDE & OVERRIDE PREVIEW

- ZTC_TFMS: FAA – TFMData SSBLOCK SCS message earliestDepartureTime and latestArrivalTime labeled incorrectly

- TFMData Cleanup Unused Elements

Schema changes from R13:

- 30 changes to FICommonMessages.xsd

- 9 changes to TfmRequestReplyTypes.xsd

- 3 changes to FlightDataCommonMessages.xsd

- 3 changes to FlightData.xsd

- 1 change to TFMData_Service.xsd

TFMS R14 Coming Soon to SCDS

TFMS R14 SCDS go-live	Migrate R13 subscriptions	Decommission R13 subscriptions
Summer 2022	6 months	NLT March 1, 2023

Timeline shown is tentative

1. **Login to your SWIFT Portal account and go to Subscriptions > New Subscription**
2. **Select TFMS as your product type**
3. **Select R14 as your format**
4. **From this page forward, select the services for each existing subscription for which you have an R13 counterpart. Complete the setup process as usual**

Once the migrations are complete for each of your R13 services, you can safely delete the old R13 subscriptions. Additionally, you will also need to update the corresponding notifications and alerts related to those services.

SWIFT Portal V3/V3.1 Updates

Live Now

Homepage tile layout customization and enhanced subscription and service tile information.
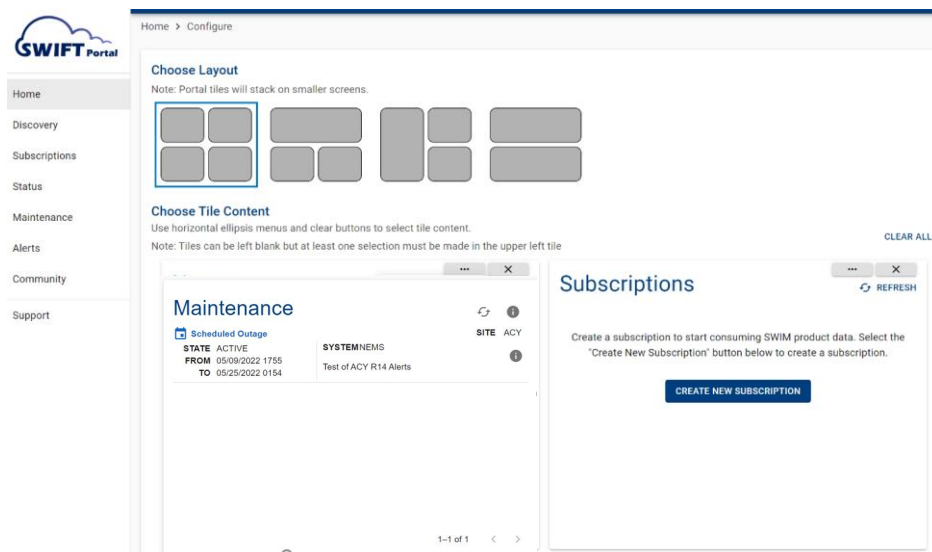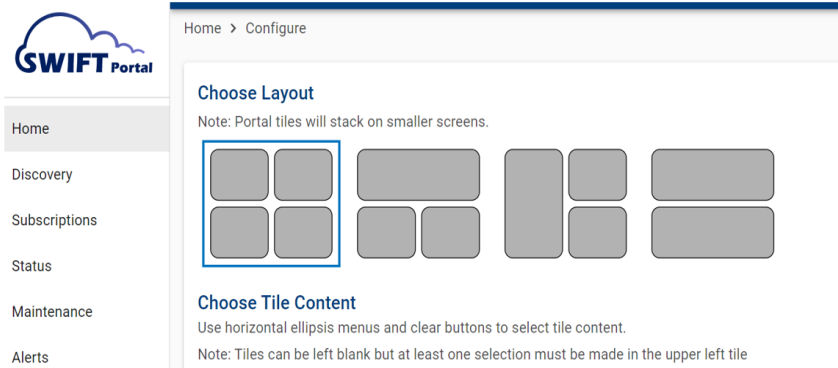
SWIFT Portal V3/V3.1 Updates

Live Now

Enhanced subscription tile information

SWIFT Portal V3/V3.1 Updates

Live Summer 2022

- **Maintenance Events**
  - Service Status page will now show when a service is down for maintenance
  - Configurable in app and email notifications for planned and unplanned maintenance with the ability for users to set notification preferences
  - Ability for users to view details on active, upcoming and past maintenance events.

SCDS Subscription Disconnect Policy

Live Summer 2022

- **Pending Subscriptions**
  - Notify users at time of subscription request of any additional required actions; e.g. sign access agreement
  - If the required user action is not completed within 15 days another notice will be sent
  - If the required user action is not completed within 30 days, the subscription request will be denied; the request can be resubmitted if so desired by the user

Subscription Requested	15 Day Notice	Subscription Denied
0	15	30
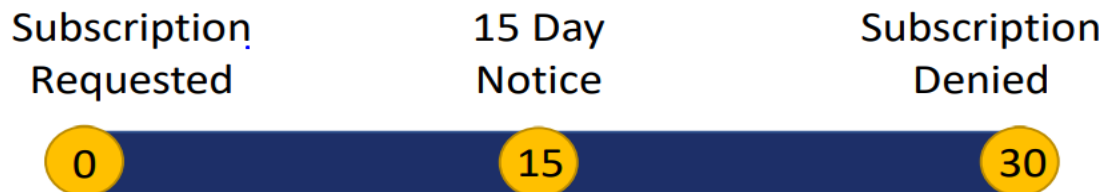
SCDS Subscription Disconnect Policy

Live Summer 2022

- **Unused Subscription**
  - After a subscription has been approved, a check will occur every 30 days
  - If the subscription hasn't been used in 30 days a notice will be emailed to the user indicating that if the subscription isn't used within the next 30 days, 60 days from approval or last connected date, it will be disabled
    - If a subscription is being used as a backup or is needed for any reason, users can reach out to the SWIM Support Team via the "ask a question" functionality to have their subscription whitelisted from this audit process (SWIFT Portal Support (faa.gov))
  - A final notice will be sent 7 days prior to the subscription being disabled
  - If not connected within 60 days from the last connected time, the subscription will be disabled
    - After a subscription is disabled, a user can request it be re-enabled by contacting the SWIM Support Team via the "ask a question" functionality (SWIFT Portal Support (faa.gov))
  - Once a subscription has been disabled a notice will be sent to the user indicating their subscription has been disabled and will remain disabled for 30 days at which point if no action is taken by the user the subscription will be deleted
  - If no request is received to re-enabled the subscription within 30 days from disablement (90 days from last connect time) it will be deleted from the system

Subscription Approved or Connected	30 Day Notice	60 Day Disabled	90 Days Deleted
0	30	60	90

SCDS/SWIFT Portal Usage Reminder

<div style="background-color:red; color:white; text-align:center">

Data obtained via SCDS is <u>NOT</u> for operational use

</div>

- **SCDS is intended for public external SWIM users**
- **FAA Partners that use SWIM in their operations should still consume data from their legacy NESG connection**

SWIFT Portal

Check out the SWIFT Portal Support Page to learn more, ask a question, or reach out for help with a technical issue

Contact

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✉ **Waldo Ford**
SCDS Lead
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Search and Rescue Pilot Contact Information Data Field Update

Feedback Requested

Presented by:
Lucas Curns
SWIM Program Office

May 19, 2022

System Wide Information Management
AJM-316

Federal Aviation Administration

SWIM Search and Rescue Pilot Contact Information *Data Field Update*

- SWIM Flight Data Publication Service (SFDPS) **Field #18, Tag Name: OPR (operator) may soon be removed from SFDPS**.
  – Information is still available through RMK/ field

- What is Field #18, OPR?
  – This field provides Operator name via flight plan filing and is currently included in the feed republished via SFDPS to SWIM users. Due to planned updates to the OPR tag, this information may soon be omitted from SFDPS.

- What is most frequently listed in this field?
  – Identification (name) of air carriers

- **What is the impact to you if you no longer had access Field 18, OPR? We would like to hear from you!**
  – **https://forms.gle/fPFAPW1n1APowBjR9** *(disable VPN prior to access)*

- **Responses due by: June 3, 2022**

Enhanced SWIM Cloud Service (ESCS)

Overview Briefing

Federal Aviation Administration

Presented to:

SWIM Users Forum

By:

Vik Chokshi, ESCS Lead

Communications, Information and Network Programs, AJM-31

Date:

May 19, 2022
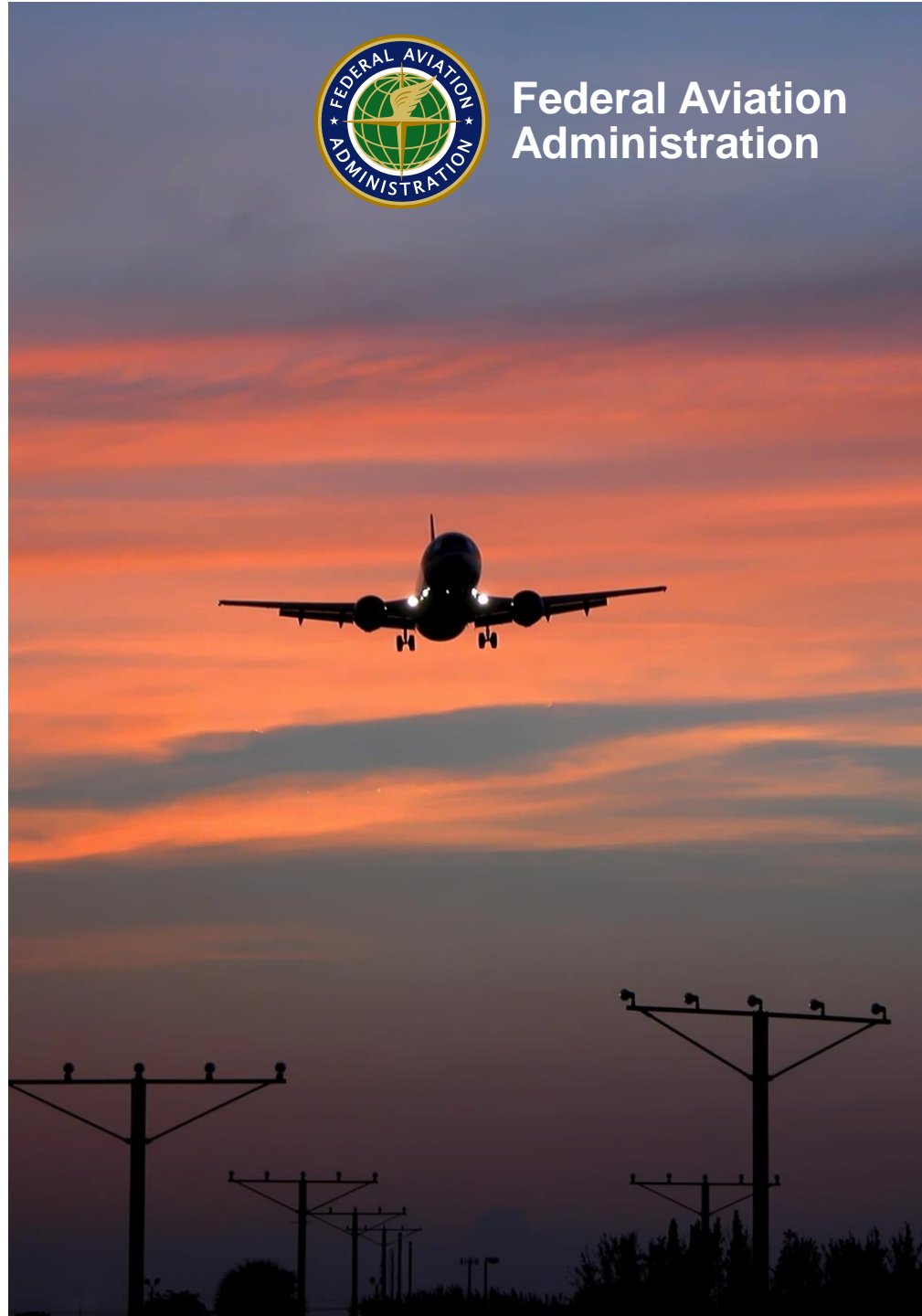
Agenda

- **Background and Overview**
  - SWIM Overview
  - Comparing Connection Methods
- **Drivers for ESCS**
- **ESCS Overview**
  - Users
  - Operational Uses
- **Key Dates**

SWIM Overview

CATEGORIES OF DATA | PRODUCERS | BUSINESS SERVICES | INFRASTRUCTURE & SYSTEM LEVEL CAPABILITIES | CONSUMERS

WEATHER
- ITWS — ITWS
- CSS Wx — (FUTURE)
- WMSCR — SUBMIT PIREP / ALSET
- WARP/EWD — WFS WCS
- STDDS — APDS (RVR)

FLIGHT/FLOW
- TFMS — TFMData
- TBFM — METERING PUB
- TFDM — TTP
- SFDPS — ERFDP ERGMP
- STDDS — TDES

AERONAUTICAL
- AIM — ACS FNS-NDS FNS-NPS SUA
- SFDPS — ERADP

SURVEILLANCE
- SFDPS — ERFDP
- STDDS — TAIS SMES
- MicroEARTS — (FUTURE)

NAS ENTERPRISE MESSAGING SERVICE / ENTERPRISE SERVICE BUS

NESG

NODES
NODES NODES

ENTERPRISE SERVICES
- MEDIATION
- GUARANTEED DELIVERY
- DYNAMIC SUBSCRIPTION
- SECURITY

NESG

NODES NODES
NODES

NAS OPERATIONAL INTERNET PROTOCOL BACKBONE

SCDS Portal (AWS)

ESCS

CONSUMERS
- EXTERNAL SCDS CONSUMERS
- EXTERNAL NESG CONSUMERS
- INTERNAL NAS CONSUMERS
- MISSION PARTNER PRODUCERS AND CONSUMERS

EXTERNAL PUBLISHERS
- AIR NAVIGATION SERVICE PROVIDER
- AIR CARRIERS
- DATA COMMUNICATIONS NETWORK SERVICES
- HARRIS WEATHER DATA SERVICE

Current NAS Data Sharing Solutions and Data Types

	Non-NEMS NESG External Users	NEMS NESG External Users	SCDS
Asset in NESG	• Requires system assets in NESG	• Does not require system assets in NESG	• Data obtained from the NESG NEMS (ACY/OEX failover)
Connection Method	• VPN connected users retrieve NAS data via program specific interface located in internal or external DMZ of NESG	• VPN connected users retrieve NAS data via NEMS Interface located in external DMZ of NESG	• One-Way messaging distribution deployed in AWS public cloud. • Direct connection over internet without VPN • AWS connected to NEMS over VPN
Sensitive Data	• Sensitive data available in some instances	• Sensitive data available in some instances	• Includes only public data, no sensitive data

Current SWIM Environment

Externally Connecting to SWIM Today

Access via NESG
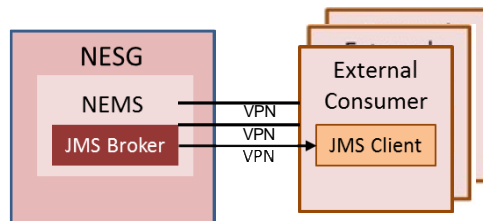
NAS Enterprise Service Gateway (NESG)

- Allows for **bi-directional** data exchange between SWIM and FAA Mission Partners
- Supports appropriate availability and security controls for data to be **used in operational decision making**
- Connections to NESG must be made via Virtual Private Network (VPN)

Access with SCDS
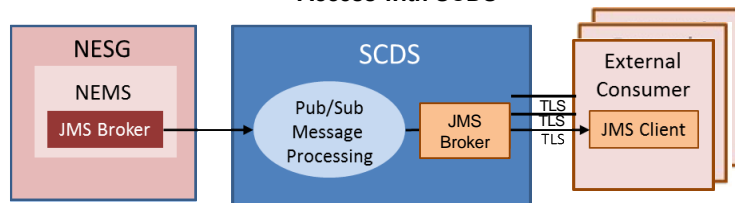
SWIM Cloud Distribution Service (SCDS)

- Released in May 2019
- Provides near real-time **one-way** data distribution of SWIM services via the AWS public cloud
  - Note: Web Services are not available on SCDS
- Intended for non-National Airspace System (NAS), **non-Operational use**
- All products provided by SCDS have been pre-approved for public release by the NDRB

External SWIM Users (accessing via NESG)

External user categories using SWIM services via the NESG today include the following:

- Airlines (including commercial and cargo carriers – e.g., Delta Airlines, FedEx)

- ANSPs (e.g., Trinidad and Tobago)

- Flight Service Stations (e.g., FS21)

- Third-party data providers (providing data to General Aviation/airlines and/or the public) (e.g., FlightAware)

- Research institutions (e.g., MITRE)

- Corporations (e.g., Boeing)

- Government agencies (e.g., NASA)

- FAA applications/systems in Mission Support (e.g., EIM)

SWIM FAA Mission Partners

- **<u>Aviation Mission Partners:</u> Tier 1 Users (e.g., airlines and vendors supporting airline operations)**
  - Connected via NESG for operational purposes
  - We are working with airline third party vendors (e.g., Metron and Sabre) to use the NESG

- **<u>Non-Aviation Partners:</u> Tier 2 Users – (e.g., industry and academic institutions)**
  - Requests SWIM data over the Internet through SCDS
  - Approved Data Use: Data analytics, metrics, data comparison studies supporting business related decisions

Feedback from Users

- Current VPN process is costly to implement, maintain, and a large resource burden.

- Infrastructure required to maintain VPN connections is costly. (Move to cloud-based infrastructure is estimated at 40% cost savings by one user)

- NESG VPN connections require significant development effort and downtime.

- Needed service metrics are not available in the current paradigm.

Comparing SWIM Connections

	NESG	SCDS	ESCS
Bi-directional data exchange	✔	✘	✔
Data supports operational decision making	✔	✘	✔
Service metrics and status	✘	✔	✔
Auto-provisioning of SWIM services	✘	✔	✔
Supports internet and cloud-to-cloud data exchange	✘	✔	✔

ESCS – Same SWIM Exchanges Now Cloud-Based

ESCS is a cloud-based SWIM data exchange system for Aviation Mission Partners and International Users to support operations

Enables two-way SOA in a Cloud Environment (JMS and Web Services)

User portal with service status and service metrics

Self-service portal for users with auto-provisioning of ESCS services
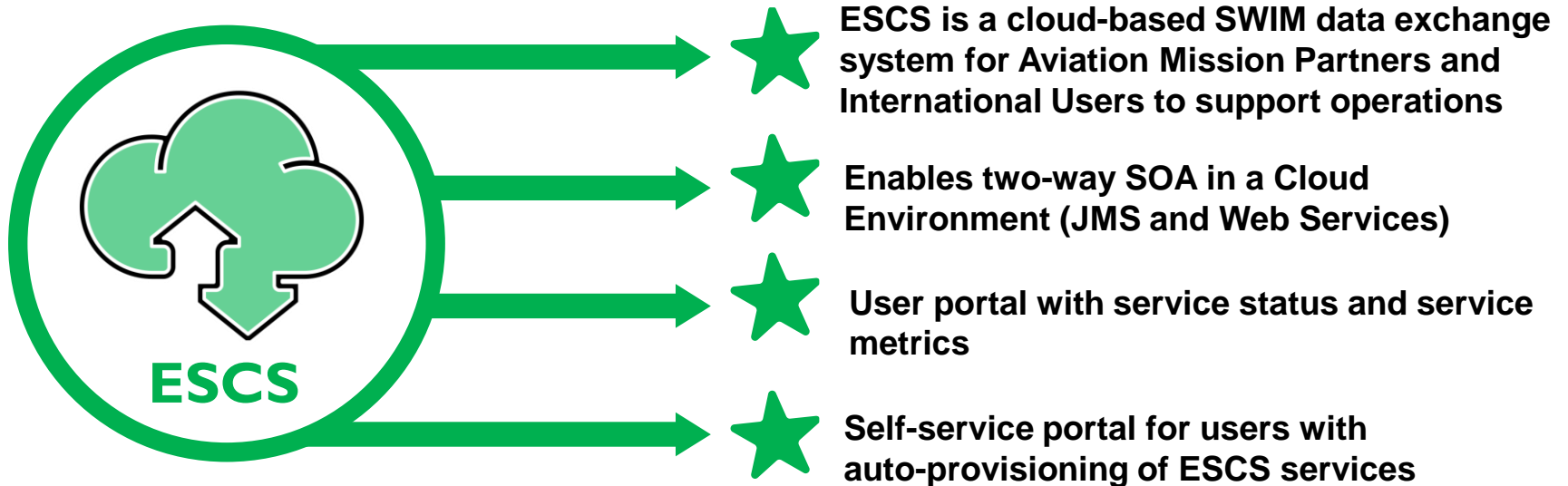
ESCS

Same types of users and data as today in the NESG

* Design leverages existing approved NESG connection method to bring data into the NAS

Future SWIM Services Planned for ESCS

- CSS-FD (when ESCS becomes efficiency critical – FENS timeframe)
    - Flight Planning
    - Flight Plan Filing
    - Flight Data Sharing (Unified and Reconciled flight data from multiple sources)
- Additional TFMData (or FMDS) Exchanges
    - Consumption of EuroControl B2B services by ESCS to obtain flight to be forwarded to TFMData/TFMS or FMDS (today EuroControl uses a legacy mechanism to send this data), and potentially other data for use by TFMS or other systems
- Consumption of data from other external services (e.g., NWS services) for forwarding to FAA NAS systems
- NOTAM Origination Service
    - Ability for external entities to submit NOTAMs to FNS via ESCS

Contact Info

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ESCS Lead
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SWIM Terminal Data Distribution System (STDDS)

Updates for Users

Presented by:
Cora Buck
SWIM Program Office

May 19, 2022

System Wide Information Management
AJM-316

Federal Aviation Administration
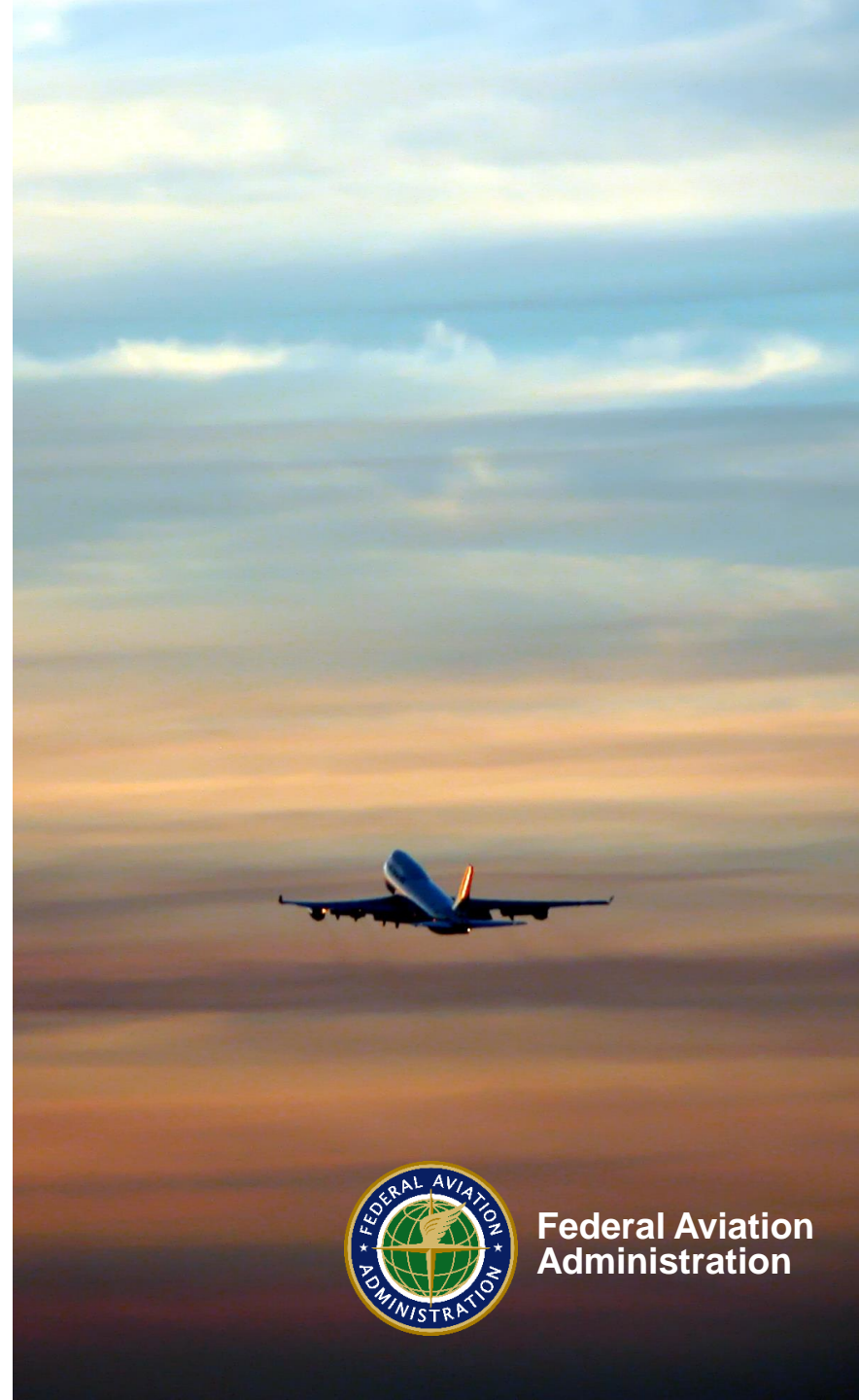
STDDS R6P2 Updates

- **STDDS R6P2 IOC 4/23/2022**
  - Successful deployment at all 38 STDDS TRACONS
  - STDDS R6P2 Contains no required schema changes
  - Please see NSRR for Release Notes, JMSDDs, Schemas
  - Several associated TDLS changes expected:
    - Pre-departure clearance messages: Spring 2022
    - Clearance delivered messages: Fall 2022

- **STDDS Site Monitor Tool (SMT) offline due to enhanced security (Shields Up order)**

STDDS R6P2 Content

Service	Highlighted Changes
All	• In R6P2, the namespace will not increment • Add Limiting Aircraft Display Data (LADD) filtering
TAIS	• Add rawFlightRules field to the TerminalAutomationFlightPlan message • Publish all associated tracks regardless of altitude • Publish STARS AIG210 in TAIS service • Reduce AIG200/210 message loss on STARS switchover by parsing dual inputs
TDES	• Enhance TDES with additional TDLS messages • Publish additional TDLS data in TDES messages • Parse and publish entire dataHeader in DATISMessage
SMES	• Enhance SMES with additional airport movement events • Add new optional fields to SMES events • Add *_COVAR fields to the MLAT and ADSB CAT10 messages • Remove legacy "v" attribute from asdexmessage.xsd • Enhance SMES CAT10 data using SFDPS data • Add ASDE-X/ASSC data published in Maintenance Mode to STDDS feed
ISMC	• Publish messages in MMIXM format • Split the STDDS Status message by content sensitivity

Contact Info

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✉ **Cora Buck**
STDDS Lead
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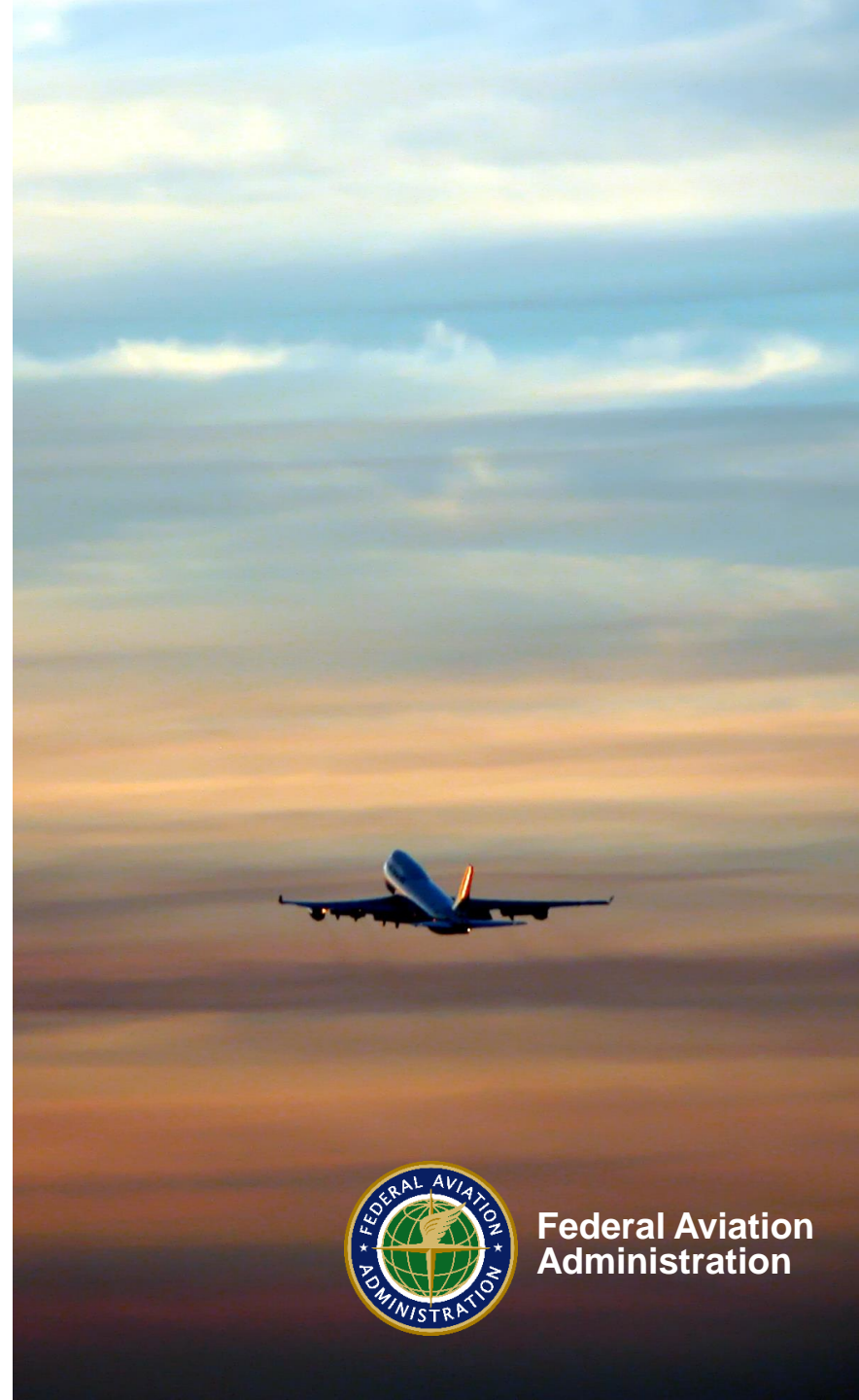
The Future of Flight Information Management *through CSS-FD*

CSS-FD is a service that will deliver modern flight information management and facilitate transition of new applications to the new information exchange environment

Establishes standard-based flight planning and filing environment

Allows for early constraint evaluation and flight specific feedback

Provides single common reference for flight data sharing and management

Supports international data exchange standards

Enhances collaborative decision making

CSS-FD Overview

CSS-FD will leverage current and near-term capabilities and enhancements in order to address shortfalls in flight data exchanges

Flight Information Exchange Model (FIXM)

Globally Unique Flight Identifier (GUFI)

SWIM infrastructure

CSS-FD

Cloud Services

Flight Object

FF-ICE (Release 1) provisions

CSS-FD Phase 1 and 2 Capabilities

Phase 2

Preliminary Flight Plan Integration w/ TFMS

Consumer-Specified Data Filtering

Preliminary Flight Plan Submission

Phase 1

4. Return ATC Preferences

3. Feedback by Reference

2. Flight Planning and Flight Plan Filing

1. Data Management & Security Framework

Phase 1 Capabilities Descriptions

Capability 1: Data Management & Security Framework
- Data publication, conversion, matching, reconciliation, and reconstitution
- Data security and access control

Capability 2: Flight Planning and Flight Plan Filing
- File and update the associated Flight Plans with ATC automation
- Receive and respond to trial requests and flight information requests

Capability 3: Feedback by Reference
- Provide feedback by referencing constraints with updates when condition changes

Capability 4: Return ATC Preferences
- Provide ATC assigned routes and pref routes

Common Support Services – Flight Data (CSS-FD)

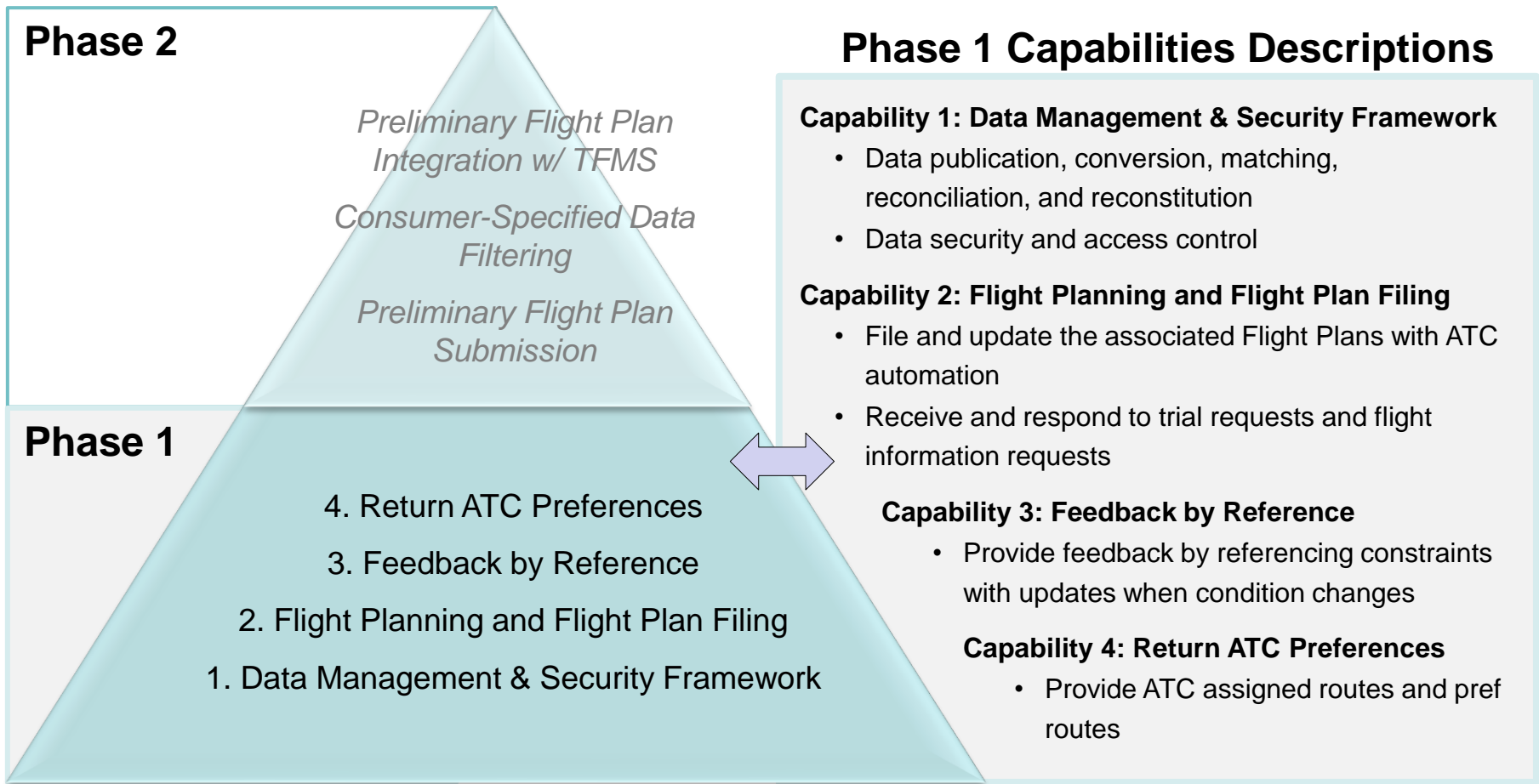## *Risk Reduction Activity Status*
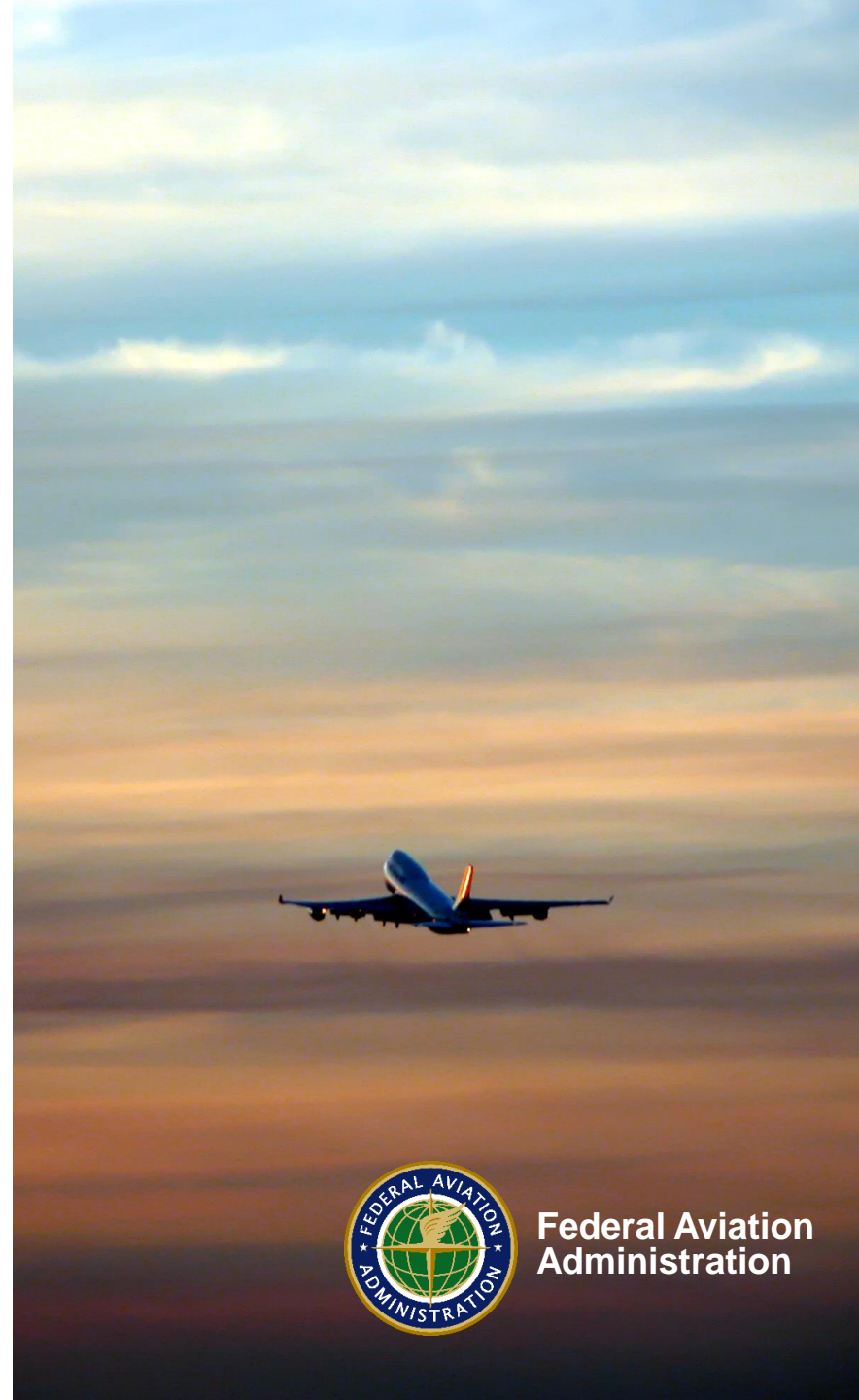
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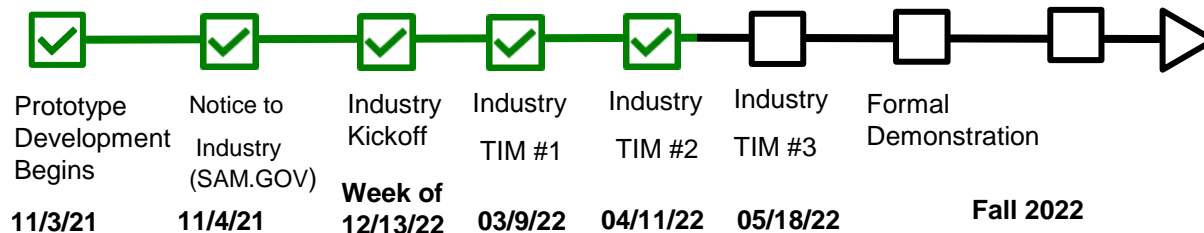**AJM-316**

Federal Aviation Administration

CSS-FD RRA Update

Sprint 1 & 1.5 : Foundational Infrastructure

- Data Management & Security Framework
- Flight Plan Filing

Prototype Development Begins	Notice to Industry (SAM.GOV)	Industry Kickoff	Industry TIM #1	Industry TIM #2	Industry TIM #3	Formal Demonstration
11/3/21	11/4/21	**Week of 12/13/22**	03/9/22	04/11/22	05/18/22	**Fall 2022**

Sprint 1 & 1.5 functionality have been combined into one sprint to increase benefit and reduce the timeframe for the activity at large.

*Sprint 1.5: Initial FPL Exchange / Feedback

- Evaluation of Constraints / Restrictions
- Flight Specific Feedback
- Flight Plan Update messages and Trial Request messages
- Re-evaluation Process
- Addition of ICAO-standard FF-ICE message types

Goals of CSS-FD RRA

- Receive feedback on CSS-FD flight planning & filing capabilities
- Understand integration needs with eAU systems
  - Validate technical interfaces between FAA and operators
  - Ensure data reconciliation needs with eAU data
- Leverage capabilities of operator's modern analytics and SWIM interfaces

CSS-FD RRA Update

10 Industry Users have agreed to participate in the RRA Demonstration & Lab Trials/Testing

Conducted Technical Interchange Meetings (TIM) with Industry

- TIM #1
    - Provided Industry an Introduction to FIXM 4.2 Standards and Templates
    - Reviewed Interface Use Cases
    - Discussed Constraints
    - Process Flows

- TIM #2
    - Reviewed Templates (submission, response)
    - Reviewed Specific Use Cases Submitted by Participants

- Currently working with participants to establish connection to the SWIM Test/Development environment in preparation for connecting to the CSS-FD prototype

Contact Info

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✉ **Cora Buck**
CSS-FD Lead
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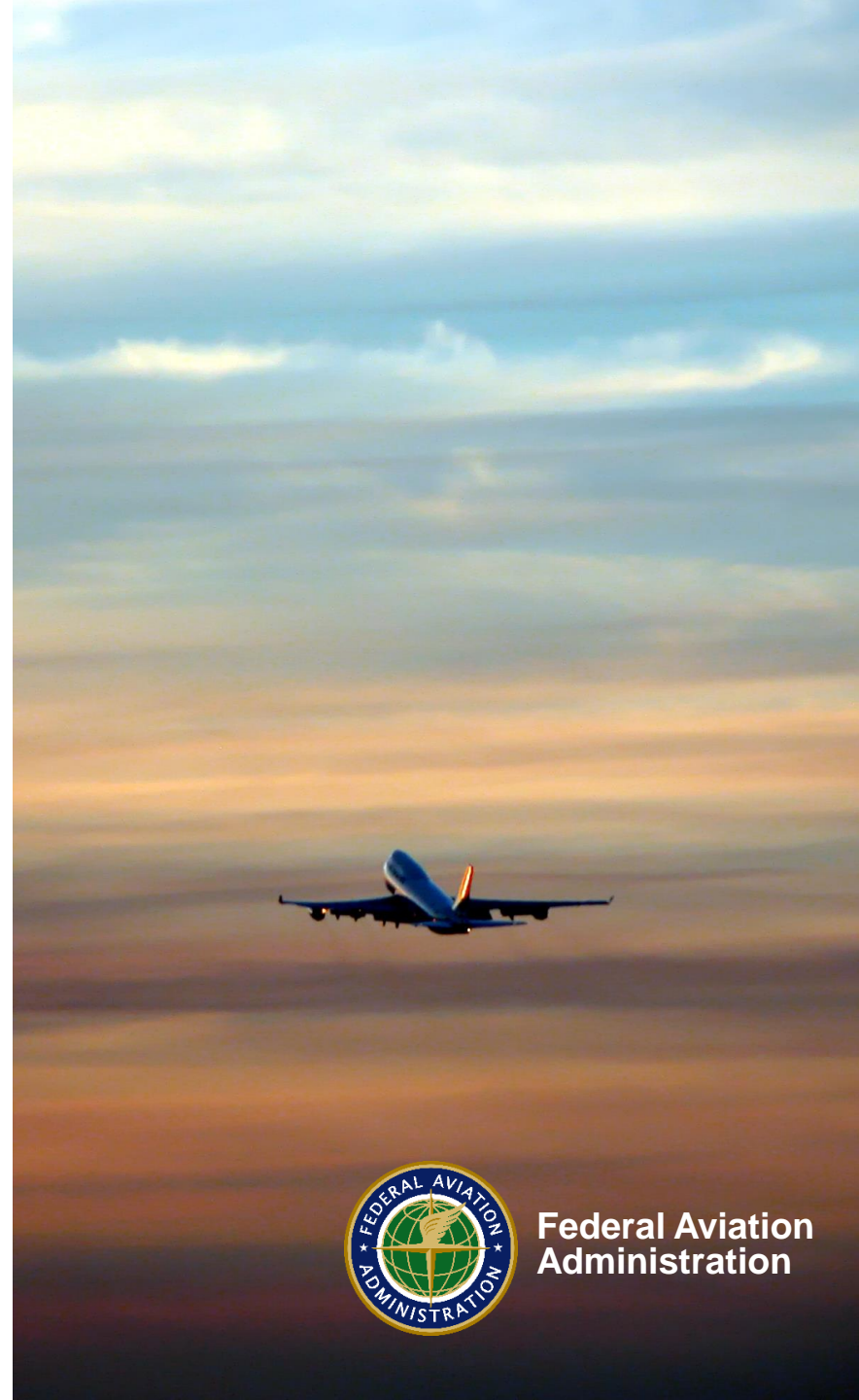
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- **Responses due by: June 3, 2022**

Questions?

Upcoming SWIM Events

- **SWIFT 18**
  - Wednesday, May 25, 2022 from 12:30-4pm ET
  - SWIFT@faa.gov

- **ATCA Technical Symposium** *postponed*
  - *Now joined with ATCA Annual, Nov. 6-9, 2022 in Washington, DC*

Thank You

Questions? Email swim@faa.gov

SWIM Users Forum
April 15, 2021
May 2022

Federal Aviation
Administration

4545