



ICAO

International Civil Aviation Organization

**THE FIFTEENTH MEETING OF THE COMMON
AERONAUTICAL VIRTUAL PRIVATE
NETWORK OPERATIONS GROUP (CRV OG/15)**

Mumbai, India, 15-19 June 2026

Agenda Item 3: CRV OG Reference documents
– Outcomes of Joint CRV OG Ad-hoc Expert and SWIM TF TLs Meetings

OUTCOMES OF DISCUSSION ON SWIM SANDBOX NEEDS

(Presented by the Secretariat)

SUMMARY

The paper presents information on outcomes of the discussion on SWIM sandbox needs agreed upon during the joint Meeting of SWIM and CRV experts in September 2025, for meeting information.

1. INTRODUCTION

1.1 The ICAO APAC CRV-SWIM Experts Workshop: Reviewing of CRV II Specifications and ICAO APAC SWIM Architecture was held from **1 – 5 September 2025** in the ICAO APAC Regional Office, Bangkok, Thailand. The Workshop was attended by **44** participants from **Twelve** (12) Member States/Administrations and **Two** (2) International Organizations. The Meeting report and other documents of the Workshop can be accessed at the ICAO APAC Meeting webpage at: <https://www.icao.int/APAC/MeetingDocs?fid=584>

1.2 This paper presents outcomes of the discussion on SWIM sandbox needs agreed upon during the joint Meeting of SWIM and CRV experts in September 2025, for meeting adoption.

2. DISCUSSION

2.1 During the Joint Meeting of CRV OG Experts and SWIM TF Task Leads on 12 November 2024, SWIM TF informed the CRV OG that it is interested in developing or purchasing a SWIM Sandbox tool for APAC States/Administration, which can be used to test SWIM in a lab environment. It was added that this **sandbox will help States understand the benefits of SWIM**. However, the funding and process required for tool acquisition required further discussion.

2.2 In the same meeting, CRV OG Co-chair (Asia) informed that Airways New Zealand has done virtualization work in their corporate operational and secure monitoring spaces. It was added that the CRV OG Co-Chair (Asia), with the support of Airways New Zealand, can host the sandbox if detailed requirements can be shared. SWIM TF Co-Chair agreed to share a list of the functionalities expected from the SWIM sandbox.

2.3 Owing to differing priorities between the CRV Ad-hoc Expert Group and the SWIM TF Task Leads, progress on this activity remained limited from 2024 through mid-2025.

2.4 In the In-Person Workshop of CRV OG Ad-hoc Expert Group and SWIM TF Task Leads in September 2025, the draft requirements and functionalities document for the Regional SWIM

Sandbox, provided in **Appendix A**, was presented to the Workshop. It was acknowledged that the benefits of SWIM lie in improved performance of operational ATM services requiring timely and quality information exchanged via SWIM. However, while a few APAC States/Administrations have made good progress in SWIM implementation, many continue to face challenges due to limited understanding of the SWIM concept, its operational requirements and technical implementation processes.

2.5 To help States meet the APAC SWIM implementation timeline, it was proposed to establish a regional SWIM Sandbox. This platform would allow States/Administrations to gain hands-on experience in SWIM development, addressing challenges in formulating technical and operational requirements, and assessing potential implementation impacts. The Sandbox would also provide a simulated environment for States/Administrations to test and experience SWIM, and to better understand the initial investment needed for SWIM implementation.

2.6 After sharing details of expected functions and specifications, the Workshop noted that the proposed scope of the Sandbox **aligns more closely with the demonstration phase of software development**, whereas a sandbox typically refers to the development and/or pre-production phase. Therefore, it was suggested to rename the **Regional SWIM Sandbox** to a name better reflecting its intended role, such as the **Regional SWIM Development Environment**

2.7 The Workshop also discussed network options, either CRV or the Internet, for establishing the regional SWIM sandbox. It was concluded that the Internet would be the preferred option, as it offers better accessibility for users. Moreover, the Workshop deliberated on a phased approach to developing the SWIM development/test tool/environment, e.g., Phase I to promote understanding of SWIM within the region, Phase II to support validation of SWIM information services.

2.8 It was recommended that SWIM TF continue discussions on the draft document and on the phased development of such a SWIM development/test tool/environment. Meanwhile, States/Administrations were encouraged to use existing platforms, such as the USA-hosted [FAA SWIFT Portal](#), to gain initial hands-on experience with SWIM.

2.9 SWIM TF will share further technical details with the CRV OG Co-Chair (Asia) if there is a need for support for hosting the SWIM Sandbox.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information given in the paper; and
- b) discuss any relevant matter as appropriate

Regional SWIM Sandbox

High-level system requirements

- Support functions of Gateway EMS(s) and Edge EMS(s) in the agreed APAC Hierarchical Architecture constructed over IP-based network, e.g. the Internet
- Support routing mode using:
 - Message properties
 - Topic routing
- Support AMQP 1.0 (or AMQPS) and REST
- Credentials setup module to create user account to access EMS
- Queue/Topic configuration module
- Support Message Exchange Pattern (MEP) of Request/Reply, Publish/Subscribe and Fire-and-Forget

HMI

- Message publication screen for publisher with topic and message properties configuration
- Message subscription screen for consumer
- History screen for both publisher and consumer
- Routing configuration screen for SWIM administrator

Functionalities

- Message sending and receiving module for simple message exchange
- Pre-configured demo scenarios using information exchange model e.g. FIXM, IWXXM

Documentation

- SWIM overview (with graphics/images)
- Routing configuration manual