



ICAO

*International Civil Aviation Organization*

**Third Meeting of the Surveillance Study Group  
(SURSG/3)**

(Hong Kong China, 22– 24 March 2023)

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**Agenda Item 4:** Progress update of SWIM Trial Implementation Group (S3TIG)

**OUTCOME OF THE KICK OFF MEETING OF THE SURVEILLANCE SHARING IN  
SWIM (SYSTEM WIDE INFORMATION MANAGEMENT) TRIAL IMPLEMENTATION  
GROUP (S3TIG)**

(Presented by the Secretariat)

**SUMMARY**

This paper presents the outcomes of the Kick off Meeting of the Surveillance Sharing in SWIM (System Wide Information Management) Trial Implementation Group (S3TIG).

**1. INTRODUCTION**

1.1 The Sixth Meeting of the APAC SWIM Task Force (SWIM TF/6) was held from 17 – 20 May 2022 via Video Tele-Conferencing (VTC). The Meeting was attended by **213** participants from **18** States/Administrations, **5** International Organizations and **1** service provider. The Meeting report, working papers, information papers and other resources of SWIM TF/6 Meeting are available at <https://www.icao.int/APAC/Meetings/Pages/2022-SWIM-TF6.aspx>.

1.2 The Seventh Meeting of the Surveillance Implementation Coordination Group (SURICG/7) was held from 24 to 27 May 2022 via VTC. The Meeting was attended by **117** participants from **21** States/Administrations, **4** International Organizations and **2** service providers from industry. The Meeting report, working papers, information papers and other resources can be accessed at <https://www.icao.int/APAC/Meetings/Pages/2022-SURICG-7.aspx>.

1.3 The Second Meeting of the Surveillance Study Group (SURSG/2) was held via VTC from 15 to 17 March 2022. The Meeting was attended by **97** participants from **16** States/Administration and **2** International Organizations and **1** industry partner. The Meeting report, working papers, information papers, and other resources can be accessed by following link: <https://www.icao.int/APAC/Meetings/Pages/2022-SURSG2.aspx>

1.4 This paper summarized the outcomes of the Kick off Meeting of Surveillance Sharing in SWIM (System Wide Information Management) Trial Implementation Group (S3TIG) held on 6 December 2022 via VTC.

**2. DISCUSSION**

2.1 The SURSG/2 Meeting provided a progress summary of SURSG tasks since SURSG/1, listed out major recommendations in the Study Report, and proposed way forwards for the recommendations.

**Table 1 – High-Level Recommendations from Study Report**

	<b>Recommendation/Approach</b>	<b>Moving Forward</b>
<b>General</b>	<ol style="list-style-type: none"> <li>1) Bottom up and starting small and simple approach</li> <li>2) Commercial participation to accelerate implementation</li> <li>3) Implementation Sequence                      Stage 1 – Tier 2 ADS-B data sharing                      Stage 2 – Tier 1 ADS-B data and other surveillance data sharing</li> </ol>	<p>(1) Surveillance data sharing for purposes of ATFM operation (Tier 2)</p>
<b>Technical</b>	<ol style="list-style-type: none"> <li>1) Hybrid Model with the coexistence of ANSPs operating their own EMSes and ANSP accessing centralized SWIM services.</li> <li>2) Service level of shared data (<i>The figure is extracted from the AIGD v13.0 and subject to review the applicability and suitability given the SWIM service level</i>)                     <p><b>Tier 1</b></p> <ol style="list-style-type: none"> <li>(i) System Availability: Total Service Availability &gt; 99.9%</li> <li>(ii) System Reliability: Total Service MTBF &gt; 50,000 hours</li> <li>(iii) Aircraft Updates: 0.5 second &lt; Interval &lt; 5 seconds</li> <li>(iv) Data Latency: 95%: &lt; 2 seconds</li> </ol> <p><b>Tier 2</b></p> <ol style="list-style-type: none"> <li>(i) System Availability: Total Service Availability &gt; 90%</li> <li>(ii) System Reliability: Total Service MTBF &gt; 200 hours</li> <li>(iii) Aircraft Updates: 0.5 second &lt; Interval &lt; 60 seconds</li> <li>(iv) Data Latency: 95%: &lt; 60 seconds</li> </ol> </li> </ol>	<p>(2) ADS-B CAT 21 Version 2.1 to be shared by default.</p> <p>Other standardized protocols may be used if agreeable between the contributors and consumers.</p> <p>(3) To start the surveillance data sharing trial in SWIM as soon as possible</p>

<b>Administrative</b>	<p><b>1) Data Contributor</b></p> <ul style="list-style-type: none"> <li>(i) Eligibility – Member States / administrations, aviation stakeholders and industry partners</li> <li>(ii) Data to be shared to all participating users non-exclusively</li> <li>(iii) Share ADS-B data at Tier 2 for ATFM purposes at start.</li> <li>(iv) Responsible for service level sufficiency and data integrity</li> </ul> <p><b>2) Data Consumer</b></p> <ul style="list-style-type: none"> <li>(i) Eligibility – Member states / administrations, aviation stakeholders and industry partners</li> <li>(ii) At own cost and risks connecting to the sharing platform and utilizing the shared data</li> <li>(iii) Formulating own contingency plan in case of data service interruption</li> </ul> <p><b>3) All</b></p> <ul style="list-style-type: none"> <li>(i) Operations Group to be established before trial or implementation to manage various issues arising</li> </ul>	<p>Establishment of a Surveillance Sharing in SWIM Trial Implementation Group (See <i>Notes</i>) to oversee such a trial with following main responsibility and objective:</p> <ul style="list-style-type: none"> <li>a) Coordinating with SWIM Task Force, CRV OG to reflect SWIM development in the trial</li> <li>b) Leading and coordinating with interested states, stakeholders (commercial and non-commercial) to conduct the trial:             <ul style="list-style-type: none"> <li>(i) to demonstrate as far as practicable the general, technical and administrative aspects of surveillance sharing in SWIM in the Study Report; and</li> <li>(ii) to serve as a reference model for future surveillance sharing implementation in SWIM.</li> </ul> </li> </ul> <p><i>Notes:</i></p> <ul style="list-style-type: none"> <li>a. Reporting routing subject to discussion</li> <li>b. Establishment after endorsement from SURICG and ToR to be discussed at SURSG/3.</li> </ul>
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2.2 One of the recommendation and moving forward was the proposal for the establishment of a Surveillance Sharing in SWIM Trial Implementation Group to oversee a trial with following main responsibility and objective:

- a) Coordinating with SWIM Task Force, CRV OG to reflect SWIM development in the trial
- b) Leading and coordinating with interested states, stakeholders (commercial and non-commercial) to conduct the trial:
  - (iii) to demonstrate as far as practicable the general, technical and administrative aspects of surveillance sharing in SWIM in the Study Report; and
  - (iv) to serve as a reference model for future surveillance sharing implementation in SWIM.

2.3 The SURSG/2 Meeting deliberated the necessity for establishment of the **Surveillance Sharing in SWIM Trial Implementation Group (S3TIG)** to oversee a trial proposed by the recommendation. China, Hong Kong China, IATA, Singapore, and Thailand seconded the proposal. PCCWG also indicated its interest in participating in the trial. The SURSG/2 Meeting agreed for PCCWG to participate in the trial and accepted that the recommendations agreed upon would be tabled for SWIM TF/6 and SURICG/7 endorsement.

2.4 To follow up Action Item 2-1 of SURSG/2 to prepare a draft ToR of S3TIG by mid-April 2022 offline, the draft ToR of S3TIG group was sent to SURSG/2 participants for review and comments on **12 April 2022**. In response, India and PCCWG shared their feedback about modifications. The revised ToR after incorporation and consideration of all comments was reviewed by the SWIM TF/6 and SURICG/7 Meeting. The ToR of S3TIG is provided in **Appendix A** to the paper.

2.5 The SWIM TF/6 Meeting discussed the potential need to modify the reporting channel of SURSG from SURICG to SWIM TF. Dr. Amornrat Jirattigalachote, Co-Chair of SWIM TF,

informed that the similar discussion was held in past while forming SURSG. She recalled the previous discussion that the primary part of the work of the SURSG was to find solution for surveillance data sharing. Surveillance data is one of the data being shared on SWIM along with many other data and SWIM is one of the many platforms. Therefore, SURSG reporting to SURICG is agreeable.

2.6 The SWIM TF/6 Meeting supported the need for establishment of S3TIG. Additionally, the SWIM TF/6 Meeting informed that the formation of proposed group as ICAO contributory body or ad-hoc group shall be deliberated and decided in SURICG which was the reporting body of SURSG.

2.7 The SURICG/7 discussed the proposal for establishment of S3TIG. The Meeting noted that the S3TIG proposal was raised in SURSG/2 Meeting and ToR was drafted offline in April 2022 so that the group can start working as soon as possible. Therefore, it would be more effective to form S3TIG as an ad-hoc group within SURSG in lieu of a contributory body under SURSG. As S3TIG members includes the members from SWIM TF, it would not be an issue even not getting consensus for adding SWIM TF in reporting channel of S3TIG in SWIM TF/6. The Meeting considered there is no need for endorsement of a separate ToR of S3TIG in SURICG, as S3TIG will be working as an ad-hoc group within the ToR of SURSG. The Meeting suggested to add ATFM SG into Liaison bodies in S3TIG and requested to add drafting and proposing surveillance data exchange model in the task list of S3TIG ad-hoc group.

2.8 ICAO Secretariat shared State letter ref.: T 8/13.1 – AP109/22 (CNS) dated 24 August 2022 Subject: Establishment of Surveillance Sharing in SWIM Trial Implementation Ad-hoc Group (S3TIG) and requested member states to nominate experts to join the S3TIG. In response, nominations were received from 9 States namely China, Hong Kong China, Indonesia, New Zealand, Singapore, Thailand, Pakistan, Philippines, and Republic of Korea (ROK).

2.9 The kick off Meeting of S3TIG was organised on 6 December 2022 via Video Tele Conference (VTC). The Meeting was attended by 37 Participants from 7 States/Administrations including China, Hong Kong China, New Zealand, Singapore, Thailand, Pakistan, and Philippines.

2.10 The Minutes of the Meeting of the discussion held during kick off Meeting is provided in **Appendix B** to the paper.

### **3. ACTION BY THE MEETING**

3.1 The Meeting is invited to:

- a) note the information in this paper; and
- b) discuss any matters as appropriate.

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## **TERMS OF REFERENCE**

### **Surveillance Sharing in SWIM (System Wide Information Management) Trial Implementation Ad-hoc Group (S3TIG)**

#### **Objectives:**

The Surveillance Sharing in SWIM (System Wide Information Management) Trial Implementation Ad-hoc Group (S3TIG) is established to:

1. support and promote the trial implementation of surveillance data sharing based on System Wide Information Management (SWIM) concept; and
2. demonstrate technically, operationally, and economically viable model options for surveillance data sharing in SWIM environment for reference through implementation trial(s).

#### **Responsibilities:**

The S3TIG shall:

1. Promote collaboration between States, international organisations, aviation stakeholders and service providers to:
  - a. quickly build up a sizable participant base with reasonable breadth of shared surveillance data, and
  - b. cooperatively conduct demonstrations and operate trials.
2. Through collaboration of trial participants, propose governance arrangements, protocols as well as performance measures and objectives necessary to achieve efficient sharing of surveillance data in support of flight operation safety.
3. Produce a safety assessment for surveillance data sharing in SWIM environment based on the outcome of trial implementation.
4. Produce an economic assessment for the establishment and operation of surveillance data sharing through SWIM based on the outcome of trial implementation.
5. In undertaking its activities, the S3TIG shall consider diversity of States in the Asia Pacific Region in terms of complexity and volume of air operations, sophistication of air traffic management services and economic capacity.
6. Drafting and proposing surveillance data exchange model.

**Composition:**

Group Lead - One Group Lead and One Deputy Group Lead to be elected at first meeting of S3TIG from members who are States/Administrations of ICAO APAC.

Members - S3TIG members can be:

1. States/Administrations of ICAO APAC
2. International organizations recognized by ICAO.

**Liaison:**

SWIM TF, CRV OG, ATFM SG

**Conduct of the work:**

The S3TIG will conduct its work through web conferences, teleconferences, and other electronic means of communications and/or Face-to-Face meetings if necessary.

**Reporting:**

The group will report at least annually to SURSG.

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## Minutes of the meeting of Surveillance Sharing in SWIM Trial Implementation Group (S3TIG): 6 December 2022 08:00 AM-10:00 AM BKK time

**Meeting Date:** 12/06/2022 08:00 AM

**Location:** Microsoft Teams Meeting

### Participants:

No.	Name	State/Administration	E-mail
1.	Ms. Honglei Gao	China	<a href="mailto:hlgao_atmb@foxmail.com">hlgao_atmb@foxmail.com</a> ;
2.	Mr. Xin Zhao	China	<a href="mailto:zhaox@atmb.net.cn">zhaox@atmb.net.cn</a> ;
3.	Mr. Jianghe Jia	China	<a href="mailto:jjahmail@163.com">jjahmail@163.com</a>
4.	Mr. Lisi Su	China	<a href="mailto:slslsl13@163.com">slslsl13@163.com</a> ;
5.	Mr. Jin Kaiyan	China	<a href="mailto:jinky@adcc.com.cn">jinky@adcc.com.cn</a>
6.	Mr. Liu Wei	China	<a href="mailto:liuw@adcc.com.cn">liuw@adcc.com.cn</a>
7.	Ms. Chen Xuezheng	China	<a href="mailto:chenxuezheng@tedc-atc.com">chenxuezheng@tedc-atc.com</a> ;
8.	Mr. Vincent Wong	Hong Kong China	<a href="mailto:vplwong@cad.gov.hk">vplwong@cad.gov.hk</a>
9.	Mr. Michael Chu	Hong Kong China	<a href="mailto:mmhchu@cad.gov.hk">mmhchu@cad.gov.hk</a>
10.	Mr. Gene Kwok	Hong Kong China	<a href="mailto:gwhkwok@cad.gov.hk">gwhkwok@cad.gov.hk</a>
11.	Ms. Michelle Siu	Hong Kong China	<a href="mailto:mmsiu@cad.gov.hk">mmsiu@cad.gov.hk</a>
12.	Mr. Henry CHAN	Hong Kong China	<a href="mailto:hhlchan@cad.gov.hk">hhlchan@cad.gov.hk</a>
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14.	Mr. Peter LEUNG	Hong Kong China	<a href="mailto:pyhleung@cad.gov.hk">pyhleung@cad.gov.hk</a>
15.	Mr. Benny Cheng	Hong Kong China	<a href="mailto:benny.hf.cheng@pccw.com">benny.hf.cheng@pccw.com</a>
16.	Mr. Eddy Lee	Hong Kong China	<a href="mailto:elee@pccwglobal.com">elee@pccwglobal.com</a>
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18.	Mr. Bono Ng	Hong Kong China	<a href="mailto:bcng@pccwglobal.com">bcng@pccwglobal.com</a>
19.	Mr. Edmund Heng	New Zealand	<a href="mailto:edmund.heng@caa.govt.nz">edmund.heng@caa.govt.nz</a>
20.	Mr. Andy Alford	New Zealand	<a href="mailto:andy.alford@airways.co.nz">andy.alford@airways.co.nz</a>
21.	Mr. Hamish Helm	New Zealand	<a href="mailto:Hamish.Helm@airways.co.nz">Hamish.Helm@airways.co.nz</a>
22.	Mr. Chris Cloughley	New Zealand	<a href="mailto:Chris.Cloughley@airways.co.nz">Chris.Cloughley@airways.co.nz</a>
23.	Ms. Lee Suk Leng	Singapore	<a href="mailto:lee_suk_leng@caas.gov.sg">lee_suk_leng@caas.gov.sg</a>
24.	Mr. David Leow	Singapore	<a href="mailto:david_leow@caas.gov.sg">david_leow@caas.gov.sg</a>
25.	Mr. Chua Eng Leong	Singapore	<a href="mailto:chua_eng_leong@caas.gov.sg">chua_eng_leong@caas.gov.sg</a>
26.	Mr. Elvin Liow	Singapore	<a href="mailto:elvin_liow@caas.gov.sg">elvin_liow@caas.gov.sg</a>
27.	Mr. Jackson Ho	Singapore	<a href="mailto:jackson_ho@caas.gov.sg">jackson_ho@caas.gov.sg</a>
28.	Ms. Amornrat Jirattigalachote	Thailand	<a href="mailto:amornrat.ji@aerothai.co.th">amornrat.ji@aerothai.co.th</a>
29.	Mr. Arthit Tosukolvan Jin Kaiya	Thailand	<a href="mailto:arthit.to@aerothai.co.th">arthit.to@aerothai.co.th</a>
30.	Mr. Panuwat Punjaburi	Thailand	<a href="mailto:panuwat.pu@aerothai.co.th">panuwat.pu@aerothai.co.th</a>
31.	Engr Muhammad Uzair Bilal	Pakistan	<a href="mailto:uzair.bilal@caapakistan.com.pk">uzair.bilal@caapakistan.com.pk</a>
32.	Mr. Julius Ruel D. Resquir	Philippines	<a href="mailto:julius.resquir@caap.gov.ph">julius.resquir@caap.gov.ph</a>
33.	Mr. Gilmar D. Tiro	Philippines	<a href="mailto:gilmar.tiro@gmail.com">gilmar.tiro@gmail.com</a>
34.	Mr. Florante B. Bañaria	Philippines	<a href="mailto:florantemail@gmail.com">florantemail@gmail.com</a>
35.	Mr. Ernán M. Tangalin	Philippines	<a href="mailto:ernantangalin@gmail.com">ernantangalin@gmail.com</a>
36.	Ms. Nibhani, Soniya	ICAO	<a href="mailto:snibhani@icao.int">snibhani@icao.int</a>
37.	Ms. Zhong Wenhan	ICAO	<a href="mailto:wzhong@icao.int">wzhong@icao.int</a>

**Notes:**

The meeting was chaired by Mr. Vincent Wong, Acting Chief Electronics Engineer of the Air Traffic Engineering Services Division of the Hong Kong Civil Aviation Department (HKCAD) and Chair of SURSG. Ms. Soniya Nibhani, Regional Officer ANS (CNS) Implementation, ICAO Asia and Pacific Regional Office, acted as the secretary of the meeting.

**Adoption of agenda:**

The meeting adopted the provisional agenda provided in Appendix A.

**Agenda Item 1: Election of Group Lead and Deputy Group Lead**

1. Mr. Vincent Wong, Acting Chief Electronics Engineer of the Air Traffic Engineering Services Division of the Hong Kong Civil Aviation Department (HKCAD) and Chair of SURSG, was elected as the Group lead of S3TIG. Dr. Amornrat Jirattigalachote, Strategic Planning Manager (Engineering), Policy and Strategy Management Bureau of AEROTHAI and Co-Chair of the SWIM Task Force, was elected as the Deputy Group Lead of S3TIG.
2. The group lead reminded the meeting about the demonstration of SWIM over CRV initially planned to be conducted in March 2020 in Hong Kong, China, with the support of Thailand and Singapore. The event was deferred due to COVID-19. He suggested restarting the demonstration for SWIM over CRV and conducting a joint trial event to share surveillance data over SWIM and Demonstration for SWIM over CRV.

**Agenda Item 2: Review S3TIG TOR**

4. The meeting adopted the following version of ToR.



S3TIG ToR.docx

**Agenda Item 3: Discuss Implementation Plan of Surveillance Data Sharing in SWIM Trial (WPs and IPs)**

5. The group lead informed the meeting that some preparatory work was done in 2020 for Flight data demonstration over CRV. With the addition of Surveillance data, more preliminary work would be required.
6. The meeting concurred on the joint demonstration of SWIM over CRV and sharing of surveillance data over SWIM. The meeting noted that a joint meeting of SURSG and S3TIG would be conducted in March 2023, and the trial may tentatively take place by Q4 of 2023.
7. Hong Kong China will present WPs/IPs on the implementation plan in the upcoming meeting in March 2023. **ACTION ITEM 1-1.**
8. PCCWG supported the joint event of the SURSG3/S3TIG2 meeting as well as the joint demonstration of SWIM over CRV and sharing of surveillance data over SWIM. PCCWG shared

SURSG/3  
Appendix B to WP/05

that it will provide a platform for the trial and will be a multiparty event. The group lead shared appreciation to the PCCWG for the support.

**Agenda Item 4: Discuss Technical Coordination on Surveillance Data Sharing, timing of Demo and members' commitment to providing data for a longer term to sustain the demo/trial**

9. The group lead requested members' commitment/interest in sharing, consuming, or both for surveillance data to meet the trial's objectives.
10. China shared an interest in participating in the trial, shared ADS-B data, and requested a detailed work plan.
11. New Zealand suggested adding the type and format of data expected for the trial and the amount of data, along with the email about the expression of interest.
12. The group lead shared that the data would be ADS-B, CAT 21, and continuous data stream, potentially from a centralized data processor.
13. The group lead suggested the trial be run for a more extended period of three months. However, the members shared their concerns about the longer duration and suggested keeping it shorter due to operational system and resource limitations.
14. ICAO secretariat will share an email to all members to express their interest in participating in the trial as consumer/contributor/both, along with a questionnaire prepared with the support of the group lead about the feasible duration and other technical aspects required. States will coordinate with their management and inform their interest/response for the trial to the ICAO Secretariat **ACTION ITEM 1-2.**

**Agenda Item 5: Joint SURSG/3 and S3TIG/2 Meeting in Mar 2023**

15. Hong Kong China proposed to host the joint meeting of SURSG/3 and S3TIG/2 tentatively from 22-24 March 2023. The ICAO Secretariat will share the invitation letter mentioning the exact venue and dates of the joint meeting.

## **Appendix A**

### **Provisional Agenda for S3TIG/1**

- Agenda Item 1: Election of Group Lead and Deputy Group Lead
- Agenda Item 2: Review S3TIG TOR
- Agenda Item 3: Discuss Implementation Plan of Surveillance Data Sharing in SWIM Trial (WPs and IPs)
- Agenda Item 4: Discuss Technical Coordination on Surveillance Data Sharing, timing of Demo and members' commitment to providing data for a longer term to sustain the demo/trial
- Agenda Item 5: Joint SURSG/3 and S3TIG/2 Meeting in Mar 2023
- Agenda Item 6: Next Meeting and Any Other Business