

International Civil Aviation Organization



ICAO

**Twenty Fifth Meeting of the Communications/
Navigation and Surveillance Sub-group (CNS SG/25) of
APANPIRG**

Video Tele-Conference, 18 October – 22 October 2021

Agenda Item 3: Aeronautical Fixed Service (AFS)

3.4 Review Report of the Fifth Meeting of System Wide Information Management Task Force (SWIM TF/5)

**REVIEW REPORT OF THE FIFTH MEETING OF SYSTEM WIDE INFORMATION
MANAGEMENT TASK FORCE (SWIM TF/5)**

(Presented by the Secretariat)

SUMMARY

This paper presents the report of the Fifth Meeting of System Wide Information Management Task Force (SWIM TF/5), which was held using Video Tele-Conferencing (VTC) from 9 – 11 August 2021, for review and action.

1. INTRODUCTION

1.1 The Fifth Meeting of the APAC SWIM Task Force (SWIM TF/5) was held from 9 – 11 August 2021 via Video Tele-Conferencing (VTC). The meeting was attended by **166** participants from **21** States/Administrations, **4** International Organizations and **1** service provider.

1.2 The meeting considered **Twenty Two** (22) Working Papers and **Eight** (08) Information Papers under its **Ten** Agenda Items. The papers and report of SWIM TF/5 meeting are available at: <https://www.icao.int/APAC/Meetings/Pages/2021-SWIM-TF-5.aspx>

2. DISCUSSION

Election of Co-Chair

2.1 *Ms. Kristin Cropf*, SWIM Program Manager, Federal Aviation Administration (FAA) nominated by Singapore and seconded by Australia and Japan was elected as Co-Chair of SWIM TF.

APANPIRG/31 outcome of relevant Meetings

2.2 The paper summarized relevant information and updates with the highlight on the reviewed outcomes of SWIM TF/4 and relevant discussions of other meetings of CNS SG/24 and APANPIRG/31 on AFS matters. The meeting also reviewed the outcomes of the First Meeting of the Surveillance Study Group (SURSG/1) held from 20 to 22 April 2021 via VTC and the ICAO APAC SWIM Workshop held from 6 to 7 July 2021 via VTC.

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Expansion of the SWIM Implementation Philosophy - Singapore

2.6 Singapore presented WP/08 regarding expansion of the SWIM Implementation Philosophy which was presented at the SWIM TF/3 through WP/19. SWIM Implementation Philosophy described a ‘bottom up’ approach to SWIM implementation where it starts with picking a particular operational use case that can be better supported by SWIM. Afterwards the SWIM services required to support the chosen use case are specified and developed and then deployed for technical and operational trials. Although these trials are largely focused on technical and operational aspects of SWIM implementation, their scopes should be expanded to include implementation of some governance concepts, especially the ones that have been developed by the task force. It was thus proposed that, when developing services and conducting the technical/operational trials following a bottom-up approach aforementioned, the governance concepts, rules, and/or recommendations should also be identified, implemented, and tested in parallel. Importantly, lessons learnt from implementing these governance concepts should be then reported back to the task force for further refinement. The meeting agreed for the expansion of the SWIM Implementation Philosophy to include governance. The meeting noted that implementation of governance is an iterative process and it will be modified based on the lesson learnt throughout the implementation of SWIM.

Proposal to Survey SWIM Implementation Plan and Status in Asia/Pacific - Singapore and Thailand

2.7 In WP/17, Singapore and Thailand presented a proposal for a survey to be conducted by Task 1 group of SWIM TF. Considering the high diversity among Member States in the Asia/Pacific region, it is challenging to devise a regional plan to achieve the region-wide harmonization while not neglecting the constraints of each Member States. To create a baseline picture of SWIM implementation plan and status within the region, it was proposed to conduct a survey to obtain the current status and views towards SWIM implementation of the Asia/Pacific Member States

2.8 CNS SG/22 in 2018 adopted **Conclusion CNS SG/22/6** and the first Asia/Pacific Regional SWIM Survey was conducted during December 2018 to March 2019 with feedbacks from 17 States/Administrations received. Based on the survey results, SWIM TF/3 agreed that higher priority should be given to the SWIM implementation for cross-border ATFM and A-CDM operations. This survey result laid a foundation for the significant SWIM development in the Asia/Pacific.

2.9 Singapore and Thailand proposed the scope of survey questions and that Task 1 group to be responsible for the conduct, collection, and analysis of this survey. Japan suggested that, in preparation of the survey questionnaire, the minimal usage of the term SWIM should be considered as the APAC Member States may have limited or different understanding of SWIM. Additionally, the meeting discussed that the draft questionnaire should be supported by an attachment, which explained the technical terms used in the survey for easy reference of Member States. **ACTION ITEM 5-3**; SWIM TF/5 adopted following draft Conclusion for the CNS SG/25 meeting consideration:

Draft Conclusion CNS SG/25/xx (SWIM TF/5/01) – Asia/Pacific SWIM Implementation Plan and Status Survey	
What: To conduct a survey on SWIM implementation plan and status of Asia/Pacific Member States.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental

		<input checked="" type="checkbox"/> Ops/Technical
Why: To establish a baseline understanding of SWIM implementation plan and status within the Asia/Pacific region so as to aid the development of the regional SWIM implementation roadmap.	Follow-up:	<input checked="" type="checkbox"/> Required from SWIM TF Task 1 group and Member States
When: 22-Oct-21	Status:	Draft to be adopted by Subgroup
Who:	<input type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: XXXX	

2.10 ROK suggested that the views of MET, ATFM and other SWIM users should be included in the response of *Asia/Pacific SWIM Implementation Plan and Status Survey*. To ensure that, the meeting agreed to add an introduction into the survey, mentioning that the *Member States should respond to the survey in consultation with MET, ATM, and other service providers*, who may be potential users of the SWIM. **ACTION ITEM 5-3**

SWIM Infrastructure to Achieve Message Level Security - Japan, Thailand, and

USA

2.11 WP/21 presented the technical implementation of security service on SWIM through a scenario-based validation and analyzed some concerns and challenges to achieve end-to-end security through a SWIM-based trust framework. The meeting was reminded of the SWIM TI security capabilities as mentioned in the Manual on SWIM (Doc 10039). It was also informed that, in order to validate the PKI based trust framework concept and the implementation of SWIM TI security capabilities, the test platform has been developed by the team of Multi-Regional Trajectory Based Operation (MR TBO) demonstration led by FAA. The high-level system architecture of MR TBO, the security service components as well as the approaches to implement SWIM TI security functional capabilities and non-functional qualities were discussed. The meeting was requested to provide the paper to Task 2, Task 3, Task 5 and Task 6 groups of SWIM TF along with CRV OG and ACSICG for deliberations. **ACTION ITEM 5-4**

Update on Information Exchange Model Development to Support ATFM operations, ATFM/A-CDM integration, and FF-ICE/TBO in Asia/Pacific Region- Thailand

2.12 By WP/12, Thailand presented the update on FIXM version 4.2 Extension development to support the information exchange required for cross-border ATFM operations, ATFM/A-CDM integration, and FF-ICE/TBO in the Asia/Pacific Region along with a preliminary list of data attributes to be included in the FIXM version 4.2 Extension being developed. Particularly, with the release of FIXM version 4.2 in February 2021, the Asia/Pacific FIXM version 4.1 Extension, which was adopted by APANPIRG/30 in November 2019 for use by Asia/Pacific States/Administrations to support the cross-border ATFM information exchange, have been updating to version 4.2.

2.13 Based on the operational scenarios developed for the Multi-Regional TBO Demonstration, data attributes required to support A-CDM, traffic synchronization, FF-ICE, and TBO were identified and it was therefore decided that the FIXM version 4.2 Extension being developed will include these data attributes in addition to the data attributes included in the Asia/Pacific FIXM version 4.1 Extension. However, it was found that FIXM version 4.2 Core can support the exchange of some data attributes originally included in the Asia/Pacific FIXM version 4.1 Extension. The development and validation of FIXM version 4.2 Extension was expected to be completed in August 2021, followed by a system-to-system interconnection test with other States/Organizations planned to be conducted by October 2021. The meeting encouraged that other APANPIRG Working Groups and Task Forces, which are highly likely to have the operational requirements to use FIXM to support their related

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operations, should submit their consideration to SWIM TF in order to have Extension developed in due course if deemed necessary.

SWIM Discovery Service (SDS) Demonstration and Lesson Learned - ROK and USA

2.14 In WP/09, ROK and USA informed about USA FAA and ROK Korea Airport Corporation (KAC) efforts to develop SWIM Discovery Service (SDS) to support transparent and replicable discovery of SWIM services in the APAC region. The paper described a brief summary of the SDS concept, the SDS demonstration environment and scenario, and shared the lessons learned from the SDS effort. The meeting congratulated ROK and USA for successful demonstration of discovery services. Thailand also expressed their interest to join this work.

Service Level Agreement (SLA) in Context of APAC SWIM- Introduction - USA

2.15 WP/10 described the enabling technologies and practices for instituting a SWIM Service Level Agreement (SLA) in the context of APAC SWIM. The paper explained commonly recognized objectives for deploying an SLA, an SLA's actors and their interactions, and important terms. The paper concluded that establishing an SLA is a critical step in creating a sustainable SWIM environment. The meeting discussed that use case-3 SLA management with participation of SLA manager may be appropriate reference for Asia/Pacific region. The next Task Leads coordination meeting may discuss in detail about the way forward for this proposal. **ACTION ITEM 5-5**. It was also proposed that Task 5 group may provide a common SLA template, proposal on SLA management approach, and their validation methodologies. **ACTION ITEM 5-6**

SWIM Interoperability Assessment Matrix (SIAM) - USA

2.16 WP/11 introduced the SIAM and how the SIAM can be used for interoperability assessments, articulation of requirements and supporting the planning and validation of SWIM components in international geo-organizational settings. The paper concluded that SIAM provides a structural and systematic approach for evaluating interoperability in the context of global SWIM initiatives. It is designed to be used as a tool for supporting interoperability analysis and articulating requirements as well as for planning and validating. Furthermore, it is designed in a manner that promotes extensibility and scalability which may be modified to meet business requirements that may emerge in the future.

Comparison of information service overviews and proposed APAC version - Australia and Hong Kong, China

2.17 Australia and Hong Kong, China presented a review of currently existing SWIM Registries and their metadata fields, and compared them to the proposed PANS-IM Service Overview fields. Recommendations were made in respect to additional APAC fields for initial version of APAC Service Overview Specification. The proposed additional Service Overview fields for the use in APAC and its advantages were presented. The meeting reviewed the proposed new APAC Service Overview fields and supported the draft version of APAC Service Overview Specification. With the possibility that the same information services may be offered by different service providers, in particular in the MET domain, as shared by Australia, the meeting thus suggested Task 6 to consider the addition of Service Overview elements taking into account this matter. Australia informed that, in order to capture the feedback and suggestions from the APAC SWIM community on the extensions for SWIM Service Overviews, Australia has setup an "issues" list on GitHub, which can be accessed by the link:

<https://github.com/icao-apac/service-overview/issues> and Australia will also publish the APAC SWIM Service Overview Extensions document at: <https://icao-apac.github.io/service-overview/>

IMP Updates - Japan

2.18 Japan informed by WP/18 about Tenth Working Group meeting of the Information Management Panel (IMP-WG/10), held virtually *from 26 to 30 April 2021*, to prepare for the Second meeting of the Information Management Panel (IMP/2) which will take place at the end of September, 2021. Meeting was informed that the IMP-WG/10 reviewed consolidated draft PANS-IM and agreed to circulate, via email, the draft PANS-IM to the ICAO Panels for coordination. Additionally, the meeting reviewed the latest version of SWIM Manual Volume II – Implementation Guidance, but due to the large number of feedbacks received at the meeting, a revision process is underway for IMP/2. The joint ATMRPP/4 and IMP-WG/10 meeting reviewed FF-ICE provisions, which provided an update on the work of the ATMRPP concerning the development of proposed amendments to ICAO documents to support the initial implementation of FF-ICE services (FF-ICE/R1), and highlighted areas on which the IMP was invited to provide feedback. The joint meeting was also provided with the outcome of a preliminary review conducted by the ATMRPP on draft SWIM provisions in the context of assessing appropriateness for FF-ICE implementation. Target timeframe for the application of SWIM and related provisions were discussed and it was noted that FF-ICE/R1 requires SWIM environment, so FF-ICE provision is considered to be applicable at the same time as SWIM but SWIM and FF-ICE are not expected to be introduced simultaneously by all Contracting States and Airspace Users. The meeting agreed to ensure that the APAC SWIM implementation roadmap and the development of other APAC SWIM materials shall be based on the deadline of November 2024.

Update on SWIM Regional Coordination - IATA on behalf of SWIM TF

2.19 IATA on behalf of SWIM TF provided a brief on key SWIM activities being undertaken in Asia & Pacific Region and primarily discussed at other ICAO APAC WG and TF meetings plus other industry meetings and webinars by WP/07. Mr. John Moore, IATA, informed that due to high work load, he would need to resign from the position of Task Lead of Task 10. However, he would continue to attend SWIM TF meetings, when available, and he will remain the point of contact between the SWIM TF and the airlines. He invited Member States for the nomination for Task Lead of Task 10 and for the contribution to SWIM TF. The meeting appreciated the contribution and consistent hard work of Mr. John Moore for SWIM TF in last five years. ICAO Secretariat and Co-Chairs of SWIM Task Force extended their gratefulness to Mr. John Moore for very concise and relevant information provided at various meetings.

Update on APAC SWIM Implementation Materials – Sec

2.23 ICAO Secretariat updated that IMP is in the process of developing a draft SWIM Manual Vol. II Implementation Guidance (Doc 10039) to provide top-level guidance. The two task leads meetings held in the year 2021 focused on the Statement of Work (SOW) updates, timelines revision, and sub-tasks of revised Task 1-11 and to conduct ICAO APAC SWIM Workshop, which was successfully conducted on *06 July-07 July 2021*. The participants and concerned parties were encouraged to provide and share SWIM related video, training materials and other useful information to SWIM TF and Secretariat for future compilation on **ICAO APAC-SWIM** Secure Portal. The Task Leads and the associated contributors were also requested to prepare their consolidated input to the APAC SWIM Implementation Materials based on their presentations and studies on subject/tasks assigned. Dr. Amornrat Jirattigalachote added that APAC SWIM TF is not going to develop a new standard for Asia/Pacific region but SWIM TF need to streamline all outputs from various tasks and need to adopt technical specifications, regional exchange models, information services etc. from regional perspective.

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Review Programme and Outstanding Action Items – Co-Chair and Sec

2.25 The Meeting reviewed the SWIM TF Work Plan and the Action List. The updated list of Task Scope and Task Leads is provided in **Appendix A** and the updated Action List is provided in **Appendix B**. The meeting revised the ToR considering the progresses made since the establishment of SWIM TF, the update of ICAO global and regional air navigation plans, and the revised task groups adopted at SWIM TF/4. Australia proposed to remove “over CRV” terminology used in section c of the ToR, as SWIM should not be limited to communications via the CRV, while Japan and Hong Kong, China were not in agreement to the proposal. The meeting decided to retain “over CRV” terminology as it was added after several deliberations of SWIM TF and invited Australia to submit a working paper to SWIM TF/6 to provide details of her concerns related to this terminology for further consideration.

2.26 SWIM TF/5 adopted following draft decision for CNS SG/25 consideration:

Draft Decision CNS SG/25/xx (SWIMTF/05/02) – Revised SWIM TF Terms of Reference	
What: That, the revised SWIM TF Terms of Reference (ToR) as shown in Appendix D is adopted.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: To align with the progress made since the establishment of SWIM TF, the update of ICAO global and regional air navigation plans, and the revised task groups under SWIM TF adopted at SWIM TF/4.	Follow-up: <input checked="" type="checkbox"/> Required from CNS SG/25
When: 22-Oct-21	Status: Draft to be adopted by Subgroup
Who: <input checked="" type="checkbox"/> Sub groups <input type="checkbox"/> APAC States <input type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: XXXX	

2.27 The reviewed Statement of Work (SOW) adopted by the meeting is provided in **Appendix C** and the ToR endorsed by the meeting to be adopted by CNS SG/25 is provided in **Appendix D**.

APAC SWIM profile discussion - Australia

2.28 By WP/19, Australia informed that a key aspect for regional (and global) interoperability for SWIM is to define the Technical Infrastructure Profile for the participating stakeholders. In SWIM TF/4 IP/04, Australia proposed that there should be an APAC regional approach to the development of a common SWIM Profile that resulted into an Action Items 4-13. Australia informed that currently, there are a number of Profiles in use (or defined) for SWIM (globally) and the most famous SWIM Profile is the EUROCONTROL Yellow Profile available at: https://www.eurocontrol.int/archive_download/all/node/10691

2.29 Task 2 lead, responsible for APAC SWIM technical infrastructure development, responded to the five questions raised in the paper regarding the need for APAC Technical Infrastructure Profile and informed that SWIM TF sees the benefits in defining a SWIM Profile for the APAC Region stakeholders. He mentioned that USA and Europe have their own SWIM Profile, which have been developed based on experiences gained during SWIM validation and implementation, but none of them

fully satisfies Asia/Pacific requirements. Most of Asia/Pacific Member States are currently non-SWIM capable. Therefore, at initial stage, SWIM TF needs to support the Asia/Pacific Member States to evaluate and build their SWIM capabilities and once some experiences are gained, SWIM Profile for APAC region may be developed. The meeting noted that SWIM TF may get some references related to SWIM Profile in SWIM Manual Vol II begin developed by IMP.

Updates on the development of the ICAO meteorological information exchange model (IWXXM) - Hong Kong, China

2.30 Hong Kong, China summarized the updates on the development of IWXXM as discussed in ICAO METP/5 and associated works being carried out by the ICAO METP working groups and WMO Task Team on Aviation Data (TT-AvData). It was informed that new IWXXM design was reviewed in METP/5 and the Panel noted that the new design is rather generic and further exploration would be required by the Working Group on Meteorological Information Exchange (WG-MIE) in collaboration with the Working Group on Meteorological Requirements and Integration (WG-MRI) and the Working Group on Meteorological Information Service Development (WG-MISD). The Panel agreed to share the new IWXXM design concepts with the other ICAO Panels and their working groups.

Multi-regional TBO demonstration (MR TBO Demo) - Japan, Singapore, Thailand, and USA

2.31 WP/15 presented an overview of MR TBO Demo, a collaborative project undertaken by Japan, Singapore, Thailand, USA, and Canada to validate TBO concept as well as to showcase the TBO operational values and technical capabilities required to support TBO. The paper explained that the main objectives of this demonstration are to explore the impacts of TBO within the context of modernization initiatives and to support the development of information exchange standards and related ICAO materials. MR TBO Demo is divided into two phases: Phase 1 (*May 2020 – July 2021*) and Phase 2 (*July 2021 – 2022/2023*) and to assess the risk for Phase 2, technical exercise was conducted virtually on 23-24 June 2021.

Thailand's SWIM implementation roadmap

2.32 Thailand presented an overview of Thailand's SWIM implementation roadmap and lessons learnt during the planning process by WP/16. In March 2018, Thailand's National Airspace Policy was approved by the Cabinet of Thailand after which Thailand's National Airspace and Air Navigation Master Plan (NANP) was developed by taking into account ICAO GANP, ICAO Asia/Pacific Seamless ANS Plan, Beijing Declaration, and ASEAN ANS Master Plan; afterwards NANP was approved in August 2019. To fulfill the information management-related objectives set in NANP, Thailand's Information Management Technical Working Group (IM TWG) was established in September 2020 to devise Thailand's SWIM implementation roadmap and the corresponding detailed implementation plans. It is planned that SWIM in Thailand will be rolled out stepwise in the form of feedback loop. The meeting noted about the efforts on SWIM knowledge sharing activity and FF-ICE tabletop exercise within AEROTHAI, held in *July and October 2020*, respectively. The meeting also considered utilizing Thailand's SWIM implementation roadmap and SWIM knowledge sharing outline as inputs for the tasks to be conducted by Task 1 and Task 11, respectively. It was added that the survey proposed by WP/17 may use Thailand's SWIM implementation roadmap as a reference for preparation of questionnaire.

Proof-of-concept for surveillance data sharing on SWIM by Surveillance Study Group (SURSG) - Hong Kong, China

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2.33 Hong Kong, China proposed a proof-of-concept (POC) for surveillance data sharing on SWIM to be conducted in Hong Kong China for States' reference. Meeting noted that hybrid model has been successfully demonstrated during the SWIM in ASEAN Demonstration in November 2019 and is considered as a suitable infrastructure for SWIM implementation in APAC. A high-level system block diagram of the POC was shared. Meeting was requested to provide support to the proof-of-concept of surveillance data sharing on SWIM and on-going work of the SURCG.

Proof of concept for exchanging aeronautical, flight and weather data through SWIM platform- India

2.34 India presented the plan and progress of the Proof of Concept (POC) undertaken by India to prepare a roadmap for the ground-to-ground SWIM implementation. The main objective of this initiative is to globally exchange aviation related data with various stakeholders through SWIM. It was informed that the project focused on building SWIM Technical Infrastructure, generating digital datasets for Digital NOTAM, OPMET & Flight related ATS messages. India proposed to interface its SWIM system with Global SWIM systems such as EUROCONTROL, ASEAN, FAA and other SWIM system to consume and publish the aeronautical data. India requested meeting that States already engaged in developing SWIM to facilitate interface with India's SWIM for testing and validation of final outcomes. Thailand shared its willingness to support the test with India to validate the final outcomes.

The validation and demonstration of FIXM extension model in China - China

2.35 China presented the validation and demonstration of FIXM ATMB ATFM Extension Model whose purpose was to validate the feasibility and availability of FIXM extension model in China. Based on FIXM APAC FLOW Extension Model, ATMB of CAAC has developed the FIXM ATMB ATFM Extension Model. A SWIM Simulation Test System (SWIM-STS) was developed to validate and demonstrate the process implementation of information services and message exchange required for ATFM/A-CDM operation based on FIXM ATMB ATFM Extension Model. CDM (Collaborative Decision Making) is the main ATFM measure currently used in China and considerable ATFM Restriction Information and Flight Collaborative Information need to be shared and exchanged among ASPs (ATM Service Providers), AOPs (Aerodrome Operators) and AUs (Airspace Users). FIXM ATMB ATFM Extension Model can support the operational requirement of national ATFM in China and facilitate a seamless and agile information exchange for ATFM/A-CDM integration.

Research of air-ground System Wide Information Management in China - China

2.36 China presented the research progress and plans of Air-Ground SWIM in China, proposed an air-ground information exchange model, and a new SWIM architecture. China informed that the implementation of SWIM can be divided into two steps: Ground-Ground SWIM and Air-Ground SWIM and ATMB of CAAC plans to carry out the verification of the Air-Ground SWIM in 2021-2023 based on its established regional SWIM platform. China presented its Air-Ground Information Exchange model and explained that Air-Ground SWIM in China plans to adopt a data model of "identity verification information + data information + verification information" while applying new technologies to establish SWIM architecture.

Experimental trial on surveillance data exchange in SWIM environment - ROK

2.37 By IP/05, ROK shared its experience on an experimental trial of surveillance data exchange in the SWIM environment and described motivation/requirements, system configuration/architecture,

services, SWIM-enabled application, and lesson learned. Based on the experiences gained and the lessons learned by ROK, the meeting agreed to share this IP/05 with SURSG for further deliberations.
ACTION ITEM 5-7

The status of SWIM as an ATM backbone in the ROK - ROK

2.38 ROK presented IP/06 regarding the status of SWIM as an ATM backbone network in the ROK and described the national roadmap to implement the local SWIM backbone network. ROK informed about its the master plan of ATM and Navigational Aid systems and the master plan for the next five years to improve airport competitiveness, develop the aviation industry, strengthen interconnections, and prepare a systematic roadmap. ROK Roadmap for Transition to SWIM in two stages was explained and the drawing of its new aviation intra network including SWIM infrastructure deployment to exchange the real time information in a service-oriented architecture (SOA) for users were shared. It was expected that it will boost up the usage of aviation data with standard models nationally and internationally and inform that FAA's SWIM Backbone is a best one for reference.

Semantics in the aviation industry whitepaper - Australia

2.39 Australia shared IP/07 whitepaper discussing the role that Semantic Technologies will play in the future for the Aviation Industry and outlines a roadmap for SWIM services. Australia reviewed the current state of data standards in the aviation industry and looked at the pathway to a future of enhanced data capabilities, specifically, the use of Semantic Web technologies and the impact these will have on defining the strategic future for aeronautical, flight, and meteorological data services. It was presented in the paper that the roadmap to future needs wide industry consensus and planning and promises to deliver improved opportunities for data sharing, data automation, and data knowledge for safer skies. The meeting encouraged Member States to refer to the document titled Semantics in the Aviation Industry provided in Appendix to IP/07. Additionally, the meeting noted that <https://semantics.aero/> currently hosts several semantic artifacts developed for the aviation domain.

A Hybrid Networking Solution Compatible with Legacy Systems - China

2.40 By IP/08, China presented a hybrid networking solution compatible with legacy systems under IP backbone network and realized compatible transition between legacy systems and SWIM-enabled systems through emulation technology at the transport layer and data protocol conversion technology at the application layer. As the implementation of SWIM relies on a high-speed IP backbone network, in order to achieve compatibility with legacy systems, PWE3 (Pseudo-Wire Emulation Edge to Edge) was used to emulate early transmission networks over a backbone network provided by ISP and a part of network protocol was simulated based on MPLS network through emulation technology in the transport layer. Furthermore, in application layer, the construction of the exchange system was based on message middleware technology. China informed that Message priority management is an important aspect in a single switching system and JSON is not as comprehensive as XML in terms of functionality, but it can satisfy most of the application scenarios. Additionally, Analog voice messages can be transmitted under this network architecture. However, the need for more distribution and reuse of analog voice messages has not been explored and analog voice is only transmitted as a data stream without much processing.

Next Meeting

2.41 SWIM TF/5 agreed to tentatively schedule SWIM TF/6 in hybrid mode (*face-to-face + VTC*) in order to support the wide range of participants while a VTC planned as backup. SWIM TF/6 is scheduled for **17-20 May 2022** with a target to get back to the normal track of face-to-face APAC meeting plan. SWIM TF/6 will be conducted for **Four** (4) days in case of hybrid meeting and for **Five**

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(5) days, if virtually. The exact date and venue of the meeting will be informed to States/Administration in due course by ICAO APAC Regional Office.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) note the updated Task Scope and Task Leads provided in **Appendix A** and the updated Action List provided in **Appendix B**;
- c) note and review Statement of Work (SOW) adopted by SWIM TF/5 in **Appendix C** and the ToR to be adopted by CNS SG/25 in **Appendix D**; and
- d) adopt draft conclusions defined in **Paragraph 2.9** and draft decisions stated in **Paragraph 2.26**;
- e) discuss any relevant matter as appropriate.

REVISED TASK GROUP

Groups	Task No.	Subject/Task	Task Leads
Implementation Planning	1	Regional implementation philosophy & roadmap	David Leow (Singapore) Amornrat Jirattigalachote (Thailand)
SWIM infrastructure	2	Regional SWIM infrastructure	Xiaodong Lu (Japan), Yukinobu Ryu (Japan), Henry Chan (Hong Kong, China)
	3	Security service	Mr. Jim Laymon (USA)
Technical Architecture	4	Development and maintenance of regional information exchange models	Amornrat Jirattigalachote (Thailand) Wen Zhu (USA)
Governance	5	Governance (policies and procedures)	Mr. Dongkie Park (ROK) Mark Kaplun (USA), Yukinobu Ryu (Japan), Xiaodong Lu (Japan), Honglei Gao (China)
Information Services	6	Information services	Renato Iannella (Australia) Marco Kok (Hong Kong, China)
Validation & Demonstration	7	SWIM demonstration	David Leow (Singapore) Amornrat Jirattigalachote (Thailand)
	8	SWIM services and application validation	Yukinobu Ryu (Japan), Xiaodong Lu (Japan), Honglei Gao (China), Mr. Dongkie Park (ROK)
Coordination and Promotion	9	Monitoring of Panels' work	Yukinobu Ryu (Japan)
	10	Regional coordination and SWIM-related information sharing	TBD
	11	SWIM implementation education and promotion (New task)	Thomas Green (USA)

CNS SG/25
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Action ID	Task No	Reference	Who	What	Due date	Status	Comment	Additional Notes
1-1		2.2.1 & 2.2.2	Jeri Groce (Chair), Secretariat	Introduce the mediation principle in the design of the SWIM transition	TBD	Closed	This will be assigned to the eventual lead of 2.2.1.	See attached TF-1 Paper and Mediation Paper
1-2		1.1	All	Confirm their interest in ASEAN SWIM demonstration	30-Apr-2018	Closed	<p>ASEAN demo has be out since October, but have had limited responses.</p> <ul style="list-style-type: none"> • Awaiting feedback from China, Korea, and Japan. • A new due date of 31st of March has been requested. <p>There are several confirmed partners, and an airline is helping with the coding and messaging in the scenarios.</p> <p>David Leow and Amo are involved with the demo, this task is moving forward on its own, perhaps David and Amo can provide update at next coordination meeting</p> <p>Australia, Hong Kong, Indonesia, Japan, Laos, Malaysia, Myanmar,</p>	
1-3		1.7 & 2.1.1	Yukinobu Ryu-san, (David Almeida)	Confirm terms used to designate the APAC SWIM “catalogue” are in compliance per controlled vocabulary	8-May-2018	Closed		
1-4			Le Thi Phuong, (David Almeida)	Contribute to Task 1-1 regarding the benchmarking of quality and verification process, Service Level Agreements (SLA)	TBD	Closed	Dependent on Task 1.1 Work Plan. David Almeida will reach out to Member of Viet Nam to establish schedule.	Suggest we close this action, based on aging of the topic. Viet Nam and all members are invited to provide working papers and information papers for future discussion.

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Action ID	Task No	Reference	Who	What	Due date	Status	Comment	Additional Notes
1-5		New conversation	Jiseok Kang	Define the minimum set of information and basic function of APAC SWIM registry	30-Nov-2018	Completed	<p>This activity must be aligned to the SARPS, PANS and guidance defined by the IMP.</p> <p>This activity needs a coordination with Task 2-1-1 to define service description elements for APAC SWIM services</p> <p>1. While we are looking forward to getting more guidance from IMP PANS, SARPS, the IMP is also wish to get more input on SWIM implementation from regional office while they are developing these two documents. So I suggest APAC SWIM TF should work in parallel, working on researching the policy of registry, in the meantime paying attention to the progress of IMP's developing PANS and SARPS of. I think it will be helpful to IMP and APAC SWIM implementation.</p> <p>2. The core editorial team of PANS-IM has invited" Yukinobu Ryu, David Leow and Han Hong (Hannah) to join the Vol.II editorial team with the objective to use their insights for verifying whether current draft Vol.II fulfills the requirements of the users,</p>	
1-6	3;5	1.4	Mark Kaplun and David Wills	Embark requirements laid out in ICAO provisions and FAA best practices and other practices as available to define the SWIM security governance	30-Apr-2019	Open	<p>There is interest in establishing a security task to discuss the crosscutting SWIM issues, perhaps this should be a separate task as ICAO moving toward global trust security networks</p> <p>The due date will be pushed to April 2019 for the next plenary meeting</p> <p>The secretariat will add an agenda item to the next plenary for "splitting out security from governance into its own task"</p>	
1-7	1	1.1	David Almeida and Edward Curtis	Introduce lessons learnt from ICCAIA in the benchmark	27-May-2018	Closed	<p>Dependent on Task 1.1 Work Plan. To be addressed after TF/3</p>	Task 1.1 has been completed. Various documents were provided. Request ICCAIA member take action to introduce additional lessons learned as Information Papers in future plenary's.

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Action ID	Task No	Reference	Who	What	Due date	Status	Comment	Additional Notes
1-8	8	2.1.3	Xiaodong Lu	Plan a large scale tabletop exercise and message exchange demonstration in the mid-term (2019 or 2020)	30-Nov-2018	Closed	There are currently two tasks – the ASEAN SWIM demo and FF-ICE/2 validation task. This task is reliant upon coordination with those 2 tasks. The due date will be pushed to November 2018 to allow time for FAA and ASEAN to make decisions Working on tabletop between Japan, Korea, and China. Will discuss this issue at TF/3	
1-9		Work Plan	Jeri Groce	Consolidate the SOW and update the work plan accordingly	22-May-2017	Closed	A residual action includes to setup webconference for the Task Leads.	
1-10		Work Plan	Frederic Lecat	Create a SWIM TF space under ICAO secure portal		Closed		
1-11		1.2	Amo, Stuart Wilson, David Almeida	Define the purpose of scope of "Outreach to Aviation Partners" deliverable	5-Oct-2017	Closed		
1-12	1	1.2 & 2.1.1	Amo, David Leow, Marco Kok	Align interdependencies between Task 1.2 and 2.1.1.	30-Apr-2018	Closed	Artifacts of 2.1.1 can support 1.2. Will discuss at the October Brussels meeting.	Recommend this item be closed due to the re-planning activity performed in 2020.
1-13		1.5	Jiseok Kang	Develop Working Paper for APAC SWIM registry approach	31-Dec-2018	Completed	This action is dependent on action item ID# 1-5 to finish before work can begin	
1-14		1.1	Ryu-San, David Leow, and David Almeida	Need to create a WP for presentation to the IMP, letting them know which artifacts the APAC TF is dependent on, and by what date we need the artifacts by.	1-Nov-2017	Closed		
1-15		Work Plan	Frederic Lecat	Send out ICAO Regional Martial out to te	1-Nov-2017	Closed		
1-16	1	1.2	Marco Kok, and John Moore	Develop plan for development of a data catalog for Aeronautical, Flight, and Weather data	30-Nov-2018	Closed	A request for assistance from subject matter experts in the domain areas of Aeronautical, Flight, and Weather data has been made by action owner Marco Kok. Work still ongoing, coordinating with Amo, referring to data catalogue prepared by Aerothai. Working on finalizing flight data catalogue	
1-17		1.1 & 1.4	Stuart Wilson, and Mark Kaplun	Need to coordinate development of SWIM Governance Framework for coordination between Task 1.1 and Task 1.4	30-Jan-2018	Closed		

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Action ID	Task No	Reference	Who	What	Due date	Status	Comment	Additional Notes
1-18		Work Plan	Mark Kaplun	Coordinate with Stephan Dubet who is developing the ICAO IMP SWIM Governance document	On-Going	Closed	<ul style="list-style-type: none"> • Mark Kaplun will coordinate and prepare a paper. • Deliverable date is on-going. • Initial deliverable date will be the week of the plenary. *Next delivery date will be SWIM T/F 5 (AUG 2021) 	Recommend forwarding this action to the current Governance task leads to update and resolve, as required by the TF team.
1-19		1.5	David Leow	Provide detailed Task 1.5 SOW to Stuart	10-Jan-2018	Closed		
1-20		1.4	Mark Kaplun	Provide Governance and Registry lessons learned out to Task 1.5	30-Jan-2018	Closed		
1-21		1.6	Frederic Lecat	Send ED-133 documentation to Amo and Amo to take this into consideration for requirements development for Task 1.6	?	Closed		
1-22		1.8	Jeri Groce	Determine who will be the leader of Architecture Task (Task 1.8)	?	Closed		
1-23		Work Plan	Stuart Wilson	Coordinate possible dates for next meeting and send out a poll.		Closed		
1-24		Action Item 1-16	APAC Task Force Leadership	APAC Task Force Leadership to support Marco Kok, and John More on Action Item 1-16.	9-Apr-2018	Closed	Amo: The AeroThai group have already developed an initial data catalogue and will provide to Mr. Kok. Shane: May be able to provide input into this activity as well.	
1-25		1.8	Yunkinobu Ryu	Provide proposal on structure of Task 1.8 by the end of January.	30-Jan-2018	Closed	WP 1-8 closed this task.	
2-1		2.1.3	Yunkinobu Ryu, Xiaodong Lu, Gao Honglei, Jiseok Kang	Plan Regional message exchange demonstration	30-Nov-2018	Closed	This action is related to action 1-8 and the due date will be scheduled for November 2018. This action was included in action 1-8 and has been closed as a result	
2-3	1	1.1	David Almeida, Thomas Green	Establish contact with any SWIM-related working groups in other ICAO Regions	30-Apr-2019	Closed	The main effort in Europe working on identity access management and security. Some policies that are evolving and service lifecycle management activities.	The FAA has several international coordination projects. As has been done in previous Leadership & Plenary sessions, as relevant topics come up, FAA SWIM Program will engage those other international partners to support information needs, etc.
2-4	1	1.1	David Almeida, Thomas Green	Make recommendations on the APAC Region applicability of items in SWIM TF/2 WP/4	30-Apr-2019	Closed	XM recommendations will continue to be addressed as needed	This action should be covered under Action 3-3.

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Action ID	Task No	Reference	Who	What	Due date	Status	Comment	Additional Notes
2-5	10	1.3	John Moore	<p>Coordinate SWIM TF and MET IE/WG outcomes and activities This action is really about broader coordination of SWIM activities in APAC (not solely MET) and raising awareness of the work of the SWIM Task Force.</p>	31-Dec-2019	Closed	<p>WP09 SWIM in ASEAN Demonstration presented at ICAO APA-CDM TF/3</p>	Closed because it is an ongoing activity (6/29)

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Action ID	Task No	Reference	Who	What	Due date	Status	Comment	Additional Notes
2-6	10	1.3	John Moore More appropriate lead would be Amo or David Leow as the leads of the demonstration.	Coordinate minutes of SWIM in ASEAN Demonstration with SWIM TF	30-Nov-2018	Closed	David shared the minutes of ASEAN TIM #1, #2 on 18/11/2018	
2-7	5	1.4	David Willis, Mark Kaplun; Xiaodong Lu	Examine CRV OG to determine what structure may be used to form an APAC Regional SWIM Governance Review Board	Closed in SWIM TF/5	Closed	Task will be left as is until more clarification from Wen Zhu Closed in SWIM TF/5	Propose this is included in governance task (6/29); We need help from SWIM expert to come up with proposal Regional SWIM Governance to Discuss with CRV OG; Xiaodong and Wen to follow up It has been discussed earlier. Mark will submit clarifications to close in SWIM TF/5
2-8	5	1.4	David Willis, Mark Kaplun	SWIM in ASEAN Demonstration participant Administrations to share any lessons learned or other insights relating to SWIM governance	30-Nov-2019	Closed	This task's due date will be scheduled for a few months after the ASEAN SWIM demo to obtain their lessons learned, demo date 27/6/19.	
2-9		1.4	David Willis, Mark Kaplun	Develop a draft APAC Governance Framework		Closed	Group decided this was a duplicate of task 1.4 and closed the action as it will be addressed by that task	

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Action ID	Task No	Reference	Who	What	Due date	Status	Comment	Additional Notes
2-10		1.6	Amornrat Jirattigalochote	Coordinate SWIM in ASEAN Demonstration findings on A-CDM data attributes with APA-CDM/TF		Closed	WP09 SWIM in ASEAN Demonstration presented at ICAO APA-CDM TF/3	
2-11	2	1.8	Yunkinobu Ryu, Xiaodong Lu	Investigate the role of CRV in APAC SWIM and make recommendations on how APAC SWIM will interconnect with the CRV	30-Apr-2019	Closed	There are two options to establish SWIM platform on CRV. Confirms details of CRV and IMP to consider how to implement this method of the regional CRV. Xiaodong Lu will give a report about this in next SWIM TF meeting in 2019	Japan presented a paper on topic in SWIM T/F 4. Will be included in the Task 2 Deliverables (6/29)
2-12		2.1.1	Marco Mang Hin Kok	Re-Draft SWIM survey, together with educational material to also inform survey participants on SWIM	30-Apr-2019	Closed	Survey results presented at SWIM TF/3	

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Action ID	Task No	Reference	Who	What	Due date	Status	Comment	Additional Notes
2-14	1	1.1	David Almeida, Thomas Green,	Develop an APAC SWIM education implementation plan and high level education materials	SWIM TF/6	Open	<p>_The SWIM education video for those with technical background has been finished which will be published on APAC website in March. (DONE)</p> <p>_The SWIM brochure has been in the final stage for design and will be completed in April. (will review comments)</p> <p>_The SWIM education implementation plan draft was presented at TF/3 wil continue to be developed</p>	start from scratch due to unavailability of SWIM E
2-15			All	Commence drafting an APAC Regional SWIM Implementation guidance document		Closed	<p>oThis action is the pure output of the APAC TF to serve as a repository of output of the TF.</p> <p>oShane Sumner took an action to discuss the due date for the APAC Regional SWIM Implementation guidance document and report back to the group</p> <p>oThe Secretariat and David Almeida took an action to create a skeleton structure of this document</p> <p>Discuss the due date for the APAC Regional SWIM Implementation Guidance document and report back to the group</p> <p>This action was merged with 3-1</p>	
2-16		Action Item 2-8	John Moore	Confirm the dates of the ASEAN SWIM Demo with David Leow and Amo		Closed	Demo June 27, 2019	
2-17		Action Item 2-15	Shane Sumner	Discuss the due date for the APAC Regional SWIM Implementation Guidance document and report back to the group		Closed	Action merged with 2-15	
2-18		Action Item 2-15	Secretariat and David Almeida	Create a skeleton structure of APAC Regional SWIM Implementation guidance document		Closed	Action merged with 2-15	
2-19		Action Item 2-14	All	All states are encouraged to provide more SWIM education materials		Closed		

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Action ID	Task No	Reference	Who	What	Due date	Status	Comment	Additional Notes
2-20	5	1.4	Wen Zhu, Mark Kaplun, David Leow, and David Almeida	Discuss and draft a proposal to the chair and try to get clarification on deliverables 1.4		Closed		Close. Overcome by events with modification of the task plan into new tasking.
2-21	2	1.8	David Leow and Amornrat Jirattigalochote	Provide all ASEAN SWIM Demo lessons learned and each subtask can absorb the lessons applicable to that group.	30-Nov-2019	Closed	To be addressed after demonstration	
2-22	5	2.1.4	Xiaodong Lu	Send an email to Jiseok Kang and Shane Sumner to resolve the discussion if task 2.1.4 should be included in the SWIM Registry/Architecture task		Closed		Included in task 5 (Governance)
2-23			Jay Zimmer	follow up with Shane Sumner to coordinate how APAC TF can interface with the CRV during Plenary 3. Need CRV points of contact to get on the agenda and brief out as well as attend this meeting		Closed	Shane Sumner: We'll coordinate any necessary changes to the provisional agendas internally within the Secretariat, in consultation with the Chairs. Our current plan has SWIM TF/3 scheduled for 06 to 10 May 2019, and CRV OG/6 for 08 to 10 May. FYI the CRV OG/5 meeting will be held in early January.	
3-1			Task leads	The Task Leads will address the APAC SWIM Implementation Materials Table of Contents of the at the next quarterly Task Force Lead Teleconference and provide input of supplementary materials by SWIM TF/4	30-Apr-2020	Closed		
3-2	2;3	1.3	Wen Zhu	Set up dedicated working group to covers other areas of cybersecurity	30-Apr-2020	Closed		Believe this on is complete, with establishment of Security efforts within Technical Infrastructure Services.
3-3	4	1.6	Amornrat Jirattigalochote	The APAC SWIM FIXM Extension be forwarded to the FIXM Change Control Board (CCB) for validation and publication on the FIXM official website	30-Apr-2020	Closed		
3-4	9	1.7	Task Force members	SWIMTF members to submit comments to Japanese IMP member, Yukinobu Ryu	20-May-2019	Closed		
			Tasf Force members	SWIMTF to review Table of Contents for APAC SWIM Education programme (Appendix F to the SWIMTF/3 meeting report)	30-Jun-2019	Closed		

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Action ID	Task No	Reference	Who	What	Due date	Status	Comment	Additional Notes
4-1	1,10	Task 1&10	Secretariat	Enhance communication with ICAO EUR/NAT Office on SWIM PT activities	On-Going	Closed		Routine task for the secretariat (6/29)
4-2	7		Task Leads	Further exploit and deliberate the outcomes of SWIM in ASEAN Demonstration to benefit States/Administration	SWIM TF/6	Open		task leads to provide WP or IP on how ASEAN Demo can be leveraged in task areas
4-4			Task Leads of Task 2, Task 5 and Task 6	To join the study group proposed by SURICG to explore the initiative on surveillance data sharing over SWIM	SWIM TF/5	Closed		A number of members have joined this SG (6/29)
4-5			TF chair and Task Leads	Review the ToR and consolidate the action items in this list	SWIM TF/5	Closed	To align with GANP edition 6, APAC Seamless ANS Plan 3.0 and aim to enhance the interaction with other relevant contributory bodies of APANPIRG	More feedback from TL on TOR for TF/5 needed (6/29) Closed after CNS SG/25
4-6			Amornrat Jirattigalochote, Secretariat	Plan another SWIM workshop	1st TL meeting in 2021	Closed		
4-7			TF chair and Task Leads	Follow up the Task 3 and Task 11	1st TL meeting in 2021	Closed		
4-8	9	Task 9	Yukinobu Ryu, Secretariat	List of SWIM relevant ICAO Panels and representatives from APAC	Need to provide list before removing from Action Items	Open/Ongoing	To better monitor the Panels Work relevant to SWIM on the available resources and representation in APAC As ongoing, need to remove from Action List and will manage by Secretariat	Open till list then closed. Add AI into next task lead meeting
4-9	10	Task 10	John Moore, Secretariat	List of SWIM relevant meetings in APAC	SWIM TF/6	Open	To better support the regional coordination and SWIM related information sharing	Same as 4-8, Need list before closing. Secretariat will provide in next TL.
4-10	11	Task 11	Task Leads, Secretariat	Seek information on SWIM education and promotion for consolidation by Task 10.	On-Going	Closed		To be completed as a part of Task 11 activities
4-11	11	Task 11	Task Leads, Secretariat	Share SWIM related material for future compilation of the APAC SWIM Implementation Materials	SWIM TF/6	Open		SWIM TF/5- Premature to develop SWIM Implementation material as global doc is not ready.
4-13	2	Task 2	Task 2 Group	Develop APAC SWIM TI Profile	SWIM TF/6	Open	Proposed by Australia, needs further consideration Australia presented WP/19 in SWIM TF/5 Next action from Task group-2	Renato to provide a roadmap to develop the TI Profile SWIM TF/5- Progress may be slow because APAC SWIM Implementation is initial stage

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Action ID	Task No	Reference	Who	What	Due date	Status	Comment	Additional Notes
5-1	Task 2, Task 5, 4,6 and Task 7	NA	Task Leads of Task 2, Task 5, Task 4 and Task 6, SURSG	Start study of surveillance data being carried via SWIM on CRV; Study to include exploration of updated exchange model	SWIM TF/6	Open	Action resulted from TL meeting Approved by the plenary	
5-2	Task 7	NA	Task 7 TLs, Secretariat	Conduct SWIM over CRV demo; Present lesson learned and findings to the group	SWIM TF/6	Open	Action resulted from TL meeting Approved by the plenary	Demo delayed due to COVID-19. Report may not be possible in SWIM TF/6



Statement of Work

Task 1 Implementation Planning

Task Leaders: David Leow (Singapore) and Dr. Amornrat Jirattigalachote (Thailand)

Project: SWIM Task Force	
Revision number: 03	Approved: Click here to enter a date.

Objective and scope of the project

- Develop and maintain the Asia/Pacific regional roadmap for SWIM implementation, including SWIM technical infrastructure, SWIM governance, aeronautical information service, flight information service, and weather information service

Deliverables

- List of required activities for SWIM implementation in Asia/Pacific
- Roadmap, including milestones along with corresponding activities and timelines
- Maintenance of the Asia/Pacific regional roadmap until the complete implementation of the Task objective

Milestones

- SWIM TF/5
 - List of required activities, e.g. regarding ATFM, A-CDM, ATFM/A-CDM integration operational requirements
 - Dependency with other tasks under SWIM TF; to assess the impact on related milestones and timelines to be developed
 - Inter-task-group communication; to figure out the appropriate sequence of the required activities
 - The first draft of Asia/Pacific regional roadmap focusing on ATFM, A-CDM, and ATFM/A-CDM integrated operation
- Before SWIM TF/6
 - Inter-task-group communication; to figure out the appropriate sequence of the required activities
- SWIM TF/6
 - The first version of Asia/Pacific regional roadmap
- SWIM TF/6 – Completion of Task Objective
 - Maintenance of Asia/Pacific regional roadmap

Dependencies

- Dependencies with projects supervised by different SG (will be controlled by APANPIRG):
 - AAITF
 - MET/IE WG
 - ATFM SG
 - APA-CDM TF
- Dependencies with projects supervised by the SG (will be controlled by SG):
 - CRV OG
 - SURICG
- Dependencies between tasks in the project (will be controlled by the Task Force):
 - All



- Other dependencies
 - IMP
 - TFSG

Task participants

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Working arrangements

Face-to-face meetings

Web conferences

Needs an ICAO secured portal, name: [Click here to enter text.](#)

Other: E-mail



Statement of Work

Task 2 Regional SWIM Infrastructure

Task Leaders: Yukinobu Ryu (Japan), Xiaodong Lu (Japan), Henry Chan (HK, China)

Project: APAC SWIM Task Force	
Revision number: 02	Approved: Click here to enter a date.

Objective and scope of the project

- Define the high-level APAC SWIM Architecture including policies on implementation and distribution of SWIM services
- Define the requirements for the APAC SWIM Infrastructure with the goal of ensuring technical interoperability
- Outline policy to support transition for non-SWIM capable entities
- Develop a roadmap for the implementation of APAC SWIM Infrastructure

Deliverables

- Develop APAC SWIM Architecture requirements and policy
 - Regional interoperability and connectivity
 - Common aeronautical VPN (CRV) integration
 - Supporting Regional SWIM information services
 - SWIM mediation and backwards compatibility
 - APAC SWIM Architecture roadmap
- Develop APAC SWIM Infrastructure requirements
 - Messaging requirements
 - Security requirements
 - Technical Infrastructure Management requirements

Milestones

Indicate here the main milestones of the task or give a reference to a planning (Gantt chart etc)

- Milestone 1: ~2020.11 Define a CRV-based APAC SWIM Architecture to assure interoperability during the transition period
- Milestone 2: ~2021.12 Develop APAC SWIM Infrastructure requirements based on the related ICAO documents
- Milestone 3: ~2022.12 Propose an approach to implement secure APAC SWIM Infrastructure by cooperating with Task 3 Security Services
- Milestone 4: ~2023.6 Validate the APAC SWIM Infrastructure implementation via the joint demonstration with other task teams

Dependencies

Dependencies with projects supervised by different SG (will be controlled by APANPIRG):



- Manual on SWIM, SARPS, PANS and Guidance material from IMP, CP or ATMRPP

Dependencies with projects supervised by the SG (will be controlled by SG):

- Availability and capability of CRV implementation

Dependencies between tasks in the project (will be controlled by the Task Force):

- Task 5 – Governance
 - Integrate SWIM Governance requirements and policy
- Task 6 – Information Services
 - Support the implementation of SWIM Information Services
- Task 8 – SWIM Service and Application Validation
 - Get feedback for interoperability from SWIM Service and Application Validation

Task participants

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Working arrangements

- Face to face meetings
- Web conferences
- Needs an ICAO secured portal, name: [Click here to enter text.](#)
- Other: Email



Statement of Work

Task -3 Security Services

Task Leaders: Jim Laymon, (USA); TBD

Project: APAC SWIM Task Force	
Revision number: 01	Approved: Click here to enter a date.

Objective and scope of the project

- Advises TF Chair and Task Leads in the area of cybersecurity for APAC. Specific objectives include:
 - Determining the scope of security responsibility of SWIM, consistent with SWIM technical infrastructures envisioned by the ICAO Information Management Panel (IMP) and the APAC regional network infrastructures including the CRV.
 - Proposing a trust framework to ensure that the correct information is sent to the correct users, considering identity and access management initiatives (IAM) from member states.
 - Ensures interoperability of trust frameworks within APAC region and with other ICAO regions.
 - Developing SWIM Cyber Security Architecture Framework and SWIM security strategy for the Asia-Pacific Region. Analyses and capture SWIM security risks.
 - Provide security guidelines and best practices to be incorporated in SWIM APAC Governance activities.

Deliverables

- APAC SWIM Security Scope and Context (Working Paper)
- APAC SWIM PKI Trust Framework (Working Paper)
- Cyber Security Architecture Framework for SWIM in ICAO Asia-Pacific Region (Final, working Paper)

Milestones

- Draft Cyber Security Architecture Framework for SWIM in ICAO Asia-Pacific Region by (TBD)
- Working paper on APAC SWIM Security Scope, due TBD
- Working paper on the trust framework for APAC SWIM, due TBD
 - Survey of IAM Initiatives relevant to APAC SWIM, due TBD
 - Development of framework, due TBD
- APAC Trust Interoperability Demonstration - Complete
- Cyber Security Architecture Framework for SWIM in ICAO Asia-Pacific Region (Final Version), TBD

Dependencies

Dependencies with projects supervised by different SG (will be controlled by APANPIRG):

- SARPS, PANS & Guidance material from the IMP & other relevant panels (ie, ATMRPP)



- Coordination with CRV OG

Dependencies with projects supervised by the SG (will be controlled by SG):

Dependencies between tasks in the project (will be controlled by the Task Force):

- SWIM Manual Vol. II- Implementation Guidelines provides requirements on SWIM Security Capability and Security Non-Functional Qualities in 5.3 under Chapter 5-SWIM Technical Infrastructure (TI).
- Annex 17 – Security (tenth edition, April 2017), Doc 8973 Aviation Security Manual (9th edition, Oct.2014) and Doc 9985 ATM Security Manual (first edition, restricted, 2013) provide guidance for Cyber Security Architecture Framework of SWIM.
- Task 2 - Regional SWIM infrastructure
- Task 5 – Governance
- Task 6 – Information Services

Dependencies with projects at member states:

- SWIM Identity and Access Control projects

Task participants

State/Org- anization	Name	Role/Respon- sibility	Email	Phone
FAA	Jim Laymon	Task Lead	Jim.Laymon@faa.gov	(609) 485-6930
TBD	TBD	Task Lead	TBD	TBD
		Team Member		
...				

Working arrangements

- Face to face meetings
- Needs an ICAO secured portal, name: SWIM Cyber Security
- Teleconference
- Other: Internet Cooperative Work



Statement of Work

Task 4 Technical Architecture

(Development and Maintenance of Regional Information Exchange Models)

Task Leaders: Dr. Amornrat Jirattigalachote (Thailand) and Wen Zhu (USA)

Project: SWIM Task Force	
Revision number: 03	Approved: Click here to enter a date.

Objective and scope of the project

- Support APANPIRG WG/TF regarding information exchange models and examine if any extension to the existing information exchange models, i.e. AIXM, FIXM, and IWXXM, and/or the new information exchange model(s) are required to support the Asia/Pacific regional operational requirements

Deliverables

- Support APANPIRG WG/TF regarding information exchange models
- Information exchange model gap identification, i.e. to examine if any extension to the existing information exchange models, i.e. AIXM, FIXM, and IWXXM, and/or the new information exchange model(s) are required for the Asia/Pacific operational use
- Strategy to maintain the artifacts required to support the regional development and maintenance of information exchange model(s) and the extensions
- Approaches for information exchange model interoperability within the region and with other aviation partners

Milestones

- Now – SWIM TF Dissolution
 - Review of operational requirements on data required to be exchanged to support the Asia/Pacific regional operations
 - Examine if the required data attribute(s) are currently available in the existing information exchange models
 - Develop and test the extension(s) and/or new information exchange model(s), if needed
- SWIM TF/5
 - The first version of strategy to maintain the artifacts required to support the regional development and maintenance of information exchange model(s) and the extensions

Dependencies

- Dependencies with projects supervised by different SG (will be controlled by APANPIRG):
 - ATFM SG
 - APA-CDM TF
 - MET/IE WG
- Dependencies with projects supervised by the SG (will be controlled by SG):
 - None
- Dependencies between tasks in the project (will be controlled by the Task Force):
 - Task 1 Implementation Planning
 - Task 2 SWIM Infrastructure
 - Task 5 Governance



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- Task 8 SWIM Services and Application Validation
- Task 10 Regional Coordination and SWIM-related Information Sharing
- Other dependencies:
 - Information exchange model change control boards, e.g. FIXM Change Control Board (FIXM CCB)

Task Participants:

State/Organization	Name	Role/Responsibility	Email	Phone
Thailand	Amornrat Jirattigalachote	Lead	amornrat.ji@aerothai.co.th	+66 2 287 8262
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Working arrangements

- Face-to-face meetings
- Web conferences
- Needs an ICAO secured portal, name: [Click here to enter text.](#)
- Other: E-mail



Statement of Work

Task 5 SWIM Governance

Task Leaders: Mark Kaplun (USA), Dongkie Park (ROK)

Project: SWIM Task Force	
Revision number: 02	Approved: Click here to enter a date.

Objectives

- I. Establish a robust and sustainable Governance model to ensure that a common set of policies, rules, and standards for identifying, designing, implementing, discovering, and operating SWIM-enabling components is consistently applied and enforced throughout the APAC.
- II. Develop or adopt standards, policies, and procedural guidelines to support the functional requirements for implementing all aspects of service-oriented development in the context of APAC SWIM.
- III. Facilitate visibility and control for insight into all APAC SWIM-enabled services by supporting developments of flexible mechanisms for service discovery, including, but not limited to, service registries.

Deliverables

- I. WP: APAC SWIM Service Discovery and Registry Interoperability Approach
- II. WP: APAC SWIM Governance Policies: Status and Plans
- III. WP: APAC SWIM Service Level Agreement (SLA): Template
- IV. WP: SWIM Interoperability Assessment Matrix (SIAM): Template
- V. IP: SWIM Metadata standards and taxonomies

Milestones

- I. Operational deployment of SWIM Discovery Services (SDSs) produced by the FAA and KAC (March 2022)
- II. Analysis and subsequent updates of SDS/registries network in APAC SWIM (August 2022)
- III. APAC SWIM Governance Policies: Status and Plans (TBD)
- IV. Release of SLA Template (June 2022)
- V. Release of SIAM Template (July 2022)

Dependencies

Dependencies between tasks in the project (will be controlled by the Task Force):

- Task 2 – Technological solutions and architectural views to be utilized in support of APAC SWIM infrastructure
- Task 3 - Information and analysis about security solutions deployed in APAC regions
- Task 6 - Identified standards and technological approaches to be utilized for service validations



Task participants

State/Organization	Name	Role/ Responsibility	Email
USA	Mark Kaplun	Task Lead	mark.kaplun@faa.gov
ROK	Choi Kyungsik	Contributor	kschoi76@airport.co.kr
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China	Gai Honglei	Member	gaohonglei@atmb.net.cn
Japan	Xiaodong Lu	Member	luxd@mpat.go.jp
ROK	Dongkie Park	Task Lead	pdkie@airport.co.kr
Australia	Renato Iannella	Contributor	Renato.Iannella@Airservices Australia.com

Working arrangements

- Face to face meetings
- Web-Conferences
- Needs an ICAO secured portal, name: [Click here to enter text.](#)
- Other: [Click here to enter text.](#)



Statement of Work

Task 6: Information Services

Task Leaders: Renato Iannella (Australia) and Marco Kok (HK, China)

Project: SWIM Task Force	
Revision number: 02	Approved: Click here to enter a date.

Objective and scope of the project

- To develop and define the APAC version of the SWIM information service overview specifications and APAC version of data catalogue for information services based on operational needs in APAC.

Deliverables

- Develop the APAC version of the required and optional information services
 - for ANSP to prioritize the implementation of services
- Develop the APAC version of data catalogue for information services
- Identify any additional fields required for SWIM service overviews in APAC
 - in addition to the elements in describing the Information Service Overview as defined in PANS-IM
- Recommend low-level technical implementation details in APAC to meet the high-level implementation guidance in PANS-IM, including
 - exchange schemas in JSON and/or XML Schema
 - standardised set of terms and categories for compatible information services to facilitate the categorization of service overview
 - handling of the null fields
- Document the above deliverables related to Information Services in “APAC SWIM Implementation Materials”

Milestones

- Milestone 1: Identify all the current known “service overview” specifications and implementations and compare them with PANS-IM version (Aug 2021)
- Milestone 2: Present the propose APAC version of service overview specification for consideration by SWIM TF (Aug 2022)
- Milestone 3: Identify optional fields and low-level technical implementation details of information services based on operational needs in APAC (Aug 2022)
- Milestone 4: Identify and compare current existing data catalog (e.g. FAA, EUROCONTROL, etc.) of different categories of information services (Aeronautical, Flight, MET, Surveillance, etc.) (Dec 2021)
- Milestone 5: Present the propose APAC version of data catalog for identifying opportunities of new services, for consideration by SWIM TF (Aug 2022)



Dependencies

- Task Group #5 (Governance) - work on interoperability of service discovery
- ICAO IMP – new work items on SWIM Registries interoperability

Task participants

State/Organization	Name	Role/Responsibility	Email	Phone
Australia / Airservices Australia	Dr. Renato Iannella	Co-Lead	renato.iannella@AirservicesAustralia.com	+61 4 1313 2206
Hong Kong China / Hong Kong Observatory	Mr. Marco Kok	Co-Lead	mhkok@hko.gov.hk	+852 6226 7907

Working arrangements

- Face to face meetings
- Webconferences
- Needs an ICAO secured portal, name: [Click here to enter text.](#)
- Other: emails



Statement of Work

Task 7 SWIM Demonstrations

Task Leaders: David Leow (Singapore) and Dr. Amornrat Jirattigalachote (Thailand)

Project: SWIM Task Force	
Revision number: 1	Approved: Click here to enter a date.

Objective and scope of the project

- Report on the SWIM in ASEAN demonstration, particularly the lessons learnt
- Track and observe SWIM demonstrations and trials within the Asia/Pacific region and ensure that reports of those demonstrations and trails are presented to the SWIM Task Force
- Provide, if requested, support for regional SWIM demonstrations

Deliverables

- SWIM in ASEAN Demonstration Report
- Reports from other SWIM demonstrations within the Asia/Pacific region

Milestones

- SWIM TF/4: SWIM in ASEAN Demonstration Report
- TBD: Reports from other SWIM demonstrations

Dependencies

- Dependencies between tasks in the project (will be controlled by the Task Force):
 - All

Task participants

State/Organization	Name	Role/Responsibility	Email	Phone
Singapore	David Leow	Lead	david_leow@caas.gov.sg	+65 6595 6771
Thailand	Amornrat Jirattigalachote	Lead	amornrat.ji@aerothai.co.th	+66 2 287 8262
Hong Kong, China	Henry Chan	Lead	hhlchan@cad.gov.hk	+852-2910-6574

Working arrangements

- Face to face meetings
- Web conferences
- Needs an ICAO secured portal, name: [Click here to enter text.](#)
- Other: [Click here to enter text.](#)



Statement of Work
Task 8 SWIM Service and Application Validation
Task Leaders: Yunkinobu Ryu (Japan), Xiaodong Lu (Japan), Honglei Gao (China), Dongkie Park (ROK)

Project: APAC SWIM Task Force	
Revision number: 02	Approved: Click here to enter a date.

Objective and scope of the project

- Construct a platform for SWIM service and application validation
- Support the implementation of SWIM service and applications
- Support the demonstration of SWIM based operations

Deliverables

- Develop validation requirements for APAC SWIM Infrastructure services
 - Messaging
 - Security
 - Technical Infrastructure Management
- Define and validate the required SWIM services and applications for supporting different operation levels by considering mixed-mode environment
 - SWIM based information sharing (ATFM, A-CDM and etc.)
 - FF-ICE/R1 operation
 - FF-ICE/R2 operation
 - Trajectory Based Operation
- Develop a common platform for SWIM service and application validation
 - Test system for FIXM, AIXM, and IWXXM message exchange
 - Technical support for regional validation and demonstration

Milestones

Indicate here the main milestones of the task or give a reference to a planning (Gantt chart etc)

- Milestone 1: ~2019.12 Construct a platform for SWIM service and application validation
- Milestone 2: ~2020.11 Conduct a demonstration for FF-ICE/R1 service validation
- Milestone 3: ~2021.12 Develop validation requirements for Regional SWIM Infrastructure
- Milestone 4: ~2022.12 Validate the Regional SWIM Infrastructure with Security Services via the joint demonstration
- Milestone 5: 2022.12~ Validate the required SWIM services and applications for different operation levels



Dependencies

Dependencies with projects supervised by different SG (will be controlled by APANPIRG):

- Manual on SWIM, SARPS, PANS and Guidance material from IMP, CP or ATMRPP

Dependencies with projects supervised by the SG (will be controlled by SG):

- The status of SWIM TI implementation in APAC Region

Dependencies between tasks in the project (will be controlled by the Task Force):

- Task 2 – Regional SWIM Infrastructure, Task 3 – Security Services
 - Develop based on the Regional SWIM Infrastructure with Security Services
- Task 4 – Development and maintenance of regional information exchange models
 - Support the validation of regional information exchange models
- Task 5 – Governance
 - Integrate SWIM Governance requirements and policy
- Task 6 – Information Services
 - Support the validation of SWIM Information Services
- Task 7 – SWIM Demonstration
 - Cooperate for SWIM service and application validation through demonstrations

Task participants

State/Organization	Name	Role/Responsibility	Email	Phone
Japan	Yukinobu Ryu	Manager	ryuu-y2ea@mlit.go.jp	+81-3-5253-8111
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ROK	Sehwan Han	Member	hsh91@airport.co.kr	+82-2-2660-4383
ROK	Younghoon Kim	Member	yh89@airport.co.kr	+82-2-2660-2878
PCCW Global	Bono Ng	Member	bcng@pccwglobal.com	+85-2-3419-2103

Working arrangements

Face to face meetings

Web conferences



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Needs an ICAO secured portal, name: [Click here to enter text.](#)

Other: Email



Statement of Work

Task 9 Monitoring of Panel work

Task Leaders: Yukinobu Ryu (Japan)

Project: SWIM Task Force	
Revision number: 02	Approved: Click here to enter a date.

Objective and scope of the project

- Monitor developments by IMP and escalate issues/inputs as required

Deliverables

- Monitor developments by the IMP and escalate issues as required
- Periodic updates to IMP from SWIM Task Force work plan

Milestones

Indicate here the main milestones of the task or give a reference to a planning (Gantt chart etc)

- Milestone 1: IMP/2, 27 August-1 September 2021, Virtual Meeting
- Milestone 2: IMP/WG/11, September 2022, TBD

Dependencies

- ATM SG
- ATFM SG
- CNS SG
- MET SG

Task participants

State/Organization	Name	Role/Responsibility	Email	Phone
Japan	Yukinobu Ryu	Task manager	ryuu-y2ea@mlit.go.jp	+81-3-5253-8751

Working arrangements

- Face to face meetings
- Needs an ICAO secured portal, name: [Click here to enter text.](#)
- Other: [Click here to enter text.](#)



Statement of Work

Task 10- Regional coordination and SWIM-related information sharing

Task Leaders: Click here to enter text.

Project: SWIM Task Force	
Revision number: Click here to enter text.	Approved: Click here to enter a date.

Objective and scope of the project

- Identify SWIM related activities (and their interdependencies) in planning or development within other WGs and TFs.
- Liaise with relevant regional TF/WG to refine operational and communications requirements (ATFM SG, MET IE, AAITF, ACSICG, CRV OG, etc).
- Provide guidance to APANPIRG WG/TF using SWIM.
- Influence outcomes from other WGs and TFs that will support successful expansion of SWIM (eg: development of SWIM compatible CRV).
 - This involves confirming inclusion on agendas and appropriate discussions ensuing

Deliverables

- Updates on SWIM initiatives and objectives in APAC:
 - SWIM in ASEAN Demonstration
 - Meteorology
 - Common Regional VPN
 - Other developments
- Actions in WP or presentations to provide updates from SWIM TF to APANPIRG WG/TF (e.g.: ATFM/SG, ACSICG, MET/SG, APSAR/WG, CNS/SG) on SWIM-related operational and communications activities

Milestones

Indicate here the main milestones of the task or give a reference to a planning (Gantt chart etc.)

- Updates (WP/IP) to APANPIRG WG/TF as needed

Dependencies

Dependencies with projects supervised by different SG (will be controlled by APANPIRG):

- SWIM Manual and Technical Guidance Material

Dependencies with projects supervised by the SG (will be controlled by SG):



- SMEs to identify relevant projects within their domains
- Guidance on IWXXM
- Guidance on ATFM
- Updates on CRV and AMHS
- Web-based hosting tools (e.g.: SkyFusion)
- Multi-nodal developing an ICD

Dependencies between tasks in the project (will be controlled by the Task Force):

- Collation of all facets of subject matter expert (SME) input and identification of relationships and interdependencies

Task participants

State/Organization	Name	Role/Responsibility	Email	Phone

Working arrangements

- Face to face meetings
- Needs an ICAO secured portal, name: [Click here to enter text.](#)
- Other: Web meetings and Phone Calls



<p>Statement of Work</p> <p>Task 11 - SWIM Implementation Education and Promotion</p> <p>Task Leaders: Thomas Green (USA)</p>
--

Project: APAC SWIM Task Force	
Revision number: V1	Approved: Click here to enter a date.

Objective and scope of the project

- Creation of an educational and promotional program needed to support SWIM implementation, operations, and facilitate cooperation among stakeholders within the region.
- Collaboration with other APAC SWIM TF task to ensure cohesiveness between the guidance materials and educational material deliverable from the APAC SWIM TF.
- Management, organization, and dissemination of all APAC SWIM educational material
- Creation of an APAC SWIM education and promotional catalog

Deliverables

- APAC Region SWIM Educational and Promotional Roadmap
- APAC Regional SWIM Brochure
- APAC Regional SWIM Symposium
- APAC SWIM Regional Outreach Plan
- APAC SWIM Education and Promotional Catalog

Milestones

Task Number	Activity	Estimated Date of Completion
1	Creation of Draft APAC SWIM Brochure	TBD
2	Draft 3 year SWIM Education and Promotional roadmap	September 10, 2021
3	Confirm date for APAC SWIM Regional Symposium	TBD
4	Complete Draft APAC SWIM Regional Outreach Plan	TBD
5	Complete Draft of APAC SWIM Education and Promotional Catalog	TBD

Dependencies

- ICAO Doc 10039 - Manual on SWIM Concept
- SWIM Manual and Technical Guidance Material



- Guidance Materials issued via the various APAC SWIM TF Task

Task Participants

State/Organization	Name	Role/Responsibility	Email	Phone
LST	Thomas Green	Task Lead	Thomas.green@lstechllc.com	
AEROTHAI	Jittima Asawachaiorn	Participant	jittima214@gmail.com	

Working arrangements

- Face to face meetings
- Needs an ICAO secured portal, name: [Click here to enter text.](#)
- Other: [Click here to enter text.](#)

Presentation of the initial proposal:

1. The *Background* and *Comments* are provided in *italic text*.

2. The text of the proposed amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

- | | |
|---|-----------------------------------|
| a) Text to be deleted is shown with a line through it. | text to be deleted |
| b) New text to be inserted is highlighted with grey shading. | new text to be inserted |
| c) Text to be deleted is shown with a line through it followed by the replacement text which is highlighted with grey shading. | new text to replace existing text |

TERMS OF REFERENCE

SWIM Task Force

Objectives: In order to achieve ~~B1-SWIM~~ the SWIM thread as specified in the Aviation System Block Upgrade (ASBU) of the Global Air Navigation Plan (GANP) ~~and~~, the Asia/Pacific Seamless ATM ANS Plan objectives, and the ATM and AIM air navigation systems –that are in compliance with ICAO global standards for the conceptualisation and exchange of aeronautical, flight and meteorological information– ~~should be implemented in the high density FIRs and high density international aerodromes by November 2022 (PASL Phase III) and in all FIRs and international aerodromes by November 2025 (PASL Phase IV).~~ ~~To that end~~, the SWIM Task Force will:

- a) Benchmark the various successful implementations of SWIM in States and regions to ~~adopt~~ promote best practices;
- b) Develop and maintain a the Asia/Pacific regional roadmap for SWIM services (ATM, AIM, MET, other), ~~dependencies and enablers~~ implementation, including SWIM technical infrastructure, SWIM governance, SWIM information services;
- c) ~~Liaise with relevant regional contributory bodies to refine operational and communications requirements (example: ATFM/SG, AAITF, MET IE/WG, ACSICG, CRV/OG, etc.)~~ Define a high-level Asia/Pacific regional SWIM architecture, the corresponding SWIM technical infrastructure requirements, and the implementation approach to construct such architecture over CRV to ensure interoperability among regional SWIM participants and to support transition for non-SWIM capable entities;
- d) ~~Complement global SWIM governance with regional procedures as needed and define how it can be implemented in APAC, with a particular focus on version management of concept and exchange models, architecture models, cyber security, data quality management and maintenance of a trusted environment~~ Develop the Asia/Pacific regional SWIM cyber security architecture framework and SWIM security strategy in line with ICAO International Aviation Trust Framework (IATF);

- e) ~~Provide guidance and training to APAC member States and APANPIRG contributory bodies involved in SWIM-related work~~ Support APANPIRG WGs/TFs regarding information exchange models and examine if any extension to the existing information exchange models, i.e. AIXM, FIXM, and IWXXM, and/or the new information exchange model(s) are required to support the Asia/Pacific regional operational requirements;
- f) ~~Develop guidance/requirements for publishers/service providers and subscribers/service consumers~~ Establish a robust and sustainable governance model to ensure that a common set of policies, rules, and standards for identifying, designing, implementing, discovering, and operating SWIM-enabling components, including SWIM registries, is consistently applied and enforced throughout the Asia/Pacific region;
- g) ~~Promote enablement of ATM services as SWIM Application Services (SAS)~~ Develop and define the Asia/Pacific version of the SWIM information service overview specifications and the Asia/Pacific version of data catalogue for information services based on the regional operational needs;
- h) ~~Define how SWIM Registry/Registries and services will be implemented in the APAC region and what the minimum level of information a service needs to provide to the Registry/Registries~~ Track and observe SWIM demonstrations and trials within the Asia/Pacific region as well as provide, if required, support for regional SWIM demonstrations;
- i) ~~Support APANPIRG WG/TF regarding data exchange models of AIXM, FIXM, and IWXXM and examine if any extension is required for the operational use in APAC~~ Construct a platform for SWIM services and applications validation and support the implementation of SWIM services and applications;
- j) Monitor developments by the IMP and escalate the regional issues as required;
- k) ~~Implement the APAC Regional SWIM~~ Identify, communicate, and liaise with relevant APANPIRG WGs/TFs in regard to SWIM-related activities, including providing support to refine SWIM operational and communications requirements; ~~and~~
- l) ~~Undertake any other tasks related to SWIM implementation that may arise in the future~~ Develop an educational and promotional materials required to support the regional SWIM implementation to ensure cohesiveness among regional SWIM participants;
- m) Implement the Asia/Pacific regional SWIM; and
- n) Undertake any other tasks related to SWIM implementation that may arise in the future.

~~Considering the cross-disciplinary nature of SWIM, the Task Force will ensure proper coordination with relevant regional contributory bodies under APANPIRG.~~

Composition:

The SWIM TF will consist of experts from ATM, AIM, MET, and CNS from Asia/Pacific States (~~ANS Providers~~), and international organizations such as ~~from~~ IATA and ICCAIA.

Conduct of the work:

The task force will conduct its work through ~~Web-Conferences~~ web conferences, teleconferences, other electronic means of communications, and Face-to-Face meetings.

Reporting:

The group will report to CNS SG.

TERMS OF REFERENCE

SWIM Task Force

Objectives: In order to achieve the SWIM thread as specified in the Aviation System Block Upgrade (ASBU) of the Global Air Navigation Plan (GANP), the Asia/Pacific Seamless ANS Plan objectives, and the air navigation systems that are in compliance with ICAO global standards for the conceptualisation and exchange of aeronautical, flight and meteorological information, the SWIM Task Force will:

- a) Benchmark the various successful implementations of SWIM in States and regions to promote best practices;
- b) Develop and maintain the Asia/Pacific regional roadmap for SWIM implementation, including SWIM technical infrastructure, SWIM governance, SWIM information services;
- c) Define a high-level Asia/Pacific regional SWIM architecture, the corresponding SWIM technical infrastructure requirements, and the implementation approach to construct such architecture over CRV to ensure interoperability among regional SWIM participants and to support transition for non-SWIM capable entities;
- d) Develop the Asia/Pacific regional SWIM cyber security architecture framework and SWIM security strategy in line with ICAO International Aviation Trust Framework (IATF);
- e) Support APANPIRG WGs/TFs regarding information exchange models and examine if any extension to the existing information exchange models, i.e. AIXM, FIXM, and IWXXM, and/or the new information exchange model(s) are required to support the Asia/Pacific regional operational requirements;
- f) Establish a robust and sustainable governance model to ensure that a common set of policies, rules, and standards for identifying, designing, implementing, discovering, and operating SWIM-enabling components, including SWIM registries, is consistently applied and enforced throughout the Asia/Pacific region;
- g) Develop and define the Asia/Pacific version of the SWIM information service overview specifications and the Asia/Pacific version of data catalogue for information services based on the regional operational needs;
- h) Track and observe SWIM demonstrations and trials within the Asia/Pacific region as well as provide, if required, support for regional SWIM demonstrations;
- i) Construct a platform for SWIM services and applications validation and support the implementation of SWIM services and applications;
- j) Monitor developments by the IMP and escalate the regional issues as required;
- k) Identify, communicate, and liaise with relevant APANPIRG WGs/TFs in regard to SWIM-related activities, including providing support to refine SWIM operational and communications requirements ;
- l) Develop an educational and promotional materials required to support the regional SWIM implementation to ensure cohesiveness among regional SWIM participants;
- m) Implement the Asia/Pacific regional SWIM; and

- n) Undertake any other tasks related to SWIM implementation that may arise in the future.

Composition:

The SWIM TF will consist of experts from ATM, AIM, MET, and CNS from Asia/Pacific States and international organizations such as IATA and ICCAIA.

Conduct of the work:

The task force will conduct its work through web conferences, teleconferences, other electronic means of communications, and Face-to-Face meetings.

Reporting:

The group will report to CNS SG.
