



ICAO

*International Civil Aviation Organization***The Fourth Meeting of the Surveillance Study Group (SURSG/4) and the Third Meeting of Surveillance Sharing in SWIM Trial Implementation Group (S3TIG/3)**

(Hong Kong China, 30-31 May 2024)

Agenda Item 6: Discussion of technical issues and solutions in surveillance data sharing

**Service Description for MET Scenario (#3)
in Context of the SWIM Discovery Service (SDS)**

(Presented by Republic of Korea)

SUMMARY

This paper presents the implementation of service description based on the SWIM Discovery Service (SDS). This paper also includes other implementations of service description (e.g., Public Data Portal, SWIM Registry) for SWIM services in the MET scenario (#3).

1. INTRODUCTION

1.1 The SWIM Discovery Service (SDS) is a web service that facilitates the exchange of metadata for SWIM information services among independently managed SWIM programs.

1.2 At the SWIM TF/8 meeting in November 2023, <Proposal of Regional Candidate Standard for Service Discovery> (WP/07) was presented, and the SDS was adopted as the global standard candidate for globally interoperable service discovery (Draft Decision SWIM TF/08/01).

1.3 For the SWIM over CRV demonstration and surveillance data over SWIM trial, member states developed many different SWIM services, focusing on exchanging flight, surveillance, aeronautical, and MET information rather than metadata. Due to this reason, the development of service descriptions or metadata, as well as the exchange of metadata through SDS instances, wasn't considered for the demonstration.

1.4 To further advance the initial implementation of regional SWIM and enable the exchange of metadata in a globally interoperable manner, the SWIM Implementation Pioneering Group (SIPG) will also explore the SDS specification and facilitate SDS implementation by member states in the upcoming year.

1.5 In this paper, ROK provides additional information regarding service description and the SDS for SWIMs services provided by ROK. This includes how to enhance visibility of SWIM services and how service description could be written in Service Description Model in JSON (SDM-J). This paper also includes other implementations of service description (e.g., Public Data Portal, SWIM Registry) for SWIM services in the MET scenario (#3).

2. DISCUSSION

- 2.1 SWIM services used for demonstration are as follows:
- 2.1.1. (CRV Only) Surveillance Information (ADS-B) Publication Service (ASTERIX);
 - 2.1.2. (CRV Only) Surveillance Information (ADS-B) Publication Service (JSON);
 - 2.1.3. (CRV Only) Surveillance Information (ADS-B) Publication Service (JSON + FPL);
 - 2.1.4. (CRV Only) MET Information Publication Service (IWXXM 2.0);
 - 2.1.5. (Public API Only) MET Information Query Service (IWXXM 2.0); and
 - 2.1.6. (Public API Only) MET Information Query Service (IWXXM 3.0).
- 2.2 Service Descriptions of SWIM services mentioned in the 2.1 (i.e., 2.1.1 to 2.1.4) are discovered using the KAC SWIM Registry as shown in the APPENDIX A.
- 2.2.1. [Surveillance Information \(ADS-B\) Publication Service \(ASTERIX\);](#)
 - 2.2.2. [Surveillance Information \(ADS-B\) Publication Service \(JSON\);](#)
 - 2.2.3. [Surveillance Information \(ADS-B\) Publication Service \(JSON + FPL\);](#)
 - 2.2.4. [MET Information Publication Service \(IWXXM 2.0\);](#)
- 2.3 Service Descriptions of SWIM services mentioned in the 2.1 (i.e., 2.1.1 to 2.1.4) are discovered using the KAC SDS instance. Service Descriptions discovered using the KAC SDS instance Service are in JSON format, and it is written in SDM-J as shown in the Appendix B.
- 2.3.1. Surveillance Information (ADS-B) Publication Service (ASTERIX);
[http://swim-registry.kr:8001/smxs/services/"http://swim-registry.kr/swim-service-description/SIPSA0.0.1"](http://swim-registry.kr:8001/smxs/services/)
 - 2.3.2. Surveillance Information (ADS-B) Publication Service (JSON)
[http://swim-registry.kr:8001/smxs/services/"http://swim-registry.kr/swim-service-description/SIPSJ0.0.1"](http://swim-registry.kr:8001/smxs/services/)
 - 2.3.3. Surveillance Information (ADS-B) Publication Service (JSON + FPL);
[http://swim-registry.kr:8001/smxs/services/"http://swim-registry.kr/swim-service-description/SIPSJF0.0.1"](http://swim-registry.kr:8001/smxs/services/)
 - 2.3.4. MET Information Publication Service (IWXXM 2.0);
[http://swim-registry.kr:8001/smxs/services/"http://swim-registry.kr/swim-service-description/MIPS0.0.1"](http://swim-registry.kr:8001/smxs/services/)
- 2.4 In case of MET Information Query Services mentioned in the 2.1 (i.e., 2.1.5 and 2.1.6), these services are provided through public internet, and registered in the Public Data Portal managed by the government, and provides service discovery and service description though Public Data Portal as shown in the Appendix C.
- 2.4.1. [Service Description of MET Information Query Service \(IWXXM 2.0\);](#) and
 - 2.4.2. [Service Description of MET Information Query Service \(IWXXM 3.0\).](#)

3. ACTION BY THE MEETING

- 3.1 The meeting is invited to:
- a) note the information contained in this paper; and
 - b) discuss any relevant matter as appropriate

SURSG/4

Appendix A to WP/07

[APPENDIX A] KAC SWIM Registry

SWIM Registry

Session Out : 2024-05-11 15:41

ServiceDiscovery ServiceAbout

SWIM Service

WeatherAeronauticalFlightSurveillanceInfrastructureWorldFeaturesMessagingMediationDiscoverySecurity

Type to Search

1	SWIM Metadata Exchange Service (SMXS)	0.2.0	Prospective	The SWIM Metadata Exchange Service (SMXS) provides metadata of SWIM services registered in the ROK SWIM testbed.	Discovery	Description
2	Surveillance Information (ADS-B) Publication Service (ASTERIX)	0.0.1	Prospective	Surveillance Information (ADS-B) Publication Service (ASTERIX) for the SWIM over CRV demonstration and surveillance data over SWIM trial	Surveillance	Description
3	Surveillance Information (ADS-B) Publication Service (USON)	0.0.1	Prospective	Surveillance Information (ADS-B) Publication Service (USON) for the SWIM over CRV demonstration and surveillance data over SWIM trial	Surveillance	Description
4	Surveillance Information (ADS-B) Publication Service (USON+FPL)	0.0.1	Prospective	Surveillance Information (ADS-B) Publication Service (USON+FPL) for the SWIM over CRV demonstration and surveillance data over SWIM trial	Surveillance	Description
5	MET Information Publication Service (IWXXM 2.0)	0.0.1	Prospective	MET Information Publication Service (IWXXM 2.0) for the SWIM over CRV demonstration and surveillance data over SWIM trial	Weather	Description

1

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SWIM Registry

Session Out : 2024-05-11 15:41

ServiceDiscovery ServiceAbout

Description

SWIM ServiceDescription

MET Information Publication Service (IWXXM 2.0)

All

Name

Name

MET Information Publication Service (IWXXM 2.0)

Version

0.0.1

Description

Description

MET Information Publication Service (IWXXM 2.0) for the SWIM over CRV demonstration and surveillance data over SWIM trial

Additional Description

NIL

Provider

Provider Organization

Korea Airports Corporation

Provider Organization Description

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[APPENDIX B] Service Description written in SDM-J

MET Information Publication Service (IWXXM 2.0)

```
{
  "service-id": "http://swim-registry.kr/swim-service-description/MIPS0.0.1",
  "profile": {
    "service-id": "http://swim-registry.kr/swim-service-description/MIPS0.0.1",
    "name": "MET Information Publication Service (IWXXM 2.0)",
    "version": "0.0.1",
    "provider": {
      "name": "Korea Airports Corporation",
      "description": "Korea Airports Corporation(KAC) operates 14 airports in the Republic of Korea, Nav aids,
two ATCs, and KAC has been conducting the ROK SWIM project since 2016",
      "point-of-contact": [
        {
          "name": "SEHWANHAN",
          "function": "SENIOR RESEARCH ENGINEER",
          "email": "hsh91@airport.co.kr",
          "phone-number": "+82-2-2660-4376"
        }
      ],
      "web-page": "www.airport.co.kr"
    },
    "service-category": [
      {
        "code": "http://semantics.aero/service-category#weather",
        "taxonomy": "http://semantics.aero/service-category"
      }
    ],
    "service-availability-status": [
      {
        "code": "http://semantics.aero/availability-status#prospective",
        "taxonomy": "http://semantics.aero/availability-status"
      }
    ],
    "interface-type": [
      {
        "code": "http://semantics.aero/interface-type#message-oriented",
        "taxonomy": "http://semantics.aero/interface-type"
      }
    ],
    "description": "MET Information Publication Service (IWXXM 2.0) for the SWIM over CRV
demonstration and surveillance data over SWIM trial",
    "function": [
      {
        "description": "GetMETData",
        "real-world-effect": "This operation provides MET data in IWXXM 2.0"
      }
    ]
  }
}
```

SURSG/4
Appendix C to WP/07

[APPENDIX C] Public Data Portal

DATA . GO . KR Find Data Request Data Data Reuse Resources User Guide

OPENAPI Detail



XML JSON Aircraft Commercial Service (IWXXMVer.2.0) inquiry service

To support the safe operation of the aircraft, this service provides data and observation data from seven airports across the country.
Professional offer)

About OpenAPI

Download metadata

Classified	Environment - Air	Provided By	
Department		Department No	042-481-7480
API Type	REST	Data Format	JSON+XML
Usage	163	Keyword	Aviation Meteorological Observation, Airport Forecast, Aircraft Weather Alert,airport forecast,aircraft weather advisory
Registered	2019-12-26	Edited	2021-08-04
Deliberation Type	dev : allow / run : allow		
Payment	free		
Scope of License	The use permission range limitless		
References	기상청10 항공기상전문 IWXXMVer.2.0 조회서비스 오픈API활용가이드.docx		

Function

list METAR/SPECI inquiry Lookup

- **Application for Use** Development level : allowed / Operation level : allowed
- **Available traffic** 1000000 / Operational account can increase traffic by applying for use case registration
- **Requested Link** <http://apis.data.go.kr/1360000/AmmlwxxmService/getMetar>
- **Service URL** <http://apis.data.go.kr/1360000/AmmlwxxmService>

Request Parameter

Category(Korean)	Category(English)	Size	Division	Sample Data	Description
서비스키	ServiceKey	4	Essential	-	Authentication key received from public data portal
페이지 번호	pageNo	4	Essential	1	Page number
한 페이지 결과 수	numOfRows	4	Essential	10	Number of results per page
응답자료형식	dataType	4	Optional	XML	Request data format (XML/JSON) Default: XML
ICAO 코드	icao	4	Optional	RKSI	ICAO code of domestic airport RKSI Incheon Airport RKSS Gimpo Airport RKPC Jeju Airport RKPK Gimhae Airport RKNY Yangyang Airport RKNW Wonju Airport RKTU Cheongju Airport RKTN Daegu Airport RKTH Pohang Airport RKJG Gwangju Airport RKJB Muan Airport RKJY Y