International Civil Aviation Organization

THE ELEVENTH MEETING OF SYSTEM WIDE INFORMATION MANAGEMENT TASK FORCE (SWIM TF/11)

Bangkok, Thailand, 25 – 29 May 2026

Agenda Item 6: State, regional and global SWIM updates

DATA VOLUME OF DIGITAL NOTAM MESSAGES HANDLED ON SWIM

(Presented by JAPAN)

SUMMARY

In accordance with Action Item 10-22 agreed at the Tenth Meeting of the System Wide Information Management Task Force (SWIM TF/10), the Japan Civil Aviation Bureau (JCAB) shared the results of a survey conducted in 2016 with the SWIM Implementation Planning Group (SIPG) members via email on 30 June 2025.

A significant discrepancy was subsequently observed between the data volume for digital NOTAMs estimated in that survey and the actual data volume of digital NOTAMs collected after the commencement of operational data gathering on 4 March 2026. This Information Paper describes the factors contributing to that discrepancy and the measures taken by JCAB to address the issue.

1. INTRODUCTION

1.1 In the 2016 analysis conducted by JCAB and distributed via email on 30 June 2025, the data volume resulting from the conversion of conventional NOTAM text messages circulated over AFTN/AMHS into AIXM format was estimated to be approximately 50 KB at maximum.

1.2 Based on the results of this survey, JCAB designed and developed a system with a maximum data size limit of 100 KB per digital NOTAM message and evaluated the overall processing performance and service quality of the SWIM Technical Infrastructure (SWIM TI).

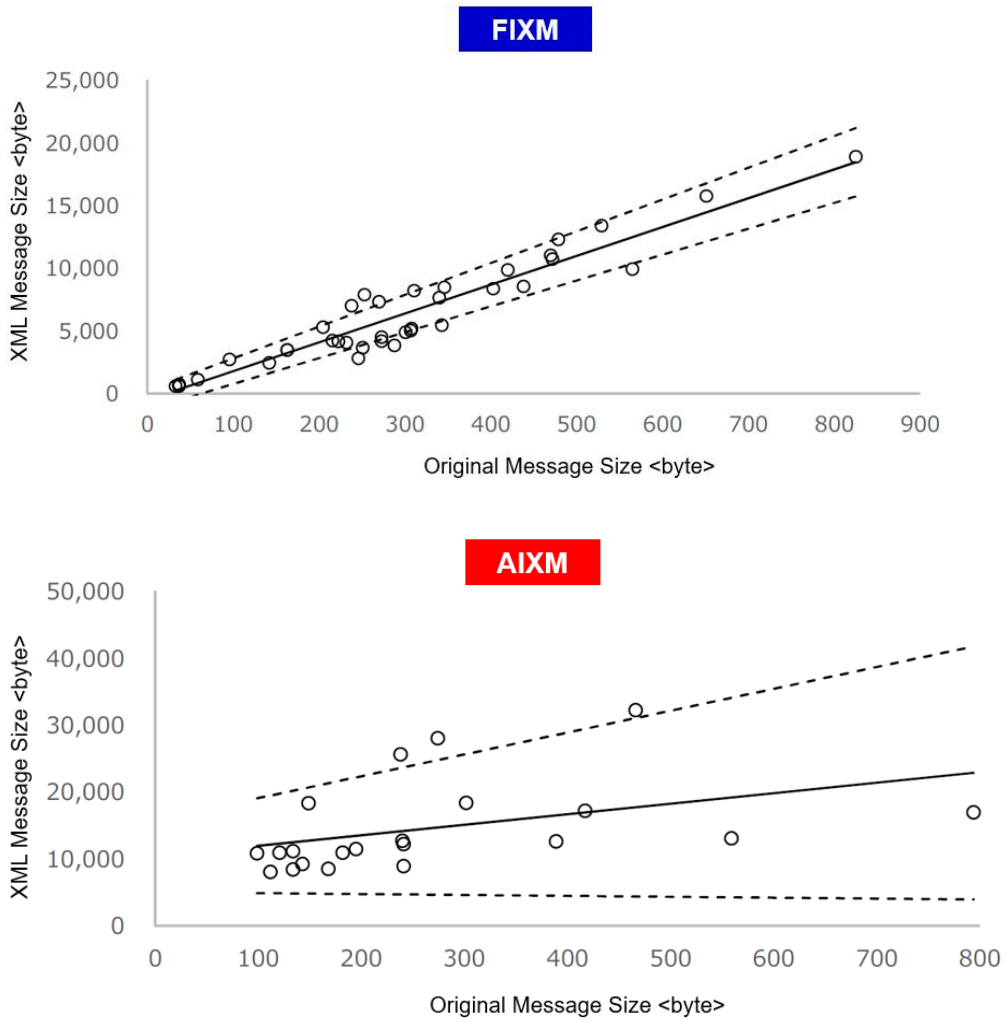
1.3 However, during system evaluations using actual NOTAM issuance scenarios, several cases were identified in which the total data volume of a digital NOTAM exceeded the predefined limit of 100 KB. Consequently, JCAB revised the maximum data size limit and launched the digital NOTAM information service on 4 March 2026.

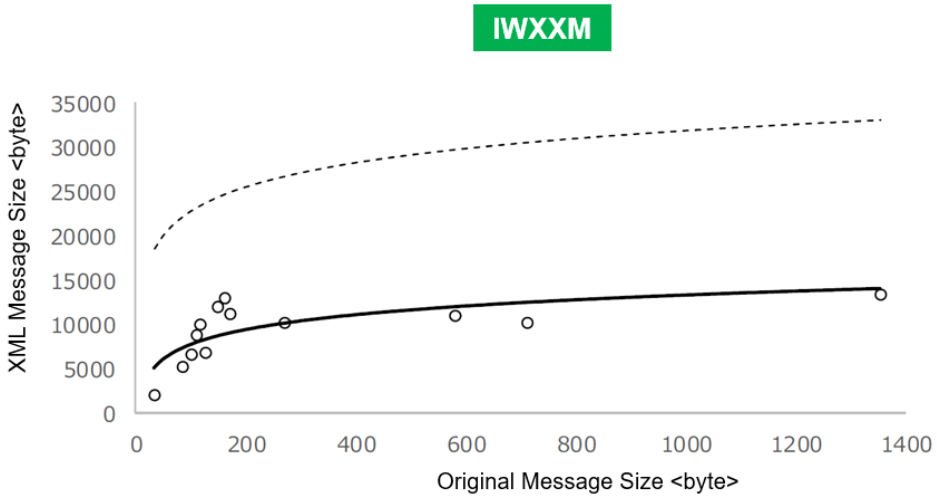
2. DISCUSSION

2.1 Summary of the 2016 Analysis Results

2.1.1 The primary objective of the 2016 survey conducted by JCAB was to comprehensively assess the potential impact of SWIM-related information exchange on JCAB's internal private IP network. This assessment was based on an analysis of the structure and characteristics of representative XML-based information exchange models expected to be used in SWIM, namely FIXM, AIXM and IWXXM.

2.1.2 For the purpose of the analysis, data stored in the JCAB system and distributed via AFTN/AMHS were converted into a simplified XML format. The resulting data volumes showed distinct trends for each information model.





2.1.3 The analysis indicated that the size of AIXM-format digital NOTAMs varied significantly depending on the content of the NOTAM. This variability is attributable to the AIXM data modelling approach, which represents changes through partial updates to the underlying aeronautical data set. Nevertheless, the investigation report concluded that, even under conservative assumptions, the data size of an individual digital NOTAM was approximately 50 KB at that time.

2.2 Actual Digital NOTAM Data Observed in Evaluations

2.2.1 During the JCAB system evaluation phase, several digital NOTAMs were identified for which the data size exceeded the initially defined upper limit of 100 KB. Representative examples are introduced below.

(E1247/26 NOTAMN
Q)RJJJ/QMXLC/IV/M/A/000/999/3533N13947E005
A)RJTT B)2604091530 C)2604302130
D) 01-02 04 07-09 11 14-16 18 21-23 25 28-30 1430/2100
E) A1,A2(A PART OF A2),A2(BTN RWY 16R/34L AND A1),A5(BTN A3 AND A4),A5(BTN A4 AND RWY 16R/34L),A7,A8(A PART OF A8),A10,A12(BTN A AND A13),A12(BTN A13 AND RWY 16R/34L),A13,L5(A PART OF L5),L5(BTN L AND L4),L5(BTN L4 AND RWY 16R/34L),L10,L12)

2.2.2 One example was a NOTAM concerning taxiway closures at Tokyo Haneda Airport. This NOTAM listed 16 closed taxiway sections and covered a validity period of 18 days. The total data size of the corresponding digital NOTAM was significantly larger than anticipated.

2.2.3 Digital NOTAM data consists of two main parts:

- Area 1, which contains the message header and content encoded in AIXM; and
- Area 2, which contains location and geometry-related information encoded in GML.

In this example, it was observed that the data size of Area 1 increased considerably due to the large number of closure locations described in the NOTAM. This confirmed that the complexity and quantity of operational elements directly affect the data volume of AIXM-based digital NOTAM messages.

2.2.4 In response, JCAB expanded the maximum allowable size of Area 1 to 300 KB and conducted a re-evaluation to verify that no adverse effects would arise in system performance or network behavior.

CONCLUSION

2.3 This paper has outlined the data volume issues identified during the generation and operational evaluation of digital NOTAMs at JCAB and the measures taken to address those issues.

2.4 In addition to Europe and the United States, several airports in the Asia/Pacific (APAC) region are larger or comparable in scale to major airports in Japan. It is therefore possible that the total volume of digital NOTAM data exchanged over the APAC SWIM network may exceed current estimates.

2.5 Furthermore, various approaches exist for reducing the size of AIXM messages. In order to prevent excessive load on the Common Regional VPN (CRV) network, it is important to appropriately manage digital NOTAM data sizes. Where necessary, the establishment of an upper data size limit, using suitable technical or operational methods, should be considered.

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 matters, as appropriate.

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