

**12 October 2020**   **WEBEX EVENT**

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# Supporting European Aviation



# EUROCONTROL NM B2B

# TECHNICAL FORUM

**LIMITED EDITION**



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## NETWORK MANAGER



# Questions & Answers



# Questions & Answers session

SPEAKER	QUESTIONS	REPLIES
GREGORY	Once a RegulationProposal via B2B has been implemented, the regulation is directly available by R/R but not by P/S (there is a delay). Is there a fix scheduled ?	This is not a bug. Today in the Regulations Subscription Topic from the P/S Reference Manuals. 'max 5 minutes from the creation of the regulation in the NM systems'. With NM25.0 we are moving to 5 sec. (see iDAP presentation)
IOANA	It would be useful to have ALTN1/ALTN2 (alternate airports) as a message filter in publish/subscribe for flights and flight plans.	Indeed, in today's P/S it is not possible to filter on alternate aerodromes (but only on ADES and ADEP). The same applies to R/R (it is not possible to obtain a flight list on an alternate). This would be particularly useful for identifying all flights that could potentially be diverted to a specific aerodrome. It is a good suggestion and we take the point. It will be analysed for future releases. Any operational Use Case description of the usage of these fields it will be very helpful. For completeness, it is important to state that the ALTN1/ALTN2 are available in the B2B Flight Service Request/Reply and in the Publish/Subscribe with the topic Flight Plans. So they are available as payload but not as filtering/selection criterion.
DENNIS	Are NM B2B Web Services going to merge with EAD AIMSL Web services in order to preserve harmonization of the aeronautical data published by national AIS?	<b>Idalina:</b> This is part of the NM strategy. The official answer is that one of the objectives of iNM is to evolve the EAD services, and to integrate the AIS and operational processes, and to be able to provide harmonised operational airspace data with full traceability from the AIS published data, in a SWIM compliant way. <b>Dennis:</b> There are two issues in this question with respect to Web services, either to the B2B or the EAD AIMSL interface and the preservation of the harmonization of aeronautical data. With respect to the web services either to B2B or EAD AIMSL, we are moving towards one integrated data layer and on top we have one interface with the respect of the web services. For the moment, there is no plan to merge the existing developments once we have one type of interface. Preservation of harmonization of aeronautical data is not something that can be done through the interface and that requires more work from the States as well as from the Eurocontrol.

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DENNIS	What are the plans for digital NOTAMs? Will it be covered by EAD or NM B2B Web services?	<p><b>Idalina:</b> Digital NOTAMs will be available through the iNM SWIM compliant interfaces.</p> <p><b>Dennis:</b> The plans for digital NOTAMs are that with the specification number 2 which will become available, hopefully in the first half of 2021 when we are in the position to accommodate and serve digital NOTAMs and that will be done through the EAD. If the whole community is ready to work with digital NOTAMs that requires that all stakeholders be on AIXM 5.1, but it is not the case yet.</p>
BENJAMIN	Regarding B2B services, the lack of a service level agreement and no back-up (B2B failure) is a major concern, if important info only is pushed to us via B2B.	<p><b>Benjamin:</b> The lack of SLA it is something that it is solved and Service Level Agreement exists. We created it for the ANSPs first, so we will have it signed and once it is settled we may extend it to the rest of the community.</p> <p><b>Sergio:</b> It is not true that there is no back-up. Everything is virtualized. If there is a failure on one machine the service is restarted on the another machine. Services can be moved from one machine to another. Many components are redundant. Then we have a full contingency site in Bretigny that can be activated in case of a major disaster in the Brussels' data centre.</p>
SERGIO	We spend a lot of time parsing response XML to other simpler formats like JSON. Could B2B return JSON responses for users who don't require such formal schema?	<p>JSON is certainly less verbose than XML and it has gained a lot of popularity in the past years. XML still offers some functionality that JSON does not offer e.g. XSD schema validation and namespaces) and parsing performance depend on the type of parser or library used.</p> <p>We could consider publishing P/S messages in JSON, however this would be applicable only to the NM B2B Exchange Model and not to other standard exchange models (AIXM and FIXM). So we would still need to mix the two (e.g. including a FIXM part within a JSON message).</p> <p>Besides, we are trying to move towards using those standard exchange models so it would be good to hear what AIXM and FIXM CCBs would say about it before making any definitive move in this sense.</p>

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DENNIS	Are there any plans for distributing terrain, obstacle information in a AIXM format? Especially in the airport vicinity and mountains areas.	<p><b>Idalina:</b> There are no plans to distribute this data via the NM B2B.</p> <p><b>Dennis:</b> If the question is if NM B2B will exchange these type of data in AIXM format, the answer is no. However, we need to separate terrain and obstacle information, which are completely different data sets. Obstacle information in AIXM format will be available when ICAO and EU provisions are there including the technical specifications (expected around 2022/2023) than it will be available in EAD. When it comes to the terrain data we have different formats and for the moment EAD is not ready to distribute this type of data sets because for the moment it is seen as a State obligation to make this data sets available.</p>
SERGIO	We currently use NM 23.0 Services. When NM 25.0 is released, will our NM23.0 queries work properly if we connect to NM 25.0 endpoints? This would be temporary	This has been answered in the Technical Improvements presentation - see last slides on Decommissioning of B2B versions.
SERGIO	Please, make 2 to 3 PRE-OPS available: to connect more than one non-prod systems (ex dev1,dev2,pre-prod) without collisions when doing tact updates	<p>This would need to be further elaborated. For example a R/O PREOPS and R/W PREOPS? Two identical PREOPS? Even with 10 PREOPS there would always be the possibility of interfering with each other when it comes to write services. It would be ideal to have the possibility to start a "dedicated PREOPS" on demand, but it would require all flights, all airspace data, etc., hence expensive (cloud opens up possibilities here, but costs would need to be carefully evaluated).</p> <p>More food for INM.</p>
IOANA	Airport consumers would find it beneficial if the FlightListByAerodromeRequest could return the aircraftIATAid to allow callsign matching without lookup table.	<p><b>Ioana:</b> This data is not available in NM systems as not being provided in the data received from FPL. In NM B2B, this field exists but empty because the information is not received.</p> <p><b>Andy:</b> There will be no update to the ICAO format FPL to introduce an Item 18 sub-field for the IATA flight number. The IATA flight number is supported in FIXM via an extension of FlightIdentification as an optional attribute of NmFlightIdentification. As soon as the flight plan originators start filing flight plans in FIXM format and include the IATA flight identifier, it will be available to you. When sent to NM, the IATA flight number is stored and provided in the flight plan retrieved in NM_B2B or FIXM formats.</p>

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IOANA	What is the current and planned policy for sharing data of the airport and airspace users for entire community?	Following the Commission Implementing Regulation (EU) No 123/2019 ("Network Function Implementing Regulation"), the exchange of operational data with the operational stakeholders is done in accordance with Article 13 of Regulation (EU) No 550/2004 ("Service Provision Regulation"), <a href="https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32004R0550&amp;from=EN">https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32004R0550&amp;from=EN</a> As specified, the data is available "to facilitate <i>their</i> operational needs." Therefore, the access to NM Data is restricted depending on the stakeholder and the operational need.
ALESSANDRO	NM uses the term B2B and the PCP regulation SWIM Web Services, this creates confusion (is it something else?). Wouldn't it be better to stop using the term B2B?	<p>The PCP does not use the term "SWIM Web Services", but rather the term "SWIM enabled services", and for each of the information categories, such as "aeronautical", it says "Operational stakeholders shall implement services which support the exchange of the following &lt;aeronautical&gt; information using the yellow SWIM TI Profile" And it further says that the services shall be compliant with the applicable SWIM specifications.</p> <p>The terms "NM B2B Services", "NM B2B Web Services", "NM B2B" are in fact a brand. "B2B" is not a technology it just means "business-to-business". The NM B2B are the interfaces that NM offers promoting business-to-business interoperability. The NM B2B in technical terms is a set of APIs. We could have called it "NM API".</p> <p>SWIM is a concept that is associated with a set of specifications, which put requirements that the operational stakeholders have to adhere to in their APIs. NM has also to comply with these specifications. The compliance process is currently ongoing aiming to be completed in the course of 2021.</p>
SERGIO	It'd be great to subscribe to real-time data changes through Web Hooks	<p>There are indeed many technologies and protocols that enable "push" notifications (e.g. Web Hooks, Web Sockets, REST Hooks, then MQTT, etc.).</p> <p>Web Hooks would require our systems to call your system (firewall? authentication? if we had to do that for many clients it would become burdensome).</p> <p>NM needs to remain in line with the SWIM YP specifications. To this end, we based our Pub/Sub solution on AMQP 1.0. Then, on top of that you can build your own architecture based on any technology. The B2B is really designed as a server-to-server API rather than client-server API, so we recommend building your HMIs on your own service layer (on technologies of your choice) and have your server-side systems fed by the NM B2B.</p>



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IOANA	We have the capability to process hundreds of PS messages/second. What are the technical/cost/political limitations to receiving ALL PS flight data this way?	See point 11.
BENJAMIN	B2B typically only provide IFR flights and I recall that there was discussion to allow FBOs to file flight plans directly in via NM. Is this feature live?	Yes, whenever you have this type of customer relationship you can file FPL on his behalf. If you are in this position please contact Claire (Service Requests team), so the proper contract is set up. Of course, you have to implement the feature in your software.
RICHARD VALERIO	It would be great if the NM B2B services which need to be interacted with for iAOP could be discussed in iAOP context - documentation is a bit thin so far	<p><b>Richard:</b> We do publish Departure Planning Information and Arrival Planning Information Guides, called implementation guides and we will make sure that links of those are put on the OneSkyTeam.</p> <p><b>Valerio:</b> Both API and DPI are described in the implementation guides and you can download them from the Eurocontrol web site. What we put in the NM B2B Reference Manual is only the part related to the B2B and not the rest.</p> <p>Here are the links:  <a href="https://www.eurocontrol.int/publication/arrival-planning-information-api-implementation-guide">https://www.eurocontrol.int/publication/arrival-planning-information-api-implementation-guide</a>  <a href="https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide">https://www.eurocontrol.int/publication/departure-planning-information-dpi-implementation-guide</a></p>
GREGORY	On NOP Portal there is "Current Network Situation" static map. How this data is calculated. How to replicate this view with data from different NOM/B2B queries	<p>One can use the retrieveATFCMSituation service to get a similar view : compute the average delay per regulation (delay/ nrImpactedFlights) and then color according to</p>  <p>However this will not give exactly the same results as what is shown in the NOP "Current Network Situation" static map.</p> <p>The "Current Network Situation" static map, shows the average delay for the current hour, or the next hour or in 2 hours (in fact the user selects for which hour he wants to see the delay &amp; regulations).</p> <p>This time dependant average delay info (for each regulation: average delay per hour slice ) is not available currently via B2B.</p>

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IOANA	Will there be a move to extend B2B services to allow provision of existing services through B2B connectivity (example current messaging over AFTN networks)?	Apart from the AFP messages (ATC Flight Plan Proposal addressed to IFPS) all the AFTN messages are mapped into NM B2B Web Services (see NM24.0 Release Notes available under B2B documentation on OneSky Team)
SERGIO	With the likely increased uptake of the use of B2B services going forward, how will the performance/capacity of B2B change to meet the needs of users?	The short answer is <b>iNM</b> . One of the objectives of iNM is to build a more scalable system via an improved architecture, newer technologies and use of cloud. Having said that, the NM systems do have capacity and are already fairly scalable, but not yet dynamically scalable. Whenever the systems are deployed they are scaled for a certain amount of traffic and load (which are not the peak figures of course). So that's why the R/R has thresholds in place.
IOANA IDALINA	Is there a roadmap for new services planned for the future? Is there a plan for retire existing services where B2B alternatives are available (example EFD)?	Now that we have made available almost everything through the B2B Services, its evolution is intimately related with the development of new business features, as the NM B2B is now one of the standard NM channels to deliver new functionalities. This is captured in the overall NM roadmap. Additionally, as part of the NM Transition to SWIM Policy (approved by the NM governance - NDOP), the EFDs will be decommissioned. The plan is not yet established, however you should consider the PCP/CP1 deadlines, which mandate flight data exchanges in a SWIM compliant by the end of 2025. To smoothen the transition our policy is that new users willing to have access to flight data will no longer be given the choice to get it via EFDs, only via the NM B2B". This policy is available, approved by NDOP on 20/03/2018. The decommissioning plan would be drawn with each EFD client.
IOANA	P/S FlightService returns DBE points (*XXXX) in flight point profile, but this data is missing in served AIXM data. Is this issue planned to be solved?	CR_041147 for NM26.0 as a SB to measure the impact then, depending on its complexity, followed by implementation.



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RICHARD	AIXM data is missing some information that is important for us, such as skip/out values, monitorable TV, TIS/TRS values. Would it be possible to add this data?	With NM 25.0 it was planned to share the Traffic Volume profile via the P/S FD. However, due to complexity, this request will be studied as a Study Block before implementation. The actual planning has been updated as: SB in NM 25.0 and implementation in NM26.0. <b>Richard:</b> Although it's not in AIXM we do handle it in the Flow Services, so it is slightly different port, etc.
IOANA	Would it be possible to indicate within the messages whether a flight has been screened for generic pandemic situations? e.g. "All PAX temperature tested"	Yes, it would be possible. Only if: the data is received in the FPL and the NM systems have been updated to share this information through NM B2B services.
SERGIO	What does "candidate for compression" in the document actually mean, if the content-encoding property is set to "gzip"? Still need to check content length?	Pub/Sub ref. manual paragraph 2.3.6. It explains that not every message is compressed. Candidates for compression are only Business Messages (and not Technical Messages) that are above a certain threshold. If a message is compressed the content-encoding is set to gzip. No further checks are needed. We will change the wording in the documentation and make it clearer to avoid any further doubts.
SERGIO	With the expected rise in frequency of flight data updates in release 25.0 due to the use of ADS-B data, will the bandwidth protection limits be updated?	There are no bandwidth limitations for pub/sub. Only for SOAP R/R.
SERGIO	Are the data prioritization limits for requests and bandwidth valid per client (organisation, source IP-address?) or per certificate?	Explained in presentation: It is per certificate.
IOANA	ValidateFlightPlanRequest calls can fail a flight plan that is ACK'd when submitted to ATC. Why is this, and how can we get better alignment of the two?	<b>Ioana:</b> When the FPL is submitted it is submitted to IFPS and IFPS is in charge to distribute the copy of the FPL to the ACC concerned. So if question is understood correctly, we don't see how the ATC could reject the flight plan. <b>Stephen:</b> Indeed, in theory it shouldn't happen. The FPL that is valid for validation request, should be valid for the IFPS. If there is a misalignment it could be due to revalidation that is triggered by the changes to the environment database, but in theory it should be the same. <b>Andy:</b> The question seems to be about some European countries that don't want CFSPs to file SID/STAR procedure names. And maybe in a FRA context that leaves only the option to file DCT to the to/from the SID/STAR first/last en-route point. We need to see an example of the publication and then a FPL giving an error when the instruction in the publication is used.

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GREGORY	Is RoutingAssistanceRequest the only way for CFSPs to get known acceptable routes from the NM? Can the route catalogue be accessed some other way?	The route also can be queried via IFPUV Propose Route Services what is the equivalent to what is available via B2B. The alternative is in NOP and CHMI, where you can also query directly the Route Catalogue.
IOANA	RAD rules can have redundant elements and be greatly simplified. How can CFSPs engage the NM to propose changes that don't alter the intent/consequences?	NM.RAD. However, each restriction is always discussed with the ENV/RAD coordinator of each country before being implemented into CACD.
GREGORY	What is the difference between useRouteGenerator and useRouteCatalogue in the RoutingAssistanceRequest? When should CFSPs use one, the other, or both?	<p><b>Ioana:</b> The difference consists in the source of the route from ETFMS: path finder or route catalogue. CFSP should use what is suitable for them, no matter if the route is generated from RouteGenerator or RouteCatalogue.</p> <p><b>Gregory:</b> You chose what you want to use. You can use the Route Catalogue or path finder (that is creating more alternative routes which haven't been flown that much)... There are some differences, for example, if you say max 10 flights generated then the Route Catalogue then you can say only the Route Catalogue otherwise you can get the generated routes as well. There is another difference, if you want to know the route for the invalid flight plan and you can not find anything you can use the route catalogue and say return me 'invalids', this can only be done with the Route Catalogues.</p>
IOANA	Some European countries want CFSPs to file DCT to a SID/STAR transition instead of the procedure name, which are then rejected due to long direct legs. Advice?	<p>Example?! Once the FPL is ACKed by IFPS (respecting the European countries DCTs or TPs requests – published in the AIP) then it is distributed to the ACC concerned.</p> <p>Therefore the FPL will correctly reflect each country's operational need.</p> <p>Indeed some member states insist that SID STAR be entered for aerodromes by the flight plan submitters. Also, some member states publish within their AIP that SID STAR are not to be put into flight plans.</p> <p>However, CACD hold information as to if IFPS should output the SID/STAR based on the AIP, that is, IFPS uses the AP/DP inclusion parameter from CACD to know when to insert SID/STAR on output to ANSP. NM advises that CFSP insert SID/STAR so that the trajectory intent of AO is better aligned with AO.</p>
IOANA	How can CFSPs consult NM personnel and experts for answers to complex operational scenarios encountered by their customers?	NM Service Request will collect your queries and make the link/put you in contact with the right NM expert.

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<b>GREGORY</b>	We use RoutingAssistanceRequest to get route proposals between 2 airports. How to encode Route field to get possible routings, without specifying route points?	Use DCT in Field 15. Afterwards Route Catalogue or the Route Generator can be used and the system will provide you with the route proposals between two airports.
<b>SERGIO</b>	Do you plan to register NM B2B services in SWIM registry ?	Yes, we are working on it. We are planning to fill the gap for the SWIM compliance by formalizing the Service Description and upload the B2B services in the SWIM registry and providing the AIRM mapping. The tentative target release for this is 25.0 but given the high workload and many ongoing activities we cannot yet commit to this for 25.0, that is why it was not presented in the slides among the improvements. But as I said, we are working on this too.
<b>ERIC</b>	is LARA ASM tool a SWIM compliant ?	To ensure compliance with the requirements specified into the PCP regulations with regards to ASM support system, Eurocontrol has developed the specification for the Airspace Management ASM support system, the requirements supporting the ASM process at local and up level part two ASM to ASM system interface requirement. For the exchange of the aeronautical information specified in the PCP regulation using ASM technical infrastructure profile it shall implement the service with the relevant interface defined as defined in the specification called Eurocontrol specification for the airspace management support system requirement support, the ASM process at local and up level part two ASM to ASM system interface requirement. It is not directly bond to B2B connectivity but it is targeting ASM, ASM communication.
<b>SERGIO HERMAN</b>	How NM receives data in its CACD from EAD ? In what format ?	<b>Sergio:</b> Most of the data in CACD is entered manually but there is also a semi- automatic feed where the data is exported from EAD in AIXM 5.1, checked by an NMOC operator and than imported in CACD. <b>Herman:</b> It is only for limited set for the moment (points, aerodromes, airspaces only if FIRs and routes in 25.0).

# Questions & Answers session

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DENNIS	When will the Digital NOTAM specification version 2 be ready ?	For the moment specification for the version 2 of the digital NOTAM is planned for the quarter 2 of 2021. It depends on the public consultation that is needed for such a specification and what received feedback will be.
DENNIS	In accordance with PCP Digital NOTAM service shall be provided for . activation/deactivation of ARES. Would B2B support this services ?	We are not clear if it is really required by the current PCP to do activation/deactivation of ARES via a digital NOTAM. The text for the moment make reference to using the web services for the activation/deactivation of ARES in line with the SWIM specifications. There is also ongoing work on PCP that leads to CPU1 regulatory framework that is where some of the text will be further clarified. For the moment we are not aware of any link between digital note and the activation/deactivation of ARES.
SERGIO	Is a list of known aircraft types available via B2B? Does it include additional information, such as wake vortex category?	No, it is not available via B2B.
SERGIO	Any plans to provide historic data via B2B interface for automated retrieval (data is available via DDR2, but manual download is bothersome)?	For the moment there is no plan to export the archive data via B2B. Archive data is available via the NMIR.
SERGIO	What is the difference between PENS and Internet access? It is not clear for us (OPS background, not IT)	Explained in the presentation. PENS is a closed network of the ANSPs, while the access to Internet is through the Public Internet. The B2B services are available in both networks, depending on which network you are connected to.
SERGIO	Concerning the replacement of Apache Active MQ, is the new product still providing AMQP and therefore it will transparent for us, the publish/subscribe users?	Answered during the presentation: answer is Yes.
SERGIO	Will you provide a service that allows to check the status of the different services?	In the GeneralInformationServices there is a NMB2BInfoService Port Type, which is designed to provide information about all B2B services. At the moment it does not yet export information about the status of the services because we have no concept of service status as such. All services are always up or down (e.g. during maintenance). We have no formal concept of service degradation. The rejections due to overload and quota are returned directly in each Reply (in the R/R pattern). It would be useful to get your input about what kind of information you'd like to see.

# Questions & Answers session

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	Do you plan to provide a service to retrieve the GASEL files?	N/A
<b>SERGIO DENNIS</b>	Flight and flow services - are they SWIM services ?	<b>Sergio:</b> All the B2B services come in one lot (SWIM compliant or not), either there would be all SWIM compliant or not. The idea is to have all the gap filled by the 25.0 for all the services. <b>Dennis:</b> The answer is yes.
<b>SERGIO</b>	Is it possible to know what the current status of the system backend load is? Low, High, Overload?	No, it is not possible to know the actual load of the backend. How would you plan to use this information?
<b>IOANA</b>	Is the increase of horizon due to ADSB affecting only NM B2B or also EFD Messages?	Both, since both messages are linked to the same input/output from the ETFMS.
<b>IOANA</b>	Hi Benjamin, with AIREON data being included, is there an expectation that the ELDT estimate will be improved?	Yes, that is our expectation (after May 2021).
<b>SERGIO</b>	Are there any backpressure for PubSub?	If the question is related to flow control, there is no flow control implemented at the application layer, but the Pub/Sub is based on the AMQP 1.0 protocol, which itself relies on TCP. So there is flow control at this level.
<b>STEPHEN</b>	Are there plans to include in the 4D trajectory the lat/long for every point rather than just the fix name.	Via FIXM you certainly can provide the evolution of the trajectory that is in between fix names, so it is certainly possible.
<b>ERIC</b>	For EAD we already have access to NewPENS. Do we need to request access to PENS for LARA B2B?	Yes, the different certificate is needed, because different certificate is used for the EAD access. For the NewPENS that is completely different provision of services.
<b>SERGIO</b>	Last year in the technical forum there was a demo on B2B workspace, we haven't received an access or any news. Can you let us know an update on it?	The B2B workspace at the moment is not ready to be deployed, but we recognise the value of it and we are planning to deploy it on the digital platform INM.
<b>IOANA</b>	Will DPI and FUM become SWIM compatible	The answer is yes. They are part of B2B Services and by default they will be compatible.