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IWXXM implementation in ICAO EUR-Region

EUR Data Management Group

ROC/IWXXM Implementation Workshop, Cairo/12-13 Nov 2017

IWXXM project in the EUR-Region

- Scope

- Planning & Status

- Discovered issues & decisions taken

- Future

Planning & Status

- P3 AMHS connection with extended services between MET & COM switch
→ In operation at ROC & RODB Toulouse & Vienna , RODB Brussels
→ ROC London planned for mid 2018
- Implementation of IWXXM v2.0 or 2.1 functionalities in MET switch
  - TAF/METAR → IWXXM translation
  - SIGMET/AIRMET → IWXXM translation only for polygon areas
  - VAA → IWXXM translation (only ROC Toulouse)
  - Compilation of collections
  - Usage of Permissible Usage Attribute
  - IWXXM message transmission & reception via FTBP AMHS
→ Operational usage by ROC Toulouse & Vienna and RODB Brussels
→ ROC London planned for Q2/Q3 of 2018, COM centre London already relaying traffic from/to RODB Brussels

- Implementation of IWXXM functionalities in COM workstations
  - Visualisation of IWXXM messages
  - RODB request/reply procedure from COM workstation
→ Implemented in Belgium

Planning & Status

- Upgrade of IWXXM functionalities in MET Switch
  - Upgrade to IWXXM 2.1
  - → Implemented at ROC Toulouse.
  - → Implementation planned for ROC Vienna & RODB Brussels Q4 2017/ Q1 2018
  - → Implementation planned for ROC London Q2/Q3 2018

- Implementation of IWXXM RODB functionalities
  - Message storage, decoding, …
  - Request/reply functionality
  - RODB data availability and usage statistics (guidelines/requirements still to be developed)
  - Access control
  - error/information replies
  - …
  - → Implemented at all three RODBs Brussels, Toulouse & Vienna

Issues & Decisions

general & message switching

- IWXXM version
    - Too many issues with IWXXM v1.1
  - → Decided to support from v2.0 or 2.1 onwards

- Schematron validation
    - WMO offline tool available → http://wmo-icao-validator.rap.ucar.edu/

  - ROC Vienna: Real-time schema & schematron validation implemented
  - ROC Toulouse: off-line schema & schematron validation (real-time for translation tool)
  - RODB Brussels: Real-time schematron validation will be follow-up project (end 2017); till then only schema validation

- Permissible usage attribute
  - → ROC Vienna & RODB Brussels → operational
  - → ROC Toulouse → Non-Operational/TEST for several weeks/months before operational usage in service

Issues & Decisions
general & message switching

- **WMO abbreviated header line**
  - → Will not be added on top of XML document
  - → For message routing: extract AHL from filename or bulletin identifier tag in XML collect scheme

- **Collect scheme**
  - →To be used for all aggregated messages, also for SIGMET, AIRMET,…

- **Compilation of aggregated messages**
  - Possible issue of non-compatible pre-fixes in name space declarations if original messages are from different sources
  - →Namespace declarations for each individual report in the collection

Issues & Decisions

general & message switching

- Message translation: SIGMETs
    - TAC → IWXXM translation is difficult for non-polygon areas; "clipping" needed against FIR boundaries
  → It is advisable not to limit the number of polygon coordinates to 7
  → Better solution (WMO? ICAO?): remove non-polygons from TAC code or add to IWXXM scheme
  → Translation service only offered for TAC SIGMET using polygons

- Message translation: METAR/TREND
    - Usage of "phenomenon start/end time" unclear if TREND includes no specific time info (e.g. TREND = "NOSIG")
  → Use METAR time as start time and METAR time + 2h as end time

Issues & Decisions

RODB implementation

- Different versions of a report received?

  → Use prioritization: e.g. non-translated messages have higher priority than translated messages; higher priority overwrites lower priority

- Database tables

  - Cover current needs (reports, messages) as well as future data exchange (data)

  → RODB Brussels: Store data as a) XML documents and b) decoded elements

- RODB reply messages

  - Compiling collections of reports of different sources (or even different IWXXM versions) is not straightforward

  → Usage of aggregations and collect scheme under discussion

Issues & Decisions

RODB implementation

- **Database catalogue**
  → No separate IWXXM catalogue
  → Use TAC OPMET requirements and issue information reply if no IWXXM data available
    (No TAC to IWXXM translations by EUR RODBs !)

- **AMHS issues → non-delivery report handling**
  - RQX requests from a user without extended AMHS capabilities cannot be serviced and will result in a non-delivery report (NDR) sent by COM switch to RODB
  → RODB sends appropriate error message to user (not Toulouse → done by network)
  → To avoid (small) risk of endless loop: Brussels will send max 1 NDR-error message per 10 minutes to the same user

Future

- Generation of (I)WXXM at source
- Development of web services
- SWIM functionalities

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(APAC) Office**
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THANK YOU

Backup slide: issue with non-compatible namespace declarations

producer 1:

```
<c:bul xmlns:c=http://def.wmo.int/collect/2014 xmlns:w=http://icao.int/iwxxm/2.0>
    <w:metar>LOWW</metar>
</c:bul>
```

producer 2:

```
<collect:bul xmlns:collect=http://def.wmo.int/collect/2014 xmlns:iwxxm=http://icao.int/iwxxm/2.0>
    <iwxxm:metar>EBBR</metar>
</collect:bul>
```

aggregation by producer 2 → fails validation

```
<collect:bul http://def.wmo.int/collect/2014 xmlns:iwxxm=http://icao.int/iwxxm/2.0>
    <w:metar>LOWW</metar>
    <iwxxm:metar>EBBR</metar>
</collect:bul>
```

Possible solution (not XML best practice)

```
<collect:bul collect=http://def.wmo.int/collect/2014>
    <w:metar xmlns:w=http://icao.int/iwxxm/2.0>LOWW</metar>
    <iwxxm:metar xmlns:iwxxm=http://icao.int/iwxxm/2.0>EBBR</metar>
<collect:bul>
```