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AIS to **AIM** transition solutions towards **SWIM** digital exchange

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AIS to **AIM** transition solutions towards **SWIM** digital exchange

- 1 – THALES & AIM
- 2 – AIS TO AIM TRANSITION, LESSON LEARNED
- 3 – SWIM & INDUSTRY PRODUCTS



1- **Aeronautical Data** (AIM) in the **Heart of THALES**

Airport & Air **Traffic** Management



Flight Avionics



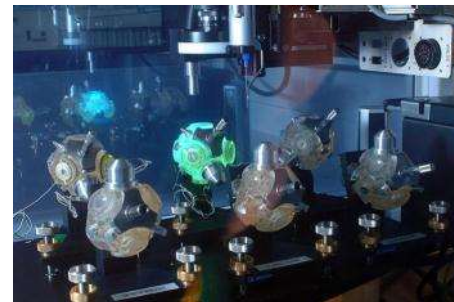
Unmanned Aerial **Vehicles** systems



Command & **Control** Centres - Air Operations



Critical Information and **Cybersecurity**



Navigation Solutions

1- AIM part of ATM, THALES ATM solutions are trusted by 180 countries

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TopSky
ATM Solutions
Shaping Tomorrow's Sky

Over **700**
Radars in operation



7,000
Nav aids



More than **130**
Air Traffic Control Systems

2 out of every 3 planes
take-off and land safely thanks to Thales



Over **20**

Over **3,000**
Controller Positions



Over **25**
Tower Systems in operation




25 Aeronautical Information Mgt. Systems

1,800
ADS-B & Multilateration Equip.

180 countries




25 AIM References worldwide in **45** countries including **9** in AIXM5.1



- EUROPE**
Austria, Croatia, Cyprus, France, Germany, Sweden
- MIDDLE EAST**
Bahrain, Lebanon, United Arab Emirates
- ASIA PACIFIC**
Brunei, Indonesia, Laos, Taiwan
- AFRICA**
ASECNA (Benin, Burkina, Cameroon, Central African Republic, Comoros, Republic of the Congo, Ivory Coast, Gabon, Guinea-Bissau, Equatorial Guinea, Madagascar, Mali, Mauritania, Niger, Senegal, Chad and Togo), Algeria, Mauritius, South Africa, Sudan, Tanzania
- LATIN AMERICA**
Aruba, Chile, COCESNA (Guatemala, Honduras, Salvador, Costa Rica, Belize, Nicaragua), Ecuador, Mexico, Panama

1- Why THALES for an AIXM5.1 system ?

Operational in 12 months !

✓ 2016

Complete Thales AMHS/AIM system **AIXM5.1**

COCESNA



COCESNA

Thales experienced in AIXM 5.1

AIXM5.1 in operation

production of digital eAIP from AIXM5.1 database

Thales long term support

- Up-to-date, Integrated & Easy to use solution
- Deployment & Operation proven in one year
- Refresh training maintaining customer skills with regulation



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2- AIS to AIM Transition, Lesson learned

Together – Safer - Everywhere



AIM, Thales classical Product Deployment – in 3 Steps



AIS Operator

ARO
NOF
MET
Briefing ...

- ✓ P-12, P-19 **Aeronautical information briefing**

Step1



eTOD

geographical
survey ...

Terrain
AIM data Obstacles /Others
Designer draft

- ✓ P-13 **Terrain**
- ✓ P-14 **Obstacles**
- ✓ P-01, P-02, P-03, P-05, P-06, P-07, P-08, P-17 **Integrated aeronautical database (AIXM5.1)**



Services Provider

AIM Data
Designer final
AIP Editor

- ✓ P-11 **Electronic AIP**
- ✓ P-15 **Aerodrome mapping**

Step2



Services Provider

Cartographer

- ✓ P-20 **Electronic Charts**

Step3

TopSky
AIM

AIS



ARO
NOF
MET
Briefing

Procedures



Centralised AIXM5 Database



eAIP



Charts GIS



2- Improvement from AIS automation

Improve SAM ANSP missing FPL concern

- TopSky-AIS compute and fill-up automatically the AFTN/AMHS distribution address.

Large or Multi-Country system *(within a region)*

- AIS (multi-NOF, multi ARO)
- Internet Briefing (large capacity)
- Centralized AIXM database
- Remote country access capability for AIS/AIM functions
- Solution for limited bandwidth network
- Contingent AIS/AIM database in remote country

**COCESNA,
Flight Plans Management
reduced by 20%
for ARO operator**

Thanks to
automatic identification
of duplicated FPL

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2- eTOD collection for Safer procedures with CGX partnership

Extract of eTOD LIDAR acquisition
filtered by altitude and sector
110 000 points

**Obstacles collection
focus on Safer procedures**
Tailored missions : Expert IFPD
on site, Qualified geometer
team & Integrity of data chain

**Procedure design
including PBN fully
integrated in AIXM5**

RWY25

Antenna to thin for LIDAR,
was captured
by traditional techniques.

CGX

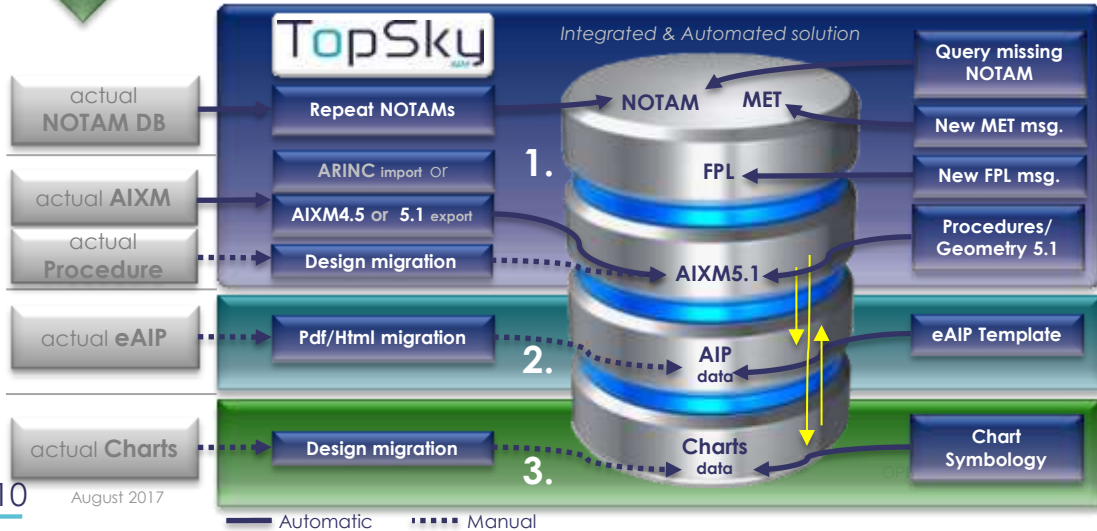


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2- Easy & Riskfree AIM Migration with TopSky-AIM

AIM Migration steps

1. **Digital Communication** capabilities (AMHS or/and SWIM)
Automated Operation with AIS system (NOTAM, FPL, MET) & **Digital Collection** of AIXM5.1 data including Obstacles & Procedure assessment
2. **Digital Publication**, AIP free text for eAIP generation
3. **Digital Charts** embedded in eAIP



COCESNA,
full AIM (AIXM5.1)
put in operation in only
12 months

ARUBA,
AIS/AMHS
put in operation in only
9 months



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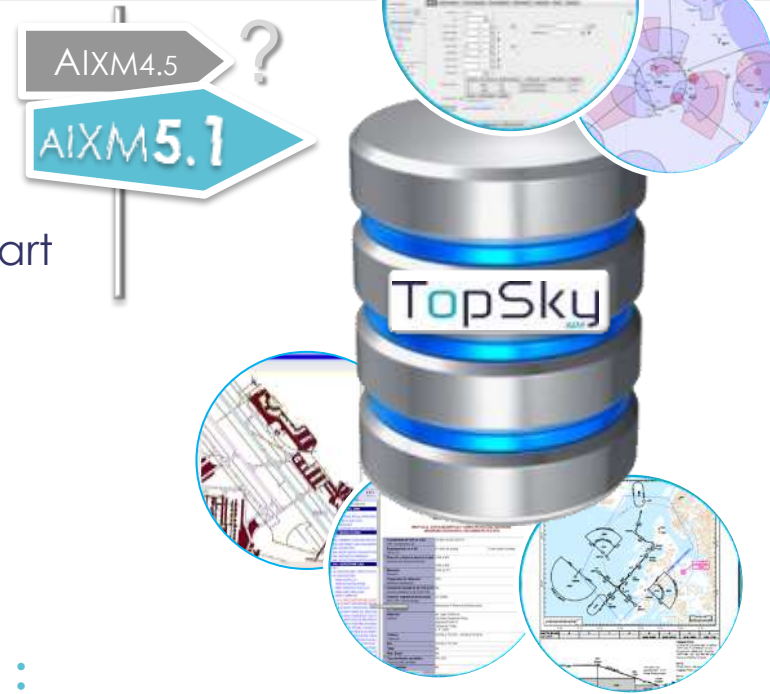
2- Why AIXM 5.1 in AIM ? / versus AIXM 4.5

It is a MUST to achieve ICAO AIS to AIM transition, requiring to :

- be eTOD Obstacle ready
- draw SID/STAR/IAP Procedures Geometry in Chart
- enable AMDB airport mapping production
- enable Business rules quality improvement
- manage the temporality
- enable SWIM for digital data exchange
- be Digital NOTAM ready

AIXM 5.1 remains compatible with AIXM 4.5 :

- when AIXM4.5 is the reference, Thales is able to do a mapping in AIXM5.1, then a validation by ATM SMS and the Regulator of AIXM5.1 converted data will remain mandatory until AIXM5.1 be the reference.



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3 - SWIM & Industry Products

Together – Safer - Everywhere



3- TI Specification, SWIM become a reality for Industries & Products



System Wide Information Management

Foundational Specification Schedule

Work Done

Technology Assessment
(Mainstream state of the art)
ATM Information Exchange Needs



Deliverables

Technical Infrastructure Specifications

- Yellow *Ready for Standardization*
- Blue *Continues in SESAR 2020*
- Purple *Continues in SESAR 2020*



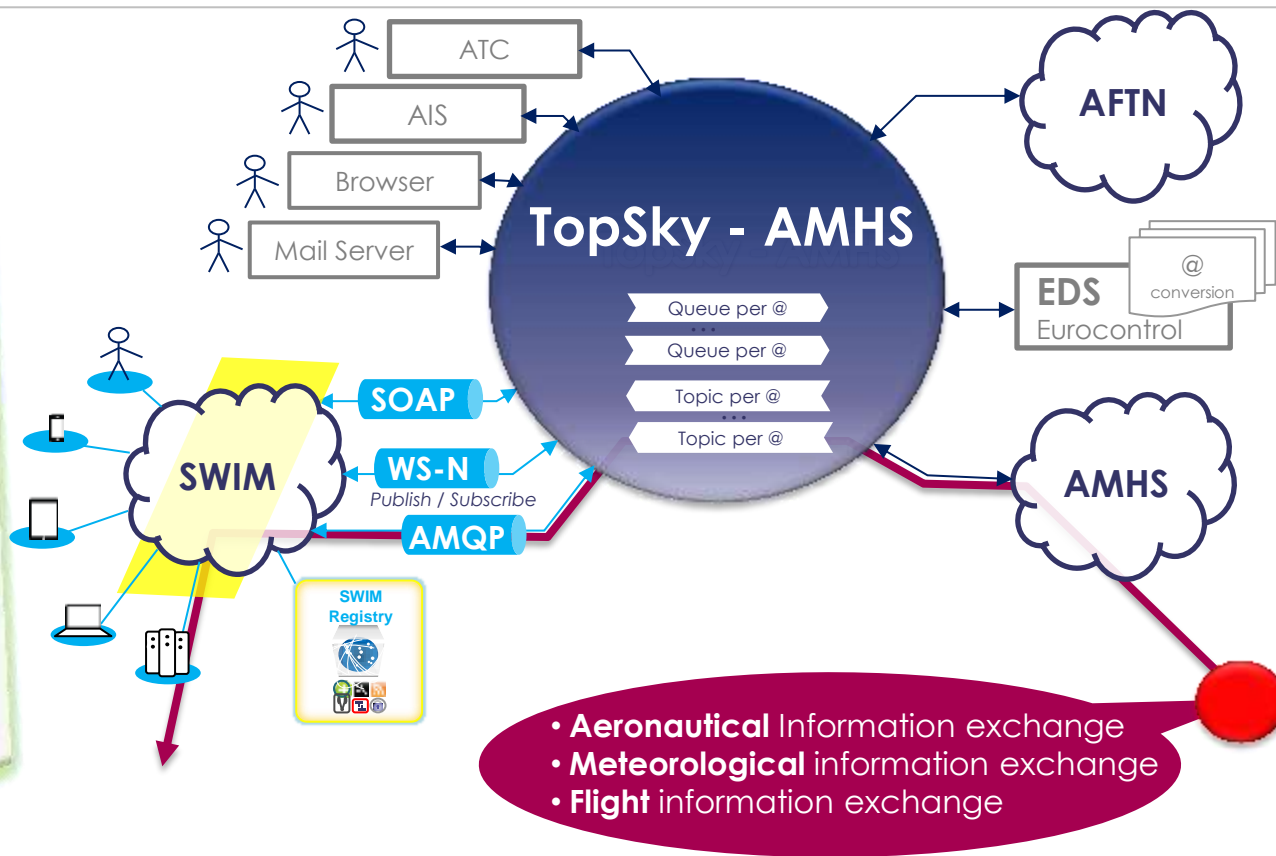
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3- Thales add an **AMHS/SWIM Gateway** in **TopSky – AMHS** product !

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2 new offers from Thales ...



Cloud Services

Benefits =

Digital Aeronautical Information Synergy

ECOsystem : Big data /
previsions / ATFM / UTM / EFB ...

ATC : Airspace, Route
environment Modeling

+

Partner's Services
for operation support

eAIP production (Text & Charts)

eTOD Production

Procedures Design Production

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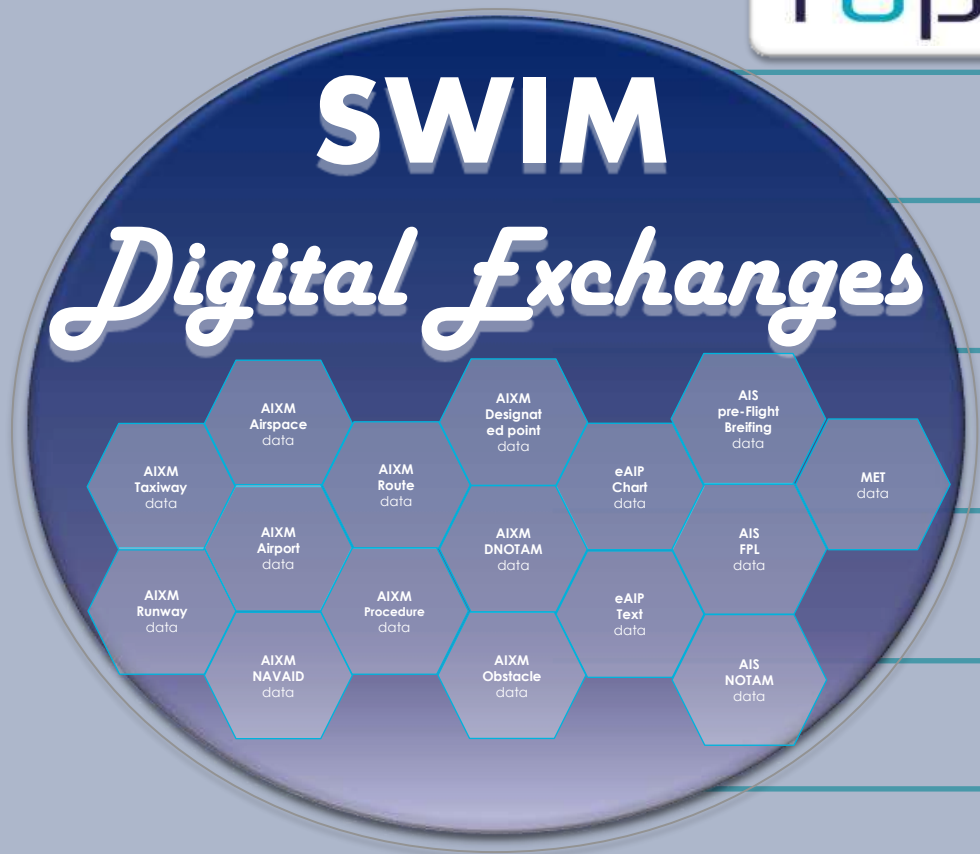
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Procedure Design



Data Provider



Graphical Viewer



Electronic AIP



Charts



Notam, Flight Plan, MET, Briefing

Thank you for your attention !

