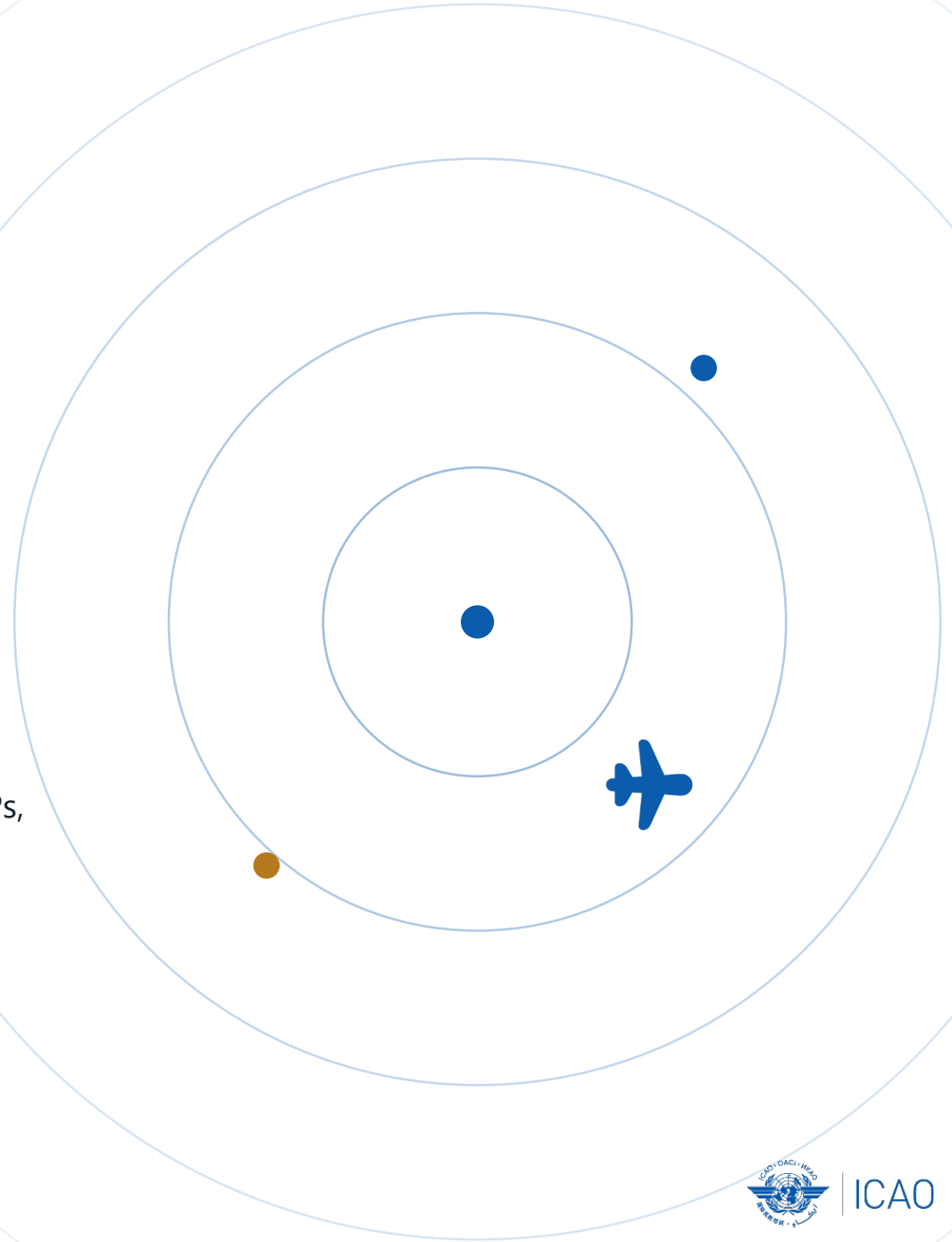
ICAO · DOC 9750 · EIGHTH EDITION

ADS-C & CPDLC

Data link surveillance and communications in the Global Air Navigation Plan, 8th edition

Alignment with the ASBU COMS thread and implementation guidance for ANSPs, operators and controllers



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ICAO

GANP 8: ICAO's global strategy for the evolution of air navigation

2 JUL 2025

Council approval

Eighth edition of Doc 9750 approved by the ICAO Council as a major update.

A42

Assembly endorsement

Submitted to the 42nd Session of the ICAO Assembly for endorsement.

3 / 6 YRS

Update lifecycle

Minor updates every three years, major updates every six years, for stability.

4 LAYERS

Multilayer structure

Global strategic, global technical, regional and national alignment.

Global harmonisation

ASBU block upgrades let each State advance step by step while staying interoperable with its neighbours.

Performance-based

The plan targets measurable outcomes in safety, capacity and efficiency rather than prescribing technologies.

Aligned to ICAO priorities

Reflects the ICAO Strategic Plan 2026-2050 and the priorities set by the 41st Assembly; supports UN SDG 9.

ADS-C and CPDLC live in the COMS thread of the ASBU framework

OPERATIONAL THREADS

Operational improvements such as TBO, FRTO, OPFL, SNET

INFORMATION THREADS

Data and information exchange: FICE, SWIM, DAIM, AMET

TECHNOLOGY THREADS

Enabling systems: ASUR, COMI, COMS, NAVS

COMS · ATS COMMUNICATION SERVICE

COMS-B0/1 CPDLC (FANS 1/A & ATN B1)

COMS-B0/2 ADS-C (FANS 1/A)

Evolving through Blocks 1, 2 and 4

▼ relies on

COMI · COMMUNICATION INFRASTRUCTURE

ACARS | ATN/OSI | VDL Mode 2 | SATCOM data | HFDL

CPDLC and ADS-C ride on these data links; COMS-B0/1 and B0/2 list ACARS (COMI-B0/1) and ATN/OSI (COMI-B0/2) as their technology options.

CPDLC complements voice with a data link dialogue between controller and pilot

ATN B1 · DOMESTIC AIRSPACE

- Manages the ATC data link and voice communications, including microphone stuck checks
- Exchanges a limited set of ATC clearances and requests
- Most ATN B1 aircraft do not integrate instructions automatically into the FMS

FANS 1/A · PROCEDURAL AIRSPACE

- Manages the ATC data link and voice communications
- Exchanges an extensive set of clearances and requests, plus position reporting
- Most FANS 1/A aircraft load instructions into the FMS, though implementations are not harmonised

Less voice congestion

Higher capacity in domestic airspace

Better procedural airspace

Improved communication and surveillance

Fewer input errors

Route and frequency uplinks load to FMS or radios

Stored messages

Crew can print and review clearances

ADS-C gives the ground automatic, contract-based reports

The ATSU sets up a contract with each aircraft; the aircraft then reports automatically, supporting surveillance where procedural separation is applied.

PERIODIC

contract

Reports at an interval chosen by the ATSU, for continuous tracking.

DEMAND

contract

A single report sent when the ground system requests it.

EVENT

contract

Triggered by a defined event, such as a waypoint change or a deviation from the cleared profile.

EMERGENCY

contract

Sent automatically in emergency or urgency mode, alongside the periodic reports.

BASIC REPORT

Latitude, longitude, altitude and time, with a figure of merit describing position accuracy. Present in every report.

OPTIONAL GROUPS

Ground vector, air vector, projected profile and meteorological data, added when the contract asks for them.

From cockpit to controller working position: the data link chain

AIRCRAFT

FANS 1/A or ATN B1 avionics generate ADS-C reports and exchange CPDLC messages, with FMS integration where available.

▶

AIR-GROUND LINK

VHF, satellite or HF data link carries the messages, depending on the airspace and the equipage.

▶

NETWORK

ACARS or ATN/OSI networks route messages between the aircraft and the ATS unit.

▶

ATSU AND CONTROLLER

The ground system updates flight data and presents reports and dialogue to the controller.

GOVERNING REFERENCES

Annex 10 Vol II · PANS-ATM (Doc 4444) · Global Operational Data Link Manual, GOLD (Doc 10037) · Regional Supplementary Procedures (Doc 7030)

The COMS thread takes CPDLC and ADS-C from Block 0 to extended capabilities in Block 4

BLOCK 0	BLOCK 1	BLOCK 2	BLOCK 3	BLOCK 4
Ready for implementation	ICAO provisions effective	ICAO provisions effective	Standards re-scheduled	Standards re-scheduled
COMS-B0/1 CPDLC (FANS 1/A & ATN B1) for domestic and procedural airspace	**COMS-B1/1** RCP 240 approved CPDLC (FANS 1A & 1/A+)	**COMS-B2/1** Advanced CPDLC (Baseline 2)	**COMS-B3/3** RCP approved SATVOICE (incl. routine communications)	**COMS-B4/1** Extended CPDLC (B2 incl. Adv-IM)
COMS-B0/2 ADS-C (FANS 1/A) for procedural airspace	**COMS-B1/2** RSP 180 approved ADS-C (FANS 1A & 1/A+)	**COMS-B2/2** Advanced ADS-C (Baseline 2)		**COMS-B4/2** Extended ADS-C (B2 incl. Adv-IM)

Source: ASBU Overview Report, update for the eighth edition of the GANP (COMS thread).

The 8th edition refines the COMS thread: one element removed, others moved later

REMOVED

One Block 1 element leaves the thread: SATVOICE for procedural airspace, which appeared as COMS-B1/3 in the earlier layout.

MOVED TO LATER BLOCKS

RCP approved SATVOICE now sits in Block 3 (COMS-B3/3). Extended CPDLC and ADS-C sit in Block 4 (COMS-B4/1 and B4/2). The reason: delayed availability of enablers.

UPDATED

Maturity levels changed for some elements and several enablers were updated, including their references and availability dates.

WHAT IT MEANS FOR PLANNING

Blocks 0 to 2 have effective ICAO provisions and available industry standards, so they are the practical planning horizon. Blocks 3 and 4 are for monitoring.

Block 1 ties CPDLC and ADS-C to performance specifications: RCP 240 and RSP 180

RNP

Navigation

Aircraft meet the navigation performance required for the airspace.

+

RCP 240

COMS-B1/1 · CPDLC

Required communication performance for CPDLC transactions.

+

RSP 180

COMS-B1/2 · ADS-C

Required surveillance performance for ADS-C report delivery.

=

PBCS

Reduced separation minima in procedural airspace.

FOR ANSPS

- Monitor actual communication and surveillance performance against the specification
- Support local safety cases and approvals before applying reduced separation

FOR OPERATORS

- Confirm aircraft and datalink service capability and obtain the required approvals
- Indicate RCP and RSP capability in the flight plan

Data link benefits reach controllers, ANSPs and operators alike

CONTROLLERS

- Less voice channel congestion
- Automatic flight plan updates from downlink messages and responses
- Complex route requests handled without manual entry of long coordinate strings

ANSPS

- More capacity in domestic airspace
- Better communication and surveillance where procedural separation is applied
- Stored messages that can be reviewed when needed

OPERATORS AND FLIGHT CREWS

- Automatically transmitted reports at events such as waypoint crossings
- Clearances loaded directly into the flight management system
- Fewer flight crew input errors

Together these gains support safety, capacity and efficiency, the performance areas that GANP 8 uses to judge each element.

GANP 8 points to the enablers needed to deploy CPDLC and ADS-C

ENABLER	KEY REFERENCES
Operational procedures	Annex 10 Vol II · PANS-ATM (Doc 4444) · GOLD (Doc 10037)
FANS 1/A aircraft and ground systems	ED-100/DO-258 interoperability requirements
ATN B1 aircraft and ground systems	ED-110B/DO-280B interoperability requirements · ED-120/DO-290 domestic SPR
Training	GOLD (Doc 10037): flight crew, maintenance, flight operations and controllers
Equipage requirements and mandates	Regional Supplementary Procedures (Doc 7030), for example PAC, NAT and EUR
Safety management	Annex 19 · Annex 11 · PANS-ATM (Doc 4444), supporting local safety cases

Source: ICAO GANP Portal, element COMS-B0/1.

Five steps to move from GANP 8 alignment to operational data link

01

ASSESS

Review airspace, traffic, fleet equipage and the existing ground and datalink capability.

02

CHOOSE

Select FANS 1/A, ATN B1 or both, and the supporting communication infrastructure.

03

APPROVE

Complete the safety case, publish requirements and mandates, and coordinate with neighbouring States.

04

TRAIN

Train controllers and flight crews and prepare procedures following GOLD.

05

MONITOR

Track RCP and RSP performance, resolve problems and review against the ASBU blocks.

GANP 8 favours harmonised, step-by-step upgrades: each State advances at its own pace while staying interoperable with its neighbours.

Four challenges to manage when deploying CPDLC and ADS-C

INTEROPERABILITY

FANS 1/A and ATN B1 serve different airspace types, and FMS integration of instructions is not harmonised across the fleet.

FLEET EQUIPAGE

Avionics and datalink capability vary by aircraft, so requirements and mandates need to match the fleet that actually operates.

PEOPLE AND PROCEDURES

The GANP assessment flags changes in tasks, new information, new equipment and new levels of automation for users.

SAFETY AND CONTINUITY

Local safety cases, performance monitoring and fallback procedures keep operations safe when a data link degrades.

Plan on Blocks 0 to 2 and watch what comes next

01

CPDLC and ADS-C stay at the core of the COMS thread

Block 0 elements are ready for implementation in domestic and procedural airspace.

02

Performance specifications bridge to reduced separation

RCP 240 and RSP 180 in Block 1 link data link performance to procedural airspace benefits.

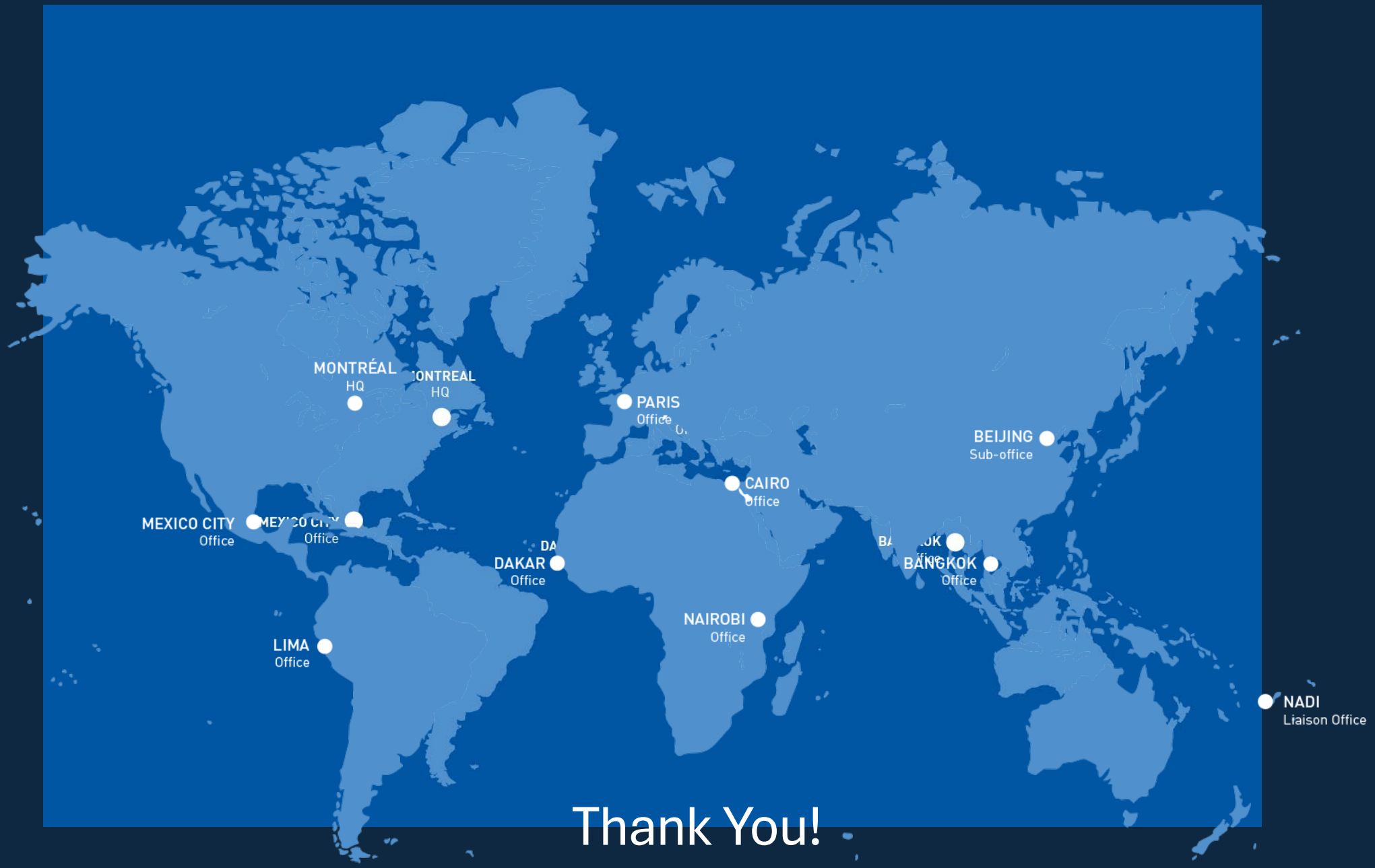
03

Extended capabilities have moved later

Extended CPDLC and ADS-C now sit in Block 4, with standards re-scheduled.

Next step: assess fleet equipage and ground capability, then align procedures with GOLD.

Sources: ICAO Doc 9750 (8th edition), ICAO GANP Portal, ASBU Overview Report (GANP-SG, 2025), A42-WP/31



Thank You!

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