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Australian Government
Defence

ADF
Australian Defence Force

Webinar on Civil/Military Cooperation in Air Traffic Management

20/21 November 2024

Introductions

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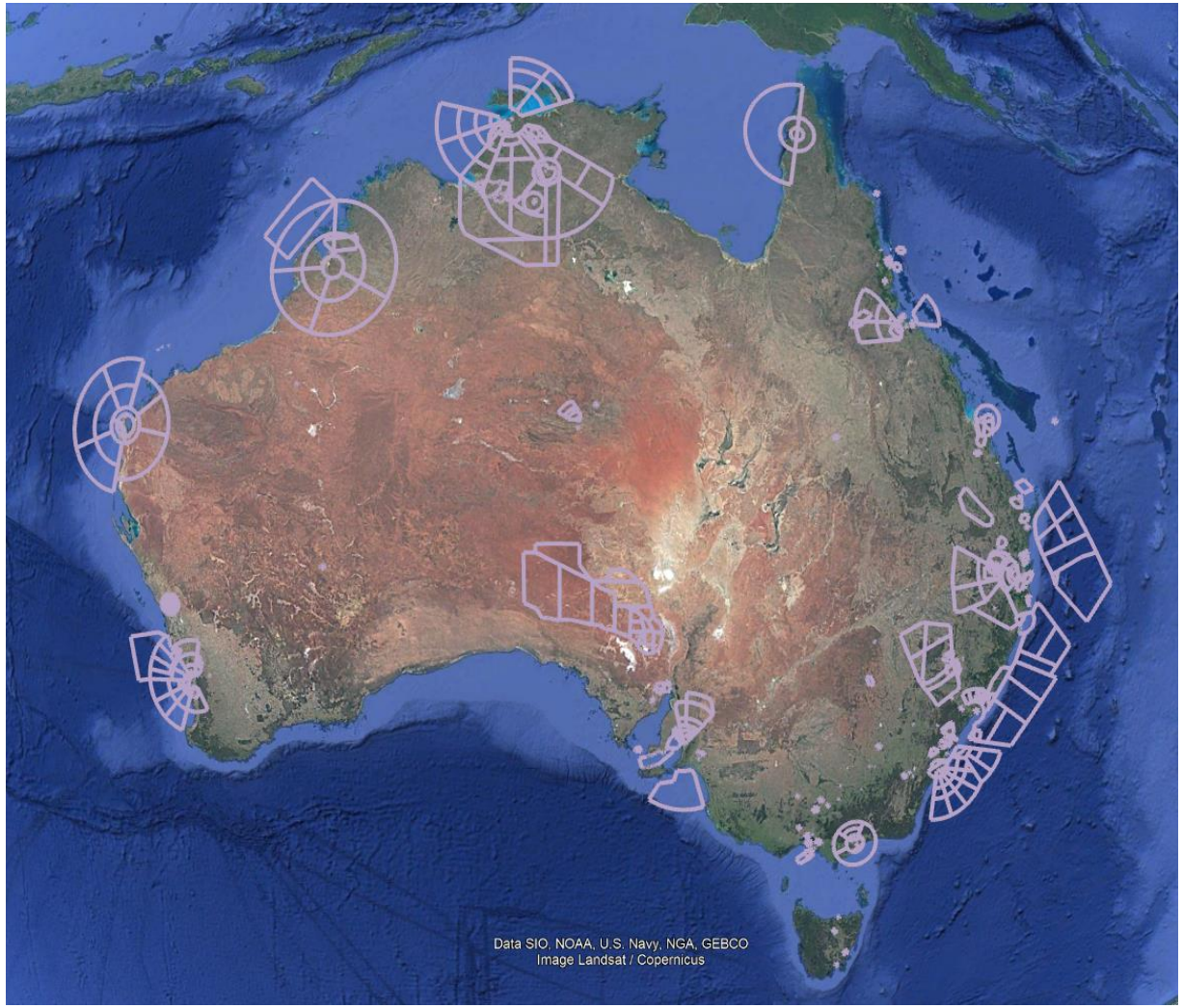
Overview

Key topics

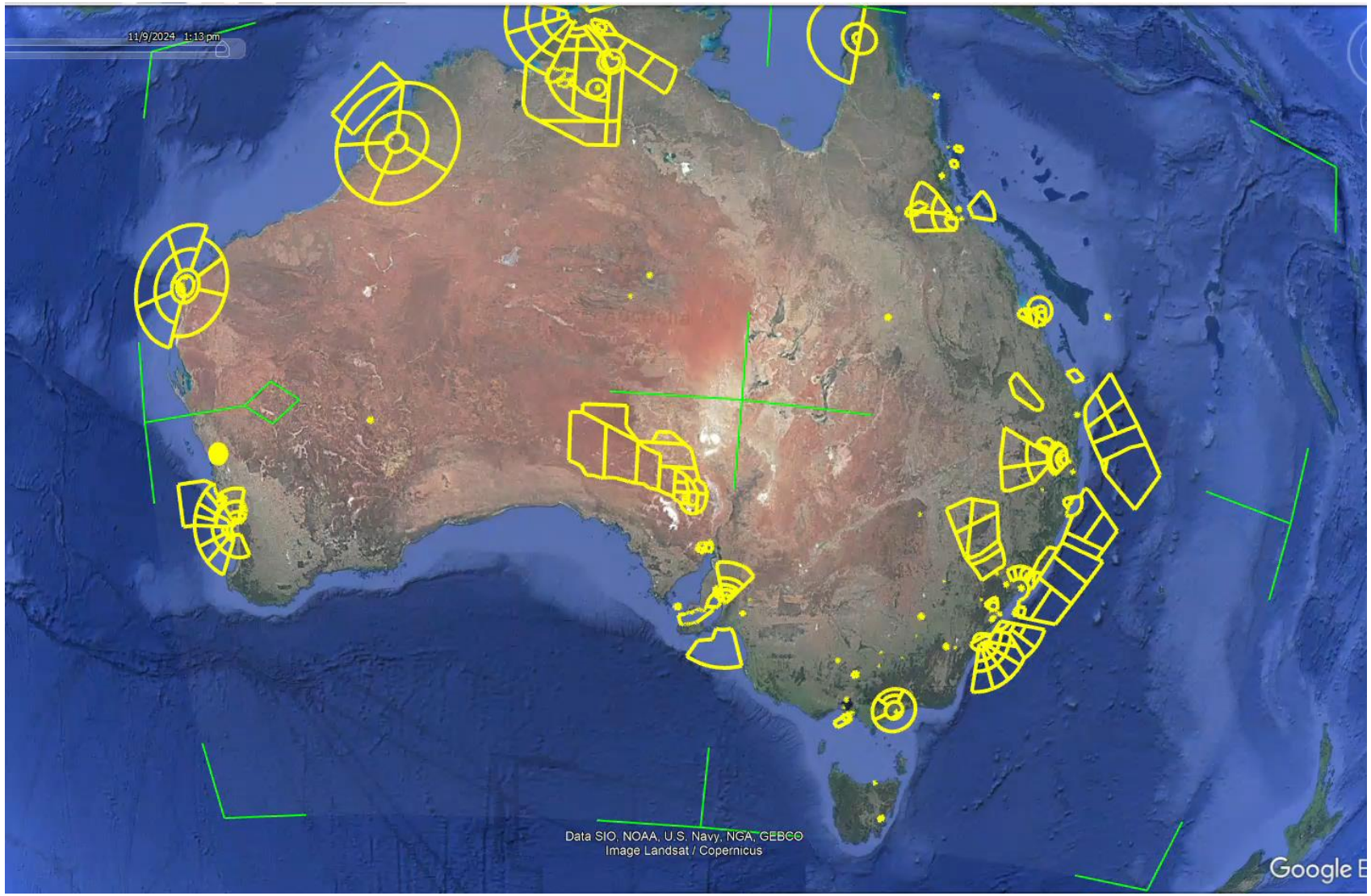
- Australia's Special Use Airspace
- Australia's Current ASM systems & procedures
- Limitations of the Current State
- The Journey to Flexible Use Airspace
- The National Airspace Management Office (NAMO)
- Local and sub-regional Airspace Management Support System (LARA)
- The benefits of NAMO & LARA
  - Conditional Routes
  - Airspace Usage Plans/Updated Usage Plans
- Short Term Objectives
- Long Term Opportunities

Australia's Special Use Airspace

- Australia's vast landscape is covered by a complex airspace structure that includes several types of Special Use Airspace.
- Special Use Airspace in Australia can be broken up into:
  - Prohibited Areas
  - Restricted Areas (with Conditional Status)
  - Danger Areas & Military Operating Areas.
  - Temporary Restricted Areas (Mainly used for MILEX)
- Several of these Special Use Airspace areas contain vast portions of Airspace and restrict a large amount of charted air routes.
- These SUA areas are often close to major cities/aerodromes and as a result can have significant impact on Civil traffic when active.
- The establishment and use of SUA areas are in accordance with ICAO guidelines and regulated through the CASA Office of Airspace Regulation (OAR).
- The OAR delegates responsibility for control of SUA groups to individual airspace authorities, giving them the power to activate/deactivate the airspace via NOTAM as required.



Australia's Special Use Airspace



Current ASM Systems and Procedures

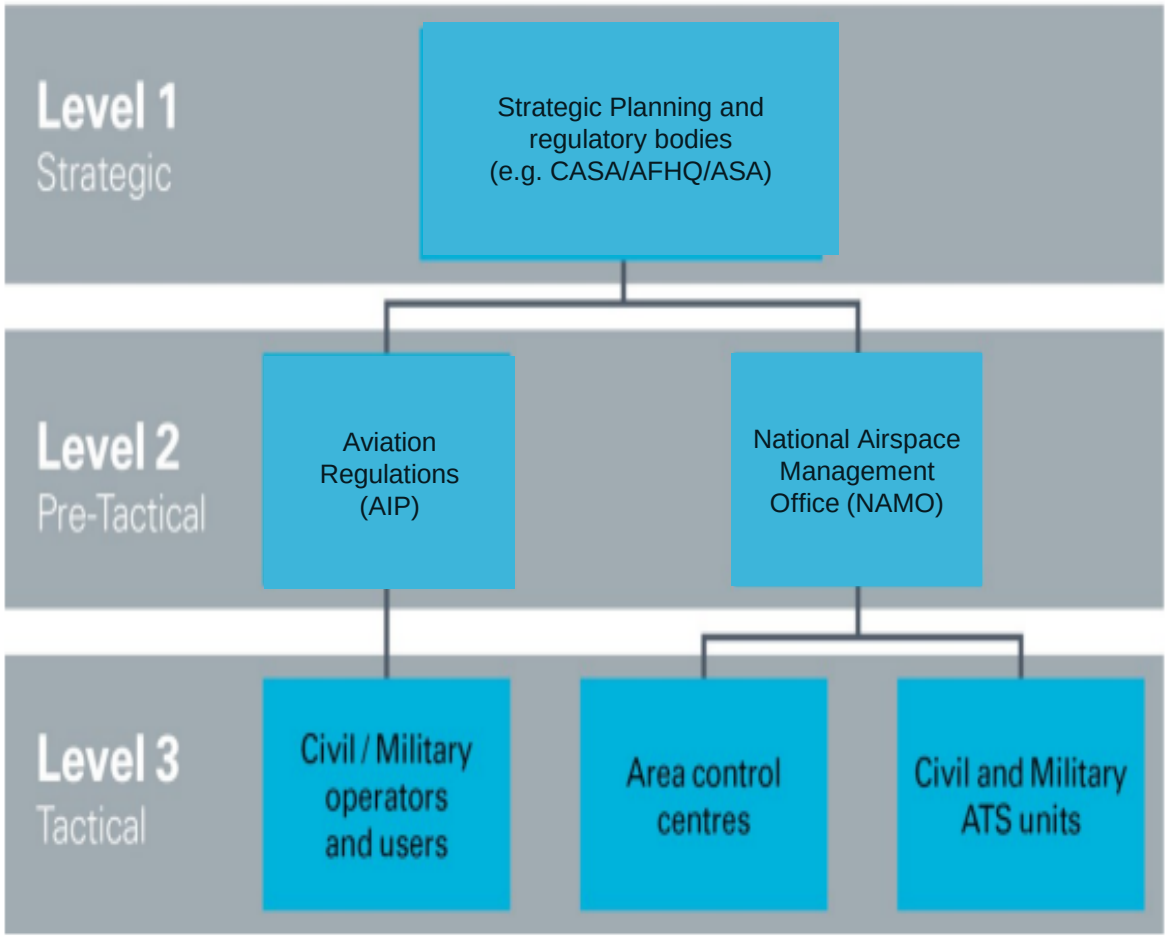
- The Australian Defence Force (ADF) and Airservices Australia control and manage airspace separately using independent systems, The Australian Advanced Air Traffic System (TAAATS) & The Australian Defence Air Traffic System (ADATS).
- Any coordination between the two is done manually as each entities Air Traffic Control system is unable to automatically share airspace data and information.
- To overcome this issue a number of manual processes have been developed, facilitating a level of shared situational awareness, however due to the manual nature of these processes, increased efficiencies in the tactical and pre tactical timeframes are not consistently achieved.
- Airspace Management procedures have developed over time to facilitate a limited level of Flexible Use Airspace (FUA). For example: Fixed Routes, Direct Routes & User Preferred Routing are all used to an extent.
- Airspace activation status promulgated via NOTAM and Industry is expected to plan around SUA activations where appropriate.
- Once NOTAM'd, SUA activations generally remain unchanged due to the complex and manual coordination processes required to update them.

Limitations of Current State

- Due to the complexity of coordination requirements when tactically changing restricted airspace status, inconsistent restricted airspace identifiers between Civil and Defence controllers and misaligned understanding of airspace status, tactical changes to restricted area status are avoided.
- Current Civil and Military ATC systems are unable to interpret NOTAMs and as a result are unable to modify the related airspace activation time and dimension details in the system in response to a NOTAM change message. Consequently, manual input is required which has resulted in frequent information errors and related airspace incursions due to incorrect SUA activation/deactivation.
- Civilian airlines are required to plan their flights around active SUA areas and uplift the requisite fuel, thereby incurring additional weight, burning additional fuel and increasing their carbon emissions.
- In the civilian environment, numerous control authorities, limited tools, inefficient procedures and processes limit the ability of ATC to exploit tactical availability of airspace.
- When Defence activities are complete, SUA areas will occasionally remain active until the airspace NOTAM expiry time.

The Journey towards Flexible Use Airspace

- The existing Civil and Defence ATC systems are reaching end of life and need to be replaced.
- Recognising the obvious limitations of having separate systems for military and civil controllers Airservices and Defence commissioned the development of a new ATC system called the Civil Military Air Traffic Management System or CMATS.
- Delivered as part of the OneSKY program, CMATS is an advanced integrated ATC system useable by both Civil and Defence controllers.
- The system allows increased coordination and collaboration between the civil sector and Defence and offers a more flexible airspace construct helping to enable better management of traffic volumes for both military and civil operations.
- With the increase in functionality, collaboration and communication provided by CMATS, Airservices and Defence decided to adopt ICAO's Flexible Use Airspace concept and began work on aligning the three levels of Airspace Management within the Australian ATM system.



Strategic Guidance

- Guidance from the Australian regulator on the establishment of FUA is minimal and as a result the Australian Civil Military Air Traffic Management Committee (AC-MAC) created the Airspace Management Working Group (ASM WG) to assist in this space.
- The ASM WG reports to AC-MAC and consists of representatives from both Airservices and Defence.
- The ASM WG is tasked with a variety of duties including the development of key enabling ASM level 1 activities and the drafting of a Memorandum of Understanding between Airservices and Defence on Airspace Management.
- The MoU established the framework and governance for ASM practice and the application of the FUA concept. In doing so it provides a structure within which related civil and military guidance and processes can be shaped, providing detail of procedures and requirements for the implementation and application of FUA.
- The MoU also called for the creation of Australia's first Airspace Management Cell, the National Airspace Management Office, which is tasked with ensuring that there is effective and efficient management of Airspace through civil/military planning and pre-tactical airspace reservations.

What is NAMO?

The NAMO is:

- A central airspace management cell located at Airservices Brisbane Air Traffic Services Centre, aiding in the planning and oversight of Australian Airspace.
- It is a single, national point of contact for Special Use Airspace (SUA) management and the delivery of a Flexible Use of Airspace (FUA) capability.

The NAMO will:

- Facilitate communication, collaboration and cooperation
- Ensure airspace management is undertaken as effectively and efficiently as possible
- Coordinate access to appropriately sized and sited airspace
- Support civilian aviation, joint force operations and Defence preparedness activities.

What is NAMO?

What are NAMO responsibilities?

The Pre-tactical management of:

- Special Use Airspace (SUA)
- Conditional Routes (CDR)
- Publication of National Airspace Usage Plan (AUP) and
- Updated Usage Plan (UUP)

MESSAGE TYPE: Intent AUP
AMC: YBBBBZAMC
VALIDITY PERIOD: 08/02/2024 06:00:00 - 09/02/2024 06:00:00
TIME OF TRANSMISSION: 07/02/2024 00:28:00

Available Category 2 CDRs:

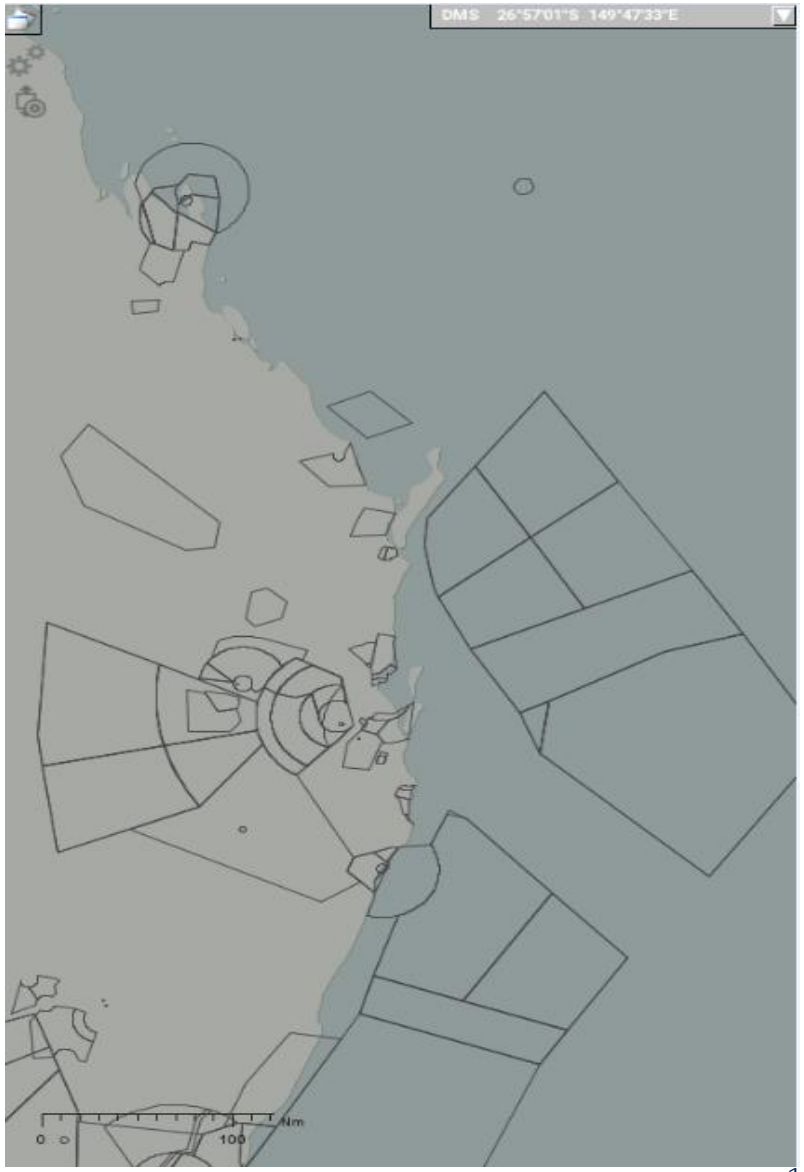
NUMBER	DESIGNATOR	FLIGHT LEVEL BLOCK	VALIDITY PERIOD	REMARKS

Closed ATS Routes and Category 1 CDRs:

NUMBER	DESIGNATOR	FLIGHT LEVEL BLOCK	VALIDITY PERIOD	REMARKS
1	Q67-BN-BIXAD	FLGND - FL025	08/02/2024 06:00:00 - 08/02/2024 10:00:00	NIL
2	Q67-BN-BIXAD	FLGND - FL025	08/02/2024 22:00:00 - 09/02/2024 06:00:00	NIL
3	V307-BN-BURPA	FLGND - FL025	08/02/2024 06:00:00 - 08/02/2024 10:00:00	NIL
4	V307-BN-BURPA	FLGND - FL025	08/02/2024 22:00:00 - 09/02/2024 06:00:00	NIL
5	V308-BN-AKOBA	FLGND - FL025	08/02/2024 06:00:00 - 08/02/2024 10:00:00	NIL
6	V308-BN-AKOBA	FLGND - FL025	08/02/2024 22:00:00 - 09/02/2024 06:00:00	NIL
7	W247-BN-HOLIS	FLGND - FL025	08/02/2024 06:00:00 - 08/02/2024 10:00:00	NIL
8	W247-BN-HOLIS	FLGND - FL025	08/02/2024 22:00:00 - 09/02/2024 06:00:00	NIL
9	Y258-KATEB-OTGAT	FLGND - FL025	08/02/2024 06:00:00 - 08/02/2024 10:00:00	NIL
10	Y258-KATEB-OTGAT	FLGND - FL025	08/02/2024 22:00:00 - 09/02/2024 06:00:00	NIL

AMA Manageable Areas (FUA Level 2):

NUMBER	DESIGNATOR	FLIGHT LEVEL BLOCK	VALIDITY PERIOD	RESPONSIBLE UNIT	NOTAM Required	IsAMC	REMARKS
1	YD612A	FLGND - FL015	08/02/2024 06:00:00 - 08/02/2024 13:00:00	YBBBBZAMC	FALSE	TRUE	NIL
2	YD612A	FLGND - FL015	08/02/2024 22:00:00 - 09/02/2024 06:00:00	YBBBBZAMC	FALSE	TRUE	NIL
3	YD612B	FLGND - FL025	08/02/2024 06:00:00 - 08/02/2024 13:00:00	YBBBBZAMC	FALSE	TRUE	NIL
4	YD612B	FLGND - FL025	08/02/2024 22:00:00 - 09/02/2024 06:00:00	YBBBBZAMC	FALSE	TRUE	NIL
5	YD630B	FLGND - FL045	08/02/2024 06:00:00 - 08/02/2024 13:00:00	YBBBBZAMC	FALSE	TRUE	NIL
6	YD630B	FLGND - FL045	08/02/2024 22:00:00 - 09/02/2024 06:00:00	YBBBBZAMC	FALSE	TRUE	NIL
7	YR153A	FLGND - FL020	08/02/2024 06:00:00 - 08/02/2024 09:00:00	YBBBBZAMC	FALSE	TRUE	NIL
8	YR153B	FLGND - FL035	08/02/2024 06:00:00 - 08/02/2024 09:00:00	YBBBBZAMC	FALSE	TRUE	NIL
9	YR153D	FLGND - FL065	08/02/2024 06:00:00 - 08/02/2024 09:00:00	YBBBBZAMC	FALSE	TRUE	NIL

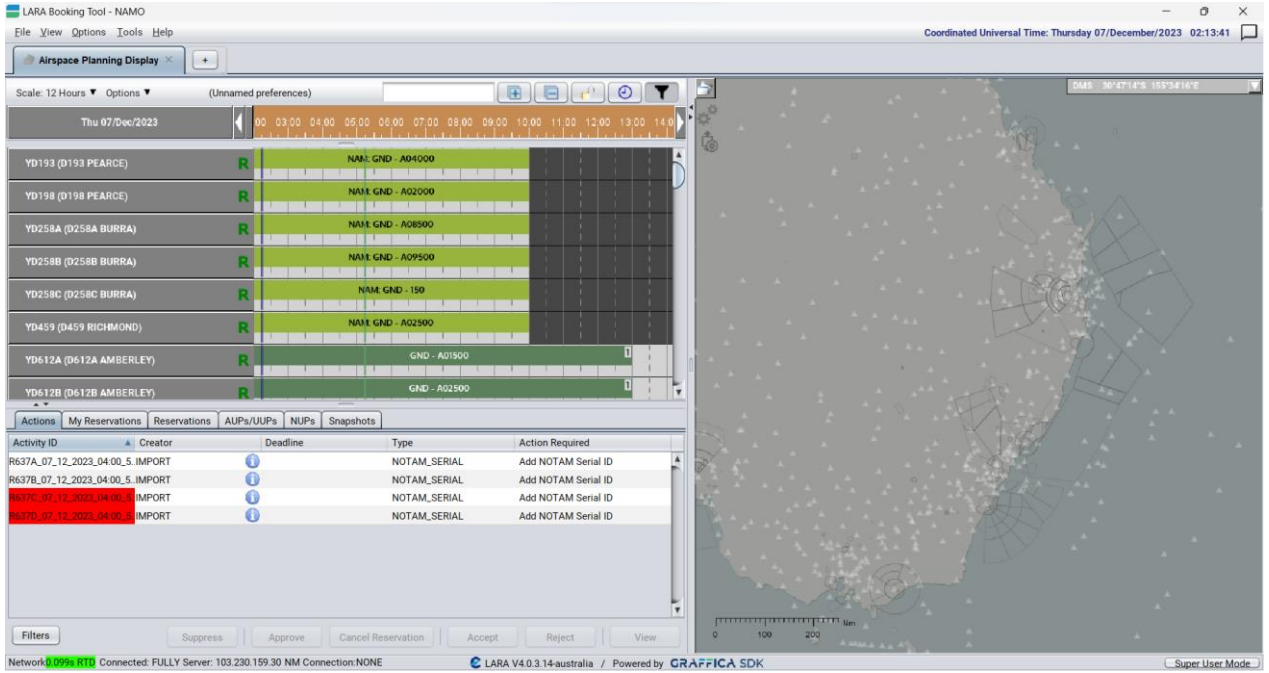


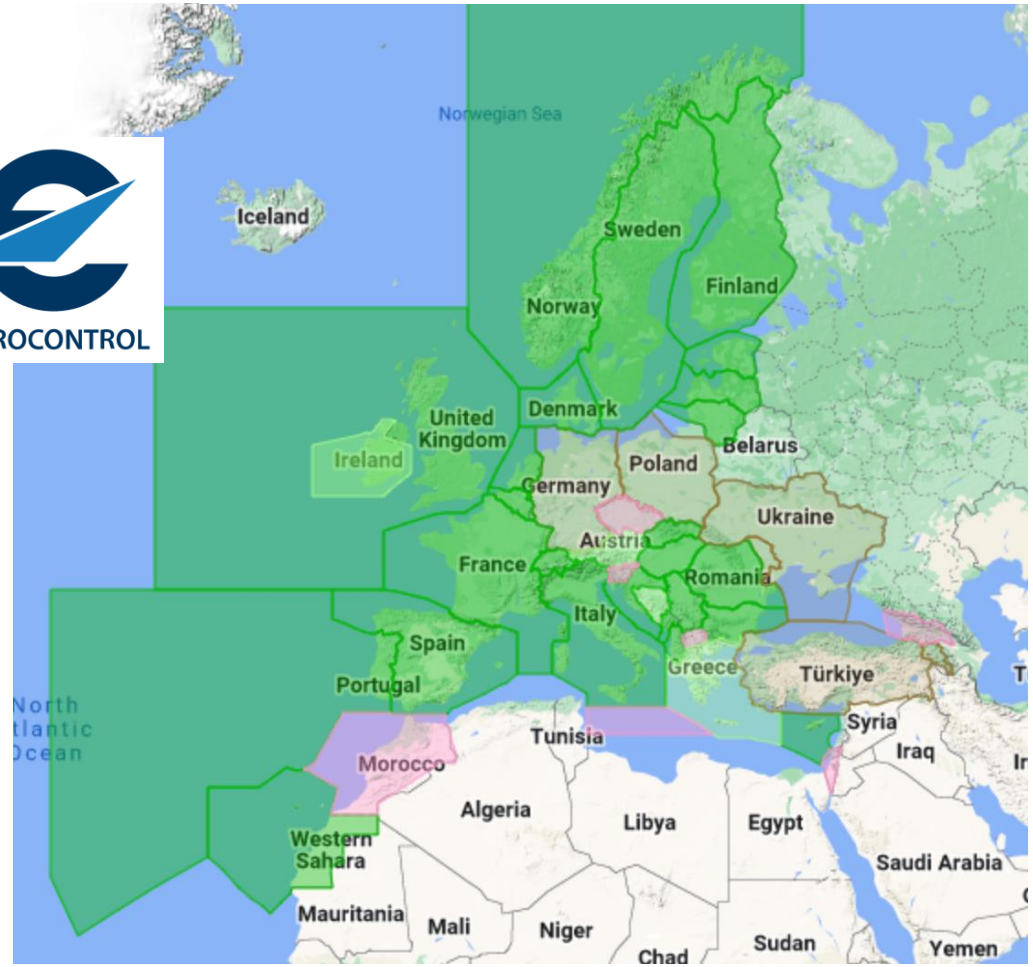
The Local and sub-Regional Airspace Management Support System (LARA)

- In order to achieve the full capability and benefits of the NAMO, it became apparent that a change to the way SUA management is handled in Australia was required.
- An Airspace Management tool would be required to ensure that the NAMO was able to coordinate access to appropriately sized and sited airspace in a safe and efficient manner.
- Airservices conducted a comprehensive selection process which culminated with the selection of the Local and sub-Regional Airspace Management Support System (LARA), developed by Eurocontrol, as the preferred ASM tool.
- Working closely with the Eurocontrol LARA team, Airservices Australia and Defence worked collaboratively on how the LARA tool could integrate into the current ATM system and planned a rollout of the tool to all key users, both Civil and Defence.
- Airservices and Defence are in the final stages of completing an agreement with Eurocontrol for the use of the LARA tool. With further announcements expected in the very near future.

What is LARA?

- Airspace reservation and booking tool
- Tool to support and enhance airspace management
- Improved collaborative decision making
- Used operationally in 25 European countries, expanding into ROK, N Africa and Australia.





The Benefits of NAMO & LARA

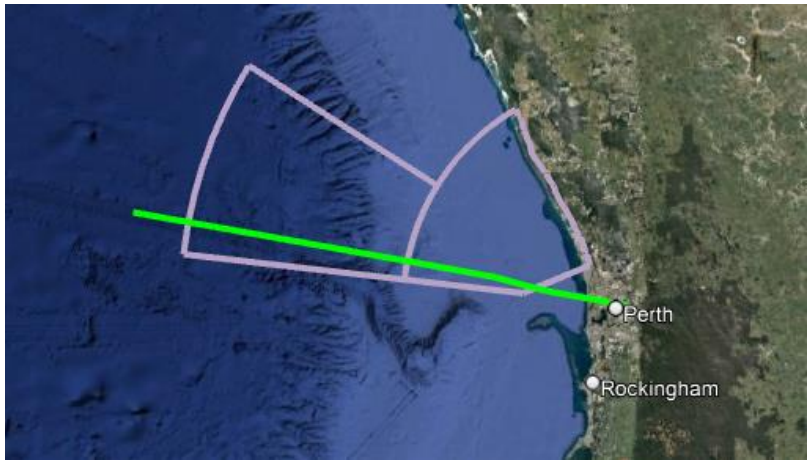
Conditional Routes (CDR)

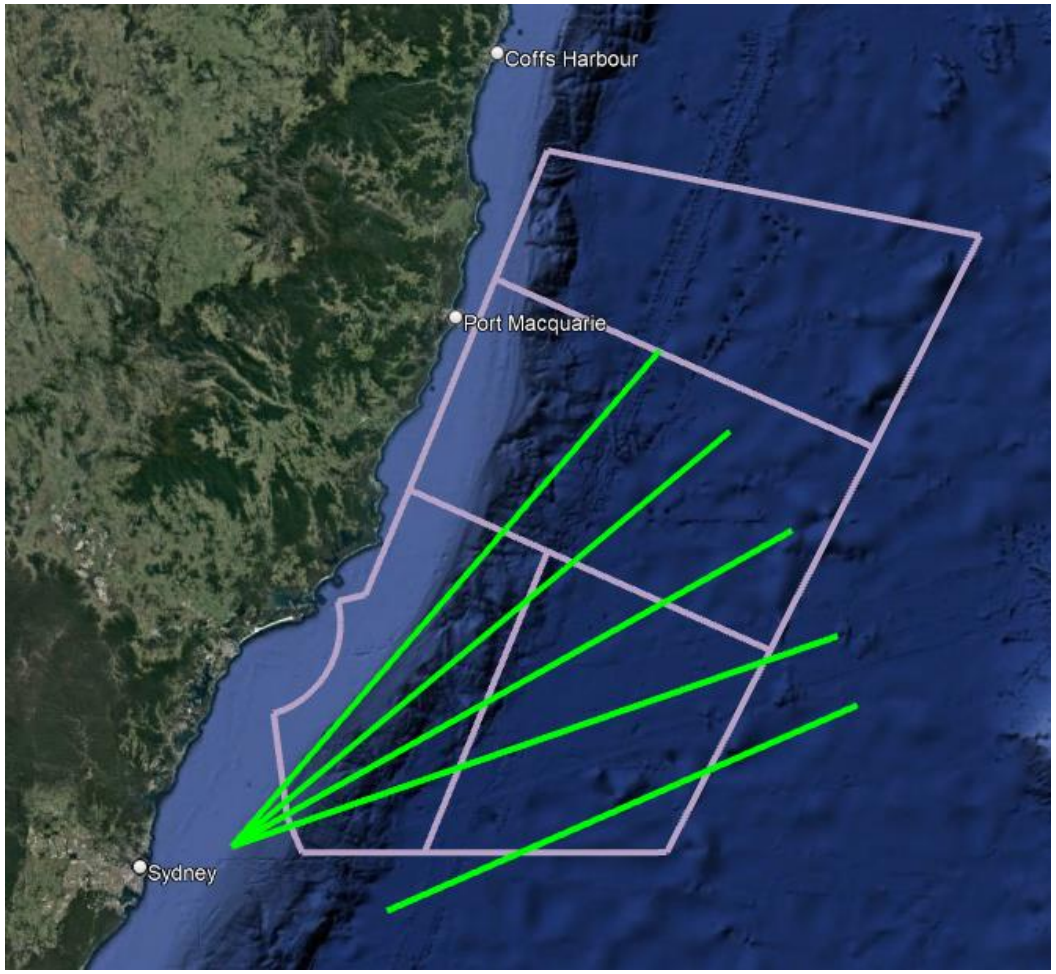
A CDR is a designated series of route segments between particular waypoints, which can be planned and/or used under certain specified conditions.

The properties of CDR, including their categories, route designator and activation will be published in the Australian AIP. CDR may be established:

a) through SUA, with opening and closure conditions resulting from associated airspace activities; or

b) to address specific ATS conditions with opening and closure conditions resulting from traffic management civil needs.

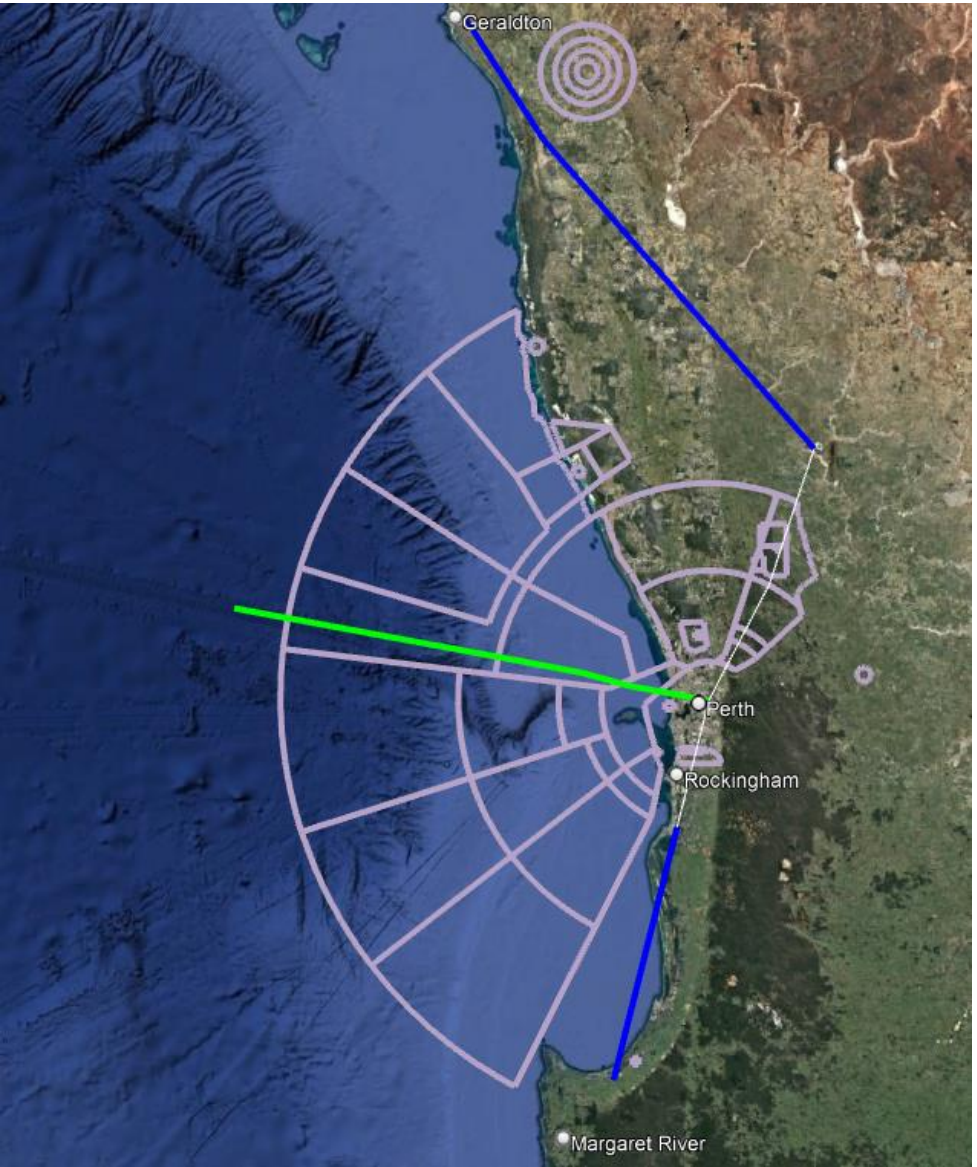




Trialled conditional routes through Williamtown and Pearce SUA

The benefits of NAMO & LARA

CDR Categories



CDR are divided into different categories according to their estimated availability and flight planning possibilities. A CDR can be established in one or more of the three following categories:

Category one (CDR1) - standard plannable CDR. CDR1 are normally available for flight planning during times published in the AIP and may be restricted to fixed altitude and/or flight level bands.

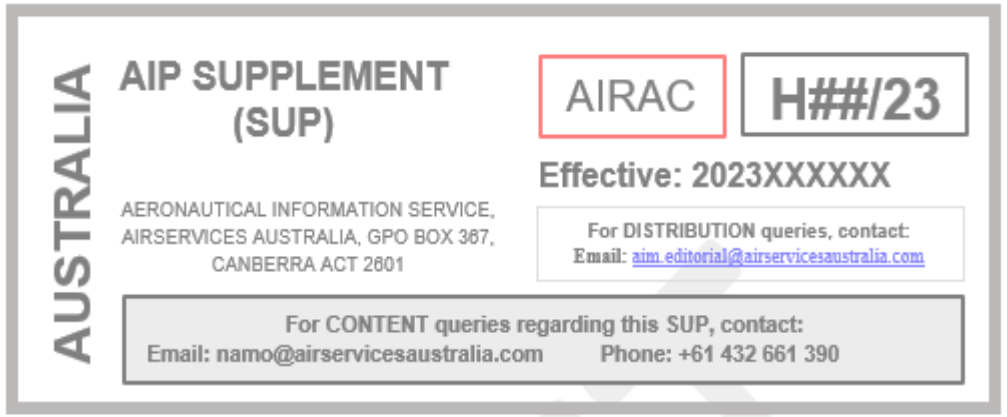
Category two (CDR2) - non-standard plannable CDR. CDR2 are normally available for flight planning when CDR1 are not available, or to address specific ATS conditions.

Category three (CDR3) - non-plannable CDR. CDR3 are not available for flight planning. CDR3 may be available from ATC at short notice when the published activity in the relevant airspace has paused, ceased, or for addressing specific ATS conditions.

The benefits of NAMO & LARA

Conditional Route Trial

- In order to ascertain if Conditional Routes would be able to be implemented safely within Australia, Airservices and Defence conducted a trial in two separate groups of restricted military airspace over a 6-month period in 2023.
- The trial was a success, with no safety reports logged as a result of the implementation of the trial.
- Analysis was run on flight planning data from aircraft that took advantage of the efficiencies offered whilst the trial was running.
- The analysis estimated that, over the duration of the trial, Industry saved:
  - 6994 track miles
  - 78,682kgs of fuel
  - 248,636kgs of CO2



AUSTRALIA

AIP SUPPLEMENT (SUP)

AIRAC H##/23

Effective: 2023XXXXXX

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Conditional Route (CDR) Trial
1 June – 31 December 2023

1 INTRODUCTION

1.1 Airservices Australia and the Department of Defence will be conducting Conditional Route (CDR) trial activities across Australian airspace over the next 12 months. Initially within portions of Pearce (PEX) and Williamtown (WEX) airspace.

1.2 This AIP SUP defines the civilian access procedures associated with this activity.

The benefits of NAMO & LARA

Airspace Usage Plan (AUP) / Updated Airspace Usage Plan (UUP)

- AUP and UUP will be an Airspace Management message containing information on the activation of SUA and Conditional Routes.
- The AUP will be published once daily, any amendments are updated via a UUP.
- UUP can be published in customisable time intervals to account for both Civil and Military needs.
- Initially, AUP/UUP to be published in PDF format and hosted on public portal to supplement SUA NOTAMs (NOTAMs remain final source of truth if there are any differences within AUP).
- Future state, AUP/UUP to be ingested directly into industry planning systems and CMATS.
- Potential to replace NOTAMs as source of SUA/CDR activation information.

Short Term Objectives

- Complete the construction and fit out on the physical NAMO facility, located within the Brisbane Air Traffic Services Centre.
- Complete the operational roll out of the LARA tool to all Civil and Defence Airspace Users.
- Activate the initial capability of the NAMO
  - Coordinating access to appropriates sized and sited SUA
  - Publication of AUP's & UUP's
  - Integration of the LARA tool with Australia's NOTAM publication system NAIPS.
- Continued development of the NAMO's involvement in the appropriate levels of Airspace Management.
- Refining NAMO's policies and procedures.

Long Term Goals

- Integration of the LARA tool with CMATS
  - Controllers will have live airspace activation/deactivation data available to them on their consoles.
  - Achieved through the use of a SWIM data connection between LARA and CMATS
- Potential exists for the AUP/UUP product to become the sole source of SUA activation information in Australia.
  - Would require the regulation of the LARA system by the Civil Aviation Safety Authority.
- Refine the formatting of the AUP/UUP so that it can be ingested directly into the flight planning systems of both Civil and Defence airspace users.
- Develop a fully functioning CDR network that assists industry in accounting for:
  - SUA activations
  - Military exercises
  - Reduced ATS capacity
- Continue to develop Flexible Use Airspace capabilities to ensure the Australian ATM system is functioning as safely and efficiently as possible.

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Questions

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Thank you!

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