



International Civil Aviation Organization

THE SECOND MEETING OF AERONAUTICAL COMMUNICATION SERVICE (ACS) IMPLEMENTATION CO-ORDINATION GROUP OF APANPIRG (ACSICG/2)

Bangkok, Thailand, 20 - 22 May 2015

Agenda Item 5: Review State's ATN/AMHS Implementation Status, Transition and Operational Issues

AMHS IMPLEMENTATION STATUS OF NEW ZEALAND

(Presented by New Zealand)

SUMMARY

This paper presents a summary of the current AMHS implementation status in New Zealand. It also presents other associated developments in New Zealand:

- 1) Implementation of an MPLS Network.
- 2) AMHS interface to the new operational AIM system.
- 3) Use of a Query Converter to provide a query interface between existing legacy systems and the new AIM system.
- 4) Use of VSAT to provide AFTN/AMHS and voice communications to Pacific States.

1. Introduction

1.1 New Zealand installed and operationally commissioned an AMHS system in 2012. To date, this system has been run primarily in AFTN mode with only a few AMHS User Agents being operated internally within Airways.

2. Discussion

2.1 Work will commence in Q3 2015 to implement an AMHS connection between New Zealand and the USA. There is spare bandwidth on our existing point-to-point connection which currently supports AFTN and Voice communications. This will be used to implement an interim 64K AMHS connection which will remain in place until the CRV is implemented. The AMHS link is expected to be operational before the end of 2015.

2.2 Airways has upgraded its whole network infrastructure to an IP-based MPLS network. This network has:

- a) Enabled the AFTN User Terminals (AUTs) in all ATC Towers to be converted from X.25-based connections to IP-based connections. This is an interim step towards replacing the AFTN User Terminals with IP-based AMHS User Agents once an ATIS upgrade project is completed.
- b) Enabled about 95% of existing AFTN connections to be converted to IP-based connections, reducing the use of X.25-based connections to a minimum.
- c) Facilitate connectivity to the planned Asia-Pacific CRV Network.

2.3 The New Zealand AIS system has been replaced with a new AIM system which became completely operational on 12 May 2015. The new AIM system provides a single solution for all AIM operations, i.e.:

- Static Data Management,
- Dynamic Data Operations (NOTAM Management, MET Management and Pre-Flight Briefing)
- AIP and Charting.

The new AIM system interconnects with the Airways Message Switching System using both AMHS and AFTN connections. The use of an AMHS connection will allow the exchange of messages with content other than just a restricted AFTN character set e.g. XML-formatted data and graphical data such as MET charts.

2.4 A Web Service interface is used to allow external systems to query the AIM system e.g. to obtain pre-Flight Briefings and access individual NOTAM and MET reports.

2.5 A number of systems queried the previous AIS system via AFTN. Rather than developing functionality for accessing Web Services for all of these systems, an Airway Query Converter (AQC) System has been developed which accepts queries from these systems either via AFTN or FTP. It converts these queries to Web Service requests which are then submitted to the new AIM system. The Query converter processes the AIM system's responses to the Web Service requests in order to provide the output of the queries in a format that the querying systems can consume via AFTN or FTP. The combination of using Web Services and the AQC system provides greater flexibility in terms of the content and formatting of query responses.

2.6 Since 2001, Airways has provided an Internet Flight Information Service (IFIS) which provides Pre-flight Briefing (PFB) and Flight Planning functionality to users via the Internet. Over the years this service has been expanded and currently processes more than 50,000 transactions

(user requests) per month, submitted on average by more than 1000 different users.

From a PFB perspective a limitation of the IFIS system has been the use of an AFTN interface to the AIS system which has limited the formatting that can be applied to the PFB output.

The IFIS system now interfaces to the new AIM system via the AQC system which collectively provides greater flexibility for control of PFB content and formatting, through the use of Web Services and XSL templates.

Appendix A gives examples of:

- The IFIS Briefing options.
- An IFIS Briefing Request input screen.
- An IFIS Briefing Screen showing the enhanced formatting.

2.7 In 2014 IP-based AFTN connections were implemented using ADSL modems to the following locations:

Rarotonga (Cook Islands)

Faleolo (Samoa)

These IP-based connections were established as an interim replacement for existing X.25-based circuits which are being discontinued by the telecommunications service provider. In time they will be replaced by VSAT connections (see next item).

2.8 VSAT connectivity to a number of Pacific States is planned which will support IP-based AFTN/AMHS connections and voice.

There is an existing VSAT link to Fua'amotu(Tonga).

The World Bank has issued a tender which will fund the installation of VSAT connections into the following locations:

Vava'u (Tonga) [In addition to the existing VSAT connection mentioned above]

Tarawara (Kiribati)

Kiritimati Island a.k.a. Christmas Island (Kiribati)

Funifuti (Tuvalu)

Faleolo (Samoa)

Vanuatu

2.9 The New Zealand Ministry of Foreign Affairs and Trade (MFAT) are expected to fund similar VSAT connections to:

Rarotonga (Cook Islands – two links as includes Aitutaki)
Niue

Nauru may use a VSAT connection in the future, with separate funding.

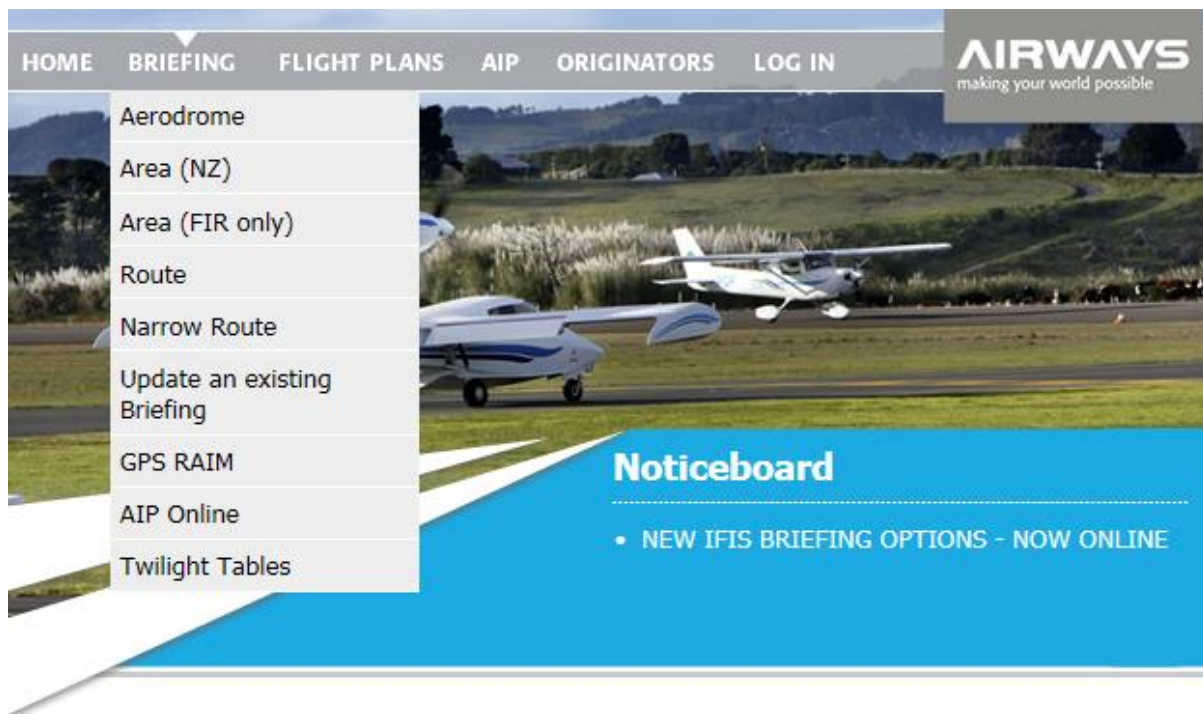
3. Action by the Meeting

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss any relevant matters as appropriate.

Appendix A – Examples of enhanced IFIS pre-Flight briefing functionality through the use of Web Service access to the AIM system.

Figure 1: Screenshot of the IFIS homepage showing the ‘BRIEFING’ drop-down menu options:



Welcome to the Airways Internet Flight Information Service (IFIS). A pre-flight information and flight planning service for operations within the New Zealand Flight Information Region. For complete access to services provided by this site, register [here](#).

Information provided by IFIS is retrieved directly from the New Zealand AIS database in "real time". MET information provided by Airways is detailed in the AIP NZ.

See our [Terms & Conditions](#) for website policy statements, conditions of use, and information.

Pre-flight weather information is available from the MetFlight website, click [here](#) or on the MetFlight link below.

Figure 2: Screenshot of an IFIS ‘Route Pre-Flight Briefing’ Request form:

HOME BRIEFING FLIGHT PLANS AIP ORIGINATORS LOG OUT AIRWAYS making your world possible

» Home » Route Pre-Flight Briefing

Route Pre-Flight Briefing

Help

Load Favourite
NZCH-YSSY Load

Validity Period (UTC)
From 15 May 2015 05 27 To 16 May 2015 05 27

ATIS

Lower Flight Level 000 Upper Flight Level 999

Departure Aerodrome NZCH Destination Aerodrome YSSY

Alternate Aerodromes NZWN YMML YBBN

Briefing Areas - Select the areas you will be flying through (see Briefing Areas map)

NZ01	NZ02	NZ03	NZ04	NZ05	NZ06	NZ07	NZ08	NZ09	NZ10
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FIRs NZZO YMMM YBBB

Save Favourite Name
NZCH-YSSY NZCH-YSSY Save Delete

Submit Cancel Clear

Contact Us | Airways | Terms & Conditions | User Account | MetFlight

Figure 3: Screenshot of a typical first output page in response to an IFIS Route Pre-Flight Briefing request:

New Zealand Aeronautical Information Services ID: NZCH1505150543	
Pre-flight Information Bulletin ROUTE	Period (UTC) FROM: 15 MAY 2015 05:34 TO: 16 MAY 2015 05:31
Flight Rules: IFR/VFR Issued: 15 MAY 2015 05:34 UTC	Height Limits: Lower: 000 Upper: 999
Contents: NOTAM, ATIS	
DEP: NZAA	DEST: YSSY
Aerodromes: NZHN YMML YSCB YBBN	
Briefing Areas: NZ06 NZ07 NZ08	
FIR: NZZO YMMM YBBB	
MET Locations: NZAA NZHN	

AERODROMES

AERODROME (DEPARTURE)

NZAA (AUCKLAND INTL)

B1021/15 FROM: 01 APR 2015 11:00 TO: PERM
 REF AIP VOL2 NZAA AD 2-62.8 RNAV SID RWY 05R (8) DATED 2 APR 15.
 BOTTOM LEFT HAND SIDE OF PAGE AMD VEMLO TRANSITION LABEL TO READ
 VELMO. AIP WILL BE AMD

B5189/14 FROM: 21 NOV 2014 04:34 TO: PERM
 AUCKLAND RNAV1 SIDS EFFECTIVE 13 NOV 14, ANNOTATED:
 NAVIGATION REQUIREMENT: RNAV1.
 AUCKLAND RNAV SID RWY 05R POLIS ONE QUEBEC DEPARTURE
 AUCKLAND RNAV SID RWY 05R REKIS ONE QUEBEC DEPARTURE
 AUCKLAND RNAV SID RWY 05R PAGLA ONE QUEBEC DEPARTURE
 AUCKLAND RNAV SID RWY 05R BROOK ONE QUEBEC DEPARTURE
 AUCKLAND RNAV SID RWY 05R RANGI ONE QUEBEC DEPARTURE
 AUCKLAND RNAV SID RWY 23L LENGU ONE PAPA DEPARTURE
 AUCKLAND RNAV SID RWY 23L CLARK ONE PAPA DEPARTURE
 AUCKLAND RNAV SID RWY 23L PEEHA ONE PAPA DEPARTURE
 WITH IMMEDIATE EFFECT THESE SIDS CANNOT BE FLOWN BY ACFT WITH GPS
 IFR TERMINAL APPROVAL FITTED WITH FOLLOWING EQUIPMENT:
 GARMIN: GPS 155, GPS 165, GNC 300, GPS 155XL, GNC 300XL
