

# GOLD

## Amendment Program

Presented to:

ICAO Seminar/Workshop on the  
Implementation of Ground-ground  
and Air-ground Data Links in the  
SAM Region

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Federal Aviation  
Administration



# Introduction

- **NAT and APAC adopted GOLD in June 2010**
  - Supersedes NAT Data Link GM – last updated Sep 2009
  - Supersedes FOM – last updated June 2009
- **GOLD includes guidance material**
  - Data link service provision and operator readiness
  - Controller and flight crew procedures
  - Post-implementation monitoring guidance
- **GOLD is becoming widely recognized**
  - Aeronautical information, such as produced by Jeppesen
  - States recognizing in regulatory material e.g., for crew training



# GOLD change process

- **Described in Foreword of GOLD**
  - Anyone can submit a change
  - Regional document, but will be maintained globally
- **GOLD Working Group to facilitate cross-regional coordination of changes**

**GOLD, 2nd Edition, target – 1st QTR 2013**



# Background (1 of 2)

- **November 2010 – EANPG endorses GOLD amendment program leading to GOLD adoption in EUR Region**
  - Amendments are needed
    - Data link implementation, referred to as Link 2000+, is applicable in certain domestic airspace rather than oceanic and remote
    - Based on ATN Baseline 1 rather than FANS 1/A
  - Ensure amendments are globally acceptable



# Background (2 of 2)

- **January 2011 – GOLD Working Group solicited input to establish a program for follow-on work to amend the GOLD**
  - The group received a number of items regarding its application and interpretation, the need for additional material, considerations for adoption in other Regions, such as the European (EUR) Region, and other changes needed to support the planning and implementation initiatives in the North Atlantic (NAT) Region
- **October 2011 – GOLD/4 (Paris) – successful outcome**
- **May 2012 – GOLD/Web 4.1 (Virtual) – successful outcome**
- **June 2012 – GOLD/5 (Miami) – successful outcome**



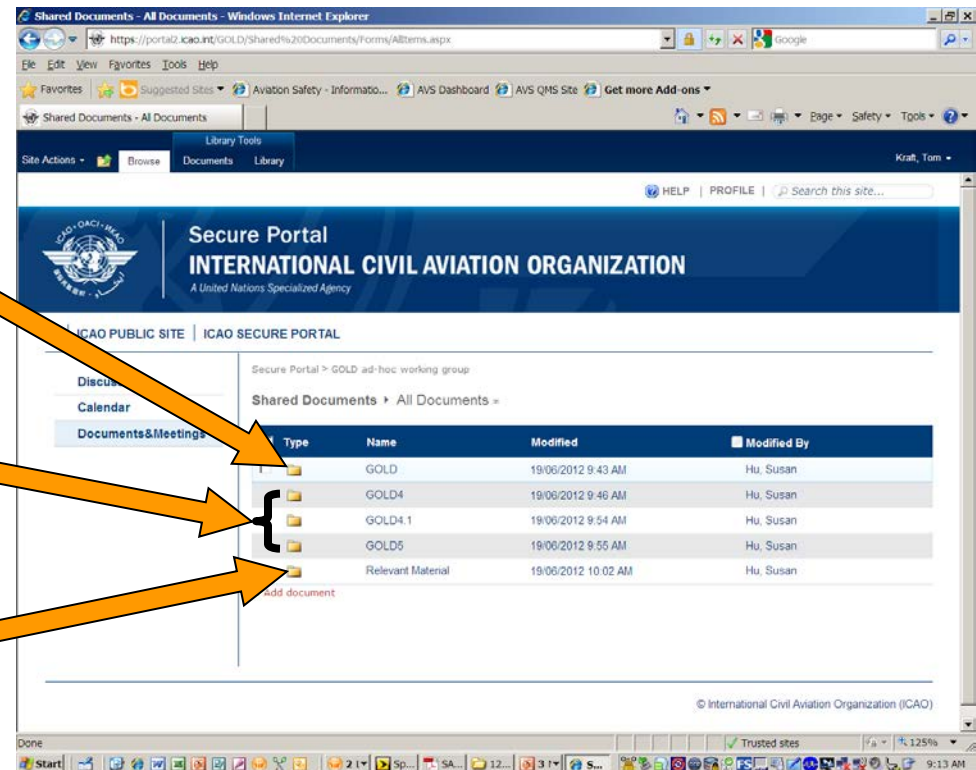
# GOLD amendment program

- **GOLD amendment program supports PIRG adoption**
  - South American (SAM) Region
  - African-Indian Ocean (AFI) Region
  - European (EUR) Region
- **EUR Region has been the main focus of work**
  - Airspace where ATS surveillance services are provided (e.g., ADS-B, PSR, SSR)
  - Different CPDLC application, which is based on the ATN B1 standards (referred to as LINK 2000+)
- **Others participating – IATA, IBAC, CANSO and more**



# Working methods – website

- **GOLD folder**
  - Maintains GOLD Working Draft (WD) packages
  - Includes Change Proposal Master (CPM)
- **Meeting folders**
  - e.g., GOLD/4, GOLD Web 4.1, GOLD/5
- **Relevant Material (RM) folder**
  - Used to maintain extensive material associated with comments in the Change Proposal Master



# Working methods – Working Drafts

**New GOLD v1.[n]WDs (working draft) – issued based on extent of new material and comment closure – WD packages include:**

- GOLD v1.[n+1]WD “Tracked Change” version from previous GOLD v1.[n]WD “Clean” version
- GOLD v1.[n+1]WD “Clean” version – used to submit with comments, if necessary
- Updated Change Proposal Master
- Originals for figures in \*.PPT
- Comment form – used to submit new comments

## (Working Draft) Global Operational Data Link Document (GOLD)

for guidelines for implementation of ground systems supporting data link operations.

4.1.1.4 Controllers should be knowledgeable in data link operations. Refer to [Chapter 2](#) for an overview of data link operations.

4.1.1.5 Radio operator procedures specific to data link operations can be found in [paragraphs 4.9 and 4.9.3](#).

### 4.1.2 When to use voice and when to use CPDLC

4.1.2.1 When communicating with an aircraft that is operating within airspace beyond the range of DCPC VHF voice communications, CPDLC is available and local ATC procedures do not state otherwise, the controller should normally choose CPDLC as the means of communication. The controller would use voice as an alternative means of communication (e.g. direct HF, VHF/HF via a radio operator, SATVOICE). However, notwithstanding the above, the controller will determine the communication medium to use at any given time.

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DRAFT v1.3 — 30 June 2012

**GOLD v1.[n+1]WD**

Inter

**GOLD 1<sup>st</sup> Edition Change Proposals Master**  
(Sorted first by comments worked since GOLD5, second by Status Code (open first), third by Paragraph Reference)

Legend for Cat Column:  
E Editorial  
R Review  
C Confusing, clarification, erroneous information, inconsistency, or invalid argument  
A Additional material  
S Serious – resolution of comment requires special attention (includes regional difference with potential operational impact)

Legend for Status Column  
[blank] Change proposal open  
C Resolution to comment was incorporated in GOLD, Draft v1.1

Comments and contributions received from the following. Initials are used throughout the comment matrix.

Initials	Surname	First names	Representation	Telephone	eMail
GS	SMARRELLI	Ciro	ICAO Liaison		comat@italia.icao.int
PR	RADFORD	Paul	Airways New Zealand – ISAGO POC		Paul.Radford@airways.co.nz
TD	BREWER-DOUGHERTY	Theresa	FAA – Technical Center		theresa.brewer@faa.gov
TK	KRAFT	Tom	FAA	+1-202-369-2168	tom.kraft@faa.gov

Use attachments to show marked-up pages of GOLD, if needed.

Paragraph Reference	Comment Number	Comment Author	Description of Comment and Proposed Resolution (Author of Change Proposal)	Cat	Resolution Status (GOLD Ad-Hoc Working Group)	Status Code
4.2.2.2	V1.1-0473	AW	Comment: There aren't very many pre-dominated standardised free text message elements that are appropriate to be appended to a clearance?  Suggested Change: Delete proposed Note	C	12-May-12-TK – Defer to GOLD5.  14-Jun-12-GOLD5 – <a href="#">PK to investigate use of free text</a>	
6	V1.0-0010	JC	Comment: Use of CPDLC for automatic dependent surveillance – broadcast (ADS-B) in multi-processor mode.	A	5-Jan-11-TK – See attached files beginning with comment and attachments. For status.	





# Working methods – CPM

## Change Proposal Master (CPM) – manages the work

- For coordinator to maintain archive of comments/resolutions
- For coordinator to incorporate new comments
- For participants to add opinion/resolutions to existing comments
  - precede addition with date/initials (e.g. 16-May-12-NH)
- Coordinator will include a “C” in right column and shade row to indicate the change has been incorporated in a WD
  - if change is unacceptable, comment will be reopened on request

GOLD 1<sup>st</sup> Edition Change Proposals Master  
(Sorted first by comments worked since GOLD/5, second by Status Code (open first), third by Paragraph Reference)

Legend for Cat Column:  
 E Editorial  
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Initials	Surname	First names	Representation	Telephone	eMail
OS	SMARRELLI	Onofrio	ICAO Lima		osmarrelli@lima.icao.int
PR	RADFORD	Paul	Airways New Zealand – ISPACG POC		Paul.Radford@airways.co.nz
TBD	BREWER-DOUGHERTY	Theresa	FAA – Technical Center		Theresa.brewer@faa.gov
TK	KRAFT	Tom	FAA	+1-202-369-2168	tom.kraft@faa.gov

Use attachments to show marked up pieces of GOLD; if needed

Paragraph Reference	Comment Number	Comment Author (Author of Change Proposal)	Description of Comment and Proposed Resolution	Cat	Resolution Status (GOLD Ad-Hoc Working Group)	Status Code
4.2.2.2 Note	V1.1-0473	AW	Comment: There aren't very many pre-formatted standardized free text message elements that are appropriate to be appended to a clearance?  Suggested Change: Delete proposed Note	C	12-May-12-TK – Defer to GOLD/5.  14-Jun-12-GOLD/5 – PR to investigate use of free text	
6	V1.0-0810	JC	Comment: Use of CPDLC for automatic dependent surveillance – broadcast (ADS-B) in trail procedures (SC-214, 1002-288, 2003)  Suggested Change: Consider new procedures for Chapter 6	A	5-Jan-11-TK – See attached files beginning with <comment number> for status.  19-Jan-11-JFB – coordinated with JC. Support proposals	
5.2.4.1	V1.1-0504	AW	Comment: Minor reword  Suggested Change: "Prior to crossing the FIR boundary..."	C	6-6-2012 De-act  29-Jun-12-TK – Accept. Close.	C

GOLD Change Proposals \_ Master.doc



# Working methods – RMs

## Relevant Material (RM) folder

- Will include “mark-ups” of WD versions from comment authors
- Relevant material files will be named beginning with the comment number or range of numbers for the comment to which the RM is applicable, for example
  - v10010 ..., meaning relevant material is associated with comment v1.0-0010
  - v11-0404-0422 ..., meaning relevant material is associated with any comment between v1.1-0404 and v1.1-0422

Paragraph Reference	Comment Number	Comment Author	Description of Comment and Proposed Resolution (Author of Change Proposal)	Cat	Resolution Status (GOLD Ad-Hoc Working Group)	Status Code
4.2.2.2 Note	V1.1-0473	AW	<b>Comment:</b> There aren't very many pre-formatted standardized free text message elements that are appropriate to be appended to a clearance? <b>Suggested Change:</b> Delete proposed Note	C	12-May-12-TK – Defer to GOLD/5. 14-Jun-12-GOLD/5 – PR to investigate use of free text	
6	V1.0-0010	JC (SC-214, WG-78)	<b>Comment:</b> Use of CPDLC for automatic dependent surveillance – broadcast (ADS-B) in trail procedures (ITP) <b>Suggested Change:</b> Consider new procedures for Chapter 6	A	5-Jan-11-TK – See attached files beginning with <comment number> for status. 19-Jan-11-JFB – coordinated with JC. Support proposals	

The screenshot shows the ICAO Secretariat Portal interface. The 'Relevant Material' folder is selected, displaying a list of documents. The document 'V1-0010 GOLD v52 CPDLC-ITP Procedure\_25 Jan 2010 (AW comments)' is highlighted, corresponding to the comment V1.0-0010 from the table above.



# GOLD website access (1 of 2)

- **If you are providing or plan to provide data link services, we encourage you and welcome you to participate in the GOLD Amendment Program**
- **ICAO Secure Portal Website supports GOLD Working Group**
- **To participate in the GOLD amendment program, you need to subscribe to the GOLD website**
  - Maintains current working draft version of GOLD and the change proposal matrix
  - Maintains member list used to notify participants of updates



# GOLD website access (2 of 2)

- If you are already registered on the ICAO Secure Portal website, you need only to request a membership to the group GOLD through your Profile link.
- If you do not have an account with the ICAO Secure Portal web site, follow the instructions below to subscribe and gain access to the web site:
  - a) Access the ICAO Portal at the following link: <http://portal.icao.int>;
  - b) Since you do NOT have a Portal username/password, click the REQUEST AN ACCOUNT option;
  - c) Click the OK button on the pop-up message to indicate this is your first Portal account. In the pop-up window, enter the group name (all caps and no spaces) GOLD in the SUBSCRIBE TO field;
  - d) Click the OK button;
  - e) Enter the necessary information in the New User Account form; and
  - f) Click the SUBMIT REQUEST button
  - g) You will then receive confirmation that you have been granted or denied access (if granted, the email will include your username and password)



# Comment Scorecard – 30 June 2012

Comment Status Summary								
GOLD Chapter	Number of Comments	Closed	Open	A x/y	C x/y	E x/y	R x/y	S x/y
General	15	10	5	2/0	2/0	5/1	6/2	-
Foreword	6	6	0	1/0	1/0	4/0	-	-
1	8	8	0	3/0	3/0	1/0	1/0	-
2	245	238	7	12/2	130/3	57/1	44/1	2/0
3	23	19	4	6/2	9/2	2/0	4/0	2/0
4	185	145	40	31/14	100/11	24/4	16/3	14/8
5	119	99	20	21/3	50/6	35/9	5/0	8/2
6	15	9	6	2/1	11/5	2/0	-	-
7	0	0	0	-	-	-	-	-
Apx A	12	3	9	5/4	4/3	1/1	1/0	1/1
Apx B	2	0	2	-	1/1	1/1	-	-
Apx C	1	0	1	-	1/1	-	-	-
Apx D	10	2	8	5/5	5/3	-	-	-
Apx E	22	0	22	11/11	6/6	4/4	-	1/1
Apx F	2	0	2	1/1	1/1	-	-	-
<b>Total</b>	<b>665</b>	<b>539</b>	<b>126</b>	<b>100/43</b>	<b>324/44</b>	<b>136/21</b>	<b>77/6</b>	<b>28/12</b>

Legend:

A - Additional material

C - Confusing, clarification, erroneous information, inconsistency, or invalid argument

E - Editorial

R - Review

S - Serious – resolution of comment requires special attention (includes regional difference with potential operational impact)

x/y - x = total number of comments and y = open comments remaining

# Schedule of GOLD events

GOLD Schedule					
Event	GOLD/4	Web 4.1	GOLD/5	Web 5.1	GOLD/6
<b>Actions/ comments due</b>	10 Jul 2011	30 Apr 2012 (Matrix update)	21 May 2012, if any	3 Oct 2012	9 Jan 2013
<b>Pre Meeting GOLD update</b>	30 Aug 2011 (Matrix only)	8 May 2012 (Matrix only)	28 May 2012 (Matrix only)	10 Oct 2012 (v1.3.1 tentative)	16 Jan 2013 (v1.4.1 tentative)
<b>Meeting</b>	10-14 Oct 2011	9 May 2012 (1300 UTC for 2 hr)	11-15 Jun 2012 (5 days) (Miami)	17 Oct 2012 (1300 UTC for 2 hr)	28 Jan – 1 Feb 2013 (5 days) (PHX)
<b>Post Meeting GOLD update</b>	21 Oct 2011 (v1.1)	14 May 2012 (V1.2)	30 Jun 2012 (v1.3)	24 Oct 2012 (v1.4 tentative)	27-Feb 2013 (v1.5 tentative)
<b>Desk Review (approx)</b>	(6+ months)	(1- month)	(3+ months) <b>&lt; 1 month</b>	(2+ months)	13 Mar 2013 (Edition 2)



# Next steps

- **GOLD v1.3, dated 30 June 2012, package is available on the website**
- **Prepare for GOLD/Web 5.1**
  - review latest materials and identify concerns with any of the comments or proposed resolutions
- **Inputs are due by 3 October 2012**



# Summary

- **GOLD is proving to be a significant activity to converge data link implementations worldwide**
- **We all need to provide data link services in compliance with GOLD to maximize benefits**
- **We all need to contribute to improve GOLD**









GOLD Amendment Program  
12 September 2012



GOLD



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# Additional slides – not presented

- **The following slides provide summaries of issues that were discussed at GOLD Web 4.1 Virtual Meeting**
- **They are provided as examples to give you an idea of the types of issues being worked**
- **Refer to the GOLD Directory on the ICAO Portal Website for the latest developments in resolution of these issues**



# GOLD Web 4.1 – 9 May 2012 (1 of 7)

- **Scope of GOLD**

- Included – procedures associated with existing implementations, e.g., FANS 1/A, ATN B1 (Link 2000+)
- Not included
  - New CPDLC and ADS-C definitions under development by OPLINKP, RTCA SC-214/EUROCAE WG-78, except where associated procedures can be applied to existing implementations
  - ADS-B applications, except when CPDLC and ADS-C are involved



# GOLD Web 4.1 – 9 May 2012 (2 of 7)

- **Definitions for types of airspace**
  - “Oceanic and remote” – ATS surveillance services are not provided, e.g., ADS-B, SSR, PSR
  - “Continental” – ATS surveillance services are provided
  - The term “domestic” will not be used in GOLD
  - Specific matters concerning “European” airspace will be addressed in Appendix E, with goal to keep such matters to a minimum



# GOLD Web 4.1 – 9 May 2012 (3 of 7)

- **Qualifiers for means of communication**
  - Clarification is needed for use of terms such as primary, normal, supplemental, secondary, alternative (alternate) and preferred means of communication, or they should be avoided
  - Investigate a concept of multiple means of communication serving multiple purposes and use qualifying terms only when defined and necessary



# GOLD Web 4.1 – 9 May 2012 (4 of 7)

- **Identifying airspace and facilities**

- A number of terms are used globally, such as flight information region (FIR), control area (CTA), area control centre (ACC), air traffic service unit (ATSU), oceanic control area (OCA), etc
- Use ICAO terms and ensure they are used consistently and in proper context



# GOLD Web 4.1 – 9 May 2012 (5 of 7)

- **Definitions of types of CPDLC messages**
  - Standard message element
  - Free text message
  - Standardized free text message
  - Pre-formatted free text message
- **Currently, definitions in GOLD**
- **Proposal for revision planned for GOLD/5**





# GOLD Web 4.1 – 9 May 2012 (6 of 7)

- **CPDLC message element numbers**

- When referring to CPDLC messages and message elements, it will be preceded with the message element number and used to cross-reference Appendix A, CPDLC message set



# GOLD Web 4.1 – 9 May 2012 (7 of 7)

- **Reroute procedure – ATC initiated**
  - Agreed within the NAT Region and proposal is available on the ICAO Portal Website for review
- **Reroute procedures are very important for global standardization**
- **I would encourage all to review this material**
  - Available in Relevant Material folder, files beginning with “v10011 12-03-31 ...”
  - Disposition at GOLD/5

