

# **Annex G**

GACS PICS



ATNP/WG3/WP 19-41

1 August 2000

## **AERONAUTICAL TELECOMMUNICATION NETWORK PANEL**

### **WORKING GROUP 3 (APPLICATIONS AND UPPER LAYERS)**

Berlin, 21-25 August 2000

**Agenda Item 5 : PICS and OICS**

## **Generic ATN Communications Service Version 1 PICS/OICS Proforma**

Prepared by: Mike Harcourt

### **SUMMARY**

This working paper contains the ATN Profile PICS/OICS proforma tables for GACS Version 1.

Worksheet	Tables
Document Control	
Contents	
I-1 Identification	Table I-1: PICS/OICS Identification
I-2 Supplier	Table I-2: Supplier and Implementation Identification
I-3 Protocol Id	Table I-3: GACS Protocol Identification
S-1 Realisation	Table S-1: GACS Conformant Realisations
S-2 Confgs	Table S-2: GACS Conformant Communication Subsets
S-3 Service Primitives	Table S-3: Supported GACS Service Primitives
S-4 G-Transfer Init	Table S-4: G-TRANSFER Service (Initiator)
S-5 G-Transfer Rec	Table S-5: G-TRANSFER Service (Receiver)
S-6 G-Transfer-Conf Init	Table S-6: G-TRANSFER-CONFIRMED Service (Initiator)
S-7 G-Transfer-Conf Rec	Table S-7: G-TRANSFER-CONFIRMED Service (Receiver)
S-8 G-End Init	Table S-8: G-END Service (Initiator)
S-9 G-End Rec	Table S-9: G-END Service (Receiver)
S-10 G-Multicast	Table S-10: G-MULTICAST Service
S-11 Common Parameters	Table S-11: Common Operational Parameters
S-12 Timers	Table S-12: GACS Timers
P-1 GACS Protocol	Table P-1: GACS Protocol

Table I-1: PICS/OICS Identification

Ref No	PICS/OICS Identification	Implementation PICS/OICS
I-1.1	Date of Statement (DD/MM/YY)	
I-1.2	PICS/OICS Serial Number	
	Profile Identification	Profile Details
I-1.3	Profile Name	
I-1.4	Version	
I-1.5	Profile Authority Name	
I-1.6	Profile Applicability (Areas, Countries, Organisations etc where the profile can be applied)	
I-1.7	Date of effect	
I-1.8	Other Information	

Table I-2: Supplier and Implementation Identification

Ref No	Supplier Information	Supplier Details
I-2.1	Organization Name	
I-2.2	Contact Name(s)	
I-2.3	Address	
I-2.4	Telephone Number	
I-2.5	Telex Number	
I-2.6	Fax Number	
I-2.7	E-mail Address	
I-2.8	Other Information	
	<b>Implementation Information</b>	<b>Implementation Details</b>
I-2.9	Implementation Name	
I-2.10	Implementation Version	
I-2.11	Hardware Name	
I-2.12	Hardware Version	
I-2.13	Operating System Name	
I-2.14	Operating System Version	
I-2.15	Special Configuration	
I-2.16	Other Information	

Table I-3: GACS Protocol Identification

Ref No		ATN	Profile	Implementation
I-3.1	Protocol Standard (Title, reference, date)	ICAO Doc 9705 Edition 3 2000		
I-3.2	GACS Protocol Version	Version 1		
I-3.3	Addenda, amendments and corrigenda implemented			
I-3.4	Defect Reports implemented			

Table S-1: GACS Conformant Realisations

Ref No	Realisation Options	ATN Profile Status	Profile Status	IMP Support	Configuration Reference	Notes
S-1.1	ATN Application Entity	C.1			GACS-AE	
S-1.2	ATN Application Service Object	C.1			GACS-ASO	

ATN Status:  
C.1 An implementation shall conform to only one realisation

Table S-2: GACS Conformant Communication Subsets

Ref No	List of Communication Subsets Ref. No	ATN Profile Status	Profile Status	IMP Support	Notes
S-2.1	I. Connection-oriented and Connectionless	C.1			
S-2.2	II. Connection-oriented only	C.1			
S-2.3	III. Connectionless only	C.1			

ATN Status

C.1 At least one configuration subset must be supported



Table S-3: Supported GACS Service Primitives

Ref No	Service Primitives	Sender (req, [cnf])			Receiver (ind, [rsp])			Notes
		ATN Profile Status	Profile Status	IMP Support	ATN Profile Status	Profile Status	IMP Support	
S-3.1	G-Transfer	M			M			
S-3.2	G-Transfer-Confirmed	M			M			
S-3.3	G-End	O			M			
S-3.4	G-Multicast	O			—	—	—	

Table S-4: G-TRANSFER Service (Initiator)

Source: Chapter 2 - Abstract Service Definition		OICS					Parameter Description	Notes
		Operational Use						
Ref No	Operational Elements	ATN Profile	Profile Status	Cons	Implementation Status	Cons		
S-4.1	Capability of the initiating system to specify a Recipient List							
S-4.1.1	Recipient List	M					See Recipient List (Table P-1)	
S-4.2	Capability of the initiating system to specify the location of the initiating user							
S-4.2.1	Sender	O					See Sender (Table P-1)	
S-4.3	Capability of the initiating system to specify the Message Type							
S-4.3.1	Message Type	O					See Message Type (Table P-1)	
S-4.4	Capability of the initiating system to specify the Message Identifier							
S-4.4.1	Message Identifier	O					See Message Identifier (Table P-1)	
S-4.5	Capability of the initiating system to specify the Message Reference							
S-4.5.1	Message Reference	O					See Message Reference (Table P-1)	
S-4.6	Capability of the initiating system to specify the GACS-User Version Number							
S-4.6.1	Abstract value in the range 1 to 255	O						a
S-4.7	Capability of the initiating system to specify the Security Requirements							
S-4.7.1	Security Requirements	O						a
S-4.8	Capability of the initiating system to request a Class of Communication Service							
S-4.8.1	Class of Communication	M						b
S-4.9	Capability of the initiating system to request a Priority							
S-4.9.1	Priority	M						c
S-4.10	Capability of the initiating system to specify the Residual Error Rate							
S-4.10.1	"low" or "high"	O						a
S-4.11	Capability of the initiating system to specify the Requested Level of Service							
S-4.11.1	Single shot, no error recovery, unconfirmed service	C.1						
S-4.11.2	Single shot, error recovery, unconfirmed service	C.1						
S-4.11.3	Multi shot, error recovery, unconfirmed service	C.1						
S-4.12	Capability of the initiating system to specify User Data							
S-4.12.1	User Data	O						d

Source: Chapter 2 - Abstract Service Definition		OICS					Parameter Description	Notes
		Operational Use						
Ref No	Operational Elements	ATN Profile	Profile Status   Cons		Implementation Status   Cons			

**ATN Profile:**

- C.1 At least one must be supported

**Notes:**

- a As defined for the Dialogue Service in section 4.2 of Doc 9705
- b Valid abstract values are defined in the "Semantics" column of Table 5.6-1 of Doc 9705
- c Valid abstract values are defined in the "Message Categories" column of Table 1-2 of Doc 9705
- d Maximum length must be specified by an application

Table S-5: G-TRANSFER Service (Receiver)

Source: Chapter 2 - Abstract Service Definition		OICS					Parameter Description	Notes
		Operational Use						
Ref No	Operational Elements	ATN Profile	Profile Status	Cons	Implementation Status	Cons		
S-5.1	Capability of the initiating system to specify a Recipient List							
S-5.1.1	Recipient List	Not visible to a Recipient					See Recipient List (Table P-1)	
S-5.2	Capability of the receiving system to understand the location of the sending user							
S-5.2.1	Sender	M					See Sender (Table P-1)	
S-5.3	Capability of the receiving system to understand the Message Type							
S-5.3.1	Message Type	M					See Message Type (Table P-1)	
S-5.4	Capability of the receiving system to understand the Message Identifier							
S-5.4.1	Message Identifier	M					See Message Identifier (Table P-1)	
S-5.5	Capability of the receiving system to understand the Message Reference							
S-5.5.1	Message Reference	M					See Message Reference (Table P-1)	
S-5.6	Capability of the receiving system to understand the GACS-User Version Number							
S-5.6.1	Abstract value in the range 1 to 255	M						a
S-5.7	Capability of the receiving system to understand the Security Requirements							
S-5.7.1	Security Requirements	M						a
S-5.8	Capability of the receiving system to request a Class of Communication Service							
S-5.8.1	Class of Communication	M						b
S-5.9	Capability of the receiving system to request a Priority							
S-5.9.1	Priority	M						c
S-5.10	Capability of the receiving system to understand the Residual Error Rate							
S-5.10.1	"low" or "high"	M						a
S-5.11	Capability of the receiving system to understand the Requested Level of Service							
S-5.11.1	Single shot, no error recovery, unconfirmed service	M						
S-5.11.2	Single shot, error recovery, unconfirmed service	M						
S-5.11.3	Multi shot, error recovery, unconfirmed service	M						
S-5.12	Capability of the receiving system to understand User Data							
S-5.12.1	User Data	M						d

Source: Chapter 2 - Abstract Service Definition		OICS					Parameter Description	Notes
		Operational Use						
Ref No	Operational Elements	ATN	Profile		Implementation			
		Profile	Status	Cons	Status	Cons		

**ATN Profile:**

- C At least one must be supported

**Notes:**

- a As defined for the Dialogue Service in section 4.2 of Doc 9705
- b Valid abstract values are defined in the "Semantics" column of Table 5.6-1 of Doc 9705
- c Valid abstract values are defined in the "Message Categories" column of Table 1-2 of Doc 9705
- d Maximum length must be specified by an application

Table S-6: G-TRANSFER-CONFIRMED Service (Initiator)

Source: Chapter 2 - Abstract Service Definition		OICS					Parameter Description	Notes
		Operational Use						
Ref No	Operational Elements	ATN Profile	Profile Status	Cons	Implementation Status	Cons		
S-6.1	Capability of the initiating system to specify a Recipient List							
S-6.1.1	Recipient List	M					See Recipient List (Table P-1)	
S-6.2	Capability of the initiating system to specify the location of the initiating user							
S-6.2.1	Sender	O					See Sender (Table P-1)	
S-6.3	Capability of the initiating system to specify the Message Type							
S-6.3.1	Message Type	O					See Message Type (Table P-1)	
S-6.4	Capability of the initiating system to specify the Message Identifier							
S-6.4.1	Message Identifier	M					See Message Identifier (Table P-1)	
S-6.5	Capability of the initiating system to specify the Message Reference							
S-6.5.1	Message Reference	O					See Message Reference (Table P-1)	
S-6.6	Capability of the initiating system to specify its GACS-User Version Number							
S-6.6.1	Abstract value in the range 1 to 255	O						a
S-6.7	Capability of the initiating system to specify the Security Requirements							
S-6.7.1	Security Requirements	O						a
S-6.8	Capability of the initiating system to request a Class of Communication Service							
S-6.8.1	Class of Communication	M						b
S-6.9	Capability of the initiating system to request a Priority							
S-6.9.1	Priority	M						c
S-6.10	Capability of the initiating system to specify the Residual Error Rate							
S-6.10.1	"low" or "high"	O						a
S-6.11	Capability of the initiating system to specify the Requested Level of Service							
S-6.11.1	Single shot, no error recovery, confirmed service	C						
S-6.11.2	Single shot, error recovery, confirmed service	C						
S-6.11.3	Multi shot, error recovery, confirmed service	C						
S-6.12	Capability of the initiating system to specify User Data							
S-6.12.1	User Data	O						d

Source: Chapter 2 - Abstract Service Definition		OICS					Parameter Description	Notes
		Operational Use						
Ref No	Operational Elements	ATN Profile	Profile Status	Cons	Implementation Status	Cons		
S-6.13	Capability of the initiating system to understand the location of the confirming system							
S-6.13.1	Sender	M					See Sender (Table P-1)	
S-6.14	Capability of the initiating system to understand the Message Type							
S-6.14.1	Message Type	C.1					See Message Type (Table P-1)	
S-6.15	Capability of the initiating system to understand the Message Reference							
S-6.15.1	Message Reference	M					See Message Reference (Table P-1)	
S-6.16	Capability of the initiating system to understand the GACS-User Version Number of the confirming system							
S-6.16.1	Abstract value in the range 1 to 255	C.2						a
S-6.17	Capability of the initiating system to understand the Result							
S-6.17.1	Successful Delivery	M						
S-6.17.2	Delivery Failed	M						
S-6.17.3	Service Problem - Delivery Status Uncertain	M						

**ATN Profile:**

- C.1 If Message Type is ever used in a request then **M** else —  
 C.2 If Version Number is ever used in a request then **M** else —

**Notes:**

- a As defined for the Dialogue Service in section 4.2 of Doc 9705  
 b Valid abstract values are defined in the "Semantics" column of Table 5.6-1 of Doc 9705  
 c Valid abstract values are defined in the "Message Categories" column of Table 1-2 of Doc 9705  
 d Maximum length must be specified by an application

Table S-7: G-TRANSFER-CONFIRMED Service (Receiver)

Source: Chapter 2 - Abstract Service Definition		OICS					Parameter Description	Notes
		Operational Use						
Ref No	Operational Elements	ATN Profile	Profile Status	Cons	Implementation Status	Cons		
S-7.1	Capability of the initiating system to specify a Recipient List							
S-7.1.1	Recipient List	Not visible to a Recipient					See Recipient List (Table P-1)	
S-7.2	Capability of the receiving system to understand the location of the receiving user							
S-7.2.1	Sender	M					See Sender (Table P-1)	
S-7.3	Capability of the receiving system to understand the Message Type							
S-7.3.1	Message Type	M					See Message Type (Table P-1)	
S-7.4	Capability of the receiving system to understand the Message Identifier							
S-7.4.1	Message Identifier	M					See Message Identifier (Table P-1)	
S-7.5	Capability of the receiving system to understand the Message Reference							
S-7.5.1	Message Reference	M					See Message Reference (Table P-1)	
S-7.6	Capability of the receiving system to understand the GACS-User Version Number							
S-7.6.1	Abstract value in the range 1 to 255	M						a
S-7.7	Capability of the receiving system to understand the Security Requirements							
S-7.7.1	Security Requirements	M						a
S-7.8	Capability of the receiving system to request a Class of Communication Service							
S-7.8.1	Class of Communication	M						b
S-7.9	Capability of the receiving system to request a Priority							
S-7.9.1	Priority	M						c
S-7.10	Capability of the receiving system to understand the Residual Error Rate							
S-7.10.1	"low" or "high"	M						a
S-7.11	Capability of the receiving system to understand the Requested Level of Service							
S-7.11.1	Single shot, no error recovery, confirmed service	M						
S-7.11.2	Single shot, error recovery, confirmed service	M						
S-7.11.3	Multi shot, error recovery, confirmed service	M						
S-7.12	Capability of the receiving system to understand User Data							
S-7.12.1	User Data	M						d



Source: Chapter 2 - Abstract Service Definition			OICS					Parameter Description	Notes
			Operational Use						
Ref No	Operational Elements	ATN Profile	Profile		Implementation				
			Status	Cons	Status	Cons			

**Notes:**

- a As defined for the Dialogue Service in section 4.2 of Doc 9705
- b Valid abstract values are defined in the "Semantics" column of Table 5.6-1 of Doc 9705
- c Valid abstract values are defined in the "Message Categories" column of Table 1-2 of Doc 9705
- d Maximum length must be specified by an application

Table S-8: G-END Service (Initiator)

Source: Chapter 2 - Abstract Service Definition		OICS					Parameter Description	Notes
		Operational Use						
Ref No	Operational Elements	ATN Profile	Status	Cons	Implementation Status	Cons		
S-8.1	Capability of the initiating system to specify a Recipient List							
S-8.1.1	Recipient List	M					See Recipient List (Table P-1)	
S-8.2	Capability of the initiating system to specify the Message Type							
S-8.2.1	Message Type	O					See Message Type (Table P-1)	
S-8.3	Capability of the initiating system to specify the Message Reference							
S-8.3.1	Message Reference	O					See Message Reference (Table P-1)	

Table S-9: G-END Service (Receiver)

Source: Chapter 2 - Abstract Service Definition		OICS					Parameter Description	Notes
		Operational Use						
Ref No	Operational Elements	ATN Profile	Profile Status	Cons	Implementation Status	Cons		
S-9.1	Capability of the receiving system to understand the location of the sending user							
S-9.1.1	Sender	M					See Sender (Table P-1)	
S-9.2	Capability of the receiving system to understand the Message Type							
S-9.2.1	Message Type	M					See Message Type (Table P-1)	
S-9.3	Capability of the receiving system to understand the Message Reference							
S-9.3.1	Message Reference	M					See Message Reference (Table P-1)	

Table S-10: G-MULTICAST Service

Source: Chapter 2 - Abstract Service Definition		OICS					Parameter Description	Notes
		Operational Use						
Ref No	Operational Elements	ATN Profile	Status	Profile Cons	Implementation Status	Cons		
S-10.1	Capability of the requesting system to specify a Group Address							
S-10.1.1	PSAP Address	M						
S-10.2	Capability of the requesting system to specify the Toggle Parameter							
S-10.2.1	Enable Multicast Receipt	O					a	
S-10.2.2	Disable Multicast Receipt	O						

## Notes:

a Default value

Table S-11: Common Operational Parameters

Source: Chapter 2 - Abstract Service Definition		Send					Receive					Notes
Ref No	Operational Elements	ATN Profile	Status	Cons	Implementation Status	Cons	ATN Profile	Status	Cons	Implementation Status	Cons	
<b>P-11.1</b>	<b>Recipient List</b>											
P-11.1.1	Peer ID	C					—	—	—	—	—	
P-11.1.2	PSAP Address	C					—	—	—	—	—	
<b>P-11.1.1</b>	<b>Peer ID</b>											
P-11.1.1.1	ICAO Aircraft Identifier (24 Bits)	C.1					—	—	—	—	—	
P-11.1.1.2	ICAO Facility Designator (4-8 Characters)	C.2					—	—	—	—	—	
P-11.1.1.3	System Identifier	O					—	—	—	—	—	

**ATN Profile:**

- C.1 If an aircraft location is ever used as a recipient then **M** else —
- C.2 If a registered ground location is ever used as a recipient then **M** else —

Table S-12: GACS Timers

Source: Chapter 3 - Protocol Definition			OICS						Notes
			Operational Use						
Ref No	GACS Service	Timer	Status	ATN Value	Status	Profile Value	Status	Implementation Value	
S-12.1	Multi-shot Inactivity Timer								
S-12.1.1		t_inact	C.1	—					a
S-12.2	D-START Response Timer								
S-12.2.1		t_start_resp	O	—					a
S-12.3	D-END Response Timer								
S-12.3.1		t_end_resp	O	—					a

**ATN Profile:**

C.1 If the "multi-shot" option of the G-TRANSFER or G-TRANSFER-CONFIRMED services is supported then **M** else —

**Notes:**

a There is no recommended value for the ATN Profile

Table P-1: GACS Protocol

Source: Chapter 3 - Protocol Definition		Sending					Receiving					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	ATN Profile	Profile Status	Cons	Implementation Status	Cons	ATN Profile	Profile Status	Cons	Implementation Status	Cons		
<b>P-1.1</b>	<b>GACS PDU</b>											<b>GACSpdu ::= SEQUENCE</b>	
P-1.1.1	GACS Header	M					M					[0] GACSHeaderType	
P-1.1.2	User Data	O					M					[1] OCTET STRING (Optional)	
<b>P-1.1.1</b>	<b>GACS Header</b>											<b>GACSHeaderType ::= SEQUENCE</b>	
P-1.1.1.1	Message Type	O					M					[0] GACSMessageld (Optional)	
P-1.1.1.2	Message Identifier	C.1					M					[1] GACSMessageld (Optional)	
P-1.1.1.3	Message Reference	O					M					[2] GACSMessageld (Optional)	
P-1.1.1.4	Confirmation Type	O					M					[3] GACSConformation (Default unconfirmedReq)	
P-1.1.1.5	Single or Multi-shot	O					M					[4] GACSMultiShot (Default single)	
P-1.1.1.6	Sender	O					M					[5] GACSNameOrAddress (Optional)	
P-1.1.1.7	Use of Extensibility	X					M					Use of Extensibility	
<b>P-1.1.1.1/2/3</b>	<b>Message Type/Identifier/Reference</b>											<b>GACSMessageld ::= CHOICE</b>	
P-1.1.1.*.1	Global Form	M					M					[0] OBJECT IDENTIFIER	
P-1.1.1.*.2	Local Form (0-255)	M					M					[1] INTEGER (0..255,	
P-1.1.1.*.3	Local Form (Use of Extended Range)	X					M					...)	
P-1.1.1.*.4	Use of Extensibility	X					M					Use of Extensibility	
<b>P-1.1.1.4</b>	<b>Confirmation Type</b>											<b>GACSConformation ::= ENUMERATED</b>	
P-1.1.1.4.1	Unconfirmed Request	M					M					(0) unconfirmedReq	
P-1.1.1.4.2	Confirmed Request	M					M					(1) confirmedReq	
P-1.1.1.4.3	Confirmation OK	M					M					(2) confirmedOk	
P-1.1.1.4.4	Confirmation not OK	M					M					(3) confirmedNotOk	
P-1.1.1.4.5	Confirmation Status Unknown	M					M					(4) confirmedUnknown	
P-1.1.1.4.6	Use of Extensibility	M					M					Use of Extensibility	
<b>P-1.1.1.5</b>	<b>Single or Multi Shot</b>											<b>GACSMultiShot ::= ENUMERATED</b>	
P-1.1.1.5.1	Single	M					M					(0) single	
P-1.1.1.5.2	Maintain Connection	M					M					(1) maintained	
P-1.1.1.5.3	End Connection	M					M					(2) end	
P-1.1.1.5.4	Use of Extensibility	X					M					Use of Extensibility	
<b>P-1.1.1.6</b>	<b>Sender</b>											<b>GACSNameOrAddress ::= CHOICE</b>	
P-1.1.1.6.1	Name	M					M					[1] ULCSPeerId	
P-1.1.1.6.2	PSAP Address	M					M					[2] OCTET STRING	
<b>P-1.1.1.6.1</b>	<b>Name</b>											<b>ULCSPeerId ::= SEQUENCE</b>	
P-1.1.1.6.1.1	Location Identifier	M					M					[1] ULCSLocationType	
P-1.1.1.6.1.2	System Identifier	M					M					[2] INTEGER (Optional)	

Source: Chapter 3 - Protocol Definition		Sending					Receiving					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	ATN Profile	Profile Status	Cons	Implementation Status	Cons	ATN Profile	Profile Status	Cons	Implementation Status	Cons		
P-1.1.1.6.1.1	Location Identifier											ULCSLocationType ::= CHOICE	
P-1.1.1.6.1.1.1	Aircraft Address	M					M					[1] BIT STRING SIZE(24)	
P-1.1.1.6.1.1.2	Ground Facility	M					M					[2] IA5String SIZE(4..8)	
P-1.1.1.6.1.1.3	Use of Extensibility	X					M					Use of Extensibility	

**ATN Status**C.1 If G-TRANSFER-CONFIRMED supported then **M** else **O**