

PROPOSED INTERFACE REVISION NOTICE (PIRN)

Note: This Cover Page is not intended for signature. It is to be used during the document update (pre-ICWG) process.

Affected ICD/IS:
ICD-GPS-870

PIRN Number:
PIRN-870B-001

Authority:
RFC-00308

PIRN Date: 20-JUN-2016

CLASSIFIED BY:
DECLASSIFY ON:

Document Title:
Update ICD-GPS-870 and ICD-GPS-240 to align with ICD-GPS-875

Reason For Change (Driver):

ICD-GPS-875 has been updated to describe the new OCX-NGA and OCX-USCG interfaces. ICD-GPS-870 now needs to be updated to describe the data format changes for the public users of the USCG data. This will also address numerous formatting errors in the publicly released version of ICD-GPS-870. ICD-GPS-870 and ICD-GPS-240 require updates to clarify NANU outage codes.

Description of Change:

Update the descriptions of the data public users can access on the US Coast Guard server in ICD-GPS-870. Add a definition of "outage" for NANU messages to ICD-GPS-240 and to ICD-GPS-870.

Prepared By: George Farmer

Checked By: Adrienne Harrington

DISTRIBUTION STATEMENT A: Approved For Public Release; Distribution Is Unlimited

ICD870-650 :

WAS :

In accordance with the CS requirement to be in compliance with the DoD Information Technology Standards Registry (DISR), the CS selected standards from the DISR for the GPS products with the intent to reduce impact to the user community during this transition. As a result, there is a wide variety of development COTS tools available to the users to independently develop tools to process the new GPS Products in their native (i.e., XML) formats. Government agencies are encouraged to work through the GPS Community of Interest (COI) POC for assistance during the transition.

IS :

~~In accordance with~~ A the standards CS based requirement approach ~~to be in compliance with the DoD Information Technology Standards Registry (DISR), the CS selected standards from GPS the Products DISR is foremployed thein GPS order productsto with~~ minimize ~~the intent to reduce~~ impact to the user community during ~~this~~ transition. As a result, there ~~is~~ are a wide variety ~~of developmentofdevelopment~~ COTS tools available to the users to independently develop tools to process the new GPS Products in their native (i.e., XML) formats. Government agencies are encouraged to work through the GPS Community ~~of Interest (COI)~~ POC for assistance during the transition.

ICD870-11 :

WAS :

The following signatories must approve this ICD to make it effective.

1. Air Force Space Command (AFSPC), GPS Directorate (GP) Space and Missile Systems Center (SMC)
2. Air Force Space Command (AFSPC), 50th Space Wing (50 SW)
3. Raytheon Company, OCX Contractor
4. Department of Homeland Security (DHS), United States Coast Guard (USCG), Navigation Center (NAVCEN)
5. Department of Transportation (DOT), Federal Aviation Administration (FAA)

IS :

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2. Air Force Space Command (AFSPC), 50th Space Wing (50 SW)

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3. ~~Raytheon Company~~, OCX Contractor
4. Department of Homeland Security (DHS), United States Coast Guard (USCG), Navigation Center (NAVCEN)
5. Department of Transportation (DOT), Federal Aviation Administration (FAA)

ICD870-21 :

WAS :

Federal

September 2008 Global Positioning System Standard Positioning Service Performance Standard

Military

23 April 2007 DODD 8320.02 Data Sharing in a Net Centric Department of Defense
July 2008 DoD Discovery Metadata Specification (DDMS) Version 2.0
September 2010 Department of Defense Public Key Infrastructure Functional Interface Specification 3.0.
24 May 2011 Public Key Infrastructure (PKI) and Public Key (PK) Enabling (DoDI 8520.02)

IS :

Federal

Version 2.1 (June 2006) NIEM Information Exchange Package Documentation (IEPD) Specification
NDR 1.3 National Information Exchange Model (NIEM) Naming Design Rules
September 2008 Global Positioning System Standard Positioning Service Performance Standard

Military

UNCLASSIFIED

September 2010 Department of Defense Public Key Infrastructure
Functional Interface Specification 3.0.

ICD870-23 :

WAS :

IS-GPS-200 Current Version	Navstar GPS Space Segment / Navigation User Interface
IS-GPS-705 Current Version	Navstar GPS Space Segment / User Segment L5 Interfaces
IS-GPS-800 Current Version	Navstar GPS Space Segment / User Segment L1C Interfaces
GP-03-001A 20 April 2006	GPS Interface Control Working Group (ICWG) Charter
MOA February 1992	Memorandum of Agreement Between the United States Coast Guard and the United States Space Command, “Distribution of Navstar Global Positioning System (GPS) Status Information” (Signatories: USCG/G-NRN and USSPACECOM/DO)
MOA February 1996	Support Agreement Between the United States Coast Guard and the United States Air Force Space Command, “Distribution of Navstar Global Positioning System (GPS) Status Information” (Signatories: Commanding Officer NAVCEN and AFSPC/DO)
MOA February 2010	Memorandum of Agreement between the Joint Functional Component Command for Space the U.S. Coast Guard Navigation Center and the FAA National Operations Control Center with respect to the Support of Users of the Navstar Global Positioning System
Fiscal Year 2012	Federal Radionavigation Plan

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MFR
30 June 2011
Department of the Air Force, 50th Space Wing (AFSPC)
Memorandum for Record - 2 SOPS GPS Public Release
Policy

6 February 2003
DODI 8500.2, Information Assurance (IA) Implementation

4 May 2011
United States Department of Defense X.509 Certificate
Policy

IS :

IS-GPS-200
Current Version
Navstar GPS Space Segment / Navigation User Interface

IS-GPS-705
Current Version
Navstar GPS Space Segment / User Segment L5 Interfaces

IS-GPS-800
Current Version
Navstar GPS Space Segment / User Segment L1C
Interfaces

GP-03-001A
20 April 2006
GPS Interface Control Working Group (ICWG) Charter

MOA
February 1992
Memorandum of Agreement Between the United States
Coast Guard and the United States Space Command,
“Distribution of Navstar Global Positioning System (GPS)
Status Information”

(Signatories: USCG/G-NRN and USSPACECOM/DO)

MOA
February 1996
Support Agreement Between the United States Coast
Guard and the United States Air Force Space Command,
“Distribution of Navstar Global Positioning System (GPS)
Status Information”

(Signatories: Commanding Officer NAVCEN and
AFSPC/DO)

MOA
February 2010
Memorandum of Agreement between the Joint Functional
Component Command for Space the U.S. Coast Guard
Navigation Center and the FAA National Operations Control
Center with respect to the Support of Users of the Navstar
Global Positioning System

MOA
June 2014
Interagency Memorandum of Agreement with Respect to
Support of Users of the Navstar Global Positioning System
(GPS)

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Fiscal Year 2014	Federal Radionavigation Plan (Signatories: Department of Homeland Security, Department of Transportation, Department of Defense)
MFR 30 June 2011	Department of the Air Force, 50th Space Wing (AFSPC) Memorandum for Record - 2 SOPS GPS Public Release Policy
6 February 2003	DODI 8500.2, Information Assurance (IA) Implementation
4 May 2011	United States Department of Defense X.509 Certificate Policy

ICD870-27 :

WAS :

Standards

November 1999	W3C, XSL Transformations (XSLT) Version 1.0
November 2008	W3C, Extensible Markup Language (XML) Version 1.0 (Fifth Edition)
June 2008	W3C, XML Signature Syntax and Processing (Second Edition)
April 2006	IETF, RFC4346, The Transport Layer Security (TLS) Protocol Version 1.1
June 1999	IEFT, RFC 2616, Hypertext Transfer Protocol - HTTP/1.1

IS :

Standards

November 1999	W3C, XSL Transformations (XSLT) Version 1.0
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January 2007	W3C, XSL Transformations (XSLT) Version 2.0
November 2008	W3C, Extensible Markup Language (XML) Version 1.0 (Fifth Edition)
June 2008	W3C, XML Signature Syntax and Processing (Second Edition)
October 2004	XML Schema Part 1: Structures, Second Edition, W3C Recommendation
October 2004	XML Schema Part 2: Structures, Second Edition, W3C Recommendation

ICD870-651 :

WAS :

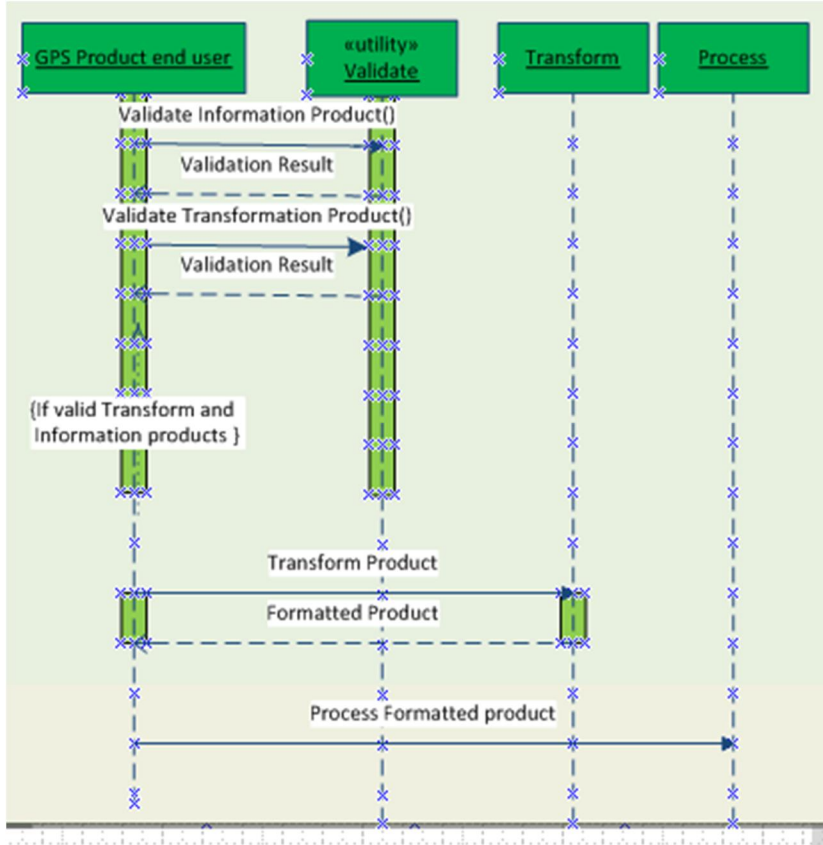
The GPS Products defined herein will be accessible via the USCG Navigation Information Service (NIS), see section 3.2.5.

IS :

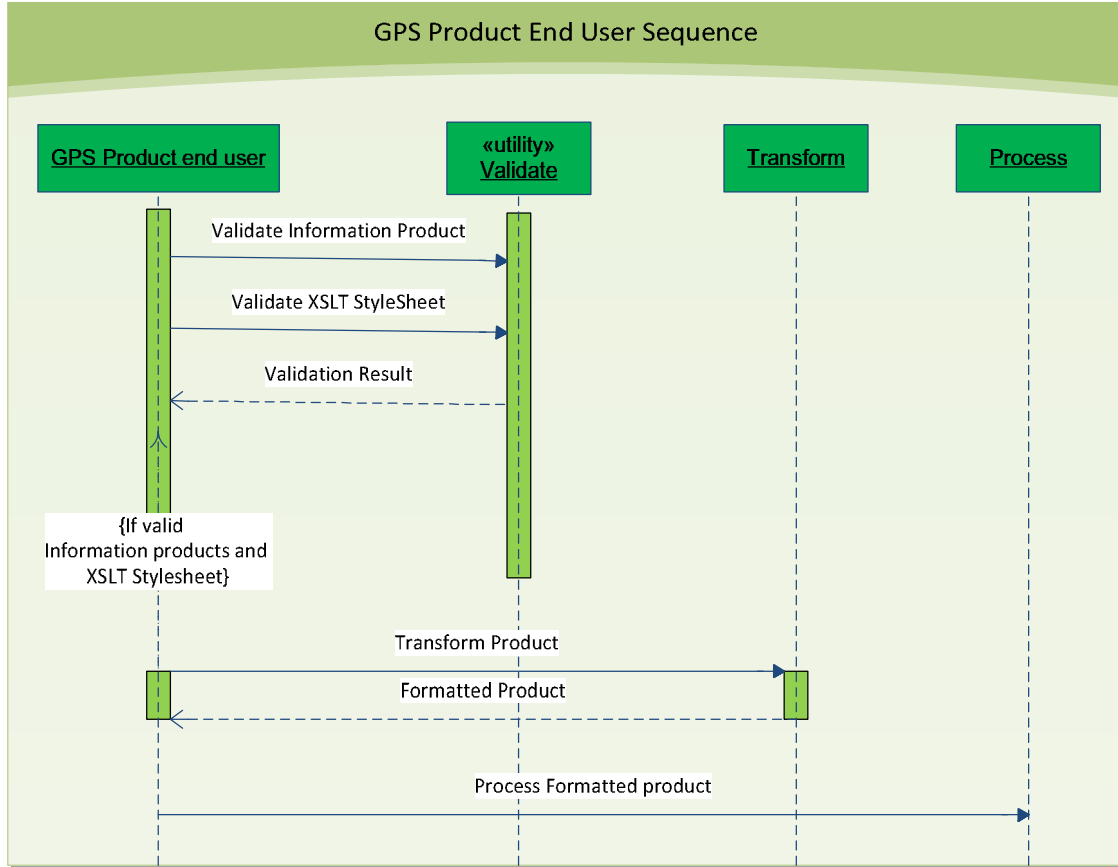
The ~~GPS Products defined~~ USCG herein provides ~~will~~ a be Portal accessible ~~via~~ from the ~~USCG public Navigation Internet Information to Service~~ allow ~~(NIS)~~ users, see with section a ~~3.2.5.~~ standard web browser, to discover and retrieve publicly releasable GPS products.

ICD870-661 :

WAS :



IS :



ICD870-662 :

WAS :

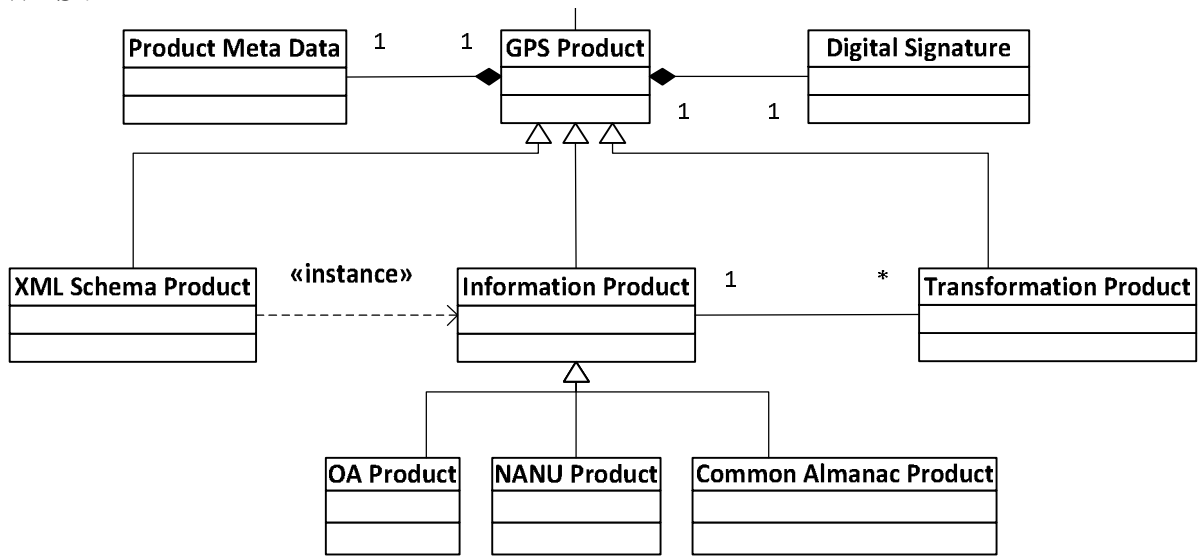
In accordance with DODD 8320, *Data Sharing in a Net Centric Department of Defense*, this ICD defines and then uses a GPS domain specific information exchange vocabulary which users should adopt when discussing the public GPS products offered by the CS. Figure 3-3 depicts a high level entity relationship diagram summarizing the GPS Product Ontology.

IS :

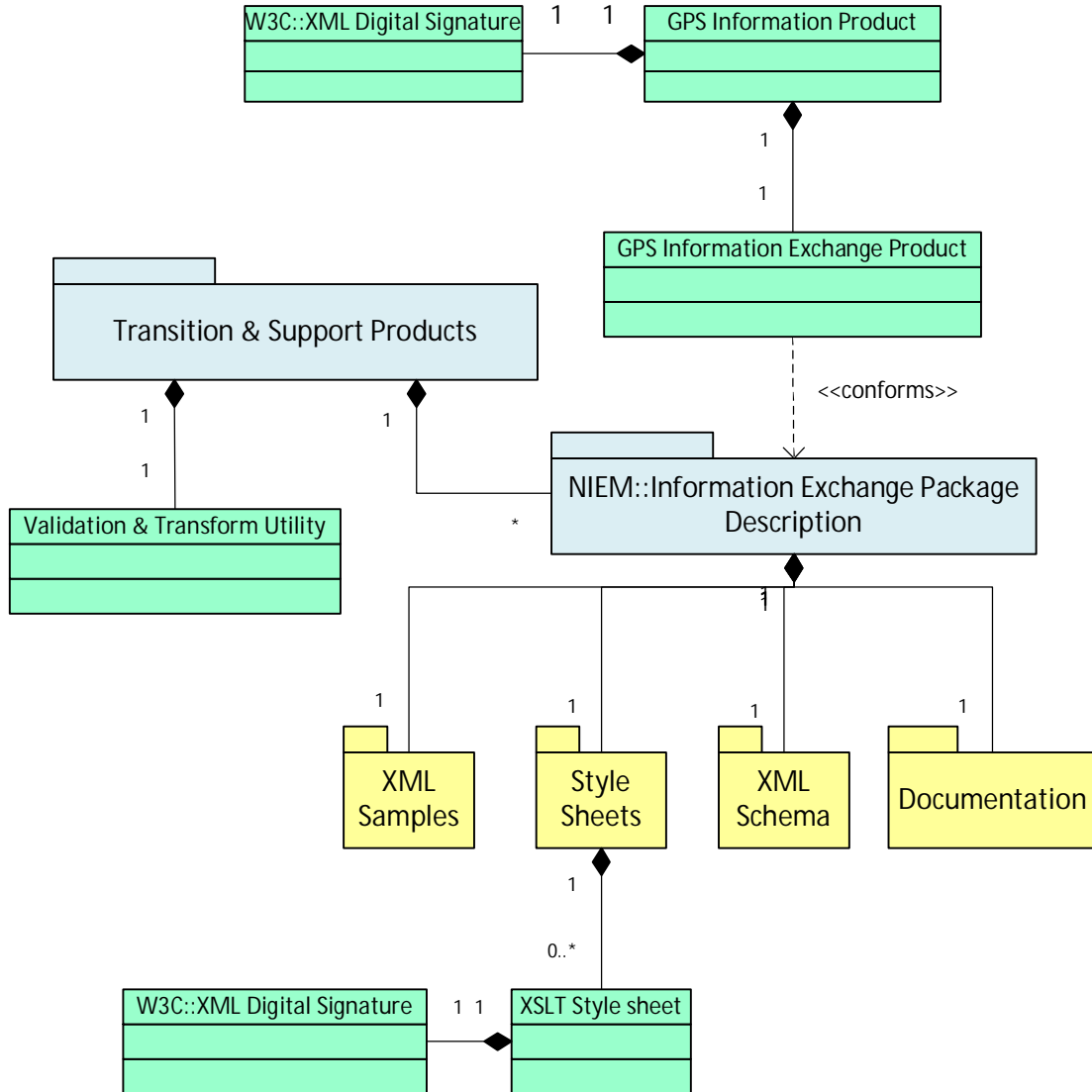
~~In accordance with DODD 8320, *Data Sharing in a Net Centric Department of Defense*, this~~ [This ICD](#) defines and then uses a GPS domain specific information exchange vocabulary which users should adopt when discussing the public GPS products ~~offered by the CS~~. Figure 3-3 depicts a high level entity relationship diagram summarizing the GPS Product Ontology. [This ontology captures the modernized GPS Product relationships including compliance with the latest government standards for data sharing and interoperability including National Information Exchange Model \(NIEM\).](#)

ICD870-664 :

WAS :



IS :



ICD870-665 :

WAS :

Appendices 1-5 of this ICD documents the minimum information content and formats which are required to achieve backward compatibility compliance. To also ensure compliance with DoD Information Technology Standards and Profile Registry (DISR) and enable rapid discovery, all published GPS Products will be defined using DoD Discovery Metadata Specification (DDMS) compliant meta data and XML compliant data schema. The GPS Ontology and schemas will be published in the USCG NIS web site, currently <http://www.navcen.uscg.gov>.

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IS :

Appendices 1-5 of this ICD documents the minimum information content and formats which are required to achieve backward compatibility compliance. ~~To also ensure compliance with DoD Information Technology Standards and Profile Registry (DISR) and enable rapid discovery, all published~~The GPS Products will be defined using DoD Discovery Metadata Specification (DDMS) compliant~~Ontology meta~~including data~~Transition~~ and ~~XML compliant data schema. The GPS Ontology and~~Support schemas~~Products~~ will be published in the USCG NIS web site, currently <http://www.navcen.uscg.gov>.

ICD870-721 :

Insertion after object ICD870-665

WAS :

N/A

IS :

The GPS CS will employ schema versioning whereby new data dissemination data/schema will be made available early in a pre-production form to allow synchronized development of automated ingestion and processing systems by users. In addition, operational data will be available in a production-full support form and in a production-deprecated form to allow graceful transition and retirement of obsolete data/schema.

ICD870-666 :

WAS :

The CS will publish multiple categories of GPS Products including; Information Products, XML Schema Products and Transformation Products. Each GPS Product contains its respective Digital Signature and Product Meta data as shown in Figure 3-3 and Figure 3-5.

- a) Information Products provide users information about the state/status of the GPS System.
- b) XML Schema Products define the structure of an XML document associated with this interface.
- c) Transformation Products can be used to transform an Information Product into one of several formats supporting full backward compatibility with the ASCII text file formats.

IS :

The CS ~~will publish multiple categories and of the~~ GPS Products~~Community including; will publish~~

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Information Products, ~~XML Schema and Products~~ Transition and Transformation Support Products. ~~Each GPS Products Product created contains by its the respective CS Digital have Signature an and associated Product XML Meta Digital data Signature~~ as shown in Figure 3-3 and Figure 3-5.

- a) CS produced Information Products provide users with information about the state/status of the GPS System.
- b) GPS Community produced XML Schema Schemas Products within the NIEM Information Exchange Package Description (IEPD) define the ~~structure~~ XML structures of ~~an the XML information document~~ products associated with this interface.
- c) Transformation CS Products produced Style Sheets within the IEPDs can be used to transform an Information Product into one of several formats supporting full backward compatibility with the ASCII text file formats.

ICD870-31 :

WAS :

The CS will publish different kinds of Information Products including; Common Almanac (which now consolidates all previous constellation state/status information), Operational Advisories (OAs), and the Notice Advisory to Navstar Users (NANUs) corresponding to all legacy signals and the new Civil signals L1C, L2C and L5.

IS :

The CS will publish different kinds of Information Products ~~including; Common Almanac (which listed now in consolidates Table all 3-1. previous constellation These state/status GPS information), Operational Advisories (OAs), and the Notice Advisory to Navstar Users (NANUs) products corresponding~~ correspond to ~~with~~ all legacy signals and the new Civil signals L1C, L2C and L5.

ICD870-305 :

WAS :

The CS will provide a downloadable utility for users to validate data integrity and if required to transform an Information Product into backward compatible ASCII file formats (see Appendix 1-5).

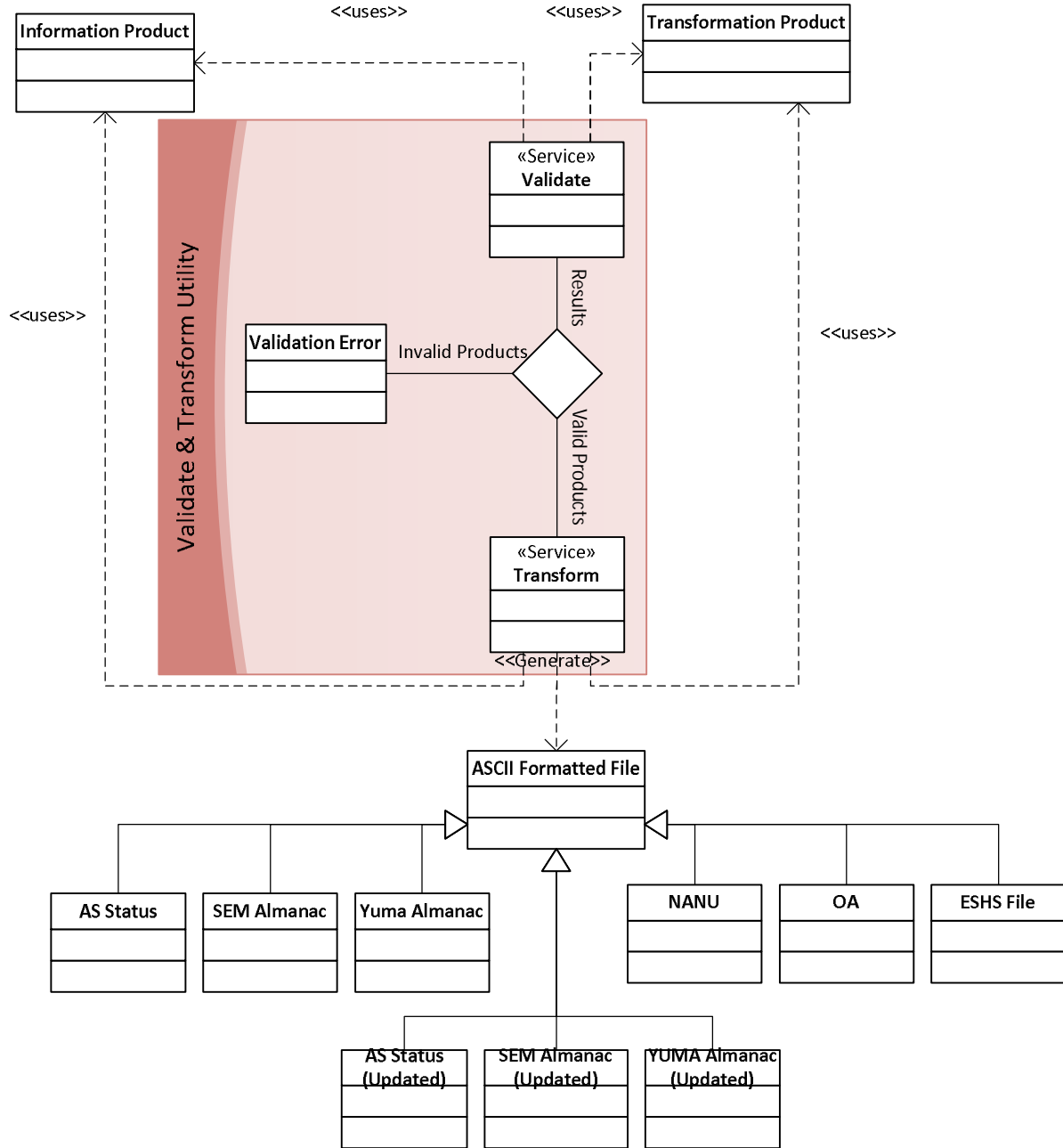
UNCLASSIFIED

IS :

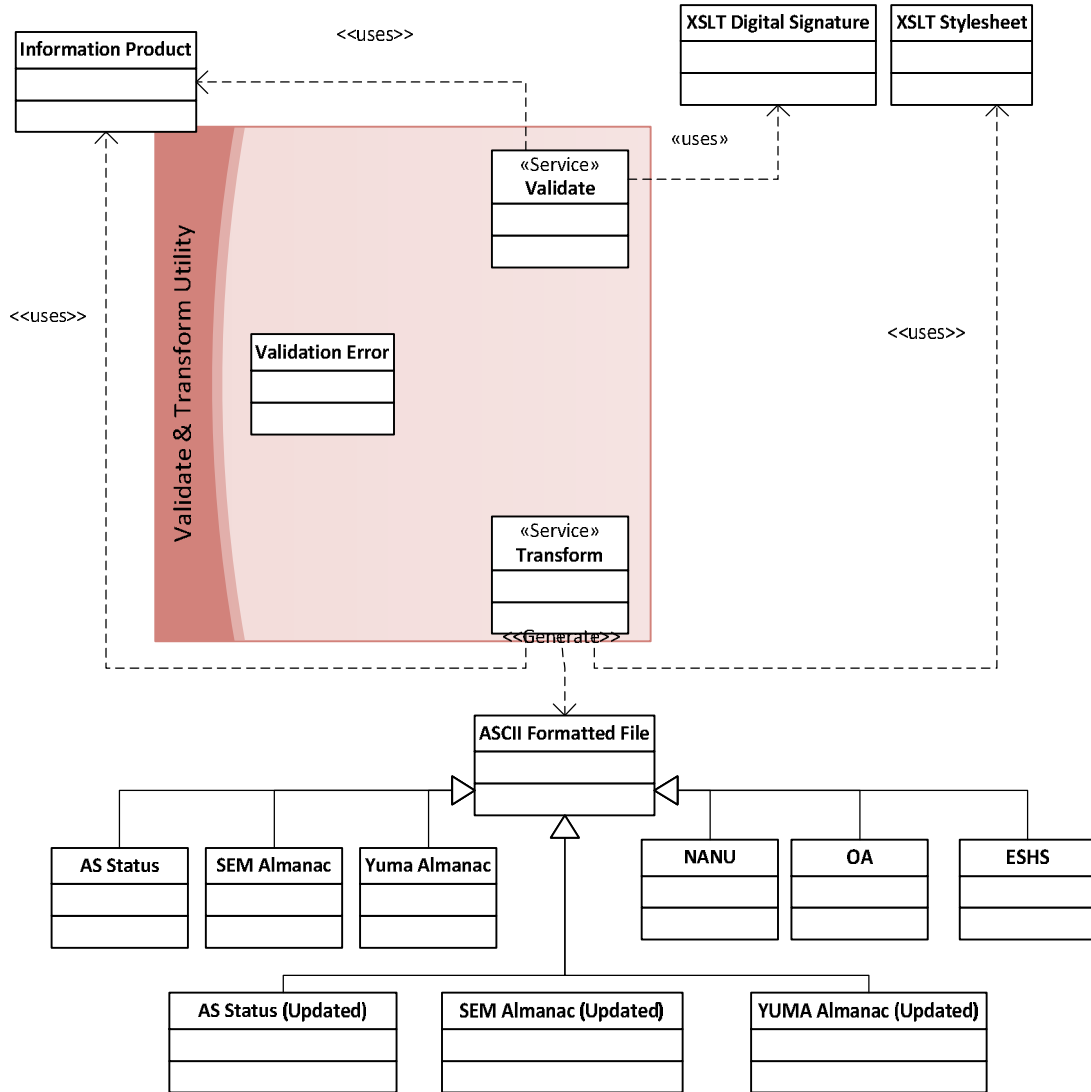
The CS will provide a ~~downloadable~~ utility for users to validate data integrity and if required to transform an Information Product into backward compatible ASCII file formats (see Appendix 1-5).

ICD870-669 :

WAS :



IS :



ICD870-671 :

WAS :

These Information Products shall conform to the associated published XML schema Product as shown in Table 3-III.

CS Effectivity: 10

IS :

~~These Information Products~~ All shall conform to products that will associated comply published with XML schemas as shown listed in Table 3-III.

CS Effectivity: ~~10~~[N/A](#)

ICD870-672 :

WAS :

The CS provides Transition Utility and Support Products as shown in Table 3-II.

CS Effectivity: 10

IS :

The ~~CS~~[GPS Community](#) provides ~~Transition~~[Public Utility](#)~~Releasable~~ [Transition](#) and Support Products [for GPS authoritative data](#) as ~~shown~~[listed](#) in Table 3-~~IIII~~.

CS Effectivity: ~~10~~[N/A](#)

ICD870-673 :

WAS :

Using the Information Products and provided Transformation Products as shown in Table 3-III, the Validate and Transform Utility shall allow the user to validate the digital signature of GPS Products.

CS Effectivity: 10

IS :

~~Using the Information Products and provided Transformation Products as shown in Table 3-III, the~~ [The](#) Validate and Transform Utility ~~shall~~[will](#) allow the user to validate the digital signature of GPS [Information](#) Products ~~and~~ [XSLT](#) [stylesheet](#).

CS Effectivity: ~~10~~[N/A](#)

ICD870-674 :

WAS :

Given validated inputs, the Validate and Transform Utility shall produce the desired ASCII output

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as shown in Table 3-III.

CS Effectivity: 10

IS :

Given validated inputs, the Validate and Transform Utility ~~shall~~will use XSLT stylesheets to produce the desired ~~ASCH~~ output format as ~~shown~~listed in Table 3-III.

CS Effectivity: ~~10~~N/A

ICD870-675 :

WAS :

As shown in Table 3-III, the names of XML Schema Products and associated Transformation Products shall be appended with a revision number (i.e., _vx.y) where “x” indicates the major revision and “y” indicates a minor revision.

CS Effectivity: 10

IS :

~~As~~When ~~shown~~ in ~~major~~ Table ~~revision 3-III,~~ to the ~~names of XML schema Schemas~~ becomes ~~Products~~ operational, and the ~~associated~~ superceded ~~Transformation~~ schema ~~Products~~ version ~~shall~~ will ~~be~~ remain ~~appended~~ available ~~with~~ for a ~~revision~~ period ~~number~~ of (i.e., ~~no~~ _vx.y) ~~less~~ where ~~than~~ “x” 1 ~~indicates~~ year ~~after~~ the new ~~major~~ revision ~~and~~ “y” ~~indicates~~ is ~~minor~~ operationally ~~revision~~ available.

CS Effectivity: ~~10~~N/A

ICD870-676 :

WAS :

Minor revisions shall be backward compatible within the same major revision.

CS Effectivity: 10

IS :

Minor revisions ~~shall~~will be backward compatible within the same major revision.

CS Effectivity: ~~10~~N/A

ICD870-36 :

WAS :

Producer	Data Exchange Identification	Information Description	Security
GPS CS	GPS Status Information	Information Product: NANU (see Table 3-III)	Unclassified Public Releasable Open Access
GPS CS	GPS Constellation Status Summary	Information Product: OA (See Table 3-III)	Unclassified Public Releasable Open Access
GPS CS	GPS Constellation Orbital and Performance Parameters, and SV Signal Health Status GPS Constellation Anti-Spoofing Status	Information Product: Common Almanac (See Table 3-III)	Unclassified Public Releasable Open Access

IS :

Producer	Modern & Legacy Data Exchange Identification	Description	Security Classification
CS	Modern Identification: GPS Advisory Legacy Identification: Notice Advisory to Navstar Users (NANU)	The GPS Advisory exchange information product includes a single advisory notification concerning a GPS space event and associated GPS space vehicle. See GPS Advisory IEPD for more details. Published on a periodic basis, based on	Unclassified / Open / Public Releasable

UNCLASSIFIED

		operational events/needs.	
CS	<p>Modern Identification: Ops Status</p> <p>Legacy Identification: Operational Advisory (OA)</p>	<p>The Ops Status Exchange information product includes an Ops Status notification concerning the GPS constellation and relevant GPS space events. See Ops Status IEPD for more details. Nominally published once daily.</p>	<p>Unclassified / Open / Public Releasable</p>
CS	<p>Modern Identification: Public Common Almanac</p> <p>Legacy Identification: (1) GPS Almanacs (SEM, YUMA) (2) Anti-Spoof Status (3) ESHS</p>	<p>The Public Common Almanac Exchange information product includes orbital state and health status of the GPS constellation. See Public Common Almanac IEPD for more details. Nominally published once daily.</p>	<p>Unclassified / Open / Public Releasable</p>

ICD870-722 :

Insertion below object ICD870-36

WAS :

N/A

IS :

[Table 3-II not used](#)

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ICD870-677 :

WAS :

Table 3-II Transition & Support Product Exchange Matrix

IS :

Table 3-~~IIII~~ Transition & Support ~~Product~~Information Exchange Matrix

ICD870-723 :

Insertion below object ICD870-677

WAS :

N/A

IS :

Producer	Data Exchange Identification	Information Description	Security Classification	Included Transformation Stylesheet(s)
GPS Community	GPS Advisory IEPD	A collection of artifacts that describe the construction and content (including schemas, transformation stylesheets, etc.) of a GPS Advisory information exchange. Published on a periodic bases with each new schema version.	Unclassified / Open / Public Releasable	NANU.XSL: Stylesheet for producing ASCII formatted ICD-870 Appendix 1 NANU Data Format.
GPS Community	Ops Status IEPD	A collection of artifacts that describe the construction and content (including schemas, transformation stylesheets, etc.) of a GPS Ops Status Advisory	Unclassified / Open / Public Releasable	OpsAdvisory.XSL: Stylesheet for producing ASCII formatted ICD-870 Appendix 2 Operational Advisory Data File Format

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		information exchange. Published on a periodic basis with each new schema version.		
GPS Community	Public Common Almanac IEPD	A collection of artifacts that describe the construction and content (including schemas, transformation stylesheets, etc.) of a GPS Public Common Almanac information exchange. Published on a periodic basis with each new schema version.	Unclassified / Open / Public Releasable	SEMAL3.XSL: Stylesheet for producing ASCII formatted ICD-870 Appendix 3 SEM (AL3) Almanac Data File Format
				SEMBL3.XSL: Stylesheet for producing ASCII formatted ICD-870 Appendix 3 SEM (BL3) Almanac Data File Format
				YUMAALM.XSL: Stylesheet for producing ASCII formatted ICD-870 Appendix 3 YUMA (ALM) Almanac Data File Format
				YUMABLM.XSL: Stylesheet for producing ASCII formatted ICD-870 YUMA (BLM) Almanac Data File Format
				ESHSALE.XSL: Stylesheet for producing ASCII formatted ICD-870 Appendix 4 ESHS File Format
				ASStatus.XSL: Stylesheet for producing ASCII formatted ICD-870 Appendix 4 AS Status File Format

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				ASStatus AS2.XSL: Stylesheet for producing ASCII formatted ICD- 870 Appendix 5 AS Status File Format
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ICD870-678 :

WAS :

Producer	Data Exchange Identification	Information Description	Security
GPS CS	XML Schema Definitions specifies content of each GPS Product	XML Schema Products (See Table 3-III)	Unclassified Public Releasable Open Access
GPS CS	XML Documents containing XSLT Transformations	Transformation Products (See Table 3-III)	Unclassified Public Releasable Open Access
GPS CS	Installable Application	Validate and Transform Utility (see Table 3-III)	Unclassified Public Releasable Open Access

CS Effectivity: N/A

SS Effectivity: N/A

IS :

<DELETED OBJECT>

ICD870-679 :

UNCLASSIFIED

WAS :

Table 3-III Mapping Information Products & Transformation Products into Desired Output Format
CS Effectivity: N/A
SS Effectivity: N/A

IS :

<DELETED OBJECT>

ICD870-681 :

WAS :

Multiple revisions of schema and transformations to support backward compatibility and to extend the migration time for the user community may be available.
CS Effectivity: 10

IS :

~~Multiple~~The revisionsCS ~~of~~will employ schema ~~and~~versioning transformations~~whereby to new support~~data/schema backward will compatibility be and available in a non-operational pre-production form to extend support the integration, migration test time and for transition. the user~~In community~~addition, may operational data will be available. in a production-full support form and in a production-deprecated form to allow graceful transition and retirement of obsolete data/schema.

CS Effectivity: ~~10~~N/A

ICD870-39 :

WAS :

The MCS, located at Schriever Air Force Base (SAFB), is the central control point for the GPS CS. For this interface, the MCS is responsible for generating the Information Products in Table 3-I and providing these to the FAA and USCG NAVCEN for redistribution to the public. The AMCS, located at Vandenberg AFB (VAFB), is functionally identical to the MCS; either MCS facility is capable of controlling the GPS constellation for an indefinite period. In case the MCS experiences downtime, the AMCS takes over this interface function. The term “MCS”, as now used throughout this document, refers to either the MCS or the AMCS, whichever MCS facility actively controls the GPS constellation.

IS :

The MCS, located at Schriever Air Force Base (SAFB), is the central control point for the GPS CS. For this interface, the MCS is responsible for generating the Information Products in Table 3-I and providing these to the ~~FAA and~~USCG NAVCEN for redistribution to the public. The AMCS, located at Vandenberg AFB (VAFB), is functionally identical to the MCS; either MCS facility is capable of controlling the GPS constellation for an indefinite period. In case the MCS experiences downtime, the AMCS takes over this interface function. The term “MCS”, as now

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used throughout this document, refers to either the MCS or the AMCS, whichever MCS facility actively controls the GPS constellation.

ICD870-684 :

WAS :

As depicted in Figure 3-5, all GPS Products available in the Portal shall comply with the following DISR standards:

- W3C, Extensible Markup Language (XML)
 - DoD Discovery Metadata Specification (DDMS)
 - W3C XML Signature Syntax and Processing Standard
- CS Effectivity: 10

IS :

As depicted in Figure 3-5, all GPS ~~Products available in the~~ Information Portal ~~Products shall will~~ comply with the following ~~DISR~~ standards:

- W3C, Extensible Markup Language (XML)
 - ~~• DoD Discovery Metadata Specification (DDMS)~~
 - W3C XML Signature Syntax and Processing Standard
- CS Effectivity: ~~10~~ N/A

ICD870-685 :

WAS :

The transformation products which can be used to convert Information Products into the various ASCII formats have a body which shall complies with the following additional DISR standard:

- W3C, XSL Transformations (XSLT)
- CS Effectivity: 10

IS :

The ~~transformation stylesheet products~~ transformations within the IEPD, as depicted in Figure 3-3 and which can be used to convert Information Products into the various ~~ASCII~~ legacy formats ~~have a body which, shall will complies~~ comply with the following additional ~~DISR~~ standard:

W3C, XSL Transformations (XSLT)
CS Effectivity: ~~10~~N/A

ICD870-686 :

WAS :

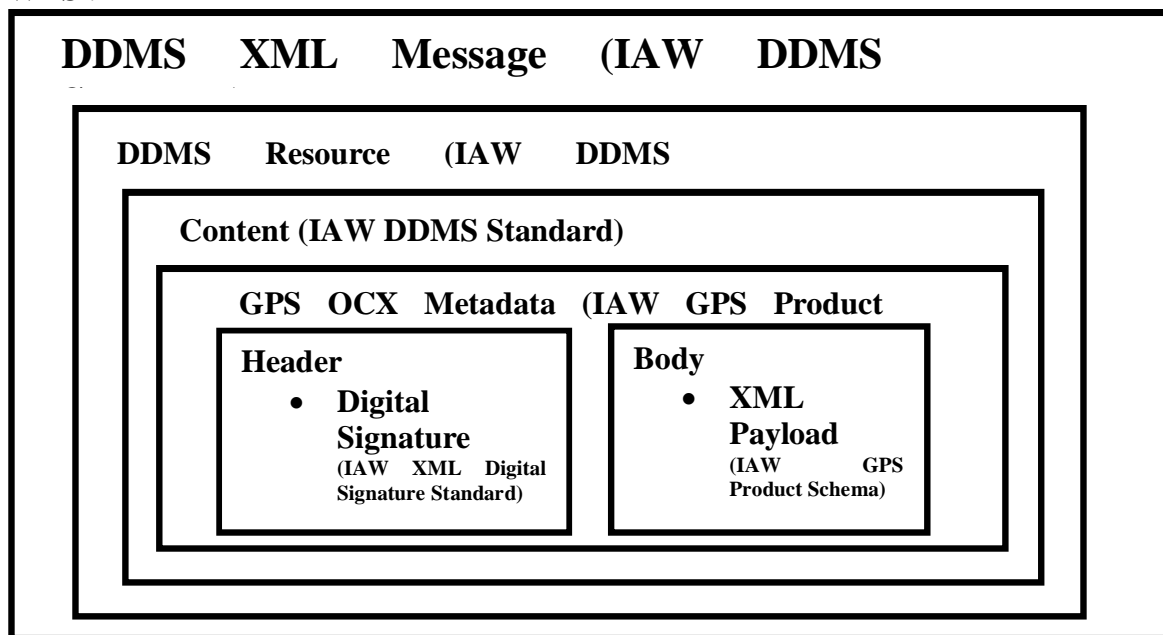
These XSLT Transformation products are another kind of GPS Product in which the “XML Payload” is an XSLT-compliant document.

IS :

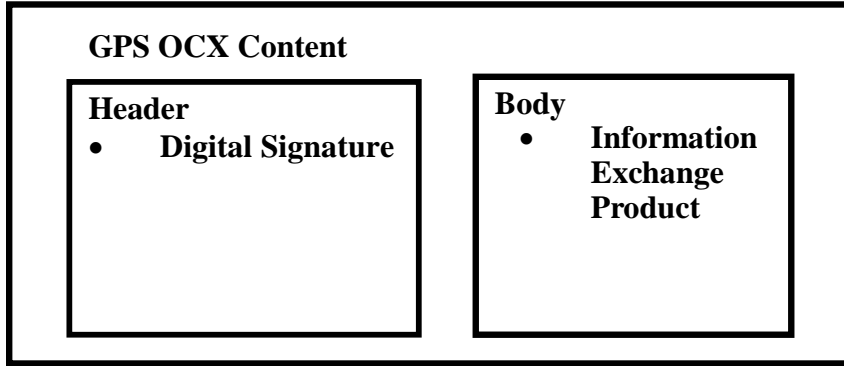
~~These XSLT Transformation~~ The products XML are schema another within kind the of IEPD, GPS as Product depicted in which Figure the 3-3, “XML will Payload” comply is with an W3C XSLT-compliant XML document Schema Standards.

ICD870-688 :

WAS :



IS :



ICD870-46 :

WAS :
Generation of Almanac Data

IS :
Generation of [Public Common](#) Almanac [DataProduct](#)

ICD870-47 :

WAS :
The GPS CS generates the Common Almanac Information Product for the GPS constellation. The satellite Common Almanac contains orbital and performance parameters for operational GPS satellites, the health status of each of the modernized civil signals available for each SV - L1C, L2C and L5, as well as A-S status Information. As shown in Table 3-III , two ASCII System Effectiveness Model (SEM) format Almanacs plus two ASCII YUMA format Almanacs and one ASCII Extended Signals Health Status (ESHS) format Almanac can be produced using the Common Almanac Information Product and provided transformation products. Detailed ASCII data formats of the SEM (current.al3 and current.bl3) and YUMA Almanac (current.alm and current.blm) data are described in Appendix 3 of this ICD. Detailed ASCII data formats of the ESHS Almanac data (current.ale) are described in Appendix 4 of this ICD.
CS Effectivity: 10

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IS :

The GPS CS generates the Public Common Almanac Information Product for the GPS constellation. The satellite Common Almanac contains orbital and performance parameters for operational GPS satellites, the health status of each of the modernized civil signals available for each SV - L1C, L2C and L5, as well as A-S status Information. As shown in Table 3-III-, two ASCII System Effectiveness Model (SEM) format Almanacs plus two ASCII YUMA format Almanacs and one ASCII Extended Signals Health Status (ESHS) format Almanac can be produced using the Common Almanac Information Product ~~and~~along with provided ~~transformation~~XSLT productsstylesheet. Detailed ASCII data formats of the SEM (current.al3 and current.bl3) and YUMA Almanac (current.alm and current.blm) data are described in Appendix 3 of this ICD. Detailed ASCII data formats of the ESHS Almanac data (current.ale) are described in Appendix 4 of this ICD.

CS Effectivity:~~10~~N/A

ICD870-48 :

WAS :

Generation of Operational Advisory Data

IS :

Generation of ~~Operational~~Ops ~~Advisory~~Status ~~Data~~Product

ICD870-49 :

WAS :

The GPS CS shall publish the Operational Advisory Information Product for the GPS constellation.

CS Effectivity: 10

IS :

The GPS CS ~~shall~~will ~~publish~~generate the ~~Operational~~Ops ~~Advisory~~Status Information Product for the GPS constellation.

CS Effectivity:~~10~~N/A

ICD870-692 :

WAS :

The OA data are descriptive summaries of GPS constellation status. As shown in Table 3-III, ASCII O-A formats can be produced using the O-A Information Product and the provided transformation product. Detailed ASCII data formats of the OA data file (current.oa1) are described in Appendix 2 of this ICD.

IS :

The ~~OA~~Ops ~~data~~Status ~~are~~information product is a descriptive ~~summaries~~summary of GPS constellation status. As shown in Table 3-III, ASCII O-A- formats can be produced using- the ~~O-~~~~A~~Ops Status Information Product and the provided ~~transformation~~XSLT ~~product~~stylesheet. Detailed ASCII data formats of the OA data file (current.oa1) are described in Appendix 2 of this ICD.

ICD870-50 :

WAS :

Generation of NANU Data

IS :

Generation of ~~NANU~~GPS ~~Data~~Advisory Product

ICD870-51 :

WAS :

The GPS CS shall publish the NANU Information Product for the GPS constellation.
CS Effectivity: 10

IS :

The GPS CS ~~shall~~will ~~publish~~generate the ~~NANU~~GPS ~~Advisory~~ Information Product for the GPS constellation.
CS Effectivity: ~~10~~N/A

ICD870-693 :

WAS :

The NANU Information Product are messages that inform Users of satellite outages and other GPS issues. As shown in Table 3-III, the ASCII formats can be produced using the NANU Information Product and the provided Transformation Product. Detailed ASCII data formats of the NANU (current.nnu) data are described in Appendix 1 of this ICD.

IS :

The [NANUGPS Advisory](#) Information Product ~~are~~~~is~~ ~~messages~~ ~~a~~ ~~message~~ that ~~inform~~~~informs~~ Users of satellite outages and other GPS issues. As shown in Table 3-III, the ASCII formats can be produced using the [NANUGPS Advisory](#) Information Product and the provided ~~Transformation~~[XSLT Product](#)~~stylesheet~~. Detailed ASCII data formats of the NANU (current.nnu) data are described in Appendix 1 of this ICD.

ICD870-52 :

WAS :

Generation of Anti-Spoofing (A-S) Status

IS :

~~Generation of~~[Legacy](#) Anti-Spoofing (A-S) Status

ICD870-53 :

WAS :

The GPS CS shall publish the Anti-Spoofing Status information for the GPS constellation as part of the Common Almanac Information Product.
CS Effectivity: 10

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IS :

The ~~GPS~~ CS ~~shall will publish~~ generate newly created Public Common Almanac Information Product from which, as shown in Table 3-III, the Anti-Spoofing Status ~~information will for~~ be produced using the ~~GPS XSLT constellation stylesheet, as part~~ The detailed ASCII data formats of the ~~Common A-S Almanac Status Information files Product~~ (as.txt and as2.txt) are described in Appendix 5 of this ICD.

CS Effectivity: ~~10~~ N/A

ICD870-694 :

WAS :

The A-S Status informs Users whether the Anti-Spoofing mode of each GPS SV is ON or OFF. As shown in Table 3-III, the ASCII format of the A-S status can be produced using the Common Almanac Information Product and the provided Transformation Product. Detailed ASCII data format of the A-S Status files (as.txt and as2.txt) are described in Appendix 5 of this ICD.

CS Effectivity: N/A

SS Effectivity: N/A

IS :

<DELETED OBJECT>

ICD870-55 :

WAS :

Distribution of the GPS Products to the public is accomplished via the USCG NIS.

CS Effectivity: 10

IS :

~~Distribution~~ The of USCG ~~the~~ provides GPS a Products Portal ~~to~~ accessible from the public ~~is~~ Internet accomplished to ~~via~~ allow the users, USCG with NIS a standard web browser, to discover and retrieve publicly releasable GPS products.

CS Effectivity: ~~10~~ N/A

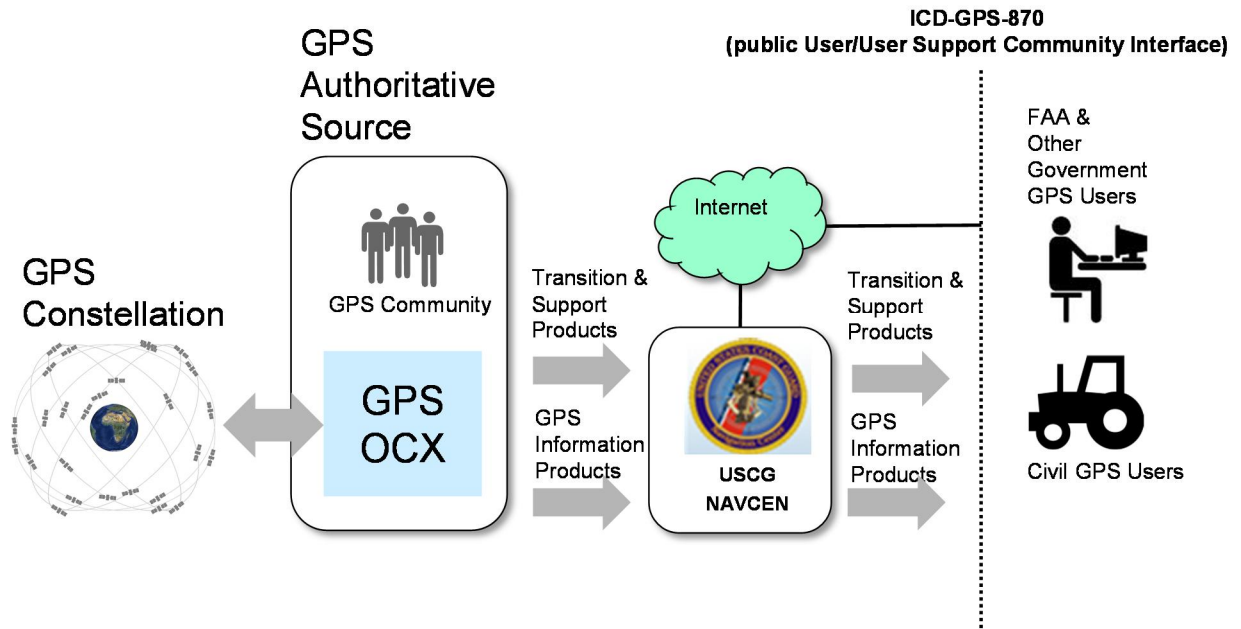
ICD870-724 :

Insertion below object ICD870-55

WAS :

N/A

IS :



ICD870-718 :

Insertion after object ICD870-55

WAS :

N/A

IS :

[Figure new01 GPS Public Product Distribution Overview](#)

ICD870-719 :

Insertion after object ICD870-718

WAS :

N/A

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IS :

As shown in Figure new01, the NAVCEN Information System (NIS) is the distribution point for authoritative GPS Products disseminated to the public. The NAVCEN receives these products from the GPS Control Segment (OCX) and the GPS community (led by the Air Force GPS Program Office). The GPS products consist of regularly published operational GPS information products (see Table 3-I) as well as Transition and Support Products (see Table 3-III).

ICD870-58 :

WAS :

NANU Information Products are provided whenever they are generated including weekends and holidays. The OA and Common Almanac Information Products are normally provided once per day, 24/7, 365 days a year, prior to 1700 Zulu time (10 am MST, 11 am MDT).

CS Effectivity: 10

IS :

~~NANU~~GPS Advisory Information Products are provided whenever they are generated including weekends and holidays. ~~The~~Ops ~~OA~~Status and Common Almanac Information Products are normally provided once per day, 24/7, 365 days a year, prior to 1700 Zulu time (10 am MST, 11 am MDT).

CS Effectivity:~~10~~N/A

ICD870-698 :

WAS :

As the Authoritative Source for GPS Products described in this ICD, the CS publishes only digitally signed GPS Products to improve information assurance for GPS data at rest (i.e., resident on a storage device) within the GPS user community. Without digital signatures to ensure the integrity and proof of origin of the GPS Products at rest, Information Products originally from the CS could be corrupted (intentionally or unintentionally) during redistribution to the end user. The potential consequence of corrupted GPS Information products varies between end users. Some end users have Information Assurance critical applications (e.g. public utilities, safety of life systems) in which the potential consequence are significant and therefore unacceptable to the end user. Therefore;

- a) The CS will only distribute GPS Products (see section 3.1.1) which are digitally signed XML documents per the published XML schema for compliance with modern Net Centric and Information Assurance standards for non-repudiation.

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- b) The CS publishes Transformation Products and also provides a downloadable Validate and Transform Utility to assist users with first validating then transforming Information Products into backward compatible ASCII formats.
- c) In order to maximize the benefit of information assurance, the CS recommends that End Users perform the transformation step as late as possible (just prior to ingesting).
- d) Validating the data integrity of GPS products is optional and is the responsibility of the user. End users must apply their knowledge of the criticality of their application in making the determination of whether they can accept the risks of ignoring CS provided digital signatures.
- e) Any US government user interested in redistributing GPS Products or products derived from GPS Products are advised to consult with the GPS CS before doing so to understand the tradeoffs and verify duplicative efforts are not being planned by the GPS CS.

IS :

As the Authoritative Source for GPS [Information](#) Products described in this ICD, the CS publishes only digitally signed GPS Products to improve information assurance for GPS data at rest (i.e., resident on a storage device) within the GPS user community. Without digital signatures to ensure the integrity and proof of origin of the GPS Products at rest, Information Products originally from the CS could be corrupted (intentionally or unintentionally) during redistribution to the end user. The potential consequence of corrupted GPS Information products varies between end users. Some end users have Information Assurance critical applications (e.g. public utilities, safety of life systems) in which the potential consequence are significant and therefore unacceptable to the end user. Therefore;

- a) The CS will only distribute GPS Products (see section 3.1.1) which are digitally signed XML documents per the published XML schema for compliance with modern Net Centric and Information Assurance standards for non-repudiation.
- b) The [CSGPS publishesCommunity Transformation provides ProductsIEPDs andwhich alsoinclude providesXSLT astylesheets downloadablewith their associated detached XML digital signatures that can be used in conjunction with the](#) Validate and Transform Utility to assist users with first validating then transforming [GPS](#) Information Products into backward compatible ASCII formats.
- c) In order to maximize the benefit of information assurance, the CS recommends that End Users perform the transformation step as late as possible (just prior to ingesting).
- d) Validating the data integrity of GPS products is optional and is the responsibility of the user. End users must apply their knowledge of the criticality of their application in making the determination of whether they can accept the risks of ignoring CS provided digital signatures.
- e) Any US government user interested in redistributing GPS Products or products derived from GPS Products are advised to consult with the GPS [CSCommunity](#) before doing so to understand the tradeoffs and verify duplicative efforts are not being planned by the GPS [CSCommunity](#).

ICD870-65 :

WAS :

Those consumers not interested in verifying the data integrity of Information Products can simply use the messages. The requirement is upon the GPS CS to provide data integrity and it is OPTIONAL for the consumer to take the steps needed to verify the integrity of the data. The following paragraphs describe what the GPS CS is required to do and optionally what the consumer would need to do to verify that a message is genuine and originates from the GPS CS.

IS :

Those consumers not interested in verifying the data integrity of [GPS](#) Information Products can simply use the messages. The requirement is upon the GPS CS to provide data integrity and it is OPTIONAL for the consumer to take the steps needed to verify the integrity of the data. The following paragraphs describe what the GPS CS is required to do and optionally what the consumer would need to do to verify that a message is genuine and originates from the GPS CS.

ICD870-66 :

WAS :

The GPS CS shall use DoD Public Key Infrastructure (PKI) to digitally sign all GPS Products as described in section 3.3.1 and as per Department of Defense Public Key Infrastructure Functional Interface Specification 3.0.

CS Effectivity: 10

IS :

The GPS CS ~~shall~~[will](#) use DoD Public Key Infrastructure (PKI) to digitally sign all GPS Products as ~~described~~[listed](#) in ~~section~~[Tables 3-I and 3-III](#) and as per Department of Defense Public Key Infrastructure Functional Interface Specification 3.0.

CS Effectivity:~~10~~[N/A](#)

ICD870-699 :

WAS :

Digital signatures shall use the Rivest-Shamir-Adleman (RSA) public key algorithm with 2048 bit keys and Secure Hash Algorithm-256 (SHA-256) for signatures.

CS Effectivity: 10

IS :

Digital signatures ~~shall~~will use the Rivest-Shamir-Adleman (RSA) public key algorithm with 2048 bit keys and Secure Hash Algorithm-256 (SHA-256) for signatures.

CS Effectivity: ~~10~~N/A

ICD870-700 :

WAS :

As depicted in Figure 3-5, the header elements of the GPS Product Meta Data will contain the XML digital signature for the **entire** GPS Product (excluding the signature itself). This method of digital signing is referred to as an enveloped signature as defined in the W3C Signature Syntax Processing.

IS :

As depicted in Figure 3-5, the header elements of the GPS Product ~~MetaOCX~~ DataContent will contain the XML digital signature for the entire GPS Information Product (excluding the signature itself). This method of digital signing is referred to as an enveloped signature as defined in the W3C Signature Syntax Processing.

ICD870-701 :

WAS :

As shown in Figure 3-2, the steps for a user to verify the data integrity where the user has an application which directly processes ASCII text file formats:

1. Download the desired Information Product and Transform Product (see Table 3-III). Note: Because the XML schema for an Information Product will change very infrequently, a Transformation Product can be downloaded once for a new schema revision and then reused repeatedly without downloading again.
 2. Just prior to use, validate the Digital Signature of Information Product and the Transform Product using a W3C XML Digital Signature Compliant standard COTS/Library (e.g., JDK 1.6/1.7) and the currently published CS public certificate.
-

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3. If the signatures do not validate in Step 2, then either the Information Product or the Transformation Product is not authentic (not produced by the CS) or has been corrupted. Do not use. The user should return to step 1.

4. If the signatures validate in both Step 2 and Step 3, then extract XSLT from the Product Meta Data Body Element (see Figure 3-3) and apply the XSLT using standard COTS/Library to produce the desired ASCII file format.

Note: A user with a non-critical application who intends to bypass verifying data integrity only needs to perform Step 1 and then Step 4.

Note: The provided Validate and Transform Utility (see figure 3-4) can be used to perform steps 2, 3 and 4. The user is required to download/install the CS public key on their system prior to using the Validate and Download Utility.

IS :

As shown in Figure 3-2, the steps for a user to verify the data integrity where the user has an application which directly processes ASCII text file formats:

1. Download the desired Information Product and ~~Transform~~associated Product~~IEPD~~ (see Table 3-III) from USCG NIS web site or an alternate redistribution site. Note: Because the ~~XML schema~~IEPD for an Information Product will change very infrequently, ~~a Transformation~~this Product~~step~~ cannot be ~~downloaded~~performed once for a new ~~schema~~IEPD revision and then reused repeatedly without downloading again.

2. Just prior to use, validate the Digital Signature of the Information Product and the ~~Transform~~XSLT Product~~stylesheet~~ signature file using a W3C XML Digital Signature Compliant standard COTS/Library ~~(e.g., JDK 1.6/1.7)~~ and the currently published CS public certificate.

3. If the signatures do not validate in Step 2, then either the Information Product or the ~~Transformation~~XSLT Product~~stylesheet~~ is not authentic (not produced by the CS) or has been corrupted. Do not use. The user should return to step 1.

4. If the signatures validate in both Step 2 and Step 3, then ~~extract XSLT from the Product Meta Data Body Element (see Figure 3-3) and~~ apply the XSLT stylesheet using standard COTS/Library to produce the desired ASCII file format. -

Note: A user with a non-critical application who intends to bypass verifying data integrity only needs to perform Step 1 and then Step 4.

Note: The provided Validate and Transform Utility (see figure 3-4) can be used to perform steps 2, 3 and 4. The user is required to download/install the CS public key on their system prior to using the Validate and Download Utility.

ICD870-702 :

WAS :

As shown in Figure 3-2, the steps for a user to verify the data integrity where the user has a modern application which directly processing CS native XML formats;

1. Download the desired Information Product (see Table 3-III)
2. Just prior to use, Validate the Digital Signature of Information Product using a W3C XML Digital Signature Compliant standard COTS/Library (e.g. JDK 1.6/1.7) and the currently published CS public certificate.
3. If the signature does not validate in Step 2, then the Information product is either not authentic (not produced by the CS) or the information content has been corrupted. Do not use. The user should return to step 1.
4. If the signature validates in Step 2, then the GPS Product is authentic and the content has not been corrupted.

Note: A user with a modern non-critical application who intends to bypass verifying data integrity only needs to perform Step 1

Note: The provided Validate and Transform Utility (see figure 3-4) can be used to perform step 2. The user is required to download/install the CS public key on their system prior to using the Validate and Download Utility.

IS :

As shown in Figure 3-2, the steps for a user to verify the data integrity where the user has a modern application which directly processing CS native XML formats;

1. Download the desired Information Product (see Table 3-~~III~~) [from the USCG NIS web site](#)
2. Just prior to use, Validate the Digital Signature of Information Product using a W3C XML Digital Signature Compliant standard COTS/Library (~~e.g. JDK 1.6/1.7~~) and the currently published CS public certificate.

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3. If the signature does not validate in Step 2, then the Information product is either not authentic (not produced by the CS) or the information content has been corrupted. Do not use. The user should return to step 1.

4. If the signature validates in Step 2, then the GPS [Information](#) Product is authentic and the content has not been corrupted.

Note: A user with a modern non-critical application who intends to bypass verifying data integrity only needs to perform Step 1

Note: The provided Validate and Transform Utility (see figure 3-4) can be used to perform step 2. The user is required to download/install the CS public key on their system prior to using the Validate and Download Utility.

ICD870-67 :

WAS :

The GPS CS shall support modular addition or replacement of DoD PKI algorithms, key lengths, certificate authorities, certificates, and certificate structure with little or no code changes. Coordination in a public ICWG shall occur prior to any changes on the Public Release interface.
CS Effectivity: 10

IS :

The GPS CS ~~shall~~[will](#) support modular addition or replacement of DoD PKI algorithms, key lengths, certificate authorities, certificates, and certificate structure ~~with little or no code changes~~. Coordination in a public ICWG ~~shall~~[will](#) occur prior to any changes on the Public Release interface.

CS Effectivity:~~10~~[N/A](#)

ICD870-68 :

WAS :

CS Effectivity: 10

IS :

CS Effectivity: ~~10~~[N/A](#)

ICD870-704 :

WAS :

To encourage GPS users to validate data integrity and at the same time ensure backward compatibility to ASCII text files, the CS shall provide a downloadable transition support utility application referred to herein as “*Validate and Transform Utility*”.

CS Effectivity: 10

IS :

~~To encourage GPS users to validate data integrity and at the same time ensure backward compatibility~~[The to USCG ASCH Portal text will files, make the CS shall provide standalone a offline downloadable Validate transition and support Transform utility application referred to herein as available “Validate on and the Transform public Utility” Internet.](#)–

CS Effectivity: ~~10~~[N/A](#)

ICD870-705 :

WAS :

This utility will present the user with a simple User Interface to validate the integrity of any downloaded GPS Product and to optionally apply the transform contained within a downloaded Transformation Product.

IS :

This utility will present the user with a simple User Interface to validate the integrity of any ~~downloaded~~ [GPS Information](#) Product and ~~or to XSLT optionally stylesheet apply included in the transform IEPDs contained as within well aas downloaded Transformation to Product optionally apply the appropriate XSLT stylesheet transform.~~

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ICD870-715 :

WAS :

The provided Utility will be an executable application installable on supported versions of Windows and Linux platforms, at a minimum Windows 7 and Redhat 5.8.

IS :

The ~~provided~~ [CS Utility Validate](#) ~~will and be~~ [Transform an Utility executable](#) ~~will application~~ [be](#) installable on supported versions of Windows and Linux platforms, ~~at a minimum Windows 7 and Redhat 5.8.~~

ICD870-716 :

WAS :

User platform requirements for running the utility will be described on the NIS. The Utility will be digitally signed and users should validate the Authenticity of the certificate during installation.

IS :

User platform requirements for running the ~~utility~~ [Validate and Transform Utility](#) will be described on the [USCG NIS website](#). The Utility will be digitally signed and users should validate the Authenticity of the certificate during installation.

ICD870-70 :

WAS :

All of the GPS Products shall be digitally signed.
CS Effectivity: 10

IS :

All of the GPS [Information](#) Products ~~shall~~ [will](#) be digitally signed.
CS Effectivity: ~~10~~ [N/A](#)

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ICD870-720 :

Insertion after object ICD870-70

WAS :

N/A

IS :

All XSLT stylesheets will be signed using detached XML digital signatures with the signature stored on separate files as shown in figure 3-3.

ICD870-706 :

WAS :

The CS digital signature shall be persistent and embedded within GPS Product itself (i.e., not tied to a transport protocol or session) to provide integrity for data at rest.

CS Effectivity: 10

IS :

The CS ~~digital will~~ signature ~~publish shall only be~~ digitally persistent ~~signed and~~ GPS embedded ~~Information within~~ Products to improve information assurance for GPS Product data ~~itself at rest (i.e., not tied~~ resident to ~~on a transport storage protocol device) or~~ within session) ~~the~~ to GPS provide user integrity ~~community for~~ as data listed at ~~in rest.~~ table 3-I.

CS Effectivity: ~~10~~ N/A

ICD870-707 :

WAS :

A message shall always have its corresponding signature available to the consumer to verify the message independent of the delivery protocol.

CS Effectivity: 10

IS :

A message ~~shall~~ will always have its corresponding signature available to the consumer to verify the message independent of the delivery protocol.

CS Effectivity: ~~10~~ N/A

ICD870-88 :

WAS :

NANUs are used to notify Users of scheduled and unscheduled satellite outages and general GPS information. The paragraphs that follow describe the different types of NANUs. The NANU descriptions are arranged into four groups, as follows:

- Scheduled outages
- Unscheduled outages
- General text message
- Others

IS :

NANUs are used to notify Users of scheduled and unscheduled satellite outages and general GPS information. [An outage is defined to be a period of time that the satellite is removed from service and not available for use. This occurs when the satellite meets the conditions for "unhealthy" provided in Section 2.3.2 of the Standard Positioning Service Performance guide.](#) The paragraphs that follow describe the different types of NANUs. The NANU descriptions are arranged into four groups, as follows:

- Scheduled outages
- Unscheduled outages
- General text message
- Others

ICD870-92 :

WAS :

NANU ACRONYM	NAME	DESCRIPTION
FCSTDV	Forecast Delta-V	Scheduled outage times for Delta-V maneuvers.
FCSTMX	Forecast Maintenance	Scheduled outage times for non-Delta-V maintenance.
FCSTEXTD	Forecast	Extends the scheduled outage time "Until Further

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NANU ACRONYM	NAME	DESCRIPTION
	Extension	Notice”; references the original forecast NANU.
FCSTSUMM	Forecast Summary	Exact outage times for the scheduled outage. This is sent after the maintenance is complete and the satellite is set healthy. It references the original forecast NANU. If a FCSTEXTD or a FCSTRESCD were required the FCSTSUMM will reference these.
FCSTCANC	Forecast Cancellation	Cancels a scheduled outage when a new maintenance time is not yet determined; it references the original forecast NANU message.
FCSTRESCD	Forecast rescheduled	Reschedules a scheduled outage referencing the original-FCST NANU message.
FCSTUUFN	Forecast Unusable Until Further Notice	Scheduled outage of indefinite duration not necessarily related to Delta-V or maintenance activities.

IS :

NANU ACRONYM	NAME	DESCRIPTION
FCSTDV	Forecast Delta-V	Scheduled outage times for Delta-V maneuvers.
FCSTMX	Forecast Maintenance	Scheduled outage times for non-Delta-V maintenance.
FCSTEXTD	Forecast Extension	Extends the scheduled outage time “Until Further Notice”; references the original forecast NANU.
FCSTSUMM	Forecast Summary	Exact outage times for the scheduled outage. This is sent after the maintenance is complete and the satellite is set healthy. It references the original forecast NANU. If a FCSTEXTD or a FCSTRESCD were required the FCSTSUMM will reference these.
FCSTCANC	Forecast Cancellation	Cancels a scheduled outage when a new maintenance time is not yet determined; it references the original forecast NANU message. May be issued after the start time of the referenced NANU.
FCSTRESCD	Forecast rescheduled	Reschedules a scheduled outage referencing the original-FCST NANU message.
FCSTUUFN	Forecast Unusable Until Further Notice	Scheduled outage of indefinite duration not necessarily related to Delta-V or maintenance activities.

ICD870-141 :

WAS :

NANU Group	Nominal Notification Times	Objective
Scheduled	48 hrs prior to outage start	96 hrs prior to outage start
Unscheduled	Less than 1 hr after outage start	15 minutes after outage start
General	No Nominal – Timing determined on a case-by-case basis	
Other	No Nominal – Timing determined on a case-by-case basis	

IS :

NANU Group	Nominal Notification Times	Objective
Scheduled	48 hrs prior to outage start	96 hrs prior to outage start
Unscheduled	Less than 1 hr after outage start	
General	No Nominal – Timing determined on a case-by-case basis	
Other	No Nominal – Timing determined on a case-by-case basis	

Verification Cross Reference Matrix:

Only those objects that are being added, modified or deleted in this IRN/SCN will be shown in the "Was" and "Is" fields in the VCRM.

WAS:

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DOORS ID	Object Number	CS Effectivity	SS Effectivity	Highest Verification Level	Segment	System Verification Method
ICD870-671	3.1.0-21	10	N/A	Segment	CS	Demonstration
ICD870-672	3.1.0-22	10	N/A	Segment	CS	Demonstration
ICD870-673	3.1.0-23	10	N/A	Segment	CS	Test
ICD870-674	3.1.0-24	10	N/A	Segment	CS	Test
ICD870-675	3.1.0-25	10	N/A	Segment	CS	Demonstration
ICD870-676	3.1.0-26	10	N/A	Segment	CS	Demonstration
ICD870-681	3.1.0-33	10	N/A	Segment	CS	Demonstration
ICD870-684	3.1.1.0-4	10	N/A	Segment	CS	Demonstration
ICD870-685	3.1.1.0-5	10	N/A	Segment	CS	Demonstration
ICD870-49	3.2.2.0-1	10	N/A	Segment	CS	Demonstration
ICD870-51	3.2.3.0-1	10	N/A	Segment	CS	Demonstration
ICD870-53	3.2.4.0-1	10	N/A	Segment	CS	Demonstration
ICD870-66	3.3.0-3	10	N/A	Segment	CS	Demonstration
ICD870-699	3.3.0-4	10	N/A	Segment	CS	Demonstration
ICD870-67	3.3.0-8	10	N/A	Segment	CS	N/A
ICD870-68	3.3.0-9	10	N/A	Segment	CS	Demonstration
ICD870-704	3.3.0-12	10	N/A	Segment	CS	Demonstration
ICD870-70	3.3.1.0-1	10	N/A	Segment	CS	Demonstration
ICD870-706	3.3.1.0-2	10	N/A	Segment	CS	Demonstration
ICD870-707	3.3.1.0-3	10	N/A	Segment	CS	Demonstration

IS:

DOORS ID	Object Number	CS Effectivity	SS Effectivity	Highest Verification Level	Segment	System Verification Method
ICD870-671	3.1.1-10 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-672	3.1.1-11 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-673	3.1.1-12 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-674	3.1.1-13 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-675	3.1.1-14 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-676	3.1.1-15 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-681	3.1.1-22 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A

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ICD870-684	3.1.2.0-4 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-685	3.1.2.0-5 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-49	3.2.2.0-1 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-51	3.2.3.0-1 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-53	3.2.4.0-1 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-66	3.3.0-3 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-699	3.3.0-4 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-67	3.3.0-8 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-68	3.3.0-9 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-704	3.3.0-12 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-70	3.3.1.0-1 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-706	3.3.1.1-1 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A
ICD870-707	3.3.1.1-2 <REMOVED FROM VCRM>	N/A	N/A	N/A		N/A