INTERFACE REVISION NOTICE (IRN)

Note: This Summary Signature Page is to be used after all signatories have signed separate Signature Pages.

Affected ICD: ICD-GPS-870 Rev B	IRN Number IRN-870B-001	Date: 25-OCT-2016
Authority: RFC-00308	PIRN Number PIRN-870B-001	Date: 20-JUN-2016

CLASSIFIED BY:
DECLASSIFY ON:

Document Title:
Navstar Next Generation GPS Control Segment (OCX) to User Support Community Interface

Reason For Change (Driver):
Other ICDs have 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.

Description of Change: Update the descriptions of the data public users can access on the US Coast Guard server in ICD-GPS-870. This will also address numerous formatting errors in the publicly released version of ICD-GPS-870. Add a definition of "outage" for NANU messages to ICD-GPS-240 and ICD-GPS-870.

Prepared By: **Checked By: George Farmer**

AUTHORIZED SIGNATURES	REPRESENTING	DATE
	GPS Directorate Space & Missile Systems Center (SMC) – LAAFB	
See Section XX OR See Next Page	Department of Homeland Security (DHS), United States Coast Guard (USCG), Navigation Center (NAVCEN)	
See Section XX OR See Next Page	Department of Transportation (DOT), Federal Aviation Administration (FAA)	
See Section XX OR See Next Page	Raytheon Company	
See Section XX OR See Next Page	AFSPC/ 50 OG	

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED.	Interface Control Contractor: TASC (GPS SE&I) An Engility Company 200 N. Sepulveda Blvd., Suite 1800 El Segundo, CA 90245
	CODE IDENT 66RP1

INTERFACE REVISION NOTICE (IRN)			
Note: Repeat this Signature Page for each document signatory.			
Affected ICD: ICD-GPS-870B	**IRN Number** IRN-870B-001		**Date:** 25-OCT-2016
Authority: RFC-00308	**PIRN Number** PIRN-870B-001		**Date:** 20-JUN-2016

CLASSIFIED BY:
DECLASSIFY ON:

Document Title:
Navstar Next Generation GPS Control Segment (OCX) to User Support Community Interface

Reason For Change (Driver):
Other ICDs have 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.

Description of Change: Update the descriptions of the data public users can access on the US Coast Guard server in ICD-GPS-870. This will also address numerous formatting errors in the publicly released version of ICD-GPS-870. Add a definition of "outage" for NANU messages to ICD-GPS-240 and ICD-GPS-870.

APPROVED:

With Comments: Yes ☐ No ☐

With Exceptions: Yes ☐ No ☐

_____   _____   _____
Name of Approving Organization   Authorized Signature   Date

THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED.	Interface Control Contractor: TASC (GPS SE&I) An Engility Company 200 N. Sepulveda Blvd., Suite 1800 El Segundo, CA 90245
	CODE IDENT 66RP1

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 withA thestandards CSbased requirementapproach to be in compliance with the DoD Information Technology Standards Registry (DISR), the CS selected standards fromGPS theProducts DISRis foremployed thein GPSorder productsto withminimize the intent to reduce impact to the user community during this transition. As a result, there isare 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.

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 :
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)

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

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
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)
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 :

<u>Standards</u>

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 :

<u>Standards</u>

November 1999	W3C, XSL Transformations (XSLT) Version 1.0
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 :

GPS Product End User Sequence
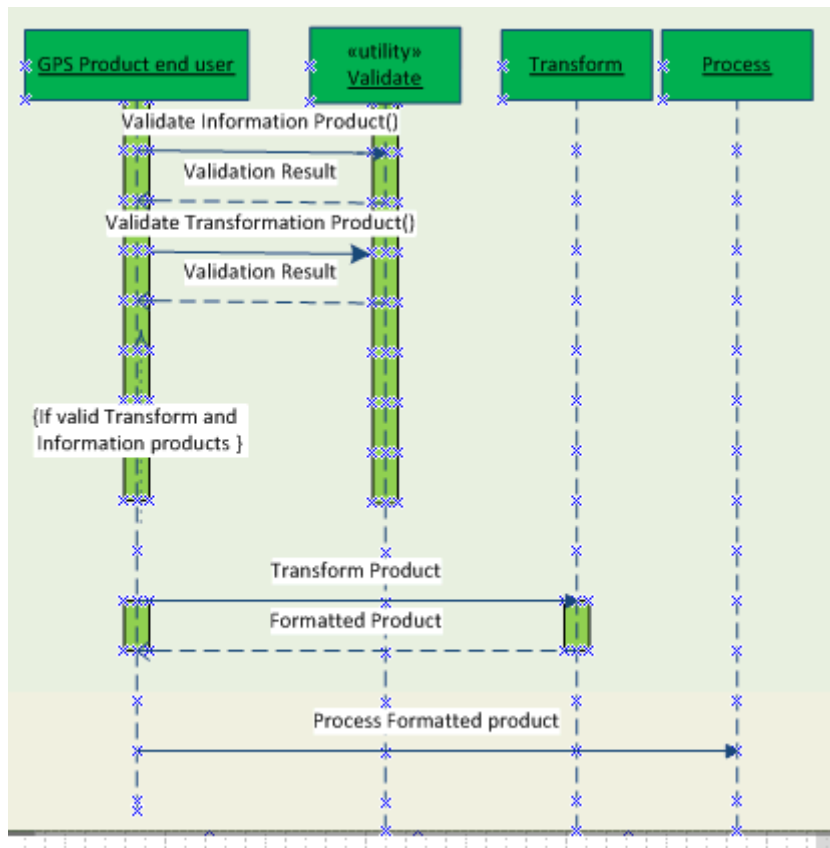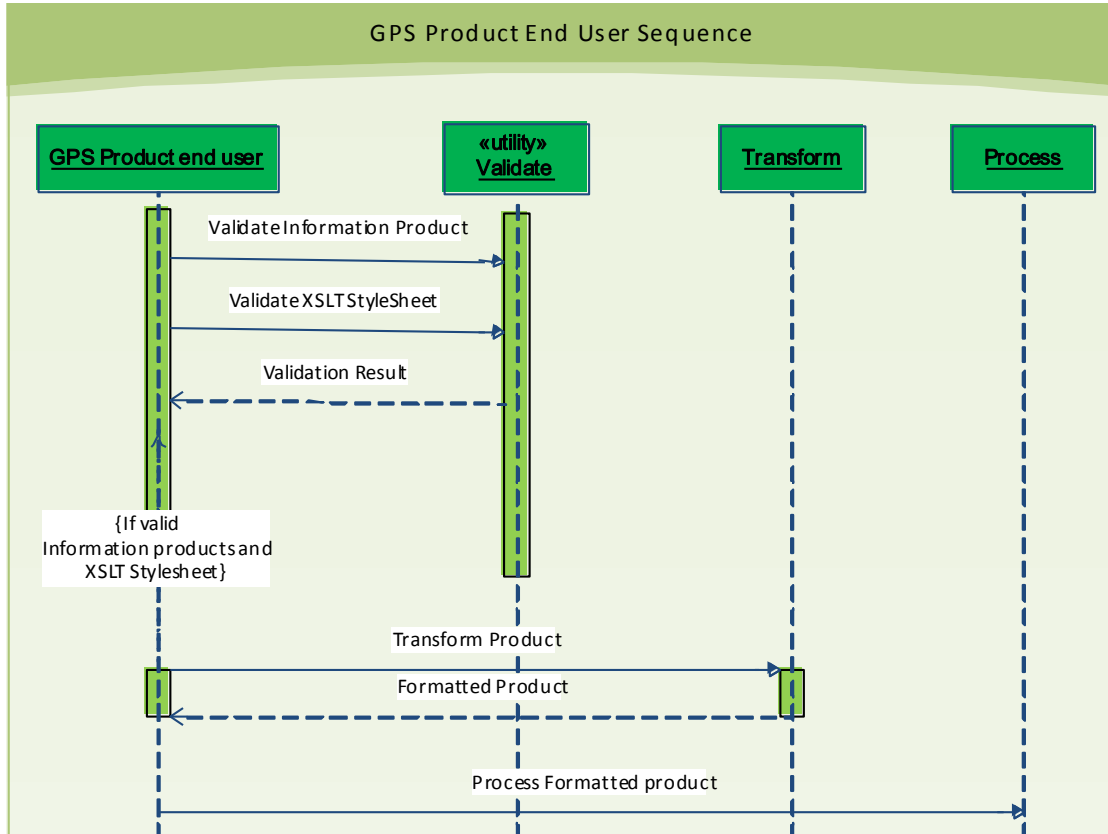
ICD870-662 :

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 :

```
┌──────────────────┐        ┌──────────────┐        ┌──────────────────┐
│ Product Meta Data│  1    1│  GPS Product │        │ Digital Signature│
├──────────────────┤────────◆──────────────◆────────├──────────────────┤
│                  │        │              │  1    1 │                  │
└──────────────────┘        └──────△─△─△───┘        └──────────────────┘
```

«instance»

```
┌──────────────────┐        ┌──────────────────┐  1        *  ┌──────────────────────┐
│ XML Schema Product│- - - ->│Information Product│─────────────│Transformation Product│
├──────────────────┤        ├──────────────────┤              ├──────────────────────┤
│                  │        │        △         │              │                      │
└──────────────────┘        └──────────────────┘              └──────────────────────┘
```

```
┌────────────┐  ┌──────────────┐  ┌────────────────────────┐
│ OA Product │  │ NANU Product │  │ Common Almanac Product │
├────────────┤  ├──────────────┤  ├────────────────────────┤
│            │  │              │  │                        │
└────────────┘  └──────────────┘  └────────────────────────┘
```
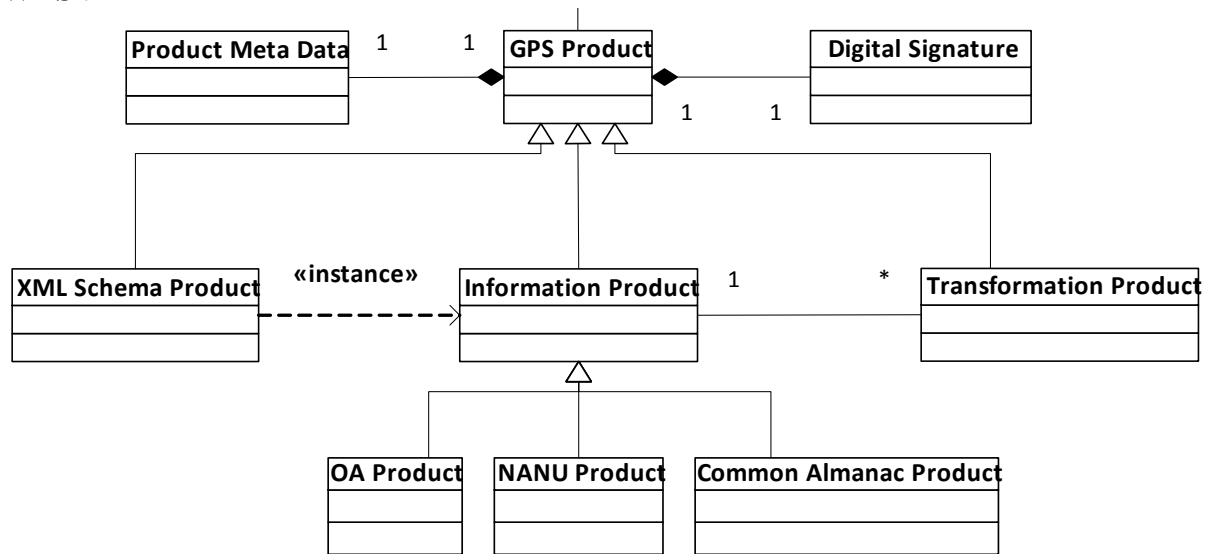
IS :

<hr />
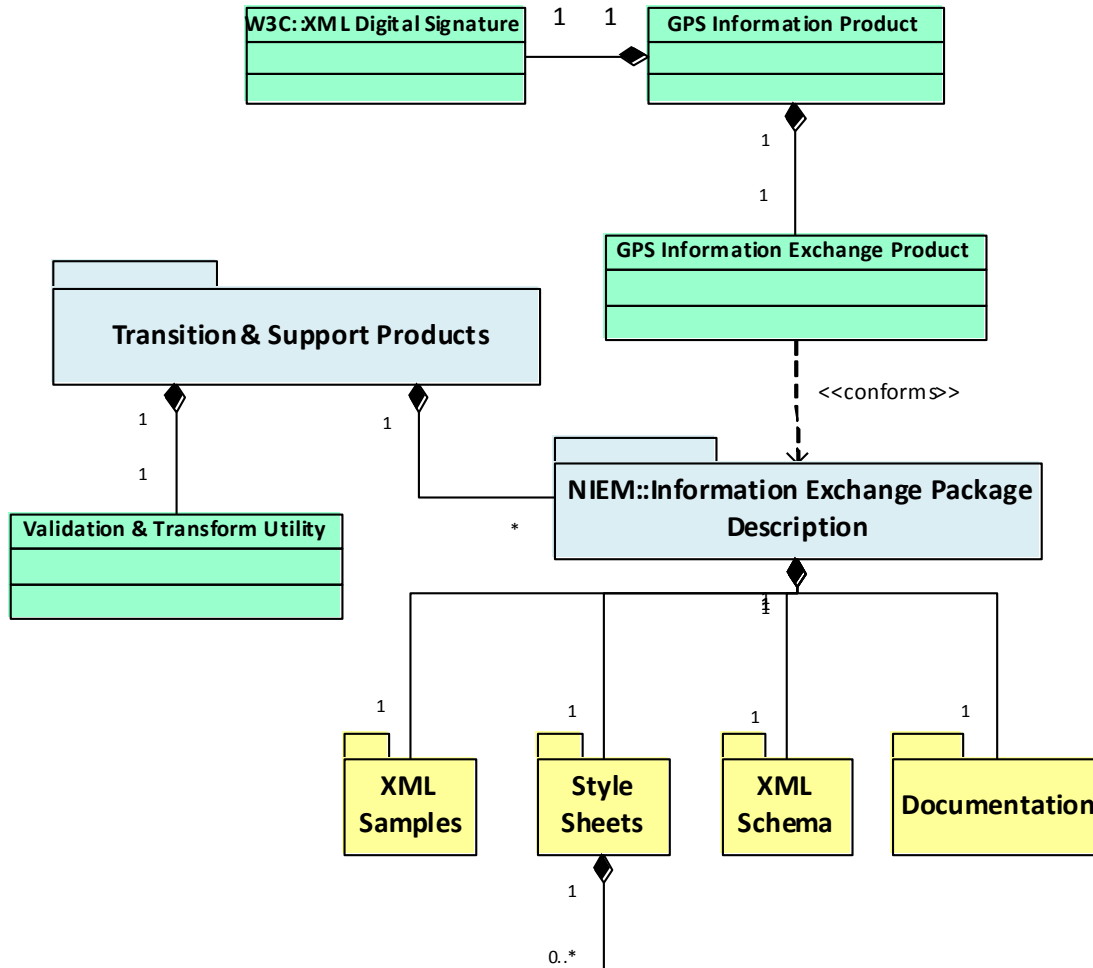
ICD870-665 :

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.

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 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-I. ~~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).

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~~6).

Information Product

<<uses>>   <<uses>>

Transformation Product

Validate & Transform Utility

«Service»
Validate

Results

Validation Error   Invalid Products

Valid Products

«Service»
Transform

<<uses>>   <<uses>>

<<Generate>>

ASCII Formatted File

AS Status   **SEM Almanac**   **Yuma Almanac**   **NANU**   **OA**   **ESHS File**

**AS Status
(Updated)**   **SEM Almanac
(Updated)**   **YUMA Almanac
(Updated)**
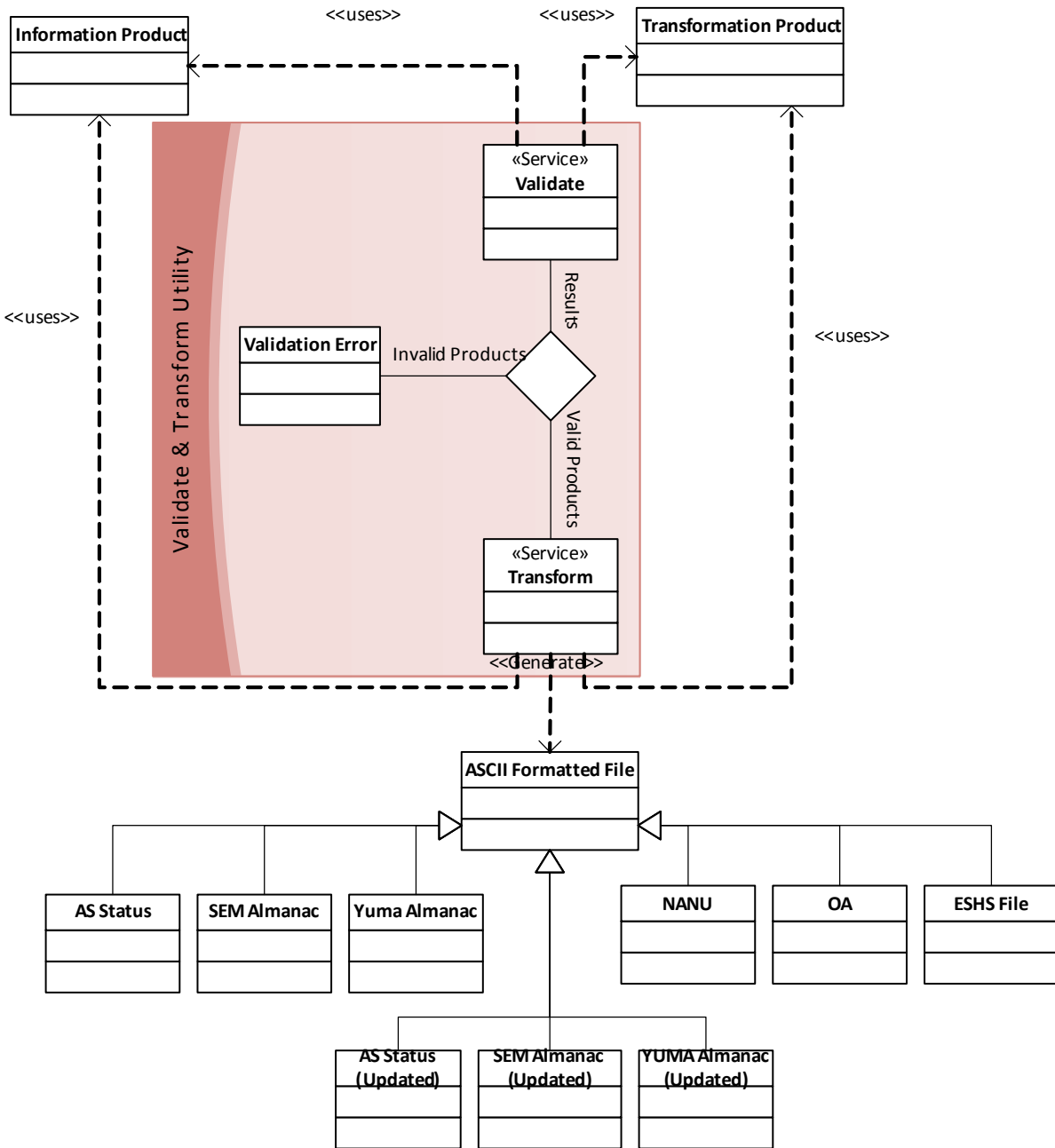
IS :
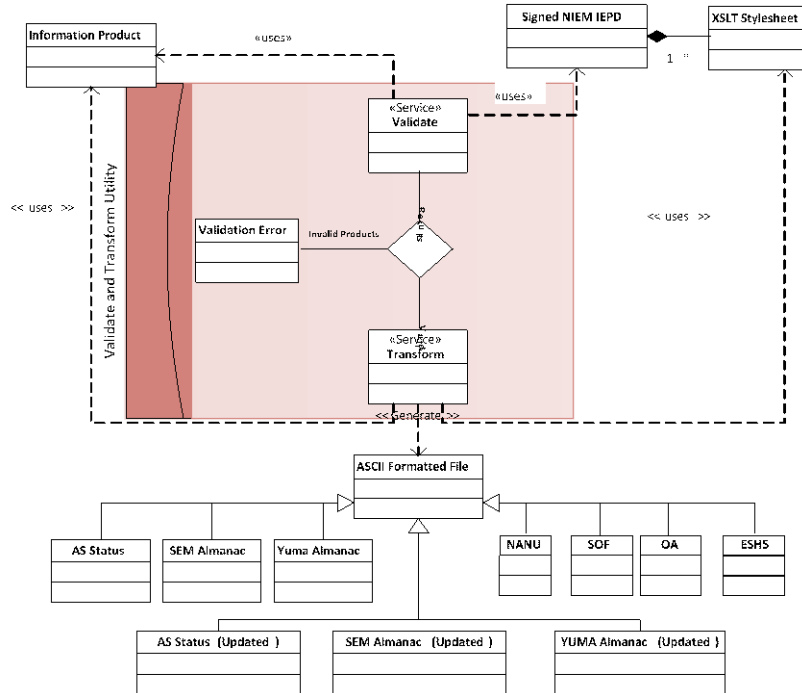
ICD870-671 :

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 ProductsAll shallGPS conformInformation toproducts thewill associatedcomply publishedwith XML schema Productschemas as shownlisted in Table 3-III.
CS Effectivity:10N/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-~~II~~III.
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 its associated NIEM IEPD.
CS Effectivity:~~10~~N/A

ICD870-674 :

WAS :
Given validated inputs, the Validate and Transform Utility shall produce the desired ASCII output 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 ~~ASCII~~ 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~~a ~~in~~major ~~Table~~revision ~~3-III,~~to the ~~names of XML~~schema ~~Schema~~becomes ~~Products~~operational, ~~and~~the ~~associated~~superseded ~~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 a~~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

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 operational events/needs.	Unclassified / Open / Public Releasable
CS	Modern Identification: GPS Advisory Collection Legacy Identification: Satellite Outage File (SOF)	The GPS Advisory Collection Exchange information product includes a collection of advisory notifications of all available historical, current and predicted satellite outage space events. See GPS Advisory IEPD for more details. Produced in response to the generation of a GPS Advisory (NANU) by the CS.	Unclassified / Open / Public Releasable
CS	Modern Identification: Ops Status Legacy Identification: Operational Advisory (OA)	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.	Unclassified / Open / Public Releasable
CS	Modern Identification: Public Common Almanac Legacy Identification: (1) GPS Almanacs (SEM,YUMA) (2) Anti-Spoof Status (3) ESHS	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.	Unclassified / Open / Public Releasable

ICD870-722 :
Insertion below object ICD870-36

WAS :
N/A

IS :
[Table 3-II not used](#)

ICD870-677 :

WAS :
Table 3-II Transition & Support Product Exchange Matrix

IS :
Table 3-~~II~~III 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 basis with each new schema version.	Unclassified / Open / Public Releasable	NANU.XSL: Stylesheet for producing ASCII formatted ICD-870 Appendix 1 NANU Data Format. SOF.XSL: Stylesheet for producing ASCII formatted ICD-870 Appendix 3 Operational SOF 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 information exchange. Published on a periodic basis with each new schema version.	Unclassified / Open / Public Releasable	OpsAdvisory.XSL: Stylesheet for producing ASCII formatted ICD-870 Appendix 2 Operational Advisory Data File Format
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	Unclassified / Open / Public Releasable	SEMAL3.XSL: Stylesheet for producing ASCII formatted ICD-870 Appendix 4 SEM (AL3) Almanac Data File Format
				SEMBL3.XSL: Stylesheet for producing ASCII formatted ICD-870 Appendix 4 SEM (BL3)

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 :

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

IS :
<DELETED OBJECT>

ICD870-680 :

WAS :

Information Product Name	XML Schema Product Name	Transformation Product Name	Validation and Transform Utility Output
NANU *{time-stamp}* Note: time-stamp when NANU was created formatted as Zulu time as YYYYMMDDHHMMSS	NANU XML Schema_vx.y	NANU Transform_vx.y	ASCII Formatted File:NANU File (*default extension *.NNU*) See Appendix 1, Notice to Navstar Users Data Formats.
OA *{time-stamp}* Note: time-stamp when Ops Advisory was created formatted as YYYYMMDDHH	OA XML Schema_vx.y *	OA Transform_vx.y	ASCII Formatted File:OA File (*default extension *.OA1*). See Appendix 2, Operational Advisory Data File.
Common Almanac *{GPS week : time of applicability}* Note: Non-modulo GPS week number : number of seconds since the beginning of the Almanac reference week.	Common Almanac XML Schema_vx.y	SEM AL3 Transform_vx.y	ASCII Formatted File:SEM Almanac File (*default extension*.al3*). See Appendix 3: Almanac Data Files
		SEM BL3 Transform_vx.y	ASCII Formatted File:SEM Almanac File (*default extension *.bl3*). See Appendix 3, Almanac Data Files
		YUMA ALM Transform_vx.y	ASCII Formatted File:Yuma Almanac File (*default extension *.alm*). See Appendix 3, Almanac Data Files
		YUMA BLM Transform_vx.y	ASCII Formatted File:Yuma Almanac File (*default extension *.blm*). See Appendix 3, Almanac Data Files
		ESHS ALE Transform_vx.y	ASCII Formatted File:ESHS File (*default extension *.ale*). See Appendix 4, Extended Signals Health Status Files

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 ~~revisions~~CS ~~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 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 :

29
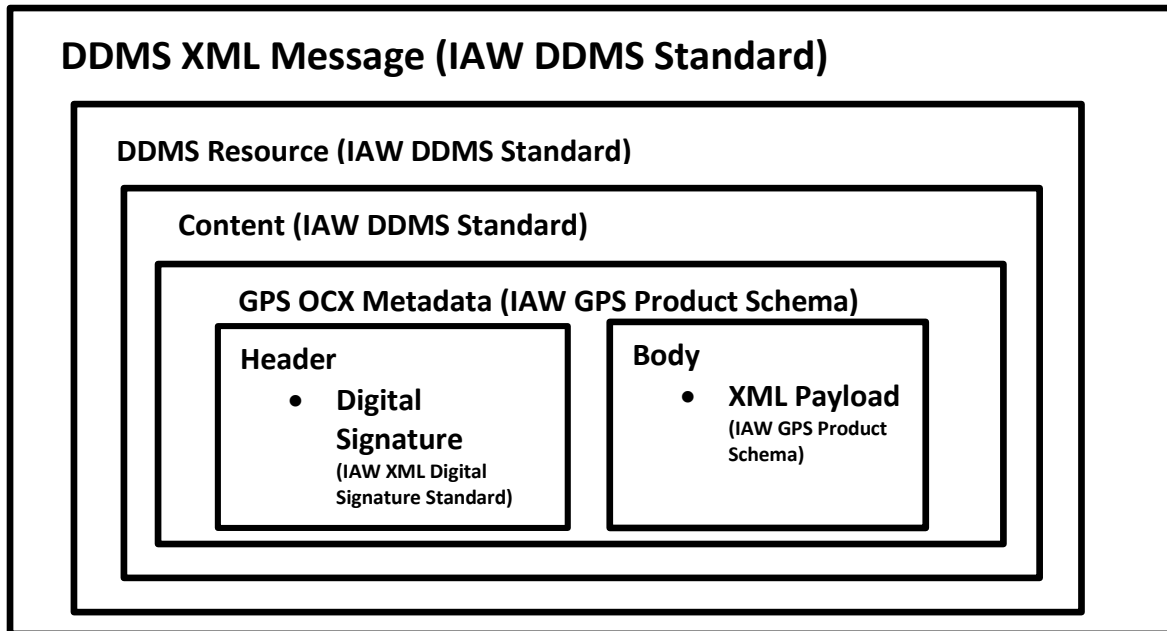
GPS OCX Content

Header
- **Digital Signature**

Body
- **Information Exchange Product**

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

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 andalong with provided transformationXSLT 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 34 of this ICD. Detailed ASCII data formats of the ESHS Almanac data (current.ale) are described in Appendix 45 of this ICD.
CS Effectivity:10N/A

ICD870-48 :

WAS :
Generation of Operational Advisory Data

IS :
Generation of OperationalOps AdvisoryStatus DataProduct

ICD870-49 :

WAS :
The GPS CS shall publish the Operational Advisory Information Product for the GPS constellation.
CS Effectivity: 10

IS :
The GPS CS shallwill publishgenerate the OperationalOps AdvisoryStatus Information Product for the GPS constellation.
CS Effectivity:10N/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 ~~NANU~~GPS 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 ~~NANU~~GPS 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

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 6 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 :

ICD-GPS-870
(public User/User Support Community Interface)

GPS Authoritative Source

FAA & Other Government GPS Users

GPS Constellation

GPS Community

Internet

Transition & Support Products

Transition & Support Products

GPS OCX

GPS Information Products

USCG NAVCEN

GPS Information Products

Civil GPS Users
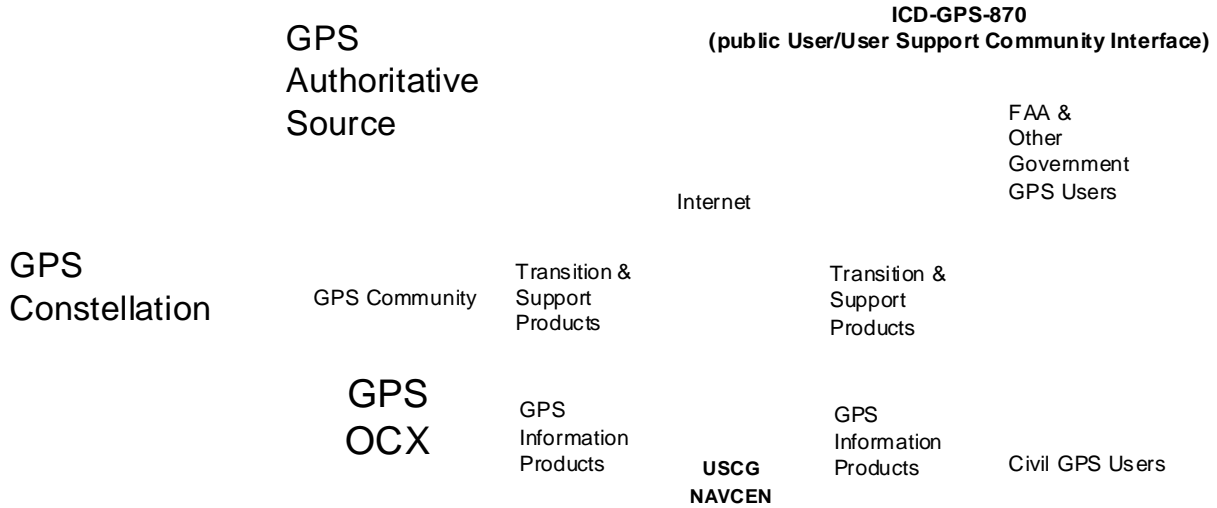
ICD870-718 :
Insertion after object ICD870-55

WAS :
N/A

IS :
Figure 3-6 GPS Public Product Distribution Overview

ICD870-719 :
Insertion after object ICD870-718

WAS :
N/A

IS :
As shown in Figure 3-6, the NAVCEN Information System (NIS) is the distribution point for

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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 :
NANUGPS Advisory Information Products are provided whenever they are generated including weekends and holidays. TheOps OAStatus 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:10N/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.

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 ~~CS~~GPS ~~publishes~~Community ~~Transformation~~provides ~~Products~~Digitally ~~and~~signed ~~also~~IEPDs ~~provides~~which ~~a~~include ~~downloadable~~XSLT stylesheets 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 ~~CS~~Community before doing so to understand the tradeoffs and verify duplicative efforts are not being planned by the GPS ~~CS~~Community.

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 shallwill use DoD Public Key Infrastructure (PKI) to digitally sign all GPS Products as describedlisted in sectionTables 3.-I and 3.1-III and as per Department of Defense Public Key Infrastructure Functional Interface Specification 3.0.
CS Effectivity:10N/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 ~~Meta~~OCX ~~Data~~Content 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.

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 ~~can~~could 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 Product~~Signed ~~using~~IEPD ~~a~~containing ~~W3C~~the ~~XML~~XSLT ~~Digital~~stylesheets ~~Signature~~using ~~Compliant~~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~~signed ~~Product~~IEPD 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~~processes 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.

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 <u>Information</u> 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~~<u>will</u> 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~~<u>will</u> occur prior to any changes on the Public Release interface.
CS Effectivity:~~10~~<u>N/A</u>

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 ~~ASCII~~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 ~~a~~as ~~downloaded~~to ~~Transformation~~optionally ~~Product~~apply the appropriate XSLT stylesheet transform.

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

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~~ie.~~, 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. Operators determine 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 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.
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.

ICD870-726 :
Insertion after object ICD870-186

WAS :
N/A

IS :
APPENDIX 3: SATELLITE OUTAGE FILE (SOF) FORMAT

ICD870-727 :
Insertion below object ICD870-726

WAS :
N/A

IS :
Following is a list of the rules or protocols for the SOF data.

Usage Rules

1.   The SOF always contains fields identifying creation date/time and reference date/time.

2.   A new SOF is built each time a NANU is issued.

3.   The latency of the SOF initially may be 15-20 minutes, and is driven by operational procedures and workload.

File Naming Convention

The most recently built SOF is given a standard name that contains the creation date/time and the file format version number, 'yyyy_ddd_hhmmss_vnn.sof', where yyyy is the year, ddd is the Jday (day of year starting with 1), hhmmss is the hour/minute/second UTC, and nn is the file format version number. The file format version number will increment sequentially whenever the file format changes.

Dissemination Methods

Unclassified Web Site. The GPSOC maintains a Web site accessible to unclassified users worldwide. The current SOF is posted at a conspicuous spot on this Web site for download.

Classification

The SOF is Unclassified and approved for public release. [Reference GPS Security Classification Guide, 30 Sep 2008, Topic Number 700.7.10]

Format

The SOF is formatted in XML according to the format below. The data type definition (DTD), the data format, and the data field definitions are provided.

A sample SOF with an internal DTD is as follows:

SOF DTD

<?xml version="1.0"?>

<!DOCTYPE GPSISFILE [

        <!ELEMENT   GPSISFILE (CREATION,REFERENCE,(PREDICTED|CURRENT|HISTORICAL)+)>

        <!ELEMENT CREATION EMPTY>

        <!ELEMENT REFERENCE EMPTY>

        <!ELEMENT PREDICTED EMPTY>

```
<!ELEMENT CURRENT EMPTY>
<!ELEMENT HISTORICAL EMPTY>


<!ATTLIST GPSISFILE FILEID CDATA #FIXED "SOF">
<!ATTLIST GPSISFILE SYSID CDATA #FIXED "GPS">
<!ATTLIST GPSISFILE VERSION CDATA #REQUIRED>


<!ATTLIST CREATION YEAR CDATA #REQUIRED>
<!ATTLIST CREATION DOY CDATA #REQUIRED>
<!ATTLIST CREATION HR CDATA #REQUIRED>
<!ATTLIST CREATION MIN CDATA #REQUIRED>
<!ATTLIST CREATION SEC CDATA #REQUIRED>


<!ATTLIST REFERENCE YEAR CDATA #REQUIRED>
<!ATTLIST REFERENCE DOY CDATA #REQUIRED>
<!ATTLIST REFERENCE HR CDATA #REQUIRED>
<!ATTLIST REFERENCE MIN CDATA #REQUIRED>
<!ATTLIST REFERENCE SEC CDATA #REQUIRED>


<!ATTLIST PREDICTED SVID CDATA #REQUIRED>
<!ATTLIST PREDICTED SVN CDATA #REQUIRED>
<!ATTLIST PREDICTED NAME (NANU|GOCGIS|USER_DEFINED) #REQUIRED>
<!ATTLIST PREDICTED TYPE (FCSTDV|FCSTMX) #REQUIRED>
<!ATTLIST PREDICTED REFERENCE CDATA #REQUIRED>
<!ATTLIST PREDICTED START_YEAR CDATA #REQUIRED>
<!ATTLIST PREDICTED START_DOY CDATA #REQUIRED>
<!ATTLIST PREDICTED START_HR CDATA #REQUIRED>
<!ATTLIST PREDICTED START_MIN CDATA #REQUIRED>
<!ATTLIST PREDICTED START_SEC CDATA #REQUIRED>
<!ATTLIST PREDICTED END_YEAR CDATA #REQUIRED>
<!ATTLIST PREDICTED END_DOY CDATA #REQUIRED>
<!ATTLIST PREDICTED END_HR CDATA #REQUIRED>
<!ATTLIST PREDICTED END_MIN CDATA #REQUIRED>
<!ATTLIST PREDICTED END_SEC CDATA #REQUIRED>
```

```
        <!ATTLIST CURRENT SVID CDATA #REQUIRED>
        <!ATTLIST CURRENT SVN CDATA #REQUIRED>
        <!ATTLIST CURRENT NAME (NANU|GOCGIS|USER_DEFINED) #REQUIRED>
        <!ATTLIST CURRENT TYPE CDATA #FIXED "UNUSUFN">
        <!ATTLIST CURRENT REFERENCE CDATA #REQUIRED>
        <!ATTLIST CURRENT START_YEAR CDATA #REQUIRED>
        <!ATTLIST CURRENT START_DOY CDATA #REQUIRED>
        <!ATTLIST CURRENT START_HR CDATA #REQUIRED>
        <!ATTLIST CURRENT START_MIN CDATA #REQUIRED>
        <!ATTLIST CURRENT START_SEC CDATA #REQUIRED>


        <!ATTLIST HISTORICAL SVID CDATA #REQUIRED>
        <!ATTLIST HISTORICAL SVN CDATA #REQUIRED>
        <!ATTLIST HISTORICAL NAME (NANU|GOCGIS|USER_DEFINED) #REQUIRED>
        <!ATTLIST HISTORICAL TYPE (FCSTSUMM|UNUSABLE|UNUNOREF)
#REQUIRED>
        <!ATTLIST HISTORICAL REFERENCE CDATA #REQUIRED>
        <!ATTLIST HISTORICAL START_YEAR CDATA #REQUIRED>
        <!ATTLIST HISTORICAL START_DOY CDATA #REQUIRED>
        <!ATTLIST HISTORICAL START_HR CDATA #REQUIRED>
        <!ATTLIST HISTORICAL START_MIN CDATA #REQUIRED>
        <!ATTLIST HISTORICAL START_SEC CDATA #REQUIRED>
        <!ATTLIST HISTORICAL END_YEAR CDATA #REQUIRED>
        <!ATTLIST HISTORICAL END_DOY CDATA #REQUIRED>
        <!ATTLIST HISTORICAL END_HR CDATA #REQUIRED>
        <!ATTLIST HISTORICAL END_MIN CDATA #REQUIRED>
        <!ATTLIST HISTORICAL END_SEC CDATA #REQUIRED>
]>
```

SOF Structure

```
<?xml version="1.0"?>
<GPSISFILE FILEID="SOF" SYSID="GPS" VERSION="2">
<CREATION YEAR="2004" DOY="257" HR="11" MIN="2" SEC="11" />
```

<REFERENCE YEAR="2004" DOY="257" HR="11" MIN="2" SEC="11" />

<PREDICTED

SVID="9" SVN="39"

NAME="NANU" TYPE="FCSTMX" REFERENCE="2004094"

START_YEAR="2004" START_DOY="229" START_HR="12" START_MIN="0" START_SEC="0"

END_YEAR="2004" END_DOY="230" END_HR="0" END_MIN="0" END_SEC="0"

/>

<CURRENT

SVID="31" SVN="31"

NAME="NANU" TYPE="UNUSUFN" REFERENCE="2004101"

START_YEAR="2004" START_DOY="257" START_HR="5" START_MIN="50" START_SEC="0"

/>

<HISTORICAL

SVID="27" SVN="27"

NAME="NANU" TYPE="UNUSABLE" REFERENCE="2004100"

START_YEAR="2004" START_DOY="242" START_HR="1" START_MIN="32" START_SEC="0"

END_YEAR="2004" END_DOY="243" END_HR="19" END_MIN="12" END_SEC="0"

/>
</GPSISFILE>

All times are UTC TIME (ZULU) unless otherwise specified. DOY is day of year (same as JDAY); 1=1 January, 366 is valid for leap year

'GPSISFILE' FILE INFORMATION

Occurs once per file

FILEID is always 'SOF'

SYSID is always 'GPS'

VERSION is the version number of the file. The version text should be an integer version number. Example: 2

CREATION indicates date/time of file creation. Time is computer time (UTC time zone).

REFERENCE indicates date/time to which SOF data applies. For example, if January 10, 2003 1550Z is the REFERENCE time then Satellite Outage information will be collected up to and including that time, including past, current, and predicted information. The REFERENCE time is set to be the date/time of the most recent NANU incorporated into the SOF.

'SOF_RECORD' INFORMATION

Occurs multiple times per file, once for each predicted, current or historical satellite outage issued by the REFERENCE data/time.

There are three types of SOF records.

PREDICTED identifies predicted outages as of the REFERENCE time.

CURRENT identifies any active outages as of the REFERENCE time, along with the time the outage began.

HISTORICAL identifies actual outages that have taken place prior to the REFERENCE time.

SVID - reusable identifier for each satellite in identified system. For GPS the SVID shall be the PRN.

SVN (Satellite Vehicle Number) – unique sequential number associated with satellite-specific program is an integer. For GPS this is assigned by the US Air Force.

PREDICTED record fields

NAME – Alphanumeric indicator of outage source (currently 'NANU'). GOCGIS used when no NANU has been issued, yet outage is predicted or a GENERAL NANU has been issued that affects this outage.

TYPE – If NAME=NANU, then the choices are FCSTDV, FCSTMX. If a FCSTEXTD, then implemented as original type (FCSTDV or FCSTMX) with start date/time the same as in the FCSTEXTD and end date/time fixed twenty years out. If FCSTRESCD, then implemented as original type with dates/times as in the FCSTRESCD NANU. If a FCSTCANC type NANU is issued, the original type will be deleted from the SOF.

REFERENCE – reference info. If NAME=NANU this will be the NANU number of the last valid NANU associated with this outage. For example, if there is a FCSTDV issued with number 2003010, then REFERENCE=2003010. As another example, if there is a FCSTMX issued with number 2003047, followed be a FCSTEXTD with number 2003050, then REFERENCE=2003050.

CURRENT record fields

NAME – Alphanumeric indicator of outage source (currently 'NANU').

TYPE – If NAME=NANU, then the choices are UNUSUFN and GENERAL. If NANU is initially issued as a GENERAL launch message, then it will be implemented in the SOF as a UNUSUFN with the start date/time as 0000Z on the first day the satellite appears in the almanac.

REFERENCE – reference info. If NAME=NANU this will be the NANU number of the last valid NANU associated with this outage. For example, if there is a UNUSUFN issued with number 2003049, then REFERENCE=2003049.

HISTORICAL record fields

NAME –Alphanumeric indicator of outage source (currently NANU).

TYPE – If NAME=NANU, then the choices are FCSTSUMM, UNUSABLE, UNUNOREF, USABINIT, and GENERAL. If NANU is initially issued as a GENERAL launch message, then it will be implemented in the SOF as an UNUSABLE with stop dates/times as in the USABINIT and the start date/time as 0000Z on the first day the satellite appears in the almanac. This closes out the UNUSUFN that was implemented earlier for the GENERAL launch message. If the NANU is initially issued as a GENERAL decommission it will be implemented in the SOF as an UNUSABLE with the decommission date/time as the end date/time. If a GENERAL NANU is issued which cancels a previous NANU, the previous NANU will not appear in the SOF.

REFERENCE – reference info. If NAME=NANU this will be the NANU number of the last valid NANU associated with this outage. For example, if there is a FCSTSUMM issued with number 2003051, then REFERENCE=2003051.

Format Changes

Changes to file formats are implemented as follows:

1.   Files implementing a new format have the VERSION attribute of the GPSISFILE element incremented. Version 1 files encoded the file version in the filename. For example, a file with a previous format may have a name like 2004_202_145503_v01.sof. Later file versions encode the version both in the filename, and the XML VERSION attribute. The filenames of the new file versions look like 2004_202_145503_v02.sof.

2.   If a new file format is implemented, both the old and the new file formats will be posted to the web site location for a transition period.

3.   The old file format will be posted for six months, and then be removed. This provides time for users to adapt to the new file format.

4.   Notifications of file format changes, with samples of the new format, will be published to www.GPS.gov when they are final.

ICD870-217 :

WAS :
APPENDIX 3: ALMANAC DATA FILES

IS :
APPENDIX 3~~4~~: ALMANAC DATA FILES

ICD870-218 :

WAS :
Appendix 3 describes the SEM and YUMA Almanac message formats.

IS :
Appendix 3~~4~~ describes the SEM and YUMA Almanac message formats.

ICD870-224 :

WAS :
While the orbital description data is generally usable for months, the satellite health may change at any time. The SEM and YUMA Almanac data formats also include an SV health word. The SV health word is defined in paragraph 20.3.3.5.1.3 and Table 20-VIII of IS-GPS-200. Table 30-I shows the 3 MCS health categories for satellites commonly used by 2 SOPS (ACTIVE, BAD & DEAD). The "OTHER" MCS health category is a generalized term for the remaining states/conditions defined by IS-GPS-200 which may be used by 2 SOPS in the future. Table 30-I also specifies the binary health words used in SV navigation (NAV) messages and the equivalent decimal representations used by both the SEM and YUMA Almanacs. The SV health word is found in cell R-7 of each record in the SEM Almanac. It is found on the third line of each record in the YUMA Almanac. Users of the SEM and YUMA Almanacs should be prepared for any potential future 2 SOPS use of other MCS health categories, as defined by codes in IS-GPS-200, Table 20-VIII.

IS :
While the orbital description data is generally usable for months, the satellite health may change at any time. The SEM and YUMA Almanac data formats also include an SV health word. The SV health word is defined in paragraph 20.3.3.5.1.3 and Table 20-VIII of IS-GPS-200. Table 3~~0~~~~40~~-I shows the 3 MCS health categories for satellites commonly used by 2 SOPS (ACTIVE, BAD & DEAD). The "OTHER" MCS health category is a generalized term for the remaining states/conditions defined by IS-GPS-200 which may be used by 2 SOPS in the future. Table

3040-I also specifies the binary health words used in SV navigation (NAV) messages and the equivalent decimal representations used by both the SEM and YUMA Almanacs. The SV health word is found in cell R-7 of each record in the SEM Almanac. It is found on the third line of each record in the YUMA Almanac. Users of the SEM and YUMA Almanacs should be prepared for any potential future 2 SOPS use of other MCS health categories, as defined by codes in IS-GPS-200, Table 20-VIII.

ICD870-225 :

WAS :
Table 30-I Six-Bit SV Health Word in Almanac

IS :
Table 3040-I Six-Bit SV Health Word in Almanac

ICD870-228 :

WAS :
The SEM format file example in Figure 30-1 is arranged with a header that identifies the number of records (number of satellites) and file name (current.al3). The SEM Almanac sample illustrated below is a data sample of one record out of 28 in this sample file and its parameter definition, as stated in the note of Figure 30-1, is in Table 30-II. There is an additional SEM file with a file name extension of .bl3 that is identical to .al3, except for the number of records range, PRN number range and SVN number field. All parameters are listed in Table 30-III.

IS :
The SEM format file example in Figure 3040-1 is arranged with a header that identifies the number of records (number of satellites) and file name (current.al3). The SEM Almanac sample illustrated below is a data sample of one record out of 28 in this sample file and its parameter definition, as stated in the note of Figure 3040-1, is in Table 3040-II. There is an additional SEM file with a file name extension of .bl3 that is identical to .al3, except for the number of records range, PRN number range and SVN number field. All parameters are listed in Table 3040-III.

ICD870-230 :

WAS :
Figure 30-1 SEM Data Sample for Current.al3

IS :
Figure ~~30~~40-1 SEM Data Sample for Current.al3

ICD870-231 :

WAS :
Note: The **bold** letters and numbers in the rectangles are not part of the SEM format; they are used for identification purposes in Table 30-II. Table 30-II identifies the characteristics of each parameter in the SEM Almanac.

IS :
Note: The bold letters and numbers in the rectangles are not part of the SEM format; they are used for identification purposes in Table ~~30~~40-II. Table ~~30~~40-II identifies the characteristics of each parameter in the SEM Almanac.

ICD870-235 :

WAS :
Table 30-II SEM Almanac Description for Current.al3

IS :
Table ~~30~~40-II SEM Almanac Description for Current.al3

ICD870-238 :

WAS :
Table 30-III SEM Almanac Description for Current.bl3

IS :
Table ~~30~~40-III SEM Almanac Description for Current.bl3

ICD870-306 :

WAS :
Table 30-II SEM Almanac Description for Current.bl3

(Sheet 2 of 2)

IS :
Table ~~30~~40-II SEM Almanac Description for Current.bl3

(Sheet 2 of 2)

ICD870-242 :

WAS :

Figure 30-2 illustrates one record in a current.alm YUMA Almanac file sample. The maximum number of records in a current.alm file is 32 and this file addresses PRNs 1-32. Line one of each record identifies the week in which the file was generated as well as the PRN number of the subject SV. There is an additional YUMA file with a file name extension of .blm that is identical to .alm, except that it addresses PRNs 01-63 and the range of number of records or ID number in a current.blm file is 00-63.

IS :

Figure ~~30~~40-2 illustrates one record in a current.alm YUMA Almanac file sample. The maximum number of records in a current.alm file is 32 and this file addresses PRNs 1-32. Line one of each record identifies the week in which the file was generated as well as the PRN number of the subject SV. There is an additional YUMA file with a file name extension of .blm that is identical to .alm, except that it addresses PRNs 01-63 and the range of number of records or ID number in a current.blm file is 00-63.

ICD870-244 :

WAS :
Figure 30-2 YUMA Almanac Data Sample For Current.alm
IS :
Figure 3040-2 YUMA Almanac Data Sample For Current.alm

ICD870-254 :

WAS :
APPENDIX 4: EXTENDED SIGNALS HEALTH STATUS FILES

IS :
APPENDIX 45: EXTENDED SIGNALS HEALTH STATUS FILES

ICD870-255 :

WAS :
Appendix 4 describes the Extended Signals Health Status (ESHS) message format.
IS :
Appendix 45 describes the Extended Signals Health Status (ESHS) message format.

ICD870-257 :

WAS :
The Extended Signals Health Status (ESHS) data message provides the health status of each of the modernized civil signals (L1C, L2C, and L5) for each SV, as defined in Table 40-I.

IS :
The Extended Signals Health Status (ESHS) data message provides the health status of each of the modernized civil signals (L1C, L2C, and L5) for each SV, as defined in Table 4050-I.

ICD870-258 :

WAS :
Table 40-I Modernized Civil Signals

IS :
Table 4050-I Modernized Civil Signals

ICD870-261 :

WAS :
The ESHS format, as shown in Figure 40-1, contains a header that identifies the number of records (number of satellites), filename (extension .ale), and the health of each signal as described above. The ESHS sample shown in Figure 40-1 depicts one data record out of 28 in this sample file.

IS :
The ESHS format, as shown in Figure 4050-1, contains a header that identifies the number of records (number of satellites), filename (extension .ale), and the health of each signal as described above. The ESHS sample shown in Figure 4050-1 depicts one data record out of 28 in this sample file.

ICD870-263 :

WAS :
Figure 40-1 Extended Signals Health Status Data Sample

IS :
Figure 4050-1 Extended Signals Health Status Data Sample

ICD870-264 :

WAS :
Table 40-II identifies the characteristics of each parameter in the ESHS message.

IS :
Table 4050-II identifies the characteristics of each parameter in the ESHS message.

ICD870-265 :

WAS :
Table 40-II ESHS Description

IS :
Table 4050-II ESHS Description

ICD870-276 :

WAS :
APPENDIX 5: ANTI-SPOOFING STATUS FILE

IS :
APPENDIX 56: ANTI-SPOOFING STATUS FILE

ICD870-277 :

WAS :
Appendix 5 describes the Anti-Spoofing Status message format.

IS :
Appendix 56 describes the Anti-Spoofing Status message format.

ICD870-279 :

WAS :
The Anti-Spoofing (A-S) Status informs Users whether the Anti-Spoofing mode of each GPS SV is ON or OFF. There are two A-S Status files named as.txt and as2.txt. The message files are simple text files that identify each satellite in the GPS constellation by a two digit PRN number and a three digit SVN number and it shows the SV's A-S Status (ON/OFF). The difference between the two A-S Status files is the PRN Numbers. As.txt addresses PRNs 1-32 and as2.txt addresses PRNs 01-63. For the as2.txt file, the two digit PRN number and the three digit SVN field are zero padded. An example of the A-S Status (as.txt) is shown in Figure 50-1.

IS :
The Anti-Spoofing (A-S) Status informs Users whether the Anti-Spoofing mode of each GPS SV is ON or OFF. There are two A-S Status files named as.txt and as2.txt. The message files are simple text files that identify each satellite in the GPS constellation by a two digit PRN number and a three digit SVN number and it shows the SV's A-S Status (ON/OFF). The difference between the two A-S Status files is the PRN Numbers. As.txt addresses PRNs 1-32 and as2.txt addresses PRNs 01-63. For the as2.txt file, the two digit PRN number and the three digit SVN field are zero padded. An example of the A-S Status (as.txt) is shown in Figure 5060-1.

ICD870-281 :

WAS :
Figure 50-1 Sample of the Anti-Spoofing Status file (as.txt)

IS :
Figure ~~50~~60-1 Sample of the Anti-Spoofing Status file (as.txt)

ICD870-291 :

WAS :
APPENDIX 6: LETTERS OF EXCEPTION

IS :
APPENDIX ~~6~~7: LETTERS OF EXCEPTION

ICD870-297 :

WAS :
If signature approval of this document -- as affixed to the cover page -- is marked by an asterisk, it indicates that the approval is contingent upon the exceptions taken by that signatory in a letter of exception. Any letter of exception, which is in force for the revision of the ICD is depicted in Figure 60-1. Signatories for whom no letter of exception is shown have approved this version of the document without exception.

IS :
If signature approval of this document -- as affixed to the cover page -- is marked by an asterisk, it indicates that the approval is contingent upon the exceptions taken by that signatory in a letter of exception. Any letter of exception, which is in force for the revision of the ICD is depicted in Figure ~~60~~70-1. Signatories for whom no letter of exception is shown have approved this version of the document without exception.

ICD870-299 :

WAS :
Figure 60-1 Letter of Exception

IS :
Figure ~~60~~70-1 Letter of Exception

 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:

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
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