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-240A	**PIRN Number:** PIRN-240A-004
Authority: RFC-351	**PIRN Date:** 02-Aug-2017

CLASSIFIED BY:

DECLASSIFY ON:

Document Title:
User Support Community Automated Interface

Reason For Change (Driver):

Currently the Operational Advisories (OA) that are published and archived contain plane/slot descriptions that are not in agreement with the constellation definition provided to the public in the SPS Performance Standard. The OA does not have the capability to correctly publish information regarding fore/aft position since moving to the 24+3 constellation with three expanded slots.

Description of Change:

Modify public documents to rectify OA discrepancy as suggested by Public Interface Control Working Group (ICWG) participants, stakeholders, and key members.

Prepared By: Amit Patel   **Checked By: Huey Nguyenhuu**

ICD240-51 :

Section Number :
3.1.0-3

WAS :
The information distributed by the CS includes Notice Advisory to Navstar Users (NANU), Operational Advisory (OA), Satellite Outage File (SOF) and satellite almanac. The NANU is a message that informs users of satellite outages and other GPS issues. The OA is a descriptive summary of GPS constellation status. The SOF is a machine readable format of GPS satellite outage information. The satellite almanac contains orbital and performance parameters for operational GPS satellites. The primary means of data distribution include electronic mail (e-mail) and Internet and SIPRNET websites. All data transfer described in this ICD is unclassified.

Redlines :
The information distributed by the CS includes Notice Advisory to Navstar Users (NANU), ~~Operational Advisory (OA),~~ Satellite Outage File (SOF) and satellite almanac. The NANU is a message that informs users of satellite outages and other GPS issues. The OA is a descriptive summary of GPS constellation status. The SOF is a machine readable format of GPS satellite outage information. The satellite almanac contains orbital and performance parameters for operational GPS satellites. The primary means of data distribution include electronic mail (e-mail) and Internet and SIPRNET websites. All data transfer described in this ICD is unclassified.

IS :
The information distributed by the CS includes Notice Advisory to Navstar Users (NANU), Satellite Outage File (SOF) and satellite almanac. The NANU is a message that informs users of satellite outages and other GPS issues. The OA is a descriptive summary of GPS constellation status. The SOF is a machine readable format of GPS satellite outage information. The satellite almanac contains orbital and performance parameters for operational GPS satellites. The primary means of data distribution include electronic mail (e-mail) and Internet and SIPRNET websites. All data transfer described in this ICD is unclassified.

Rationale :
The Operational Advisory will be removed as it is not widely used and the current format does not reflect the constellation definition provided to the public in the SPS Performance Standard.

ICD240-108 :

Section Number :
10.1.3.0-4

WAS :

```
1.       NANU TYPE: GENERAL
*** GENERAL MESSAGE TO ALL GPS USERS ***

MESSAGE WRITTEN IN PARAGRAPH FORM

*** GENERAL MESSAGE TO ALL GPS USERS ***
```

Figure 10-1 General Message Format

Redlines :

```
1.       NANU TYPE: GENERAL
*** GENERAL MESSAGE TO ALL GPS USERS ***

MESSAGE WRITTEN IN PARAGRAPH FORM

*** GENERAL MESSAGE TO ALL GPS USERS ***,

NANU DTG: 140649Z FEB 2016
```

Figure 10-1 General Message Format

IS :

```
1.       NANU TYPE: GENERAL
*** GENERAL MESSAGE TO ALL GPS USERS ***

MESSAGE WRITTEN IN PARAGRAPH FORM

*** GENERAL MESSAGE TO ALL GPS USERS ***,

NANU DTG: 140649Z FEB 2016
```

Figure 10-1 General Message Format

Rationale :

Users cannot tell from the message text the effective date of the general text NANU, they must guess from time-of-receipt the time a message was sent/generated.

ICD240-115 :

Section Number :

10.1.4.0-5

WAS :

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYSSS
SUBJ: SVN XX (PRN XX) LAUNCH JDAY JJJ
1.      NANU TYPE: LAUNCH
        NANU NUMBER: YYYYSSS
        NANU DTG: HHHHDDZ MMM 2007
        SVN: XX
        PRN: XX
        LAUNCH JDAY: JJJ
        LAUNCH TIME ZULU: HHHH

2. GPS SATELLITE SVN XX (PRN XX) WAS LAUNCHED ON JDAY JJJ A USABINIT NANU WILL BE SENT WHEN THE
SATELITTE IS SET ACTIVE TO SERVICE.

3.      POC: CIVILIAN - NAVCEN AT 703-313-5900, HTTP://WWW.NAVCEN.USCG.GOV
        MILITARY - GPS OPERATIONS CENTER AT HTTP://gps.afspc.af.mil/GPSOC, DSN 560-2541, COMM 719-567-
        2541, GPS_SUPPORT@SCHRIEVER.AF.MIL, HTTP://gps.afspc.af.mil
        MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276- 9994.
        COMM 805-606-9994. JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-2 LAUNCH NANU Message Template

Redlines :

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYSSS
SUBJ: SVN XX (PRN XX) LAUNCH JDAY JJJ
1.      NANU TYPE: LAUNCH
        NANU NUMBER: YYYYSSS
        NANU DTG: HHHHDDZ MMM 2007
        SVN: XX
        PRN: XX
        LAUNCH JDAY: JJJ
        LAUNCH TIME ZULU: HHHH

2.  GPS SATELLITE SVN XX (PRN XX) WAS LAUNCHED ON JDAY JJJ A USABINIT NANU WILL BE SENT WHEN THE SATELITTE IS SET ACTIVE
    TO SERVICE.

3.  POC: CIVIL NON-AVIATION - NAVCEN at 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV,
    CIVIL AVIATION - FAA Satellite Operations Group at 540-422-4178, https://www.faa.gov/air_traffic/nas/gps_reports/,
    MILITARY - GPS Operations Center at HTTPS://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541, COMM 719-567-2493,
    GPS_SUPPORT@SCHRIEVER.AF.MIL, HTTP://WWW.SCHRIEVER.AF.MIL/GPS,
    MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994, COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-2 LAUNCH NANU Message Template

IS :

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYSSS
SUBJ: SVN XX (PRN XX) LAUNCH JDAY JJJ
1.      NANU TYPE: LAUNCH
        NANU NUMBER: YYYYSSS
        NANU DTG: HHHHDDZ MMM 2007
        SVN: XX
        PRN: XX
        LAUNCH JDAY: JJJ
        LAUNCH TIME ZULU: HHHH

2.  GPS SATELLITE SVN XX (PRN XX) WAS LAUNCHED ON JDAY JJJ A USABINIT NANU WILL BE SENT WHEN THE SATELITTE IS SET ACTIVE
    TO SERVICE.

3.  POC: CIVIL NON-AVIATION - NAVCEN at 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV,
    CIVIL AVIATION - FAA Satellite Operations Group at 540-422-4178, https://www.faa.gov/air_traffic/nas/gps_reports/,
    MILITARY - GPS Operations Center at HTTPS://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541, COMM 719-567-2493,
    GPS_SUPPORT@SCHRIEVER.AF.MIL, HTTP://WWW.SCHRIEVER.AF.MIL/GPS,
    MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994, COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-2 LAUNCH NANU Message Template

Rationale :

Both NAVCEN and GPSOC webpages are https, FAA should appear in all contact sections.

ICD240-117 :

Section Number :

10.1.4.0-6

WAS :

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYJJJ
SUBJ: SVNXX (PRNXX) DECOMMISSIONING JDAY JJJ/HHHH
1.      NANU TYPE: DECOM
        NANU NUMBER: YYYYSSS
        NANU DTG: HHHHDDZ MMM YYYY
        REFERENCE NANU: YYYYSSS
        REF NANU DTG: HHHHDDZ MMM YYYY
        SVN: XX
        PRN: XX
        UNUSABLE START JDAY: JJJ
        UNUSABLE START TIME ZULU: HHHH
        UNUSABLE START CALENDAR DATE: DD MMM YYYY
        DECOMMISSIONING START JDAY: JJJ
        DECOMMISSIONING START TIME ZULU: HHHH
        DECOMMISSIONING START CALENDAR DATE: DD MMM YYYY

2.  CONDITION: GPS SATELLITE SVNXX (PRNXX) WAS UNUSABLE AS OF JDAY JJJ (DD MMM YYYY) AND REMOVED
FROM THE GPS CONSTELLATION ON JDAY JJJ (DD MMM YYYY) AT HHHH ZULU.

3.      POC: CIVILIAN - NAVCEN AT 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV
        MILITARY - GPS OPERATIONS CENTER at HTTP://GPS.AFSPC.AF.MIL/GPSOC,
        DSN 560-2541, COMM 719-567-2541, GPS_SUPPORT@SCHRIEVER.AF.MIL, HTTPS://GPS.AFSPC.AF.MIL
        MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994,
        COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-3 DECOM NANU Message Template

Redlines :

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYJJJ
SUBJ: SVNXX (PRNXX) DECOMMISSIONING JDAY JJJ/HHHH
1.      NANU TYPE: DECOM
        NANU NUMBER: YYYYSSS
        NANU DTG: HHHHDDZ MMM YYYY
        REFERENCE NANU: YYYYSSS
        REF NANU DTG: HHHHDDZ MMM YYYY
        SVN: XX
        PRN: XX
        UNUSABLE START JDAY: JJJ
        UNUSABLE START TIME ZULU: HHHH
        UNUSABLE START CALENDAR DATE: DD MMM YYYY
        DECOMMISSIONING START JDAY: JJJ
        DECOMMISSIONING START TIME ZШU: HHHH
        DECOMMISSIONING START CALENDAR DATE: DD MMM YYYY

2.  CONDITION: GPS SATELLITE SVNXX (PRNXX) WAS UNUSABLE AS OF JDAY JJJ (DD MMM YYYY) AND REMOVED
FROM THE GPS CONSTELLATION ON JDAY JJJ (DD MMM YYYY) AT HHHH ZULU.

3.      POC: CIVIL NON-AVIATION - NAVCEN at 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV,
        CIVIL AVIATION - FAA Satellite Operations Group at 540-422-4178, https://www.faa.gov/air_traffic/nas/gps_reports/,
        MILITARY - GPS Operations Center at HTTPS://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541, COMM 719-567-2493,
        GPS_SUPPORT@SCHRIEVER.AF.MIL, HTTP://WWW.SCHRIEVER.AF.MIL/GPS,
        MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994, COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-3 DECOM NANU Message Template

IS :

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYJJJ
SUBJ: SVNXX (PRNXX) DECOMMISSIONING JDAY JJJ/HHHH
1.      NANU TYPE: DECOM
        NANU NUMBER: YYYYSSS
        NANU DTG: HHHHDDZ MMM YYYY
        REFERENCE NANU: YYYYSSS
        REF NANU DTG: HHHHDDZ MMM YYYY
        SVN: XX
        PRN: XX
        UNUSABLE START JDAY: JJJ
        UNUSABLE START TIME ZULU: HHHH
        UNUSABLE START CALENDAR DATE: DD MMM YYYY
        DECOMMISSIONING START JDAY: JJJ
        DECOMMISSIONING START TIME ZШU: HHHH
        DECOMMISSIONING START CALENDAR DATE: DD MMM YYYY

2.  CONDITION: GPS SATELLITE SVNXX (PRNXX) WAS UNUSABLE AS OF JDAY JJJ (DD MMM YYYY) AND REMOVED
FROM THE GPS CONSTELLATION ON JDAY JJJ (DD MMM YYYY) AT HHHH ZULU.

3.  POC: CIVIL NON-AVIATION - NAVCEN at 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV,
    CIVIL AVIATION - FAA Satellite Operations Group at 540-422-4178, https://www.faa.gov/air_traffic/nas/gps_reports/,
    MILITARY - GPS Operations Center at HTTPS://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541, COMM 719-567-2493,
    GPS_SUPPORT@SCHRIEVER.AF.MIL, HTTP://WWW.SCHRIEVER.AF.MIL/GPS,
    MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994, COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-3 DECOM NANU Message Template

Rationale :

Both NAVCEN and GPSOC webpages are https, FAA should appear in all contact sections.

ICD240-125 :

Section Number :

10.3.0-1

WAS :

The NANU message structure for all messages, except the General, LAUNCH and DECOM messages, is based on a tabular format that simplifies the readability of data. A template for these messages is illustrated in Figure 10-4. These messages are arranged into a header and three sections. The following paragraphs explain this message format in more detail.

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYNNN
SUBJ: SVNxx (PRNXX) FORECAST OUTAGE JDAY JJJ/HHMM – JDAY JJJ/HHMM
1.   NANU TYPE: FCSTDV
     NANU NUMBER: YYYYNNN
     NANU DTG: DDHHMMZ MMM YYYY
     REFERENCE NANU: YYYYNNN
     REF NANU DTG: DDHHMMZ MMM YYYY
     SVN: XX
     PRN: XX
     START JDAY: JJJ
     START TIME ZULU: HHMM
     START CALENDAR DATE: DD MMM YYYY
     STOP JDAY: JJJ
     STOP TIME ZULU: HHMM
     STOP CALENDAR DATE: DD MMM YYYY

2.   CONDITION: GPS SATELLITE SVNXX (PRNXX) WILL BE UNUSABLE ON JDAY JJJ
     (DD MMM YYYY) BEGINNING HHMM ZULU UNTIL JDAY JJJ (DD MMM YYYY) ENDING HHMM ZULU.

3.   POC: CIVILIAN – NAVCEN AT (703)313-5900, HTTP://WWW.NAVCEN.USCG.GOV
     MILITARY – GPS Operations Center at HTTP://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541,
     COMM 719-567-2541, GPS_SUPPORT@SCHRIEVER.AF.MIL, HTTPS://GPS.AFSPC.AF.MIL
     MILITARY ALTERNATE – JOINT SPACE OPERATIONS CENTER, DSN 276-9994,
     COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-4 NANU Message Template

Redlines :

The NANU message structure for all messages, except the General, LAUNCH and DECOM messages, is based on a tabular format that simplifies the readability of data. A template for these messages is illustrated in Figure 10-4. These messages are arranged into a header and three sections. The following paragraphs explain this message format in more detail.

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYNNN
SUBJ: SVNxx (PRNXX) FORECAST OUTAGE JDAY JJJ/HHMM  JDAY JJJ/HHMM
1.   NANU TYPE: FCSTDV
     NANU NUMBER: YYYYNNN
     NANU DTG: DDHHMMZ MMM YYYY
     REFERENCE NANU: YYYYNNN
     REF NANU DTG: DDHHMMZ MMM YYYY
     SVN: XX
     PRN: XX
     START JDAY: JJJ
     START TIME ZULU: HHMM
     START CALENDAR DATE: DD MMM YYYY
     STOP JDAY: JJJ
     STOP TIME ZULU: HHMM
     STOP CALENDAR DATE: DD MMM YYYY

2.   CONDITION: GPS SATELLITE SVNXX (PRNXX) WILL BE UNUSABLE ON JDAY JJJ
     (DD MMM YYYY) BEGINNING HHMMZULU UNTIL JDAY JJJ (DD MMM YYYY) ENDING HHMM ZULU.

3.   POC: CIVIL NON-AVIATION - NAVCEN at 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV,
     CIVIL AVIATION - FAA Satellite Operations Group at 540-422-4178, https://www.faa.gov/air_traffic/nas/gps_reports/,
     MILITARY - GPS Operations Center at HTTPS://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541, COMM 719-567-2493,
     GPS_SUPPORT@SCHRIEVER.AF.MIL, HTTP://WWW.SCHRIEVER.AF.MIL/GPS,
     MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994, COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-4 NANU Message Template

IS :

The NANU message structure for all messages, except the General, LAUNCH and DECOM messages, is based on a tabular format that simplifies the readability of data. A template for these messages is illustrated in Figure 10-4. These messages are arranged into a header and three sections. The following paragraphs explain this message format in more detail.

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYNNN
SUBJ: SVNxx (PRNXX) FORECAST OUTAGE JDAY JJJ/HHMM- JDAY JJJ/HHMM
1.   NANU TYPE: FCSTDV
     NANU NUMBER: YYYYNNN
     NANU DTG: DDHHMMZ MMM YYYY
     REFERENCE NANU: YYYYNNN
     REF NANU DTG: DDHHMMZ MMM YYYY
     SVN: XX
     PRN: XX
     START JDAY: JJJ
     START TIME ZULU: HHMM
     START CALENDAR DATE: DD MMM YYYY
     STOP JDAY: JJJ
     STOP TIME ZULU: HHMM
     STOP CALENDAR DATE: DD MMM YYYY

2.   CONDITION: GPS SATELLITE SVNXX (PRNXX) WILL BE UNUSABLE ON JDAY JJJ
     (DD MMM YYYY) BEGINNING HHMMZULU UNTIL JDAY JJJ (DD MMM YYYY) ENDING HHMM ZULU.

3.   POC: CIVIL NON-AVIATION - NAVCEN at 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV,
     CIVIL AVIATION - FAA Satellite Operations Group at 540-422-4178, https://www.faa.gov/air_traffic/nas/gps_reports/,
     MILITARY - GPS Operations Center at HTTPS://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541, COMM 719-567-2493,
     GPS_SUPPORT@SCHRIEVER.AF.MIL, HTTP://WWW.SCHRIEVER.AF.MIL/GPS,
     MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994, COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-4 NANU Message Template

Rationale :
Both NAVCEN and GPSOC webpages are https, FAA should appear in all contact sections.

ICD240-157 :

Section Number :
20

WAS :
APPENDIX 2: OPERATIONAL ADVISORY

Redlines :
APPENDIX 2: OPERATIONAL ADVISORYPLACEHOLDER

IS :
PLACEHOLDER

Rationale :
The Operational Advisory will be removed as it is not widely used and the current format does not reflect the constellation definition provided to the public in the SPS Performance Standard.

ICD240-158, ICD240-159, ICD240-160, ICD240-162, ICD240-163, ICD240-164, ICD240-166, ICD240-167, ICD240-168, ICD240-170, ICD240-171, ICD240-172, ICD240-174, ICD240-175, ICD240-176 :

WAS:

Operational Advisory

AEP Effectivity:
CS Effectivity: N/A
SS Effectivity: N/A
The Operational Advisory (OA) message provides a summary of the satellite constellation status. An example is shown in Figure 20-1. The OA is arranged in three sections. The following paragraphs describe each section and subsection of the OA.
AEP Effectivity:
CS Effectivity: N/A
SS Effectivity: N/A

```
UNCLASSIFIED
GPS OPERATIONAL ADVISORY          086.0A1
SUBJ: GPS STATUS       27 MAR 2XXX


1. SATELLITES, PLANES, AND CLOCKS (CS=CESIUM RB=RUBIDIUM)
A. BLOCK I  : NONE
B. BLOCK II : PRNS  1,  2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12, 13, 14
   PLANE    : SLOT B2, D1, C2, D4, B6, C5, A6, A3, A1, E3, D2, B4, F3, F1
   CLOCK    :      RB, RB, CS, RB, RB, RB, RB, CS, CS, CS, RB, RB, RB, RB
   BLOCK II : PRNS 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28
   PLANE    : SLOT F2, B1, C4, E4, C3, E1, D3, E2, F4, D5, A5, F5, A4, B3
   CLOCK    :      RB, RB, RB, RB, RB, RB, RB, RB, RB, CS, RB, RB, CS, RB
C. BLOCK III: PRNS 29, 30, 31, 32
   PLANE    : SLOT C1, B5, A2, E5
   CLOCK    :      RB, RB, RB, RB
2. CURRENT ADVISORIES AND FORECASTS :
A. FORECASTS:            FOR SEVEN DAYS AFTER EVENT CONCLUDES.
NANU         MSG DATE/TIME        PRN   TYPE          SUMMARY (JDAY/ZULU TIME START – STOP)


2XXX022      261836Z MAR 2XXX     18    FCSTDV        092/1600-093/0630
B. ADVISORIES:
NANU         MSG DATE/TIME        PRN   TYPE          SUMMARY (JDAY/ZULU TIME START – STOP)


C. GENERAL:
NANU         MSG DATE/TIME        PRN   TYPE          SUMMARY (JDAY/ZULU TIME START – STOP)


2XXX020      202158Z MAR 2XXX           GENERAL       /-/
2XXX021      241836Z MAR 2XXX     32    LAUNCH        /-/
2XXX023      262212Z MAR 2XXX           GENERAL       /-/
3. REMAKRS:
A. THE POINT OF CONTACT FOR GPS MILITARY OPERATIONAL SUPPORT IS THE GPS
OPERATIONS CENTER AT (XXX)XXX-XXXX OR DSN XXX-XXXX
B. CIVILIAN:  FOR INFORMATION, CONTACT US COAST GUARD NAVCEN AT
COMMERCIAL (XXX)XXX-XXXX 24 HOURS DAILY AND INTERNET
HTTP://WWW.NAVCEN.USCG.GOV
C. MILITARY SUPPORT WEBPAGES CAN BE FOUND AT THE FOLLOWING
HTTPS://GPS.AFSPC.AF.MIL/GPS OR HTTP://GPS.AFSPC.AF.MIL/GPSOC
```

Figure 20-1 Sample Operational Advisory
AEP Effectivity:

CS Effectivity: N/A
SS Effectivity: N/A
OA Header.
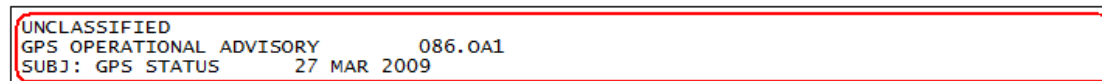
AEP Effectivity:
CS Effectivity: N/A
SS Effectivity: N/A
The header includes the title "GPS OPERATIONAL ADVISORY," the subject "SUBJ: GPS STATUS" and the date. The date is represented in a format that includes two-digit day (DD), the first three characters of the month (MMM), and four-digit year (YYYY). The OA header is illustrated in Figure 20-2.
AEP Effectivity:
CS Effectivity: N/A
SS Effectivity: N/A

```
UNCLASSIFIED
GPS OPERATIONAL ADVISORY          086.OA1
SUBJ: GPS STATUS        27 MAR 2009
```

Figure 20-2 OA Header
AEP Effectivity:
CS Effectivity: N/A
SS Effectivity: N/A
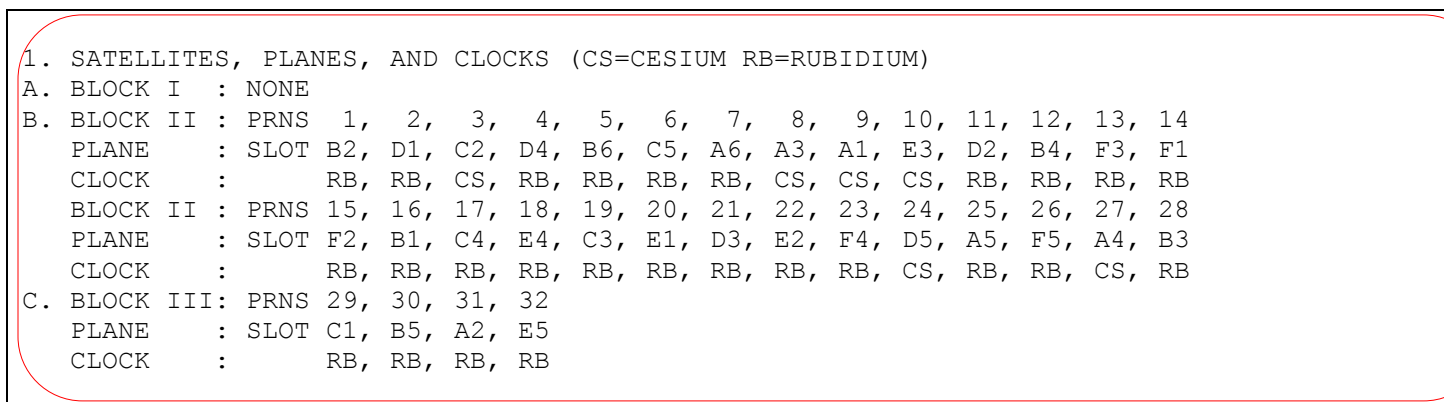**OA Section One**

AEP Effectivity:
CS Effectivity: N/A
SS Effectivity: N/A
Section one lists operational satellites by PRN number, assigned plane, and clock in current use. Subsection 1.A previously identified operational satellites in Block I. However, these satellites are no longer operational, so this subsection includes the word "NONE." Subsection 1.B identifies satellites within Block II that are currently in use. Section 1.C identifies satellites within Block III that are currently in use. The example data shown for Section 1 is not meant to represent the actual GPS constellation configuration. The abbreviations CS and RB are used to indicate Cesium and Rubidium clocks, respectively. An example of section one of the OA is illustrated in Figure 20-3
AEP Effectivity:
CS Effectivity: N/A
SS Effectivity: N/A

```
1. SATELLITES, PLANES, AND CLOCKS (CS=CESIUM RB=RUBIDIUM)
A. BLOCK I   : NONE
B. BLOCK II  : PRNS  1,  2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12, 13, 14
   PLANE     : SLOT B2, D1, C2, D4, B6, C5, A6, A3, A1, E3, D2, B4, F3, F1
   CLOCK     :      RB, RB, CS, RB, RB, RB, RB, CS, CS, CS, RB, RB, RB, RB
   BLOCK II  : PRNS 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28
   PLANE     : SLOT F2, B1, C4, E4, C3, E1, D3, E2, F4, D5, A5, F5, A4, B3
   CLOCK     :      RB, RB, RB, RB, RB, RB, RB, RB, RB, CS, RB, RB, CS, RB
C. BLOCK III : PRNS 29, 30, 31, 32
   PLANE     : SLOT C1, B5, A2, E5
   CLOCK     :      RB, RB, RB, RB
```

Figure 20-3 OA Section One

AEP Effectivity:

CS Effectivity: N/A

SS Effectivity: N/A

OA Section Two

AEP Effectivity:

CS Effectivity: N/A

SS Effectivity: N/A

Section two contains a summary of current and recent advisories, forecasts, and general text messages. It is organized into three subsections. Subsection 2A summarizes scheduled NANU messages.   Subsection 2B summarizes advisory messages (messages with prefix UNU). Section 2C summarizes general text messages. An example of section two of the OA is illustrated in Figure 20-4.

AEP Effectivity:

CS Effectivity: N/A

SS Effectivity: N/A

```
2. CURRENT ADVISORIES AND FORECASTS :
A. FORECASTS:         FOR SEVEN DAYS AFTER EVENT CONCLUDES.
NANU         MSG DATE/TIME      PRN  TYPE          SUMMARY (JDAY/ZULU TIME START - STOP)

2009022      261836Z MAR 2009   18   FCSTDV        092/1600-093/0630
B. ADVISORIES:
NANU         MSG DATE/TIME      PRN  TYPE          SUMMARY (JDAY/ZULU TIME START - STOP)

C. GENERAL:
NANU         MSG DATE/TIME      PRN  TYPE          SUMMARY (JDAY/ZULU TIME START - STOP)

2009020      202158Z MAR 2009        GENERAL       /-/
2009021      241836Z MAR 2009   01   LAUNCH        /-/
2009023      262212Z MAR 2009        GENERAL       /-/
```

Figure 20-4 OA Section Two

AEP Effectivity:

CS Effectivity: N/A

SS Effectivity: N/A

OA Section Three.

AEP Effectivity:

CS Effectivity: N/A

SS Effectivity: N/A

Section three identifies points of contact for additional technical and support information. It is organized into three subsections, each in text format. An example of section three of the OA is illustrated in. Figure 20-5.

AEP Effectivity:

CS Effectivity: N/A

SS Effectivity: N/A

```
3. REMARKS:
A. THE POINT OF CONTACT FOR GPS MILITARY OPERATIONAL SUPPORT IS THE GPS
OPERATIONS CENTER AT (719)567-2541 OR DSN 560-2541.
B. CIVILIAN:  FOR INFORMATION, CONTACT US COAST GUARD NAVCEN AT
COMMERCIAL (703)313-5900 24 HOURS DAILY AND INTERNET
HTTP://WWW.NAVCEN.USCG.GOV
C. MILITARY SUPPORT WEBPAGES CAN BE FOUND AT THE FOLLOWING
HTTPS://GPS.AFSPC.AF.MIL/GPS OR HTTP://GPS.AFSPC.AF.MIL/GPSOC
```

Figure 20-5 OA Section Three

AEP Effectivity:

CS Effectivity: N/A
SS Effectivity: N/A

Redlines :
<DELETED OBJECT>

IS :
<DELETED OBJECT>

Rationale :
The Operational Advisory will be removed as it is not widely used and the current format does not reflect the constellation definition provided to the public in the SPS Performance Standard.

ICD240-294 :

Section Number :
30.0-1

WAS :
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.

Redlines :

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 military users worldwide. The current SOF is posted at a conspicuous spot on this Web site for download. All other worldwide, civil users may download the SOF from the U.S Coast Guard Navigation Center Web site.

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 (NOTE: if GPSIS is no longer used to generate the file, the file source tag "GPSISFILE" may be changed):

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.

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 military users worldwide. The current SOF is posted at a conspicuous spot on this Web site for download. All other worldwide, civil users may download the SOF from the U.S Coast Guard Navigation Center Web site.

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 (NOTE: if GPSIS is no longer used to generate the file, the file source tag "GPSISFILE" may be changed):

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.

Rationale :

This object was added by RFC 308, therefore, it will not be seen in the current baselined ICD-GPS-870 Document. Per post ERB approved comment from RFC 308, this object had a couple of admin changes that are identified in the PIRN.