INTERFACE CONTROL DOCUMENT
FOR THE
NEW TACTICAL FORECAST SYSTEM (N-TFS)
LOCAL WEATHER NETWORK SYSTEM (LWNS)

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G E N E R A L D Y N A M I C S
Advanced Information Systems

General Dynamics
Advanced Information Systems, Inc.
112 Lakeview Canyon Rd., Box 5027
Thousand Oaks, California 91362-5027

1.0 INTRODUCTION

1.1 Purpose and Scope. This interface specification defines the interface to the N-TFS Local Weather Network System (LWNS) for External Systems (ES) that wish to send products and alert messages to LWNS users.

1.2 Physical. The physical interface between an ES and LWNS is an IEEE 802.3 compatible local area network (LAN) connection that will allow the ES to communicate with LWNS via a LAN node.

2.0 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the documents referenced herein and the contents of this specification, the contents of this specification shall be considered a superseding requirement.

2.1 Government Documents.

2.1.1 Military Standards.

- MIL-STD-1777 (12 Aug 83) - Internet Protocol.
- MIL-STD-1778 (12 Aug 83) - Transmission Control Protocol.
- MIL-STD-1780 (10 May 84) - File Transfer Protocol.

2.1.2 Specifications.

- System Specification for the Automated Weather System (AWDS) Type A (15 Aug 97).

2.1.3 Other.

- Interface Specification for Data Exchange Between AFWWS Systems (21 Feb 03).
- RFC-1951 - DEFLATE Compressed Data Format Specification Version 1.3 (May 96).
- RFC-1952 - GZIP File Format Specification Version 4.3 (May 96).

2.2 Non-Government Documents.

2.2.1 WMO Standards.

- No. 306 (1995) - Manual on Codes Volume I - International Codes.
- No. 386 (1991) - Manual on Global Telecommunication System.

2.2.2 IEEE Standards.

- 802.3 (6 Nov 00) - Information Technology -- Local and Metropolitan Area Networks -- Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications.
- 1003.1 (1990) - Portable Operating System Interface (POSIX) - Part1: System Application: Program Interface (API) [C Language].

2.2.3 ISO/IEC Standards.

- 8859-1 (16 Apr 98) - Information Technology -- 8-bit Single-byte Coded Graphic Character Sets -- Part 1: Latin Alphabet No. 1.

3.0 FUNCTIONAL

3.1 File Transfer Protocol. The ES shall send the products to LWNS via the File Transfer Protocol (FTP) over Transmission Control Protocol / Internet Protocol (TCP/IP). Image format, stream mode and file structure should be used. The transfer can occur with the LWNS functioning as either an FTP client or as an FTP server.

3.1.1 LWNS FTP Server Mode. When the LWNS functions as the FTP server, passive or active connections may be used. The user name and password must be configured into the LWNS. Note that the file name and directory are ignored if the product is in a form recognized by LWNS. The acceptable forms are described in paragraph 3.2. Files not in one of the acceptable forms will be ignored.

3.1.2 LWNS FTP Client Mode. When the LWNS functions as the FTP client, passive connections are always used for data. The following information must be configured into the LWNS:

- Server IP address.
- Server login name.
- Server password.
- Server directory where products will be found.
- How often to poll the server.
- Retrieval deletion mode (fetch and delete or fetch with no delete).

Files retrieved from the given directory are assumed to be complete. This can cause problems if files may be incomplete when the FTP transfer occurs. The LWNS FTP client code will always ignore files whose names begin with a period (character code hexadecimal 2E), so a recommended approach is to write files into a temporary file (whose file name begins with a period). When the file is complete, rename it to its final name.

Files retrieved may be in one of the formats specified in paragraph 3.2. In addition, the following apply only when LWNS is operating as an FTP client:

- Concatenations of GRIB files are acceptable.
- If the file name ends with a ".tar" suffix, it is taken as a collection of products in "tar" format, as defined in the IEEE 1003.1 POSIX specification. Each individual product in the tar archive must be in one of the formats described in paragraph 3.2.
- If the file name ends with a ".gz" suffix, it is taken to be compressed with the GZIP/DEFLATE method as described in RFC-1951 and RFC-1952. The uncompressed ("inflated") product in the file must be in one of the formats described in paragraph 3.2.
- If the file name ends with a ".tar.gz" suffix, it is taken as a collection of products in "tar" format, as defined in the IEEE 1003.1 POSIX specification. Further, this tar file is taken to be compressed with the GZIP/DEFLATE method as described in RFC-1951 and RFC-1952. Each individual product in the tar archive must be in one of the formats described in paragraph 3.2.

3.2 Product Formats. The LWNS shall accept products in one of the following formats:

- Products defined in Appendix 30 of the AWDS System Specification.
- The following products defined in WMO No. 306:
    - FM 12-X Ext. – SYNOP
    - FM 13-X – SHIP
    - FM 14-X Ext. - SYNOP MOBIL
    - FM 15-X Ext. – METAR
    - FM 16-X Ext. – SPECI
    - FM 32-IX – PILOT
    - FM 33-IX - PILOT SHIP

  - FM 34-IX - PILOT MOBIL
  - FM 35-X Ext. – TEMP
  - FM 36-X Ext. - TEMP SHIP
  - FM 37-X Ext. - TEMP DROP
  - FM 38-X Ext. - TEMP MOBIL
  - FM 51-X Ext. – TAF
  - FM 92-IX Ext. – GRIB

- Alphanumeric products that include an abbreviated heading as described in WMO No. 386, Part II, paragraph 2.3. Note that LWNS accepts only International Alphabet No. 5, as described in WMO No. 386, Part II, Attachment II-2.
- Products preceeded by a Long ASCII Header (LAH). Note that the following "content types" (from the LAH document) are accepted:

  - AMIS
  - NTFS
  - APP30
  - GIF
  - GRIB
  - JPG
  - MPG
  - TAMIS
  - TWMO
  - T30
  - WMO

- Alert messages as described in paragraph 3.3.

3.3 Alert Message Format. Alert Messages shall have the following format:

LWNS ALERT<CR><LF>
alert message text (one line)<CR><LF>

Where all characters are encoded in the ISO-8859-1 (Latin-1) code, and <CR> represents the character with hexadecimal code 0D, and <LF> represents the character with hexadecimal code 0A.

The *qlert message text* must be less than 80 characters long, and may not contain a <CR> or a <LF> character. If the *Alert message text* begins with a '*' (hexadecimal code 2A), then an "urgent" alert will be generated. In this case, the leading '*' character is not considered part of the message text, and does not count toward the 79 character limit for the message length. If the *alert message text* does not begin with a '*' character, then a non-urgent routine alert will be generated.