Network Working Group
Request for Comments: 1895
Category: Informational

E. Levinson
Accurate Info. Sys., Inc.

February 1996

The Application/CALS-1840 Content-type

Status of this Memo

This memo provides information for the Internet community. This memo does not specify an Internet standard of any kind. Distribution of this memo is unlimited.

Abstract

This memorandum provides guidelines for using the United States Department of Defense Military Standard MIL-STD-1840, "Automated Interchange of Technical Information," with the Internet electronic mail standards, RFC 822 and RFC 1521. Electronic mail provides a more convenient mechanism that delivery via physical media for certain types and quantities of data. Software already exists to support data exchanges based on MIL-STD-1840 and it can continue to be used in conjunction with electronic mail exchanges defined in this document. This document defines a new media type and a MIME message structure for exchanging data in conformance with MIL-STD-1840.

1. Introduction

The United States Department of Defense (DOD) has defined a standard, MIL-STD-1840 [1840], for the exchange of digital data. Most applications of that standard use 9-track tape as the transport medium. The Application/CALS-1840 media-type is proposed to facilitate such exchanges using the Multipurpose Internet Mail Extensions [MIME] and network based transport media, i.e. electronic mail [822].

This memo has been reviewed and authorized by the Continuous Acquistion and Life-cycle Support (CALS) Industry Steering Group (ISG). CALS is a US DOD initiative for the use and exchange of digital data. The Industry Steering Group, which consists of members drawn from government and industry, guides the development of CALS standards such as [1840].

2. Definition

An [1840] exchange consists of a set of files with well defined file names (see below). Each set consists of a declaration file and one or more data files. The data files, in turn, consist of header

records immediately followed by the data. The data itself may be formatted in accordance with a published specification or a contractual agreement.

MIL-STD-1840 encodes the file's data type in the file name.

It might seem appropriate to transform the 1840 headers into MIME headers and use the appropriate media type, essentially transforming the 1840 files into MIME body parts. There are three reasons for not doing that. First, not all of the "types" used in [1840] are registered MIME types. Second, there exists an installed base of software capable of reading the 1840 formatted files and processing the data appropriately. Finally the three existing revisions to the standard have maintained the same file structure. Consequently, a processor for the data may be able to handle any one of the standard's revisions. Thus, a single Application/CALS-1840 is being proposed and its body part body contains headers and data in the [1840] format.

A set of related files constitutes a "transfer unit" in 1840 and each transfer unit shall correspond to a Multipart/Mixed MIME entity. Included in each transfer unit is a declaration file which shall be the first body part in the Multipart/Mixed entity. Several transfer units may be included in a single MIME message.

2.1 Registration Information

The following form is copied from RFC 1590, Appendix A for the purpose of registering this media-type.

To: IANA@isi.edu
Subject: Registration of new Media Type content-type/subtype

Media Type name:	Application
Media subtype name:	CALS-1840
Required parameters:	filename, version
Optional parameters:	None
Encoding considerations:	Any valid MIME encodings my be used
Security considerations:	Depends solely on the referenced type
Published specification:	This document
Person & email address to contact for further information:	Alan Peltzman <peltzmaa@ncr.disa.mil> +1 (703) 735-3568 Defense Information Systems Agency Center for Standards Code JIEO/JEBEB 10701 Parkridge Blvd Reston, VA 22091-4398

2.2. The Filename Parameter

The filename parameter gives the transfer unit filename as defined by [1840]. The parameter's value, called <1840-name>, has the syntax given by the grammer below.

```
1840-name  := "D" 1840-tuseq [ 1840-type 1840-dfseq ]
1840-type  := letter ; limited to the set defined in
                     ; the appropriate version of
                     ; [1840, Table III]
1840-tuseq := 1840-seq
1840-dfseq := 1840-seq
1840-seq   := alphnum alphnum alphnum
alphanum   := letter / digit
letter     := "A" / "B" / "C" / "D" / "E" / "F" / "G" /
              "H" / "I" / "J" / "K" / "L" / "M" / "N" /
              "O" / "P" / "Q" / "R" / "S" / "T" / "U" /
              "V" / "W" / "X" / "Y" / "Z"
digit      := "0" / "1" / "2" / "3" / "4" / "5" /
              "6" / "7" / "8" / "9" /
```

All Application/CALS-1840 body parts in a single Multipart/Mixed MIME entity shall have the same <1840-tuseq>. Within a single message all filename values shall be unique.

Notes: 1) Tuseq and dfseq correspond to transfer unit sequence number and data file sequence number respectively. 2) The filename for a declaration file has the form "D" 1840-tuseq and for data files, the form "D" 1840-tuseq <letter> 1840-dfseq.

2.3. The Version Parameter

The specversion parameter's value shall indicate the particular version of MIL-STD-1840 to which the data conforms. Valid values are:

```
MIL-STD-1840C, 0, 199XXXXX
MIL-STD-1840B, 0, 19921103
MIL-STD-1840A, 0, 19871222
```

Notes: (1) The value "199XXXXX" is to be replaced with the actual issue date for MIL-STD-1840C. (2) The embedded blanks in the above strings are required, hence the value must be enclosed in quote marks (").

3. Example

In the example below a single transfer unit is provided. It consists of three data files, the declaration, a contract defined file and an IGES file. The headers and data are in accordance with MIL-STD-1840B. The content-transfer-encoding perserves the data file's fixed record length.

```
To:   you@some.org
From: me@here.com
Date: Fri, 03 Nov 1995 18:23:10 -0500
MIME-Version: 1.0
Content-Type: Multipart/Mixed;
    Boundary="DISA CFS - SFC ASID"

--DISA CFS - SFC ASID
Content-Type: Application/CALS-1840; filename=D001;
    version="MIL-STD-1840B, 0, 19921103"
Content-Transfer-Encoding: Base64

[Declaration File]
--DISA CFS - SFC ASID
Content-Type: Application/CALS-1840; filename=D001A001;
    version="MIL-STD-1840B, 0, 19921103"
```

```
Content-Transfer-Encoding: Base64

[Data File -- Contract Defined including headers]
--DISA CFS - SFC ASID
Content-Type: Application/CALS-1840; filename=D001Q001;
    version="MIL-STD-1840B, 0, 19921103"
Content-Transfer-Encoding: Base64

[Data File -- Raster including 1840 headers]
--DISA CFS - SFC ASID--
```

4. Security Considerations

None of the body parts, as constitued, represent executable data. When the 1840 file format is processed the resultant data may be executable. Processing will be under the control of the process associated with Application/CALS-1840.

Classified information or other information that cannot be disclosed except to authorized personnel should not be sent via the Internet without using appropriate privacy enhancements, [PEM], [MOSS], or other privacy mechanism.

5. Acknowledgments

The author acknowledges the encouragement of Alan Peltzman, US DOD, DISA, and the suggestions of Richard Klobuchar, SAIC.

This work was supported under U.S. Dept. of the Army, Contract DAAB07-93-D-T001 and prepared under the direction of the MIL-STD-1840 Revision C Review Team.

6. References

[1840] MIL-STD-1840B, "Automated Interchange of Technical Information", US Department of Defense, 3 November 1992.

[822] Crocker, D., "Standard for the Format of ARPA Internet Text Messages", STD 11, RFC 822, UDEL, August 1982.

[MIME] Borenstein, N. and N. Freed, "MIME (Multipurpose Internet Mail Extensions): Mechanisms for Specifying and Describing the Format of Internet Message Bodies", RFC 1521, Bellcore and Innosoft, September 1993.

[MOSS] Crocker, S., Freed, N., Galvin, J., and S. Murphy, "MIME Object Security Services", RFC 1848, Cybercash, Innosoft, TIS, October 1995.

[PEM] Linn, J., "Privacy Enhancement for Internet Electronic Mail: Part I: Message Encryption and Authentication Procedures", RFC 1421, IAB IRTF PSRG, IETF PEM WG, February 1993.

9. Author's Address

Edward Levinson
Accurate Information Systems, Inc.
2 Industrial Way
Eatontown, NJ 07724-2265
USA

Phone: +1 908 389 5550
EMail: ELevinson@Accurate.com