Electronic Health Modernization (EHM)

Technical Manual

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Revision History

NOTE: The revision history cycle begins once changes or enhancements are requested after the document has been baselined.

Date	Revision	Description	Author
11/05/2024	1	Updated for patch EHM*1*10	EHRM-IO

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1. Introduction

Electronic Health Modernization (EHM) Veterans Health Information Systems and Technology Architecture (VistA) patches and software tools support the Electronic Health Record Modernization Integration Office (EHRM-IO) during conversion from VISTA to Cerner Millennium.

1.1. Purpose

This Technical Manual provides information about EHM Package software for developers and technical personnel.

1.2. Scope of the Manual

This manual provides technical descriptions of EHM routines, protocols, files, globals, options, security data, menu diagrams and any other information required to effectively set up and use the EHM package.

1.3. Audience

The intended audience for this document is developers and technical personnel who support EHM patches or use EHM tools.

1.3.1. Disclaimers

The following subsections detail Department of Veterans Affairs (VA) software and document disclaimers.

1.3.1.1. Software Disclaimer

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1.4. Implementation and Maintenance

The following subsections provide details regarding the implementation and maintenance of EHM patches.

1.4.1. System Requirements

1.4.1.1. Hardware Requirements

Standard VistA environment

1.4.1.2. Software Requirements

Standard VistA environment

1.4.1.3. Database Requirements

Standard VistA environment

2. Patches

2.1. EHM*1*10 – IFC and PRF HL7 Message Storage

Inter-Facility Consult (IFC) and Patient Record Flag (PRF) HL7 Message Storage functionality was created to facilitate research into issues resulting from communication between non-converted VistA sites and converted Cerner sites. The VistA HL7 system lacks capacity to store HL7 messages for longer than a few days because of the large number of messages exchanged between systems. EHM*1*10 addresses this restriction by separately saving a select group of HL7 messages and retaining them for a longer period of time. The only HL7 messages saved are IFC and PRF messages that are sent by Cerner to a non-converted VistA or vice versa, a very small subset of the total volume of HL7 messages.

EHM*1*10 is one of four patches contained in the IFC PROXY ADD/ORDER RESUBMISSION 1.0 multi-build. The patch creates a VistA database to store Inter-Facility Consult (IFC) and Patient Record Flag (PRF) Health Level Seven (HL7) messages sent by or received from Cerner. It also provides application programming interfaces (API) that can be called to add records to the database as well as routines and options to inquire into it and to purge its contents.

2.1.1. Files

Refer to Table 1, which lists the file names and numbers created by EHM*1*10 software.

*Table 1: EHM*1*10 File Names and Numbers*

File Number	File Name	Global	Description
1609	EHRM HL7 Message	^EHMHL7(1609,	File #1609 is the repository for HL7 messages.
1609.1	EHRM HL7 Message Retention	^EHMHL7(1609.1,	This file specifies the number of days to retain entries in the EHRM HL7 Message file.

2.1.1.1. EHRM HL7 Message (#1609)

The EHRM HL7 Message file stores HL7 messages sent to Cerner by VistA or sent by Cerner to VistA so they can be used to research issues or data discrepancies involving the two systems. Records are added to the file by calls to EHM*1*10 APIs. Records are deleted by the EHMHL7 PURGE option.

The file is a chronological record of HL7 messages received by or sent from a VistA instance. The TYPE field (#1) differentiates between Inter-Facility Consult (IFC) and Patient Record Flag (PRF) messages. MESSAGE ID (#2) is extracted from MSH-10, VISTA CONSULT NUMBER (#3) is extracted from ORC-4. CERNER ORDER NUMBER (#4) is extracted from ORC-3. PATIENT'S NAME (#5) is extracted from PID-6. ICN (#6) is extracted from PID-4. SENDER (#7) is extracted from MSH-4. RECEIVER (#8) is extracted from MSH-6.

CONDENSED DATA DICTIONARY---EHRM HL7 Message FILE (#1609)UCI: CLE623,ROU

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CROSS REFERENCED BY:
DATE/TIME POSTED(B) CERNER ORDER NUMBER(CERNER)
VISTA CONSULT NUMBER(CONSULT) ICN(ICN) MESSAGE ID(MSGID)
PATIENT'S NAME(PATIENT)

FILE STRUCTURE

FIELD NUMBER	FIELD NAME
.01	DATE/TIME POSTED (RD), [0;1]
1	TYPE (S), [0;2]
2	MESSAGE ID (FJ50), [0;3]
3	VISTA CONSULT NUMBER (FJ30), [0;4]
4	CERNER ORDER NUMBER (FJ30), [0;5]
5	PATIENT'S NAME (FJ50), [0;6]
6	ICN (FJ30), [0;7]
7	SENDER (FJ30), [0;8]
8	RECEIVER (FJ30), [0;9]
10	HL7 MESSAGE (Multiple-1609.01), [1;0]
	.01 HL7 MESSAGE (Wx), [0;1]

2.1.1.2. EHRM HL7 Message Retention (#1609.1)

The EHRM HL7 Message Retention file defines the number of days to retain records in the EHRM HL7 Message file. TYPE (#.01) is either IFC or PRF. RETENTION (#1) is the number of days before a record is purged from file #1609 by the EHMHL7 PURGE option.

CONDENSED DATA DICTIONARY---EHRM HL7 Message Retention FILE (#1609.1)UCI: CLE623,ROU

STORED IN: ^EHMHL7(1609.1, DEC 16,2022 PAGE 1

CROSS REFERENCED BY:
TYPE(B)

FILE STRUCTURE

FIELD NUMBER	FIELD NAME	
.01	TYPE (RS),	[0;1]
1	RETENTION (NJ3,0),	[0;2]

2.1.2. Routines

Refer to Table 2, which lists the routine created by EHM*1*10 software.

*Table 2: EHM*1*10 Routines*

Routine Name	Routine Description
EHMHL7	APIs to create a record in the EHRM HL7 Message file (#1609). Code for EHMHL7 INQUIRE and EHMHL7 PURGE options.

2.1.2.1. EHMHL7

This routine contains the APIs used to add an HL7 message to file #1609 as well as to inquire into or purge records from the database.

SAVEHL7 – function to add an HL7 message to file #1609. TYPE must be defined as either IFC or PRF depending on the type of HL7 message to be recorded. The contents of the HL7 message are generated by the function from the VistA HL7 system.

SAVEHL7X – function to add an HL7 message to file #1609. TYPE must be defined as either IFC or PRF depending on the type of HL7 message to be recorded. The contents of the HL7 message are passed in ^TMP(NODE,$J).

GETHL7 – subroutine that loads an HL7 message from the VistA HL7 system and returns it in the HL7MSG array.

FILE – function to post an HL7 message to file #1609. The HL7 message is passed in the HL7MSG array. The type of message (IFC or PRF) is passed in the TYPE parameter. In addition to adding the HL7 message to file #1609, FILE extracts key data fields from the message and files them in separate fields.

PARSE – function that returns a field from an HL7 segment. PARSE scans the message (HL7MSG array) for the requested segment (SEGID) then extracts and returns the requested field (FIELDNO). PARSE also extracts and returns the HL7 field separator (FS), component separator (CS) and repetition separator (RS) so that the returned field can be further parsed by the calling code.

PURGE – subroutine that scans file #1609 and deletes record older than the retention period for the record's type specified in file #1609.1. Invoked by the EHMHL7 PURGE option.

INQUIRE – subroutine that searches file #1609 by Message ID, VistA Consult Number, Cerner Order Number, Patient's Name, ICN or Posting Date. Invoked by the EHMHL7 INQUIRE option.

2.1.3. Options

Refer to Table 3, which lists the options created by EHM*1*10 patch.

*Table 3: EHM*1*10 Options*

Option Name	Option Description
EHMHL7 INQUIRE	Inquire into EHRM HL7 Message file (#1609). Runs INQUIRE^EHMHL7.
EHMHL7 MENU	EHRM HL7 Message menu.
EHMHL7 PURGE	Purge EHRM HL7 Message file (#1609.1) entries. Runs PURGE^EHMHL7.

2.1.4. Mail Groups, Alerts, and Bulletins

N/A

2.1.5. Public Interfaces

2.1.5.1. Integration Control Registrations (ICR)

Subscriber ICR 7424 created to use APIs to add records to EHRM HL7 Message file (#1609).

2.1.5.2. Application Programming Interfaces

2.1.5.2.1. SAVEHL7^EHMHL7

External packages that need to add records to the EHRM HL7 Message file (#1609) may call this API. The type of message – IFC or PRF – is passed in as a parameter. The HL7 message is obtained by the API from the VistA HL7 system.

2.1.5.2.2. SAVEHL7X^EHMHL7

External packages that need to add records to the EHRM HL7 Message file (#1609) may call this API. The type of message – IFC or PRF – is passed in as a parameter. The HL7 message is stored in ^TMP(NODE,$J), and NODE is passed to the API as a parameter.

2.1.5.3. Remote Procedure Calls

N/A

2.1.5.4. HL7 Messaging

N/A

2.1.5.5. Web Services

N/A

2.1.6. Standards and Conventions Exemptions

N/A

2.1.6.1. Internal Relationships

N/A

2.1.6.2. Software-wide Variables

N/A

2.1.7. Security

All VistA users are required to observe VA rules of behavior regarding patient privacy and the security of patient information, VA computers, and VA networks.

2.1.7.1. Security Menus and Options

N/A

2.1.7.2. Security Keys and Roles

N/A

2.1.7.3. File Security

Refer to Table 4. which details file security.

*Table 4: EHM*1*10 File Security*

File Number	Global	Read	Write	Laygo	Data Dictionary	Delete
1609	^EHMHL7(1609,	@	@	@	@	@
1609.1	^EHMHL7(1609.1,	@	@	@	@	@

3. Acronyms and Abbreviations

Refer to Table 5, which details document acronyms.

Table 5: Glossary

Term	Meaning
API	Application Programming Interface
EHM	Electronic Health Modernization
EHRM	Electronic Health Record Modernization
EHRM-IO	Electronic Health Record Modernization Integration Office
HL7	Health Level Seven
ICR	Integration Control Registration
IFC	Inter-Facility Consult
IOC	Initial Operating Capability
OIT	Office of Information Technology
VA	Department of Veterans Affairs
VistA	Veterans Health Information Systems and Technology Architecture.