RESOURCE AND PATIENT MANAGEMENT SYSTEM

Electronic Clinical Quality Measures Engine

(ECQM)

Technical Manual

Version 2.0
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Office of Information Technology
Division of Information Technology

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Revision History

Version	Date	Author	Section	Page	Summary of Change
1.0	December 2018	GDIT	All	All	Initial Release
2.0	December 2019	GDIT	A.1	12	Updated the network browser requirements for authentication.

Preface

Electronic Clinical Quality Measures (eCQM) is a component of the 2015 Certified Electronic Health Record Technology (CEHRT) necessary for participating in a variety of Centers for Medicare and Medicaid Services programs. While Performance Measures assess how the Resource and Patient Management System (RPMS) CEHRT is used, Clinical Quality Measures (CQM) measure the outcomes of patient care.

This manual describes the eCQM Engine technical details (namespace ECQM).

The eCQM Engine is a browser-enabled graphical user interface for the Indian Health Service (IHS) deployed centrally on an application server in the Data Center for processing eCQM measures data from IHS sites. If necessary, it can also be deployed locally at Sites. It provides functionality to process QRDA CAT-I files to generate QRDA CAT-III files to submit to reporting entities.

1.0   Introduction

This manual provides IHS site managers with a technical description of the eCQM Engine. The eCQM Engine is a browser-enabled graphical user interface for IHS deployed centrally on an application server in the Data Center for processing eCQM measures data from IHS sites. If necessary, it can also be deployed locally at sites. There are no RPMS routines, files, menus, cross references, globals, or other necessary information required to effectively manage the system.

The assigned namespace is ECQM, although there are no official RPMS components.

There are no file number ranges for this package.

2.0   Implementation and Maintenance

2.1   General Information

The eCQM Engine is a browser-enabled graphical user interface for IHS deployed centrally on an application server in the Data Center for processing eCQM measures data from IHS sites. If necessary, it can also be deployed locally at Sites. There are two potential configurations for the eCQM setup:

- **BQRE/ECQM Local Install** – Do not install on the same server as BPRM. The EQCM Application (IIS) and Database (RavenDB) and BQRE can be installed on the same machine.

- **BQRE Local/ECQM Central option** – BQRE can be installed on the BPRM application server.

2.2   System Requirements

The following resources are required for a *locally deployed* standalone application server:

- Microsoft® Windows® 2008 R2 SP1 Server x64 bit (or later)

- Microsoft IIS® 7.5, 8, 8.5 and 10

- Windows PowerShell 5.1 or higher

- .NET Framework 4.5.2 or higher (required for PowerShell 5.1)

- .NET Core 2.2.7

- Microsoft Visual C++ 2015 or later

- Four processor cores running at 2.0 GHz or faster

- 8-12 GB RAM running at 1333 MHz

- 60-100 GB free disk space (disk drives should be 10K RPM or faster)

> **Note**:   Do not install on the same server as BPRM.

However, the ECQM Application (IIS) and Database (RavenDB) and BQRE Export Tool can be installed on *one* machine.

2.3   Package-wide Variables

None

2.4   Security Keys

None

3.0　Routine Descriptions

No RPMS routines are released with this application.

3.1　Routines with Description

Not applicable.

4.0   Files and Tables

4.1   File List

Not applicable.

4.2   File Access

Not applicable.

4.3   Cross References

Not applicable.

5.0   External Relations

None

5.1   Callable Routines

Not applicable.

5.2   Published Entry Points

Not applicable.

5.3   Exported Options

Not applicable.

6.0   Internal Relations

Not applicable.

7.0 Archiving and Purging

Not applicable.

8.0　　Documentation Resources

The sections below do not apply as there are no RPMS components.

8.1　　System Documentation

Online Virtual Private Server (VPS) system documentation can be generated through the use of several Kernel options, including, but not limited to:

- %INDEX
- Menu Management
- Inquire Option
- Print Option File
- VA FileMan
- Data Dictionary Utilities
- List File Attributes

For more option listings and further information about other utilities that supply online technical information, see the Decentralized Hospital Computer Program (DHCP) Kernel Reference manual.

8.1.1　　%INDEX

The %INDEX option analyzes the structure of a routine to determine in part, if the routine adheres to RPMS programming standards. The output can include the following components:

- Compiled list of errors and warnings
- Routine listing
- Local variables
- Global variables
- Naked globals
- Label references
- External references
- Running %INDEX for a specified set of routines allows users to discover any deviations from RPMS programming standards that exist, and to see how routines interact with one another (i.e., which routines call or are called by other routines).
- To run %INDEX for the VPS system:
- At the "Routine(s)?" prompt, type the **<<CC>>** namespace.

8.1.2 Inquire Options

The Inquire menu management option provides the following information about a specified option:

- Option name
- Menu text
- Option description
- Type of option
- Lock (if any)

In addition, all items on the menu are listed for each menu option. To secure information about <<RPMSpackage>> options, specify the << >> namespace.

8.1.3 Print Option File

The Print Option File utility generates a listing of options from the Option file (#19). Users can print all of the entries or a single option or range of options.

8.1.4 List File Attributes

This VA FileMan option allows users to generate documentation pertaining to files and file structure. The standard format of this option provides the following data dictionary information for a specified file:

- File name and description
- Identifiers
- Cross-references
- Files pointed to by the file specified
- Files that point to the file specified
- Input, print, and sort templates

In addition, the following applicable data is supplied for each field in the file:

- Field name, number, title, and description
- Global location
- Help prompt
- Cross-references
- Input transform
- Date last edited
- Notes

Using the Global Map format of this option generates an output that lists the following information:

- All cross-references for the file selected

- Global location of each field in the file

- Input, print, and sort templates

8.2   Online Help

In addition to system documentation, RPMS includes special help displays for most menu options and data entry prompts. Typing a single question mark (?) at the "Select . . . Option" prompt displays information related to the current option, as shown in Table 8-1.

Table 8-1: Online help options

Typing . . .	Displays . . .
one question mark (**?**)	a list of all options accessible from the current option.
two question marks (**??**)	a list of all accessible options and their formal names
three question marks (**???**)	a brief description for each option in a menu.
one question mark (**?**) followed by an option name (**?OPTION**)	extended help, if available, for that option

9.0   SAC Requirements and Exemptions

None

Appendix A: GUI Components

A.1   Authentication

Users of the eCQM Engine must have D1/E1 credentials to use the central eCQM. For locally deployed eCQM Engines that have no access to IHS D1/E1 credential store, the Site has to use their own directory solution to allow users to authenticate to the local Engine. The eCQM Engine will authenticate user credentials via LDAP to the Directory associated with the individual user's network. Only those users who are added via the Super Admin role for a specific Site can access the eCQM Engine. Users of the eCQM Engine will be assigned roles in the application Browser Specification.

Users with network access to the application server must access the tool via Google Chrome.

A.2   Web Application Specification

The web application was created with ASP.Net Core 2.1.6. It renders the web pages in HTML5.

A.3   Database Specification

The eCQM Engine employs a RavenDB database to consume the QRDA CAT-I files generated during the export process and process to create the QRDA CAT-III files for submitting to reporting entities.

A.4   API Token

The eCQM Export Tool will communicate securely with the eCQM Engine when it is centrally deployed by IHS or if locally deployed at the Site. Each RPMS site utilizing the eCQM Export Tool must register with the eCQM Engine. As part of this onboarding process, the eCQM Engine generates an API Token that can be sent securely to the eCQM Export Tool and imported. This API Token will be sent with each QRDA CAT-I file submitted to the eCQM Engine to authenticate the source of the file and ensure it is valid to import and process.

Glossary

API Token

Unique token code/value generated by the eCQM Engine to identify the source of the QRDA CAT-I files to be processed.

QRDA – CAT-I

Quality Reporting Document Architecture Category I file is an XML file that contains patient data. This data can be sent to the eCQM Engine or to external Eligible Hospital programs and Registries

QRDA – CAT-III

Quality Reporting Document Architecture Category III file is an XML file that contains aggregate measure results. This data can be sent to Eligible Professional programs and Registries.

Acronym List

Acronym	Meaning
CEHRT	Certified Electronic Health Record Technology
eCQM	Electronic Clinical Quality Measures
IHS	Indian Health Service
RPMS	Resource and Patient Management System
VPS	Virtual Private Server

Contact Information

If you have any questions or comments regarding this distribution, please contact the IHS IT Service Desk.

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