RESOURCE AND PATIENT MANAGEMENT SYSTEM

e-Prescribing Productions

(BEPR)

Technical Manual

Version 2.0
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Office of Information Technology (OIT)
Division of Information Resource Management
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Preface

The purpose of this document is to provide technical information about the local Ensemble production, which is known as the BEPR package. The BEPR package is designed to facilitate the Health Level Seven (HL7) message exchange between the Resource and Patient Management System (RPMS) and the 'Central' Ensemble Interface Engine (EIE) package.

1.0   Introduction

This manual provides Indian Health Service (IHS) site managers with a technical description of the BEPR routines, files, menus, cross references, global nodes, and other necessary information required to effectively manage the system.

2.0   Implementation and Maintenance

The IHS e-Prescribing software is designed to work with RPMS through an InterSystems Ensemble®-based Web Service (WS), TCP/IP connection with the 'Central' e-Prescribing software and references to the HLO global nodes. The site must enter specific site data including Station Number, decompression tool directory path, file path of the Directory Download depository and the email addresses of local support staff to receive error alerts.

2.1   General Information

Table 2-1: General Information

Package and Version	Brief Patch Description
BEPR v2.0	The BEPR production must be installed and active for orders to be delivered and received electronically.

2.2   System Requirements

- Ensemble 2012.2 or later release
- At least 10Mb disk space for the e-Prescribing namespace
- At least 125Mb disk space for Directory Download files

2.2.1   RPMS Requirements

- Electronic Health Record, v1.1, Patch 12
- IHS Pharmacy Modifications, v7.0, Patch 1016
- AVA v93.2, Patch 21
- Optimized (HLO), v1.6, Patch HL*1.6*126

2.3   Package-wide Variables

There are no package wide variables used in the BEPR classes.

2.4   Security Keys

BEPR does not introduce new security keys.

3.0   (mnemonic) Menu

The e-Prescribing software does not contain any new RPMS menu options.

4.0   Classes

4.1   Class List

4.1.1   Adapters

Table 4-1: Adapters

Class Name	Namespace
BEPR.Adapters.HLOGlobalInbound	BEPR
BEPR.Adapters.HLOGlobalOutbound	BEPR

4.1.2   DTLs

Table 4-2: DTLs

Class Name	Namespace
BEPR.DTLs.Functions	BEPR
BEPR.DTLs.MFNErr	BEPR
BEPR.DTLs.OMPErr	BEPR
BEPR.DTLs.RREErr	BEPR

4.1.3   Messages

Table 4-3: Messages

Class Name	Namespace
BEPR.Messages.GetFileRequest	BEPR
BEPR.Messages.GetFileResponse	BEPR
BEPR.Messages.URLResponse	BEPR

4.1.4   Operations

Table 4-4: Operations

Class Name	Namespace
BEPR.Operations.GetFile	BEPR
BEPR.Operations.PlaceFile	BEPR
BEPR.Operations.RPMS	BEPR
BEPR.Operations.ToCentral	BEPR

4.1.5   Processes

Table 4-5: processes

Class Name	Namespace
BEPR.Processes.Alert	BEPR
BEPR.Processes.DirectoryDownload	BEPR

4.1.6   Productions

Table 4-6: Productions

Class Name	Namespace
BEPR.Productions.Local	BEPR

4.1.7   Rules

Table 4-7: Rules

Class Name	Namespace
BEPR.Rules.HL7	BEPR

4.1.8   Services

Table 4-8: Services

Class Name	Namespace
BEPR.Services.DirectoryDownload	BEPR
BEPR.Services.RPMS	BEPR

4.1.9   WebClient

Table 4-9: WebClient

Class Name	Namespace
BEPR.WebClient.Initiate	BEPR
BEPR.WebClient.RetrieveDirectoryFileSoap	BEPR
BEPR.WebClient.RetrieveDirectoryFileSoap.GetFile	BEPR

4.2   Class Descriptions

Table 4-10: Class Descriptions

Class Name	Description
BEPR.Adapters.HLOGlobalInbound	Uses the HLO Global nodes to pick up HL7 messages sent by RPMS.
BEPR.Adapters.HLOGlobalOutbound	Uses The HLO Global nodes to place HL7 messages for delivery to RPMS.
BEPR.DTLs.Functions	A class to hold all the functions that are needed within the DTLs.
BEPR.DTLs.MFNErr	The Data Transformation Class that we use to create an error for the MFN messages when there is a communications issue between the local production and the central production.
BEPR.DTLs.OMPErr	The Data Transformation Class that we use to create an error for the OMP messages when there is a communications issue between the local production and the central production.
BEPR.DTLs.RREErr	The Data Transformation Class that we use to create an error for the RRE messages when there is a communications issue between the local production and the central production.
BEPR.Messages.GetFileRequest	A class used to request the Directory Download file from the Central production.
BEPR.Messages.GetFileResponse	A class used to receive the Directory Download file from the Central production.
BEPR.Operations.GetFile	The Business Operation Class that retrieves the file from the Surescripts server.
BEPR.Operations.PlaceFile	A Business Operation class that saves the Directory Download file to a location on the server.
BEPR.Operations.RPMS	The Business Operation that sends the HL7 message to the RPMS system.
BEPR.Operations.ToCentral	The Business Operation that sends an HL7 message to the central Ensemble production.
BEPR.Processes.Alert	The Business Process that facilitates the alerts for the production.

Class Name	Description
BEPR.Processes.Alert.Context	This class is generated by the BEPR.Processes.Alert BPL class. This class should not be edited or modified in any way.
BEPR.Processes.Alert.Thread1	This class is generated by the BEPR.Processes.DirectoryDownload BPL class. This class should not be edited or modified in any way.
BEPR.Processes.DirectoryDownload	The Business Process Class that directs communication between the Business Service and the Business Operation(s) for the Directory Download process.
BEPR.Processes.DirectoryDownload.Context	This class is generated by the BEPR.Processes.DirectoryDownload BPL class. This class should not be edited or modified in any way.
BEPR.Processes.DirectoryDownload.Thread1	This class is generated by the BEPR.Processes.DirectoryDownload BPL class. This class should not be edited or modified in any way.
BEPR.Productions.Local	The Ensemble process facilitates the passing of HL7 messages between the local RPMS system and the 'Central' Ensemble Server. Also initiates the request to the Central Server for the Directory Download.
BEPR.Rules.HL7	The Class that defines the filter used by the HL7 Message router of the local Ensemble production.
BEPR.Services.DirectoryDownload	The Business Service that initiates the Directory Download process when called upon.
BEPR.Services.RPMS	A Business Service that receives messages from the RPMS system via the HLOGlobalInbound Adapter.
BEPR.WebClient.Initiate	A Class with the method that when called via task man will send a message to the Business Service to initiate the Directory Download.
BEPR.WebClient.RetrieveDirectoryFileSoap	A class that calls the WebService on the Central server to retrieve the directory download file.
BEPR.WebClient.RetrieveDirectoryFileSoap.GetFile	This class is generated by the BEPR.WebClient.RetrieveDirectoryFileSoap Web Service Client class. This class should not be edited or modified in any way.

4.3   Method List

4.3.1   Adapters

4.3.1.1   HLBGlobalInbound.OnTask

This method reads HL7 messages from the HLB and HLA global nodes. The method is invoked from the associated Business Service.

4.3.1.2   HLBGlobalInbound.GetFilemanDateTime

This method returns the date/time in a Fileman Format

4.3.1.3   HBLGlobalOutbound.FileMessage

This method writes HL7 Messages to the HLB and HLA global nodes. The method is invoked from the associated Business Operation.

4.3.1.4   HLBGlobalOutbound.GetFilemanDateTime

Returns the Current date/time plus the number of days sent in the pDays variable in Fileman Format.

4.3.1.5   HLBGlobalOutbound.GetNewIENB

Returns the next available IEN for the HLB global.

4.3.1.6   HLBGlobalOutbound.GetNewIENA

Returns the next available IEN for the HLA global.

4.3.1.7   HLBOutbound.SendAlert

Sends an alert using the Business Host.

4.3.2   DTLs

4.3.2.1   Functions.NowHL7

This method returns the current time in HL7 format.

4.3.2.2   Functions.HorologToHL7Time

This method converts the received date/time from a horolog format into an HL7 format.

4.3.3   Operations

4.3.3.1   GetFile.GetFile

This is the method that retrieves the file from the Server using the ADAPTER settings.

4.3.3.2   PlaceFile.SaveFile

A method that request the directory download file from the central production. It calls the DecompressAndArchive method to save the file, unzip and archive as needed.

4.3.3.3   PlaceFile.DecompressAndArchive

A method that unzips the Directory Download file, renames the Directory Download document and saves the zipped file in the Archive directory.

4.3.3.4   RPMS.OnMessage

A method that places the HL7 message into the HLA and HLB nodes using the HLOGlobalOutbound adapter.

4.3.3.5   ToCentral.MessageToCentral

A message that sends the HL7 message to the Central production.

4.3.4   Services

4.3.4.1   DirectoryDownload.OnProcessInput

This is the Method that is called from the Initiate task and kicks off the actual Directory Download process within Ensemble.

4.3.4.2   RPMS.OnProcessInput

A method that uses the HLOGlobalInbound adapter to retrieve messages from the HLO global nodes.

4.3.5   WebClient

4.3.5.1   Initiate.OnTask

The method that is called via TaskMan sends a message to the Business Service to start the Directory Download.

5.0   Files and Tables

5.1   File List

Table 5-1: File List

File #	Filename	Description
N/A	bepr0200.xml	Server Extensible Markup Language (XML) file
N/A	bepr020i.pdf	Installation Guide
N/A	bepr020u.pdf	User Guide
N/A	bepr020t.pdf	Technical Guide
N/A	bepr020s.pdf	Security Guide

5.2   File Access

Table 5-2: File Access

File #	Filename	GL	RD	WR	LYG	DD	DEL
777	HLO MESSAGE BODY						
778	HLO MESSAGES						

5.3   Cross References

There is no cross references in this package.

5.4   Table Files

There are no table files in this package.

6.0   External Relations

BEPR references the HLA and HLB global nodes of the RPMS database used by the site to electronically write prescriptions. This package requires the RPMS database to have EHRv1.1 p12, APSP 1016 and AVA v93.2, Patch 21.

6.1   Callable Routines

There are no callable routines in this package.

6.2   Published Entry Points

The package allows a connection to be established through TCP/IP with the Central Ensemble production. An HL7 message is received from the Central Ensemble production on a port number assigned to the 'HL7 from Ensemble' Business Service.

6.3   Exported Options

There are no exported options in this package.

7.0   Internal Relations

There are no internal relations in this package.

8.0   Archiving and Purging

The Directory Download has a default archive setting of 14 files which as shown in Figure 8-1 can be changed by the site by adjusting the NumberofFilestoArchive setting within the PlaceFile Business Operation.
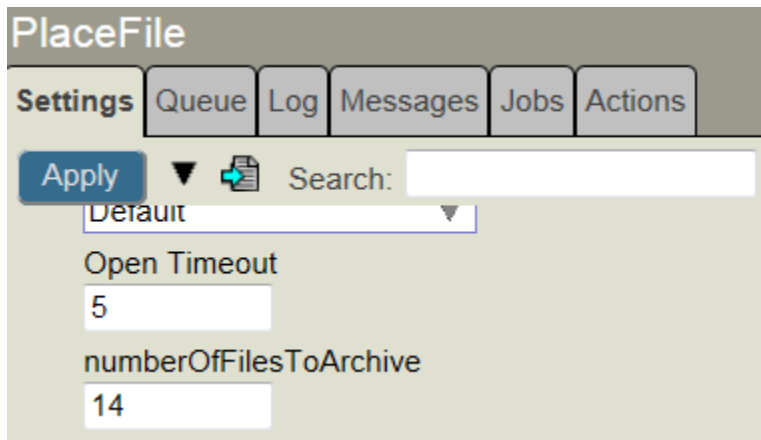

Figure 8-1: PlaceFile Business Operation Inset

Surescripts® recommends that the HL7 messages be stored for seven years. There currently is no auto archiving for the HL7 messages going through the Ensemble production. The Ensemble site administrator has the ability to purge messages from the Ensemble production.

9.0   Documentation Resources

The EIE has the capability to generate documentation for all classes within the BEPR production. The generated documentation gives information about a class, including a description of the class's properties, parameters and methods.

To view the class documentation using the resource available within Ensemble, use the following steps.

1. From System Management Portal click Help.

2. Click Documentation.

3. Click Class Reference from the menu.

4. Click the BEPR from the Namespace dropdown in the upper leftmost pane.

5. Expand the BEPR package from the leftmost pane.

6. Click the **Class** for view from the leftmost pane.

10.0   SACC Exemptions

There are no SACC exemptions for the Local BEPR production at the moment.

11.0   e-Prescribing Ensemble Development

11.1   Description of Environment

The e-Prescribing Ensemble classes are delivered in a single XML format file.

11.2   e-Prescribing Server Requirements

The version of Ensemble used to develop and test the e-Prescribing software on was 2012.2; there are no known issues with later versions of the Ensemble software.

11.3   Creation of e-Prescribing Database, Namespace, and Mapping

An instance of the e-Prescribing software will be installed for each RPMS site, the site's Ensemble administrator will be responsible for creating the needed database, namespace and mapping for each e-Prescribing software instance.

11.3.1   Create the e-Prescribing Database

The following list the procedures to create the database for the e-Prescribing software.

1. Sign on as an administrator to the Ensemble System Management Portal (SMP).

2. Click Menu dropdown in the upper left of the page.

3. Click **Configure Namespaces**.

4. Click **Create New Namespace**.

5. Enter the name of the e-Prescribing database in the **Name of the namespace field**. The recommended naming convention is "ERX" followed by the site namespace. Example: ERXTEST

6. Click **Create New Database**.

7. Enter the name of the e-Prescribing namespace used above in Step 4.

8. Click **Browse** and browse to the location where the site stores its RPMS databases.

9. Type the name of the e-Prescribing database at the end of the directory path in the **Database directory** field.

10. Click **Encrypt database** if the site uses database encryption.

11. Click **Next**.

12. Select the database settings:

    a. Initial Size (MB): **10**

    b. Journal globals: **No**

13. Click **Next**.

14. Use the default values for each subsequent option by clicking **Finish** at the bottom of the page.

15. Click **Save**.

16. Click **Close**.

11.3.2   Create the e-Prescribing Global Mapping

The following list the procedures to create the global mapping for the e-Prescribing software.

1. Sign on as a user with administrator privileges to the Ensemble Management Portal.

2. Click **Menu** dropdown in the upper left of the page.

3. Click **Configure Namespaces**.

4. Click **Global Mappings** from the appropriate e-Prescribing namespace.

5. Click **New Global Mapping** from the top of the page.

6. Click the RPMS namespace to associate with this e-Prescribing namespace from the **Global database location** list.

7. Type **HL*** into the **Global name** field.

8. Do not type anything in the **Global subscripts to be mapped** field.

9. Click **Apply**.

10. Type **%z*** into the **Global name** field.

11. Do not type anything in the **Global subscripts to be mapped** field.

12. Click **Apply**.

13. Type **%Z*** into the **Global name** field.

14. Do not type anything in the **Global subscripts to be mapped** field.

15. Click **OK**.

16. Click **Save Changes.**

11.3.3   Create the e-Prescribing Routine Mapping

The following list the procedures to create the routine mapping for the e-Prescribing software.

1. Sign on as a user with administrator privileges to the Ensemble Management Portal.

2. Click **Menu** dropdown in the upper left of the page.

3. Click **Configure Namespaces**.

4. Click **Routine Mappings** from the appropriate e-Prescribing namespace.

5. Click **New Routine Mapping** from the top of the page.

6. Click the RPMS namespace to associate with this e-Prescribing namespace from the **Routine database location** list.

7. Type **HL*** into the **Routine name** field.

8. Leave the **Routine type** field set to **All**.

9. Click **Apply**.

10. Type **%ZO** into the **Routine name** field.

11. Leave the **Routine type** field set to **All**.

12. Click **OK**.

13. Click **Save Changes.**

11.4   Managing e-Prescribing Ensemble Production

The e-Prescribing Ensemble production is automatically started when Ensemble starts up. During normal business operations, the e-Prescribing Ensemble production will remain running and will not require maintenance. Below are the instructions for manually stopping and starting the e-Prescribing production.

11.4.1   Stopping the e-Prescribing production

Sign on as an administrator to the Ensemble System Management Portal (SMP).

On the right side of the page under the heading Ensemble Productions click the BEPR.Productions.Local production.

Click **Stop**, which will only be clickable if the production that is being stopped is currently running. A confirmation dialog is displayed.

1. Click **OK**, the **Stop Production** page is displayed.

Click **OK** once the Ensemble production is stopped, to return to the previous screen.

11.4.2   Restarting the e-Prescribing production

Sign on as an administrator to the Ensemble System Management Portal (SMP).

On the right side of the page under the heading Ensemble Productions click the BEPR.Productions.Local production.

Click **Start**, which will only be clickable if the production that is being started is currently stopped. A confirmation dialog is displayed.

1. Click **OK**, the **Start Production** page is displayed.

Click **OK** once the Ensemble production is started, to return to the previous screen.

Glossary

Health Level Seven (HL7)

HL7 specifies a number of flexible standards, guidelines, and methodologies by which various healthcare systems can communicate with each other. Such guidelines or data standards are a set of rules that allow information to be shared and processed in a uniform and consistent manner. These data standards are meant to allow healthcare organizations to easily share clinical information.

Acronym List

IHS	Indian Health Service
RPMS	Resource and Patient Management System
EIE	Ensemble Interface Engine
SMP	Ensemble System Management Portal
MFN_M02	Doctor Master File Notification
HL7	Health Level Seven
OMP_O09	Pharmacy Treatment Order
RRE_O26	Pharmacy/Treatment Refill Authorization Request Acknowledgment
RRE_O12	Pharmacy/Treatment Encoded Order Acknowledgment
XML	Extensible Markup Language
SACC	Standards and Conventions Committee
OIT	Office of Information Technology

Contact Information

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