



RESOURCE AND PATIENT MANAGEMENT SYSTEM

IHS Laboratory Reporting System

(LR)

Technical Addendum (AUR)

Version 5.2 Patch 1055
June 2024

Office of Information Technology
Division of Information Technology

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Revision History

Version	Date	Author	Section	Page Number	Summary of Change
1.0	5/8/2024	Michael Kring, Stacy Henderson	All		Initial draft

Preface

The Lab Reporting System v5.2 p1055 is designed to identify and report on resulted microbiology lab tests and antibiotic medication administered and recorded in the Indian Health Service (IHS) Resource and Patient Management System (RPMS) and exported to files on a monthly schedule. Once these results are identified and summarized, the application will generate files consisting of a series of Health Level Seven (HL7) messages in a format that can be submitted to the National Health and Safety Network (NHSN) per the AUR Antimicrobial Reporting specifications.

A second component of the application is an Ensemble production that will generate ARO microbiology lab detail reports, ARO summary reports and AUP summary reports into an export directory for these HL7/XML files. The sites can then upload them to NSHN.

1.0 Introduction

This manual provides IHS site managers with a technical description of the BLRAM routines, files and other necessary information required to effectively manage the Ensemble/HS/IRIS production.

2.0 Implementation and Maintenance

2.1 General Information

The Lab Reporting System v5.2 p1055 is designed to identify and report on resulted microbiology lab tests and antibiotic medication administered and recorded in the Indian Health Service (IHS) Resource and Patient Management System (RPMS) and exported to files on a monthly schedule. Once these results are identified and summarized, the application will generate files consisting of a series of Health Level Seven (HL7) messages in a format that can be submitted to the National Health and Safety Network (NHSN) per the AUR Antimicrobial Reporting specifications.

A second component of the application is an Ensemble production that will generate ARO microbiology lab detail reports, ARO summary reports and AUP summary reports into an export directory for these HL7/XML files. The sites can then upload them to NSHN.

2.2 System Requirements

- Kernel (XU) v8.0 Patch 1020 or higher
- FileMan (DI) v22 Patch 1020 or higher
- LR v5.2 through Patch 1054
- ATX v5.1 Patch 51
- APSP v7.0 Patch 1034
- Caché v2017.2 or later with Ensemble

2.3 Package-wide Variables

Laboratory V. 5.2 package wide variables are created by the routine LRPARAM. A call to this routine should be placed on the highest Laboratory User Menu in the entry field. Laboratory local variables are deleted by the routine LRKILL. A call to this routine should be placed as an exit action on the highest Laboratory User Menu.

Table 2-1: Package-wide Variables

Variable	Description
LRBLOOD	Default specimen type for blood

Variable	Description
LRLABKY	Variable to indicate if the user has certain security keys Variable is defined if the user holds LRLAB key 1st piece by ^ is 1 if user holds LRVERIFY 2nd piece by ^ is 1 if user holds LRSUPERVISOR 3rd piece by ^ is 1 if user holds LRLAISON
LRORN	Set to 1 if OE/RR is activated
LRPARM	Set to 1 concatenated with 2-255 pieces of the ^LRO(69.9,1,0) global - contains information from the LABORATORY SITE file
LRPARM(VR)	The version number of Laboratory Package installed
LRPLASMA	Default plasma specimen type
LRSERUM	Default serum specimen type
LRUNKNOW	Default unknown specimen type
LRURINE	Default urine specimen type
LRVIDO	Escape sequence required to turn on reverse video and video blink
LRVIDOF	Escape sequence required to turn off LRVIDO action

2.4 Security Keys

Table 2-2: Security Keys

Key Name	Description
BLRAMZ RESET	Unlocks reset option
BLRAMZMENU	Unlocks AM Resistance Export
BLRAUZ RESET	Unlocks reset option
BLRAUZMENU	Unlocks AM Use Export
BLRZ AUAM SITE PARAMETER	Unlocks site parameter option
BLRZ F6 ALERTS MG EDIT	Allows F6 ALERTS Mail Grp Edit
BLRZ F6 AM/AU MENU	Unlocks BLR F6 AM/AU MENU
BLRZAURTEST	Unlocks testing options

3.0 Routine Descriptions and Maintenance

3.1 Routines with Description

Table 3-1: Routines with Description

Routine	Description
BLRAMBN	MENU BANNER FOR BLRAMMENU
BLRAMD	MAIN DRIVER FOR AM EXPORT
BLRAMD1	INIT FOR AM
BLRAMDC	MAIN DRIVER FOR AM EXPORT
BLRAMDR	Main Driver ANTIMICORIBAL TRANSMISSION DATE RANGE
BLRAMDRZ	Main Driver ANTIMICROBIAL TRANSMISSION DATE RANGE
BLRAMDS	MAIN DRIVER FOR AM EXPORT
BLRAMLG	DISPLAY ANTIMICROBIAL TRANSMISSION LOG
BLRAMRD	REDO AN ANTIMICROBIAL RUN
BLRAMRL	RESET AM TXT LOG
BLRAMRTN	API to get the current status of the BLRAM production
BLRAUBN	BANNER FOR AU
BLRAUD	MAIN DRIVER FOR AU REPORTING
BLRAUD1	INIT FOR AU
BLRAUDR	Main Driver ANTIMICORIBIAL USE DATE RANGE
BLRAUDRZ	Main Driver ANTIMICROBIAL USE DATA RANGE
BLRAUDS	SUMMARY DATA AU
BLRAUDSP	DISPLAY ANTIMICROBIAL USE SITE PARAM
BLRAULAR	DISPLAY ANTIMICROBIAL USE REPORT
BLRAULG	DISPLAY ANTIMICROBIAL USE LOG DATA
BLRAURD	REDO AN ANTIMICROBIAL USE REPORT
BLRAURL	SET TMP GLOBAL
BLRAUSPM	SET UP MED ROUTE SITE PARAMETERS
BLRAUSPW	SET UP AU WARD PARAMETERS
BLRDATAR	DATARAY SPECIFIC
BLRF6TUL	IHS LAB CCA: §170.315f(6) UTILITIES
BLRIPLUP	INTERMEC IPL UID Barcoded Print
BLRIPLZP	INTERMEC IP ACCESSION NUMBER Barcode 39 Lab Label Print
BLRLINK5	CONT. OF BLR - IHS LABORATORY V FILE Routines

Routine	Description
BLRPCCER	PCC Errors Report
BLRPRE55	RPMS LR*5.2*1055 Pre Install Routine
BLRPST55	RPMS LR*5.2*1055 Post Install Routine

4.0 Files and Tables

4.1 File List

Table 4-1: File List

File #	Filename	Description
61	TOPOGRAPHY FIELD	This is the TOPOGRAPHY file of SNOMED
90476	IHS LAB CCA §170.315f(6) SNOMED CODES	Contains the SNOMED Codes necessary for the CCA §170.315f(6) certification
90476.1	BLRAM EXPORT SPECIMEN SNOMED CODES	Contains the Specimen SNOMED Codes necessary for the CCA §170.315f(6) certification
90476.2	BLRAU EXPORTABLE DRUGS	Contains the drugs for export necessary for the CCA §170.315f(6) certification
9009026.81	BLRAM ANTIMICROBIAL RESISTANCE LOG	Contains the extract log audit trail for the antimicrobial resistance extracts for lab
9009026.82	BLRAU ANTIMICROBIAL USE LOG	Contains the extract log audit trail for the antimicrobial use extracts for pharmacy
9009026.83	BLRAU ANTIMICROB USE SITE PARAMETERS	Contains the antimicrobial resistance and use reporting extract site parameters
9009026.8301	BLRAU NHSN LOCATION (WARD) CODES	Contains the NHSN location mapping by wards for export necessary for the CCA §170.315f(6) certification
9009026.8382	BLRAU MEDICATION ROUTE	Contains the medication route mappings for export necessary for the CCA §170.315f(6) certification
9009026.84	BLRAM EXPORT ITEMS	Contains the export items necessary for the CCA §170.315f(6) certification

4.2 File Access

Table 4-2: File Access

File #	Filename	GL	RD	WR	LYG	DD	DEL
61	TOPOGRAPHY FIELD	^LAB(61,					

File #	Filename	GL	RD	WR	LYG	DD	DEL
90476	IHS LAB CCA §170.315f(6) SNOMED CODES	^BLRF6SNO(@	@	@	@	@
90476.1	BLRAM EXPORT SPECIMEN SNOMED CODES	^BLRF6SPS(@	@	@	@	@
90476.2	BLRAU EXPORTABLE DRUGS	^BLREDRGS(@	@	@	@	@
9009026.81	BLRAM ANTIMICROBIAL RESISTANCE LOG	^BLRAMLOG	M	M	M	@	M
9009026.82	BLRAU ANTIMICROBIAL USE LOG	^BLRAULOG(M	M	M	@	M
9009026.83	BLRAU ANTIMICROB USE SITE PARAMETERS	^BLRAUSTE	M	M	M	@	M
9009026.8301	BLRAU NHSN LOCATION (WARD) CODES	^BLRAUWLC(@	M	@	@	@
9009026.8382	BLRAU MEDICATION ROUTE	^BLRAUMRT(@	M	@	@	@
9009026.84	BLRAM EXPORT ITEMS	^BLRAMEXI(@	M	@	@	@

4.3 Cross References

Table 4-3: File: 61 TOPOGRAPHY FIELD

XREF	DD	FLD NUM	FIELD NAME
"B"	61	.01	NAME
"C"	61	2	SNOMED CODE
"D"	61.01	.01	SYNONYM
"E"	61	6	ABBREVIATION

Table 4-4: File: 90476 IHS LAB CCA §170.315f(6) SNOMED CODES

XREF	DD	FLD NUM	FIELD NAME
"B"	90476	.01	NAME
"C"	90476	.02	FULLY SPECIFIED NAME

Table 4-5: File: 90476.1 BLRAM EXPORT SPECIMEN SNOMED CODES

XREF	DD	FLD NUM	FIELD NAME
"B"	90476.1	.01	FULLNAME

Table 4-6: File: 90476.2 BLRAU EXPORTABLE DRUGS

XREF	DD	FLD NUM	FIELD NAME
"B"	90476.2	.01	CODE

Table 4-7: File: 9009026.81 BLRAM ANTIMICROBIAL RESISTANCE LOG

XREF	DD	FLD NUM	FIELD NAME
"B"	9009026.81	.01	RUN DATE/TIME

Table 4-8: File: 9009026.82 BLRAU ANTIMICROBIAL USE LOG

XREF	DD	FLD NUM	FIELD NAME
"B"	9009026.82	.01	RUN DATE/TIME

Table 4-9: File: 9009026.83 BLRAU ANTIMICROB USE SITE PARAMETERS

XREF	DD	FLD NUM	FIELD NAME
"B"	9009026.83	.01	SITE

Table 4-10: File: 9009026.8301 BLRAU NHSN LOCATION (WARD) CODES

XREF	DD	FLD NUM	FIELD NAME
"B"	9009026.8301	.01	NAME
"C"	9009026.8301	.02	NHSN CODE
"D"	9009026.8301	.01	NAME
"U"	9009026.8301	.01	NAME

Table 4-11: File: 9009026.8382 BLRAU MEDICATION ROUTE

XREF	DD	FLD NUM	FIELD NAME
"B"	9009026.8301	.01	ROUTE
"C"	9009026.8301	.03	SYNONYM
"D"	9009026.8301	.02	NHSN CODE
"U"	9009026.8301	.01	ROUTE

Table 4-12: File: 9009026.84 BLRAM EXPORT ITEMS

XREF	DD	FLD NUM	FIELD NAME
"B"	9009026.841111	.01	ANTIMICROBIAL LOINC
"C"	9009026.84	.01	ORGANISM SNOMED

5.0 External Relations

5.1 External Reference Files and Fields

Table 5-1: External Reference Files and Fields

File #	File Name	Fields
2	PATIENT	Name, SSN, Sex, DOB, Current Admission, Date Of Death, Ward
19.1	SECURITY KEY	Name
40.5	HOLIDAY	Date
40.8	MEDICAL CENTER DIV.	Version Node
42	WARD LOCATION	Name
42.4	SPECIALTY PTF Code	Service
4.3	KERNEL SITE	Default Institution Parameters
44	HOSPITAL LOCATION	Name, Abbreviation, Treating Specialty, Type
45	PTF	Procedures, Movement Record
45.7	FACILITY TREATING SPECIALTY	Name
50	DRUG	Generic Name
50.5	DRUG CLASSIFICATION	Name
52	PRESCRIPTION	Drug
55	PHARMACY PATIENT	Prescription Profile
80	ICD DIAGNOSIS	Code Number, Diagnosis
80.1	ICD OPERATION/PROCEDURE	Code Number, Operation/Procedure
81	CPT	Description, Blood Component Request, Short Name
81.1	CPT CATEGORY	Category Name
100	ORDER	OERR Internal File#
101	PROTOCOL	Entire File
130	SURGERY	Entire File
200	NEW PERSON	Entire File
405	PATIENT MOVEMENT	Admission, Discharge, Transfers

Note: Permission has been received from the respective package developers to reference these fields.

5.2 Callable Routines

None.

5.3 Published Entry Points

None.

5.4 Exported Options

Table 5-2: Exported Options

Option Name	Description
BLR F6 AM/AU MENU	Antimicrobial Use and Resistance Reporting (F6)
BLR F6 MG EDIT	F6 ALERTS Mail Group Edit
BLRAM ANTIMICRO RES DATE RANGE	Date Range Antimicrobial Resistance Transactions
BLRAM ANTIMICROBIAL RES EXPORT	Generate Antimicrobial Resistance Transmission
BLRAM DISP ANTIMICRO RES LOG	Display Antimicrobial Resistance Transmission Log
BLRAM INTERNAL TESTING	Date Range Option for Internal Testing
BLRAM QUEUE ANTIMICRO RES EXP	Queueable Antimicrobial Resistance Transmission
BLRAM RERUN PREVIOUS AR EXPORT	Re-Run Previously Run AM Resistance Transmission
BLRAM RESET ANTIMICRO RES LOG	Reset Antimicrobial Resistance Transmission Log
BLRAMMENU	Antimicrobial Resistance Reporting System
BLRAU ANTIMICRO USE DATE RANGE	Date Range Antimicrobial Use Report
BLRAU ANTIMICROBIAL REPORT	Report of Antimicrobial Use for a Log Entry
BLRAU ANTIMICROBIAL USE EXPORT	Generate Antimicrobial Use Report
BLRAU DISP ANTIMICRO USE LOG	Display Antimicrobial Use Report Log
BLRAU INTERNAL TESTING	Date Range Option for Internal Testing
BLRAU QUEUE ANTIMICRO USE EXP	Queueable Antimicrobial Use Report
BLRAU RERUN PREVIOUS AR EXPORT	Re-Run Previously Run AM Use Report
BLRAU RESET ANTIMICRO USE LOG	Reset Antimicrobial Use Report Log

Option Name	Description
BLRAU SITE PARAMETER MENU	Site Parameter Setup
BLRAU SITE PARM DISPLAY	Display AU Site Parameters
BLRAU SITE PARM FIND MED ROUTE	Find Medication Routes Used
BLRAU SITE PARM MED ROUTE	Medication Route Setup
BLRAU SITE PARM WARD SETUP	Site Parameter and Ward Setup (NHSN Codes)
BLRAUMENU	Antimicrobial Use Reporting System
BLRPCCERR	IHS LAB TRANSACTION LOG FILE PCC Error Report

6.0 Internal Relations

6.1 Stand Alone Menus

The following menus have menu actions necessary for their proper functioning. Items on these menus must not be moved without incorporating the appropriate actions.

Table 6-1: Stand Alone Menus

NAME	MENU TEXT	MENU ENTRY ACTION
BLR F6 AM/AU MENU	Antimicrobial Use and Resistance Reporting (F6)	None
BLR F6 MG EDIT	F6 ALERTS Mail Group Edit	MAILGRPE^BLRMEREA("F6 ALERTS")
BLRAM ANTIMICRO RES DATE RANGE	Date Range Antimicrobial Resistance Transactions	BLRAMDR
BLRAM ANTIMICROBIAL RES EXPORT	Generate Antimicrobial Resistance Transmission	START^BLRAMD
BLRAM DISP ANTIMICRO RES LOG	Display Antimicrobial Resistance Transmission Log	BLRAMLG
BLRAM INTERNAL TESTING	Date Range Option for Internal Testing	BLRAMDRZ
BLRAM QUEUE ANTIMICRO RES EXP	Queueable Antimicrobial Resistance Transmission	QUEUE^BLRAMD
BLRAM RERUN PREVIOUS AR EXPORT	Re-Run Previously Run AM Resistance Transmission	BLRAMRD
BLRAM RESET ANTIMICRO RES LOG	Reset Antimicrobial Resistance Transmission Log	BLRAMRL
BLRAMMENU	Antimicrobial Resistance Reporting System	None
BLRAU ANTIMICRO USE DATE RANGE	Date Range Antimicrobial Use Report	BLRAUDR
BLRAU ANTIMICROBIAL REPORT	Report of Antimicrobial Use for a Log Entry	BLRAULAR

NAME	MENU TEXT	MENU ENTRY ACTION
BLRAU ANTIMICROBIAL USE EXPORT	Generate Antimicrobial Use Report	START^BLRAUD
BLRAU DISP ANTIMICRO USE LOG	Display Antimicrobial Use Report Log	BLRAULG
BLRAU INTERNAL TESTING	Date Range Option for Internal Testing	BLRAUDRZ
BLRAU QUEUE ANTIMICRO USE EXP	Queueable Antimicrobial Use Report	QUEUE^BLRAUD
BLRAU RERUN PREVIOUS AR EXPORT	Re-Run Previously Run AM Use Report	BLRAURD
BLRAU RESET ANTIMICRO USE LOG	Reset Antimicrobial Use Report Log	BLRAURL
BLRAU SITE PARAMETER MENU	Site Parameter Setup	None
BLRAU SITE PARM DISPLAY	Display AU Site Parameters	BLRAUDSP
BLRAU SITE PARM FIND MED ROUTE	Find Medication Routes Used	MRINT^BLRAUSPM
BLRAU SITE PARM MED ROUTE	Medication Route Setup	BLRAUSPM
BLRAU SITE PARM WARD SETUPVSite Parameter and Ward Setup (NHSN Codes)	BLRAUSPW	
BLRAUMENU	Antimicrobial Use Reporting System	None
BLRPCCERR	IHS LAB TRANSACTION LOG FILE PCC Error Report	PEP^BLRPCCER

7.0 Archiving and Purging

None.

8.0 Documentation Resources

This section describes a few methods to generate online technical documentation.

8.1 System Documentation

Online 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 IHS Laboratory Reporting System options, specify the LR 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

For a comprehensive listing of IHS Laboratory Reporting System files, see Section 4.0.

8.2 Online Help

In addition to system documentation, RPMS includes special help displays for most menu options and data entry prompts. Typing ? at the “**Select . . . Option**” prompt displays information related to the current option, where

Table 8-1: Online help

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 Ensemble Production

An ancillary part of the LR application consists of an Ensemble production which takes the created BLRTMP global information and produces output files to be sent to the NHSN. The following list the technical components of the BLRAM production. Guidance on the configuration and usage of the production can be found in the associated installation guide.

A.1 Routines

The GTSTS^BLRAMRTN routine accepts a single parameter and returns a status of the production. The three possible values returned are, 'running', 'Business service not running', and 'Production not running'.

All other routine names and descriptions are not provided as the routines associated with the production classes are automatically generated and should not be edited.

A.2 BLRAM.Prod Classes

A.2.1 Adapters

A.2.1.1 AlertInbound

Extends class	Method(s)	Purpose
Ens.InboundAdapter	OnTask	<ul style="list-style-type: none"> Identifies all AlertItem class entries where the ReportedTimestamp property is NULL. Provide the AlertItem class entry object(s) to the ProcessInput method of the class using this adapter.

A.2.1.2 Inbound

Extends class	Method(s)	Purpose
Ens.InboundAdapter	OnTask	<ul style="list-style-type: none"> Identifies an entry into the rpmsGlobal Inbound Queue for processing. Merges the information from the rpmsGlobl into the loclGlobal Removes the entry into the rpmsGlobal Inbound Queue. Provides an ENS.StringRequest object to the ProcessInput method of the class using this adapter.

A.2.2 Alert

A.2.2.1 AlertItem

Property	Type
SourceConfigName	%String
AlertText	%String
CreatedTimestamp	%TimeStamp
Category	%String
ReportedTimestamp	%TimeStamp

Indexes
ReportedTimestampIdx
CreatedTimestampIdx

A.2.3 Build.DTL

A.2.3.1 create.AROdetail

Extends class	Input	Output
Ens.DataTransformDTL	DocumentRequest	New.ClinicalDocument

Elements populated	Not applicable	Not applicable
realmCode	Not applicable	Not applicable
typeId	Not applicable	Not applicable
templateId(4)	Not applicable	Not applicable
id	Not applicable	Not applicable
code	Not applicable	Not applicable
title	Not applicable	Not applicable
effectiveTime	Not applicable	Not applicable
confidentialityCode	Not applicable	Not applicable
languageCode	Not applicable	Not applicable
setId	Not applicable	Not applicable
versionNumber	Not applicable	Not applicable
recordTarget	Not applicable	Not applicable
author	Not applicable	Not applicable
custodian	Not applicable	Not applicable
componentOf	Not applicable	Not applicable

A.2.3.2 create.AROsummary

Extends class	Input	Output
Ens.DataTransformDTL	DocumentRequest	New.ClinicalDocument

Elements populated	Not applicable	Not applicable
realmCode	Not applicable	Not applicable
typeld	Not applicable	Not applicable
templateId(4)	Not applicable	Not applicable
id	Not applicable	Not applicable
code	Not applicable	Not applicable
title	Not applicable	Not applicable
effectiveTime	Not applicable	Not applicable
confidentialityCode	Not applicable	Not applicable
languageCode	Not applicable	Not applicable
setId	Not applicable	Not applicable
versionNumber	Not applicable	Not applicable
recordTarget	Not applicable	Not applicable
author	Not applicable	Not applicable
custodian	Not applicable	Not applicable
legalAuthenticator	Not applicable	Not applicable
participant	Not applicable	Not applicable
documentationOf	Not applicable	Not applicable
component	Not applicable	Not applicable

A.2.3.3 create.AUPsummarySL

Extends class	Input	Output
Ens.DataTransformDTL	DocumentRequest	New.ClinicalDocument

Elements populated	Not applicable	Not applicable
realmCode	Not applicable	Not applicable
typeld	Not applicable	Not applicable
templateId(3)	Not applicable	Not applicable
id	Not applicable	Not applicable
code	Not applicable	Not applicable
title	Not applicable	Not applicable

Elements populated	Not applicable	Not applicable
effectiveTime	Not applicable	Not applicable
confidentialityCode	Not applicable	Not applicable
languageCode	Not applicable	Not applicable
setId	Not applicable	Not applicable
versionNumber	Not applicable	Not applicable
recordTarget	Not applicable	Not applicable
author	Not applicable	Not applicable
custodian	Not applicable	Not applicable
legalAuthenticator	Not applicable	Not applicable
participant	Not applicable	Not applicable
documentationOf	Not applicable	Not applicable
component	Not applicable	Not applicable

A.2.3.4 create.OBS.Specimen

Extends class	Input	Output
Ens.DataTransformDTL	DocumentRequest	New.entry.Specimen

Elements populated	Not Applicable	Not applicabl
classCode	Not applicable	Not applicable
moodCode	Not applicable	Not applicable
templateId	Not applicable	Not applicable
effectiveTime	Not applicable	Not applicable
specimen	Not applicable	Not applicable
entryRelationship	Not applicable	Not applicable

A.2.3.5 create.OBS.Study

Extends class	Input	Output
Ens.DataTransformDTL	DocumentRequest	New.entry.Study

Elements populated	Not applicable	Not applicable
classCode	Not applicable	Not applicable
moodCode	Not applicable	Not applicable
templateId	Not applicable	Not applicable
id	Not applicable	Not applicable

Elements populated	Not applicable	Not applicable
code	Not applicable	Not applicable
statusCode	Not applicable	Not applicable
participant	Not applicable	Not applicable
component	Not applicable	Not applicable

A.2.3.6 create.OBS.Tests

Extends class	Input	Output
Ens.DataTransformDTL	DocumentRequest	New.entry.Tests

Elements populated	Not applicable	Not applicable
Component(n)	Not applicable	Not applicable

A.2.3.7 add.OBS.Tests

Extends class	Input	Output
Ens.DataTransformDTL	DocumentRequest	New.entry.Tests

Elements populated	Not applicable	Not applicable
Component(n)	Not applicable	Not applicable

A.2.4 Messages

A.2.4.1 DocumentRequest

Extends class	Not applicable	Not applicable
Ens.Request	Not applicable	Not applicable
%XML.Adaptor	Not applicable	Not applicable

Property	Type	Not applicable
nameSpace	%String	Not applicable
jobN	%String	Not applicable
reportType	%String	Not applicable
patDFN	%String	Not applicable
eventType	%String	Not applicable
eventValue	%String	Not applicable
cStudy	%String	Not applicable

Property	Type	Not applicable
testIndx	%String	Not applicable
testCount	%Integer	Not applicable
AUPantiIndxs	array of %String	Not applicable
AUPantiCounts	array of %String	Not applicable
testCIndx	%Integer	Not applicable
status	%String	Not applicable
fileName	%String	Not applicable
cAUPlocIndx	%Integer	Not applicable
cAUPdrugIndx	%Integer	Not applicable

A.2.4.2 DocumentResponse**A.2.4.3 ErrorResponse**

Extends class	Not applicable	Not applicable
%RegisteredObject	Not applicable	Not applicable
%XML.Adaptor	Not applicable	Not applicable

Property	Type	Not applicable
ErrorCode	%String	Not applicable
ErrorText	%String	Not applicable

A.2.4.4 ProcessedJob

Extends class	Not applicable	Not applicable
Ens.Request	Not applicable	Not applicable
%XML.Adaptor	Not applicable	Not applicable

Property	Type	Not applicable
createTime	%TimeStamp	Not applicable
nameSpace	%String	Not applicable
jobN	%String	Not applicable
jobType	%String	Not applicable
docReqIds	%ArrayOfDataTypes	Not applicable
startDateTime	%DateTime	Not applicable
endDateTime	%DateTime	Not applicable
status	%String	Not applicable

A.2.4.5 SteamRequest

Extends class	Purpose
Ens.Request	A class that is used in creating the clinical document file

Property	Type	Not applicable
JobId	%String	Not applicable
ReportType	%String	Not applicable
DirectoryPath	%String	Not applicable
ClinicalDocument	New.ClinicalDocument	Not applicable
documentStream	%Stream.GlobalCharacter	Not applicable
documentStream2	%Stream.FileCharacter	Not applicable

A.2.4.6 New.ClinicalDocument

Extends class	Purpose
BLRAM.CDA.POCDMT000040.ClinicalDocument	XML structure for the clinical document.

A.2.4.7 New.entry.Tests

Extends class	Purpose
BLRAM.CDA.POCDMT000040.Organizer	XML structure for the tests information

A.2.4.8 New.entry.Study

Extends class	Purpose
BLRAM.CDA.POCDMT000040.Component4	XML structure for the study information

A.2.4.9 New.entry.Specimen

Extends class	Purpose
BLRAM.CDA.POCDMT000040.Procedure	XML structure for the specimen information

A.2.5 Operations**A.2.5.1 FileDoc**

Extends class	Purpose
Ens.BusinessOperation	Save the StreamRequest received to a file on the local server.

A.2.6 Processes

A.2.6.1 Alert

Extends class	Purpose
Ens.BusinessProcessBPL	Create an AlertItem object from the information received.

A.2.6.2 ProcessJob

Extends class	Purpose
Ens.BusinessProcessBPL	Create the AUP summary, ARO summary and ARU numerator Streams.

A.2.7 Services

A.2.7.1 Alert

Extends class	Not applicable	Not applicable
Ens.BusinessService	Not applicable	Not applicable

A.2.7.2 Inbound

Extends class	Not applicable	Not applicable
Ens.BusinessService	Not applicable	Not applicable

A.2.8 Util

A.2.8.1 Functions

Methods	Called from (BLRAM.Prod.)
getTest	Processes.ProcessJob Build.DTL.create.OBS.Tests Build.DTL.add.OBS.Test Util.functions.getTestString
getSpecimen	Build.DTL.create.OBS.Specimen Util.functions.getSpecimenString
getStudy	Build.create.OBS.Study Util.functions.getStudyString
getZeroNodeInfo	Build.DTL.create.AROdetail Build.DTL.create.AROsummary Build.DTL.create.AUPsummarySL

Methods	Called from (BLRAM.Prod.)
getDocId	Build.DTL.create.AROdetail Build.DTL.create.AROsummary Build.DTL.create.AUPsummarySL
getPatientId	Build.DTL.create.AROdetail
getName	Build.DTL.create.AROdetail
getBirthDate	Build.DTL.create.AROdetail
getRace	Build.DTL.create.AROdetail
getEthnicity	Build.DTL.create.AROdetail
getGender	Build.DTL.create.AROdetail
getAuthor	Build.DTL.create.AROdetail Build.DTL.create.AROsummary Build.DTL.create.AUPsummarySL
getEncounter	Build.DTL.create.AROdetail Processes.ProcessJob
getAROSummaryInfo	Build.DTL.create.AROdetail Build.DTL.create.AROsummary Util.functions.buildAROSummaryText Util.functions.getSetIdExt
GetOID	Build.DTL.create.AROsummary
getReportDate	Build.DTL.create.AROdetail
getAUPSummaryInfo	Build.DTL.create.AUPsummarySL Util.functions.buildAUPSummaryTex
getNameSpace	Processes.ProcessJob
getTestString	Processes.ProcessJob
getCloseString	Processes.ProcessJob
getSNOMEDVal	Build.DTL.create.OBS.Study Util.functions.getStudyString
getGlobalIndex	Processes.ProcessJob
getSpecimenString	Processes.ProcessJob
getStudyString	Processes.ProcessJob
isStaphTest	Build.DTL.add.OBS.Tests Build.DTL.create.OBS.Tests
includeStaphOBS	Build.DTL.create.OBS.Study Util.functions.getStudyString
CurrentCCDATime	Build.DTL.create.AROdetail Build.DTL.create.AROsummary Build.DTL.create.AUPsummarySL

Methods	Called from (BLRAM.Prod.)
setGlobalIndex	Processes.ProcessJob
setAUPsummaryProperties	Processes.ProcessJob
BuildVLPQObject	Build.DTL.add.OBS.Tests Build.DTL.create.OBS.Tests
buildIRvalue	Build.DTL.add.OBS.Tests Build.DTL.create.OBS.Tests
BuildPQObject	Build.DTL.create.AROsummary Build.DTL.create.AUPsummarySL
BuildINTObject	Build.DTL.create.AROsummary
BuildBLObject	Build.DTL.create.OBS.Specimen
BuildCDOObject	Build.DTL.create.OBS.Study Util.functions.BuildIRValue
buildAROSummaryText	Processes.ProcessJob
buildAUPSummaryTextSL	Processes.ProcessJob
createAlert	Processes.ProcessJob

A.2.8.2 Task.Purge

Extends class	Not applicable	Not applicable
Ens.Util.Task.Purge	Not applicable	Not applicable

A.2.9 Production

Business Services	Not applicable
Alert	Not applicable
Information Settings.Class Name	BLRAM.Prod.Services.Alert

Receive Job Information	Not applicable
Information Settings.Class Name	BLRAM.Prod.Services.Inbound
Basic Settings.CallInterval	5
Basic Settings.Target Config Names	BuildDocument(s)

Business Processes	Not applicable
Ens.Alert	Not applicable
Information Settings.Class Name	BLRAM.Prod.Processes.Alert

BuildDocuments(s)	Not applicable
Information Settings.Class Name	BLRAM.Prod.Processes.ProcessJob
Business Processes	Not applicable
EmailAlert	Not applicable
Information Settings.Class Name	EnsLib.Email.AlertOperation
Basic Settings.SMTP Server	Smtpre.ihs.gov
Basic Settings. SMTP Port	25
Additional Settings.Recipient	Place the eMail addresses of those who should be notified if an issue occurs within the BLRAM production
Additional Setting.From	Place a string value here that indicates which BLRAM environment is sending this email. Using the Namespace of the BLRAM production followed by @ihs.gov. Example: BLRAMCMBA@ihs.gov
Save Doc	Not applicable
Information Settings.Class Name	BLRAM.Prod.Operations.FileDoc
Basic Settings.File Path	Place a string value here of where the created files from the RPMS extract will be saved. Example: G:\BLRAMCMBA\CreatedFiles\
Additional Settings.StyleSheetName	Place a string value here that includes the file sheet directory and file name. Example: G:\BLRAM\StyleSheets\CDA.xsl

A.2.10 Version

The classes that are added to this package are empty files that indicate what version/patch have been loaded and compiled within the BLRAM package. The naming convention for the files that reside here is 'V' followed by the version number we currently are on followed by a 'P', followed by the patch number. If a release doesn't have a patch number then the following 'P' and number are not included.

A.2.10.1 V1

A.3 BLRAM.CDA Classes

This class is a copy of the BCCD.CCDA underlying classes for the CCDA document creation. All classes under this package were created using the pocd_mt00040_sdtc.xsd file

Glossary

Health Level 7

An international standard messaging system for passing data from one site to another. The AUR exports format data from RPMS to the NHSN using HL7v3 (CDA) messages.

Onboarding

In order to attest to the CMS measure, the site will need to register with NHSN to indicate participation in the Patient Safety with the AUR module. The site will receive an NHSN assigned Facility OID to update in the AUR site parameters to allow the upload of the monthly files to NHSN.

Acronym List

Acronym	Meaning
ARO	Antimicrobial Resistance Option
AUP	Antimicrobial Use
AUR	Antimicrobial Use and Resistance
CDA	Clinical Document Architecture
CDC	Centers for Disease Control and Prevention
DNS	Domain Name System
ELR	Electronic Lab Reporting
FTP	File Transfer Protocol
HAI	Healthcare Associated Infection
HHS	Health and Human Services
HL7	Health Level Seven
ICD	International Classification of Disease
IHS	Indian Health Service
IP	Internet Protocol
LOINC	Logical Observation Identifiers Names and Codes
NHSN	National Health and Safety Network
PCC	Patient Care Component
RPMS	Resource and Patient Management System
SFTP	Secure Shell File Transfer Protocol
SVAP	Standards Version Advancement Process

Contact Information

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