



RESOURCE AND PATIENT MANAGEMENT SYSTEM

# **IHS USER SECURITY AUDIT Application Programming Interface**

(BUSA)

## **Technical Manual**

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## Preface

The purpose of this manual is to provide technical information about the IHS USER SECURITY AUDIT (BUSA) package. The BUSA package contains a number of utilities consisting of Application Programming Interface (API) calls, programming hooks, and Remote Procedure Calls (RPC) that have been developed to allow user activity to be tracked and reported upon.

## 1.0 Introduction

The BUSA package is a component of the Indian Health Service (IHS) Resource and Patient Management System (RPMS) that provides sites with the ability to track user activity. This activity can then be reported on to meet meaningful use certification requirements.

This manual provides IHS developers with a technical description of the BUSA APIs, routines, files, menus, cross references, globals, and other necessary information required to properly set up applications to log user activity in BUSA files.

All APIs, routines, files, options, and keys are namespaced starting with the letters BUSA. The file number range for this package is 9002319–9002319.99.

## 2.0 Implementation and Maintenance

The BUSA utilities are designed to give application developers the ability to track user activity in a consistent manner, while keeping application code changes to a minimum.

The following table shows the prerequisite patch requirements.

| Package and Version | Associated Patch Designation(s) | Brief Patch Description |
|---------------------|---------------------------------|-------------------------|
| None                | None                            | None                    |

### 2.1 System Requirements

The following table shows the versions of other packages that should be installed for BUSA to work properly.

| Module                  | Minimum Version         | Recommended Version |
|-------------------------|-------------------------|---------------------|
| BMW                     | 2013-05-20 or greater   |                     |
| VA FileMan (DI)         | v22.0 Patch 1017        |                     |
| IHS/VA Utilities (XB)   | v3.0 through Patch 11   |                     |
| IHS Kernel Toolkit (XT) | V7.3 through Patch 1017 |                     |
| VA Kernel (XU)          | v8.0 Patch 1017         |                     |

### 2.2 Package-wide Variables

There are no package-wide BUSA variables in RPMS.

### 2.3 Security Keys

The following security keys can be assigned to users.

| Key Name | Description                                                                                                                                                  |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BUSAZMGR | This security key should only be assigned to those persons who will manage the BUSA application. It should not be given to the general RPMS user population. |
| BUSAZRPT | This key should be given to users who require access to the BUSA web-based reporting tool.                                                                   |

## 3.0 Menu Diagram

RPMS menus in the BUSA system:

- Edit Security Audit [BUSA SECURITY EDIT]

BUSA option which allows the security auditing logging to be turned on or off.

Option requires the BUSAZMGR security key

## 4.0 Routine

### 4.1 Routine List

This routine list includes all BUSA routines:

BUSA1PRE | BUSAACVR | BUSAAPI | BUSACLAS BUSAOPT | BUSARPC  
BUSATRAN | BUSAUTIL

### 4.2 Routines with Description

This routine list describes each routine in this version.

| Routine  | Description                                                           |
|----------|-----------------------------------------------------------------------|
| BUSA1PRE | Pre/Post-installation program                                         |
| BUSAACVR | User access checks for the BUSA Audit Report Utility                  |
| BUSAAPI  | Main API front end routine                                            |
| BUSACLAS | Transport routine for BUSA classes                                    |
| BUSAOPT  | Security audit option routine                                         |
| BUSARPC  | Routine containing hooks for BMXNet, XWB Broker, and CIA Broker calls |
| BUSATRAN | BUSA RPC definition routine                                           |
| BUSAUTIL | Utility function calls                                                |
| BUSA1PRE | Pre/Post-installation program                                         |
| BUSAACVR | User access checks for the BUSA Audit Report Utility                  |
| BUSAAPI  | Main API front end routine                                            |

### 4.3 BUSA Logging Utilities

#### 4.3.1 RPMS Logging API - \$\$LOG^BUSAAPI

This API allows a specific code set version to be searched on for a particular input string. The result set can be filtered by subset, maximum records, and other filtering criteria.

| Parameter          | Data Type    | Description                                                                                  |
|--------------------|--------------|----------------------------------------------------------------------------------------------|
| TYPE<br>(Optional) | Set of Codes | The type of entry to log (R:RPC Call;W:Web Service Call;A:API Call;O:Other) - Default to 'A' |



| Parameter                         | Data Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CAT<br>(Required)                 | Set of Codes | The category of the event to log (S:System Event; P:Patient Related;D:Definition Change; O:Other Event)                                                                                                                                                                                                                                                                                                                                                                                                                 |
| ACTION<br>(Required for CAT="P")  | Set of Codes | The action of the event to log (A:Additions; D:Deletions; Q:Queries; P:Print; E:Changes;C:Copy)                                                                                                                                                                                                                                                                                                                                                                                                                         |
| CALL<br>(Required)                | Free Text    | Free text entry describing the call which originated the audit request (Maximum length 200 characters). Examples could be an RPC value or calling routine.                                                                                                                                                                                                                                                                                                                                                              |
| DESC<br>(Required)                | Free Text    | Free text entry describing the call action (Maximum length 250 characters). Examples could be 'Patient demographic update', 'Copied iCare panel to clipboard' or 'POV Entry'                                                                                                                                                                                                                                                                                                                                            |
| BUSADET<br>(Required for CAT="P") | Free Text    | This field should contain the name of the variable array set up with the patients to log. For example, given the variable array used below, pass in "BUSADET" for the value of this parameter.<br>BUSADET(#)= [1] ^ [2] ^ [3] ^ [4] ^ [5]<br>Where:<br>[1] Patient DFN – Will be populated based on Visit IEN if blank<br>[2] Visit IEN (optional, required if DFN is blank)<br>[3] Detail information pertaining to this specific detail entry (optional)<br>[4] New value (optional)<br>[5] Original value (optional) |
| <return value>                    | String       | Result returned as:<br>[1] ^ [2]<br>Values:<br>[1] Status =1:Call completed successfully,0:Call failed<br>[2] Error Message (if applicable)                                                                                                                                                                                                                                                                                                                                                                             |

### 4.3.2 CIA BROKER/BMXNet/XWB BROKER RPC Logging

This utility allows events to be logged from RPC calls passed through the CIA, XWB and the BMXNet brokers. The following instructions explain how to set up RPC calls to be logged.

#### 4.3.2.1 Setting Up RPC calls to be Logged

The first step in setting up RPC calls to be logged through the CIA, XWB and BMXNet brokers is to identify the list of application RPC calls that need to be logged. As a general guideline, any RPC call that is utilized by EHR or iCare to query (display), add, change, delete, print or copy patient information should be included in the list to be logged.

Once this list of RPC calls has been identified, they need to be set up in the BUSA AUDIT RPC DEFINITIONS file (#9002319.03) to be logged. This file contains the following fields which can be populated for each entry:

**RPC (#.01)**

This required field is a pointer to the REMOTE PROCEDURE file (#8994). Select the RPC which should be logged in the CIA, XWB, or BMXNet broker.

**CATEGORY (#.02)**

This required field should be populated with the category best representing the function of the RPC. For the initial release of the IHS SECURITY AUDIT application as it pertains to meaningful use certification, the focus for this release is to track patient related events. Therefore, most entries for the CATEGORY field will most likely be set to "P". The following codes are selectable as valid CATEGORY values (S:System Event; P:Patient Related; D:Definition Change; O:Other Event). In the broker hook code, this value will be stored (and can be referenced or changed) in the variable 'CAT'.

**ACTION (#.03)**

This field is required for patient related CATEGORY values. The ACTION field should be set to one of the following values which best describe the function of the RPC. The following codes are selectable as valid ACTION values (A:Additions; D:Deletions; Q:Queries; P:Print; E:Changes; C:Copy). In the broker hook code, this value will be stored (and can be referenced or changed) in the variable 'ACT'.

**ENTRY DESCRIPTION EXECUTABLE (#.06)**

This field should be MUMPS executable code which sets the variable 'X' equal to a description of the RPC function.

**Note:** Any uses of "^" should be input as "~". They will be translated back to "^" prior to execution of the code.

In the broker hook code, this value will be stored (and can be referenced or changed) in the variable 'DESC'.

The following examples show possible values for this field:

- S X="EHR: Updated POV for patient"
- S X="EHR: Displayed problem list for patient"
- S X= S X="iCare: print women's health profile"
- S X="iCare: Opened Panel  
"\_\$PNLNAME~BUSAUTIL(DUZ,\$\$INPUT~BUSAUTIL(2))

**INACTIVE (#.07)**

This field should be set to '1' if an existing entry should be marked as inactive and should no longer be logged.

**DFN LOCATION (#1.01)**

If this RPC is patient related and the DFN value is available in either the RPC input parameters or output results, the location of the DFN should be entered here. The format for this field is as follows:

Format: [1]~[2]

[1] - Enter "I" for input parameter or "R" for result (where the DFN value or data used to get the DFN value is located).

[2] - Enter the input parameter number or the result field piece or column name. For result references the column number should be listed for CIA Broker RPC calls. For XWB or BMXNet result references the actual column name should be used.

The following examples show possible values for this field:

- I~3 – This will pull the DFN from input parameter 3
- R~1 – This CIA Broker reference pulls the DFN out of the first piece of the results.
- R~DFN – This XWB/BMXNet reference pulls the DFN out of the column with a header value of DFN.

**DFN EXECUTABLE (#1.02)**

This field should be MUMPS executable code which sets the variable 'X' equal to the DFN value. If the DFN LOCATION field is populated, this value will already be populated in the variable 'X' prior to the execution of this field. After the execution of this field in the broker hook code, the value of 'X' will be saved into the variable 'DFN' where it can later be referenced.

**Note:** Any uses of "^" should be input as "~". They will be translated back to "^" prior to execution of the code.

The following examples show possible values for this field:

- S X=\$P(X,U) – This code takes the result of the DFN LOCATION field and pulls the first "^" piece to use as the value of DFN.
- S X=\$\$GET1~DIQ(9000011,X\_",",.02,"I") – In this case the DFN LOCATION field set the variable 'X' to the IEN of the PROBLEM entry. This executable code then utilizes that value to pull the DFN from the PROBLEM file entry.

- S:\$P(X,U,8)="" DESC="EHR: Added problem entry for patient",ACT="A" S X=\$P(X,U,7) – In this example (for the BGOPROB SET RPC) the variable ‘X’ is set as the input parameter string. Piece 8 will be blank for new problems and will be populated with the PROBLEM IEN if it is an update. This code is utilizing this condition to alter the value of the description value (initially set as “EHR: Updated problem entry for patient”) by changing the value of DESC. It then sets the DFN to be the 7<sup>th</sup> piece of the input string.

### VIEN LOCATION (#2.01)

If this RPC is patient related and the VIEN value is available in either the RPC input parameters or output results, the location of the VIEN should be entered here.

**Note:** if VIEN is populated using this field or the subsequent VIEN EXECUTABLE field, it is not necessary to populate the DFN LOCATION or DFN EXECUTABLE fields as the DFN value will be automatically calculated using the VIEN.

The format for this field is as follows:

Format: [1]~[2]

[1] - Enter "I" for input parameter or "R" for result (where the VIEN value or data used to get the VIEN value is located).

[2] - Enter the input parameter number or the result field piece or column name. For result references the column number should be listed for CIA Broker RPC calls. For BMXNet and XWB, result references the actual column name should be used.

The following examples show possible values for this field:

- I~3 – This will pull the VIEN from input parameter 3
- R~1 – This CIA Broker reference pulls the VIEN out of the first piece of the results.
- R~HIDDEN\_VISIT\_IEN – This BMXNet reference pulls the VIEN out of the column with a header value of HIDDEN\_VISIT\_IEN.

### VIEN EXECUTABLE (#2.02)

This field should be MUMPS executable code which sets the variable ‘X’ equal to the VIEN value. If the VIEN LOCATION field is populated, this value will already be populated in the variable ‘X’ prior to the execution of this field. After the execution of this field in the broker hook code, the value of ‘X’ will be saved into the variable ‘VIEN’ where it can later be referenced.

**Note:** Any uses of “^” should be input as “~”. They will be translated back to “^” prior to execution of the code.

The following example show possible values for this field:

- S X=\$P(X,U) – This code takes the result of the VIEN LOCATION field and pulls the first “^” piece to use as the value of VIEN.

### **MULTIPLE INPUT LIST TYPE (#2.03)**

This field, used in conjunction with the MULTIPLE INPUT LIST DELIMITER field, is used to handle cases where multiple DFN or VIEN values are passed in the input parameters as a delimited list.

If either the DFN or VIEN is passed in as a list of values, the value of this field should be set to either DFN or VIEN.

### **MULTIPLE INPUT LIST DELIMITER (#2.04)**

This field, used in conjunction with the MULTIPLE INPUT LIST TYPE field, is used to handle cases where multiple DFN or VIEN values are passed in the input parameters as a delimited list.

The delimiter used to separate the DFN/VIEN values should be entered in this field. Enter a character, \$C(.) value, or U for ""^"". Sample entries for this field might be: “;”, “|”, U, or \$C(28).

The following example shows how these two fields can be utilized. In this example, the DFN LOCATION is set as “I~3”, the input piece which contains the delimited list of DFN values. The MULTIPLE INPUT LIST TYPE field is set to “DFN” to reflect that this is a list of DFN values. Finally, the MULTIPLE INPUT LIST DELIMITER is set to \$C(28) since this character is used as the list delimiter.

### **DETAIL ENTRY DESC EXECUTABLE (#3)**

This optional field should be populated with MUMPS executable code which sets the variable ‘X’ equal to a comment to associate with the particular DFN/VIEN value detail entry . This field (normally left blank) could be useful for situations where multiple DFN/VIEN values are provided and it is desired to have custom information saved for each DFN/VIEN value.

### **NEW VALUE EXECUTABLE (#4)**

This optional field should be populated with MUMPS executable code which sets the variable ‘X’ equal to the new value resulting from the RPC call. This information is not required for this stage of meaningful use certification so it should be populated only if absolutely necessary.

**ORIGINAL VALUE EXECUTABLE (#5)**

This optional field should be populated with MUMPS executable code which sets the variable 'X' equal to the original value of the data that was modified with the RPC call. This information is not required for this stage of meaningful use certification so it should be populated only if absolutely necessary.

Variable: CAT – The category value

Variable: ACT – The action value

Variable: DESC – The logging entry description value

Variable: SKIP – If set to '1' the log entry will be skipped for this call

Array: BUSADVAL – For patient related calls, this array should be set in the following format:

```
BUSADVAL(#)=DFN^VIEN^EVENT DESCRIPTION^NEW VALUE^ORIGINAL VALUE
```

Where:

# - Record counter (1,2,3...)

DFN - (Optional for non-patient related calls) - Pointer to VA PATIENT file (#2)

VIEN - (Optional for non-visit related calls) - Pointer to VISIT file (#9000010)

EVENT DESCRIPTION -(Optional) - Additional detail to log for this entry

NEW VALUE - (Optional) - New value after call completion, if applicable

ORIGINAL VALUE - (Optional) - Original value prior to call execution, if applicable

**4.3.2.2 Instructions for including BUSA AUDIT RPC DEFINITIONS in KIDS Build**

The BUSA application does not come prepopulated with BUSA AUDIT RPC DEFINITION entries. It is the responsibility of the developers of each application to determine which RPC calls need to be logged. After setting up the definition entries in the BUSA AUDIT RPC DEFINITION file, the next step is to mark the entries to be included in a specified KIDS build. The following instructions describe how to mark the appropriate entries and populate the KIDS build so that only the desired entries get included.

**4.3.2.2.1 Step1**

Identify Entries to Be Included in the KIDS Build and set up the entries in the BUSA RPC TRANSPORT LIST file (#9002319.07)

```
Select OPTION: 1 ENTER OR EDIT FILE ENTRIES
INPUT TO WHAT FILE: BUSA RPC TRANSPORT LIST//
EDIT WHICH FIELD: ALL//
Select BUSA RPC TRANSPORT LIST BUSA RPC DEFINITION: BQI UPDATE DX CAT
...OK? Yes// (Yes)
Are you adding 'BQI UPDATE DX CAT' as
```

```

a new BUSA RPC TRANSPORT LIST (the 90TH)? No// Y (Yes)
Select SEND IN BUILD: BQI*2.3*3          ICARE MANAGEMENT SYSTEM      ICARE
MANAGEMENT SYSTEM
Are you adding 'BQI*2.3*3' as a new SEND IN BUILD (the 1ST for this BUSA
RPC T
RANSPORT LIST)? No// Y (Yes)
Select SEND IN BUILD:

Select BUSA RPC TRANSPORT LIST BUSA RPC DEFINITION: BQI UPDATE FAMILY
PLANNING
...OK? Yes// (Yes)

Are you adding 'BQI UPDATE FAMILY PLANNING' as
a new BUSA RPC TRANSPORT LIST (the 91ST)? No// Y (Yes)
Select SEND IN BUILD: BQI*2.3*3          ICARE MANAGEMENT SYSTEM      ICARE
MANAGEME
NT SYSTEM
Are you adding 'BQI*2.3*3' as a new SEND IN BUILD (the 1ST for this BUSA
RPC T
RANSPORT LIST)? No// Y (Yes)
Select SEND IN BUILD:

Select BUSA RPC TRANSPORT LIST BUSA RPC DEFINITION:

```

Figure 4-1: Instructions for Step 1

#### 4.3.2.2.2 Step 2

Include the BUSA AUDIT RPC DEFINITIONS file in the application KIDS build with the follow parameters:

Include the BUSA AUDIT RPC DEFINITIONS file in the KIDS build:

Edit a Build

PAGE 2 OF 5

Name: **BQI\*2.3\*3**

TYPE: **SINGLE PACKAGE**

-----

File List (Name or Number)

ICARE USER  
ICARE MU PROVIDER  
ICARE MU FACILITY  
ICARE DEFINITIONS  
ICARE FILE DEFINITION  
ICARE VIEW SOURCE  
ICARE MU TABS  
ICARE TIMEFRAMES  
ICARE SITE PARAMETERS  
ICARE REMINDER NOTIFICATIONS  
BUSA AUDIT RPC DEFINITIONS

-----

COMMAND:

Press <PF1>H for help

**Insert**

Figure 4-2: Include the BUSA AUDIT RPC DEFINITIONS file in the KIDS build

Set up the file with the following KIDS transport definitions:



| Edit a Build                                 |                               | PAGE 2 OF 5 |
|----------------------------------------------|-------------------------------|-------------|
| Name: <b>BQI*2.3*3</b>                       | TYPE: <b>SINGLE PACKAGE</b>   |             |
| -----                                        |                               |             |
| File List (Name or Number)                   |                               |             |
| DD Export Options                            |                               |             |
| File: <b>BUSA AUDIT RPC DEFINITIONS</b>      |                               |             |
| Send Full or Partial DD...: <b>FULL</b>      |                               |             |
| Update the Data Dictionary: <b>NO</b>        | Send Security Code: <b>NO</b> |             |
| Screen to Determine DD Update                |                               |             |
| Data Comes With File...: <b>YES</b>          |                               |             |
| -----                                        |                               |             |
| COMMAND: Press <PF1>H for help <b>Insert</b> |                               |             |

Figure 4-3: Set up the file with the KIDS transport definitions

In the “Data Comes With File” page, set up the following properties:

| Edit a Build                                   |                                          | PAGE 2 OF 5   |
|------------------------------------------------|------------------------------------------|---------------|
| Name: <b>BQI*2.3*3</b>                         | TYPE: <b>SINGLE PACKAGE</b>              |               |
| -----                                          |                                          |               |
| File List (Name or Number)                     |                                          |               |
| -----                                          |                                          |               |
| DD Export Options                              |                                          |               |
| -----                                          |                                          |               |
| Data Export Options                            |                                          |               |
| -----                                          |                                          |               |
| Site's Data: <b>REPLACE</b>                    |                                          |               |
| Resolve Pointers: <b>NO</b>                    | May User Override Data Update: <b>NO</b> |               |
| Data List:                                     |                                          |               |
| Screen to Select Data                          |                                          |               |
| <b>I \$\$\$SEND^BUSAUTIL(\$G(Y),\$G(XPDA))</b> |                                          |               |
| -----                                          |                                          |               |
| COMMAND:                                       |                                          |               |
| Press <PF1>H for help                          |                                          | <b>Insert</b> |

Figure 4-4: Set up the properties on this page

Make sure to put the following line of code in the 'Screen to Select Data' field:

**I \$\$\$SEND^BUSAUTIL(\$G(Y),\$G(XPDA))**

#### 4.3.2.3 Using the ^BUSATRANS Utility

The IHS SECURITY AUDITING package comes with a utility that makes the definition of the RPC entries more convenient. From the command line type the following to initiate the utility:

##### 4.3.2.3.1 Add a New Entry

```
>D ^BUSATRAN

Select REMOTE PROCEDURE NAME:   BJPB SET AS POV
Add entry to transport list? Yes//  YES
CATEGORY: P Patient Related
ACTION: E Changes
ENTRY DESCRIPTION EXECUTABLE: S X="EHR: Set prenatal problem as POV"
INACTIVE:
DFN LOCATION:
DFN EXECUTABLE: I~1
VIEN LOCATION:
VIEN EXECUTABLE:
MULTIPLE INPUT LIST TYPE:
MULTIPLE INPUT LIST DELIMITER:
```

```

DETAIL ENTRY DESC EXECUTABLE:
NEW VALUE EXECUTABLE:
ORIGINAL VALUE EXECUTABLE:
ADVANCED DEFINITION EXECUTABLE:
Select SEND IN BUILD: BJPN  PRENATAL CARE MODULE      BJPN  PRENATAL CARE
MODULE
1.0      PRENATAL CARE MODULE      PRENATAL CARE MODULE
Are you adding 'PRENATAL CARE MODULE 1.0' as
a new SEND IN BUILD (the 1ST for this BUSA RPC TRANSPORT LIST)? No// Y
(Yes)

```

Figure 4-5: Add a New Entry

#### 4.3.2.3.2 Edit an Existing Entry

```

>D ^BUSATRAN

Select REMOTE PROCEDURE NAME:      BJPN SET AS POV

      Select one of the following:

          E      Edit Transport Entry
          D      Delete Transport Entry

Choose operation to perform: E// Edit Transport Entry
CATEGORY: Patient Related//
ACTION: Changes//
ENTRY DESCRIPTION EXECUTABLE: S X="EHR: Set prenatal problem as POV"
      Replace
INACTIVE:
DFN LOCATION:
DFN EXECUTABLE: I~1//
VIEN LOCATION:
VIEN EXECUTABLE:
MULTIPLE INPUT LIST TYPE:
MULTIPLE INPUT LIST DELIMITER:
DETAIL ENTRY DESC EXECUTABLE:
NEW VALUE EXECUTABLE:
ORIGINAL VALUE EXECUTABLE:
ADVANCED DEFINITION EXECUTABLE:

```

Figure 4-6: Edit an Existing Entry

#### 4.3.2.3.3 Delete an Existing Entry

```

>D ^BUSATRAN

Select REMOTE PROCEDURE NAME:      BJPN SET AS POV

      Select one of the following:

          E      Edit Transport Entry
          D      Delete Transport Entry

Choose operation to perform: E// Delete Transport Entry
Are you sure you wish to delete the entry? No// YES
TRANSPORT ENTRY DELETED...
Do you wish to delete the BUSA RPC definition entry as well? No// YES

```



BUSA RPC DEFINITION DELETED...

Figure 4-7: Delete an Existing Entry

## 5.0 Files and Tables

### 5.1 File List

The following table contains a list of new files.

| File #     | Filename                   | Description                                                                                                                    |
|------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 9002319.01 | BUSA AUDIT LOG SUMMARY     | This file contains summary (overview) records of logged events.                                                                |
| 9002319.02 | BUSA AUDIT LOG DETAIL      | This file contains detail level records of logged events. One or more detail records can point to a single summary record.     |
| 9002319.03 | BUSA AUDIT RPC DEFINITIONS | This file contains a list of RPC's (and their BUSA definitions) which have been set up to be audited in BUSA.                  |
| 9002319.04 | BUSA SWITCH SETTINGS       | This file tracks the status of the various auditing on/off switches.                                                           |
| 9002319.05 | BUSA CACHE CLASS TRANSPORT | This file contain the encrypted BUSA class definitions                                                                         |
| 9002318.07 | BUSA RPC TRANSPORT LIST    | This file is used to control which BUSA AUDIT RPC DEFINITIONS entries should be included in specified application KIDS builds. |

### 5.2 File Access

The following table contains the FileMan access to new files.

| File #     | Filename                   | GL                | RD | WR | LYG | DD | DEL |
|------------|----------------------------|-------------------|----|----|-----|----|-----|
| 9002319.01 | BUSA AUDIT LOG SUMMARY     | ^BUSAS(           | @  | @  | @   | @  | @   |
| 9002319.02 | BUSA AUDIT LOG DETAIL      | ^BUSAD(           | @  | @  | @   | @  | @   |
| 9002319.03 | BUSA AUDIT RPC DEFINITIONS | ^BUSA(9002319.03, | @  | @  | @   | @  | @   |
| 9002319.04 | BUSA SWITCH SETTINGS       | ^BUSA(9002319.04, | @  | @  | @   | @  | @   |
| 9002319.05 | BUSA CACHE CLASS TRANSPORT | ^BUSACLS(         | @  | @  | @   | @  | @   |
| 9002318.07 | BUSA RPC TRANSPORT LIST    | ^BUSATR(          | @  | @  | @   | @  | @   |

## 5.3 Cross References

```

9002319.01 (BUSA AUDIT LOG SUMMARY)
    B Regular type cross reference
      LOG TIMESTAMP (#.01)

    C Regular type cross reference
      USER (#.02)

9002319.02 (BUSA AUDIT LOG DETAIL)
    B Regular type cross reference
      SUMMARY ENTRY (#.01)

    C Regular type cross reference
      DFN (#.02)

9002319.03 (BUSA AUDIT RPC DEFINITIONS)
    B Regular type cross reference
      RPC (#.01)

9002319.04 (BUSA SWITCH SETTINGS)
    B Regular type cross reference
      SUMMARY ENTRY (#.01)

    C New Style Cross Reference
      SWITCH TYPE (#.01)
      SETTING DATE (#.03)

9002319.05 (BUSA CACHE CLASS TRANSPORT)
    B Regular type cross reference
      PACKAGE (#.01)

9002319.07 (BUSA RPC TRANSPORT LIST)
    B Regular type cross reference
      BUSA RPC DEFINITION (#.01)

```

Figure 5-1: Cross References

## 5.4 Table File

**File: 9002319.01 BUSA AUDIT LOG SUMMARY**

**Global: ^BUSAS(**

| Field # | Field Name          | Subscript | Piece | Type     |
|---------|---------------------|-----------|-------|----------|
| .01     | LOG<br>TIMESTAMP    | D0,0      | 1     | D        |
| .02     | USER                | "         | 2     | P (#200) |
| .03     | CATEGORY            | "         | 3     | S        |
| .04     | CALL TYPE           | "         | 4     | S        |
| .05     | ACTION              | "         | 5     | S        |
| .06     | ORIGINATING<br>CALL | "         | 6     | F        |

| Field # | Field Name        | Subscript | Piece | Type |
|---------|-------------------|-----------|-------|------|
| 1       | ENTRY DESCRIPTION | D0,1      | 1     | F    |

**File: 9002319.02 BUSA AUDIT LOG DETAIL****Global: ^BUSAD(**

| Field # | Field Name               | Subscript | Piece | Type            |
|---------|--------------------------|-----------|-------|-----------------|
| .01     | SUMMARY ENTRY            | D0,0      | 1     | P (#9002319.01) |
| .02     | DFN                      | "         | 2     | P (#2)          |
| .03     | VISIT                    | "         | 3     | P (#9000010)    |
| .04     | DETAIL EVENT DESCRIPTION | "         | 4     | F               |
| 1       | NEW VALUE                | D0,1      | 1     | W               |
| 2       | ORIGINAL VALUE           | D0,2      | 1     | W               |

**File: 9002319.03 BUSA AUDIT RPC DEFINITIONS****Global: ^BUSA(9002319.03,**

| Field # | Field Name                    | Subscript | Piece | Type      |
|---------|-------------------------------|-----------|-------|-----------|
| .01     | RPC                           | D0,0      | 1     | P (#8994) |
| .02     | CATEGORY                      | "         | 2     | S         |
| .03     | ACTION                        | "         | 3     | S         |
| .06     | ENTRY DESCRIPTION EXECUTABLE  | "         | 6     | F         |
| .07     | INACTIVE                      | "         | 7     | S         |
| 1.01    | DFN LOCATION                  | D0,1      | 1     | F         |
| 1.02    | DFN EXECUTABLE                | "         | 2     | F         |
| 2.01    | VLEN LOCATION                 | D0,2      | 1     | F         |
| 2.02    | VLEN EXECUTABLE               | "         | 2     | F         |
| 2.03    | MULTIPLE INPUT LIST TYPE      | "         | 3     | S         |
| 2.04    | MULTIPLE INPUT LIST DELIMITER | "         | 4     | F         |

| Field # | Field Name                           | Subscript | Piece | Type |
|---------|--------------------------------------|-----------|-------|------|
| 3       | DETAIL ENTRY<br>DESC<br>EXECUTABLE   | D0,3      | 1     | F    |
| 4       | NEW VALUE<br>EXECUTABLE              | D0,4      | 1     | F    |
| 5       | ORIGINAL<br>VALUE<br>EXECUTABLE      | D0,5      | 1     | F    |
| 6       | ADVANCED<br>DEFINITION<br>EXECUTABLE | D0,6      | 1     | F    |

**File: 9002319.04 BUSA SWITCH SETTINGS****Global: ^BUSA(9002319.04,**

| Field # | Field Name         | Subscript | Piece | Type     |
|---------|--------------------|-----------|-------|----------|
| .01     | SWITCH TYPE        | D0,0      | 1     | S        |
| .02     | LOGGING<br>STATUS  | "         | 2     | S        |
| .03     | SETTING DATE       | "         | 3     | D        |
| .04     | USER               | "         | 4     | P (#200) |
| .05     | DISABLE<br>COMMENT | "         | 5     | F        |

**File: 9002319.04 BUSA CACHE CLASS TRANSPORT****Global: ^BUSACLS(**

| Field # | Field Name                     | Subscript | Piece | Type |
|---------|--------------------------------|-----------|-------|------|
| .01     | PACKAGE                        | D0,0      | 1     | F    |
| .02     | *INSTALL<br>WHERE              | "         | 2     | S    |
| .04     | PATH                           | "         | 4     | F    |
| 1.01    | *RPMS<br>FILENAME              | D0,1      | 1     | F    |
| 1.02    | RPMS STATUS                    | "         | 2     | S    |
| 1.03    | RPMS<br>DATE/TIME<br>INSTALLED | "         | 3     | D    |
| 2.01    | *ENSEMBLE<br>FILENAME          | D0,2      | 1     | F    |
| 2.02    | *ENSEMBLE<br>STATUS            | "         | 2     | S    |



| Field # | Field Name                          | Subscript | Piece | Type |
|---------|-------------------------------------|-----------|-------|------|
| 2.03    | *ENSEMBLE<br>DATE/TIME<br>INSTALLED | "         | 3     | D    |
| 10      | XML                                 | D0,10     | 1     | W    |
| 11      | CLASS                               | D0,11     | 1     | W    |

**File: 9002319.07 BUSA RPC TRANSPORT LIST****Global: ^BUSATR(**

| Field # | Field Name             | Subscript | Piece | Type      |
|---------|------------------------|-----------|-------|-----------|
| .01     | BUSA RPC<br>DEFINITION | D0,0      | 1     | P (#8994) |
| 1       | SEND IN BUILD          | D0,1,D1   |       |           |
| .01     | SEND IN BUILD          | D0,1,D1,0 | 1     | P (#9.6)  |

## 5.5 Callable Routines

| Name                             | Tag | Routine |
|----------------------------------|-----|---------|
| BUSA LOG SECURITY<br>AUDIT ENTRY | RPC | BUSARPC |

## 5.6 Published Entry Points

```

BUSAAPI.INT
LOG(TYPE,CAT,ACTION,CALL,DESC,DETAIL) ;PEP - Log Security Audit Entries

BUSARPC.INT
BMX(BUSAP) ;PEP - Log audit entry from BMXNet
CIA(XWBPTYPE,RTN,BUSAARY) ;PEP - Log audit entry from CIA Broker

XWB(BUSAP) ;PEP - Log audit entry from XWB Broker

BUSAUTIL.INT
SINPUT(PARM) ;PEP - Return Single Input Parameter Value
SOUTPUT(PARM) ;PEP - Return Single Output Parameter Value
VAL(TYPE,LOCATION,BROKER,RPC,RVAL) ;PEP - Return information located in specified
location

```

Figure 5-2: Published Entry Points

## 6.0 External Relations

### 6.1 External Calls

### 6.2 Callable Routines–Published Entry Points

| Routine Called | Description |
|----------------|-------------|
|                |             |

### 6.3 Exported options

| Option Name        | Description                              |
|--------------------|------------------------------------------|
| BUSA SECURITY EDIT | Edit Security Audit (BUSA SECURITY EDIT) |
| BUSARPC            | Contains list of BUSA callable RPC's     |

## 7.0 Internal Relations

All functions within this application work independently.

There are no documented internal relations in BUSA.

## **8.0 Archiving and Purging**

There is no archiving or purging with this release of BUSA.

## 9.0 Documentation Resources

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

### 9.1 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

#### 9.1.1 %INDEX

Running %INDEX for a specified set of routines allows users to discover any deviations from RPMS programming standards that exist in the selected routines 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 Patient Registration package, type the BUSA namespace at the “Routine(s)?>” prompt.

### 9.2 List File Attributes Option

This VA FileMan option allows users to generate documentation pertaining to files and file structure. Using the standard format of this option yields 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

## **10.0 SAC Requirements and Exemptions**

No exemptions are noted at this time.

## **11.0 Templates, Forms, and Protocols**

### **11.1 Print Templates**

There are no print templates in BUSA.

### **11.2 Sort Templates**

There are no sort templates in BUSA.

### **11.3 Input Templates**

BUSA AUDIT INPUT

### **11.4 List Templates**

There are no list templates in BUSA.

### **11.5 Forms**

There are no forms in BUSA.

### **11.6 Protocols**

There are no protocols in BUSA.



## 12.0 Accessibility Checklist

Indian Health Service (IHS) Section 508 36 CFR Part §1194.21 Software Applications and Operating Systems Checklist:

The BUSA package is not a software application that includes a user interface and therefore Section 508 compliancy checklist is not applicable.

## 13.0 Sample BUSA AUDIT RPC DEFINITIONS

### 13.1 BEHOENCV DETAIL

```
RPC: BEHOENCV DETAIL
CATEGORY: Patient Related
ACTION: Queries
ENTRY DESCRIPTION EXECUTABLE: S X="EHR: Displayed visit or appointment
detail
for patient"
VIEN LOCATION: I~2
VIEN EXECUTABLE: S X=$P(X,";",4)
```

### 13.2 BEHOENCX VISITLST

```
RPC: BEHOENCX VISITLST
CATEGORY: Patient Related
ACTION: Queries
ENTRY DESCRIPTION EXECUTABLE: S X="EHR: Retrieved list of patient visits"
VIEN LOCATION: R~1
VIEN EXECUTABLE: S X=$P(X,";",4)
```

### 13.3 BEHOENCV LIST

```
RPC: BEHOENCV LIST
CATEGORY: Patient Related
ACTION: Queries
ENTRY DESCRIPTION EXECUTABLE: S X="EHR: Displayed a list of
appointments/visits for patient"
DFN LOCATION: I~1
```

### 13.4 BEHOENCX FETCH

```
RPC: BEHOENCX FETCH
CATEGORY: Patient Related
ACTION: Queries
ENTRY DESCRIPTION EXECUTABLE: S X="EHR: Selected patient visit"
DFN LOCATION: I~1
VIEN LOCATION: I~2
VIEN EXECUTABLE: S X=$$VFETCH~BUSAUTIL(X,.DESC)
```

### 13.5 BEHOENCX UPDPRV

```
RPC: BEHOENCX UPDPRV
CATEGORY: Patient Related
ACTION: Changes
ENTRY DESCRIPTION EXECUTABLE: S X="EHR: Updated visit provider"
VIEN LOCATION: I~2
VIEN EXECUTABLE: S X=$P(X,";",4)
```

## 13.6 BEHOENCX PTINFO

```
RPC: BEHOPTCX PTINFO
CATEGORY: Patient Related
ACTION: Queries
ENTRY DESCRIPTION EXECUTABLE: S X="EHR: Selected/Refreshed patient"
DFN LOCATION: I~1
```

## 13.7 BGOVPOV SET

```
RPC: BGOVPOV SET
CATEGORY: Patient Related
ACTION: Changes
ENTRY DESCRIPTION EXECUTABLE: S X="EHR: Set Patient POV for visit"
VIEN LOCATION: I~1
VIEN EXECUTABLE: S X=$P(X,U,2)
```

## 13.8 BGOVPOV GET

```
RPC: BGOVPOV GET
CATEGORY: Patient Related
ACTION: Queries
ENTRY DESCRIPTION EXECUTABLE: S X="EHR: Displayed patient purpose of visit
information"
VIEN LOCATION: I~1
```

## 13.9 BGOPROB SET

```
RPC: BGOPROB SET
CATEGORY: Patient Related
ACTION: Changes
ENTRY DESCRIPTION EXECUTABLE: S X="EHR: Updated problem entry for patient"
DFN LOCATION: I~1
DFN EXECUTABLE: S:$P(X,U,8)="" DESC="EHR: Added problem entry for
patient",ACT
="A" S X=$P(X,U,7)
```

## 13.10 BQI GET DX CAT BY PANEL

```
RPC: BQI GET DX CAT BY PANEL
CATEGORY: Patient Related
ACTION: Queries
ENTRY DESCRIPTION EXECUTABLE: S X="iCare: Displayed patient diagnostic
tags"
DFN LOCATION: I~3
MULTIPLE INPUT LIST TYPE: DFN
MULTIPLE INPUT LIST DELIMITER: $(28)
```

## 13.11 BQI LOOKUP PATIENTS

```
RPC: BQI LOOKUP PATIENTS
CATEGORY: Patient Related
ACTION: Queries
ENTRY DESCRIPTION EXECUTABLE: S X="iCare Patient Lookup on
'__$SINPUT~BUSAUTIL(1)_"
DFN LOCATION: R~DFN
```

## 13.12 BJPN UPDATE PROBLEM

```
RPC: BJPN UPDATE PROBLEM
CATEGORY: Patient Related
ACTION: Changes
ENTRY DESCRIPTION EXECUTABLE: S X="EHR: Updated prenatal PIP problem"
VIEN LOCATION: I~1
```

## 13.13 BJPN UPDATE PROBLEM

```
RPC: BQI GET DFN LIST BY PANEL
CATEGORY: Patient Related
ACTION: Queries
ENTRY DESCRIPTION EXECUTABLE: S X="iCare: Opened Panel
"__$PNLNAME~BUSAUTIL(DUZ,$$SINPUT~BUSAUTIL(2))
DFN LOCATION: R~DFN
```

## Glossary

### **Electronic Health Record (EHR)**

An application used by medical organizations to track patient medical records and care.

### **Meaningful Use (MU)**

Meaningful Use (MU) is a term used by CMS to ensure that providers and hospitals that have adopted certified EHR are using the technology to further the goals of information exchange among health care professionals. Eligible Providers (EPs) and Eligible Hospitals (EHs) will achieve meaningful use if the EP or EH : (a) demonstrate use of certified EHR technology in a meaningful manner, (b) demonstrate the certified EHR technology provides for electronic exchange of health information to improve quality of care, and (c) use certified EHR technology to submit information on clinical quality and other measures.

### **Microsoft® (MS)**

Software company that develops and distributes the Visual Studio® (VS) tool used to develop the BUSA application.

### **Office of Information Technology (OIT)**

The organization within IHS that is responsible for developing and maintaining RPMS and related IT functions.

### **Resource and Patient Management System (RPMS)**

A series of integrated software components that includes clinical, administrative, and financial functions.

### **Software Quality Assurance (SQA)**

The office within OIT responsible for ensuring that the system conforms to RPMS Programming Standards and Conventions (SAC).

### **Taxonomy**

In RPMS, a grouping of functionally related data elements, such as ICD codes. For BUSA, taxonomies will be used as definitions for diagnoses, procedures, laboratory tests, medications, and other clinical data types.

## Acronym List

|                   |                                                                                                                                                                          |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>API</b>        | Application Programmer Interface                                                                                                                                         |
| <b>BUSA</b>       | Namespace for BUSA files and routines                                                                                                                                    |
| <b>DSM</b>        | Digital Standard Mumps                                                                                                                                                   |
| <b>DTS</b>        | Distributed Terminology System                                                                                                                                           |
| <b>EHR</b>        | Electronic Health Record                                                                                                                                                 |
| <b>GUI</b>        | Graphical User Interface                                                                                                                                                 |
| <b>I/T/U</b>      | Abbreviation referring to all IHS direct, Tribal, and urban facilities. Using the abbreviation I/T/U generally refers to all components of the Indian healthcare system. |
| <b>IDE</b>        | Integrated development environment                                                                                                                                       |
| <b>IHS</b>        | Indian Health Service                                                                                                                                                    |
| <b>ITSC</b>       | Information Technology Support Center currently referred to as Office of Information Technology (OIT)                                                                    |
| <b>MS</b>         | Microsoft®                                                                                                                                                               |
| <b>MU</b>         | Meaningful Use                                                                                                                                                           |
| <b>OIT</b>        | Office of Information and Technology                                                                                                                                     |
| <b>RPMS</b>       | Resource and Patient Management System                                                                                                                                   |
| <b>SAC</b>        | Standards and Conventions                                                                                                                                                |
| <b>SNOMED CT®</b> | Systematized Nomenclature of Medicine--Clinical Terms®                                                                                                                   |
| <b>SQA</b>        | Software Quality Assurance                                                                                                                                               |
| <b>SRD</b>        | Software Requirements Document                                                                                                                                           |

**UI**

User Interface

## Contact Information

If you have any questions or comments regarding this distribution, please contact the OIT Help Desk (IHS).

**Phone:** (888) 830-7280 (toll free)

**Web:** <http://www.ihs.gov/helpdesk/>

**Email:** [support@ihs.gov](mailto:support@ihs.gov)