RESOURCE AND PATIENT MANAGEMENT SYSTEM

IHS Communication Support

(BCOM)

Technical Manual

Version 1.0
September 2020

Office of Information Technology
Division of Information Technology

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Version History

Version	Date	Author	Section	Page Number	Summary of Change
1.0	September 2020		All	All	Initial version

1.0   Introduction

The BCOM package is a system to securely transmit files via SecureFTP to a remote computer and verify that the data in the files have not been modified during transit, utilizing an SHA-256 or better hashing algorithm.

2.0   Implementation and Maintenance

The IHS Communications Support package occupies the BCOM namespace. Options, security locks and keys, templates, routines, and globals are namespaced BCOM.

2.1   System Requirements

- Kernel Version 8.0, patch 1018 or higher

- FileMan v22.0, patch 1018 or higher

- InterSystems HealthShare 2017.2.1 or higher

2.2   Security Keys

The BCOM Packages contains no RPMS Security Keys. Security is controlled by Ensemble system user logins.

3.0   Routines

Table 3-1: Routine list and description

Routine	Description
BCOMINS1	/IHS/OIT/RAM – BCOM Pre/Post Installation Utilities.

4.0   Files and Tables

4.1   File List

Table 4-1: File list and descriptions

FILE	GLOBAL	NAME
90312.98	^BCOMCLS	BCOM CLASS TRANSPORT
90312.99	^BCOMSET	BCOM SETUP

4.2   File Access

Table 4-2: File access information

FILE (#)	GLOBAL	RD	WR	LYG	DD	DEL
90312.98	^BCOMCLS	@	@	@	@	@
90312.99	^BCOMSET	@	@	@	@	@

4.3   Cross References

File #90312.98

    B   REGULAR

    Field: NAME (90312.98,.01)

    1)= S ^BCOMCLS("B",$E(X,1,30),DA)=""

    2)= K ^BCOMCLS("B",$E(X,1,30),DA)

File #90312.99

    B   REGULAR

    Field: NAME (90312.99,.01)

    1)= S ^BCOMSET("B",$E(X,1,30),DA)=""

    2)= K ^BCOMSET("B",$E(X,1,30),DA)

4.4   Table File

FILE #: 90312.98 BCOM CLASS TRANSPORT FILE GLOBAL: ^BCOMCLS(

FIELD #	FIELD NAME	SUBSCRIPT	PIECE	TYPE
.01	NAME	D0,0	1	P
1	XML	(90312.981)		

FIELD #	FIELD NAME	SUBSCRIPT	PIECE	TYPE
.01	XML	D0,1,D1,0	1	W

FILE #: 90312.99 BCOM SETUP GLOBAL: ^BCOMSET(

FIELD #	FIELD NAME	SUBSCRIPT	PIECE	TYPE
.01	NAME	D0,0	1	F

5.0   Archiving and Purging

Archiving is automatic and user configurable within the BCOM package. There is no automatic purging.

6.0   External Relations

6.1   External Calls

This package calls the following documented entry points:

```
Routine:                                              Is Invoked By:

##Class(Config.MapGlobals).Exists()                   BCOMINS1
##Class(Config.MapGlobals).Create()                   BCOMINS1
##Class(Config.MapPackages).Exists()                  BCOMINS1
##Class(Config.MapPackages).Create()                  BCOMINS1
##Class(Config.MapRoutines).Exists()                  BCOMINS1
##Class(Config.MapRoutines).Create()                  BCOMINS1
##class(%SYSTEM.Security).Login()                     BCOMINS1
##class(%File).NormalizeDirectory()                   BCOMINS1
##class(%File).CreateDirectoryChain()                 BCOMINS1
##class(%File).DirectoryExists()                      BCOMINS1
##class(%File).%New()                                 BCOMINS1
##class(%File).Open()                                 BCOMINS1
##class(%File).Write()                                BCOMINS1
##class(%File).Close()                                BCOMINS1
##Class(SYS.Database).%New()                          BCOMINS1
##Class(SYS.Database).%Save()                         BCOMINS1
##Class(Config.Databases).Create()                    BCOMINS1
##Class(Config.Namespaces).Create()                   BCOMINS1
##class(%SYS.Namespace).GetGlobalDest()               BCOMINS1
##class(%SYS.Namespace).ListAll()                     BCOMINS1
##class(%SYSTEM.SYS).NameSpace()                      BCOMINS1
##class(%Library.EnsembleMgr).IsHealthShareNamespace() BCOMINS1
##class(%Library.EnsembleMgr).EnableNamespace()       BCOMINS1
##class(%ResultSet).%New("Config.MapGlobals:Get")     BCOMINS1
##class(%ResultSet).%New("Config.MapRoutines:Get")    BCOMINS1
##class(%ResultSet).%New("Config.MapPackages:Get")    BCOMINS1
##class(%Stream.GlobalCharacter).%New()               BCOMINS1
##class(%Stream.GlobalCharacter).Write()              BCOMINS1
##class(%Stream.GlobalCharacter).Rewind()             BCOMINS1
$System.Encryption.Base64Decode()                     BCOMINS1
$System.Util.Decompress()                             BCOMINS1
$System.OBJ.LoadStream()                              BCOMINS1
$system.OBJ.Delete()                                  BCOMINS1
$system.OBJ.DeleteProject()                           BCOMINS1
##class(Ens.Config.Credentials).%ExistsId()           BCOMINS1
##class(Ens.Config.Credentials).%New()                BCOMINS1
##class(Ens.Config.Credentials).SetCredential()       BCOMINS1
##class(Ens.Config.Credentials).%Save()               BCOMINS1
##class(Ens.Config.Credentials).%Close()              BCOMINS1

DT^DICRW()                                            BCOMINS1
WP^DIE()                                              BCOMINS1
```

Figure 6-1: Documented entry points

6.2   Callable Routines

There are no published entry points in this package.

6.3   Exported Options

There are no exported options in this package.

7.0   Internal Relations

All users should be given the access to the appropriate options and keys to them, as needed. All of the options in this system are stand alone.

8.0   How to Generate Online Documentation

The file number range for this package is 90312–90312.99. The namespace is BCOM. All templates, routines, screen forms, etc. begin with BCOM.

This section describes some of the methods by which users can generate IHS Communication Support technical documentation. Online technical documentation pertaining to the IHS Communication Support software, in addition to that which is located in the help prompts and, on the help, screens throughout the IHS Communication Support System package, can be generated through the use of several Kernel options. These include, but are not limited to, the following:

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

Entering question marks at the "Select/Option" prompts can also provide users with valuable technical information.

Example:

- Typing a single question mark (**?**) lists all options that can be accessed from the current option.
- Typing two question marks (**??**) lists all options accessible from the current one, showing the formal name and lock for each.
- Typing three question marks (**???**) displays a brief description for each option in a menu, whereas an option name preceded by a question mark (**?OPTION**) shows extended help, if available, for that option.

For a more exhaustive option listing and further information about other utilities that supply online technical information, please reference the *DHCP Kernel Reference* manual.

8.1   %INDEX

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

- Compiled list of errors and warnings

- Routine listing

- Local variables

- Global variables

- Naked globals

- Label references

- External references

By running %INDEX for a specified set of routines, you are afforded the opportunity 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 IHS Communication Support System package, specify the BCOM namespace at the "Routine(s)?>" prompt.

8.2   Inquire Option

IHS Communication Support adds no RPMS options.

8.3   Print Option File

IHS Communication Support adds no RPMS options.

8.4   List File Attributes

This VA FileMan option allows you 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

9.0   SAC Exemptions

This package has no SAC exemptions at this time.

Glossary

Archiving

The storing of historical or little-used data off-line (often on tape).

Banner

A line of text with a user's name and domain.

Browser

An interactive application that displays ASCII text on a terminal that supports a scroll region. The text can be in the form of a word-processing field or sequential local or global array. The user is allowed to navigate freely within the document.

Callable Entry Points

Places in a routine that can be called from an application program.

Caret (^)

A circumflex, also known as a "caret," "hat," or "up-hat," is used as a piece delimiter in a global. The carat is denoted as "^" and is typed by pressing Shift+6 on the keyboard.

Cross-reference

An indexing method whereby files can include pre-sorted lists of entries as part of the stored database. Cross-references (x-refs) facilitate look-up and reporting.

Entry Point

Entry point within a routine that is referenced by a "DO" or "GOTO" command from a routine internal to a package.

File

A set of related records or entries treated as a single unit.

FileMan

The database management system for RPMS.

Global

In MUMPS, global refers to a variable stored on disk (global variable) or the array to which the global variable may belong (global array).

INDEX (%INDEX)

A Kernel utility used to verify routines and other MUMPS code associated with a package. Checking is done according to current ANSI MUMPS standards and RPMS programming standards. This tool can be invoked through an option or from direct mode (>D ^%INDEX).

Kernel

The set of MUMPS software utilities that function as an intermediary between the host operating system and application packages, such as Laboratory and Pharmacy. The Kernel provides a standard and consistent user and programmer interface between application packages and the underlying MUMPS implementation. These utilities provide the foundation for RPMS.

Menu

A list of choices for computing activity. A menu is a type of option designed to identify a series of items (other options) for presentation to the user for selection. When displayed, menu- type options are preceded by the word "Select" and followed by the word "option" as in Select Menu Management option: (the menu's select prompt).

Namespace

A unique set of two to four alpha characters that are assigned by the database administrator to a software application.

Option

An entry in the Option file. As an item on a menu, an option provides an opportunity for users to select it, thereby invoking the associated computing activity. Options may also be scheduled to run in the background, non-interactively, by TaskMan.

Patient Care Component

The central repository for data in the Resource and Patient Management System.

Queuing

Requesting that a job be processed at a later time rather than within the current session.

Routine

A program or sequence of instructions called by a program that may have some general or frequent use. MUMPS routines are groups of program lines that are saved, loaded, and called as a single unit via a specific name.

Utility

A callable routine line tag or function. A universal routine usable by anyone.

Variable

A character or group of characters that refers to a value. MUMPS recognizes three types of variables: local variables, global variables, and special variables. Local variables exist in a partition of the main memory and disappear at sign-off. A global variable is stored on disk, potentially available to any user. Global variables usually exist as parts of global arrays.

Acronym List

Acronym	Meaning
HL7	Health Level Seven
IHS	Indian Health Service
NDW	National Data Warehouse
NPIRS	National Patient Information Reporting System
RPMS	Resource and Patient Management System

Contact Information

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