



RESOURCE AND PATIENT MANAGEMENT SYSTEM

IHS Kernel Toolkit Extensions

(BXT)

Technical Manual

Version 1.0
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Preface

The purpose of this manual is to provide technical information about the IHS KERNEL TOOLKIT EXTENSTIONS (BXT) package. The BXT package contains a report needed by Meaningful Use 2014.

1.0 Introduction

The BXT package is a component of the Indian Health Service (IHS) Resource and Patient Management System (RPMS) that provides an interface for patients to have access to their medical information. This package serves as the central mechanism of distribution for all IHS-generated enhancements and extensions to the VA's Kernel Toolkit application.

This manual provides IHS site managers with a technical description of the BXT APIs, routines, files, menus, cross references, globals, and other necessary information required to effectively maintain this package.

All APIs, routines, files, options, and keys are namespaced starting with the letters BX. Other namespaces/modules encompassed in this application include:

1. BXPA - Parameter Audit System.

The file numbers for BXPA is 9002026.01 and 9002026.02.

2.0 Orientation

The BXT package will be distributed as a Kernel Installation and Distribution System (KIDS) package which will contain the appropriate files and routines.

This package will serve as the central mechanism of distribution for all IHS-generated enhancements and extensions to the VA's Kernel Toolkit application.

The primary namespace associated with the IHS Kernel Toolkit Extensions application is BXT. Other namespaces/modules encompassed in this application include:

BXPA - Parameter Audit System.

3.0 Implementation and Maintenance

The Parameter Audit System (BXPA) audits information needed for the Clinical Decision Support summary report for Meaningful Use 2014.

3.1 General Information

The following table shows the prerequisite patch requirements.

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

3.2 System Requirements

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

Module	Minimum Version	Recommended Version
VA FileMan (DI)	v22.0 Patch 1017	
IHS Kernel Toolkit (XT)	V7.3 through Patch 1017	
VA Kernel (XU)	v8.0 Patch 1017	

3.3 Package-wide Variables

There are no package-wide BXT or BXPA variables in RPMS.

3.4 Security Keys

These are the security keys which govern BXPA that can be assigned to users.

Key Name	Description
BXPAZMGR	This security key should only be assigned to those persons who will manage the BXPA system. It should not be given to the general RPMS user population.
BXPAZMENU	This key will give general access to Parameter Audit System (primarily for .reports/information retrieval)

4.0 Menu Diagram

RPMS menus in the BXPA Parameter Audit system:

- Parameter Audit System Menu [BXPAMENU]
- The BXPAMENU option should be added to the local Kernel menu structure at a menu location accessible to appropriate staff. Menu option needs key BXPAMENU and contains the following menus for managing BXPA and performing reports/information retrieval.

```
MGPA  Parameter Audit System Management ...
ADPA  Add a parameter to the audit list
CHPA  Change the audit status of a parameter
BAPA  Establish a baseline for all parameters

RPPA  Parameter Audit Reports ...
RUPA  User Parameter Value Report by Date
```

Menu option Parameter Audit System Management needs key BXPAMGR and access should be limited to managers.

5.0 Routine

5.1 Routine List

This routine list includes all routines in this build:

- BXPARPPD
- BXPARPTU
- BXPARUTL
- BXPAUDIT
- BXT1POST
- XPAR

5.2 Routines with Description

This routine list describes each routine in this version.

Routine	Description
BXPARPPD	Parameter Audit report – parameter values for one or more providers over a user-specified date range
BXPARPTU	Parameter Audit report – snapshot of parameter values for a specific user/provider on a specified date
BXPARUTL	Parameter Audit report utilities
BXPAUDIT	Parameter Audit utility.
BXT1POST	Post-installation routine
XPAR	VA Kernel Toolkit Parameter API utility, modified to include calls to the IHS-developed BXPA Parameter Audit System.

5.3 API List

5.3.1 LOG^BXPAAUDIT(OP,PAR,ENT,INST,PREVAL,POSTVAL)

This API creates an audit log entry for a EHR parameter instance.

Parameter	Data Type	Description
OP	Set Of Codes (Required)	Operation – The type of operation that is being audited. The values are A for ADD, C for CHANGE, D for DELETE, R for REPLACE, and B for BASELINE
PAR	Free Text (Required)	Parameter – Internal value of the parameter from the PARAMETER DEFINITION File (#8989.51).
ENT	Free Text (Required)	Entity – Variable internal value of the entity. It could be one of the types from the PARAMETER ENTITY File (#8989.518).
INST	Free Text	Instance – Internal value of the instance
PREVAL	Free Text	Pre-change value of instance
POSTVAL	Free Text	Post-change value of instance

6.0 Files and Tables

6.1 File List

The following table contains a list of new files.

File #	Filename	Description
9002026.01	PARAMETER AUDIT LOG	This file contains the audited information about the designated EHR parameters.
9002026.02	PARAMETER AUDIT LIST	This file contains the designated EHR parameters that are to be audited.

6.2 File Access

The following table contains the FileMan access to new files.

File #	Filename	GL	RD	WR	LYG	DD	DEL
9002026.01	PARAMETER AUDIT LOG	^BXPA(9002026.01,	@	@	@	@	^
9002026.02	PARAMETER AUDIT LIST	^BXPA(9002026.02,	@	@	@	@	^

6.3 Cross References

9002026.01 (PARAMETER AUDIT LOG)

.01 TIMESTAMP

B Regular type cross reference

4 PARAMETER

APAR Regular type cross reference

5 ENTITY

AENT Regular type cross reference

6 INSTANCE

AINST Regular type cross reference

4,5,6,3 Parameter,entity,instance,operation

ABASE New Style cross reference

9002026.02 (PARAMETER AUDIT LIST)

.01 Package Name

B Regular type cross reference

6.4 Table File

File: 9002026.01 PARAMETER AUDIT LOG

Global: ^BXPA(9002026.01,

Field #	Field Name	Subscript	Piece	Type
.01	TIMESTAMP	D0,0	1	D
1	USER	"	2	P
2	LOCATION	"	3	P
3	OPERATION	"	5	S
4	PARAMETER	"	6	F
5	ENTITY		7	F
6	INSTANCE		8	F
7	FROM VALUE		9	F
8	TO VALUE		10	F

File: 9002026.02 PARAMETER AUDIT LIST

Global: ^BXPA(9002026.02,

Field #	Field Name	Subscript	Piece	Type
.01	PARAMETER	D0,0	1	F
1	DATE_TIME ADDED		2	D
2	ADDED BY		3	P
3	ORIG REF ENTRY			P
4	CURRENT AUDIT STATUS			S
1101	AUDIT HISTORY (9002026.21101)	D0,11,D1		
.01	TIMESTAMP		1	D
1	AUDIT STATUS			S
2	STATUS SET BY			P

6.5 Callable Routines

There are no remote procedure calls added in this release.

6.6 Published Entry Points

BXPAUDIT.INT

LOG(OP,PAR,ENT,INST,PREVAL,POSTVAL) ;PEP-CREATE AN AUDIT LOG
ENTRY FOR A PARAMETER INSTANCE

7.0 Internal Relations

All functions within this application work independently.

There are no documented internal relations in BXT.

8.0 External Relations

8.1 External Calls

8.2 Callable Routines–Published Entry Points

This application contains no calls to external published entry points other than to standard Kernel/FileMan calls.

8.3 Exported Options

Option Name	Description
BXPAMENU	Parameter Audit System Menu
BXPAMGR	Parameter Audit System Management
BXPA REPORTS	Parameter Audit Reports
BXPA ADD PARAMETER	Add a parameter to the audit list
BXPA BASELINE ALL	Establish a baseline for all parameters
BXPA CHANGE PARAMETER	Change the audit status of a parameter
BXPA REPORT USER PARAMETER	User Parameter Value Report by Date

9.0 Archiving and Purging

There is no archiving or purging in BXP.

10.0 Documentation Resources

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

10.1 %INDEX Option

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

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 BXPA namespace at the “Routine(s)?>” prompt.

10.2 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

11.0 SAC Requirements and Exemptions

No exemptions are noted at this time.

12.0 Templates, Forms, and Protocols

12.1 Print Templates

There are no print templates in BXP.A.

12.2 Sort Templates

There are no sort templates in BXP.A.

12.3 Input Templates

There are no input templates in BXP.A.

12.4 List Templates

There are no list templates in BXP.A.

12.5 Forms

There are no forms in BXP.A.

12.6 Protocols

There are no protocols in BXP.A.

13.0 Accessibility Checklist

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

The BXPA package is used to audit information and produce a report for Meaningful Use. Therefore the Section 508 compliancy checklist is not applicable.

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 BXPAs 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).

Acronym List

API	Application Programmer Interface
BXPA	Namespace for BXPA files and routines, a subset of BXT
BXT	Namespace for IHS Kernel Toolkit Extensions
DSM	Digital Standard Mumps
DTS	Distributed Terminology System
EHR	Electronic Health Record
GUI	Graphical User Interface
I/T/U	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.
IDE	Integrated development environment
IHS	Indian Health Service
ITSC	Information Technology Support Center currently referred to as Office of Information Technology (OIT)
MS	Microsoft [®]
MU	Meaningful Use
OIT	Office of Information and Technology
RPMS	Resource and Patient Management System
SAC	Standards and Conventions
SQA	Software Quality Assurance
SRD	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