RESOURCE AND PATIENT MANAGEMENT SYSTEM

Clinical Reminders

(PXRM)

Patch 1009 Clinical Index and Reminder Setup

Version 1.5 Patch 1009
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Preface

This documentation applies to information distributed in patch 1009 of Clinical Reminders. This patch installs cross-references for certain V files and allows the building of the Clinical Indexes needed for Reminders Version 2.0 and for the new graphing capabilities of EHR patch 11

The indexes are built as new-style cross-references on reminder files. These cross-references then create an index file in the database that is used for data retrieval. The index file is NOT a FileMan file so it cannot be accessed in the usual way.

When this patch was released in the VA, it was a combined patch so that after installation all the indexes could be created. Indian Health does not usually make combined patches and because of that, the indexes themselves are distributed in several patches.

This patch only contains the indexes for the PCC related files (V files). This file also contains the menus and options to do the indexing for ALL the indexed files.

The remaining indexes are in the following patches

- The Radiology cross-reference is distributed in the RA*5.0*1003

- The Pharmacy cross-references are in the EHR Patch 11 MegaBuilds

- The Orders cross-references are in the EHR Patch 11MegaBuilds

- The Problem List cross-references are in the EHR Patch 11 MegaBuilds

- The Laboratory cross-references are in the LR*5.2*1031 build

You cannot build the indexes on these files until these builds are installed. These new indexes are required to be built for reminders version 2.0, but can be built any time prior to that date.

1.0   Introduction

The goal of this patch is to create and populate a new global in the Clinical Reminders namespace, ^PXRMINDX, that is an index of clinical data. Each of the packages whose data Clinical Reminders uses as a finding type will be participating in this project.

> **Note:** This global consumes a large amount of disk space and requires a long time to initialize the cross-references. It is important to read the *Global Size* and *Global Placement* sections in the *Pre-Installation* section before installing this patch. When these patches are installed, the cross-references begin populating the ^PXRMINDX global on all new data. A separate initialization process populates old data.

1.1   Indexes included in PXRM*1.5*1009

These indexes can be created any time after this patch is installed. It is always recommended that indexing be done one index at a time. Large files like the Purpose of visit (VPOV) may take many hours to index.

If you start index creation before installing EHR Patch 11, keep an account of which files have been done and which ones you still need to do.

File	Name
9000010.18	V CPT
9000010.13	V EXAM
9000010.23	V HEALTH FACTORS
9000010.11	V IMMUNIZATION
9000010.16	V PATIENT ED
9000010.07	V POV
9000010.12	V SKIN TEST
9000010.01	V MEASUREMENT
9000010.08	V PROCEDURE

1.2   Required builds for the remaining indexes and full index creation

These indexes can be created when the listed patch is installed and PXRM*1.5*1009 is also installed.

Package	Patch
Radiology	RA 5.0 Patch 1003

Package	Patch
Laboratory	LR 5.2 Patch 1031
Inpatient Pharmacy*	EHR 1.1 Patch 11
Order Entry/Results Reporting	EHR1.1 Patch 11
Outpatient Pharmacy	EHR 1.1 Patch11
Pharmacy Data Management*	EHR 1.1 Patch 11
Problem List	EHR 1.1 Patch 11

Lab and radiology indexes have been distributed in separate patches. The rest are part of EHR patch 11. Please be aware that the graphing capabilities of EHR patch 11 cannot be utilized until the lab index is created.

This patch will encompass the PCC files and the menus/options to create the new indexes.

> **Note**: When PXRM*1.5*1009 is installed, it creates a new-styled AED cross-reference, and populates the index in the V Health Factors file. If your site has a large number of entries in their file, it can take a while - and a large amount of CPU resources – for the index to build. The following messages appear while this happening:
>
> Creating V Health Factor AED cross-reference
>
> The installation will pause while the index is being populated
>
> If you have a large V Health Factor file this could take a while

The indices will start storing data as soon as this patch is loaded because the cross-reference(s) included will be fired with each new V file entry.

2.0   Pre-installation

2.1   Required Software

Make sure all required RPMS software is installed.

2.1.1   Minimum Required Packages and Patches for installing Patch 1009

Package	Minimum Version
Clinical Reminders	1.5 PXRM*1.5 1008
Kernel	8.0
Laboratory	5.2 LR*5.2*1030
MailMan	8.0
Electronic Health Record	1.1 EHR*1.1*10
Toolkit	7.3
VA FileMan	22.0 Fileman v22.o Patch 1017

2.1.2   Patch Dependencies

All of these dependencies should be met if the site has installed kernel patch 1017, PIMS patch 1015, EHR patch 10 and PXRM patch 1009. The VA has many cross-application dependencies especially for clinical reminders since they incorporate data from so many different files. The list below is only provided if the patch fails on install and the site manager needs to check and see if a particular patch is in their system.

Patch	Required Builds
PXRM*1.5*12 (part of PXRM 1009)	DI*22.0*95 DI*22.0*140 PSJ*5*90 PXRM*1.5*11 PXRM*1.5*20 PXRM*1.5*1008

Patch	Required Builds
LR*5.2*295 (part of LR patch 1031)	LR*5.2*259
OR*3*157 (part of EHR patch 11 megabuilds_)	OR*3.0*138 OR*3.0*190
PSO*7*118 (part of EHR patch 11 megabuilds)	DI*22.0*95 PSO*7.0*71 PSO*7.0*156
PX*1*119 (part of PXRM 1009)	DI*22.0*95
RA*5*33 (Part of RA patch 1003)	DI*22.0*95

2.1.3   Routines

Routine	Old Checksum	New Checksum
PXRMINDC	N/A	9648430
PXRMP12I	N/A	252287
PXRMSXRM	N/A	7089208

2.2   Populate Mailman Group

Identify the Mailgroup used for reminders management using the FileMan Inquire into file 800 (Clinical Reminders Parameter file).

Add your Clinical Applications Coordinator and IT to the mailgroup if needed.

Make sure this mailgroup is set up. It will contain any errors on indexing and information when an index is completed.

```
OUTPUT FROM WHAT FILE: CLINICAL REMINDER PARAMETERS//
Select CLINICAL REMINDER PARAMETERS ONE:    1
        ...OK? Yes//   (Yes)
ANOTHER ONE:
STANDARD CAPTIONED OUTPUT? Yes//   (Yes)
Include COMPUTED fields:  (N/Y/R/B): NO// BOTH Computed Fields and Record Number
(IEN)
NUMBER: 1                              ONE: 1
URL: http://www.ihs.gov/cio/crs/
 WEB SITE TITLE: Clinical Reporting System
DEFAULT REMINDER DISCLAIMER:   The following disease screening, immunization
and patient education recommendations are offered as guidelines to assist in
your practice.  These are only recommendations, not practice standards.  The
appropriate utilization of these for your individual patient must be based on
clinical judgment and the patient's current status.
 FULL SSN: YES
 REMINDER MANAGEMENT MAILGROUP: PXRM ERRORS <<<<<<< **Mail group**
```

```
 MAXIMUM NUMBER OF INDEX ERRORS: 200 <<<<<<<<<< How many errors to display after
PXRM INDEX BUILD option is run
```

2.3   Calculate Size

Use the size calculator distributed with PXRM*1.5*20 which was included in PXRM 1.5 patch 1006 to estimate the required space/resources.

2.3.1   Estimating Global Size

A utility for estimating the initial size of the index was distributed by patch PXRM*1.5*20 which was included in PXRM 1.5 patch 1006. To run this utility at the programmer prompt, type:

D ESTTASK^PXRMISE

This will start a TaskMan job that estimates the initial size of the index for each global as well as the total size. The information will be delivered in a MailMan message sent to members of the mail group defined in file #800. The estimated sizes will be given in blocks. These are 1K blocks for DSM sites and 2K blocks for Caché sites.

2.3.1.1   Global Size

The size estimate is made by first estimating the number of index entries that will be created for a global and then multiplying that number by a blocks/index entry factor to give the estimated number of blocks. The estimated sizes for each global are summed to give the total estimated size.

The size estimate is given in blocks. For Caché, they are 2K blocks and for DSM they are 1K blocks.

If you are using 8K blocks to store the index global, you can multiply the predicted number of blocks by the above factors to get an estimate of the number of 8K blocks that will be used.

Tampa VAMC grew from 20207 to 21010 MB in three months. They have split the index global across two volume-sets (due to the current 16 MB limit for DSM), each volume set having less than a 5% growth over the 3-month period. (However, when sites convert to Caché, the limitation on the volume set size is lifted.)

The PXRM*1.5*20 which was included in PXRM 1.5 patch 1006 estimates also provide the breakdown of the index global by VistA application subscript. The Lab index is the largest portion of the PXRMINDX global.

The first subscript in the index global is the application file number, therefore lending itself to easy splitting. The following file numbers are indexed:

45, 52, 55, "55NVA", 63, 70, 100, 120.5, 601.2, 9000010.07, 9000010.11, 9000010.12, 9000010.13, 9000010.16, 9000010.18, 9000010.23, and 9000011

The following is a site assessment for several IHS facilities:

Site	Micmac	Warm Springs	Gallup	Sells	Choctaw
Laboratory	3332	99184	1791378	567080	915365
Mental Health	1	1	1	1	1
Order	704	27408	192194	36859	205433
PTF	1	1	1	1	1
Pharmacy	1	1	20101	1322	7210
Prescription	292	34071	168976	57879	222743
Problem List	93	1130	1331	3146	4336
Radiology	1	641	23895	818	13453
V CPT	1180	11470	41335	172278	34746
V Exam	305	1647	27494	4576	17967
V Health Factors	443	1140	12716	818	12106
V Imm	186	2411	18773	8952	9618
V Pt Ed	425	7463	38999	7497	34410
V POV	2264	36251	203193	83892	172998
V Skin Test	4	277	1101	1862	501
Vitals	1	1	1	1	1
Total	9233	223097	2541489	791960	1650888

2.4   Global Placement

Since this global serves as an index for the clinical data in several packages, it is independent of a particular package. When new data is entered into the globals being indexed, the index grows, so it must be placed where it has room to expand.

Use global translation or global mapping to create a volume or data set, then place the ^PXRMINDX global, according to the instructions that are appropriate to your system, as described below.

2.4.1   Ensemble (Caché)/VMS Sites

The developers recommend placing ^PXRMINDX in its own volume set. The initial size of the Ensemble (Caché) dataset should be based on the estimated size, plus leaving room for significant growth.

Once the new dataset has been created and mounted, a new entry for the PXRMINDX global must be added to the Global Mapping section in the Caché Configuration Manager for each running Caché configuration and activated (for example, Configuration Manager\Namespace\VAH\Global Mapping).

> **Note:** For Ensemble sites, each running Ensemble configuration in the Cluster must be updated. It is IMPORTANT that each Ensemble configuration be updated; otherwise, unpredictable results can occur.

After the Global Mapping has been updated, create the PXRMINDX global:

1. Log on to the RPMS namespace

2. From the programmer mode prompt, issue the following command:

   S ^PXRMINDX=""

   It is highly recommended to perform the Ensemble steps without users on the system and PRIOR to the installation of the CLINICAL_REMINDERS_INDEX.KID build.

2.5   Journaling

2.5.1   During Historical Seeding – Disable

Once the PXRMINDX global is created, the historical seeding of the index can begin by using the options on the PXRM INDEX MANAGEMENT menu. For this historical seeding, it is HIGHLY recommended that journaling of ^PXRMINDX be DISABLED. During the initial creation and building of the index, journaling is not recommended because the index is not in use by the application, and it can be rebuilt if necessary. In addition, there are concerns about journal files filling up with the large volume of SET commands that occur during the historical seeding of the PXRMINDX global. Due to these factors, it is recommended that journaling be disabled on the PXRMINDX global until the historical index seeding is completed.

2.5.2   After Historical Seeding is Completed – Enable

Once the options on PXRM INDEX MANAGEMENT menu are completed, enable journaling of the PXRMINDX. The PXRMINDX index global will grow and will be utilized by Clinical Reminders Version 2.0 application when released. If the PXRMINDX global becomes corrupted, it can be rebuilt but the amount of time needed to rebuild the index will impact users of Clinical Reminders application. It is the recommendation that if the index needs to be rebuilt, it is safer and more efficient to journal the index once the initial build and historical seeding are completed.

2.5.3   Post-Installation

Refer to Section 2.6 for information on how to build the index and for programming information.

2.5.4   Error Messages

If there were errors during the building of the index, a MailMan message will be created that gives details about the entries that could not be indexed. The number of entries that cannot be indexed may number in the thousands for the Prescription file and the Pharmacy Patient file.

This may be a result of bad data at the local sites or system errors. It may indicate data that is missing in application files, and may require local site investigation and correction. The majority of the messages received at test sites have referred to old data that won't affect reminder validity, but may affect reminder report validity (e.g., long-term retrospective ones).

If you receive these error messages, we recommend that you coordinate with local CACs to determine the causes and corrective actions, if necessary.

Each site needs to look at a sample of the error messages to determine if the data needs to be cleaned up or ignored.

2.6   Index Management Menu (PXRM INDEX MANAGEMENT)

When PXRM*1.5*12 (contained in PXRM*1.5*1009) is installed, it creates a new option, PXRM INDEX MANAGEMENT, which is a menu containing PXRM INDEX BUILD and PXRM INDEX COUNT. The index building utility serves two purposes:

- It initially populates the indexes by indexing the existing data. It works its way through the entire global, putting entries in the index for each piece of unique patient data it finds.

- If the index ever gets corrupted or destroyed, the utility can be used to rebuild the index.

Therefore, it is not necessary to journal the index, since it can be recreated from the original data at any time. However, we do recommend journaling, as described earlier in this document.

When the index utility finishes indexing a particular global, it sets the following three (3) nodes:

- ^PXRMINDX(FILE NUMBER,"GLOBAL NAME")=$$GET1^DID(FILE NUMBER,"","","GLOBAL NAME")

- ^PXRMINDX(FILE NUMBER,"BUILT BY")=DUZ

- ^PXRMINDX(FILE NUMBER,"DATE BUILT")=$$NOW^XLFDT

In addition to providing information about who built the index and when it got populated, these nodes can be used to determine when the index is complete and ready for use.

When data is added, edited, or deleted, the indexes are kept current using new-style Mumps cross-references. These cross-references call APIs that set and kill the index entries.

2.7   PXRM INDEX BUILD

The index build utility can be accessed through the option PXRM INDEX MANAGEMENT or directly via PXRM INDEX BUILD.

Select OPTION NAME: PXRM INDEX BUILD.

2.7.1   Select Index

Indexes for each of the globals can be built or rebuilt in any combination desired.

You can run the build interactively or as a tasked job. Since these can take quite a while, they should be run when there are minimal users on the system, and should probably be done one at a time. Do NOT begin indexing the same day as EHR 11 installation. It is suggested that you wait about one (1) week and then begin to create the indexes one at a time. However, if PXRM*1.5*1009 is installed in advance of EHRv1.1p11, selected indexes may be built ahead of the install of EHRv1.1p11.

Once an index is built and Reminders 2.0 is running, rebuilding an index causes the reminders using that index to be unavailable. Rebuilding an index, if necessary, should always be done after hours.

The indexes are required to be built before Reminders 2.0 can be installed. They are also required for graphing changes which are delivered in EHRv1.1p11.

```
 1 - LABORATORY TEST (CH, Anatomic Path, Micro)
 2 - ORDER
 3 - PTF
 4 - PHARMACY PATIENT
 5 - PRESCRIPTION
 6 - PROBLEM LIST
 7 - RADIOLOGY
 8 - V CPT
 9 - V EXAM
10 - V HEALTH FACTORS
11 - V IMMUNIZATION
12 - V PATIENT ED
13 - V POV
```

```
 14 - V SKIN TEST
 15- V MEASUREMENT
 16- V PROCEDURE

Enter your list: (1-17):
```

After selecting the globals to be indexed, you will be given the choice of submitting a tasked job or running it interactively. In either case, when the index build completes, members of the mail group defined in file #800 will be sent a MailMan message that looks something like:

```
Subj: Index for global AUPNVPED successfully built [#12184]

10/03/02@10:25 5 lines

From: POSTMASTER (Sender: DOE,JOHN) In 'IN' basket. Page 1 *New*

-----------------------------------------------------------------

Build of Clinical Reminders index for global AUPNVPED completed.

Build finished at 10/03/2002@10:25:27

288 entries were created.

Elapsed time: 1 secs

0 errors were encountered.
```

> **Note:** If the person who builds the indexes is not a member of the
>   mail group, the messages will not be delivered to the
>   members of the mail group, unless it is a public mail group.

If you select a list of globals to be indexed, they will be indexed sequentially, and if it is tasked out, only one task will be created. If, on the other hand, you select a global and task it out and then go back and select another global and task it out, you could have two concurrent jobs both trying to write to PXRMINDX at the same time. Some simple testing revealed that the total time for two concurrent jobs is longer than for two sequential jobs.

For example, we built the index for ORDERS and V CPT in a test account. Building them sequentially, ORDERS required 19:48 and V CPT required 19:19, for a total time of 1 15:07. When they were built concurrently, ORDERS required 1 15:58 and VCPT required 1 11:00, for a total time of 3 02:58, considerably longer than 1 15:07. Based on this data, the recommendation is to build the indexes sequentially, not concurrently.

It is highly recommended that sites index the items one at a time over a period of a couple of weeks. Many indexes cannot be built until after EHR patch 11 is installed and should NOT be indexed on the same day as EHR 11 installation. Indexes are NOT required until Reminders 2.0 is released but are desirable for graphing.

2.7.2   Error Messages

If any entries could not be indexed, the completion message will look something like the following:

```
Subj: Index for global PS(55 successfully built [#12187] 10/03/02@10:30

6 lines

From: POSTMASTER (Sender: DOE,JOHN) In 'IN' basket. Page 1 *New*

---------------------------------------------------------------------

Build of Clinical Reminders index for global PS(55 completed.

Build finished at 10/03/2002@10:30:07

6416 entries were created.

Elapsed time: 13 secs

136 errors were encountered.
```

Another MailMan message contains the error information for up to the last N errors. The error information starts with the most recent entry in the global that has an error and progressively works back toward older entries. The number of errors displayed, N, is a site-configurable parameter. The parameter is stored in the CLINICAL REMINDERS PARAMETERS file, #800, in the field MAXIMUM NUMBER OF INDEX ERRORS, field #15. The default value is 200. If you wish to change this, you can use the ENTER OR EDIT FILE ENTRIES FileMan option. If you find a substantial number of errors, it is likely there is a systematic problem, so after determining the cause and solution for the first few errors, you can probably apply the same corrective action to the bulk of them.

The message has the format: global, entry identification, and error message. The error message describes the problem – for example, missing or invalid data. Here is a sample of errors you might see for file #55:

```
Subj: CLINICAL REMINDER INDEX BUILD ERROR(S) [#14895] 11/19/02@11:50 136 lines


From: POSTMASTER (Sender: DOE,JOHN) In 'IN' basket. Page 1

-----------------------------------------------------------------------------

GLOBAL: PS(55 ENTRY: DFN=1 D1=33 IV missing stop date

GLOBAL: PS(55 ENTRY: DFN=1 D1=34 IV missing stop date
```

```
GLOBAL: PS(55 ENTRY: DFN=1 D1=35 IV missing stop date

GLOBAL: PS(55 ENTRY: DFN=1 D1=36 IV missing stop date

GLOBAL: PS(55 ENTRY: DFN=2 D1=1 IV missing stop date

GLOBAL: PS(55 ENTRY: DFN=3 D1=1719 Unit Dose missing stop date

GLOBAL: PS(55 ENTRY: DFN=3 D1=1 IV missing stop date

GLOBAL: PS(55 ENTRY: DFN=3 D1=2 IV missing stop date

GLOBAL: PS(55 ENTRY: DFN=3 D1=3 IV missing stop date

GLOBAL: PS(55 ENTRY: DFN=4 D1=2 D2=1 IV additive missing drug

GLOBAL: PS(55 ENTRY: DFN=4 D1=8 D2=1 IV additive missing drug

GLOBAL: PS(55 ENTRY: DFN=6 D1=5 D2=1 IV additive missing drug

GLOBAL: PS(55 ENTRY: DFN=6 D1=7 D2=1 IV additive missing drug

GLOBAL: PS(55 ENTRY: DFN=6 D1=590 IV missing stop date

GLOBAL: PS(55 ENTRY: DFN=8 D1=1 D2=1 IV additive missing drug
```

The entry information identifies the exact entry in the global that could not be indexed. If we examine the last line, it tells us that for ^PS(55,10,"IV",32,0), there is no stop date, so it can't be indexed. If you are not familiar with the structure of the global being indexed, it will be helpful to have a data dictionary listing on hand to help you interpret the entry identification information.

Entries that are not index-able will never be found by any application that uses the index to find data. Each site should make a decision concerning what they want to do about non-index-able entries. Some recommendations can be found below.

2.8   Clean-up Recommendations

2.8.1   Inpatient Pharmacy

Test sites reported that most of the errors are the same type: missing start date or missing patient.

Inpatient Pharmacy developers agree that there will be many of these. A former bug in the application caused those entries that have an E on the end.

However, inpatient medications are deleted when the patient is discharged and should not have lasting effects on most reminders.

```
GLOBAL: ^PS(55, ENTRY: DFN=994 D1=1545755 Unit Dose missing start date

Global ^PS(55,994,,1545755
```

```
 PS(55,994,,1545755

^PS(55,994,5,1545755,0) = ^^^^^^^E

^PS(55,994,5,1545755,9,0) = ^55.09D^1^1


GLOBAL: ^PS(55, ENTRY: DFN=388 D1=1804771 Unit Dose missing start date

Global ^PS(55,388,,1804771

 PS(55,388,,1804771

^PS(55,388,5,1804771,0) = ^^^^^^^E

^PS(55,388,5,1804771,9,0) = ^55.09D^1^1


GLOBAL: ^PS(55, ENTRY: DFN=1096 D1=1819001 Unit Dose missing start date

Global ^PS(55,1096,,1819001

 PS(55,1096,,1819001

^PS(55,1096,5,1819001,0) = ^^^^^^^E

^PS(55,1096,5,1819001,9,0) = ^55.09D^1^1

Global ^


GLOBAL: ^PS(55, ENTRY: DFN=1245 D1=16 IV missing start date

Global ^PS(55,1245,,16

 PS(55,1245,,16

^PS(55,1245,"IV",16,0) = 16^^^P^^^^INFUSE VIA MINIPUMP^NOW^^1000^^^^0^^S
X=PSSTA

TUS

^PS(55,1245,"IV",16,1) = ONE TIME

^PS(55,1245,"IV",16,2) = 2861123.1008^1^IBG

^PS(55,1245,"IV",16,3) = PROTECT FROM LIGHT/DO NOT REFRIGERATE

^PS(55,1245,"IV",16,6) = 67^20 MG

^PS(55,1245,"IV",16,"A",0) = ^55.04A^1^1

^PS(55,1245,"IV",16,"A",1,0) = 1^D^IBG^COMPUTER DOWN^2861123.1045

^PS(55,1245,"IV",16,"A",2,1,0) = ^55.15^1^1

^PS(55,1245,"IV",16,"A",2,1,1,0) = STATUS^DISCONTINUED^

^PS(55,1245,"IV",16,"AD",0) = ^55.02PA^1^1

^PS(55,1245,"IV",16,"AD",1,0) = 108^20 MG
```

```
^PS(55,1245,"IV",16,"SOL",0) = ^55.11IPA^1^1

^PS(55,1245,"IV",16,"SOL",1,0) = 1^10 ML
```

2.8.2   Outpatient Pharmacy

Pharmacy developers recommend that the entry should be skipped if certain data
elements are missing that are required (for example, dfn of patient, zero node, drug,
etc). As noted above, entries that are non-index-able will automatically be skipped by
applications using the index.

What this means is that there will be data in the pharmacy files that are not in the
indexes to be used for reminders. Most of them do not have all the data required for a
good entry so they are invalid. As an example, if an entry in the prescription file has
no data in the patient field, how would you ever know who that prescription belonged
to? In that case, this entry is not in the index.

```
GLOBAL: ^PSRX( ENTRY: 5284873 missing days supply


Global ^PSRX(5284873

 PSRX(5284873

^PSRX(5284873,0) = 962688^24148^^^^10069^^^^^^^^^^^^^1

^PSRX(5284873,2) = ^2981204^^^^^^^^^

^PSRX(5284873,3) = 2981204

^PSRX(5284873,"OR1") = 464

^PSRX(5284873,"POE") = 1

^PSRX(5284873,"SIG") = ^0

^PSRX(5284873,"STA") = 11


GLOBAL: ^PSRX( ENTRY: 5287379 missing DFN

Global ^PSRX(5287379

 PSRX(5287379

^PSRX(5287379,0) = 5285540

^PSRX(5287379,2) = ^^^^^^^^^

^PSRX(5287379,3) =
```

```
^PSRX(5287379,"POE") = 1

GLOBAL: ^PSRX( ENTRY: 5288355 missing DFN

Global ^PSRX(5288355

 PSRX(5288355

^PSRX(5288355,0) = 5285807

^PSRX(5288355,2) = ^^^^^^^^^^

^PSRX(5288355,3) =

^PSRX(5288355,"POE") = 1


GLOBAL: ^PSRX( ENTRY: 5285434 missing DFN

Global ^PSRX(5285434

 PSRX(5285434

^PSRX(5285434,0) = 963014

^PSRX(5285434,2) = ^^^^^^^^^^

^PSRX(5285434,3) =

^PSRX(5285434,"POE") = 1
```

2.9   PXRM INDEX COUNT Utility

The index count utility can be accessed through the option PXRM INDEX
MANAGEMENT or directly via PXRM INDEX COUNT. This utility provides a
count by year of the entries in the index. This will let sites see how their data is
distributed on a yearly basis.

The selection for the count utility is identical to the build utility and the results are
sent in a MailMan message just like the results of the build utility.

3.0   Index Details

3.1   Inpatient Pharmacy

The index is on file 55, Pharmacy Patient. The structure is:

```
^PXRMINDX(55,"IP",DRUG,DFN,START,STOP,DAS)
^PXRMINDX(55,"PI",DFN,DRUG,START,STOP,DAS)
```

Where DRUG is a pointer to Drug file, START is the start date, and STOP is the stop date. The API to retrieve the associated data is OEL^PSJPXRM1(DAS,.DATA). It is documented in DBIA 3836. The API to retrieve the associated data is OEL^PSJPXRM1.

3.2   Non-VA Meds

The index is on the non-VA med multiple of file 55, Pharmacy Patient. The structure is:

```
^PXRMINDX("55NVA","IP",POI,DFN,START,STOP,DAS)
^PXRMINDX("55NVA","PI",DFN,POI,START,STOP,DAS)
```

Where POI is a pointer to the Pharmacy Orderable Item file. START is the start date, if it exists; otherwise it is the documented date. STOP is the discontinued date if it exists; otherwise is "U"_D0. If STOP has the form "U"_D0 it should be interpreted to mean that no discontinued date exists so the patient is currently taking the non-VA med.

The API to retrieve the associated data is NVA^PSOPXRM1(DAS,.DATA). It is documented in DBIA 3793.

3.3   Outpatient Pharmacy

The index is on file 52, Prescription file. The structure is:

```
^PXRMINDX(52,"IP",DRUG,DFN,START,STOP,DAS)
^PXRMINDX(52,"PI",DFN,DRUG,START,STOP,DAS)
```

Where DRUG is a pointer to Drug file, START is the starting date (RELEASE DATE) and STOP is the stop date (RELEASE DATE + DAYS SUPPLY). The API to retrieve the associated data is PSRX^PSOPXRM1(DAS,.DATA).

For auto-finished medications, the start date will be the FILL DATE and the stop date will be the (FILL DATE) + ((# REFILLS +1) * DAYS SUPPLY)

It is documented in DBIA 3793.

3.4   Order Entry

The index is on file 100, Order file. The structure is:

```
^PXRMINDX(100,"IP",OI,DFN,START,STOP,DAS)
^PXRMINDX(100,"PI",DFN,OI,START,STOP,DAS)
```

Where OI is a pointer to the Orderable Items file, START is the START DATE, and STOP is the STOP DATE. The API to retrieve the associated data is EN^ORX8(DA). Note that DA is the first piece of DAS and the data is returned in the array ORUPCHK.

The API is documented in DBIA 871.

3.5   Lab

The index is on file 63, Lab Data. The structure is:

Chemistry, Hematology, other Lab Tests

```
^PXRMINDX(63,"IP",ITEM,DFN,DATE,DAS)
^PXRMINDX(63,"PI",DFN,ITEM,DATE,DAS)
```

Microbiology and Anatomic Path data have an additional index

```
PXRMINDX(63,"PDI",DFN,DATE,ITEM,DAS)
```

Where DATE is the Date/Time of collection. The structure of ITEM depends on the type of lab data.

For Chemistry, Hematology, and other lab tests, ITEM is numeric and a pointer to the Laboratory Test file.

For Microbiology, ITEM is of the format:

```
"M;[S T O A M];#".
```

Where the middle section can be one of:

- S is specimen (# is a pointer to the Topography [SNOMED] file)

- T is test (# is a pointer to the Laboratory Test file)

- O is organism (# is a pointer to the Etiology Field [SNOMED] file)

- A is antibiotic (# is a pointer to the Antimicrobial Susceptibility file)

- M is a TB drug (# is the field number of the TB drug - ^DD(63.39,)

For Anatomic Pathology, ITEM is of the format:

```
"A;[S T O D M E F P I];#"
```

Where the middle section can be one of:

- S is specimen (# is 1.free text value)

- T is test (# is a pointer to the Laboratory Test file)

- O is organ/tissue (# is a pointer to the Topography [SNOMED] file)

- D is disease (# is a pointer to Disease Field [SNOMED] file)

- M is morphology (# is a pointer to the Morphology Field [SNOMED] file)

- E is etiology (# is a pointer to the Etiology Field [SNOMED] file)

- F is function (# is a pointer to the Function [SNOMED] file

- P is procedure (# is a pointer to the Procedure [SNOMED] file)

- I is ICD9 (# is a pointer to the ICD DIAGNOSIS file)

Microbiology and Anatomic Pathology data are stored in a complex hierarchy. The ITEM is therefore a compound expression. This allows single elements of data to be easily found. The DAS also depends on the type of lab data. A chemistry test result has four semicolon pieces.

Microbiology and Anatomic Pathology can be more complex and have a much more nested structure.

The API to retrieve the associated data is:

```
LRPXRM^LRPXAPI(.DATA,DAS,ITEM,TYPE).
```

This information should be reviewed in the context of other data associated with the specimen.

The API is documented in DBIA 4245. The Lab package has other APIs that use these indexes.

3.6   PCC

There are two types of indexes for the V files – one for coded values, ICD 9 and CPT, and one for the non-coded values. The structure of the index for the non-coded values is:

```
^PXRMINDX(file number,"IP",ITEM,DFN,DATE,DAS)
^PXRMINDX(file number,"PI",DFN,ITEM,DATE,DAS)
```

Where item is the .01 of the V file (for example, a pointer to the Education Topic file or Health Factor file), and DATE is the Visit Date. The non-coded values are:

```
V FILE                 FILE NUMBER
V EXAM                 9000010.13
V HEALTH FACTORS       9000010.23
V IMMUNIZATION         9000010.11
V PATIENT ED           9000010.16
V SKIN TEST            9000010.12
V MEASUREMENT          9000010.01
```

The structure of the index for the coded values is:

```
^PXRMINDX(file number,"IPP",CODE,TYPE,DFN,DATE,DAS)
^PXRMINDX(file number,"PPI",DFN,TYPE,CODE,DATE,DAS)
```

Where CODE is a pointer to the coded value, TYPE is primary procedure for V CPT and primary/secondary for V POV. DATE is the Visit Date.

The coded values are:

```
V FILE                 FILE NUMBER
V CPT                  9000010.18
V POV                  9000010.07
V PROCEDURE            9000010.08
```

The APIs for retrieving the associated date are in routine PXPXRM. There is an entry point for each V file; these are listed in the following table. The APIs are documented in DBIA 4250.

```
V FILE                 PXPXRM ENTRY POINT
V CPT                  VCPT(DAS,.DATA)
V EXAM                 VXAM(DAS,.DATA)
V HEALTH FACTORS       VHF(DAS,.DATA)
V IMMUNIZATION         VIMM(DAS,.DATA)
V PATIENT ED           VPEDU(DAS,.DATA)
V POV                  VPOV(DAS,.DATA)
V SKIN TEST            VSKIN(DAS,.DATA)
```

In additions 2 files used only by IHS are in routine BPXPXRM.

```
V MEASUREMENT                   VMEA(DAS,.DATA)
V PROCEDURE                     VPRC(DAS,DATA)
```

3.7   Problem List

The index is on file 9000011, Problem File. The structure is:

```
^PXRMINDX(9000011,"ISPP",ICD9,STATUS,PRIORITY,DFN,DLM,DAS)
^PXRMINDX(9000011,"PSPI",DFN,STATUS,PRIORITY,ICD9,DLM,DAS)
```

Where ICD9 is a pointer to the ICD Diagnosis file. STATUS is the status of the problem, either active ("A") or inactive ("I"). PRIORITY can be acute ("A"), chronic ("C", or null, in which case a "U" is stored. DLM is the Date Last Modified. This structure lets you quickly do things like find active problems whose status is acute. The API to retrieve the associated data is CALL2^GMPLUTL3.

The API is documented in DBIA 2644.

3.8   Radiology

The index is on file 70, Rad/Nuc Med Patient. The structure is:

```
^PXRMINDX(70,"IP",PROC,DFN,DATE,DAS)
^PXRMINDX(70,"PI",DFN,PROC,DATE,DAS)
```

Where PROC is a pointer to the Rad/Nuc Med Procedures file. The API to retrieve the associated data is EN1^RAPXRM(DAS,.DATA).

The API is documented in DBIA 3731.

3.9   Registration

The index is on file 45, PTF. Because PTF stores both ICD 0 and ICD 9 codes, the index is structured to accommodate this.

```
^PXRMINDX(45,"ICD0","INP",ICD0,DFN,DATE,NODE,DAS)
^PXRMINDX(45,"ICD0","PNI",DFN,IDC0,DATE,NODE,DAS)
^PXRMINDX(45,"ICD9","INP",ICD9,DFN,DATE,NODE,DAS)
^PXRMINDX(45,"ICD9","PNI",DFN,IDC9,DATE,NODE,DAS)
```

Where ICD0 is a pointer to the ICD Operation/Procedure file and ICD9 is a pointer to the ICD Diagnosis file. Because ICD 0 codes are stored at 10 different locations, five on the surgery node and five on the procedure node and ICD 9 codes are stored at 25 different locations, 10 on the discharge node, 5 on node 71, and 10 on the movement node, the storage node information is stored in the index. This allows quick retrieval from specific nodes.

For example, one of the ICD 9 codes is stored as DXLS, so in this case the string DXLS is the node subscript. Some of the ICD 9 storage nodes have names like secondary diagnosis 1, secondary diagnosis 2 etc, the corresponding nodes would be D SD1, D SD1. Movement storage nodes have names like M ICD2. The API to retrieve the associated data is PTF^DGPXRM(DAS,.DATA).

> **Note:**   For some of the cross-references in PTF, TYPE OF RECORD is included in the list of fields. It is used to exclude entries whose TYPE OF RECORD is CENSUS from the index.

The API is documented in DBIA #3817.

4.0   Cross-References

The index is kept current by using new-style FileMan cross-references that fire whenever data is added, edited, or deleted. The cross-references are added to the respective packages' data dictionaries when the multi-package build PXRM*1.5* is installed. A list of the cross-references that are added follows.

> **Note:** Some of the packages do direct sets of the data into their globals instead of using FileMan. In those cases, the routines where the data is set or killed have been modified to call the package API that does the set or kill of the index entry.

4.1   LAB

Lab results are stored in the Lab Data file #63. This is a very hierarchical file with a strong dependence on the data dictionary.

The Lab package makes programming calls to update the ^PXRMINDX indexes. Chemistry-type data updates the indexes when results are verified. Anatomic Pathology and Microbiology update indexes when results are reported and/or released. Any changes to existing lab data update the indexes. All indexes are set using SLAB^LRPX and killed using KLAB^LRPX.

4.1.1   Routines

Chemistry-type data updates in a central routine.

LRVER3A Chemistry data are updated on verification and editing of verified data. All transactions go through LRVER3A, which stores the results and sets all the cross-references. This routine calls CHSET^LRPX.

LROC It is very rare but chemistry data may be purged during purging of old orders and accessions. This only happens on data that is corrupted and not reportable. This routine calls CHKILL^LRPX.

All Microbiology and Anatomic Pathology data are updated using the same routine, UPDATE^LRPXRM. Adding, editing, or deleting data invokes this call. Results are compared before and after editing. Any change will update the indexes. This routine is called from several routines:

- LRAPDA
- LRAPDSR
- LRMIEDZ
- LRMIEDZ2

- LRMISTF1

- LRMIV

- LRMIV1

- LRMIV2

Anatomic Pathology uses these routines to change the indexes:

LRAPDA, LRAPDSR, LRAPM, LRAPMRL, LRAPRES

Microbiology uses these routines to change the indexes:

LRMIEDZ, LRMIEDZ2, LRMINEW1, LRMISTF1, LRMIV, LRMIV1, LRMIV2, LRMIVER1

4.1.2   Lab Indexes

```
^PXRMINDX(63,"PI",DFN,ITEM,DATE,DAS)
```

This index is used for finding results of tests on a patient.

```
^PXRMINDX(63,"IP", ITEM,DFN,DATE,DAS)
```

This index is used for finding patients that have specific lab results.

```
^PXRMINDX(63,"PDI",DFN,DATE,ITEM,DAS)
```

This index is only used for Microbiology and Anatomic Pathology and is used for finding results on a patient for a specific time period. Chemistry-type data does not require this because the data are already stored in a similar format in the Lab Data file. Micro and AP data use a compound structure for ITEM (the lab test or other coded result) and the "PDI" index provides a faster path to the results. Also, AP data is broken into four sections:

- Autopsy

- Cytology

- Electron Microscopy

- Surgical Pathology

This index collates results by collection date/time regardless of the section; again, making retrieval faster.

4.2   Pharmacy

4.2.1   Pharmacy Patient

```
Node            Type                Cross-reference
55.01           IV                  ACRIV
55.05           Non-VA meds         ACRNVA
55.06           Unit Dose           ACRUD
```

4.2.2   Prescription

```
Node            Type                Cross-reference
52              Prescription        ACRO
52              Auto-finish         ACRE
55.1            Refill              ACRR
```

4.3   Radiology

70 – Rad/Nuc Med Patient   70.03 – Cross-reference ACR

4.4   PCC Files

File	Name	Cross Reference
9000010.07	V POV	ACR
9000010.11	V IMMUNIZATION	ACR
9000010.12	V SKIN TEST	ACR
9000010.13	V EXAM	ACR
9000010.16	V PATIENT ED	ACR
9000010.18	V CPT	ACR
9000010.23	V HEALTH FACTORS	ACR
9000011	Problem	ACR
9000010.01	V MEASUREMENT	ACR
9000010.08	V PROCEDURES	ACR

4.4.1   Using FileMan to Obtain Detailed Cross-Reference Descriptions

If you want a more detailed description of any of these cross-references, there are two different ways to get it – both use FileMan.

4.4.1.1   **Method 1 – Inquire Option**

Use the Inquire option on the Index file.

VA FileMan 22.0

1. Select **OPTION: I INQUIRE TO FILE ENTRIES**.

2. At "OUTPUT FROM WHAT FILE: INDEX//" prompt, select **INDEX: ACR**.
    The following displays:

```
 1 ACR 120.5 Clinical Reminders cross-reference.
 2 ACR 70 Clinical Reminders index.
 3 ACR 9000010.18 Clinical Reminders index.
 4 ACR 9000010.23 Clinical Reminders index.
 5 ACR 9000010.11 Clinical Reminders index.
 6 ACR 9000010.16 Clinical Reminders index.
 7 ACR 9000010.07 Clinical Reminders index.
 8 ACR 9000010.12 Clinical Reminders index.
 9 ACR 9000010.13 Clinical Reminders index.
10 ACR 601.2 Clinical Reminders cross-reference.
```

3. At "CHOOSE 1-10:" prompt, select **6 9000010.16 ACR Clinical Reminders
    index**.

4. At "ANOTHER ONE: STANDARD CAPTIONED OUTPUT? Yes//" prompt,
    type **Yes**.

5. At "Include COMPUTED fields: (N/Y/R/B): NO//" prompt enter BOTH
    Computed Fields and Record Number (IEN).

6. View the result:

```
NUMBER: 279 FILE: 9000010.16

 NAME: ACR
SHORT DESCRIPTION: Clinical Reminders index.
 TYPE: MUMPS EXECUTION: RECORD
 ACTIVITY: IR ROOT TYPE: INDEX FILE
 ROOT FILE: 9000010.16 USE: ACTION

 DESCRIPTION: This cross-reference builds two indexes. One for finding all
patients with a particular education topic and one for finding all the
education topics a patient has. The indexes are stored in the Clinical
Reminders index global as:

 ^PXRMINDX(9000010.16,"IP",EDUCATION TOPIC,DFN,VISIT DATE,DAS) and
 ^PXRMINDX(9000010.16,"PI",DFN,EDUCATION TOPIC,VISIT DATE,DAS)
respectively.

 SET LOGIC: D SVFILE^PXPXRM(9000010.16,.X,.DA)
 KILL LOGIC: D KVFILE^PXPXRM(9000010.16,.X,.DA)
 KILL ENTIRE INDEX CODE: K ^PXRMINDX(9000010.16)

ORDER NUMBER: 1 TYPE OF VALUE: FIELD
 FILE: 9000010.16 FIELD: .01
 SUBSCRIPT NUMBER: 1 COLLATION: forwards
```

```
ORDER NUMBER: 2 TYPE OF VALUE: FIELD
 FILE: 9000010.16 FIELD: .02
 SUBSCRIPT NUMBER: 2 COLLATION: forwards
ORDER NUMBER: 3 TYPE OF VALUE: FIELD
```

5.0   National Reminders and Dialogs

Three (3) new national reminders with dialogs are introduced.

5.1   IHS-COLON CANCER 2013

REMINDER APPLICABLE if age 51-75

- And no history of neoplasm of the colon
- And no evidence of colonoscopy in past nine (9) years nine (9) months
- And no evidence of sigmoidoscopy in past four (4) years nine (9) months

REMINDER DUE if no fecal test done in past year

REMINDER ON if due within three (3) months

RESOLUTION:

- Fecal test resulted
- Colonscopy done (Status N/A for nine (9) years nine (9) months)
- Sigmoidoscopy (Status N/A for four (4) years nine (9) months)

REMINDER TERM: IHS-FECAL OCCULT BLOOD will need to contain the names of the lab(s) that the site uses.

Figure 5-1: Reminder Resolution: Colon Cancer dialog

5.2   IHS PAP SMEAR 21-29Y 2013

REMINDER DUE for female patients with intact cervix ages 21-29 if no PAP test in past three (3) years

REMINDER ON three (3) months before due date

RESOLUTION: This reminder resolves using RPMS data found by the Health Maintenance Reminder for Pap Smear.

Refer to the PCC Health Summary User Manuals for Logic in the appendices. This is located in the IHS PCC Suite section of the Clinical Applications document repository.
http://www.ihs.gov/RPMS/index.cfm?module=Applications&option=View&AC_ID=0

Figure 5-2: Reminder Resolution: Pap Test 21-29Y dialog

5.3   IHS PAP SMEAR 30-64Y 2013

REMINDER DUE for female patients with intact cervix if:

* No PAP test in past three (3)years

    OR

* No PAP test AND HPV test documented in past five (5) years

RESOLUTION: This reminder resolves using RPMS data found by the Health Maintenance Reminder for Pap Smear.

Refer to the PCC Health Summary User Manuals for Logic in the appendices. This is located in the IHS PCC Suite section of the Clinical Applications document repository.
http://www.ihs.gov/RPMS/index.cfm?module=Applications&option=View&AC_ID=0

****** Reminder Frequency is set to five (5) years. When PAP is performed without HPV, the PAP expires in three (3) years and will show due once it has been three (3) years since the PAP was performed ***

LOGIC: This reminder uses complex logic.

Customized RESOLUTION LOGIC defines findings that resolve the Reminder:

   ((FI(3)!FI(2))&FI(4))!FI(5)

Expanded Resolution Logic:

   ((FI(IHS-HPV LAB)!FI(IHS-HIGH RISK HPV TEST))&FI(IHS-PAP 2013))!

   FI(IHS-PAP 2009)

Figure 5-3: Reminder Resolution: Pap test 30-64Y dialog

6.0   Rules of Behavior

The information in this required section was written by the IHS. It does not contain any information about the functionality of the software.

6.1   All RPMS User

In addition to these rules, each application may include additional RoBs, which may be defined within the individual application's documentation (for example, PCC, Dental, Pharmacy).

6.1.1   Access

RPMS Users shall:

- Only use data for which you have been granted authorization.

- Only give information to personnel who have access authority and have a need to know.

- Always verify a caller's identification and job purpose with your supervisor or the entity provided as employer *before* providing any type of information system access, sensitive information, or non-public agency information.

- Be aware that personal use of information resources is authorized on a limited basis within the provisions Indian Health Manual Chapter 6 OMS Limited Personal Use of Information Technology Resources TN 03-05," August 6, 2003.

Users Shall Not:

- Retrieve information for someone who does not have authority to access the information.

- Access, research, or change any user account, file, directory, table, or record not required to perform your OFFICIAL duties.

- Store sensitive files on a PC hard drive, or portable devices or media, if access to the PC or files cannot be physically or technically limited.

- Exceed their authorized access limits in RPMS by changing information or searching databases beyond the responsibilities of their job or by divulging information to anyone not authorized to know that information

6.1.2   Logging On to the System

RPMS Users shall:

- Have a unique User Identification/Account name and password.

- Be granted access based on authenticating the account name and password entered.

- Be locked out of an account after five (5) successive failed login attempts within a specified time period (for example, one hour).

6.1.3   Information Accessibility

RPMS shall restrict access to information based on the type and identity of the user. However, regardless of the type of user, access shall be restricted to the minimum level necessary to perform the job.

Users Shall

- Access only those documents they created and those other documents to which they have a valid need-to-know and to which they have specifically granted access through an RPMS application based on their menus (job roles), keys, and FileMan access codes. Some users may be afforded additional privileges based on the function they perform such as system administrator or application administrator.

- Acquire a written preauthorization in accordance with IHS policies and procedures prior to interconnection to or transferring data from RPMS.

- Behave in an ethical, technically proficient, informed, and trustworthy manner.

- Logout of the system whenever they leave the vicinity of their PC.

- Be alert to threats and vulnerabilities in the security of the system.

- Report all security incidents to their local Information System Security Officer (ISSO)

- Differentiate tasks and functions to ensure that no one person has sole access to or control over important resources.

- Protect all sensitive data entrusted to them as part of their government employment.

- Shall abide by all Department and Agency policies and procedures and guidelines related to ethics, conduct, behavior and IT information processes

6.1.4   Accountability

Users Shall:

- Behave in an ethical, technically proficient, informed, and trustworthy manner.

- Logout of the system whenever they leave the vicinity of their PC.

- Be alert to threats and vulnerabilities in the security of the system.

- Report all security incidents to their local Information System Security Officer (ISSO)

- Differentiate tasks and functions to ensure that no one person has sole access to or control over important resources.

- Protect all sensitive data entrusted to them as part of their government employment.

- Shall abide by all Department and Agency policies and procedures and guidelines related to ethics, conduct, behavior and IT information processes.

6.1.5   Confidentiality

Users Shall:

- Be aware of the sensitivity of electronic and hardcopy information, and protect it accordingly.

- Store hardcopy reports/storage media containing confidential information in a locked room or cabinet.

- Erase sensitive data on storage media, prior to reusing or disposing of the media.

- Protect all RPMS terminals from public viewing at all times.

- Abide by all HIPAA regulations to ensure patient confidentiality

Users Shall Not:

- Allow confidential information to remain on the PC screen when someone who is not authorized to that data is in the vicinity.

- Store sensitive files on a portable device or media without encrypting.

6.1.6   Integrity

Users Shall:

- Protect your system against viruses and similar malicious programs.

- Observe all software license agreements.

- Follow industry standard procedures for maintaining and managing RPMS hardware, operating system software, application software, and/or database software and database tables.

- Comply with all copyright regulations and license agreements associated with RPMS software.

Users Shall Not:

- Violate Federal copyright laws.

- Install or use unauthorized software within the system libraries or folders.

- Use freeware, shareware or public domain software on/with the system without your manager's written permission and without scanning it for viruses first

6.1.7   Passwords

Users Shall:

- Change passwords a minimum of every 90 days.

- Create passwords with a minimum of eight characters.

- If the system allows, use a combination of alpha, numeric characters for passwords, with at least one uppercase letter, one lower case letter, and one number. It is recommended, if possible, that a special character also be used in the password.

- Change vendor-supplied passwords immediately.

- Protect passwords by committing them to memory or store them in a safe place (do not store passwords in login scripts, or batch files.

- Change password immediately if password has been seen, guessed or otherwise compromised; and report the compromise or suspected compromise to your ISSO.

- Keep user identifications (ID) and passwords confidential

Users Shall Not:

- Use common words found in any dictionary as a password.

- Use obvious readable passwords or passwords that incorporate personal data elements (e.g., user's name, date of birth, address, telephone number, or social security number; names of children or spouses; favorite band, sports team, or automobile; or other personal attributes).

- Share passwords/IDs with anyone or accept the use of another's password/ID, even if offered.

- Reuse passwords. A new password must contain no more than five characters per 8 characters from the previous password.

- Post passwords.

- Keep a password list in an obvious place, such as under keyboards, in desk drawers, or in any other location where it might be disclosed.

- Give a password out over the phone.

6.1.8   Backups

Users Shall:

- Plan for contingencies such as physical disasters, loss of processing, and disclosure of information by preparing alternate work strategies and system recovery mechanisms.

- Make backups of systems and files on a regular, defined basis.

- If possible, store backups away from the system in a secure environment

Users Shall Not:

- Violate Federal copyright laws.

- Install or use unauthorized software within the system libraries or folders.

- Use freeware, shareware or public domain software on/with the system without your manager's written permission and without scanning it for viruses first.

6.1.9   Reporting

Users Shall:

- Contact and inform your ISSO that you have identified an IT security incident and you will begin the reporting process by providing an IT Incident Reporting Form regarding this incident.

- Report security incidents as detailed in IHS SOP 05-03, Incident Handling Guide

Users Shall Not:

- Assume that someone else has already reported an incident. The risk of an incident going unreported far outweighs the possibility that an incident gets reported more than once.

6.1.10   Session Time Outs

RPMS system implements system-based timeouts that back users out of a prompt after no more than 5 minutes of inactivity.

Users Shall:

- Utilize a screen saver with password protection set to suspend operations at no greater than 10-minutes of inactivity. This will prevent inappropriate access and viewing of any material displayed on your screen after some period of inactivity.

Users Shall Not:

- Utilize a screen saver with password protection set to suspend operations at no greater than 10-minutes of inactivity. This will prevent inappropriate access and viewing of any material displayed on your screen after some period of inactivity.

6.1.11   Hardware

Users Shall:

- Avoid placing system equipment near obvious environmental hazards (e.g., water pipes).

- Keep an inventory of all system equipment.

- Keep records of maintenance/repairs performed on system equipment

Users Shall Not:

- Do not eat or drink near system equipment

6.1.12   Awareness

Users Shall:

- Participate in organization-wide security training as required.

- Read and adhere to security information pertaining to system hardware and software.

- Take the annual information security awareness.

- Read all applicable RPMS Manuals for the applications used in their jobs.

6.1.13   Remote Access

Each subscriber organization establishes its own policies for determining which employees may work at home or in other remote workplace locations. Any remote work arrangement should include policies that:

- Are in writing.

- Provide authentication of the remote user through the use of ID and password or other acceptable technical means.

- Outline the work requirements and the security safeguards and procedures the employee is expected to follow.

- Ensure adequate storage of files, removal and non-recovery of temporary files created in processing sensitive data, virus protection, intrusion detection, and provides physical security for government equipment and sensitive data.

- Establish mechanisms to back up data created and/or stored at alternate work locations.

Remote Users Shall:

- Remotely access RPMS through a virtual private network (VPN) whenever possible. Use of direct dial in access must be justified and approved in writing and its use secured in accordance with industry best practices or government procedures

Remote Users Shall Not:

- Disable any encryption established for network, internet and web browser communications

6.2   RPMS Developers

Developers Shall:

- Always be mindful of protecting the confidentiality, availability, and integrity of RPMS when writing or revising code.

- Always follow the IHS RPMS Programming Standards and Conventions (SAC) when developing for RPMS.

- Only access information or code within the namespaces for which they have been assigned as part of their duties.

- Remember that all RPMS code is the property of the U.S. Government, not the developer.

- Shall not access live production systems without obtaining appropriate written access, shall only retain that access for the shortest period possible to accomplish the task that requires the access.

- Shall observe separation of duties policies and procedures to the fullest extent possible.

- Shall document or comment all changes to any RPMS software at the time the change or update is made. Documentation shall include the programmer's initials, date of change and reason for the change.

- Shall use checksums or other integrity mechanism when releasing their certified applications to assure the integrity of the routines within their RPMS applications.

- Shall follow industry best standards for systems they are assigned to develop or maintain; abide by all Department and Agency policies and procedures.

- Shall document and implement security processes whenever available

Developers Shall Not:

- Write any code that adversely impacts RPMS, such as backdoor access, Easter eggs, time bombs, or any other malicious code or make inappropriate comments within the code, manuals, or help frames.

- Grant any user or system administrator access to RPMS unless proper documentation is provided.

- Not release any sensitive agency or patient information.

6.3   Privileged Users

Personnel who have significant access to processes and data in RPMS, such as, system security administrators, systems administrators, and database administrators have added responsibilities to ensure the secure operation of RPMS.

Privileged Users Shall:

- Verify that any user requesting access to any RPMS system has completed the appropriate access request forms.

- Ensure that government personnel and contractor personnel understand and comply with license requirements. End users, supervisors, and functional managers are ultimately responsible for this compliance.

- Advise the system owner on matters concerning information technology security.

- Assist the system owner in developing security plans, risk assessments, and supporting documentation for the certification and accreditation process.

- Ensure that any changes to RPMS that affect contingency and disaster recovery plans are conveyed to the person responsible for maintaining continuity of operations plans.

- Ensure that adequate physical and administrative safeguards are operational within their areas of responsibility and that access to information and data is restricted to authorized personnel on a need to know basis.

- Verify that users have received appropriate security training before allowing access to RPMS.

- Implement applicable security access procedures and mechanisms, incorporate appropriate levels of system auditing, and review audit logs.

- Document and investigate known or suspected security incidents or violations and report them to the ISSO, CISO, and systems owner.

- Protect the supervisor, superuser or system administrator passwords.

- Avoid instances where the same individual has responsibility for several functions (i.e., transaction entry and transaction approval).

- Watch for unscheduled, unusual, and unauthorized programs.

- Help train system users on the appropriate use and security of the system.

- Establish protective controls to ensure the accountability, integrity, confidentiality, and availability of the system.

- Replace passwords when a compromise is suspected. Delete user accounts as quickly as possible from the time that the user is no longer authorized system. Passwords forgotten by their owner should be replaced, not reissued.

- Terminate user accounts when a user transfers or has been terminated. If the user has authority to grant authorizations to others, review these other authorizations. Retrieve any devices used to gain access to the system or equipment. Cancel logon IDs and passwords, and delete or reassign related active and back up files.

- Use a suspend program to prevent an unauthorized user from logging on with the current user's ID if the system is left on and unattended.

- Verify the identity of the user when resetting passwords. This can be done either in person or having the user answer a question that can be compared to one in the administrator's database.

- Shall follow industry best standards for systems they are assigned to; abide by all Department and Agency policies and procedures.

Privileged Users Shall Not:

- Access any files, records, systems, etc., that are not explicitly needed to perform their duties.

- Grant any user or system administrator access to RPMS unless proper documentation is provided.

- Not release any sensitive agency or patient information.

7.0   Contact Information

If you have any questions or comments regarding this distribution, contact the OIT User Support (IHS) by:

Phone: (505) 248-4371or (888) 830-7280 (toll free)

Fax: (505) 248-4363

Web: http://www.ihs.gov/GeneralWeb/HelpCenter/Helpdesk/index.cfm

Email: mailto:support@ihs.gov