Inpatient Medications Pharmacy Interface Automation (PIA)

Installation Guide

Department of Veterans Affairs

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Version 1.0

Revision History

Date	Version	Description	Author
4/25/16	0.5	Updated Back out and Rollback sections.	Rachel Walters
1/5/16	0.4	Technical edit.	Rachel Walters
12/31/15	0.3	Added Inbound Configuration.	James Harris
11/24/15	0.2	Added Disaster Recovery section.	Rachel Walters
9/15/15	0.1	Initial draft.	Rachel Walters Tony Nixon Mohamed Anwer

Table of Contents

1. Introduction

This document provides installation instructions for Clinical Ancillary Services (CAS) Development Delivery of Pharmacy enhancements (DDPE) Pharmacy Interface Automation (PIA).

2. System Requirements

The following are software elements for Inpatient Medications.

Inpatient Medications Software Elements

Application	Version
Adverse Reaction Tracking	4.0
Decision Support System	3.0
Inpatient Medications	5.0
Kernel	8.0
Laboratory	5.2
Mailman	8.0
National Drug File	4.0
Nursing	4.0
Order Entry/Results Reporting	3.0
Outpatient Pharmacy	7.0
Patient Information Management Systems	5.3
Pharmacy Data Management	1.0
RPC Broker (32-bit)	1.1
Toolkit	7.3
VA FileMan	22.0

2.1. Pre-Installation

The following two patches are provided for this project and should be installed in the order listed below, as the logical link, PSJ PADE that is used for this project is transported in the PSJ patch.

PSJ*5*317 - Inpatient Medications V. 5.0
PSS*1*193 - Pharmacy Data Management V. 1.0

The associated patches for PSJ*5*317 are the following:

PSJ*5*191
PSJ*5*228
PSJ*5*244
PSJ*5*281
PSJ*5*285

The associated patch for PSS*1*193 is PSS*1*180.

2.2. Patch Installation

The scope of the Pharmacy Interface Automation Project (PIA) will provide a new standard bi-directional HL7 interface to the Pharmacy Automated Dispensing Equipment (PADE) located at the point of care areas such as Inpatient wards, Outpatient Clinics etc. Depending on the PADE setup, outbound HL7 messages will be sent to the respective PADE via the VistA Interface Engine (VIE), when the following event happens:

- In Inpatient Medications, when orders are verified, edited, renewed, discontinued, reinstated, put on hold/removed from hold etc.
- In Computerized Patient Record System (CPRS), when orders are discontinued.
- In the REGISTRATION package when patients are admitted, discharged, transferred, cancel admit, cancel discharge, cancel transfer, bed switch etc.
- In the Scheduling package when patients are checked in.
- In Pharmacy Data Management, when new drugs are entered or modified.
- Options to schedule nightly jobs to run daily to send patient clinic appointments or surgery cases.
- Options to send medication orders for a single patient or by clinics or by wards.

Installation Instructions
PSJ*5*317 - Inpatient Medications V. 5.0.

This patch should be installed with users off the system during off-peak hours. Installation takes less than five minutes.

1. Use the INSTALL/CHECK MESSAGE option on the PackMan menu.

2. From the Kernel Installation & Distribution System menu, select the Installation menu.

3. From this menu, you may select to use the following options: (when prompted for INSTALL NAME, enter PSJ*5.0*317)

   a. Backup a Transport Global - this option will create a backup message of any routines exported with the patch. It will NOT backup any other changes such as DDs or templates.

   b. Compare Transport Global to Current System - this option will allow you to view all changes that will be made when the patch is installed. It compares all components of the patch (routines, DDs, templates, etc.).

   c. Verify Checksums in Transport Global - this option will ensure

the integrity of the routines that are in the transport global.

4. Use the Install Package(s) option and select the package PSJ*5.0*317.

5. When prompted "Want KIDS to Rebuild Menu Trees Upon Completion of Install? NO//" respond NO.

6. When prompted "Want KIDS to INHIBIT LOGONs during the install? NO//" respond NO.

7. When prompted "Want to DISABLE Scheduled Options, Menu Options, and Protocols? NO//" respond NO.

Routine Information:
==========

```
The second line of each of these routines now looks like:
 ;;5.0;INPATIENT MEDICATIONS;**[Patch List]**;16 DEC 97;Build 125

The checksums below are new checksums, and
 can be checked with CHECK1^XTSUMBLD.

Routine Name: PSGBRJ
    Before: B19761653   After: B21011842  **12,50,244,317**
Routine Name: PSGOE7
    Before: B30726260   After: B40214304  **9,26,34,52,55,50,87,111,181,
                                           254,267,260,288,281,317**
Routine Name: PSGOE82
    Before: B21878874   After: B33061347  **2,35,50,67,58,81,127,168,181,
                                           276,317**
Routine Name: PSGOE92
    Before: B30935948   After: B43137679  **2,35,50,58,81,110,215,237,
                                           276,316,317**
Routine Name: PSGOEF1
    Before: B28843982   After: B36069326  **2,7,35,39,45,47,50,63,67,58,
                                           95,110,186,181,267,317**
Routine Name: PSGPEN
    Before: B39805137   After: B57109712  **30,37,50,58,115,110,127,129,317**
Routine Name: PSGPLR
    Before: B39066813   After: B40061443  **10,50,67,119,129,191,317**
Routine Name: PSJ317P
    Before:       n/a   After:  B6017554  **317**
Routine Name: PSJHLU
    Before: B45959307   After: B50964072  **1,56,72,102,134,181,267,285,317**
Routine Name: PSJLMPRU
    Before: B14898207   After: B19398098  **16,58,85,110,185,181,267,317**
Routine Name: PSJLMUDE
    Before: B66391198   After: B84078277  **7,47,50,63,64,58,80,116,110,
                                           111,164,175,201,181,254,267,
                                           228,317**
Routine Name: PSJO
```

```
    Before: B28881243   After: B32312057  **31,58,110,181,267,275,317**
Routine Name: PSJO2
    Before: B20134007   After: B21667076  **58,317**
Routine Name: PSJPAD50
    Before:       n/a   After:B143814904  **317**
Routine Name: PSJPAD70
    Before:       n/a   After:B193106268  **317**
Routine Name: PSJPAD7I
    Before:       n/a   After: B91989090  **317**
Routine Name: PSJPAD7U
    Before:       n/a   After:B183953635  **317**
Routine Name: PSJPADE
    Before:       n/a   After: B87815402  **317**
Routine Name: PSJPADIT
    Before:       n/a   After:B213276051  **317**
Routine Name: PSJPADPT
    Before:       n/a   After: B74411481  **317**
Routine Name: PSJPADSI
    Before:       n/a   After:B207002155  **317**
Routine Name: PSJPDAPP
    Before:       n/a   After: B26391444  **317**
Routine Name: PSJPDCL
    Before:       n/a   After: B58778000  **317**
Routine Name: PSJPDCLA
    Before:       n/a   After:B123299808  **317**
Routine Name: PSJPDCLU
    Before:       n/a   After:B182392496  **317**
Routine Name: PSJPDRIN
    Before:       n/a   After:B220627483  **317**
Routine Name: PSJPDRIP
    Before:       n/a   After: B92189032  **317**
Routine Name: PSJPDRTP
    Before:       n/a   After:B164565338  **317**
Routine Name: PSJPDRTR
    Before:       n/a   After:B204379013  **317**
Routine Name: PSJPDRU1
    Before:       n/a   After:B195220461  **317**
Routine Name: PSJPDRUT
    Before:       n/a   After:B233191952  **317**
```

PSS*1*193 – Pharmacy Data Management V. 1.0.

This patch should be installed with users off the system during off-peak hours. Installation takes less than two minutes.

1. Use the INSTALL/CHECK MESSAGE option on the PackMan menu.

2. From the Kernel Installation & Distribution System menu, select the Installation menu.

3. From this menu, you may select to use the following options: (when prompted for INSTALL NAME, enter PSS*1.0*193)

```
     a. Backup a Transport Global - this option will create a backup
        message of any routines exported with the patch. It will NOT
        backup any other changes such as DDs or templates.

     b. Compare Transport Global to Current System - this option will
        allow you to view all changes that will be made when the patch
        is installed. It compares all components of the patch (routines,
        DDs, templates, etc.).

     c. Verify Checksums in Transport Global - this option will ensure
        the integrity of the routines that are in the transport global.

 4. Use the Install Package(s) option and select the package PSS*1.0*193.

 5. When prompted "Want KIDS to INHIBIT LOGONs during the install? NO//"
    respond NO.

 6. When prompted "Want to DISABLE Scheduled Options, Menu Options, and
    Protocols? NO//" respond NO.


Routine Information:
====================

The second line of each of these routines now looks like:
 ;;1.0;PHARMACY DATA MANAGEMENT;**[Patch List]**;9/30/97;Build 17

The checksums below are new checksums, and
 can be checked with CHECK1^XTSUMBLD.

Routine Name: PSSDEE
    Before: B98607664   After:B110481507  **3,5,15,16,20,22,28,32,34,33,
                                           38,57,47,68,61,82,90,110,155,
                                           156,180,193**
Routine Name: PSSHLDFS
    Before:       n/a   After: B33701533  **193**
Routine Name: PSSMSTR
    Before:  B1853023   After: B51317382  **82,193**
```

2.3. Download and Extract Procedure

N/A

2.4. Database Creation

N/A

2.5. Installation Scripts

N/A

2.6. Cron Scripts

N/A

2.7. System Configuration

2.7.1. Outbound

Outbound to PADE setup will be configured in VistA to send the information to the appropriate PADE. The main purpose of the Outbound setup is to map the send areas to the location of the cabinets in the wards, clinics, and/or operating rooms.

Please refer to the Pharmacy Interface Automation Startup and Troubleshooting Guide for more details.

2.7.2. Inbound

The PADE Inbound HL7 interface must be configured prior to first use. The Inbound HL7 interface does not require the PADE Outbound HL7 interface. However, the inbound interface does require an entry in the outbound system file PADE SYSTEM SETUP (#58.7) before it can be activated.

Please refer to the Pharmacy Interface Automation Startup and Troubleshooting Guide for more details.

2.8. Database Tuning

N/A

3. Implementation

The PIA Implementation Plan specifies how the Pharmacy Interface Automation project will be evaluated and subsequently deployed within the Office of Enterprise Development (OED).

The PIA Implementation Plan:

a. Describes the phased implementation for the implementation
b. States objectives for the implementation
c. Addresses risks associated with implementation

Refer to the PIA Implementation Plan for more detailed information.

4. Back-out Procedure

The following section details the back-out procedure for PIA.

4.1. Back-out Strategy

See section 4.6 for more details.

4.2. Back-out Considerations

Back-out pertains to a return to the last known good operational state of the software and appropriate platform settings.

4.2.1. Load Testing

To be determined

4.2.2. User Acceptance Testing

User Acceptance Testing is in progress.

4.3. Back-out Criteria

The project is canceled and the implemented features are no longer wanted by the stake holders.

4.4. Back-out Risks

To be determined

4.5. Authority for Back-out

The authority would come from the IPT and the VA project manager.

4.6. Back-out Procedure

In the event that the Pharmacy Interface Automation enhancements must be backed out, the modified routines must have been backed-up during patch installation using the following option:

Backup a Transport Global [XPD BACKUP]

This option creates a MailMan message of any routines exported with this patch. (If you need to preserve components that are not routines, you must back them up separately.)

```
Select Kernel Installation & Distribution System Option: Installation
      1 Load a Distribution
      2 Verify Checksums in Transport Global
      3 Print Transport Global
      4 Compare Transport Global to Current System
      5 Backup a Transport Global
      6 Install Package(s)
      Restart Install of Package(s)
      Unload a Distribution


Select Installation <TEST ACCOUNT> Option: 5  Backup a Transport Global
select INSTALL NAME:   Backup of Patch_XXXXX    12/5/15@13:29:01
           => Backup of Patch_XXXXX

This Distribution was loaded on Feb 05, 2013@13:29:01 with header of
Patch_XXXXX Test Version

It consisted of the following Install(s):  Patch_XXXXX Test Version

      Subject: Backup of Patch_XXXXX install on Feb 05, 2013
        Replace
      Loading Routines for XXXXX
      Routine YYYY1
      Routine YYYY2
      Routine YYYY3
      Send mail to: ADPAC,ONE//   ADPAC,ONE
      Select basket to send to: IN// BACKUP PATCH   (Folder for FORUM)
      And Send to:
```

Restore Pre-Patch Routines (MailMan)

Go to the **Backup of Patch_XXXXX** message in Mailman.
At the Enter message action prompt, enter "X" to "Xtract PackMan"
At the Select PackMan Function prompt enter the number **6** to ***Install/Check Message***
At the end of this process the pre-patch routines are restored.

Note: See header "Install the Patch Backup" for detail

Install the Patch Backup

```
BACKUP PATCH Basket, 144 messages (1-144), 117 new

*=New/!=Priority.....Subject.....................................From...
        141.  Backup of Patch_XXXXX install on Oct 01, 2015   ADPAC,ONE

IN Basket Message: 1// 141

Subj: Backup of XXXXX install on Oct 01, 2015  [#000000] 10/01/15@11:14
2016 lines
From: ADPAC,ONE In 'IN' basket.   Page 1
---------------------------------------------------------------------
$TXT PACKMAN BACKUP Created on Thursday, 10/1/15 at 11:14:50 by ADPAC,ONE

Enter message action (in IN basket): Ignore// Xtract PackMan
Select PackMan function: 6  INSTALL/CHECK MESSAGE

Warning:  Installing this message will cause a permanent update of globals
and routines.
Do you really want to do this? NO// YES

Routines are the only parts that are backed up.  NO other parts
are backed up, not even globals.  You may use the 'Summarize Message'
option of PackMan to see what parts the message contains.
Those parts that are not routines should be backed up separately
if they need to be preserved.


Shall I preserve the routines on disk in a separate back-up message? YES// NO
No backup message built.

Line 123  Message #000000  Unloading Routine Routine_Name1 (PACKMAN_BACKUP)
Line 345  Message #000000  Unloading Routine Routine_Name2 (PACKMAN_BACKUP)
Line 567  Message #000000  Unloading Routine Routine_Name3 (PACKMAN_BACKUP)
Line 789  Message #000000  Unloading Routine Routine_Name4 (PACKMAN_BACKUP)
=====================================================================
```

New Routine(s)

New routines implemented by the patches can be deleted/removed by using the following option:
Delete Routines [XTRDEL]

This option can be found under the **Routine Tools** menu

```
Select OPTION NAME:    XUPROG     Programmer Options

   KIDS   Kernel Installation & Distribution System ...
```

```
   NTEG   Build an 'NTEG' routine for a package
   PG     Programmer mode
          Calculate and Show Checksum Values
          Delete Unreferenced Options
          Error Processing ...
          Global Block Count
          List Global
          Map Pointer Relations
          Number base changer
          Routine Tools ...
          Test an option not in your menu
          Verifier Tools Menu ...

Select Programmer Options <TEST ACCOUNT> Option: ROUTINE Tools

          %Index of Routines
          Check Routines on Other CPUs
          Compare local/national checksums report
          Compare routines on tape to disk
          Compare two routines
          Delete Routines
          First Line Routine Print
          Flow Chart Entire Routine
          Flow Chart from Entry Point
          Group Routine Edit
          Input routines
          List Routines
          Load/refresh checksum values into ROUTINE file
          Output routines
          Routine Edit
          Routines by Patch Number
          Variable changer
          Version Number Update

Select Routine Tools <TEST ACCOUNT> Option: DELEte Routines
ROUTINE DELETE
All Routines? No => No
Routine: ROUT999
Routine:
1 routine
1 routines to DELETE, OK: NO// YES
ROUT999
Done.
```

Other Components

Data dictionary and template modifications must be removed using a follow-up patch.

File Name (#)	Field Name (#)	New/Modified/Deleted
PADE SYSTEM SETUP (#58.7)	All fields	New
PADE SEND AREA (#58.71)	All fields	New
PADE OUTBOUND MESSAGES (#58.72)	All fields	New
PADE DISPENSING DEVICE (#58.63)	All fields	New

PADE INBOUND TRANSACTIONS (#58.6)	All fields	New
PADE INVENTORY SYSTEM (#58.601)	All fields	New
PADE USER (#58.64)	All fields	New
INPATIENT WARD PARAMETERS (#59.6)	DEFAULT 0 ON PADE PRE-EXCHANGE (#8)	New

Kernel Parameters	New/Modified/Deleted
PSJ PADE OE BALANCES	New

Mail Group	New/Modified/Deleted
PSJ PADE DISPENSE ALERTS	New

Options	New/Modified/Deleted
Unit Dose Medications [PSJU MGR]	Modified Menu
PADE Main Menu [PSJ PADE MAIN MENU]	New Menu
PADE Send Area Setup [PSJ PADE SEND AREA SETUP]	New Option
PADE System Setup [PSJ PADE SETUP]	New Option
PADE Inventory Setup [PSJ PADE INVENTORY MENU]	New Menu
Inventory System Setup [PSJ PADE INVENTORY SYSTEM]	New Option
Dispensing Device Setup [PSJ PADE DEVICE SETUP]	New Option
PADE Send Surgery Cases [PSJ PADE SEND SURGERY CASES]	New Option
PADE Surgery Task [PSJ PADE SURGERY TASK]	New Option
PADE Reports [PSJ PADE REPORTS MENU]	New Menu
PADE On-Hand Amounts [PSJ PADE INVENTORY REPORT]	New Option
PADE Transaction Report [PSJ PADE TRANSACTION REPORT]	New Option
PADE System Division Setup [PSJ PADE DIVISION SETUP]	New Option
PADE Send Patient Orders [PSJ PADE SEND ORDERS]	New Option
PSJ PADE Appointment Task [PSJ PADE APPOINTMENT TASK]	New Option
Send Drug File Entries to External Interface [PSS MASTER FILE ALL]	Modified Option

Protocols	New/Modified/Deleted
PSJ ADT-A01 CLIENT	New
PSJ ADT-A01 ROUTER	New
PSJ ADT-A01 SERVER	New
PSJ ADT-A02 SERVER	New
PSJ ADT-A02 CLIENT	New
PSJ ADT-A03 SERVER	New
PSJ ADT-A03 CLIENT	New
PSJ ADT-A11 SERVER	New
PSJ ADT-A11 CLIENT	New
PSJ ADT-A12 SERVER	New
PSJ ADT-A12 CLIENT	New
PSJ ADT-A13 SERVER	New
PSJ ADT-A13 CLIENT	New
PSJ SIU-SDAM ROUTER	New
PSJ SIU-S12 SERVER	New
PSJ SIU-S12 CLIENT	New
PSJ RDEO11 SERVER	New
PSJ RDEO11 CLIENT	New
PSJ PADE OMS-O05 EVENT	New

PSJ PADE OMS-O05 SUB	New
PSJ PADE OMS-O05 EVENT 2.3	New
PSJ PADE OMS-O05 SUB 2.3	New
PSJ LM PADE ACTIVITY	New
PSJ LM PROFILE HIDDEN ACTIONS	Modified
PSS MFNM01 SERVER	New
PSS MFNM01 CLIENT	New

Security Keys	New/Modified/Deleted
PSJ PADE ADV	New
PSJ PADE MGR	New
PSS PADE INIT	New

Templates			New/Modified/Deleted
PSJ PADE SYSTEM	Input	58.7	New
PSJ PADE INVENTORY	Input	58.601	New
PSJ PADE DISPENSING DEVICE	Input	58.63	New

5. Rollback Procedure

The following sections detail the rollback procedure for PIA.

5.1. Rollback Considerations

A follow-up patch would be needed to remove new data entries established by the data dictionary. Specific rollback details will be incorporated in subsequent versions, but a patch would only be created if necessary.

Note: These new data entries are the result of a new field added to the data dictionary or the modification of an existing field in the data dictionary.

5.2. Rollback Criteria

The back-out of PHARMACY INTERFACE AUTOMATION (PIA) patches that modified existing fields, and established new fields would be justification for rollback.

5.3. Rollback Risks

None

5.4. Authority for Rollback

The authority would come from the IPT and the VA project manager.

5.5. Rollback Procedure

A follow-up patch for each namespace would be needed to delete/modify that namespace's data dictionary entries that were added/modified and other non-routine components added/modified by this projects patches and would follow the basic logic flow below.

Logic flow using fileman API calls as much as possible for the below actions

1. New data fields would need to be erased that were likely populated by the new functionality, while the new data fields are still valid in the data dictionary.
2. New file cross references would now need to be deleted.
3. New fields need to be deleted out of the data dictionary.
4. Modified data dictionary fields would need to be restored.
5. New SECURITY KEY file (#19.1) entries needs to be deleted.
6. Existing PROTOCOL file (#101) entries would need to be restored while new file entries would be deleted from the site.
7. Existing OPTION file (#19) entries would need to be restored while new file entries would be deleted from the site.
8. Existing PARAMETERS file (#8989.5) entries would need to be restored while new file entries would be erased and then deleted from the Kernel Parameter Definition file at the site.

9. Existing PARAMETER DEFINITION file (#8989.51) entries would need to be restored while new file entries would be erased and then deleted from the PARAMETER DEFINITION file at the site.
10. New INPUT TEMPLATES file (.402) entries need to be deleted.
11. New HL LOGICAL LINK file (#870) entry needs to be deleted.
12. New HL7 APPLICATION PARAMETER file (#771) entries needs to be deleted.

6. Disaster Recovery and Continuity of Operations

Each VistA facility as well as regional data centers are responsible for their own disaster recovery (DR) and Continuity of Operations (COOP). Please refer to the VistA Disaster Recovery and Continuity of Operations Plans at the specific facility. Most of these documents are considered confidential in that information that could disrupt any of these facilities DR or COOP could cause catastrophic data loss. Therefore the following link is just an example:

- http://vaww.oed.portal.va.gov/projects/ecms_to_ifcap/Phase%201%20Archive/References/VistA%20DRP%20and%20CP/VANIHCS%20VISTA%20DRP%20November%202011.docx
- http://vaww.eie.va.gov/techstrategy/TAR/SEDR120578/VA%20Enterprise%20Disaster%20Recovery%20Service%20Tiers%20Standard%2008-16-2012%20Final.pdf