BARCODE MEDICATION ADMINISTRATION (BCMA)

BCMA Backup System (BCBU)

INSTALLATION GUIDE

PSB*3*108

Version 3.0

July 2021

Department of Veterans Affairs
Product Development
Acknowledgments

The Bar Code Administration - Enterprise Tactical Support Team (National VistA Support Team) would like to extend the following acknowledgements to:

REDACTED and REDACTED of the New Jersey Health Care System. The Bar Code Medication Administration Backup System (BCBU) has been based on their original conceptual model and retains many of the ideas implemented in the Class III plan. Their hard work and determination has led the way for us to provide all VA Medical Centers with a viable BCMA Contingency Plan.

REDACTED of VA Medical Center San Francisco, California. His knowledge of the VistA HL7 package and work on the security portion of the Bar Code Medication Administration Backup System (BCBU) made it possible for the Class I acceptance of the package.
## Revision History

Each time this manual is updated, the Title Page lists the new revised date and this page describes the changes. If the Revised Pages column lists “All”, replace the existing manual with the reissued manual. If the Revised Pages column lists individual entries (e.g., 25, 32), either update the existing manual with the Change Pages Document or print the entire new manual.

<table>
<thead>
<tr>
<th>Date</th>
<th>Revised Pages</th>
<th>Patch Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/2021</td>
<td>i, 9, 42</td>
<td>PSB<em>3</em>108</td>
<td>Added notifications to the Medication Administration Record (MAR) reports for hazardous to handle and hazardous to dispose drugs.</td>
</tr>
<tr>
<td>9/2016</td>
<td>i-iv, 9, 39, 42</td>
<td>PSB<em>3</em>87</td>
<td>Updated revision history, table of contents. Removed repeating headers. Added data dictionary changes for Transdermal. Added updates to the List/Display Orders section. Added BCBU MAR (Medical Administration Record) Report. REDACTED</td>
</tr>
<tr>
<td>1/2014</td>
<td>i-iv, 5, 10-11, 12, 12a-12b, 13-14, 19-21, 21a-21b, 22-23, 25, 31, 44-44a, 45-46, 48, 48a-48d</td>
<td>PSB<em>3</em>73</td>
<td>This patch will enhance the BCMA Backup System (BCBU) to support Clinic Orders. The Backup System will be able to store a Clinic name, per each order, for orders associated with clinic locations. The existing MAR reports will now print the clinic name along with the order under a heading label of &quot;Location&quot;. The word &quot;INPATIENT&quot; will also print under the “Location” heading for Inpatient Medication orders, which are associated with the ward, of patients that are admitted. This patch will add two new menu options to support the printing of MAR reports for Selected Clinic or All Clinics. REDACTED</td>
</tr>
<tr>
<td>11/2013</td>
<td>42-46</td>
<td>PSB<em>3</em>59</td>
<td>Patients with no current medication orders are now printed consistently on the three BCBU MAR reports (Print MAR for All Wards, Print MAR for Selected Patient, and Print MAR for Selected Ward). The patient’s information is followed by a message stating “No Active Medication Orders were reported to the Contingency at the time the MAR was printed”, followed by multiple blank lines and a footer. Also, a blank page is no longer used as a separator on the Print MAR for a Selected Ward (PW) and the Print MAR for All Wards (PA).</td>
</tr>
<tr>
<td>On both the Print MAR for a Selected Ward (PW) and the Print MAR for All Wards (PA) menus, after the question ‘Report [A]ll or [C]urrent orders?’ has been answered ‘Current’, a prompt appears, ‘Include Patients without Active Medications?’ (defaults to ‘Yes’). Answering ‘No’ prevents current patients without medications from printing on the report.</td>
<td>REDACTED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Revised Pages</td>
<td>Patch Number</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
<td>---------------</td>
<td>--------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>09/2012</td>
<td>i, 44, 44a-44b</td>
<td>PSB<em>3</em>69</td>
<td>The Special Instructions and Other Print Info project changed these comment type fields to unlimited word processing text. This text is sent over in the same NTE segment as before. BCBU has been enhanced to receive and store the unlimited word processing text and print the word processing lines of text on the MAR reports as they were typed and stored in the Inpatient Order. REDACTED</td>
</tr>
<tr>
<td>03/2006</td>
<td>All</td>
<td>PSB<em>3</em>8</td>
<td>Document reissued for significant enhancements and issue resolution. See patch description for details. REDACTED</td>
</tr>
</tbody>
</table>
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The Veterans Health Information Systems and Technology Architecture (VistA) Bar Code Medication Administration Backup System (BCBU) software will provide a Class I solution to the BCMA Contingency IRA #20020403. This plan reflects the intent of VHA Directive #6210, the Automated Information Systems (AIS) Security, which states that all facilities are responsible for the development, maintenance, and annual testing of individual AIS contingency. This software maintains a current copy on the designated workstation, of all the inpatient pharmacy activities including the inpatient medication orders, medication administrations, and allergies that are included on a Pharmacy Medication Administration Record (MAR).

The Bar Code Medication Administration Backup System (BCBU) will interface with the BCMA VistA product to provide a real-time backup of all inpatient medication activities on a designated workstation(s). Designated workstation(s) will contain current information regarding inpatient medication orders (Unit Dose and IV), medication administration record (MAR), medication administration history (MAH), and patient allergies. Workstation(s) are updated using the VA Health Level Seven (HL7) package. These workstation(s) are available for use according to local policies concerning VistA, BCMA, or network outages.

The Veterans Health Information Systems and Technology Architecture (VistA) Bar Code Medication Administration Backup System (BCBU) Installation provides detailed instructions required for installing and implementing this new software. Additional manuals are available with instructions for installing and implementing the new software on either a Linux or Caché workstation environment.

This guide was developed for the following individuals, who are responsible for the installation, maintenance, support, and use of the package.
This Manual Includes

Security Information: This section contains information regarding the mail group, alerts, and file security associated with the Bar Code Medication Administration Backup System (BCBU) software.

Pre-Installation Information: This section provides information needed prior to installing the Bar Code Medication Administration Backup System (BCBU) software.

Installation Information: This section contains instructions and examples of the Bar Code Medication Administration Backup System (BCBU) software.

Technical Information: This section provides information on protocols involved in the Bar Code Medication Administration Backup System (BCBU) software.

Other Sources of Information

For more background and technical information about BCMA V. 3.0, refer to the Web sites listed below.

Background/Technical Information

To access the BCMA Home page, enter REDACTED in the Address field of your browser. The BCMA Backup System Installation Guide can be accessed from the VA Software Document Library (VDL) at http://www.va.gov/vdl. The document is available in MS Word (.doc) format and Adobe Portable Document Format (.PDF).

Conventions Used in This Guide

Before installing BCBU patches, review this section to learn the many conventions used throughout this guide.
• **Keyboard Responses**: Keys provided in boldface, within the steps, help you quickly identify what to press on your keyboard to perform an action. See the examples provided below.
  - **Within the Steps**: At the "Select Kernel Installation & Distribution System Option" prompt, type **INSTALL**, and then press **ENTER**.
  - **Within Screen Captures**: Text in **boldface**, centered between arrows on screen captures, identifies the key you must press for the system to capture your response or to move the cursor to the next field. See the following example.

  DEVICE FOR QUEUED JOB OUTPUT: <Enter>

• **Mouse Responses**: Buttons provided in **boldface**, within the steps, indicate what you should click on your computer screen using the mouse. For example, when you see **NEXT**, **YES/NO**, or **OK** in the steps, click the appropriate button on your computer screen.

• **User Responses**: Information presented in **boldface**, within steps or shaded screen captures, indicate what you should “type” (enter) onto your computer screen. See the examples provided below.
  - **Within the Steps**: At the "Select OPTION NAME" prompt, type **XPD MAIN** and then press **ENTER**.
  - **Within Screen Captures**: See the following example.
• **Screen Captures**: Provide "shaded" examples of what you will see on your computer screen, and possible user responses.

• **Notes**: Provided within the steps, describe exceptions or special cases about the information presented. They reflect the experience of our Staff, Developers, and Testers.

• **Menu Options**: When provided in italics, identifies a menu option. When provided in boldface, ALL CAPS, identifies the letters that you should type onto your computer screen, before pressing ENTER. The system then goes directly to the menu option. (Note: The letters do not have to be entered as capital letters, even though they are provided within the steps in this format.) See the examples provided below.
  
  ➢ **Italicized**: Use the Kernel *First Line Routine Print* option to print a list containing the first line of every PSB routine.
  
  ➢ **Capitalized**: At the "TaskMan Management Option:" prompt, type *Schedule*/Unscheduled Options, and then press ENTER.

---

**Locating Detailed Listings**

You can obtain and print listings about routines and Data Dictionaries using the information provided below.

**Routines**

Use the Kernel routine XINDEX to produce detailed listings of routines. Use the Kernel *First Line Routine Print* option to print a list containing the first line of every ALPB routine.

**Data Dictionaries**

The Data Dictionaries (DDs) are included in the on-line documentation for this software application. You can use the VA FileMan *List File Attributes* option, under *Data Dictionary Utilities* option, to print the Dictionaries. Journaling is not recommended for the ALPB global.

---

**Interface Software**

The interface software is HL7. This will transmit the pharmacy data to the designated workstation.

---

**Alerts**

The mail group, PSB BCBU ERRORS, will receive all alerts.
Bar Code Medication Administration Backup System (BCBU) software two main menus listed below. The options for each menu are listed in this section.

- BCMA Backup System (Wrkstn)  
  [PSB BCBU WRKSTN MAIN]
- BCMA Backup System (VistA)  
  [PSB BCBU VistA MAIN]

BCMA Backup System (Wrkstn)
This menu includes the following options:

- List/Display Orders
- Print MAR for All Wards
- Print MAR for Selected Patient
- Print MAR for Selected Ward
- Print MAR for All Clinics
- Print MAR for Selected Clinics
- Print Blank MAR for Selected Patient
- List of Wards in BCMA Backup File
- BCMA Backup System Management Menu
  - BCMA Backup System Error Log
  - Edit Workstation Parameter Settings
  - Purge Orders Past X days old

BCMA Backup System (VistA)
This menu includes the following options:

- Associate Backup Workstations with a Division
- Default Workstation Initialize
- Divisional Worestation Initialize
- Initialize a Backup Workstation with BCMA Users
- Single Patient Init
## Security Information

<table>
<thead>
<tr>
<th><strong>Mail Group</strong></th>
<th>The PSB BCBU Errors Mail Group is used to notify responsible users of potential problems with sending information to the Contingency Workstation(s). Members of this group should include the staff that monitors the BCMA Backup System.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Remote Systems</strong></td>
<td>The workstation where the software resides is the only remote system that will receive any data.</td>
</tr>
<tr>
<td><strong>Archiving/Purging</strong></td>
<td>The product purges itself and only keeps active inpatient data. The journal files are flipped and purged nightly so disk space is not consumed by journaling.</td>
</tr>
<tr>
<td><strong>Contingency Planning</strong></td>
<td>This contingency plan software can be used if there is a VistA outage. The sites can use the data stored on the workstations using the outputs on the menu supplied.</td>
</tr>
<tr>
<td><strong>Menus</strong></td>
<td>There are two menus for use with this package, BCMA Backup System (Wrkstn) and BCMA Backup System (VistA). The BCMA Backup System Management Menu is under the first menu and requires a Security Key as described below.</td>
</tr>
<tr>
<td><strong>Security Keys</strong></td>
<td>The BCMA Backup System Management Menu is secured by the security key, PSB BUMGR and MUST be assigned to the designated IRM personnel who currently manage the system for total access to the Bar Code Medication Administration Backup System.</td>
</tr>
</tbody>
</table>
| **References** | Kernel Systems Manual V. 8.0  
Kernel Toolkit V. 7.3  
VA FileMan V. 22.0  
MailMan V. 8.0  
Health Level Seven (HL7) V. 1.6 |
Pre-Installation Information

Recommended Users

Information Resource Management (IRM) Staff is recommended for installing, implementing and supporting the Bar Code Medication Administration Backup System (BCBU). IRM, Pharmacy, and Nursing staff must coordinate the implementation of the setup tasks after the package is installed.

VistA Operating System and Performance Capacity

VistA Bar Code Medication Administration Backup System (BCBU) currently runs on the standard hardware platforms used by the Department of Veterans Affairs Health Care System facilities. These hardware platforms consist of standard or upgraded Alpha 4100, ES40, or ES45 clusters, and run either DSM on VMS, Caché/VMS, Caché/NT, or CachéXP. There are no significant changes in the performance capacity of the VistA operating system once the VistA Bar Code Medication Administration Backup System (BCBU) has been installed. The software application should not create any appreciable global growth or network transmission problems. There are no memory constraints.

Central Processing Unit (CPU) Requirements

The following workstation configuration is recommended for installing and running the VistA Bar Code Medication Administration Backup System (BCBU).

Sites previously using the New Jersey Class III package should be able to use current workstations and Caché license.

Hardware

- 1-2 Ghz CPU
- 256-512 Mb RAM
- 20 Gb hard drive
- Monitor
- Printer

Central Processing Unit (CPU) Requirements (cont.)

Software
Microsoft Windows XP, Windows 2000 or Windows NT with Intersystems Cache 5.x.x (4.1.4), (3.2.1) 20 user License

or

RedHat Linux 8.0 with Greystone GT.M

Test Sites
VistA BCBU software was tested at the following VA Sites and platforms prior to being released:

**REDACTED**

Minimum Required Packages
Before installing BCBU PSB*3*8, make sure that your VistA system includes the following Department of Veterans Affairs (VA) software packages and versions (those listed or higher):

<table>
<thead>
<tr>
<th>Package</th>
<th>Minimum Version Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kernel</td>
<td>8.0</td>
</tr>
<tr>
<td>VA FileMan</td>
<td>22.0</td>
</tr>
<tr>
<td>VA MailMan</td>
<td>8.0</td>
</tr>
<tr>
<td>Health Level Seven (HL7)</td>
<td>1.6</td>
</tr>
<tr>
<td>Pharmacy Inpatient Medications</td>
<td>5.0</td>
</tr>
<tr>
<td>Bar Code Med Admin (BCMA)</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Installation Time Estimates
VistA Bar Code Medication Administration Backup System (BCBU) patch installation time is less than 2 minutes during off peak hours. The time for workstation setup is approximately 30 minutes.

**Important!** You should install and test BCBU patches in your test accounts BEFORE installing in your production accounts.

Required Patches
Before installing BCBU patches, make sure that the required released patches listed in the Patch Descriptions are installed:

Users on the System
Users may remain on the system; however, the VistA Bar Code Medication Administration Backup System (BCBU) installation should be done during off peak hours when minimal Pharmacy activity is occurring.

Options Out of Order
The options, *Inpatient Order Entry* [PSJ OE] and *Non-Verified/Pending Orders* [PSJU VBW] are to be placed out of order during installation.
Namespace

VistA Bar Code Medication Administration Backup System (BCBU) routine namespace is ALPB. The options/protocols/templates/parameters and keys use the PSB namespace. Files are distributed under the PSB namespace, but use ALPB global namespace.

Data Dictionary Changes

There are no changes made to the Data Dictionaries, but two new files have been added. These files are located on both the workstation and the VistA server, but are only populated on the workstation.

- ^ALPB(53.7, BCMA Backup Data
- ^ALPB(53.71, BCMA Backup Parameters

Journaling is not recommended for the ALPB global.

There is one Data Dictionary change to support Clinic Orders in BCMA with the install of PSB*3*73.

- CLINIC NAME field (#3.5) was added to the ORDER NUMBER file multiple field (#9).

There are three data dictionary changes to support Transdermal Medications in BCMA with the install of PSB*3*87.

- ASSOC. MED LOG GIVE DATE/TIME field (#4)
- ASSOC. MED LOG GIVE ENTERED BY field (#5)
- ASSOC. MED LOG GIVE STATUS MSG field (#6)

The above fields were added to the MED LOG DATE/TIME field (#10).

There are two data dictionary changes to support Hazardous to Handle and Hazardous to Handle drugs in BCBU with the installation of PSB*3*108:

- The HAZARDOUS TO HANDLE field (#14) was added to the BCMA BACKUP DATA file (#53.7);
- The HAZARDOUS TO DISPOSE field (#15) was added to the BCMA BACKUP DATA file (#53.7).

Resource Requirements

This section summarizes the (approximate) number of resources required to install BCMA V. 3.0.
• Routines  29
• Globals  1 (^ALPB)
• Files  2 (53.7, 53.71)
• ^ALPB Size  Backup data= 268,288 bytes (131 blocks) per order

Note: Population of the ALPB global will only occur on the workstation, there is no global growth on the VistA server. ALPB global size estimate was acquired by dividing the number of blocks consumed by the total number of orders in file 53.7. This results in the number of blocks per order, which is multiplied by 2048, which is the number of bytes per block in Cache.

• FTEE Support  .2
• FTEE Maintenance  .2

Printers

Your site should provide dedicated printers for each of the contingency workstations, which would allow printing of the MAR or MAH if the network was down.

Note: The printer must have the capability to print 132 characters per line.

Routines Installed

Review the listing below to learn the routines installed on your site's VistA Server during the installation of patch PSB*3*8. The first line of each routine briefly describes its general function.

Note: You can use the Kernel First Line Routine Print option to print a list containing the first line of each ALPB routine.

BCMA Routines Installed on VistA Server

<table>
<thead>
<tr>
<th>Routine</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALPB8</td>
<td></td>
</tr>
<tr>
<td>ALPBBK</td>
<td></td>
</tr>
<tr>
<td>ALPBCBU</td>
<td></td>
</tr>
<tr>
<td>ALPBELOG</td>
<td></td>
</tr>
<tr>
<td>ALPBFRM1</td>
<td></td>
</tr>
<tr>
<td>ALPBFRM2</td>
<td></td>
</tr>
<tr>
<td>ALPBFRMU</td>
<td></td>
</tr>
<tr>
<td>ALPBGEN</td>
<td></td>
</tr>
<tr>
<td>ALPBGEN1</td>
<td></td>
</tr>
<tr>
<td>ALPBGEN2</td>
<td></td>
</tr>
<tr>
<td>ALPBHL1</td>
<td></td>
</tr>
</tbody>
</table>
VistA Server Installation Instructions

VistA Bar Code Medication Administration Backup System (BCBU) patch distribution is done by using the VA KIDS package. An example of this installation is found at the end of this installation guide.

PC Workstation Database Initialization

Once the PC Workstation(s) have been setup and assigned an IP address, proceed with setting up the workstation link.

Create a link (node) for the PC workstation. This will be the regular transmission node. Name it "BC" and the ward. For example, if the ward is 2A the link could be called "BC 2A". This will indicate that the link is tied to a BCBU package and where the contingency workstation is located. Use the Link Edit [HL EDIT LOGICAL LINK] option of the HL Interface menu. An example of this installation is found at the end of this installation guide in the Sample PC Workstation Database Initialization Section.

MAR Reports

Various MAR reports are located at the end of this installation guide under the Contingency PC Workstation Reports Section.
Please refer to the following documents for additional Installation Information:

**BCMA Backup System (BCBU) InterSystems Cache Installation Setup**

Refer to "Bar Code Medication Administration Backup System (BCBU) InterSystems Caché Installation Setup" guide for a systematic installation of Caché install on a PC workstation.

**BCMA Backup System (BCBU) Linux Installation Setup**

Refer to "Bar Code Medication Administration Backup System (BCBU) Linux Installation Setup" for systematic installation of Linux on a PC workstation.

This manual also includes step-by-step installation of GT/M, VistA, and the Bar Code Medication Administration Backup System (BCBU) on the Linux workstation.
Sample Installation

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 Option: INSTall Package(s)
Select INSTALL NAME: PSB*3.0*73  12/6/13@14:30:01
=> PSB*3*73 v10 ;Created on Dec 03, 2013@12:42:21

This Distribution was loaded on Dec 06, 2013@14:30:01 with header of
PSB*3*73 v10 ;Created on Dec 03, 2013@12:42:21
It consisted of the following Install(s):
   PSB*3.0*73
Checking Install for Package PSB*3.0*73

Install Questions for PSB*3.0*73

Incoming Files:

53.7     BCMA BACKUP DATA  (Partial Definition)
Note: You already have the 'BCMA BACKUP DATA' File.

Want KIDS to Rebuild Menu Trees Upon Completion of Install? YES// NO

Want KIDS to INHIBIT LOGONs during the install? NO//
Want to DISABLE Scheduled Options, Menu Options, and Protocols? NO//

Enter the Device you want to print the Install messages.
You can queue the install by enter a 'Q' at the device prompt.
Enter a '^' to abort the install.

DEVICE: HOME//  SSH VIRTUAL TERMINAL

   PSB*3.0*73

--------------------------------------------------------------------------------------
Installing Data Dictionaries:
   Dec 06, 2013@14:43:10

Installing PACKAGE COMPONENTS:

Installing OPTION
   Dec 06, 2013@14:43:10

Updating Routine file...

Updating KIDS files...

PSB*3.0*73 Installed.
   Dec 06, 2013@14:43:11
Install Message sent #1327

100% | 25 | 50 | 75 |
Complete +------------------------------------------+

Install Completed
Sample PC Workstation Database Initialization

When initializing the workstations, you add an entry at the HL Logical Link Node prompt for each pc workstation your site has. The name of each link should represent the actual workstation location. For example, if you have a workstation on Ward 2A, the name of the workstation should be BC 2A. Associating the name of the HL Logical Link Node with the ward where the workstation is located, will aid in locating specific workstations should a problem arise. Once you have initialized the workstation with the correct workstation location, you can update the workstation with the users from the VistA system that have the [PSB GUI CONTEXT - USER] option. This initialization process will queue the activity and when complete send an alert.

On new installations, check the Parameter Value. The parameter can be left off until the workstation is ready to be initialized. If the workstation is already running, **do not** turn the Parameter Value off. Use the General Parameter Tools [XPAR MENU TOOLS] option to edit the parameter values.

```
XPAR MENU TOOLS     General Parameter Tools
   LV    List Values for a Selected Parameter
   LE    List Values for a Selected Entity
   LP    List Values for a Selected Package
   LT    List Values for a Selected Template
   EP    Edit Parameter Values
   ET    Edit Parameter Values with Template
   EK    Edit Parameter Definition Keyword

Select General Parameter Tools Option: ep
   Edit Parameter Values

Select PARAMETER DEFINITION NAME: PSB BKUP ONLINE

---------- Setting PSB BKUP ONLINE for Package: BAR CODE MED ADMIN ----------
Value: YES/<ENTER>

Select PARAMETER DEFINITION NAME: PSB BKUP IPH   BCMA Contingency Active Pharm Order

---------- Setting PSB BKUP IPH for Package: BAR CODE MED ADMIN ----------
Value: 7/<ENTER>

Select PARAMETER DEFINITION NAME: PSB BKUP MEDLG  BCMA Contingency MedLog DFT

---------- Setting PSB BKUP MEDLG for Package: BAR CODE MED ADMIN ----------
Value: 15/<ENTER>
```

Continue with the Workstation setup.

```
>D ^XUP
Setting up programmer environment
Terminal Type set to: C-VT100

Select OPTION NAME: HL MAIN MENU     HL7 Main Menu
Systems Link Monitor
Filer and Link Management Options ...
Message Management Options ...
Interface Developer Options ...
Site Parameter Edit
```
Select HL7 Main Menu Option: **INTERFACE**  Developer Options
   EA    Application Edit
   EP    Protocol Edit
   EL    Link Edit
   VI    Validate Interfaces
   Reports ...

Select Interface Developer Options Option: **EL**  Link Edit

Select HL LOGICAL LINK NODE: **BC 2A**
INSTITUTION: <ENTER>  ← leave blank
DOMAIN: <ENTER>  ← leave blank
AUTOSTART: **Enabled**
QUEUE SIZE: 10
LLP TYPE: **TCP**
TCP/IP SERVICE TYPE: CLIENT (SENDER)
   TCP/IP ADDRESS: (workstation IP address)
   TCP/IP PORT: (10000)
ACK TIMEOUT: 10       RE-TRANSMISSION ATTEMPTS: 2
READ TIMEOUT: 10      EXCEED RE-TRANSMIT ACTION: restart
BLOCK SIZE: 256
STARTUP NODE:  ← leave blank  PERSISTENT: NO
RETENTION: 120       UNI-DIRECTIONAL WAIT:  ← leave blank

Save the link

Sign out and then sign back in by doing the following:

```
>D ^XUP
```

Setting up programmer environment
Terminal Type set to: C-VT100

Select OPTION NAME:    PSB BCBU VISTA MAIN     BCMA Backup System (VISTA)

PSB BCBU VISTA MAIN BCMA Backup System (VISTA)
   LNK    Associate Backup Workstations with a Division
   DFT    Default Workstation Initialize
   DIV    Divisional Workstation Initialize
   USR    Initialize a Backup Workstation with BCMA Users
   PAT    Single Patient Init

Select BCMA Backup System (VISTA) Option: LNK  Associate Backup Workstations with a Division
Do you want all backup data to go to the same group of backup devices regardless of the patient's division?
Enter Yes or No: YES// <ENTER>

Select one of the following:
   A       Add a Logical Link
   D       Delete a Logical Link
OPERATION: ADD/<ENTER> Add a Logical Link
The following DEFAULT links are associated with this package:
BC KEVC
BC SID
BC KEVINK
BC SFVA
Select HL LOGICAL LINK: BC 2A ...Added
Select HL LOGICAL LINK: ?

   LNK    Associate Backup Workstations with a Division
   DFT    Default Workstation Initialize
   DIV    Divisional Workstation Initialize
   USR    Initialize a Backup Workstation with BCMA Users
   PAT    Single Patient Init

Note: If you want to remove an HL7 Link from your system, make sure you use the LNK Associate Backup Workstation with a Division option to delete the logical link association prior to deleting the link in HL7. If this is not done, you will get undefined errors on the VistA system. It is recommended that the Workstation Initialize be queued to run during non-peak hours. These inits may run for several hours depending on the parameter settings.

Select BCMA Backup System (VISTA) Option: DFT <RET> Default Workstation Initialize
Include all workstations
Enter Yes or No? YES//NO
Select WorkStation Link: BC 2A

Selected Workstations

   BC 2A
Select WorkStation Link:
Requested Start Time: NOW/<RET> (FEB 18, 2003@14:28:13) 2624847

   LNK    Associate Backup Workstations with a Division
   DFT    Default Workstation Initialize
   DIV    Divisional Workstation Initialize
   USR    Initialize a Backup Workstation with BCMA Users
   PAT    Single Patient Init

Select BCMA Backup System (VISTA) Option: USR Initialize a Backup Workstation with BCMA Users
This option searches for users that hold the option, 'PSB GUI CONTEXT - USER' and if they are active users, transmits the information to your BCMA Backup Workstations.
NOTE that you must have completed the step of assigning workstations to either a single default group or by division.

Do you wish to continue? YES/<ENTER>
Do you wish to queue this init? YES//<ENTER>
Requested Start Time: NOW// <ENTER> (FEB 20, 2003@17:17:02)
TASK #: 2625005

<table>
<thead>
<tr>
<th>LNK</th>
<th>Associate Backup Workstations with a Division</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFT</td>
<td>Default Workstation Initialize</td>
</tr>
<tr>
<td>DIV</td>
<td>Divisional Workstation Initialize</td>
</tr>
<tr>
<td>USR</td>
<td>Initialize a Backup Workstation with BCMA Users</td>
</tr>
<tr>
<td>PAT</td>
<td>Single Patient Init</td>
</tr>
</tbody>
</table>

You have PENDING ALERTS
Enter "VA to jump to VIEW ALERTS option
Select BCMA Backup System (VISTA) Option: "VA

1.I BCBU INIT Started Feb 20, 2003@17:17:04 and finished Feb 20, 2003@17:27:57.
Select from 1 to 1
or enter ?, A, I, D, F, S, P, M, R, or ^ to exit: 1
Processed Alert Number 1
BCBU INIT Started Feb 20, 2003@17:17:04 and finished Feb 20, 2003@17:27:57. 556

Menu option from the BCBU Contingency Workstation for parameter settings

Select BCMA Backup System (Wrkstn) Option: MM  BCMA Backup System Management Menu

| EL   | BCMA Backup System Error Log                  |
| PE   | Edit Workstation Parameter Settings           |
| PO   | Purge Orders Past X days old                  |

Select BCMA Backup System Management Menu Option: PE  Edit Workstation Parameter Settings

Workstation Parameter ONE
BCBU Workstation Parameter Setup

DEFAULT DAYS FOR MAR: 7
DEFAULT MAR PRINTER: BCBU
PURGE ORDER DAYS:
PURGE PATIENT:
MED-LOG NUMBER:
Exit  Save  Refresh
Technical Information

Option Descriptions

**PSB BCBU MANAGEMENT MENU**
BCMA Backup System Management Menu

This Menu contains all Management options for the BCMA Contingency (Workstation Menu)

**TYPE:** menu
**ITEM:** PSB BCBU ERROR LOG
**ITEM:** PSB BCBU WRKSTN PARAMETER EDIT
**ITEM:** PSB BCBU WRKSTN PURGE ORDERS

**PSB BCBU ERROR LOG**
BCMA Backup System Error Log

This option is used to view the Error Log. (Workstation Menu)

**TYPE:** run routine **Routine:** ALPBELOG

**PSB BCBU WRKSTN PARAMETER EDIT**
Edit Workstation Parameter Settings

This option will allow the user to edit Site definable parameter settings for the BCMA Contingency Workstation. (Workstation Menu)

**TYPE:** ScreenMan
**DIC (DIC):** ALPB(53.71, DIC(0): A
**DIC(A):** Workstation Parameter: DR(DDS): [PSB BCBU PARAMETERS]
**DDSFILE:** 53.71 **DDSPAGE:** 1

**PSB BCBU WRKSTN PURGE ORDERS**
Purge Orders Past X days old

This option purges order information based on stop date first. Purge is also based on parameter setting for number of days to hold patient orders (default is 7 days) and parameter setting for number of days to hold patient record (default is 30 days with no order information). (Workstation Menu)

**TYPE:** run routine **Routine:** ALPBOP

**PSB BCBU WRKSTN MAIN**
This is the main menu for the BCMA Backup system -- the ward workstation containing the BCMA backup/contingency data. (Workstation Menu)

**TYPE:** menu
**ITEM:** PSB BCBU SHOW PATIENT
**ITEM:** PSB BCBU PRINT MAR ALL
**ITEM:** PSB BCBU PRINT MAR PATIENT
**ITEM:** PSB BCBU PRINT MAR WARD
**ITEM:** PSB BCBU MANAGEMENT MENU
**ITEM:** PSB BCBU WARD LIST
**ITEM:** PSB BCBU PRINT BLK MAR
**ITEM:** PSB BCBU PRINT MAR ALL CLINICS
**ITEM:** PSB BCBU PRINT MAR CLINIC
PSB BCBU SHOW PATIENT
List/Display Orders

This option will display orders to the screen by individual patient. (Workstation Menu)

TYPE: run routine ROUTINE: ALPBSPAT

PSB BCBU SHOW WARD
Display Orders for Selected Ward

This option will display orders to the screen by Ward. (Workstation Menu)

TYPE: run routine ROUTINE: ALPBSWRD

PSB BCBU PRINT MAR ALL
Print MAR for All Wards

This option prints a MAR report for all wards. (Workstation Menu)

TYPE: run routine ROUTINE: ALPBFPALL

PSB BCBU PRINT MAR PATIENT
Print MAR for Selected Patient

This option prints a MAR report by individual patients. (Workstation Menu)

TYPE: run routine ROUTINE: ALPBPPAT

PSB BCBU PRINT MAR WARD
Print MAR for Selected Ward

This option prints a MAR report by individual wards. (Workstation Menu)

TYPE: run routine ROUTINE: ALPBFPWRD

PSB BCBU WARD LIST
List of Wards in BCMA Backup File

This option will display all the wards available on the workstation. (Workstation Menu)

TYPE: run routine ROUTINE: WARDLIST^ALPBUTL

PSB BCBU PRINT BLK MAR
Print Blank Mar for Selected Patient

This option allows the user to select a patient from the BCMA contingency and print a blank 3 or 7 day MAR. The MAR will only contain patient info.

TYPE: run routine ROUTINE: ALPBBK
**PSB BCBU PRINT MAR ALL CLINICS**
Print MAR for All Clinics

This option prints a MAR report for all the clinics available on the workstation. (Workstation Menu)

TYPE: run routine ROUTINE: EN^ALPBPCLN("ALL")

**PSB BCBU PRINT MAR CLINIC**
Print MAR for Selected Clinic

This option prints a MAR report for a selected clinic. (Workstation Menu)

TYPE: run routine ROUTINE: EN^ALPBPCLN("CLN")

**PSB BCBU VISTA MAIN**
BCMA Backup System (VISTA)

This is the Primary Menu for the BCMA Backup Contingency. (VISTA Menu)

TYPE: menu
ITEM: PSB BCBU INIT WRKSTN DFT
ITEM: PSB BCBU INIT WRKSTN DIV
ITEM: PSB BCBU LINK ASSOCIATIONS
ITEM: PSB BCBU USER INIT
ITEM: PSB BCBU INIT SINGLE PT

**PSB BCBU INIT WRKSTN DFT**
Default Workstation Initialize

This option is used to initialize Workstations that are linked as default. This option will send inpatient and clinic orders to the BCMA Contingency to all or selected workstations. For non-divisional sites. (VISTA Option)

TYPE: run routine ROUTINE: OPT^ALPBIND

**PSB BCBU INIT WRKSTN DIV**
Divisional Workstation Initialize

This option is used to initialize Workstations that are linked by Division. This option will send inpatient and clinic orders to the BCMA Contingency workstation for all or selected divisions. For multi-divisional sites only. (VISTA Option)

TYPE: run routine ROUTINE: OPT^ALPBIN

**PSB BCBU LINK ASSOCIATIONS**
Associate Backup Workstations with a Division

For sites running the REAL-TIME BCMA BACKUP interface, use this option to assign your backup workstations to specific divisions. If you are not a multidivisional site, associate all backup workstations with a single division.
When HL7 events occur, the division associated with the patient will be used to determine which workstations will get the message. (VISTA Menu)

**TYPE:** run routine  **ROUTINE:** ALPBPARAM

**PSB BCBU USER INIT**  
Initialize a Backup Workstation with BCMA Users

This option searches the VISTA New Person file for authorized BCMA users and generates a version 2.4 HL7 message. Messages are addressed dynamically based on the parameter definitions for BCMA Backup using divisions or the default group.

**TYPE:** run routine  **ROUTINE:** INIT^ALPBGEN2

**PSB BCBU INIT SINGLE PT**  
Single Patient Init

This option will send inpatient and clinic orders to the BCMA Contingency workstation for a single patient.

**TYPE:** run routine  **ROUTINE:** SNDPT^ALPBIND
HL7 Parameters

PSB BCBU CLIENT
ACTIVE/INACTIVE: ACTIVE
HL7 ENCODING CHARACTERS: ~|&

PSB BCBU SERVER
ACTIVE/INACTIVE: ACTIVE
HL7 ENCODING CHARACTERS: ~|&
PSB PMU RECEIVED
ACTIVE/INACTIVE: ACTIVE
COUNTRY CODE: USA
HL7 ENCODING CHARACTERS: ~&^\nHL7 FIELD SEPARATOR: |

PSB PMU SEND
ACTIVE/INACTIVE: ACTIVE
COUNTRY CODE: USA
HL7 ENCODING CHARACTERS: ~&^\nHL7 FIELD SEPARATOR: |

HL7 Message Examples

Unit Dose Orders

Conditionally sending (exclusively for clinic orders) the clinic name in the ORC segment for orders placed in a clinic:

```
PID^^000-00-
0000~~^10748~2~M10^^BCMAPATIENT~TWO~^M19350517^M^^^^^^^^^^^000002222
PV1^1^I^4E M-KC-SE403~3~~~5468~BCMAPROVIDER~ONE~^^^^^^^^^^^NSC VETERAN
ORC^XX^OR^1U~PS^^DC~discontinued^^M199709191028-
0400^33~BCMAPROVIDER,ONE~7356~BCMAPHARMACIST,ONE~199709191028-
0400~99ORN~^^^^^^SOUTH OUTPATIENT CLINIC
RXO~~~~99PSP~~~~~~~~~~~~~~~~
RXE^&2~Q4H PRN~199709191028~0400~19970920120402~
0400~~~326.2485~OXycodone HCl 5MG/ACETAMINOPHEN
325MG TAB~99NDF~7106~OXycodone 5MG/ACETAMINOPHEN 325MG
TAB UD~99PSD~~~~~0~~99PSU~~~~~99PSF^^^^^^^^24133~BCMAPROVIDER,ONE ~99NP
RXR^~~1~ORAL~99PSR~~~~
ZRX^^^^^24133~BCMAPROVIDER,ONE~99NP~
```
NTE^21^L^These are long word processing text special instructions that can be entered via CPRS as provider comments and then optionally included in the Pharmacists Special instructions as is or amended by the pharmacists with more information optionally added.

RXR^~~~1~ORAL~99PSR^^^
ZRX^~~~24133~BCMAPROVIDER,TWO~99NP^

**IV Orders**

Conditionally sending (exclusively for clinic orders) the clinic name in the ORC segment for orders placed in a clinic:

```
PID^000000-
 0000~10748~2~M10~BCMAPATIENT~TWO~19350517~M~000002222
  PV1^1^1^4E M-KE-ECR03~3~5468~BCMAPROVIDER~ONE~NNSC~VETERAN
  ORC^XX~8547404;1~OR^53V~PS^CM~finished/verified by pharmacist(active)~20021206135950~0400~24133~BCMAPROVIDER,TWO
  ^24133~BCMAPROVIDER,TWO~200212061359~0400~99ORN~NORTH~OUTPATIENT~CLINIC
  RXO^~~~1062~MULTIVITAMIN~INJ,SOLN~99PSR
  RXE^~&~0400~202212071400~0400
  24133~BCMAPROVIDER,TWO~99NP~10^ml/hr~PSU
  NTE^21^L^I would like to enter these provider comments
  RXC^A~1062~MULTIVITAMIN~99PSR^10^PSIV~1~ML~99OTH
  RXC^A~688~FOLIC~ACID~99PSR^2~PSIV~4~MG~99OTH
  RXC^A~1488~TRACE~ELEMENTS~99PSR^2~PSIV~1~ML~99OTH
  RXC^B~490~DEXTROSE~5%/WATER~99PSR^1000~PSIV~1~ML~99OTH
  ZRX^N~24133~BCMAPROVIDER,TWO~99NP^IV
```

**Med Log**

```
PID^000000-
 0000~10748~2~M10~BCMAPATIENT~TWO~19350517~M~000002222
  PV1^1^1^4E M-KE-ECR03~3~5468~BCMAPROVIDER~ONE~NNSC~VETERAN
  ORC^ML^330U~PS^GIVEN~20010414131522~0400~15454~BCMAPROVIDER,THREE
```
Parameter Definitions

PSB BKUP DEFAULT
DISPLAY TEXT: Package-specific 'default' Logical Links
MULTIPLE VALUED: Yes
INSTANCE TERM: Logical Link
VALUE DATA TYPE: pointer
VALUE DOMAIN: 870
VALUE HELP: Enter the HL7 logical link
INSTANCE DATA TYPE: pointer
INSTANCE DOMAIN: 870
INSTANCE HELP: Enter the HL7 logical link
DESCRIPTION: This parameter is used by the BCMA Backup system to route messages to a
"default" group of HL7 Logical Links that are associated with the BCMA package rather than
individual divisions. When the default group is defined, all messages will be routed to this group
rather than using division-based grouping under the following conditions:

1. If a call is made to the API, GET^ALPBPARM, and the division parameter is not present or
   null.
2. If a call is made to the API, GET^ALPBPARM, and the division specified has no logical
   links associated with it.
   PRECEDENCE: .5
   ENTITY FILE: PACKAGE

PSB BKUP MACHINES
DISPLAY TEXT: Division-specific Logical Links
MULTIPLE VALUED: Yes
INSTANCE TERM: Logical Link
VALUE DATA TYPE: Pointer
VALUE DOMAIN: 870
VALUE HELP: Enter the HL7 Logical Link
INSTANCE DATA TYPE: pointer
INSTANCE DOMAIN: 870
INSTANCE HELP: Enter the HL7 Logical Link
DESCRIPTION: This parameter defines the BCMA Backup Logical Links that may be
associated with a division when there are one or more divisions at a site.
PRECEDENCE: 1
ENTITY FILE: DIVISION
PSB BKUP ONLINE
DISPLAY TEXT: BCMA Contingency Online
VALUE DATA TYPE: yes/no
DESCRIPTION: This parameter is used by the BCMA Backup system to activate the Contingency software. If the value is set to NO, then no HL7 messages will be sent to the Workstation. This does not affect the workstation initialization option.
PRECEDENCE: 1
ENTITY FILE: PACKAGE

PSB BKUP IPH
DISPLAY TEXT: BCMA Contingency Active Pharm Order
VALUE DATA TYPE: numeric
DESCRIPTION: The BCMA Backup Contingency software uses this parameter. During the Workstation initialization process, this tells the process how many days of historic Inpatient Medication and Clinic Orders to capture. It is based off the fact the order was active during that time.
PRECEDENCE: 1
ENTITY FILE: PACKAGE

PSB BKUP MEDLG
DISPLAY TEXT: BCMA Contingency MedLog DFT
VALUE DATA TYPE: numeric
DESCRIPTION: The BCMA Backup Contingency software uses this parameter. During the Workstation initialization process, this tells the process how many days of historic Med Log entries of Inpatient Medication and Clinic Orders to capture.
PRECEDENCE: 1
ENTITY FILE: PACKAGE

PSB BKUP DOM FILTER
DISPLAY TEXT: Filter out DOM patients
MULTIPLE VALUED: No
VALUE DATA TYPE: yes/no
VALUE HELP: Should the contingency backup filter out DOM patients?
DESCRIPTION: This parameter is used by the BCMA backup system to determine if DOM patients are included in the backup. If the value is set to YES, DOM patients will be filtered out of the backup and will not be sent to the workstation. If the value is NO or blank, DOM patients will be sent to the backup workstation.
PRECEDENCE: 1
ENTITY FILE: PACKAGE
List Templates

PSB ERROR LOG
TYPE OF LIST: PROTOCOL
RIGHT MARGIN: 80
TOP MARGIN: 4
BOTTOM MARGIN: 20
OK TO TRANSPORT?: OK
USE CURSOR CONTROL: YES
PROTOCOL MENU: PSB ERROR LOG MENU
SCREEN TITLE: BCMAbu Error Log
ALLOWABLE NUMBER OF ACTIONS: 1
AUTOMATIC DEFAULTS: YES
HIDDEN ACTION MENU: VALM IDDEN ACTIONS
ARRAY NAME: ^TMP("ALPBELOG",$J)
EXIT CODE: D EXIT^ALPBELOG
HEADER CODE: D HDR^ALPBELOG
HELP CODE: D HELP^ALPBELOG
ENTRY CODE: D INIT^ALPBELOG

PSB SELECT ORDERS
TYPE OF LIST: PROTOCOL
RIGHT MARGIN: 80
TOP MARGIN: 7
BOTTOM MARGIN: 19
OK TO TRANSPORT?: OK
USE CURSOR CONTROL: YES
PROTOCOL MENU: PSB ORDERS MENU
SCREEN TITLE: BCMAbu ACTIVE Orders List
ALLOWABLE NUMBER OF ACTIONS: 1
HIDDEN ACTION MENU: VALM HIDDEN ACTIONS
ARRAY NAME: ^TMP("ALPBORDS",$J)
ITEM NAME: OrderNum
COLUMN: 2
WIDTH: 10
DISPLAY TEXT: Order No.
ITEM NAME: OrderType
COLUMN: 22
WIDTH: 4
DISPLAY TEXT: Type
ITEM NAME: Status
COLUMN: 14
WIDTH: 7
DISPLAY TEXT: Status
ITEM NAME: Meds
COLUMN: 28
WIDTH: 45
DISPLAY TEXT: Medication(s)
ITEM NAME: SelNum
COLUMN: 2
WIDTH: 5
DISPLAY TEXT: Rec#
EXIT CODE: D EXIT^ALPBSP1
HEADER CODE: D HDR^ALPBSP1
HELP CODE: D HELP^ALPBSP1
ENTRY CODE: D INIT^ALPBSP1

**PSB SELECT PATIENT**

TYPE OF LIST: PROTOCOL
RIGHT MARGIN: 80
TOP MARGIN: 4
BOTTOM MARGIN: 15
OK TO TRANSPORT?: OK
USE CURSOR CONTROL: YES
PROTOCOL MENU: PSB PATIENT MENU
SCREEN TITLE: BCMAbu Patient List (All)
ALLOWABLE NUMBER OF ACTIONS: 1
HIDDEN ACTION MENU: VALM HIDDEN ACTIONS
ARRAY NAME: ^TMP("ALPBPLIST",$J)
ITEM NAME: RecNum
COLUMN: 2
WIDTH: 6
DISPLAY TEXT: Rec #
ITEM NAME: Patient
COLUMN: 2
WIDTH: 30
DISPLAY TEXT: Patient
ITEM NAME: SSN
COLUMN: 33
WIDTH: 9
DISPLAY TEXT: SSN
ITEM NAME: WARD
COLUMN: 43
WIDTH: 15
DISPLAY TEXT: Ward
ITEM NAME: ROOM
PSB SHOW ORDERS

TYPE OF LIST: DISPLAY
RIGHT MARGIN: 80
TOP MARGIN: 7
BOTTOM MARGIN: 20
OK TO TRANSPORT?: OK
USE CURSOR CONTROL: YES
SCREEN TITLE: BCMAbu Selected Order(s)
ALLOWABLE NUMBER OF ACTIONS: 1
AUTOMATIC DEFAULTS: YES
HIDDEN ACTION MENU: VALM HIDDEN ACTIONS
ARRAY NAME:^TMP("ALPBFORM",$J)
EXIT CODE: D EXIT^ALPBSP2
HEADER CODE: D HDR^ALPBSP2
HELP CODE: D HELP^ALPBSP2
ENTRY CODE: D INIT^ALPBSP2

HL Communication Server Parameters

These parameters exist only on the workstations and is included in the .dat file.

ONE: 1
DOMAIN: BCMABU.MED.VA.GOV
DEFAULT PROCESSING ID: training
INSTITUTION: SOFTWARE SERVICE
DEFAULT NUMBER INCOMING FILERS: 2
DEFAULT NUMBER OUTGOING FILERS: 2
PURGE COMPLETED MESSAGES: 2
PURGE AWAITING ACK MESSAGES: 2
PURGE ALL MESSAGES: 4

Select HL LOGICAL LINK NODE: LISTNER

NODE: LISTNER
LLP TYPE: TCP
DEVICE TYPE: Single-threaded Server
Files Associated with GT.M/Linux BCMA:

The following files are provided with the GT.M version of Bar Code Medication Administration Backup System (BCBU) and are unpacked from the bcma_files.tar.gz file into $HOME of the BCMA manager account.

.bashrc – this is the BCMA manager's $HOME/.bashrc file. This file defines GT.M related global variables, sets convenient aliases and sets terminal characteristics. This file may be edited but all GT.M variable and terminal definitions should be retained to guarantee the proper functioning of the GT.M database.

bcmabashrc – install_bcma creates a generic "bcma" Linux account tied to VistA. bcmabashrc is renamed to /home/bcma/.bashrc and is called with each “bcma” user login. The call to this file ties the user to VistA and prevents access to the Linux or GT.M level as well as defining GT.M related global variables.

bcma.gld – this is the GT.M global directory file which defines the location of the BCMAbu database. install_bcma edits this file automatically to account for the directory structure specified by the installer. The GT.M database utility, GDE, accesses this file.

cronjrclean – this file is used to generate the crontab procedure (found in /var/spool/tar/bcma_manager_name) which runs nightly to flip the GT.M journal file, remove old journal files and remove temporary GT.M process related files in the manager’s $HOME. This file is only used once during the BCMA install.

gcomp - run this file at your GT.M manager to recompile all M routines. At times, compiled objects may end up with the wrong user ownership (for example, if patches were installed and run as root). Run this script to correct such situations.

jrclean – this file is called by /var/spool/tar/bcma_manager_name nightly at 1:00am to flip the GT.M journal file, remove old journal files and remove temporary GT.M process related files in the BCMA manager's $HOME.

jrnoff - this file may be used to turn journaling off. Note that journaling is automatically enabled with every reboot of the system by rc.local.

jrnoff – this file may be used to turn journaling on or flip the current journal file to a new one. It is called by jrclean. Journal files are found in $HOME/jrn of the bcma manager.
netmail_start – this file is called by rc.local during runlevel 5-system startup to start network mail on port 25. If netmail needs to be started manually, run this file as root (other users will not have the privileges to connect a process to port 25).

rc.local – this is a user-editable Linux file found in /etc/rc.d and is called during system startup and shutdown. This file calls $HOME/recoverall, $HOME/jrnon, $HOME/taskman_start and $HOME/netmail_start during system startup. It will call $HOME/zgstop during system shutdown. If rc.local is successful in each of these calls, the following empty files will be created in $HOME of the BCMA manager account: recoverys, TaskMan, netmails, and rundown.

recoverall – this file is called by rc.local during system startup and attempts to recover the database should the system be shutdown uncleanly.

taskman_start – this file starts TaskMan automatically during system startup. If TaskMan needs to be started manually, run taskman_start as root (TaskMan automatically starts HL7 processes – the LISTNER link needs to connect with port 10000).

VistA – this script resides in the /home/bcma and /home/gtm manager directories and is called by the icon file $HOME/.gnome-desktop/ VistA -icon for the respective users

*-icon - these are the desktop icon files. The BCMA and GT.M manager users both have the VistA -icon, which will bring the user to the access/verify prompts. In addition to this, the GT.M manager user will also have the term-icon and editor-icon on its desktop to open a terminal session and gedit text editor, respectively.

zgstop - this file is called by rc.local during system shutdown to shutdown GT.M cleanly and performs a recovery if needed. Call this file as root if GT.M needs to be shutdown (only the root user will be permitted to stop ALL GT.M processes – if another user call zgstop, only its own processes will be shutdown). This file is derived from /usr/local/gtm/gstop.

Adding a BCMA printer to the Cache/NT Contingency system:

Contingency Workstation (VistA) printer:

Slave printers are defined in VistA as P22O/102 SLAVE CACHE/NT. Test the printer through VistA.

DEVICE file entry:

<table>
<thead>
<tr>
<th>NAME: P220/102 SLAVE CACHE/NT</th>
<th>$I: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASK DEVICE: NO</td>
<td>ASK PARAMETERS: NO</td>
</tr>
<tr>
<td>LOCATION OF TERMINAL: slave device for Cache/NT</td>
<td></td>
</tr>
<tr>
<td>MNEMONIC: SLAVE</td>
<td></td>
</tr>
<tr>
<td>SUBTYPE: C–VT220</td>
<td>TYPE: TERMINAL</td>
</tr>
</tbody>
</table>

Network printer:
From the NT menu:

1. **Start/Settings/Printers/Add Printer.**
2. Select the **My Computer** radio button then **Next** to continue.
3. Click the **Add Port** button.
4. Double click the **LPR Port** then fill in the IP address of the device and the name then **Close** to continue.
5. Make sure the box for the newly created port is checked then **Next** to continue.
6. Select the printer driver (note - you may need the NT install CD handy for this step) then **Next** to continue.
7. Enter the printer name then **Next** to continue
   **Note:** this is the value that will be used in the $I below.
8. Select shared or not shared then **Next** to continue.
9. Try printing a test page; at this point, NT might start requesting the install CD for specific drivers.

From the W2K menu:

1. **Start/Settings/Printers/Add Printer.**
2. **Next** at the welcome add printer wizard box.
3. Select the **Local Printer** radio button and uncheck the automatic detection for plug and play devices then **Next** to continue.
4. Select the **Create a new port** radio button then select either **LPR** or **Standard TCPIP port** from the dropdown menu.
   - For LPR:
     - Fill in the IP address of the device and the name, then **Close** to continue.
   - For TCP/IP:
     - Click **Next** to continue in the welcome wizard window.
     - Enter the printer name or IP address then **Next** to continue.
5. Select the driver, then **Next** to continue.
6. Enter the printer name, then **Next** to continue
   **Note:** this is the value that will be used in the $I below.
7. Share or not, then **Next** to continue.
8. Print a test page, then **Next** to continue.

**From within Contingency Workstation (VistA) Printer**

1. No special terminal types need to be used for Cache/NT network printing. Several HP-LASER terminal types are available in the TERMINAL TYPE file as installed.
2. Create a new entry in the DEVICE file as per the example below. $I syntax is \PRN\|\bcmaservername\LPR device defined above. In the example below, the A410 printer was defined as an LPR port through NT. The server name is VHAISADHC1
3. Test the printer through VistA.
Examples:

**DEVICE** file entry:

| NAME: A410 | LOCATION OF TERMINAL: A410 | TYPE: TERMINAL | $I: \PRN|\VHAISADHC2\A410 | SUBTYPE: P-HP-P16 |
|------------|-----------------------------|---------------|-------------------------|-------------------|

**TERMINAL TYPE** file entries:

<table>
<thead>
<tr>
<th>NAME: P-HPLASER-P10</th>
<th>RIGHT MARGIN: 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORM FEED: #</td>
<td>PAGE LENGTH: 64</td>
</tr>
<tr>
<td>BACK SPACE: $C(8)</td>
<td>OPEN EXECUTE: W *27,&quot;E&quot;</td>
</tr>
<tr>
<td>CLOSE EXECUTE: W *27,&quot;E&quot;</td>
<td>PROPORTIONAL SPACING: $C(27)_&quot;(s1P&quot;</td>
</tr>
<tr>
<td>DESCRIPTION: LASER PRINTER PORTRAIT MODE 10 CPI</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NAME: P-HP-P16</th>
<th>RIGHT MARGIN: 132</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORM FEED: $C(12,13)</td>
<td>PAGE LENGTH: 58</td>
</tr>
<tr>
<td>BACK SPACE: $C(8)</td>
<td>OPEN EXECUTE: W</td>
</tr>
<tr>
<td>$C(27),&quot;E&quot;,$C(27),&quot;&amp;k2S&quot;</td>
<td></td>
</tr>
<tr>
<td>CLOSE EXECUTE: W $C(27),&quot;E&quot;</td>
<td>DESCRIPTION: HP LASER JET 16 PITCH</td>
</tr>
</tbody>
</table>

Adding a BCMA printer to the GT.M/Linux Contingency system:

**Contingency Workstation (VistA)**

**From the Linux menu:**

1. Select **System Settings** then **Printing**.
2. In the Red Hat printer config windows click **New** to create a new printer queue.
3. Read the instructions then click **Forward** to continue.
4. Specify 'local' or 'LOCAL' as the name for the new printer and select **local printer** radio button, then click **Forward** to continue.
5. Accept \dev/lp0 as printer device to use, then click **Forward** to continue.
6. Select the driver for your local printer, then click **Forward** to continue. **Postscript Printer** is usually acceptable for HP printers.
7. Click **Apply** button to restart LPD.
8. You may test the printer by selecting it in the Red Hat printer config window, then selecting **Test** from the horizontal menu.

**From within Contingency Workstation (VistA)**

1. P220/102 SLAVE GTM/LINUX entries are already pre-defined in VistA **DEVICE** file.
2. Test the printer through VistA.

**DEVICE** file entries:

<table>
<thead>
<tr>
<th>NAME: P220/102 SLAVE GTM/LINUX</th>
<th>$I: $HOME/slave.dat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device</td>
<td>Parameters</td>
</tr>
<tr>
<td>--------</td>
<td>------------</td>
</tr>
<tr>
<td>P220/102 HP 80 SLAVE GTM/LINUX</td>
<td>$I: $HOME/slave.dat</td>
</tr>
<tr>
<td>P220/102 HP 80 SLAVE GTM/LINUX</td>
<td>$I: $HOME/slave.dat</td>
</tr>
<tr>
<td>P220/102 HP 80 SLAVE GTM/LINUX</td>
<td>$I: $HOME/slave.dat</td>
</tr>
</tbody>
</table>

**TERMINAL TYPE** file entries:

```
NAME: P-SLAVE HP 132 GTM/LINUX
RIGHT MARGIN: 132
FORM FEED: #
PAGE LENGTH: 60
BACK SPACE: $C(8)
OPEN EXECUTE: W *27,"E",*27,"(s16.7H",*27,"&k3G"
CLOSE EXECUTE: W *27,"E" U IO K IO(1,IO) C IO ZSYSTEM "lpr -lr "_IO
```

```
NAME: P-SLAVE HP 80 GTM/LINUX
RIGHT MARGIN: 80
FORM FEED: #
PAGE LENGTH: 60
BACK SPACE: $C(8)
OPEN EXECUTE: W *27,"E" U IO K IO(1,IO) C IO ZSYSTEM "lpr -lr "_IO
```

```
NAME: P-SLAVE TEXT GTM/LINUX
RIGHT MARGIN: 80
FORM FEED: #
PAGE LENGTH: 60
BACK SPACE: $C(8)
CLOSE EXECUTE: U IO K IO(1,IO) C IO ZSYSTEM "lpr -r "_IO
```

**Network printer:**

From the Linux menu:

1. Select **System Settings** then **Printing**.
2. In the Red Hat printer config windows click **New** to create a new printer queue.
3. Read the instructions then click **Forward** to continue.
4. Specify the name of the new printer (example: A405) and select either the **Unix Printer** or **Jetdirect Printer** radio button as type (Note: Unix printer uses port 515 and Jetdirect uses port 9100), then click **Forward** to continue.
   a. if Unix printer: Enter the printer hostname or IP in the **Server** box - no need to enter queue information.
   b. if Jetdirect printer: Enter the printer hostname or IP in the **Printer IP** box - accept
9100 as the port value then click **Forward** to continue.

5. Select the driver for your network printer, then click **Forward** to continue.
   Note: **Postscript Printer** is usually acceptable for HP printers.

6. Click **Apply** button to restart LPD.

7. You may test the printer by selecting it in the Red Hat printer config window, then selecting **Test** from the horizontal menu.

**From within Contingency Workstation (VistA)**

1. P-TCP * GTM/LINUX entries are already pre-defined in VistA TERMINAL TYPE file. You may use the VA FileMan **Transfer File Entries** option to create new terminal types using these as templates. Edit the OPEN EXECUTE fields accordingly to vary print characteristics.

2. Create a new DEVICE file entry.
   a. Note: The name of the new DEVICE must begin with the name of the Linux printer created above FOLLOWED BY A SPACE then a description (Example: "A405 - ADMIN 10/6/UP"). The CLOSE EXECUTE field of the TERMINAL TYPE being used parses the queue name from the first space backward
   b. IS's for network printers are normally /home/Linux bcma mgr acct/hfs/devicename.txt
   c. Device TYPE - HFS

3. Test the printer through VistA.

Examples:

**DEVICE** file entries:

<table>
<thead>
<tr>
<th>NAME: A405 10/6/UP</th>
<th>$I: /home/gtmmgr/hfs/A405.dat</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASK DEVICE: NO</td>
<td>ASK PARAMETERS: NO</td>
</tr>
<tr>
<td>LOCATION OF TERMINAL: A405</td>
<td>ASK HOST FILE: NO</td>
</tr>
<tr>
<td>SUPPRESS FORM FEED AT CLOSE: YES</td>
<td>OPEN PARAMETERS: newversion</td>
</tr>
<tr>
<td>SUBTYPE: P-TCP 10/6/UP GTM/LINUX</td>
<td>TYPE: HOST FILE SERVER</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NAME: A405 16/6/UP</th>
<th>$I: /home/gtmmgr/hfs/A405.dat</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASK DEVICE: NO</td>
<td>ASK PARAMETERS: NO</td>
</tr>
<tr>
<td>LOCATION OF TERMINAL: A405</td>
<td>ASK HOST FILE: NO</td>
</tr>
<tr>
<td>SUPPRESS FORM FEED AT CLOSE: YES</td>
<td>OPEN PARAMETERS: newversion</td>
</tr>
<tr>
<td>SUBTYPE: P-TCP 16/6/UP GTM/LINUX</td>
<td>TYPE: HOST FILE SERVER</td>
</tr>
</tbody>
</table>

**TERMINAL TYPE** file entries:

<table>
<thead>
<tr>
<th>NAME: P-TCP 10/6/UP GTM/LINUX</th>
<th>SELECTABLE AT SIGN-ON: NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIGHT MARGIN: 80</td>
<td>FORM FEED: #</td>
</tr>
<tr>
<td>PAGE LENGTH: 60</td>
<td>BACK SPACE: $C(8)</td>
</tr>
<tr>
<td>OPEN EXECUTE: W *27,&quot;E&quot;,*27,&quot;&amp;k3G&quot;</td>
<td></td>
</tr>
<tr>
<td>CLOSE EXECUTE: W *27,&quot;E&quot; U IO K IO(1,IO) C IO ZSYSTEM &quot;lpr -lrP &quot; $E(ION,1,$F(ION,&quot;,&quot;)-1)&quot; _IO</td>
<td></td>
</tr>
</tbody>
</table>

| NAME: P-TCP 16/6/UP GTM/LINUX          | SELECTABLE AT SIGN-ON: NO       |
Workstation Queued Tasks

The following tasks should be queued to run on the workstation. All except XMMGR-PURGE-AI-XREF (which has a rescheduling frequency of 7D) should have a rescheduling frequency of 1D. The GT.M and Cache dat files where released with these jobs scheduled properly but they should be checked, once TaskMan is started, to make sure they have run and are being rescheduled.

The following capture shows how to list the currently queued workstation tasks and verifies that the HL PURGE TRANSMISSIONS task has been rescheduled. Check the TaskMan error log should the jobs not appear to be run or scheduled properly.

Select Systems Manager Menu Option:

    Core Applications ...
    Device Management ...
    Menu Management ...
    Programmer Options ...
    Operations Management ...
    Spool Management ...
    Information Security Officer Menu ...
    Taskman Management ...
    User Management ...
    Application Utilities ...
    Capacity Management ...
    HL7 Main Menu ...

Select Systems Manager Menu Option: **TASKman Management**

    Schedule/Unschedule Options
    One-time Option Queue
    Taskman Management Utilities ...
    List Tasks
    Dequeue Tasks
    Requeue Tasks
    Delete Tasks
    Print Options that are Scheduled to run
    Cleanup Task List
    Print Options Recommended for Queueing

Select Taskman Management Option: **SCHEDule/Unschedule Options**

Select OPTION to schedule or reschedule: ?
    Answer with OPTION SCHEDULING NAME
    Choose from:
    XQBUILDTREEQUE  (R)
    XQ XUTL $J NODES   (R)
    XUTM QCLEAN       (R)
    XUERTRP AUTO CLEAN (R)
You may enter a new OPTION SCHEDULING, if you wish
Enter OPTION to schedule.
Only allow Action, Print, and Run type options.
Answer with OPTION NAME
Do you want the entire OPTION List? N (No)
Select OPTION to schedule or reschedule: PSB BCBU WRKSTN PURGE ORDERS
Purge Orders Past X days old
...Okay? Yes/<ENTER> (Yes)
(R)

Edit Option Schedule
Option Name: PSB BCBU WRKSTN PURGE ORDERS
Menu Text: Purge Orders Past X days old
QUEUED TO RUN AT WHAT TIME: JUN 3, 2003@01:30
DEVICE FOR QUEUED JOB OUTPUT:
QUEUED TO RUN ON VOLUME SET:
RESCHEDULING FREQUENCY: 1D
TASK PARAMETERS:
SPECIAL QUEUEING:
Quick Reference Installation Checklist

<table>
<thead>
<tr>
<th>Action</th>
<th>Where</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Install patch PSB<em>3.0</em>8</td>
<td>VistA</td>
<td></td>
</tr>
<tr>
<td>A. FTP Software from an OI Field Office</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Install using Kids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Workstation Setup</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong> Ensure that the workstation has a static IP Address.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Windows/Caché</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Setup Caché – InterSystems supplies software. Example of install can be found in the manual, &quot;Bar Code Medication Administration Backup System (BCBU) InterSystems Cache Installation Setup&quot;.</td>
<td>Workstation</td>
<td></td>
</tr>
<tr>
<td>2. Shutdown Caché</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Copy cache.dat file that was downloaded from the FTP site into C:\CACHESYS\folder. (If asked to replace file, answer yes.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Remove the Read-Only attribute from the cache.dat file.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Ensure telnet is enabled in Caché Configuration.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Move ZSTU routine from VistA namespace to %SYS namespace.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Setup Telnet and Terminal users using Caché Control Panel.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Stop and Restart Caché.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Create BCMA Backup shortcut.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Linux/GT.M</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Install Linux onto clean system</td>
<td>Workstation</td>
<td></td>
</tr>
<tr>
<td>2. Example of install can be found in the manual, &quot;Bar Code Medication Administration Backup System (BCBU) Linux Installation Setup. Make note of username entered and its password for future use. Also, remember the root password.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td>Where</td>
<td>Completed</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>3. Sign into Linux using the user created during the installation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Enter super user mode ($ su)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Copy downloaded Linux files to an accessible location.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Ensure downloaded file has correct permissions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Run the install script. (.install_bcma)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong> BCMA manager account will be the user you created during</td>
<td></td>
<td></td>
</tr>
<tr>
<td>the Linux install.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Edit the TaskMan Site Parameters to enter the correct Box-Volume</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pair.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Workstation Database Initialization

A. On new installs check the parameter PSB BKUP ONLINE VALUE=yes       | VistA   |           |
B. Add a new link using HL7 options.                                  | VistA   |           |
C. Associate the new link to a division using PSB BCBU VistA MAIN     | VistA   |           |
| option.                                                              |         |           |
D. Start the new link using HL7 options.                              | VistA   |           |
E. Check the HL7 Site Parameter to make sure the field, "Is this a   | Workstation |       |
| Production or Test Account", is set correctly. It must match the    |         |           |
| setting in the Vista account sending the messages                    |         |           |
F. Start the LISTNER link using HL7 options.                          | Workstation |       |
G. Review the Parameter settings and verify that all task jobs have   | Workstation |       |
| been queued properly. This is described in the Workstation Queued    |         |           |
| Tasks section of this documentation.                                 |         |           |
H. Initialize the workstation using Default or Divisional Workstation | VistA   |           |
| initialize option.                                                   |         |           |
Contingency PC Workstation Reports

List/Display Orders

The BCBU List/Display Orders report will add Remove Times to Admin Times and will display both “Given” data and “Removed” data for medications requiring removal.

**BCMAbu Selected Order(s)** May 19, 2016@09:36:02 Page: 1 of 1

<table>
<thead>
<tr>
<th>Order Number:</th>
<th>46U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type:</td>
<td>UNIT DOSE</td>
</tr>
<tr>
<td>Status:</td>
<td>finished/verified by pharmacist(active)</td>
</tr>
<tr>
<td>Drug:</td>
<td>FENTANYL 12MCG/HR PATCH</td>
</tr>
<tr>
<td>Give:</td>
<td>1 PATCH TRANSDERMAL Q12H</td>
</tr>
<tr>
<td>Provider:</td>
<td>BCMAPROVIDER,ONE</td>
</tr>
<tr>
<td>Admin. Times:</td>
<td>0600-1800</td>
</tr>
<tr>
<td>Removal Times:</td>
<td>1800-0600</td>
</tr>
<tr>
<td>RPh/Entry by:</td>
<td>SMITH,NANCY SUE</td>
</tr>
</tbody>
</table>

**BCMA Medication Log History since**

<table>
<thead>
<tr>
<th>Log Date</th>
<th>Message</th>
<th>Log Entry Person</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/11/16@16:23</td>
<td>REMOVED</td>
<td>NURSE,FOUR</td>
</tr>
<tr>
<td>05/11/16@16:27</td>
<td>HELD</td>
<td>NURSE, TWO</td>
</tr>
</tbody>
</table>

**Enter ?? for more actions**

Select Action: Quit//

Select BCMA Backup System (Wrkstn) Option: 50 <ENTER> List/Display Orders

BCMAbu Patient List (All) Mar 29, 2005@07:30:33 Page: 1 of 1

BCMA Backup System :: Patient Listing

<table>
<thead>
<tr>
<th>Patient</th>
<th>SSN</th>
<th>Ward</th>
<th>Room</th>
<th>Bed</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCMAPATIENT1,ONE</td>
<td>0000000001</td>
<td>4 MED</td>
<td>M20</td>
<td>A</td>
</tr>
<tr>
<td>BCMAPATIENT2,TWO</td>
<td>0000000002</td>
<td>3W GS</td>
<td>NW104</td>
<td>2</td>
</tr>
</tbody>
</table>

**Enter ?? for more actions**

SP Select Patient LW List by Ward LA List All Patients

Select Item(s): Quit// SP <ENTER> Select Patient

Select PATIENT: BCMAPATIENT1,ONE <ENTER>

BCMAbu ACTIVE Orders List Mar 29, 2005@07:39 Page: 1 of 1

<table>
<thead>
<tr>
<th>Patient</th>
<th>SSN: 0000000001</th>
<th>Ward: 4 MED</th>
</tr>
</thead>
<tbody>
<tr>
<td>This record last updated: Mar 29, 2005@07:29:43 Room: M20 Bed: A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allergies: DYE, CATHETER; DILTIAZEM; SULFA; IBUPROFEN</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---------------
Select WARD: 3W

Enter ?? for more actions
SP   Select Patient       LW   List by Ward         LA   List All Patients
Select Item(s): Quit// SP <ENTER> Select Patient
Select PATIENT: BCMA PATIENT2, TWO <ENTER>

Order No.   Status  Type  Medication(s)
30U         Active   UD   EPOETIN ALFA, RECOMBINANT 4000 UNT/ML INJ (4000 UNT/1 ML

Enter ?? for more actions
SO  Select Order          L1  List Active Orders    L2  List All Orders
Select Action: Quit// <ENTER> QUIT
**BCBU MAR (Medical Administration Record) Report**

The BCBU MAR (Medical Administration Record) report will add Remove Times to Admin Times and will display both “Given” data and “Removed” data for medications requiring removal. The “Order #:” field containing the letter “U” that previously printed on the same line as “Type:” and which could be mistaken for unit dose information, has been removed from the report.

In addition, notifications will be displayed on the MAR informing the medical professional of drugs that are hazardous to handle and/or hazardous to dispose.

<table>
<thead>
<tr>
<th>Location</th>
<th>Admin Times</th>
<th>05/20</th>
<th>05/21</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPATIENT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 11, 201609:00 – Jun 01, 201607:00</td>
<td>0600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;&lt;FENTANYL 12MCE/HR PATCH&gt;&gt;</td>
<td></td>
<td>Remove</td>
<td></td>
</tr>
<tr>
<td>Give: 1 PATCH TRANSDERMAL Q12H</td>
<td>1800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider: BCPMOVER,19</td>
<td>0600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RPh/Entry by: PHARMACIST, TEN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type: UNIT DOSE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status: finished/verified by pharmacist(activation)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BCBU MAR Report Prior to Report Legend Removal**

<table>
<thead>
<tr>
<th>Location</th>
<th>Admin Times</th>
<th>01/16</th>
<th>01/17</th>
<th>01/18</th>
<th>01/19</th>
<th>01/20</th>
<th>01/21</th>
<th>01/22</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPATIENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 07, 2015@15:38 – Jun 06, 2015@23:59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;&lt;SELENIUM SULFIDE 2.5% LOTION/SHAMPOO&gt;&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give: SMALL AMOUNT TOPICAL ON CALL PRN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider: TEAGUE, LYN D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RPh/Entry by: PHARMACIST, TEN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Order #: 147U Type: UNIT DOSE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status: finished/verified by pharmacist(activation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The hard-coded list of injection sites that prints as a legend at the end of the BCBU MAR reports has been removed. This report legend does not correspond with the medications requiring removal dermal sites or injectable medication injection sites.
## Location MAR Report After Report Legend Removal

<table>
<thead>
<tr>
<th>Location</th>
<th>Admin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td>Stop</td>
</tr>
<tr>
<td>May 07, 2015 15:38</td>
<td>Jun 06, 2015 23:59</td>
</tr>
<tr>
<td><strong>&lt;&lt;SELENIUM SULFIDE 2.5% LOTION/SHAMPOO&gt;&gt;</strong></td>
<td><strong>Give: SMALL AMOUNT TOPICAL ON CALL PRN</strong></td>
</tr>
<tr>
<td><strong>Provider: TEAGUE, LYN D</strong></td>
<td><strong>RPh/Entry by:</strong></td>
</tr>
<tr>
<td>Order #: 147</td>
<td><strong>Type: UNIT DOSE</strong></td>
</tr>
<tr>
<td>Status: finished/verified by pharmacist(active)</td>
<td><strong>BCMA MEDICATION LOG HISTORY</strong></td>
</tr>
</tbody>
</table>

No Medication Log entries are on file for this order.

Special Instructions:
- Give to patient as requested.

---

## Print MAR for All Wards

Select BCMA Backup System (Wrkstn) Option: PA Print MAR for All Wards

Inpatient Pharmacy Orders for all wards

Report [A]ll or [C]urrent orders? CURRENT/<ENTER>

Include Patients Without Active Medications? YES/<ENTER>

Sort Patients by [N]ame or [R]oom/Bed? Room/Bed/<ENTER>

Print how many days MAR? 7/<ENTER>

Select how many BCMA Medication Log History: 1/<ENTER>

DEVICE: HOME/<DEC Windows <ENTER>

MAR Ran: Jan 28, 2013 09:10:52 Inpatient Pharmacy Orders (Backup) Page: 1

**PATIENTS/TEST**

**SSN:** 00000001 **DOB:** Sep 17, 1950 **Sex:** M

**Ward:** C MEDICINE **Room:** 320 **Bed:** 1

This record last updated: Jan 22, 2013 15:35:08

No allergies reported to the Contingency

No Active Medication Orders were reported to the Contingency at the time the MAR was printed

MAR Ran: Jan 28, 2013 09:10:52 Inpatient Pharmacy Orders (Backup) Page: 1

**PATIENTS/TEST**

**SSN:** 00000002 **DOB:** Jan 01, 1920 **Sex:** M

**Ward:** C MEDICINE **Room:** 320 **Bed:** 2

This record last updated: Jan 22, 2013 09:15:35

No allergies reported to the Contingency

---

## BCMA Backup System (BCBU) Installation Guide

PSB*3*108
Log Date        Message        Log Entry Person
07/27/16@21:03  GIVEN          BCMANURSE,ONE

MAR Ran: Jan 28, 2013@10:15 Page: 1
PATIENT3,TEST  SSN: 000000003  DOB: Jan 01, 1930  Sex: F
Ward: C MEDICINE  Room: 321  Bed: 1
This record last updated: Jan 18, 2013@11:54:28
No allergies reported to the Contingency

Location        Start                      Stop                                     Times    01/28  01/29  01/30  01/31  02/01  02/02  02/03

INPATIENT

Jan 18, 2013@11:51        Feb 17, 2013@18:00                      | 0600   |______|______|______|______|______|______|
<<ALLOPURINOL 50MG (1/2 X 100MG) TAB>>                            | 1200   |______|______|______|______|______|______|
Give: 150mg ORAL (BY MOUTH) Q6H                           | 1800   |______|______|______|______|______|______|
Provider: BCMAPROVIDER, ONE                                   | 2400   |______|______|______|______|______|______|
RPh/Entry by: BCMAPHARMACIST, ONE
Order #: 170  Type: UNIT DOSE
Status: finished/verified by pharmacist(active)
No Medication Log entries are on file for this order.

MAR Ran: Jan 28, 2013@10:15 Page: 1
PATIENT4,TEST  SSN: 000000004  DOB: Apr 23, 1966  Sex: M
Ward: C MEDICINE  Room: 321  Bed: 2
This record last updated: Oct 23, 2012@13:34:56
Allergies: HALOTHANE; MALT BARLEY; PALMOLIVE SOAP; WATERMELONS; KELP; OLEPTRO; SARDINES;
MALTOSE; NICOTINAMIDE HYDROIODIDE/P; POLLEN; NAMENDA TITRATION PAK;
PINE NEEDLES; PINE PRODUCTS; IBUPROFEN/PSEUDOEPHEDRINE; TALBUTAL;
FARBITAL(NEW FORMULA); CARBONATED BEVERAGES; METHYLCELLULOSE;
CADEXOMER IODINE; ALUMINUM ACETATE/BENZETHO; HALAZEPAM;
**ADR** ALUMINUM HYDROXIDE/ASPIRI
No Active Medication Orders were reported to the Contingency at the time the MAR was printed.
Print MAR for Selected Patient

Select BCMA Backup System (Wrkstn) Option: PP Print MAR for Selected Patient

Inpatient Pharmacy Orders for a selected patient

Select PATIENT NAME: TESTPATIENT, ANOTHER <ENTER>

Report [A]LL or [C]URRENT orders? CURRENT <ENTER>

Print how many days MAR? ?? <ENTER>

Select how many BCMA Medication Log history: 1 <ENTER>

DEVICE: HOME // DEC Windows <ENTER>

MAR Ran: Jan 28, 2013@09:25:40

Inpatient Pharmacy Orders (Backup) Page: 1

TESTPATIENT, ANOTHER
SSN: 000000006
DOB: May 04, 1960
Sex: M

Ward: C MEDICINE
Room: 100
Bed: A

This record last updated: Jul 30, 2012@13:47:23

No allergies reported to the Contingency

No Active Medication Orders were reported to the Contingency at the time the MAR was printed

Select BCMA Backup System (Wrkstn) <TEST ACCOUNT> Option: PP Print MAR for Selected Patient

Inpatient Pharmacy Orders for a selected patient

Select PATIENT NAME: TESTPATIENT, ANOTHER <ENTER>

Report [A]LL or [C]URRENT orders? CURRENT <ENTER>

Print how many days MAR? ?? <ENTER>

Select how many BCMA Medication Log history: 1 <ENTER>

DEVICE: HOME // DEC Windows <ENTER>

MAR Ran: Jan 28, 2013@09:31:05

Inpatient Pharmacy Orders (Backup) Page: 1

TESTPATIENT, ANOTHER
SSN: 000000006
DOB: Apr 04, 1960
Sex: M

Ward: C MEDICINE
Room: 100
Bed: A

This record last updated: Oct 23, 2012@13:34:57

No allergies reported to the Contingency

Select BCMA Backup System (Wrkstn) Option: PP Print MAR for Selected Patient

Inpatient Pharmacy Orders for a selected patient

Select PATIENT NAME: TESTPATIENT, ANOTHER <ENTER>

Report [A]LL or [C]URRENT orders? CURRENT <ENTER>

Print how many days MAR? ?? <ENTER>

Select how many BCMA Medication Log history: 1 <ENTER>

DEVICE: HOME // DEC Windows <ENTER>

MAR Ran: Jul 17, 2012@10:40

Inpatient Pharmacy Orders (Backup) Page: 1

TESTPATIENT, ANOTHER
SSN: 000000006
DOB: Apr 04, 1960
Sex: M

Ward: C MEDICINE
Room: 100
Bed: A

This record last updated: Jul 30, 2012@13:47:23

No allergies reported to the Contingency

CAUTION! THIS IS A PENDING ORDER :: CHECK WITH PROVIDER OR PHARMACIST!
Print MAR for Selected Ward

Select BCMA Backup System (Workstation) Option: PW  Print MAR for Selected Ward
Inpatient Pharmacy Orders for a selected ward
Select WARD: C MED  C MEDICINE
Report [A]ll or [C]URRENT orders? CURRENT// <ENTER>
Include Patients Without Active Medications? YES// <ENTER>
Sort Patients by [N]ame or [R]oom/Bed? Room/bed// Name <ENTER>
Print how many days MAR? 7// <ENTER>
Select how many BCMA Medication Log history: 1// <ENTER>
DEVICE: HOME// DEC Windows <ENTER>

MAR Ran: Jan 28, 2013@09:10:52  Inpatient Pharmacy Orders (Backup)
Page:  1
PATIENT1,TEST  SSN: 000000001  DOB: Sep 17, 1950  Sex: M
Ward: C MEDICINE  Room: 320  Bed: 1
This record last updated: Mar 02, 2012@10:08:57
No allergies reported to the Contingency
No Active Medication Orders were reported to the Contingency at the time the MAR was printed

MAR Ran: Jan 28, 2013@09:10:52  Inpatient Pharmacy Orders (Backup)
Page:  1
PATIENT2,TEST  SSN: 000000002  DOB: Jan 01, 1920  Sex: M
Ward: C MEDICINE  Room: 320  Bed: 2
This record last updated: Jan 22, 2013@15:35:08
No allergies reported to the Contingency
No Active Medication Orders were reported to the Contingency at the time the MAR was printed

Print MAR for All Clinics

Select BCMA Backup System (Workstation) Option: PAC  <ENTER>  Print MAR for All Clinics

Print MAR for All Clinics

Select BCMA Backup System (Workstation) Option: PW  Print MAR for All Clinics
Inpatient Pharmacy Orders for a selected ward
Select WARD: C MED  C MEDICINE
Report [A]ll or [C]URRENT orders? CURRENT// <ENTER>
Include Patients Without Active Medications? YES// <ENTER>
Sort Patients by [N]ame or [R]oom/Bed? Room/bed// Name <ENTER>
Print how many days MAR? 7// <ENTER>
Select how many BCMA Medication Log history: 1// <ENTER>
DEVICE: HOME// DEC Windows <ENTER>

MAR Ran: Jan 28, 2013@09:10:52  Inpatient Pharmacy Orders (Backup)
Page:  1
PATIENT3,TEST  SSN: 000000003  DOB: Jan 01, 1930  Sex: F
Ward: C MEDICINE  Room: 321  Bed: 1
This record last updated: Jan 18, 2013@11:54:28
No allergies reported to the Contingency
Location                                                                   Admin
Start                     Stop                                     Times    01/28  01/29  01/30  02/01  02/02  02/03
---------------------------------------------------------------
INPATIENT
Jan 18, 2013@11:51        Feb 17, 2013@18:00                      | 0600   |______|______|______|______|______|______|______|
<<ALLOPURINOL 50MG (1/2 X 100MG) TAB>>                            | 1200   |______|______|______|______|______|______|______|
Give: 150mg ORAL (BY MOUTH) Q6H                           | 1800   |______|______|______|______|______|______|______|
Provider: BCMAPROVIDER, ONE                                   | 2400   |______|______|______|______|______|______|______|
RPh/Entry by: BCMAPHARMACIST, ONE
Order #: 17U         Type: UNIT DOSE
Status: finished/verified by pharmacist(active)
BCMA MEDICATION LOG HISTORY
No Medication Log entries are on file for this order.

Print MAR for All Clinics

Select BCMA Backup System (Workstation) Option: PAC  <ENTER>  Print MAR for All Clinics
Inpatient Pharmacy Orders for a selected ward
Select WARD: C MED  C MEDICINE
Report [A]ll or [C]URRENT orders? CURRENT// <ENTER>
Include Patients Without Active Medications? YES// <ENTER>
Sort Patients by [N]ame or [R]oom/Bed? Room/bed// Name <ENTER>
Print how many days MAR? 7// <ENTER>
Select how many BCMA Medication Log history: 1// <ENTER>
DEVICE: HOME// DEC Windows <ENTER>

MAR Ran: Jan 28, 2013@09:10:52  Inpatient Pharmacy Orders (Backup)
Page:  1
PATIENT4,TEST  SSN: 000000004  DOB: Apr 23, 1966  Sex: M
Ward: C MEDICINE  Room: 321  Bed: 2
This record last updated: Oct 23, 2012@13:34:56
Allergies: HALOTHANE; MALT BARLEY; PALMOLIVE SOAP; WATERMELONS; KELP; OLEPTRO; SARDINES;
MALTOSE; NICOTINAMIDE HYDROCHLORIDE; POLLEN; NAMENDA TITRATION PAK;
PINE NEEDLES; PINE PRODUCTS; IBUPROFEN/PSEUDOEPHEDRINE; TALBUTAL;
FARBITAL(NEW FORMULA); CARBONATED BEVERAGES; METHYLCELLULOSE;
CADEXOMER IODINE; ALUMINUM ACETATE/BENZETHO; HALAZEPAM;
**ADR** ALUMINUM HYDROXIDE/ASPIRIN
No Active Medication Orders were reported to the Contingency at the time the MAR was printed
<table>
<thead>
<tr>
<th>MAR Ran: Mar 05, 2013 11:11:08</th>
<th>Inpatient Pharmacy Orders (Backup)</th>
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</thead>
<tbody>
<tr>
<td>BCMA/CO, SEVEN</td>
<td>SSN: 666000777  DOB: Mar 10, 1900 Sex: M</td>
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<tr>
<td>Ward:</td>
<td>Room: **  Bed: **</td>
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<tr>
<td>This record last updated: Mar 01, 2013 8:01:06</td>
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<td>Allergies: LATEX STRAP</td>
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<table>
<thead>
<tr>
<th>Location</th>
<th>Admin</th>
<th>Start</th>
<th>Stop</th>
<th>Times 03/05 03/06 03/07 03/08 03/09 03/10 03/11</th>
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<tbody>
<tr>
<td>AL-CLINIC MED SOUTH</td>
<td></td>
<td>0100</td>
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<tr>
<td>Mar 01, 2013 09:16</td>
<td>0500</td>
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<tr>
<td>&lt;&lt;ACEITAMIPHEN 325MG C.T.&gt;&gt;</td>
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<tr>
<td>Give: 325 MG ORAL (BY MOUTH) Q4H</td>
<td></td>
<td>0900</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider: BCMAPROVIDER, ONE</td>
<td></td>
<td>1300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RPh/Entry by: BCMAPHARMACIST, TWO</td>
<td></td>
<td>1700</td>
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<tr>
<td>Order #: 140 Type: UNIT DOSE</td>
<td></td>
<td>2100</td>
<td></td>
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<tr>
<td>Status: finished/verified by pharmacist(active)</td>
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<tr>
<td>BCMA MEDICATION LOG HISTORY</td>
<td>No Medication Log entries are on file for this order.</td>
<td></td>
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<table>
<thead>
<tr>
<th>Location</th>
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<th>Start</th>
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<th>Times 03/05 03/06 03/07 03/08 03/09 03/10 03/11</th>
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<tbody>
<tr>
<td>AL-CLINIC MED SOUTH</td>
<td></td>
<td>0100</td>
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<tr>
<td>Feb 25, 2013 9:26</td>
<td>0500</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>&lt;&lt;BACLOFEN 10MG TABS&gt;&gt;</td>
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</tr>
<tr>
<td>Give: 10 MG ORAL (BY MOUTH) QID-AM</td>
<td></td>
<td>0900</td>
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<tr>
<td>Provider: BCMAPROVIDER, ONE</td>
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<td>RPh/Entry by: BCMAPHARMACIST, TWO</td>
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<td>Order #: 480 Type: UNIT DOSE</td>
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<td>BCMA MEDICATION LOG HISTORY</td>
<td>No Medication Log entries are on file for this order.</td>
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<table>
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<tr>
<th>Location</th>
<th>Admin</th>
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<th>Times 03/05 03/06 03/07 03/08 03/09 03/10 03/11</th>
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<td>AL-CLINIC MED SOUTH</td>
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<tr>
<td>Feb 25, 2013 14:23</td>
<td>0500</td>
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<td>&lt;&lt;ASPIRIN BUFFERED 325MG TABS&gt;&gt;</td>
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<tr>
<td>Give: 325MG ORAL (BY MOUTH) Q4H</td>
<td></td>
<td>0900</td>
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<td></td>
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<tr>
<td>Provider: BCMAPROVIDER, ONE</td>
<td></td>
<td>1300</td>
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<tr>
<td>RPh/Entry by: BCMAPHARMACIST, TWO</td>
<td></td>
<td>1700</td>
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<tr>
<td>Order #: 110 Type: UNIT DOSE</td>
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<td>2100</td>
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<td>Status: finished/verified by pharmacist(active)</td>
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<tr>
<td>BCMA MEDICATION LOG HISTORY</td>
<td>No Medication Log entries are on file for this order.</td>
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<table>
<thead>
<tr>
<th>Location</th>
<th>Admin</th>
<th>Start</th>
<th>Stop</th>
<th>Times 03/05 03/06 03/07 03/08 03/09 03/10 03/11</th>
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</thead>
<tbody>
<tr>
<td>AL-CLINIC MED SOUTH</td>
<td></td>
<td>0100</td>
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</tr>
<tr>
<td>Feb 25, 2013 14:26</td>
<td>0500</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>&lt;&lt;BACLOFEN 10MG TABS&gt;&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give: 10 UNIT INJ TID</td>
<td></td>
<td>0900</td>
<td></td>
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</tr>
<tr>
<td>Provider: BCMAPROVIDER, ONE</td>
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<td>RPh/Entry by: BCMAPHARMACIST, TWO</td>
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<td>1700</td>
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<tr>
<td>Order #: 140 Type: UNIT DOSE</td>
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<td>Status: finished/verified by pharmacist(active)</td>
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<tr>
<td>BCMA MEDICATION LOG HISTORY</td>
<td>No Medication Log entries are on file for this order.</td>
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</tbody>
</table>

Report [A]ll or [C]urrent orders? CURRENT// <ENTER>

Include a Patient's Inpatient Medications on the Clinic report? YES// <ENTER>

Print how many days MAR? 7// <ENTER>

Select how many BCMA Medication Log history: 1// <ENTER>

This record last updated: Feb 22, 2013 8:01:06

Allergies: LATEX STRAP

<table>
<thead>
<tr>
<th>Location</th>
<th>Admin</th>
<th>Start</th>
<th>Stop</th>
<th>Times 03/05 03/06 03/07 03/08 03/09 03/10 03/11</th>
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</thead>
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<tr>
<td>AL-CLINIC MED SOUTH</td>
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<td>0400</td>
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<tr>
<td>Feb 26, 2013 9:11</td>
<td>0800</td>
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<tr>
<td>&lt;&lt;ACEITAMIPHEN 325MG C.T.&gt;&gt;</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Give: 325 MG ORAL (BY MOUTH) Q4H</td>
<td></td>
<td>1000</td>
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</tr>
<tr>
<td>Provider: BCMAPROVIDER, ONE</td>
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<td>RPh/Entry by: BCMAPHARMACIST, TWO</td>
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<td>1400</td>
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<tr>
<td>BCMA MEDICATION LOG HISTORY</td>
<td>No Medication Log entries are on file for this order.</td>
<td></td>
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</tbody>
</table>
Print MAR for Selected Clinic

Select BCMA Backup System (Wrkstn) Option: PC <ENTER> Print MAR for Selected Clinic
Select CLINIC: SY-CLINIC <ENTER> SY-CLINIC NORTH

Report [ALL] or [CURRENT] orders? CURRENT// <ENTER>

Include a Patient's Inpatient Medications on the Clinic report? YES// NO <ENTER>

Print how many days MAR? 7// 3 <ENTER>

Select how many BCMA Medication Log history: 1// <ENTER>

MAR Ran: Mar 05, 2013@00:29 Inpatient Pharmacy Orders (Backup) Page: 1
BCMAO, ELEVEN SSN: 666001111 DOB: Mar 10, 1990 Sex: M
Ward: Room: Bed:
This record last updated: Mar 01, 2013@16:06
Allergies: LATEX STRAP

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<th>Admin</th>
<th>Times</th>
<th>03/05</th>
<th>03/06</th>
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<th>03/08</th>
<th>03/09</th>
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<th>03/11</th>
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<tr>
<td>Feb 27, 2013@02</td>
<td>Mar 09, 2013@00</td>
<td></td>
<td></td>
<td>0100</td>
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</tr>
<tr>
<td>GIVE: 10 MG ORAL (BY MOUTH) Q4H</td>
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<tr>
<td>Provider: BCMAPROVIDER</td>
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<tr>
<td>RPh/Entry by: BCMAPHARMACIST,ONE</td>
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<tr>
<td>Order #: 47U Type: UNIT DOSE</td>
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<tr>
<td>Status: finished/verified by pharmacist (active)</td>
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<tr>
<td>BCMA MEDICATION LOG HISTORY</td>
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</tr>
</tbody>
</table>

No Medication Log entries are on file for this order.

Special Instructions:
tst

MAR Ran: Mar 05, 2013@11:10 Inpatient Pharmacy Orders (Backup) Page: 1
BCMAO, TWELVE SSN: 666001212 DOB: Apr 16, 1900 Sex: F
Ward: Room: Bed:
This record last updated: Mar 01, 2013@16:35
Allergies: LATEX STRAP

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<th>03/06</th>
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<tr>
<td>BCMA MEDICATION LOG HISTORY</td>
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No Medication Log entries are on file for this order.
Print Blank MAR for Selected Patient

Blank 3 Day MAR for Selected Patient

Select BCMA Backup System (Wrkstn) Option: BL <ENTER> Print Blank Mar for Selected Patient

Inpatient Pharmacy Orders for a selected patient
Select PATIENT NAME: BCMAPATIENT1,ONE <ENTER>

Print how many days MAR? // 3 <ENTER>

DEVICE: BCBU// <ENTER>

MAR Ran: Mar 29, 2005@07:49:18 Inpatient Pharmacy Orders (Backup) Page: 1

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<tr>
<td>SY-CLINIC NORTH</td>
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<td>2100</td>
<td></td>
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BCMA MEDICATION LOG HISTORY
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BCMA MEDICATION LOG HISTORY
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BCMA MEDICATION LOG HISTORY
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RPH Verify: ___________    Nurse Verify: ___________

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RPH Verify: ___________    Nurse Verify: ___________

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RPH Verify: ___________    Nurse Verify: ___________

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RPH Verify: ___________    Nurse Verify: ___________
Blank 7 Day MAR for Selected Patient

Select BCMA Backup System (Wrkstn) Option: **BL** <ENTER> Print Blank Mar for Selected Patient

Inpatient Pharmacy Orders for a selected patient
Select **PATIENT NAME:**  **BCMAPATIENT,ONE** <ENTER>

Print how many days MAR? 7/<ENTER>

DEVICE: **BCBU**<ENTER>

MAR Ran: Mar 29, 2005@07:50:10 Inpatient Pharmacy Orders (Backup) Page: 1

Ward: 4 MED
Room: M20  Bed: A
This record last updated: Mar 29, 2005@07:29:43
Allergies: DYE,CATHETER; DILTIAZEM; SULFA; IBUPROFEN

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<th>Admin Time</th>
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<th>MAR 31</th>
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</table>

RPH Verify:___________    Nurse Verify:____________  
RPH Verify:___________    Nurse Verify:____________  
RPH Verify:___________    Nurse Verify:____________

List of Wards in BCMA Backup File

Select BCMA Backup System (Wrkstn) Option: **WL** <ENTER> List of Wards in BCMA Backup File

Wards with BCMA Backup Data on this workstation:

10W  
2B APCU  
3E GEM  
3E SUBACUTE  
3W GS  
3W ORTHO  
4 MED  
4 SURG  
4E ENT  
4E M  
4E ON  
MICU  
TICU

---

List of Wards in BCMA Backup File
Trouble Shooting Guide

The messages are building on the VistA side, but I see an open fail in the link monitor.

Check the following areas:
- The IP address on both and make sure they match.
- The Port numbers on both and make sure they match.
- The Firewall on the workstation.
- The Filers on the workstation.
- The Link Manager on the workstation.

When logging into the Cache Terminal on the workstation I get a <FILEFULL> error. When looking at the HL7 System Link Monitor on VistA the BCBU Workstation shows a READ ERROR state.

This may be caused by the BCBU workstation reaching its defined maximum allowed database size. To increase the size of the BCBU workstations database go into the Cache Cube / Control Panel / Local Databases. Right click on VISTA and select properties. If the database has reached the maximum defined the fields # of MB and Max # of MB will be equal. To increase the size edit only the Max # of MB field. (Note: Make sure the physical hard drive has enough space available for the increase in the database size)

When logging into the Cache Terminal on the workstation I get a <NOROUTINE> error.

Verify that the two user accounts setup under the Cache Cube / Control Panel / Security / User Accounts are set to VISTA Namespace and ^ZU Routine.

The messages appear to be transmitting but no data is filing on the workstation.

Verify that the HL COMMUNICATION SERVER PARAMETERS field, "DEFAULT PROCESSING ID" is set correctly. This field must match the value of the sending VistA system. In addition, verify that INCOMING and OUTGOING HL7 filers are running on the workstation.

I don't see the message queue increase for my HL7 link when I run the 'Initialize Workstation" option or during activity on the VistA side?

The following two places need to be checked:

Make sure the Link is enabled on the VistA side. HL7 Main Menu [HL MAIN MENU] option. Make sure the Workstation Link is associated to the correct division or Default parameter. [PSB BCBU LINK ASSOCIATIONS] option.

I'm able to start TaskMan up with the Taskman_start script, but I notice that the HL7 link
**jobs do not start. What could be the problem?**

Linux requires root privs to start listener jobs on TCPIP ports. TaskMan needs to be started by the root user so its submanagers (which start the listener) can have those privs as well. To do this, login as the BCMA Manager the issue the command "su –m" and enter the root password. Once you're logged in as root, start TaskMan by issuing the command "/taskman_start". The HL7 link manager and the listener link should start automatically. **Note:** Netmail startup has root requirements as well.

**Running the netmail_start script does not start netmail. What could be the problem?**

Linux requires root privs to start listener jobs on TCPIP ports. To start up the network mail listener job, log in as the BCMA Manager, then issue the command "su –m" and enter the root password. Once you're logged in as root, start network mail by issuing the command "/netmail_start". **Note:** HL7 links have root requirements as well.

**How can I verify the TCPIP listening jobs on Linux?**

As root, issue the "netstat –tlp" command. This will provide information similar to the following:

<table>
<thead>
<tr>
<th>Proto</th>
<th>Recv-Q</th>
<th>Send-Q</th>
<th>Local Address</th>
<th>Foreign Address</th>
<th>State</th>
<th>PID/Program name</th>
</tr>
</thead>
<tbody>
<tr>
<td>tcp</td>
<td>0</td>
<td>0</td>
<td>*:32768</td>
<td><em>:</em></td>
<td>LISTEN</td>
<td>523/rpc.statd</td>
</tr>
<tr>
<td>tcp</td>
<td>0</td>
<td>0</td>
<td>BMA.med.va.gov:32769</td>
<td><em>:</em></td>
<td>LISTEN</td>
<td>628/xinetd</td>
</tr>
<tr>
<td>tcp</td>
<td>0</td>
<td>0</td>
<td>*:printer</td>
<td><em>:</em></td>
<td>LISTEN</td>
<td>658/lpd Waiting</td>
</tr>
<tr>
<td>tcp</td>
<td>0</td>
<td>0</td>
<td>*:sunrpc</td>
<td><em>:</em></td>
<td>LISTEN</td>
<td>504/portmap</td>
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<tr>
<td>tcp</td>
<td>0</td>
<td>0</td>
<td>*:10000</td>
<td><em>:</em></td>
<td>LISTEN</td>
<td>1174/mumps</td>
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<td>tcp</td>
<td>0</td>
<td>0</td>
<td>*:5904</td>
<td><em>:</em></td>
<td>LISTEN</td>
<td>13884/Xvnc</td>
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<td>tcp</td>
<td>0</td>
<td>0</td>
<td>*:x11</td>
<td><em>:</em></td>
<td>LISTEN</td>
<td>813/X</td>
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<tr>
<td>tcp</td>
<td>0</td>
<td>0</td>
<td>*:ftp</td>
<td><em>:</em></td>
<td>LISTEN</td>
<td>628/xinetd</td>
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<tr>
<td>tcp</td>
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<td>0</td>
<td>*:ssh</td>
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<td>LISTEN</td>
<td>614/sshd</td>
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<td>*:telnet</td>
<td><em>:</em></td>
<td>LISTEN</td>
<td>628/xinetd</td>
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<td>0</td>
<td>*:smtp</td>
<td><em>:</em></td>
<td>LISTEN</td>
<td>1390/mumps</td>
</tr>
</tbody>
</table>

Ports of primary interest are 10000 (HL7 listener link) and SMTP (port 25-netmail).

To see the numeric ports for common TCPIP protocols, issue the "netstat –tlp – numeric" command.

**What is the best way to shut GT.M down?**

$HOME of the BCMA manager account contains the script zgstop. This script is customized to shut down the BCMA configuration cleanly and run the GT.M database down (to ensure database integrity). To use this script properly, it must be run as root (the BCMA manager will not be able to shutdown HL7 link, netmail, and TaskMan jobs started as root - this will prevent the database to rundown properly). To do this, login as the BCMA manager then issue the command "su -m" and enter the root password. Once you're logged in as root, issue the command './zgstop'.

**How do I start GT.M up?**

There is no single GT.M daemon. This means that each GT.M process 'starts' GT.M for itself. GT.M processes (TaskMan, netmail, HL7 jobs) should start automatically with a system reboot provided the /etc/init.d/gtm script was enabled when BCMA was installed using the install_bcma
From within GT.M, how can I view system status (like when I D ^%SS in Cache)?

GT.M does not provide a utility of its own to provide this functionality. However, SD&D have provided the ^ZSY routine to accomplish this. As with other BCMA tasks, it is best to run this as the root user; otherwise, not all process information will be accessible. To do this, login as the BCMA manager, then issue the command "su -m" and enter the root password. Drop into GT.M, issue the ZSY command as follows, and select the type of display desired.

```
GTM>D ^ZSY
1 pid
2 cpu time
3 image/pid
4 image/cpu
1// 1
INTRPT issued to process 1409
INTRPT issued to process 1148
INTRPT issued to process 1390
INTRPT issued to process 1315
INTRPT issued to process 1307
INTRPT issued to process 1295
INTRPT issued to process 1291
INTRPT issued to process 1239
INTRPT issued to process 1229
INTRPT issued to process 1222
INTRPT issued to process 1222
INTRPT issued to process 1222
INTRPT issued to process 1222
INTRPT issued to process 1213
INTRPT issued to process 1189
INTRPT issued to process 1179
INTRPT issued to process 1177
INTRPT issued to process 1174
INTRPT issued to process 1174
INTRPT issued to process 1157
INTRPT issued to process 1145
```

**System Status for GT/M**

<table>
<thead>
<tr>
<th>Proc. id</th>
<th>Proc. name</th>
<th>PS</th>
<th>Terminal</th>
<th>Routine</th>
<th>Mode</th>
<th>CPU time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1145</td>
<td>TaskMan VISTA</td>
<td>S</td>
<td>?</td>
<td>IDLE+1^%ZTM</td>
<td>-direct</td>
<td></td>
</tr>
<tr>
<td>1148</td>
<td></td>
<td>S</td>
<td>pts/2</td>
<td>LOOP+3^HLCSLM</td>
<td>-direct</td>
<td></td>
</tr>
<tr>
<td>1157</td>
<td>HLmgr:538</td>
<td>S</td>
<td>?</td>
<td>SUB+1^%ZTMS1</td>
<td>-direct</td>
<td></td>
</tr>
<tr>
<td>1174</td>
<td>HLSrv:182</td>
<td>S</td>
<td>?</td>
<td>STARTIN+17^HLCSIN</td>
<td>-direct</td>
<td></td>
</tr>
<tr>
<td>1177</td>
<td>BTask 546</td>
<td>S</td>
<td>?</td>
<td>STARTIN+17^HLCSIN</td>
<td>-direct</td>
<td></td>
</tr>
<tr>
<td>1179</td>
<td>BTask 545</td>
<td>S</td>
<td>?</td>
<td>STARTOUT+16^HLCSOUT</td>
<td>-direct</td>
<td></td>
</tr>
<tr>
<td>1213</td>
<td>BTask 547</td>
<td>S</td>
<td>?</td>
<td>STARTOUT+16^HLCSOUT</td>
<td>-direct</td>
<td></td>
</tr>
<tr>
<td>1216</td>
<td>BTask 548</td>
<td>S</td>
<td>?</td>
<td>STARTIN+17^HLCSIN</td>
<td>-direct</td>
<td></td>
</tr>
<tr>
<td>1222</td>
<td>BTask 550</td>
<td>S</td>
<td>?</td>
<td>STARTIN+17^HLCSIN</td>
<td>-direct</td>
<td></td>
</tr>
</tbody>
</table>
I'm getting <RECOMPILE> errors when working on the Caché system.

If you are getting this error, the routines need to be recompiled on the workstation. There are two different methods you can use to accomplish this:

**CHUI**

1. Get to the programmer prompt on the workstation.
2. D ^%RCOMPIL
3. At the routine selection prompt, select %*, press Enter.
4. Repeat the D ^%RCOMPIL command and select * at the routine selection prompt.

**GUI**

1. Right-click on the Cache cube and select Explorer.
2. On the left side of the screen expand VistA under the Local Databases, select routines.
3. In the routine selection box, enter %*
4. From the Edit menu, click on Select All.
5. In the Contents screen on the right, right-click, then click Advanced/Compile.
6. Repeat steps 3-5, selecting * in the routine selection.