May 2008

This distribution contains change pages for patch MD*1.0*6 of the Clinical Procedures 1.0 Implementation Guide.

The change pages for CP Patch 4 and CP Patch 14 should be inserted before the change pages for CP Patch 6:

File Name:	Patch:
MD_1_P4_IMPG.PDF	MD*1.0*4
MD_1_P14_IMPG.PDF	MD*1.0*14

Patch MD*1.0*6 pages:

Replace Pages:	With Pages:
Title page	Title page
Revision History	Revision History
Table of Contents	Table of Contents
1-9 to 1-12	1-9 to 1-12
6-3 to 6-6	6-3 to 6-6
6-11 to 6-30	6-11 to 6-30
11-1 to 11-12	11-1 to 11-12
13-3 to 13-4	13-3 to 13-4
14-3 to 14-6	14-3 to 14-6
16-1 to 16-6	16-1 to 16-6
17-1 to 17-2	17-1 to 17-2
	18-1 to 18-12
Index	Index

Note: A new chapter "Appendix D – Exported Values For Hemodialysis Options" was added before the Index, which was Chapter 18. The Index is now Chapter 19.

CLINICAL PROCEDURES
IMPLEMENTATION GUIDE

Version 1.0

April 2004

Revised May 2008

Department of Veterans Affairs
Health Systems Design and Development
Provider Systems

Revision History

Description	Date	Technical Writer
Originally released.	April 2004	
[1]Patch MD*1.0*4 released.	September 2006	Alfred Bustamante
[2]Patch MD*1.0*9 released November 2007. Update Setting up HL7 Parameter for port 5000 with CACHE.	February 2008	Shirley Ackerman
[3] Patch MD*1.0*14 released. Updated Setting Up Consults for Clinical Procedures, Exported XPAR Kernel Parameters, add new section called Scheduled Options. Added information about launching CP Gateway under the section Working with CP Gateway.	March 2008	Shirley Ackerman, Alfred Bustamante
[4]Patch MD*1.0*6 released. Updated MD namespace Clinical Procedures file list and CP Class Upload Header output display, added TIU prompts for adding new TIU Note Titles, added instrument warning for automated instruments, added Processing Application field, changed wording for Count/Non-count clinics, added new Exported Kernel XPAR parameters and screen capture, revised "Setting Up HL7 Parameters chapter for clarity, updated list of Instrument Processing Routines, added Appendix D – Exported Values For Hemodialysis Options.	May 2008	Alfred Bustamante

[1] Patch MD*1.0*4 September 2006 Patch 4 release added.
[2] Patch MD*1.0*9 November 2007 Patch 9 release added.
[3] Patch MD*1.0*14 March 2008 Patch 14 release added.
[4] Patch MD*1.0*6 May 2008 Patch 6 release added.

Table of Contents

Related Manuals

Here is a list of related manuals that you may find helpful:

Clinical Procedures Installation Guide
Clinical Procedures Technical Manual and Package Security Guide
Clinical Procedures User Manual
Clinical Procedures Release Notes
CPRS User Guide: GUI Version
CPRS Setup Guide
Consult/Request Tracking User Manual
Consult/Request Tracking Technical Manual
Text Integration Utilities (TIU) Implementation Guide
Text Integration Utilities (TIU) User Manual
VistA Imaging System (Clinical) User Manual

These manuals can be found in the VistA Documentation Library (VDL), http://www.va.gov./vdl. Select **Clinical** from the VDL web page, select the package you want, and then select the manuals. For example, you can select CPRS on the left side of the page. The list of CPRS manuals is displayed.

[1] You may also want to read the CP Implementation Process (Webpage), which is available on the CP website. Go to http://vista.med.va.gov/ClinicalSpecialties/clinproc/.
Point to **Clinical Procedures Project,** then click **Documentation.** When the Documentation page displays, click **Clinical Procedures Documents,** then click **The CP Implementation Process (Webpage).** This list includes a high-level step-by-step guide to the installation and the implementation process.

[1] MD*1.0*6 May 2008 Changed document name from "Site Installation Checklist" to "The CP Implementation Process (Webpage)." Revised directions to access the document.

General CP Package Information

1. Name spacing and file listing.

Clinical Procedures is found in the MD namespace. All routines, templates and options begin with MD. File numbers range from 702 to 704 and are stored in the ^MDD and ^MDS globals. The range of 704.201 to 704.209 is stored in the ^MDK global. Here is a list of the Clinical Procedures files:

#702	CP Transaction
#702.01	CP Definition
#702.09	CP Instrument
#703.1	CP Result Report
[1]#703.9	CP Conversion File
#704.201	Hemodialysis Access Points File
#704.202	Hemodialysis Study File
#704.209	Hemodialysis Setting File

2. Queuing TaskMan jobs.

Queued TaskMan jobs are not associated with this application.

3. Accessing modules.

- Assign the option [MD GUI USER] to the clinical staff, who need access to CP User.
- Assign the option [MD GUI MANAGER] to the Clinical Application Coordinator, CP package coordinator, and Information Resource Management Service (IRMS) staff for access to CP Manager.
- Assign the MD MANAGER key to the Clinical Application Coordinator or the CP Package Coordinator. This key controls access to the Update Study Status menu option that allows clinicians to fix study errors. This key also controls access to the Delete Study option.
- Assign the MAGCAP CP user security key to technicians, who will be using VistA Imaging to capture a consent form and link it to a CP study or TIU document.

4. Printer issues.

All reports are printed to Client (Windows) printers.

5. Online Help.

[1] Patch MD*1.0*6 May 2008 Files added.

Online help is available when questions arise. Click Help or choose Help from the menu bar. You can also press F1 for help on a specific window.

6. Automatic Version Updates.

CP applications (client and server) do not contain automatic update capabilities. You must remove the previous version before you can install the new version.

7. Command line switches.

For alternate methods of running Clinical Procedures, refer to Appendix A - CP Application Startup Options and Command Line Switches, p. 9-7.

Resource Requirements

- Clinical Procedures can only run at sites that are running VistA Imaging V. 3.0.
- Workstations must run Windows 2000 or later. 12 MB of available disc space is required.

  VistA Server resources:

Globals	Type of Data	Size
^MDS	Static global	25 k
^MDD	Patient data for the Clinical Procedures	25-75 k/patient
^MDK	Hemodialysis Studies	25-75 k/patient

  NOTE: These globals must all be journalled.

Hospital Location File Requirement (Implementing Workload Reporting)

Be sure that the hospital location entry (Hospital Location #44 file) for each CP procedure contains the correct Institution field entry. The Hospital Location is used for workload reporting. (The Institution field tells VistA Imaging where to store the images on the server. If there is no Institution field, CP defaults to the institution of the user who logged on to CP Gateway.)

VistA Imaging

Providers at a site must use the VistA Imaging Display client to view CP results and reports. Be sure that VistA Imaging V.3.0 or greater and Patch 7 of Imaging V.3.0 (MAG*3.0*7) are installed.

In most cases, you edit an existing automated instrument. The Mallinckrodt Clinivision, Olympus Endoworks, GE Medical Systems Muse and Viasys/Sensormedics Vmax automated device interfaces are exported with Clinical Procedures. You must edit all the automated instruments that you want to implement with necessary information.

Editing an Automated Instrument

The following list of fields applies to automated instruments:

* indicates fields that must be filled in for an active instrument to work properly.

BOLD indicates fields that are already populated when an automated instrument is exported.

∗ **Instrument Name**
∗ **Printable Name**
Description
∗ **M Routine**
∗ **Pkg. Code**
∗ **Valid Attachment Types**

If Bi-Directional Instrument is checked:

∗**HL7 Inst ID**
∗**HL7 Link**

∗ Notification Mailgroup
∗ Active
Serial Number (Optional)
Delete When Submitted (Optional)
Default Extension (Optional)
IP Address (Optional)
Port (Optional)
HL7 Unv Svc ID (Optional)
Server Name (Optional)
Share Name (Optional)
Path Name (Optional)
Executable Name (Optional)

To edit an automated instrument:

1. View the list of automated instruments. See Figure 6-2.

2. Click on an automated instrument. The edit screen is displayed on the right side of the Clinical Procedures Manager window.

3. Enter the fields that apply to the instrument you selected.

4. Click **Save** when you are done.

5. Click **Print** if you want to print an Automated Instrument report. See Printing Reports, p. 2-4.

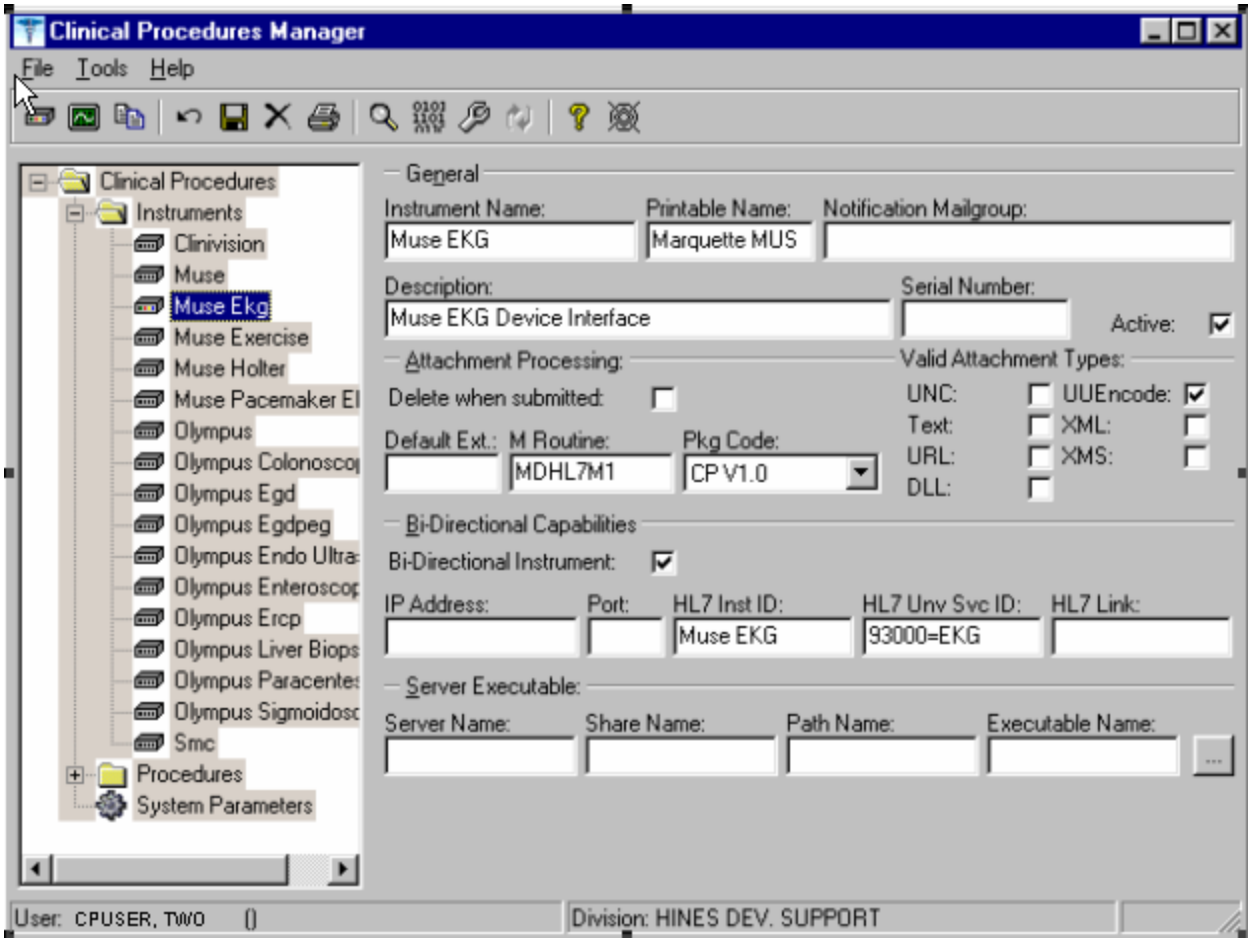


Figure 6-2

Here is a list of fields for automated instruments.

General: This section contains general information about the instrument.

Instrument Name: If you are editing an instrument, the name is filled in.

Note: This field must be filled in for an active instrument to work properly.
If you are adding a new instrument that is already supported by CP, do one of the following:

- If the device is bi-directional, you can enter a name of your own choice (3-30 characters), such as Muse EKG (Tampa). The name does not have to be the vendor's name.
- If the device is uni-directional, you need to enter a CP defined name. In this case, you can contact TSO or NVS for the correct instrument name.

If you are adding a new instrument (bi-directional or uni-directional) that is not supported by CP, then you must enter a NOIS/Remedy help ticket. Keep in mind that adding unsupported instruments is a complex task and may cause some image quality problems.

Printable Name: Enter a name for the instrument report (3 to 30 characters). You can use the same name as the instrument name. This name is used as the printable name on reports. Must be filled in for an active instrument to work properly.

Notification Mailgroup: Enter the name of a local VistA mailgroup that contains a list of people, who will be notified if a problem arises with this automated instrument.

CP also exports a mailgroup called "MD DEVICE ERRORS" that can be used to populate this field. Enter MD and the field fills in with "MD DEVICE ERRORS'. The coordinator of this group is assigned during package installation. Must be filled in for an active instrument to work properly.

Description: Enter a description of the automated instrument (1-50 characters). Optional.

Serial Number: Enter the serial number of the automated instrument (1-50 characters). The serial number is used for documentation purposes. Optional.

Active: Select this option if you want to make the instrument active and able to transmit results. Do not select if the package coordinator wants to prevent data from a specific automated instrument from being processed. A package coordinator may want to enter the basic information for an automated instrument and not make it active. Must be selected to make this instrument active.

Attachment Processing: This section contains information about attachments.

Delete when Submitted: Select this option if the medical center does not want to store a duplicate report outside of Imaging, or if the vendor wants to delete files because of storage issues. The vendor determines whether or not the report files can be deleted. This information is found in the vendor's setup instructions. Optional.

Default Ext.: Enter a default file extension that is exported by the vendor, such as .html, .jpg, and .pdf. This information should be obtained from the vendor or will be exported with future patches. Optional.

M Routine: Indicates the M routine used to process the HL7 message from the automated instrument (1-8 characters). Enter an M routine if the site is entering a new device. The routine must have a namespace of MDHL7* for any nationally released interfaces. This field also is automatically populated when an instrument interface patch is installed. If a local M routine is developed, use the local namespace. Refer to Appendix C – Instrument Processing Routines, p. 17-1, for a list of appropriate M routines for each instrument. Must be filled in for an active instrument to work properly.

Pkg. Code: Indicates which package is to process the instrument results. Must be filled in for an active instrument to work properly.

Medicine:	Select if your study data is stored in the Medicine package. If a site is currently running Medicine and has an instrument used for Medicine, you can send the result to Medicine by selecting this field.
CP V1.0	Select if your study data is stored as a final report (in the format of an Imaging document) in Clinical Procedures.

Valid Attachment Types: Data types let CP know what kind of data output to expect from the automated instrument so that the data can be processed by the interface routines. The vendor setup instructions provide this information, or Clinical Procedures automatically exports this information. Must be filled in for an active instrument to work properly.

Here is a list of valid attachment types:

UNC (**U**niversal **N**aming **C**onvention or **U**niform **N**aming **C**onvention) - A PC format for specifying the location of resources on a local-area network (LAN).

UUENCODE (**U**nix-to-**U**nix **ENCODE**) - A set of algorithms for converting files into a set of ASCII characters that can be transmitted over a network.

Text - Text stored as ASCII codes.

XML (e**X**tensible **M**arkup **L**anguage) - A specification developed by the World Wide Web Consortium (W3C), the organization that sets standards for the web. XML is a pared-down version of SGML. Designed especially for Web documents.

URL (**U**niform **R**esource **L**ocator) - The global address of documents and other resources on the World Wide Web.

XMS - An XML Style Sheet.

DLL (**D**ynamic **L**ink **L**ibrary) - A library of executable functions or data that can be used by a Windows application.

Using the Instrument Analyzer

Use the Instrument Analyzer to see if an automated instrument is ready to use with CP.

1. Select **Tools > Instrument Analyzer**.
2. Select the instrument that you want to analyze. Click **Analyze**. A window similar to Figure 6-6 is displayed. This window indicates the ready status of the instrument and lists other information as well.

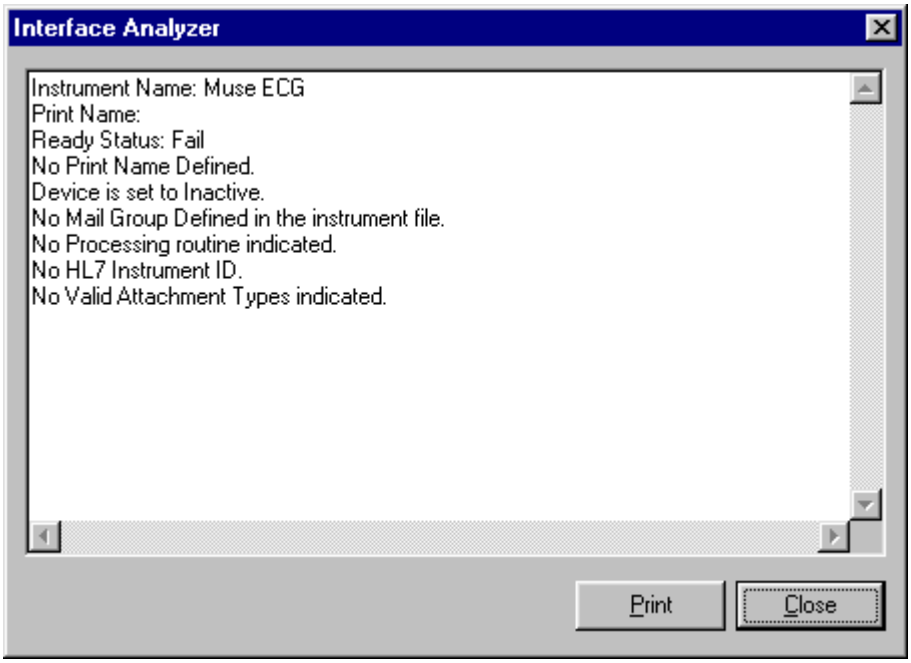


Figure 6-6

- Ready Status - Pass or Fail. If the Ready Status is Fail, a list of missing fields for that automated instrument is displayed.
- If an Imaging share directory has not been configured, the following message is displayed "No Imaging Share indicated in the System Parameters."
- If the M Routine (processing routine) is not in the MD or MC namespace, a warning is displayed indicating that the M Routine is not in the package namespace.

3. Click **Print** or **Close**.

Step 3 – Setting Up Procedures

Information on procedures is **not complete** after populating the CP Definition file. **You must go into CP Manager and enter the necessary fields before the package will work successfully.**

If the INIT^MDPOST routine was run, a limited number of exported procedures are stored in a subfolder called Unassigned within the Procedures folder. If the INIT^MDPOST routine was not run, then you need to add new procedures. Since all procedures are initially inactive, you need to activate existing procedures and associate them with treating specialties.

Editing a Procedure

If the procedures have been exported, then you can edit them as needed. Using CP Manager, you must move each procedure that you want to activate from the Unassigned folder to a treating specialty folder.

- Double-click the procedure. Now you can edit the procedure, complete the necessary fields, and make the procedure active.

- To activate the procedure, be sure to select the Active field, and then fill in the following fields to ensure that the procedure works properly

  Treating Specialty
  TIU Note Title
  Hospital Location

To edit a procedure:

1. View the list of procedures. See Figure 6-7.

2. Click a procedure name. The edit screen is displayed on the right side of the Clinical Procedures Manager window.

3. Enter the fields as applicable.

   [1]**Note:** Make sure to set the Processing Application field to **HEMODIALYSIS** for Hemodialysis procedures.

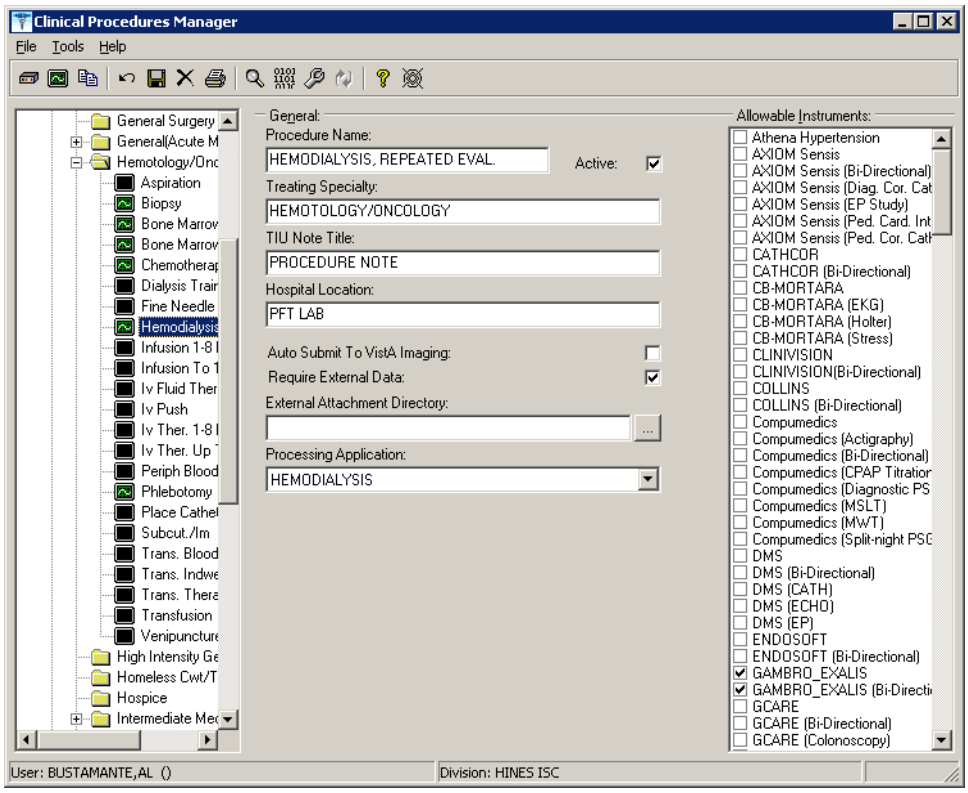
4. Click **Save** when you are done.

[1] Patch MD*1.0*6 May 2008 Processing Application field added.

5. If you selected a different treating specialty folder, a confirmation message is displayed. Click **OK** to confirm that the procedure is in the correct treating specialty folder.

6. Click **Print** if you want to print a Procedure report. See Printing Reports, p. 2-4.

Note: A procedure can only be deleted through the main menu bar. Refer to the section Deleting an Automated Instrument or Procedure, p. 2-3, for more information. If a procedure has been assigned through Consults, it cannot be deleted.



[1]Figure 6-7

Here is a list of fields for Procedures.

General: This section contains general information about the procedure.

Procedure Name: Enter a name used to uniquely identify the procedure (3-30 characters). It is recommended that you enter the name in uppercase, such as PACEMAKER FOLLOWUP.

After you complete the edits, if you entered the name in upper case, the procedure name that you just entered is displayed in title case, Pacemaker Followup, (the first letter of every word is capitalized), in the left side of the CP Manager window. See Figure 6-6.

[1] Patch MD*1.0*6 May 2008 Processing Application field added.

Active: Select if you want the procedure to be mapped to Consults. Only active procedures can be selected and linked to the Consults package. Be sure to fill in the Treating Specialty, TIU Note Title, and Hospital Locations fields. Do not select if you do not want procedures to display. Must be selected to make this procedure active.

Treating Specialty: Enter at least two letters of a treating specialty, such as CA for CARDIOLOGY, and then click the down arrow to select an appropriate match from the list. This list comes from the Treating Specialty (#45.7) file. Must be filled in for an active procedure to work properly.

TIU Note Title: Enter at least two letters of a TIU Note Title, such as CP CARD for CP CARDIOLOGY NOTE or CARD for CARDIOLOGY, and then click the down arrow to select an appropriate match from the list, which comes from the 8925.1 file. This title must be in the CLINICAL PROCEDURES CLASS. Must be filled in for an active procedure to work properly.

[1]**Hospital Location**: Enter at least two letters of a hospital location, such as CA for Cardiac Clinic, and then click the down arrow to select an appropriate match from the list, which comes from the #44 file. The Hospital Location file is the location where the workload credit for the procedure is tracked and is needed so CPRS can display the appropriate encounter form when prompted. Must be filled in for an active procedure to work properly.

You can enter a COUNT or NON-COUNT clinic for the hospital location.

- A COUNT clinic captures workload. Patients must be checked in and checked out and an encounter form must be completed in order to collect workload.
- A NON-COUNT clinic is used only for scheduling purposes and not for workload reporting.

There are three options available for setting up your clinics. The appropriate option for your site depends on how you currently do business and should be discussed with your project implementation manager.

- COUNT clinic for scheduling purposes / NON-COUNT clinic for CP User. Patient must be checked in/out and encounter form completed on the scheduled appointment. CP User appointment will not collect workload.
- NON-COUNT clinic for scheduling purposes / COUNT clinic for CP User. Appointment in scheduling package does not need to be checked in/out, nor does an encounter form need to be completed for the appointment. The check in/out and encounter form must be completed for the appointment created through CP User.

[1] Patch MD*1.0*4 September 2006 Wording for Count/Non-count clinic modified.

- COUNT clinic for scheduling purposes that passes over to CP User. Patient must be checked in/out and encounter form must be completed. Note, however, that if you use Appointment Manager to check in the patient, you may have to wait up to thirty minutes before you can check-in the patient to CP. During the thirty-minute timeframe, the Patient Care Encounter (PCE) application establishes the visit date. (If you use the Scheduling application to capture workload, make sure that the clinic location is the same as the default location in the Hospital Location field.)

Auto Submit to VistA Imaging: Select if a procedure is processed by a bi-directional instrument and additional data does not need to be matched. The study is automatically submitted to V*IST*A Imaging. If this field is not selected, the study will be in the Ready to Complete status. Optional.

Require External Data: Select if you want this procedure to allow external attachments. For example, you might want to attach an independent report from a VA or non-VA health care facility. If you want to manually select external attachments, you must select this field.

Be sure the **Allow Non-Instrument Attachments** checkbox is selected in **CP Manager > System Parameters**. There is no default for this field.

External Attachment Directory: If you select Require External Data, enter the path where the data is located, or browse to locate a directory (3-150 characters). There is no default on this field. You can locate any directory on the LAN. This is the directory that CP User accesses to find attachments. This directory must be a network share directory that the VistA Imaging Background Processor can access.

[1]**Processing Application:** Set the Processing Application field to HEMODIALYSIS for Hemodialysis procedures. Any other CP procedures will default to the Default setting, so you do NOT need to set the field.

Allowable Instruments: Select each automated instrument that provides results for this procedure. You can select more than one instrument for a procedure. If you only want to use external attachments, do not select any instruments.

You can select both **Allowable** Instruments and **Require External Data**. For example, you can have a pathology report from an endoscopy and you can attach the report to the procedure.

[1] Patch MD*1.0*6 May 2008 Processing Application field added.

Adding a Procedure

Before you add a procedure, you can check to see if an appropriated titled procedure already exists that meets your needs. To view the names of procedures, select Procedures and then the appropriate treating specialty folder. A list of procedures is displayed. See Figure 6-8.

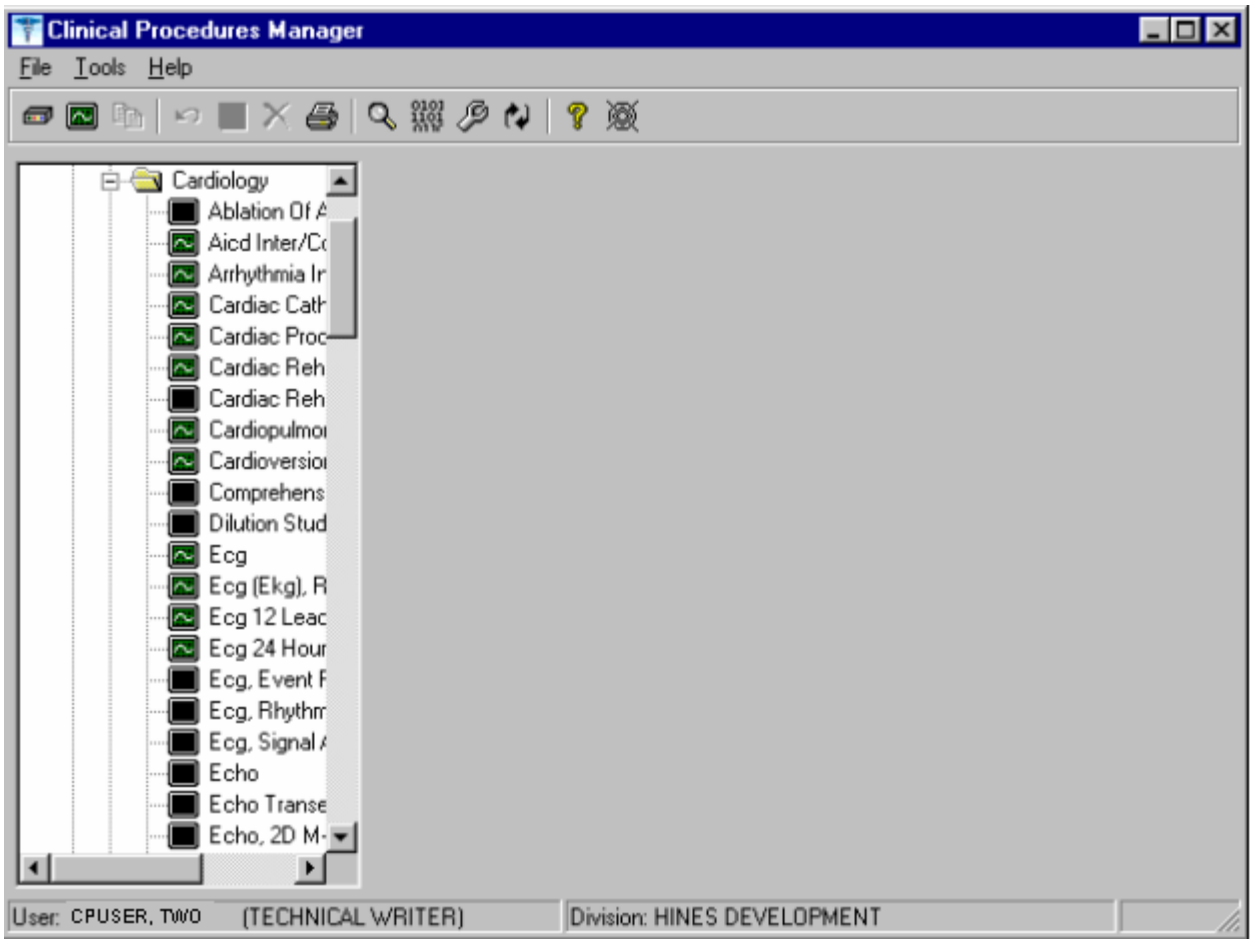


Figure 6-8

- Identifies an active procedure
- Identifies a inactive procedure

If you decide that you do need to add a procedure, follow these instructions:

1. Select **File > New > Procedure**.

2. Enter the name of the procedure that you want to add. It is recommended that you enter the name in uppercase with a minimum of 3 characters and a maximum of 30 characters.

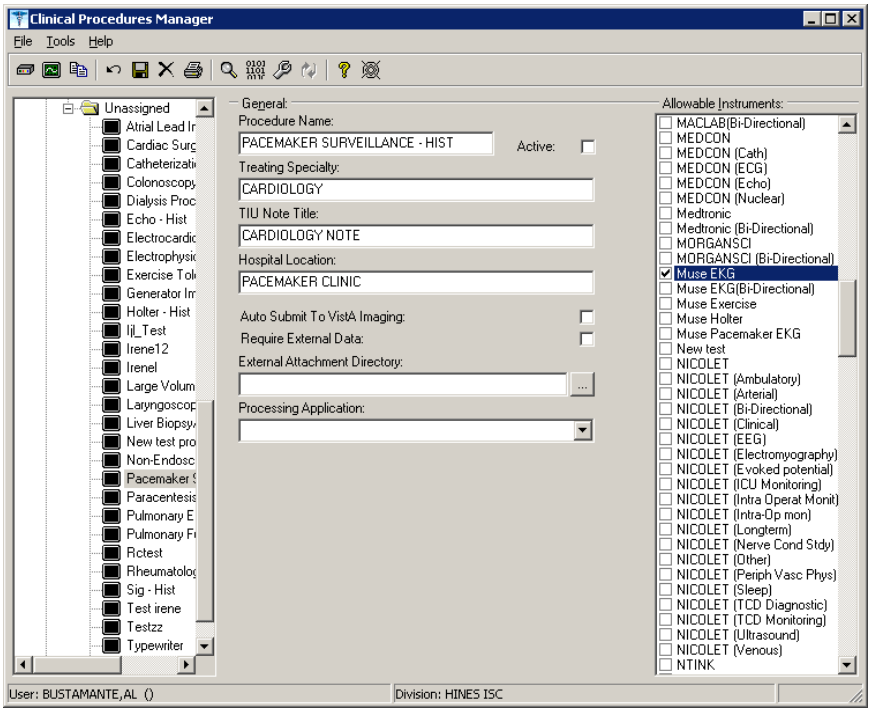
3. Click **OK**. The Edit screen is displayed. Figure 6-9 is the edit screen for procedures. The Procedure Name that you just entered is displayed in the left side of the CP Manager window in the Unassigned folder.

4. Enter data for each field as applicable. Refer to Editing a Procedure, p. 6-12, for detailed field descriptions.

5. Click **Save** when you are done. After you complete the edits, if you entered the name in upper case, the procedure name that you just entered is displayed in title case.

6. Click **OK.** The new procedure appears in the list on the left side of the CP Manager window. Check that the procedure is placed in the correct treating specialty folder.

7. Click **Print** if you want to print a Procedure report. See Printing Reports, p. 2-4.



[1]Figure 6-9

[1] Patch MD*1.0*6 May 2008 Processing Application field added.

Step 4 – Setting Up System Parameters

System parameters are system-wide and affect all procedures and instruments. You must select Clinical Procedure On-Line, and fill in the Imaging Network Share and the VistA Scratch HFS Directory fields for CP to work properly. You can edit the other parameters as required for your site.

Here is a list of the system parameters:

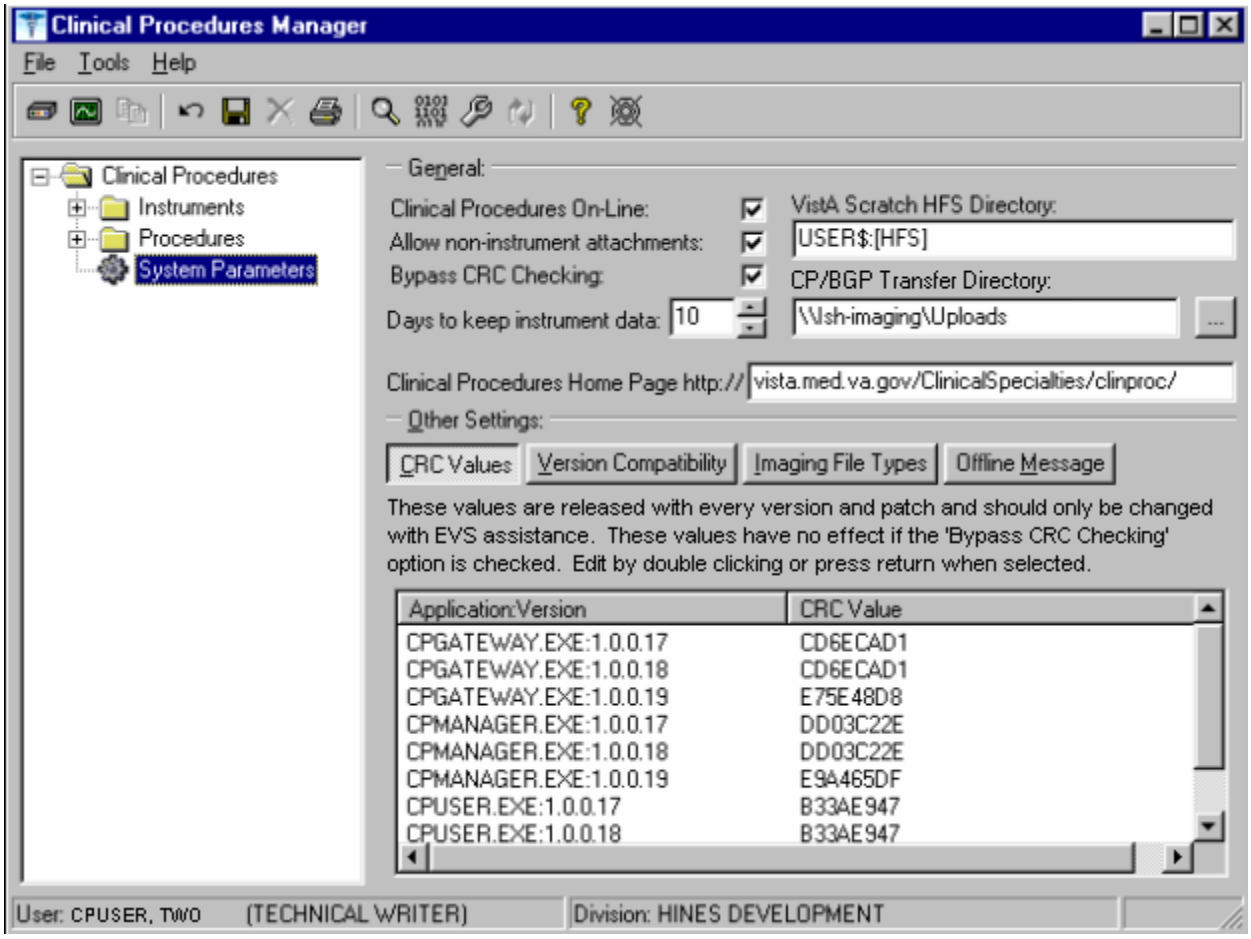
* Indicates fields that must be filled in for CP to work properly.

Allow non-instrument attachments
Bypass CRC Checking
Clinical Procedures Home Page
*Clinical Procedures On-Line
[1]* CP/BGP Transfer Directory
CRC Values
Days to keep instrument data
Imaging File Types
Offline Message
Version Compatibility
* VistA Scratch HFS Directory

[1] Patch MD*1.0*4 September 2006 Imaging Network Share directory name changed to CP/BGP Transfer Directory.

1. Click **System Parameters**, which is displayed under the Clinical Procedures folder. The System Parameters Edit window is displayed. See Figure 6-10.

2. Enter information in the necessary fields and in the optional fields as needed by your site.



[1]**Figure 6-10**

Allow non-instrument attachments

Select if you want to let users attach files from the network to studies. If selected, the +Files icon displays in the Study window in CP User and lets the user select attachments. Indicates if external attachments (documents) are allowed including when an instrument has not created data.

[1] Patch MD*1.0*4 September 2006 Imaging Network Share directory name changed to CP/BGP Transfer Directory.

Be sure to select **Allow non-instrument attachments** if you selected the **Require External Data field** in **CP Manager** for a specific procedure. If you do not select Allow non-instrument attachments, you will not be able to attach files to a procedure.

Bypass CRC Checking

Select if you want to bypass CRC (Cyclical Redundancy Check) during startup. When a CP application starts up, it can check with the server to be sure that the checksum of the application that is running is the same as the checksum of the application that was distributed. If the checksum values do not match, a message displays stating that the values do not match. Even if values don't match, you can continue using CP.

The checksum value is associated with the version number of the software. You might want to bypass this check when your site is running CP in test mode. If you are running different versions of the application, then the checksum values will not match.

Clinical Procedures Home Page

Displays the Clinical Procedures home page and directs the browser to this page when accessed. This parameter is used by the client application in the Help menu when the user selects the option Clinical Procedures on the Web.

Note: The MDPOST routine in the KIDS build sets this field during installation. The data in the parameter is predefined. Do not modify this parameter unless the site is performing local modifications to the client software.

Clinical Procedures On-Line

Must select if you want to use CP User and CP Gateway. If this parameter is not selected, a warning message is displayed. (If a message has been entered into the Offline Message parameter, that message is displayed when the user tries to access CP User.)

This parameter is only effective when the VistA system is functioning and it is useful if you want to restrict access to Clinical Procedures. For example, you can set this field to offline if you are loading a newer version of CP.

CP/BGP Transfer Directory

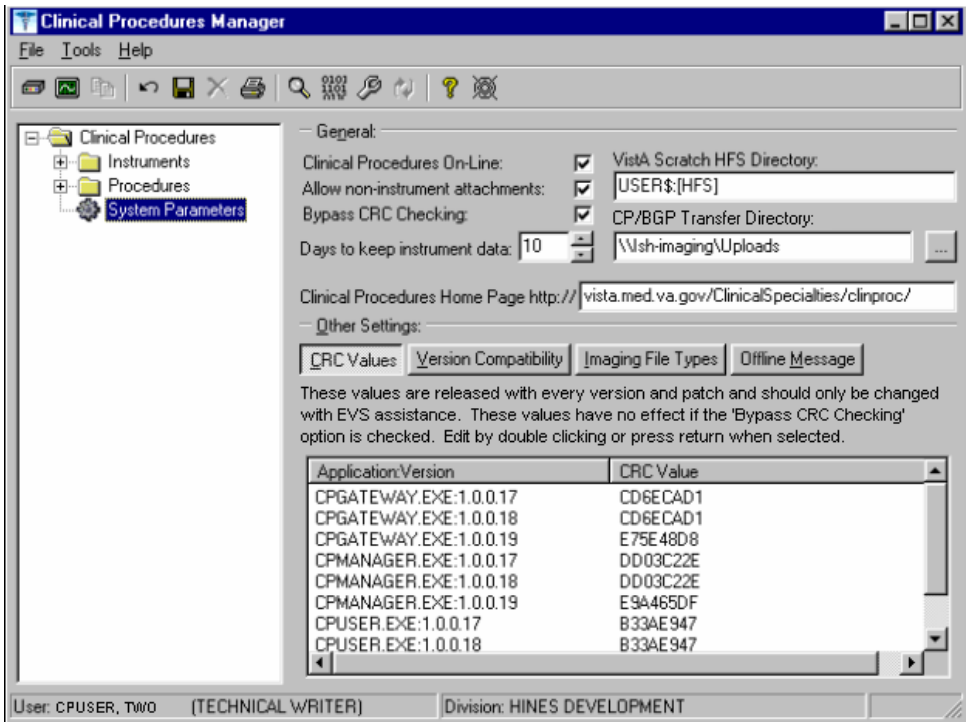
Enter the shared directory that is accessed by the Imaging Background Processor (BGP) and CP Gateway. Reports generated from text need to be placed in a location that can be accessed by the BGP. The Network share must not reside physically on the Imaging RAID. You can also use Browse to select the directory. Must be filled in for CP to work properly.

CRC Values

A site can check that a specific build of the application is running on the client. This level of checking is not mandatory and you can use the Bypass CRC Checking parameter if the site does not want this level of security.

If a site is running more than one version of the application or is testing a new patch, this field can contain multiple entries, (Figure 6-11). Each entry contains the name of the application with extension (no directory path) followed by a colon ':' and the executable version number '#.#.#.#'. Each of these entries contains the CRC value for that particular version of the executable. You can also obtain CRC values for a version of an executable from the About menu or by selecting **CP Manager > Tools > Calculate a File's CRC Value**.

Note: The MDPOST routine in the KIDS build sets this field during installation. The data in the parameter is predefined. Do not modify this parameter unless the site is performing local modifications to the client software



[1]Figure 6-11

[1] Patch MD*1.0*4 September 2006 Imaging Network Share directory name changed to CP/BGP Transfer Directory.

Calculating a File's CRC Value

You can calculate a file's CRC (Cyclical Redundancy Check) value to determine if the file is the exact same file as the one that was distributed. CRC values are recalculated every time an application is compiled.

1. Select **Tools > Calculate a file's CRC Value**.
2. Select the file.
3. You can copy the CRC value and paste it into a text file for reference purposes.

Days to keep instrument data

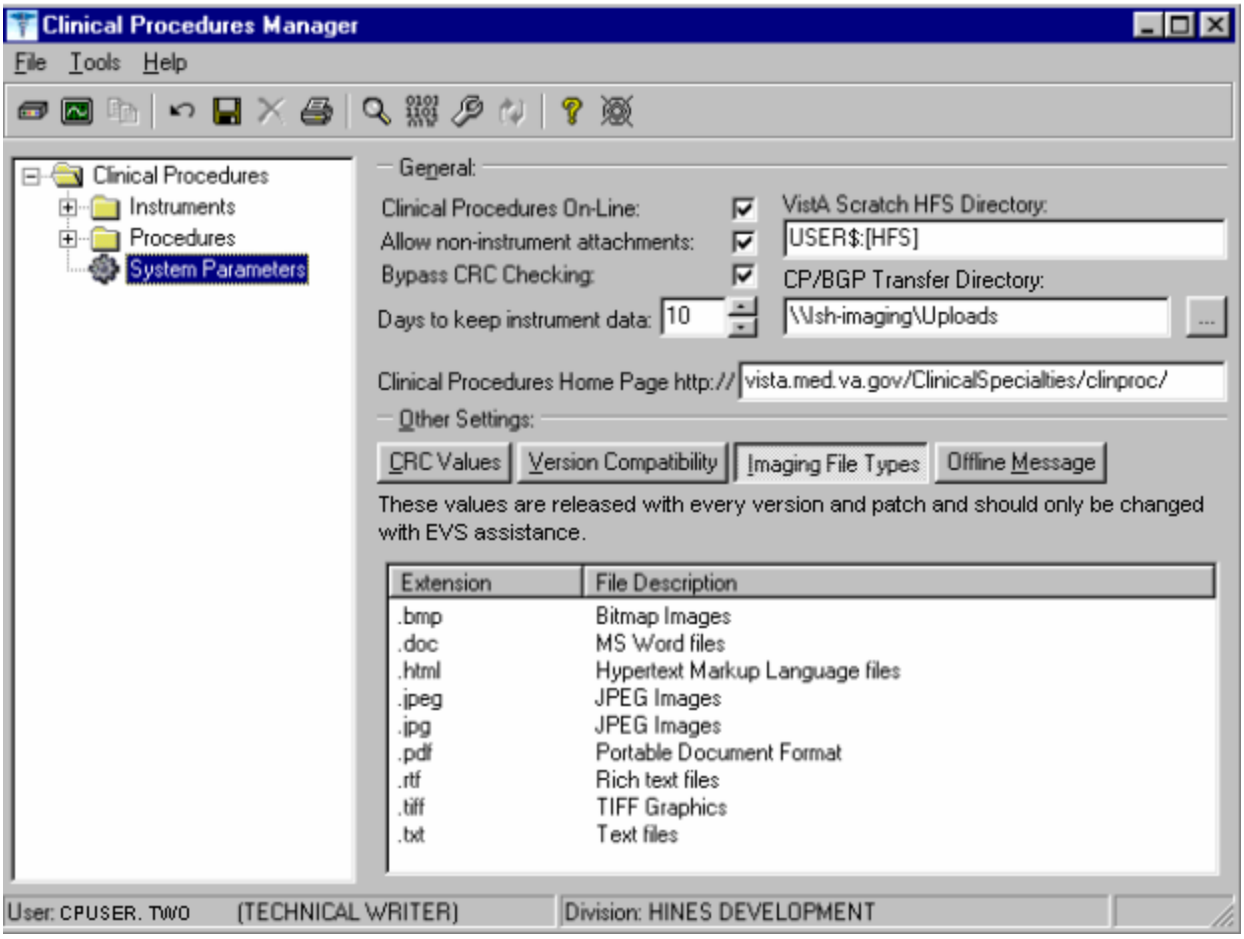
Enter the number of days (0-365) to save data from auto-instruments, after the data has been associated with a Clinical Procedures study. If the data has not been associated with a study, the data is not purged from the temporary storage area. Enter 0 or leave the field empty if you want the data to be retained forever.

Note: CP Gateway purges data daily. This purge only deletes the raw data that comes from the instrument. CP Gateway keeps data for a specified number of days based on the entry in "Days to keep Instrument Data". Data older than this is purged. The data in Item Value field (#.1) and Item Text field (#.2) of the Upload Item multiple in the CP Results file (#703.1) are purged.

Imaging File Types

Verifies that a file type submitted by an instrument or user is acceptable and can be sent to the VistA Imaging RAID. The Open a Study option in CP User uses this system parameter to determine if a file is an acceptable file type, (Figure 6-12).

Note: The MDPOST routine in the KIDS build sets this field during installation. The data in the parameter is predefined. Do not modify this parameter unless the site is performing local modifications to the client software

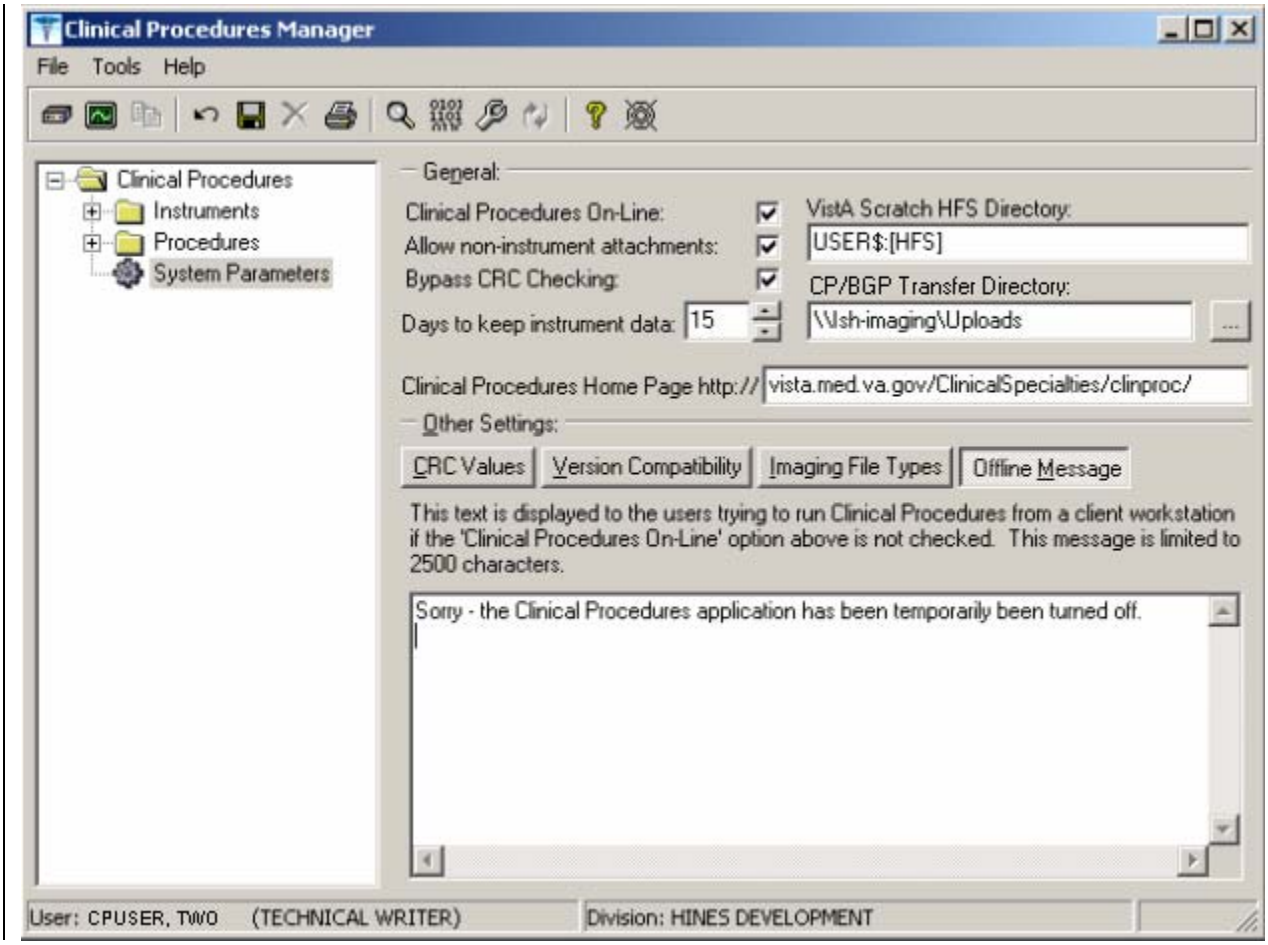


[1]Figure 6-12

[1] Patch MD*1.0*4 September 2006 Imaging Network Share directory name changed to CP/BGP Transfer Directory.

Offline Message

Enter a message that users see when they try to activate CP User and Clinical Procedures is offline. This message only displays when the Clinical Procedures On-line parameter is not checked. See Figure 6-13.



[1]Figure 6-13

Version Compatibility

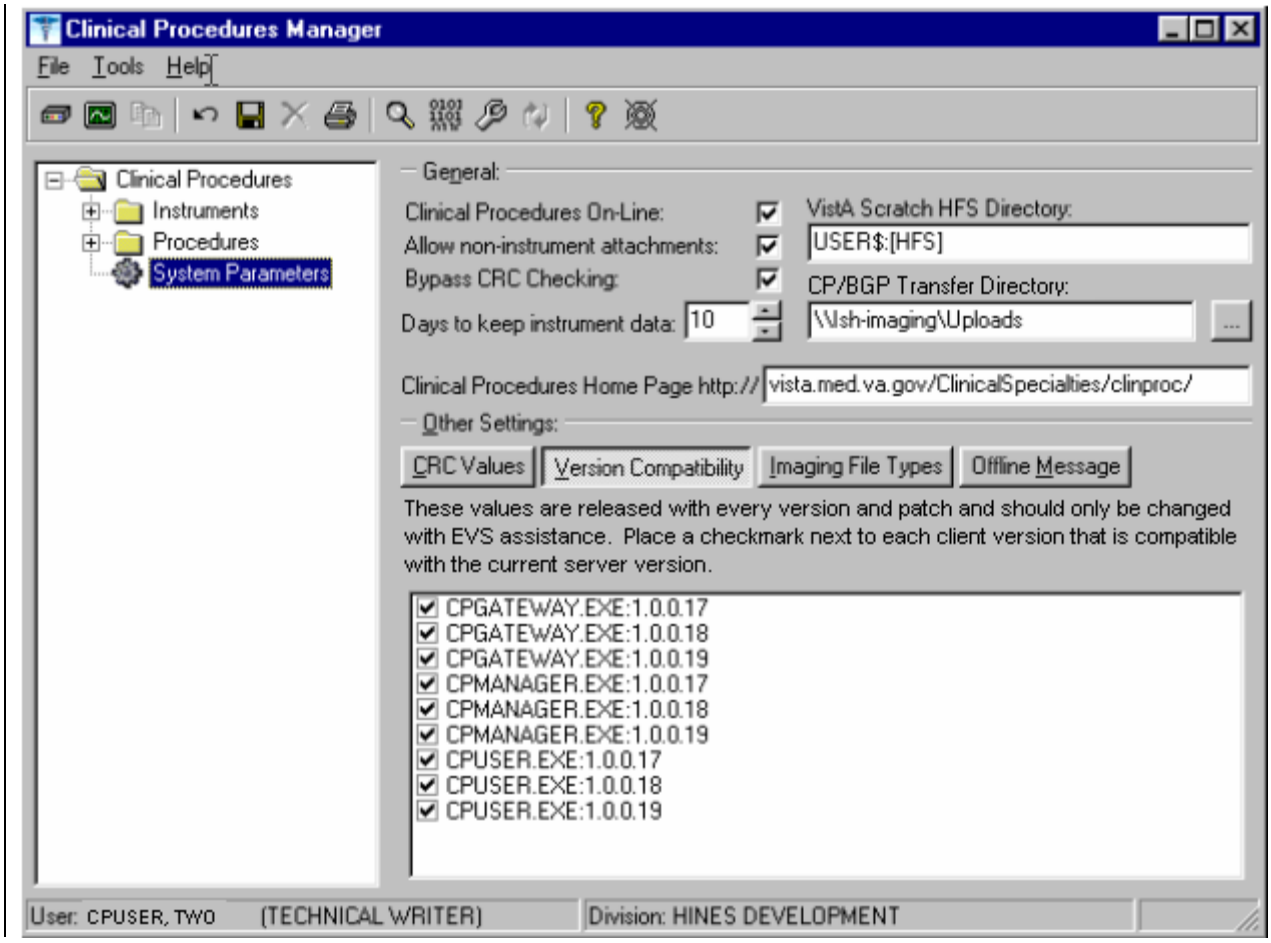
Displays a list of client versions, identified by their executable name and windows file version, which are compatible with the currently running server version. More than one version of the software may be flagged as compatible for backward compatibility. See Figure 6-14.

To check the client version number:

[1] Patch MD*1.0*4 September 2006 Imaging Network Share directory name changed to CP/BGP Transfer Directory.

1. Open **Windows Explorer** and locate the Clinical Procedures folder.
2. Right-click CPGateway.exe, or CPUser.exe., or CPManager.exe.
3. Select **Properties**, and then click the **Version** tab. The version number, such as 1.0.0.17, is displayed.
4. Go back to **CP Manager**. Double-click **Clinical Procedures**, and then click **System Parameters**.
5. In the **Version Compatibility** tab, select each version that is compatible with the current server version, (Figure 6-14).

Note: The MDPOST routine in the KIDS build sets this field during installation. The data in the parameter is predefined. Do not modify this parameter unless the site is performing local modifications to the client software



[1]Figure 6-14

If an executable version is not compatible, the following message is displayed when you try to use a Clinical Procedures application:

[1] Patch MD*1.0*4 September 2006 Imaging Network Share directory name changed to CP/BGP Transfer Directory.

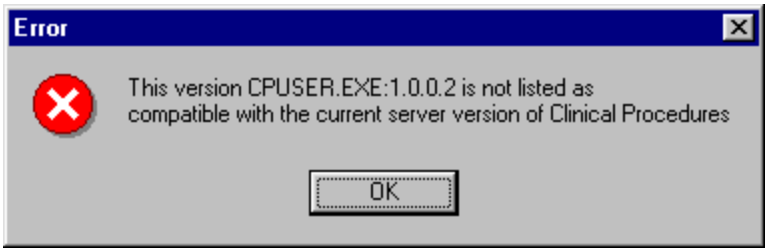


Figure 6-15

If the application is CP Manager, the user is allowed to continue. If the application is CP User, the user needs to contact IRM because the client needs to be upgraded to the current version.

VistA Scratch HFS Directory

Clinical Procedures uses the Host File Server (HFS) functionality in the VA Kernel to create reports. VistA broker processes require full read, write, and delete access to this directory. (Check with IRM about this directory.) If this directory is not filled in, CP tries to use the broker environment directory. Must be filled in for CP to work properly.

[1]Step 5 – Exported Kernel XPAR Parameters

Exported Kernel XPAR Parameters for Patch MD*1.0*14

There are four Kernel XAR Parameters exported with patch MD*1*14.

- MD CHECK-IN PROCEDURE LIST
- MD CLINIC QUICK LIST
- MD CLINICS WITH MULT PROC
- MD USE APPT WITH PROCEDURE

A new option called MD AUTO CHECK-IN SETUP was added to setup and implement procedures that will use auto study check-in. Once a procedure is set up to use the auto study check-in functionality in the MD CHECK-IN SETUP option, the software will check-in any existing order requests with the status of "PENDING," "ACTIVE," and "SCHEDULED" in the Consult Request Tracking package.

Note: If your site uses appointments, schedule them **before** you enter the procedures for auto check-in. If you do not, the patients associated with those appointments will need to be manually checked in.

This option collects the following information:

a. Use Appointment with procedure? (Yes/No) (Required) – The default is "NO", if the site does not schedule procedures before the order is entered. Enter "YES" if the procedure appointment is scheduled before the order is entered and the ordering provider selects the appointment for the procedure during ordering in CPRS.
b. Procedure (Required)– Enter the CP Definition that will be using the auto study check-in functionality.
c. Schedule Appointment? (Required) - Enter 0 for None, 1 for Outpatient, 2 for Inpatient, or 3 for Both. This indicates that the site schedules appointments for inpatient, outpatients, both, or none.
d. Clinic (Optional) – Enter the hospital location(s) that will be used for scheduling the procedure.

   Note: If no clinic is entered in the setup, CP will use the hospital location defined in the HOSPITAL LOCATION field of the CP Definition file (#702.01) as the location of the visit for the CP study check-in.

The following two pages contain a screen capture of the MD AUTO CHECK-IN SETUP option:

[1] Patch MD*1.0*14 March 2008 Exported Kernel XPAR Parameters, option, and screen sample added.

```
Select OPTION NAME:    MD AUTO CHECK-IN SETUP     Auto Study Check-In Setup
Auto Study Check-In Setup
Use Appointment with procedure? NO// ?

Default should be 'N' as most sites do not schedule procedures
before the order is entered.  Select 'Y' if the procedure appointment
is scheduled before the order is entered and the ordering provider
selects the appointment for the procedure.
Enter either 'Y' or 'N'.

Use Appointment with procedure? NO//

Procedure: ?
Enter a CP Definition for the procedure to
have auto CP study check-in.

 Answer with CP DEFINITION NAME
 Do you want the entire CP DEFINITION List? N  (No)

Procedure: COLONOSCOPY
Schedule Appointment?: ?


REQUIRED field for the procedure to have auto CP study check-in.
Enter a "^" will exit completely.

Enter 0 if you do not schedule appointments.
      1 if you only schedule appointments for outpatients.
      2 if you only schedule appointments for inpatients.
      3 if you schedule appointments for both 1 and 2.

     Select one of the following:

          0         None
          1         Outpatient
          2         Inpatient
          3         Both

Schedule Appointment?: Both
Clinic: ?
Only required, if appointments are scheduled for the procedure.
Enter the clinic used for scheduling the procedure.


 Answer with HOSPITAL LOCATION NAME, or ABBREVIATION, or TEAM
 Do you want the entire 112-Entry HOSPITAL LOCATION List? N  (No)
Clinic: GI LAB       PIPER,ALPHA

Enter another clinic for the same procedure? NO// ?

Enter either 'Y' or 'N', if you want to assign more than one clinic.

Enter another clinic for the same procedure? NO//YES
Clinic: TEST
     1   TEST/PROSTHETICS       OBRIEN,FRANCES U
     2   TEST1
     3   TEST1234
     4   TEST3232
CHOOSE 1-4: 2  TEST1

Enter another clinic for the same procedure? NO//

Procedure: ?
Enter a CP Definition for the procedure to
have auto CP study check-in.
```

```
COLONOSCOPY
 Answer with CP DEFINITION NAME
 Do you want the entire CP DEFINITION List? N  (No)

Procedure: EKG, ROUTINE (12 LEADS)
Schedule Appointment?: 0  None

Procedure:
>
```

[1] Exported Kernel XPAR Parameters for Patch MD*1.0*6

There are four Kernel XPAR Parameters exported with Patch MD*1.0*6.

PARAMETER DEFINITION:

- MD APPOINT END DATE
- MD APPOINT START DATE
- MD COMPL PROC DISPLAY DAYS
- MD DAYS TO RETAIN COM STUDY

The users can edit the parameters using the Edit Parameter Values option, [XPAR EDIT PARAMETER].

The following is a screen capture of the parameter usage:

```
D ^XUP
Setting up programmer environment
Terminal Type set to: C-VT100
You have 2983 new messages.
Select OPTION NAME: XPAR EDIT PARAMETER       Edit Parameter Values
Edit Parameter Values
                         --- Edit Parameter Values ---
Select PARAMETER DEFINITION NAME: MD APPOINT START DATE   Start Date for Encounter
Appointments
--- Setting MD APPOINT START DATE  for System: DEV.DEV.FO-HINES.MED.VA.GOV ---
Days: ?
Enter a number from 0 to 365.
Days: ??
Enter a number from 0 to 365 for the number of days that will be
used to subtract from today as the start date range of the Encounter
Appointments.  If no value is entered, the default value used
will be 200.
Days: 365

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

Select PARAMETER DEFINITION NAME: MD APPOINT END DATE   End Date for Encounter Appointments
---- Setting MD APPOINT END DATE  for System: DEV.DEV.FO-HINES.MED.VA.GOV ----
Days: ?
Enter a number from 0 to 365.
Days: ??
Enter a number from 0 to 365 for the number of days that will be
used to add to today as the end date range of the Encounter
Appointments.  If no value is entered, the default value used
will be 0.
```

[1] Patch MD*1.0*6 May 2008 Exported Kernel XPAR Parameters and screen sample added.

```
Days: 2

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

Select PARAMETER DEFINITION NAME: MD COMPL PROC DISPLAY DAYS   Completed Proc Display Days
 Setting MD COMPL PROC DISPLAY DAYS  for System: DEV.DEV.FO-HINES.MED.VA.GOV
Days: ?
Enter the number of days from 1 to 365.
Days: ??
The number of days the completed procedure requests will be
displayed in the CP Check-in screen.
Days: 365

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

Select PARAMETER DEFINITION NAME: MD DAYS TO RETAIN COM STUDY   Days to Retain Completed
Study
 Setting MD DAYS TO RETAIN COM STUDY  for System: DEV.DEV.FO-HINES.MED.VA.GOV
Days: ?
Enter the number of days from 1 to 365.
Days: ??
The number of days after check-in date/time to display the study
that has been complete in the CPUser application.  Studies that have
procedures with multiple or cumulative results are NOT included.
Cumulative and multiple results studies will have a default value of
365.
Days:

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

Select PARAMETER DEFINITION NAME:
```

11. Setting Up HL7 Parameters

[1]This section describes how to set up the HL7 parameters including configuration instructions, file settings, and technical issues. The tasks in this chapter require a working knowledge of the VistA HL7 application.

Topics discussed in this chapter are:

- Configuration Instructions Information
  - IP Addresses and Ports
- Setting Up a New HL7 Single Listener for High-Volume Devices
  - Creating a Logical Link
  - Creating a Device Protocol Client
  - Activating the Logical Links
  - Adding a Device Client as a Server Subscriber
- Using Port 5000
  - Benefits of Using a Single Port Listener
  - Setting Up Port 5000
- File Settings
- Technical Issues

Configuration Instructions Information

You can follow the steps described in this section to configure the HL7 application.

MCAR INST and MCAR OUT are automatically created during the KIDS installation. MCAR INST is used for all devices that send results information from the device to VistA and CP. Since all devices can use the same link, you only need one entry in the HL Logical Link (870) file.

However, you need to establish an MCAR OUT entry for each bi-directional device that receives information from VistA and CP. Each entry needs its own IP and port number, which agree with the device configuration. (Use the MCAR OUT sample provided in the HL Logical Link file. Set up the individual links for each bi-directional device.) All outbound links are non-persistent.

Most devices are able to use a non-persistent connection to VistA. A **persistent** connection is a connection that is established by the medical device and is kept connected to VistA even after the device has transmitted it HL7 message. A **non-persistent** connection is a connection that is established by the medical device to VistA and is disconnected once the HL7 message has been sent. Devices can share the same HL Logical link to VistA, if they are non-persistent. If the device is persistent then it must have its own HL Logical Link to VistA (Example: its own inbound and outbound links.)

[1] Patch MD*1.0*14 March 2008 Chapter revised to provide clarity.

IP Addresses and Ports

You need to set up IP addresses and ports for the medical devices at your facility.

An IP address consists of a string of four numbers each ranging in value from 0 to 255. Here is an example of an IP address: 10.23.55.201. When a new device is installed, be careful when you assign IP addresses to the medical devices. It's recommended that you set aside a block of IP addresses specifically for the medical devices. The range of numbers chosen is up to the facility, but make sure that there is a large enough range to allow for some growth. For example, IP addresses 10.23.55.201 through 10.23.55.225 could be blocked and used. In this way, the IRM staff can track down any possible problems that may be related to the medical device by looking at the IP address.

A port is the location on a medical device where you send and receive data. Some ports have predefined functions. For example, Port 80 is set up for the Web Server. Some vendors have predefined ports that they may want you to use. For example, Sensormedics recommends using Port 20000 for the VMAX. Others may only allow a limited range. Consult the device manual to determine which ports you can use.

A Startup Node defines the system on which you want the link to start.

Setting Up a New HL7 Single Listener for High-Volume Devices

Most medical devices send results to VistA using nonpersistent connections to the same port. Each device connects to the port just long enough to send results to VistA, then releases the port so that other devices may connect to it.

However, if you use a high-volume device (i.e., something that sends about 200 or more messages back and forth per day, such as MUSE or a hemodialysis device) that sends a lot of data all the time, we recommend that you give it its own port instead of sharing a port with other devices. This is because high-volume devices send so much data that they can tie up the port for a long time, preventing other devices (e.g., Olympus or Sensormedics) from using it.

Setting up a new HL7 listener involves four steps (which are described in more detail below):

1. Creating a Logical Link
2. Creating a Device Protocol Client
3. Activating the Logical Links
4. Adding a Device Client as a Server Subscriber

This document also contains information on Using Port 5000 what it is and when to use it).

Note: Although you can name your new logical links and device protocols anything you want, keep the names name spaced and descriptive since the names are similar and it can be easy to confuse them.

Creating a Logical Link

A logical link is an inbound or an outbound instrument data port from and to the medical device. It's a listener waiting for data to come across. The first logical link (MCAR INST) is already created by default. To create a new HL7 single listener logical link for your device, you need to create a new logical link or edit an existing one. Each bi-directional device that receives information from VistA and CP needs its own outbound link set up. All non-persistent devices can share the same inbound logical link, but persistent devices each need their own inbound logical links.

1. Decide which port to use. The facility, along with IRM, determines which port to use. This is the port used by the device to send data to the VistA listener. You can, for example, use port 1026 for Hemodialysis results and port 1027 for Sensormedics results. Do not use port 5000 for this type of setup. (See below for more information on port 5000.)
2. From the Systems Manager Menu, choose HL Main Menu (**HL**) > Interface Developer Options (**IN**) > Link Edit (**EL**).
3. At the Select HL Logical Link Note prompt, enter the **name of the new logical link** for your device. Name your new inbound logical link something like MCAR2 INST. The next one (if you use more than one high-volume device) can be called MCAR3 INST, etc. For an outbound logical link, the following naming convention is suggested: MCAR xxx, where xxx is the first three characters of the device or vendor name. (For example, an outbound link for an Olympus device could be named MCAR OLY.)
4. Type **yes** when asked if you are adding 'MCAR2 INST' as a new HL LOGICAL LINK. The HL7 LOGICAL LINK screen displays.

```
                          HL7 LOGICAL LINK
------------------------------------------------------------------------

          NODE: MCAR2 INST

   INSTITUTION:

MAILMAN DOMAIN:

     AUTOSTART: Enabled

    QUEUE SIZE: 100

      LLP TYPE: TCP <RET>

    DNS DOMAIN:
```

Note: When this screen first displays for a new logical link, only the NODE and QUEUE SIZE fields will already contain values. The NODE field will display the logical link name you just created, and the QUEUE SIZE field will default to 10.

5. Type **Enabled** in the Autostart field.
6. Change the QUEUE SIZE value to 100. (Optional)

7. Enter **TCP** in the LLP TYPE field, then press **[Enter]** to display the HL7 LOGICAL LINK screen (see following figure).

```
                          HL7 LOGICAL LINK
------------------------------------------------------------------------------
                        TCP LOWER LEVEL PARAMETERS
                       MCAR3 INST

  TCP/IP SERVICE TYPE: SINGLE LISTENER
       TCP/IP ADDRESS:
          TCP/IP PORT: 1026
          TCP/IP PORT (OPTIMIZED):

   ACK TIMEOUT: 60                    RE-TRANSMISION ATTEMPTS: 3
  READ TIMEOUT:                     EXCEED RE-TRANSMIT ACTION: ignore
    BLOCK SIZE:                                   SAY HELO:

STARTUP NODE: DEV:ISC4A2                            PERSISTENT: NO
   RETENTION:                              UNI-DIRECTIONAL WAIT:
```

8. Set TCP/IP SERVICE TYPE to **SINGLE LISTENER**. If this link is an outbound link then the TCP/IP SERVICE TYPE is **CLIENT (SENDER)**.
9. In the **TCP/IP ADDRESS** field, if the link you are creating is an outbound link to a device, you will need to enter the TCP/IP address of that device. For the inbound link, no address is needed.
10. In the **TCP/IP PORT** field, enter the port number you decided to use (in step 1).
11. Optionally set ACK TIMEOUT to **60**.
12. Press **[Tab]** to optionally set RE-TRANSMISION ATTEMPTS to **3**.
13. Optionally set EXCEED RE-TRANSMIT ACTION to **ignore**.
14. Enter the appropriate **STARTUP NODE**.
15. Set the PERSISTENT field to **NO**.
16. **[Tab]** down to the COMMAND prompt, then select **Close**. You return to the HL7 LOGICAL LINK screen.
17. **[Tab]** down to the COMMAND prompt, then select **Save**.
18. At the COMMAND prompt, select **Exit**.
19. The new link is useless until you assign protocols to it. Proceed to the next section to create a client protocol.

Below is an example of an outbound link.

```
                          TCP LOWER LEVEL PARAMETERS
                         MCAR OLY

  TCP/IP SERVICE TYPE: CLIENT (SENDER)
       TCP/IP ADDRESS: 10.3.17.141
          TCP/IP PORT: 9027
          TCP/IP PORT (OPTIMIZED):

   ACK TIMEOUT: 60                    RE-TRANSMISION ATTEMPTS: 3
  READ TIMEOUT: 60                  EXCEED RE-TRANSMIT ACTION: ignore
    BLOCK SIZE:                                      SAY HELO:
                                   DIRECT CONNECT OPEN TIMEOUT:
STARTUP NODE: DEV:DEVISC4A1                         PERSISTENT: NO
   RETENTION:                                UNI-DIRECTIONAL WAIT:
```

Creating a Device Protocol Client

You have to create a protocol for every inbound listener to VistA.

To create a protocol client from for your new logical link using a **copy**, follow these steps:

1. Look at the protocol in 101 or use developer tools. Copy MCAR DEVICE CLIENT to make a new device client. Name it something like MCAR2 DEVICE CLIENT.
2. Change the entry in the Logical Link field to match the new logical link. For example, if you just created a logical link named MCAR2 INST, change what's in the Logical Link field from MCAR INST to MCAR2 INST. All other fields should match what was originally in MCAR DEVICE CLIENT.
3. Proceed to the next section to make the new device protocol a subscriber to the device server.

To create a **new** protocol client for your new logical link, do the following:

1. From the Systems Manager Menu, choose HL Main Menu (**HL**) > Interface Developer Options (**IN**) > Protocol Edit (**EP**).
2. At the Select PROTOCOL NAME prompt, enter the name of the new device client for your device. Name your new device client something like MCAR2 Device Client or MCAR2 MUSE (depending on the device name).
3. Type **yes** (or simply type **y**) when asked if you are adding 'MCAR2 Device Client' as a new PROTOCOL.
4. Enter **Instrument Device Client** in the PROTOCOL ITEM TEXT field.
5. Enter an appropriate identifier in the PROTOCOL IDENTIFIER field. The HL7 INTERFACE SETUP screen displays.
6. **[Tab]** down to the TYPE field and enter **subscriber**, then press **[Enter]** to display PAGE 2 OF 2.

```
                            HL7 SUBSCRIBER                          PAGE 2 OF 2
                          MCAR2 Device Client
--------------------------------------------------------------------------------

     RECEIVING APPLICATION: MCAR INST

     RESPONSE MESSAGE TYPE: ACK                            EVENT TYPE: R01

SENDING FACILITY REQUIRED?: NO          RECEIVING FACILITY REQUIRED?: NO

        SECURITY REQUIRED?:

              LOGICAL LINK: MCAR2 INST

PROCESSING RTN: D ^MDHL7A

 ROUTING LOGIC:
```

7. Type **MCAR-INST** in the RECEIVING APPLICATION field, then enter the following entries:
8. RESPONSE MESSAGE TYPE = **ACK**
9. EVENT TYPE = **R01**
10. SENDING FACILITY REQUIRED = **NO**
11. RECEIVING FACILITY REQUIRED = **NO**
12. LOGICAL LINK = **MCAR2 INST** (use the appropriate name)
13. PROCESSING RTN = **D ^ MDHL7A** (use the appropriate routine)

    Note: The processing routine is the MUMPS routine that VistA uses to process the message received from the logical link.
14. **[Tab]** down to the COMMAND prompt, then select **Save**.
15. At the COMMAND prompt, select **Exit**.
16. Proceed to the next section to make the new device protocol a subscriber to the device server.

Activating the Logical Links

Next, the links need to be activated. (The steps below assume that the original logical link has never been activated. If MCAR INST is already active, skip to step 4.)

1. Choose HL Main Menu (**HL**) > Filer and Link Management Options (**FI**) >Start/Stop Links (**SL**).
2. Activate the first logical link: Select HL LOGICAL LINK NODE: **MCAR INST**
3. Select **B** for Background. (B is the default, so just press **[Enter]**.
4. Activate the next logical link: Select HL LOGICAL LINK NODE: (in this example it is **MCAR2 INST**)
5. Select **B** for Background. (B is the default, so just press **[Enter]**.
6. If you have more logical links to activate, repeat steps 4-5.
7. If you haven't done this already, use the CP Manager application to configure the device you are using. Refer to Editing an Automated Instrument, p. 6-3.
8. Proceed to the next section to make the new device protocol a subscriber to the device server.

Adding a Device Client as a Server Subscriber

Next you have to make the newly-created protocols subscribers to MCAR DEVICE SERVER. Every client must be a subscriber to a server. That controls the outbound message to a medical device when you reply to it.
Go into MCAR DEVICE SERVER (under the protocol file or using the Interface Developer Option) and make sure that the new MCAR2 DEVICE CLIENT is a subscriber to it. Detailed steps follow:

1. At the Select Systems Manager Menu, select **HL** for the HL7 Main Menu.
2. At the Select HL7 Main Menu, select **IN** for Interface Developer Options.
3. At Select Interface Developer Options, select **EP** for Protocol Edit.
4. At the Select PROTOCOL NAME prompt, select **MCAR Device Server**. (If your site uses a different server name, select the appropriate name. You can display a list of available options, if necessary.)
5. Press **[Enter]** at the TYPE prompt to go to PAGE 2 OF 2: the HL7 EVENT DRIVER screen. (Figure follows.)

```
                          HL7 EVENT DRIVER                          PAGE 2 OF 2
                        MCAR Device Server
--------------------------------------------------------------------------------
      SENDING APPLICATION: INST-MCAR
 TRANSACTION MESSAGE TYPE: ORU                        EVENT TYPE: R01
        MESSAGE STRUCTURE:
            PROCESSING ID: P                         VERSION ID: 2.3
          ACCEPT ACK CODE:                 APPLICATION ACK TYPE:

 RESPONSE PROCESSING RTN:
                           SUBSCRIBERS
  MCAR Device Client
  MCAR Device Client2
________________________________________________________________________________
```

6. To add the new protocol as a subscriber, **[Down Arrow]** or **[Tab]** down to the line below MCAR Device Client and **enter the name of the new subscriber** (e.g., MCAR2 Device Client). The HL7 screen displays.
7. Verify that the entries are correct, then **[Down Arrow]** down to the COMMAND line and select **Close**. You return to the MCAR Device Server screen.
8. Repeat steps 6-7 if you need to add more subscribers.
9. **[Down Arrow]** down to the COMMAND line and select Save.
10. In the COMMAND line, select **Exit**.

[1]Using Port 5000

Port 5000 is a Multi-Port Listener. The only reason to use the multiport listener is if your inbound port doesn't work correctly because Cache is not handling ports correctly.
If Cache is handling ports correctly, then you should let Cache handle them. Use the individually shared ports for your devices rather than using the Multi-Port Listener.
If you're at a facility that has listener problems under Cache, then use port 5000. Port 5000 is handled by VMS, not Cache.
Most sites allocate 25 ports to port 5000, but more can be allocated, if necessary.

Benefits of Using a Single Port Listener

A single port is easier to monitor and debug. It's easy to determine if the problem is caused by the link or something else.
If you set up another Multi-Port Listener, you have to set it up in VMS. You'll have to do that through UCX, which is a lot of work and beyond the scope of this document,

Setting Up Port 5000

1. Edit MCAR DEVICE CLIENT so the logical link points to VAxxx (where xxx is an abbreviation for the hospital).
2. Make sure all CP Medical devices send to port 5000.
3. You don't need to set up an additional MCAR INST (logical link) because you're using an existing logical link which is VA**xxx**, where xxx is an abbreviation for the hospital (e.g., VAHIN for Hines).
4. Make it an MCAR DEVICE server subscriber.

File Settings

The parameter settings for the HL7 Application Parameter file, HL Logical Link file, and the Protocol file are automatically set during the CP installation. They are listed here for reference. Fields that have bolded field names and bolded field entries must be set exactly as they appear in these examples.

- **HL7 Application Parameter (#771) file**

This file contains a list of VistA applications that are capable of sending and receiving HL7 transmissions.

```
NAME: MCAR-INST                          ACTIVE/INACTIVE: ACTIVE
  FACILITY NAME: VISTA                   MAIL GROUP: POSTMASTER
  COUNTRY CODE: US                       HL7 ENCODING CHARACTERS: ^~\&
  HL7 FIELD SEPARATOR: |


NAME: INST-MCAR                          ACTIVE/INACTIVE: ACTIVE
```

[1] Patch MD*1.0*9 November 2007 Using Port 5000 with CACHE.

```
  COUNTRY CODE: US                          HL7 ENCODING CHARACTERS: ^~\&
  HL7 FIELD SEPARATOR: |
```

- **HL Logical Link (#870) file**

This file stores parameters that govern the behavior of the Logical Links and also stores information that drives the SYSTEMS LINK MONITOR display option.

```
NODE: MCAR INST                             LLP TYPE: TCP
  QUEUE SIZE: 100                           RE-TRANSMISSION ATTEMPTS: 3
  ACK TIMEOUT: 60                           EXCEED RE-TRANSMIT ACTION: ignore
  TCP/IP PORT: 1026                         TCP/IP SERVICE TYPE: SINGLE LISTENER
  PERSISTENT: NO
```

MCAR OUT provides an example of field entries for bi-directional instruments for outbound links to medical devices. The fields that have bolded field names and bolded field entries must be set exactly as they appear in this example. The other bolded fields must be edited to match your device specific requirements. For example, Device Type must be Non-Persistent Client. Non-bolded fields may not have a value depending on the state of the system.

```
NODE: MCAR OUT                              LLP TYPE: TCP
  DEVICE TYPE: Non-Persistent Client        STATE: Shutdown
  AUTOSTART: Enabled                        TIME STOPPED: JAN 16, 2003@14:30:15
  SHUTDOWN LLP ?: YES                       EXCEED RE-TRANSMIT ACTION: ignore
  RE-TRANSMISSION ATTEMPTS: 3               TCP/IP PORT: 1028
  ACK TIMEOUT: 60                           PERSISTENT: NO
  TCP/IP ADDRESS: 10.3.17.202               STARTUP NODE: DEV:ISC4A2
  TCP/IP SERVICE TYPE: CLIENT (SENDER)
```

Note: When you need to create additional HL7 links for new devices, name the link in the following format:

- If you need to create more than one inbound link (MCAR INST), name the new links "MCAR", followed by a number (1,2,3), a space, and then "INST".

  Example: MCAR2 INST

- Name outbound links "MCAR", followed by a number (1,2,3), a space, and then a name for the device.

  Example: MCAR2 SMC

  See "Configuration Instructions Information" for information on setting the TCP/IP address and port and the Startup Mode.

- **Protocol (#101) file:**

This file contains the protocols for processing HL7 messages.

```
NAME: MCAR Device Client                    ITEM TEXT: Instrument Device Client
  TYPE: subscriber                          CREATOR: CPUSER, FIVE
  PACKAGE: MEDICINE
 DESCRIPTION:   Subscriber protocol for sending data to VISTA from clinical
 instruments.
  TIMESTAMP: 57540,31165                    RECEIVING APPLICATION: MCAR INST
  TRANSACTION MESSAGE TYPE: ORU             EVENT TYPE: R01
  PROCESSING ID: P                          LOGICAL LINK: MCAR INST
* VERSION ID: 2.3                           RESPONSE MESSAGE TYPE: ACK
  PROCESSING ROUTINE: D ^MDHL7A             SENDING FACILITY REQUIRED?: NO
  RECEIVING FACILITY REQUIRED?: NO


NAME: MCAR Device Server                    ITEM TEXT: Instrument HL7 Event Driver
  TYPE: event driver                        CREATOR: CPUSER, FIVE
  PACKAGE: MEDICINE
 DESCRIPTION:   This protocol is used by the HL7 package to send results to
 VISTA from various clinical instrumentation.
  TIMESTAMP: 57631,55707                    SENDING APPLICATION: INST-MCAR
  TRANSACTION MESSAGE TYPE: ORU             EVENT TYPE: R01
  PROCESSING ID: P                        * VERSION ID: 2.3
  SENDING FACILITY REQUIRED?: NO            RECEIVING FACILITY REQUIRED?: NO
SUBSCRIBERS: MCAR Device Client

NAME: MCAR ORM CLIENT                       TYPE: subscriber
  CREATOR: CPUSER, SIX                      RECEIVING APPLICATION: INST-MCAR
  EVENT TYPE: O02                           RESPONSE MESSAGE TYPE: ORR
  SENDING FACILITY REQUIRED?: NO            RECEIVING FACILITY REQUIRED?: NO
  SECURITY REQUIRED?: NO                    ROUTING LOGIC: Q

NAME: MCAR ORM SERVER
  ITEM TEXT: Clinical Procedures ORM Protocol Server
  TYPE: event driver                        CREATOR: CPUSER, SIX
  TIMESTAMP: 59276,54156                    SENDING APPLICATION: MCAR-INST
  TRANSACTION MESSAGE TYPE: ORM             EVENT TYPE: O01
  VERSION ID: 2.3
SUBSCRIBERS: MCAR ORM CLIENT
```

***Note:** Check vendor documentation for instructions on verifying the Version ID.

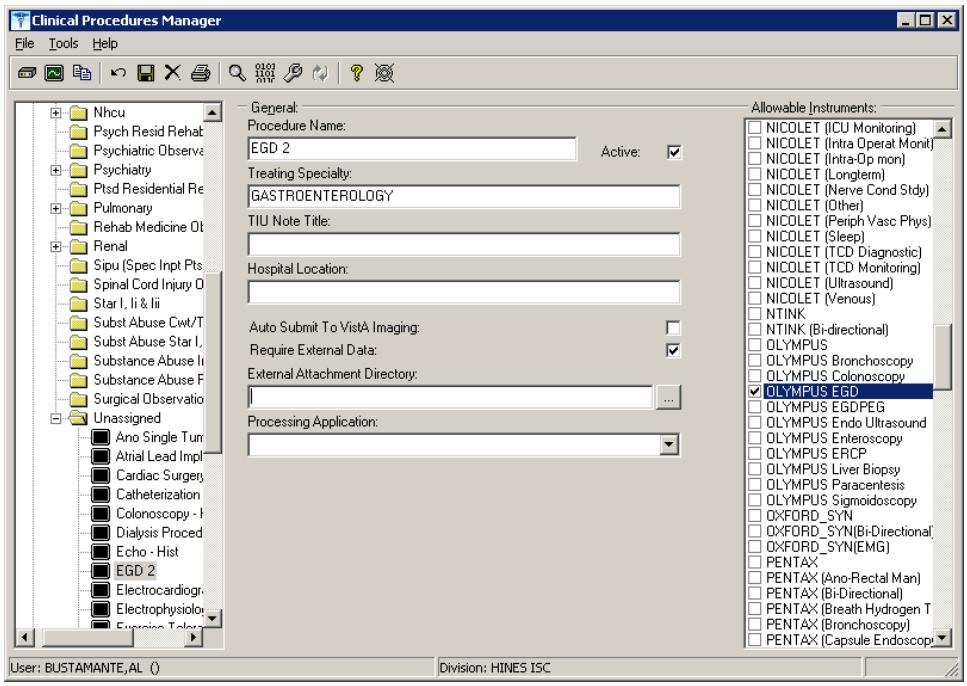
Technical Issues

For all sites:

To avoid error messages because of a missing or invalid 'Event Protocol', 'Invalid Processing Code', or 'Invalid Application Code', make sure that all settings (except TCP/IP PORT and TCP/IP ADDRESS, in the HL Logical Link (#870) file, which are site specific) are the same as the file settings listed previously in this chapter.

Be sure that the VERSION ID parameters in the Protocol (#101) file are set to the same HL7 Version that is being sent by the vendor instrument. The ITEM and SUBSCRIBERS fields in

the Device Server entry in the Protocol (#101) file MUST be the same as the Device Client name.



[1]Figure 13-3

6. An error status is displayed for the study and the **Update Study Status** selection is unavailable. You must have the MD GUI MANAGER key, and then you can go to **File > Update Study Status** to review the problem.

   The message in the following figure indicates that a **Notification Mailgroup** has not been assigned or the **Medical Device** is not **Active**.

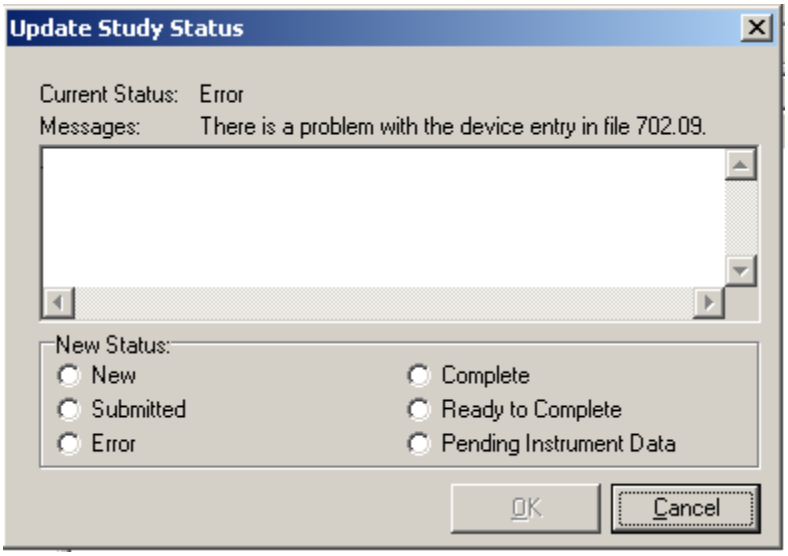


Figure 13-4

[1] Patch MD*1.0*6 May 2008 Added Processing Application field to image.

a) Open **CP Manager**.
b) Select the instrument.
c) Check that the **Notification Mail Group** has an entry and that the **Active** checkbox is selected.
d) Open **CP User**. Choose **File > Update Study Status**.
e) If the device is bi-directional, delete the study that was checked in and check-in a new study with the same procedure request to get the HL7 message transmitted to the medical device. If the device is uni-directional, check the **Ready to Complete** status, and click **OK**.

7. If a study remains in **Pending Instrument Data** status and it is a bi-directional medical device, check to see if **Auto Submit To VistA Imaging** field is selected. .

   a) Open **CP Manager.**
   b) Expand the Procedures folder, and then select the procedure
   c) Check that **Auto Submit to VistA Imaging** is selected.

For the current study, you still need to manually submit the result. For future studies, the result will be automatically submitted.

8. The following two errors indicate that a TIU document Title has not been assigned to the CP procedure. The first error message is from CP during image submission if a TIU document has not been assigned to the CP Definition.

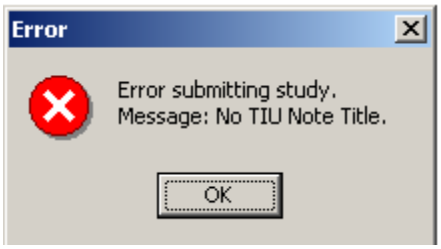


Figure 13-5

This second error screen is the Update Study Status screen from CP User. The first message is a CP warning. The second message is a warning from TIU that there is no TIU document.

Document Class Document Classes are categories that group documents (Titles) with similar characteristics together. For example, Cardiology notes might be a Document Class, with Echo notes, ECG notes, etc. as Titles under it. Or maybe the Document Class would be Endoscopy Notes, with Colonoscopy notes, etc. under that Document Class.

Document Definition Document Definition is a subset of TIU that provides the building blocks for TIU, by organizing the elements of documents into a hierarchy structure. This structure allows documents (Titles) to inherit characteristics (such as signature requirements and print characteristics) of the higher levels, Class and Document Class. It also allows the creation and use of boilerplate text and embedded objects.

Edit Used to change/modify data typically stored in a file.

Field A data element in a file.

File The M construct in which data is stored for retrieval at a later time. A computer record of related information.

File Manager or FileMan Within this manual, FileManager or FileMan is a reference to VA FileMan. FileMan is a set of M routines used to enter, edit, print, and sort/search related data in a file, a database.

File Server A machine where shared software is stored.

Gateway The software that performs background processing for Clinical Procedures.

GUI Graphical User Interface – a Windows interface that uses pull-down menus, icons, pointer devices, and other metaphor-type elements that make a computer program, easier to use and that allows multi-processing (more than one window or process available at once).

Interpreter Interpreter is a user role exported with USR*1*19 to support the Clinical Procedures Class. The role of the Interpreter is to interpret the findings or results of a clinical procedure. Users who are authorized to interpret the results of a clinical procedure are sent a notification when an instrument report and/or images for a CP request are available for interpretation. Business rules are used to determine what actions an interpreter can perform on a document of a specified class, but the interpreter themselves are defined by the Consults application. These individuals are 'clinical update users' for a given consult service.

IRMS Information Resource Management Service.

Kernel A set of software utilities. These utilities provide data processing support for the application packages developed within the VA. They are also tools used in configuring the local computer site to meet the particular needs of the hospital. The components of this

operating system include: MenuMan, TaskMan, Device Handler, Log-on/Security, and other specialized routines.

M Formerly known as MUMPS or the Massachusetts (General Hospital) Utility Multi-Programming System. This is the programming language used to write all VistA applications.

Menu A set of options or functions available to users for editing, formatting, generating reports, etc.

Modality Another name for a medical instrument.

Module A component of a software application that covers a single topic or a small section of a broad topic.

Namespace A naming convention followed in the VA to identify various applications and to avoid duplication. It is used as a prefix for all routines and globals used by the application.

Network Server Share A machine that is located on the network where shared files are stored.

Notebook This term refers to a GUI screen containing several tabs or pages.

Option A functionality that is invoked by the user. The information defined in the option is used to drive the menu system. Options are created, associated with others on menus, or given entry/exit actions.

Package Otherwise known as an application.

Page This term refers to a tab on a GUI screen or notebook.

Password A protected word or string of characters that identifies or authenticates a user, a specific resource, or an access type (synonymous with Verify Code).

Persistent Connection A connection that is established by the medical device and is kept connected to VistA even after the device has transmitted it HL7 message.

Non-persistent Connection A connection that is established by the medical device to VistA and is disconnected once the HL7 message has been sent.

Pointer A special data type of VA FileMan that takes its value from another file. This is a method of joining files together and avoiding duplication of information.

Procedure Request Any procedure (EKG, Stress Test, etc.) which may be ordered from another service/specialty without first requiring formal consultation.

Queuing The scheduling of a process/task to occur at a later time. Queuing is normally done if a task uses up a lot of computer resources.

Result A consequence of an order. Refers to evaluation or status results. When you use the Complete Request (CT) action on a consult or request, you are transferred to TIU to enter the results.

Security Key A function which unlocks specific options and makes them accessible to an authorized user.

Sensitive Information Any information which requires a degree of protection and which should be made available only to authorized users.

Site Configurable A term used to refer to features in the system that can be modified to meet the needs of each site.

Software A generic term referring to a related set of computer programs.

Status Symbols Codes used in order entry and Consults displays to designate the status of the order.

Study See CP Study.

Task Manager or TaskMan A part of Kernel which allows programs or functions to begin at specified times or when devices become available. See Queuing.

Title Titles are definitions for documents. They store the behavior of the documents which use them.

TIU Text Integration Utilities.

User A person who enters and/or retrieves data in a system.

User Class User Classes are the basic components of the User Class hierarchy of ASU (Authorization/Subscription Utility) which allows sites to designate who is authorized to do what to documents or other clinical entities.

User Role User Role identifies the role of the user with respect to the document in question, such as Author/Dictator, Expected Signer, Expected Cosigner, Attending Physician, etc..

Verify Code A unique security code which serves as a second level of security access. Use of this code is site specific; sometimes used interchangeably with a password.

VistA Veterans Health Information Systems and Technology Architecture.

16. Appendix B – Exported Procedures List

These exported procedures are contained in the MDPOST routine. When the INIT^MDPOST routine is run, these entries are added to your CP Definition (#702.01) file:

ABD PARACENTESIS: FOLLOWUP
ABD PARACENTESIS: INITIAL
ABLATION OF AV NODE FUNCTION
AICD INTER/CONDITION
AIRWAY RESISTANCE
ANO BIOPSY
ANO CONTROL BLEEDING
ANO DIAGNOSTIC (BRUSHINGS)
ANO HOT BIOPSY(IES)
ANO SINGLE TUMOR (HOT/BICAP)
ANOSCOPY
ARRHYTHMIA INDUCTION BY PACING
ARTERIAL BLOOD GASES
ARTERIAL CANNULATION
ARTERIAL PUNCTURE
ARTHROC.ASPIR.INJ.INT.JT.BUR
ARTHROC.ASPIR.INJ.MAJ.JT.BUR
ARTHROCENT.ASPIR.INJ.SM.JT.BUR
ASPIRATION
BIOPSY
BIOPSY LUNG, PERCUTANEOUS NDL
BIOPSY, PLEURA
BONE MARROW
BONE MARROW INTERPRETATION
BRONC DIAGNOSTIC W/BAL
BRONC W/BRONC WASHING
BRONC W/TRANSBRONC LUNG BX
BRONCHIAL BRUSH
BRONCHOSCOPY W/BRONCH BIOPSY
BRONCHOSCOPY W/WANG NEEDLE
BRONCHOSCOPY, LASER
BRONCHOSCOPY, STENT PLACEMENT
BRONCHOSCOPY, THERAPEUTIC
BRONCOSCOPY/FB REMOVAL
C&P EXAM
CARDIAC CATHETERIZATION
CARDIAC REHAB W/O ECG MON
CARDIAC REHAB/W ECG MON
CARDIOPULMONARY REHABILITATION
CARDIOVERSION, ELECTIVE

CENTRAL VENOUS CANNULATION
CHEMOTHERAPY
COL ABL (OTHR THAN SNARE/BI)
COL BIOPSY
COL CONTROL HEM.
COL DIAGNOSTIC (BRUSHINGS)
COL HOT BIOPSY(IES)
COL REMOVAL FB
COL SNARE
COLONOSCOPY
COMPREHENSIVE EP EVALUATION
CPAP/BIPAP VENTILATION
DIALYSIS PROCEDURES, HEMO
DIALYSIS TRAINING/COMPLETE
DIFFUSION
DILUTION STUDIES FOR CO MEAS
ECG
ECG (EKG), RHYTHM STRIP
ECG 12 LEAD
ECG 24 HOUR HOLTER MONITOR
ECG MONITORING
ECG WITH INTERPRETATION
ECG, EVENT RECORDER
ECG, RHYTHM TRACING
ECG, SIGNAL AVERAGE
ECHO
ECHO TRANSESOPHOGEAL SINGLE PL
ECHO, 2D M-MODE
ECHO, DOPPLER COLOR FLOW
ECHO, DOPPLER, COMPLETE
ECHO, TRANSESOPHOGEAL
ECHO, TRANSESOPHOGEAL BIPLANE
ECHO, TRANSTHORACIC
EGD
EGD ABL (OTH THAN SNARE/BI)
EGD BAND LIGATION
EGD BIOPSY
EGD DIAGNOSTIC (BRUSHINGS)
EGD DILATION BALLOON
EGD DILATION WIRE
EGD FOREIGN BODY
EGD HOT BIOPSY(IES) / BICAP
EGD INJECTION / SCLEROSIS
EGD SNARE/SINGLE
EGD TUBE/STENT
EKG, ROUTINE (12 LEADS)

ENDO OF BOWEL POUCH W/ BIOPSY
ENDOMYOCARDIAL BIOPSY
ENDOSCOPIC ULTRASOUND
ENDOSCOPIC ULTRASOUND, BIOPSY
ENDOSCOPY OF BOWEL POUCH
ENDOTRACHEAL INTUBATION
ENTEROSCOPY
EP EVAL OF CARDIO/DEFIB LEADS
EP EVAL OF CARDIOVERTER/DEFIB
EP EVAL W/ ARRHYTHMIA INDUCT
EP EVAL W/ L ATRIAL RECORD
EP EVAL W/ L VENTRIC RECORD
EP FOLLOWUP STUDY W/PACING
EP STUDY
EPICARDIAL/ENDOCARDIAL MAPPING
ERCP
ERCP ABL (OTHR THAN SN/BI)
ERCP BALLOON DILATION
ERCP BIOPSY
ERCP DEST STONES
ERCP DIAGNOSTIC (BRUSHINGS)
ERCP DRAIN, TUBE
ERCP INSERTION OF TUBE/STENT
ERCP PRESSURE OF ODDI
ERCP REM STONES
ERCP RMV FB OR CHG OF TUBE
ERCP SPHINCTEROTOMY
ES ABLATION (OTHER)
ES BAND LIGATION
ES BIOPSY
ES CONTROL BLEEDING
ES DIAGNOSTIC ENDO (BRUSHINGS)
ES DILATION (BALLOON)
ES DILATION (WIRE)
ES HOT BIOPSY(IES)
ES INJECTION / SCLEROSIS
ES INSERTION TUBE/STENT
ES REMOVAL FB
ES SNARE
ESOPHAGEAL DILATION
ESOPHAGEAL MOTILITY STUDY
ESOPHAGEAL RECORDING
ESOPHAGUS
ETT
ETT W/ O2 CONSUMPTION
ETT W/ THALLIUM SCAN

EXAM,SYNOVIAL FLUID CRYSTALS
EXCERCISE CHALLENGE
FINE NEEDLE ASPIRATION
FLEX SIG
FLOW VOLUME LOOP
FLX ABLATION (OTHER)
FLX BIOPSY
FLX CONTROL HEM.
FLX DECOMPRESS VOLVULUS
FLX DIAGNOSTIC (BRUSHINGS)
FLX HOT BIOPSY(IES)
FLX REMOVAL FB
FLX SNARE
FRC
FT CHANGE OF G TUBE
FT EGD FOR PEG PLACEMENT
FT PERC PLACEMENT OF G TUBE
FT REPOS TUBE THRU DUODENUM
FT SM INT ENDO CONV G-J TUBE
FT SM INT ENDO J TUBE PLACE
HEART RATE VAR. ANALYSIS
HEMODIALYSIS, ONE EVAL
HEMODIALYSIS, REPEATED EVAL.
HOLTER
I & D /DEBRIDEMENT
ICD IMPLANTATION
ICD INTERROGATION
ILEOSCOPY THROUGH STOMA
ILEOSCOPY W/ BIOPSY
INFUSION 1-8 HRS.
INFUSION TO 1 HR.
INJ FOR ANGIOGRAPHY
INJ FOR AV BYPASS GRAFTS
INJ TENDON/LIGAMENT/CYST
INJECTION, CARDIAC CATH
INTRA-ATRIAL PACING
INTRA-ATRIAL RECORDING
INTRAVENTRICULAR PACING
INTRODUCTION OF NEEDLE/CATH
IV FLUID THERAPY
IV INFUSION
IV PUSH
IV THER. 1-8 HRS.
IV THER. UP TO 1 HR.
LASER SURGERY (NOT YAG)
LEFT HEART CATHETERIZATIION

LEFT VENTRICULAR RECORDING
LIVER BIOPSY
LUNG COMPLIANCE
MECHANICAL VENTILATION
METHACHOLINE CHALLENGE
MONITOR W/ REVIEW & REPORT
OVER GUIDE WIRE
PACEMAKE IMPLANTATION
PACEMAKER
PACEMAKER FOLLOW UP
PACEMAKER, RHYTHM STRIP
PARACENTESIS
PERIPH BLOOD SMEAR INTERPRET
PHLEBOTOMY
PLACE CATHETER IN VEIN, HEMO
PLEURODESIS
PNEU BALLOON (30MM+) ACHALASIA
PROC ABLATION (OTHER)
PROC BIOPSY
PROC CONTROL BLEEDING
PROC DIAGNOSTIC (BRUSHINGS)
PROC DILATION
PROC HOT BIOPSY(IES)
PROC REMOVAL FB
PROC SNARE
PROC TUMORS, MULT (HOT/SN/BI)
PROCTOSCOPY
PROGRAMMED STIMULATION/PACING
PSEUDOFOLLICULAR SCAN
PULMONARY ARTERY CATHETER
PULMONARY FUNCTION INTERPRET
PULMONARY PROCEDURES
PULSE OXIMETRY MULTIPLE REHAB
PULSE OXIMETRY SINGLE REHAB
PULSE OXIMETRY, MULTIPLE
RHEUMATOLOGY PROCEDURES
RIGHT HEART CATHETERIZATION
RIGHT VENTRICULAR RECORDING
RT & LT HEART CATHETERS
SB ENDO W/ABLATION
SB ENDO W/BLEEDING CONTROL
SB ENDO W/FB REMOVAL
SB ENDO W/HOT BIOPSIES
SB ENDO W/INCL ILEUM
SB ENDO W/INCL ILEUM,BIOPSY
SB ENDO W/INCL ILEUM,BLD CONT

SB ENDO W/TUMORS (SNARE)
SCREENING, MAMMOGRAM
SCREENS AND INJ, ANTI-COAG
SLOW VITAL CAPACITY
SMALL BOWEL ENDOSCOPY
SMALL BOWEL ENDOSCOPY,BIOPSY
SOUND/BOUGIE;SINGLE/MULT
SPIROMETRY
SPIROMETRY, PRE & POST
STO ABLATION
STO BIOPSY
STO CONTROL HEM.
STO DIAG/BRUSHING
STO FOREIGN BODY
STO HOT BIOPSY(IES)
STO SNARE
STOMA
STRESS TEST, ECHO IMAGING
STRESS TEST, EXER (NON-IMAGE)
STRESS TEST, NUCLEAR IMAGING
SUBCUT./IM
SYMPTOM LIMITED EXERCISE TEST
THORACENTESIS
THORACIC GAS VOLUME
THORACOSTOMY
THRESHOLD TEST (DUAL)
THRESHOLD TEST (SGL)
TILT TABLE TEST FOR SYNCOPE
TRANS. BLOOD
TRANS. INDWELL. VEN. ACC. CARE
TRANS. THERAPEUTIC APHERESIS
TRANSFUSION
VENIPUNCTURE (ROUTINE), HEMO

17. Appendix C - Instrument Processing Routines

The following is a listing of the processing routines associated with each instrument.

Instrument Name:	**Processing Routine:**
CLINIVISION	MDHL7R1
[30]BRAUN	MDHL7D
BRAUN (Bi-Directional)	MDHL7D
FRESENIUS	MDHL7D
FRESENIUS (Bi-Directional)	MDHL7D
GAMBRO_EXALIS	MDHL7D
GAMBRO_EXALIS (Bi-Directional)	MDHL7D
Muse	MDHL7M1
Muse EKG	MDHL7M1
Muse Exercise	MDHL7M1
Muse Holter	MDHL7M1
Muse Pacemaker EKG	MDHL7M1
OLYMPUS	MDHL7E
OLYMPUS Bronchoscopy	MDHL7E
OLYMPUS Colonoscopy	MDHL7E
OLYMPUS EGD	MDHL7E
OLYMPUS EGDPEG	MDHL7E
OLYMPUS ERCP	MDHL7E
OLYMPUS Endo Ultrasound	MDHL7E
OLYMPUS Enteroscopy	MDHL7E
OLYMPUS Liver Biopsy	MDHL7E
OLYMPUS Paracentesis	MDHL7E
OLYMPUS Sigmoidoscopy	MDHL7E
SMC	MDHL7P1

[30] Patch MD*1.0*6 May 2008 Added Hemodialysis instrument entries: BRAUN, FRESENIUS, and GAMBRO.

18. [31]Appendix D – Exported Values For Hemodialysis Options

Custom Data List

Anticoagulants

Item	Value
1	Heparin
2	Citrate
3	Saline Flush
4	None
5	Warfarin

Code Statuses

Item	Value
01	DNR
02	AD Signed
03	Full Resuscitation
04	DNI

Dialyzer List

Item	Value
01	400-HG
02	500-HG
03	50H
04	50M
05	50U
06	600-HE
07	65H
08	65U
09	700-HE
10	75U
11	90U
12	Alwall GFE-09
13	Alwall GFE-11
14	Alwall GFE-12
15	Alwall GFE-15
16	Alwall GFE-18

[31] Patch MD*1.0*6 May 2008 Listed the exported values for Hemodialysis Options.

17 Alwall GFS Plus 11
18 Alwall GFS Plus 12
19 Alwall GFS Plus 16
20 Alwall GFS Plus 20
21 Alwall GFS-12
22 Alwall GFS-16
23 B3-0.8-A
24 B3-1.0-A
25 B3-1.0-A
26 B3-1.6-A
27 B3-2.0-A
28 BK-1.6-U
29 BK-2.1-U
30 C-061
31 C-081
32 C-101
33 C-121
34 C-151
35 CA-110
36 CA-150
37 CA-170
38 CA-210
39 CA-50
40 CA-70
41 CA-90
42 CAHP/DICEA 110G
43 CAHP/DICEA 150G
44 CAHP/DICEA 210G
45 CAHP/DICEA 90G
46 CF-12 (ST-12)
47 CF-15 (ST-15)
48 CF-23 (ST-23)
49 CF-25 (ST-25)
50 CT-110G
51 CT-190G
52 F5
53 F-50
54 F6
55 F-60
56 F-60-M
57 F8
58 F-80
59 F-80-M
60 Filtral 20
61 Lundia Alpha 400
62 Lundia Alpha 500

63 Lundia Alpha 600
64 Lundia Alpha 700
65 Lundia Aria 550
66 Lundia Aria 700
67 Lundia Pro 500
68 Lundia Pro 600
69 Lundia Pro 800
70 M-081
71 M-101
72 M-121
73 M-151
74 Optiflux 200r
75 Polyflux 11S
76 Polyflux 14S
77 Polyflux 17S
78 Polyflux 21S
79 Polyflux 210H
80 PSN120
81 PSN-150
82 PSN-170
83 PSN-210
84 T-150
85 T-175
86 T-220
87 Tricea 110G
88 Tricea 150G
89 Tricea 190G
90 Tricea 210G

Education Codes

Item	Value
01	One

ESRD Diagnosis

Item	Value
01	585
02	403.01
03	403.11
04	403.91
05	25000 A Type II, adult-onset type or unspecified type diabetes
06	25001 A Type I, juvenile type, ketosis prone diabetes
07	5829 A Glomerulonephritis (GN)(histologically not examined)

08 5821 A Focal glomerulosclerosis, focal sclerosing GN
09 5831 A Membranous nephropathy
10 5832 A Membranoproliferative GN type 1. diffuse MPGN
11 5832 C Dense deposit disease, MPGN type 2
12 58381 B IgA mephropathy, Berger's Disease (proven by immunofluorescence)
13 58381 C IgM nephropathy (proven by immunofluorescence)
14 5804 B Rapidly progressive GN
15 5834 C Goodpasture's Syndrome
16 5800 C Post infectious GN, SBE
17 5820 A Other proliferative GN
18 7100 E Lupus erythematosus, (SLE nephritis)
19 2870 A Henoch-Schonlein syndrome
20 7101 B Sclerodema
21 2831 A Hemolytic uremic syndrome
22 4460 C Polateritis
23 4464 B Wegener's granulomatosis
24 5839 C Nephropathy due to heroin abuse and related drugs
25 4462 A Vasculitis and its derivatives
26 5839 B Secondary GN, other
27 9659 A Analgesic abuse
28 5830 B Radiation nephritis
29 9849 A Lead nephropathy
30 5909 A Nephropathy caused by other agents
31 27410 A Gouty nephropathy
32 5920 C Nephrolithlasis
33 5996 A Acquired obstructive uropathy
34 5900 A Chronic pyelonephritis, reflux nephropathy
35 58389 B Chronic intersitial nephritis
36 58089 A Acute interstitial nephritis
37 5929 B Urolithiasis
38 2754 A Nephrocalcinosis
39 4039 D Renal disease due to hypertension (no primary renal disease)
40 4401 A Renal artery stenosis
41 59381 B Renal artery occlusion
42 59381 E Cholesterol emboli, renal emboli
43 75313 A Polycystic kidneys, adult type (dominant)
44 75314 A Polycystic, infantile (recessive) 7
45 75316 A Medullary cystic disease, including nephronophthisis
46 7595 A Tublar sclerosis
47 7598 A Hereditary nephritis, Alport's syndrome
48 2700 A Cystinosis
49 2718 B Primary oxalosis
50 2727 A Fabry's disease
51 7533 A Congenital nephrotic syndrome
52 5839 D Drash syndrome, mesangial sclerosis
53 7532 A Congenital obstructive uropathy

54 7530 B Renal hypoplasia, dysplasia, oligonephronia
55 7567 A Prune belly syndrome
56 7598 B Hereditary/familial nephropathy
57 1890 B Renal tumor (malignant)
58 1899 A Urinary tract tumor (malignant)
59 2230 A Renal tumor (benign)
60 2239 A Urinary tract tumor (benign)
61 2395 A Renal tumor (unspecified)
62 2395 B Urinary tract tumor (unspecified)
63 20280 A Lymphoma of kidneys
64 2030 A multiple myeloma
65 2030 B Light chain nephropathy
66 2773 A Amyloidosis
67 99680 A Complication post bone marrow or other transplant
68 28260 A Sickle cell disease/anemia
69 28269 A Sickle cell trait and other sickle cell (HbS/Hb other)
70 64620 A Post partum renal failure
71 0429 A AIDS nephropathy
72 8660 A Traumatic or surgical loss of kidney(s)
73 5724 A Hepatorenal syndrome
74 5836 A Tublar necrosis (no recovery)
75 59389 A Other renal disorders
76 7999 A Etiology uncertain

Medication Routes

Item	Value
01	ID
02	IN
03	IV
04	IVP
05	PO
06	SL
07	SQ

Medication Units

Item	Value
01	ml
02	mg
03	units
04	mcg
05	oz
06	gal

07	gr
08	Gm
09	Kg
10	lb
11	pt
12	in
13	qt
14	liter
15	Tsp
16	Tbsp
17	mEq

Modalities

Item	Value
01	HD
02	Inpatient HD
03	Short Intermittent HD
04	Nocturnal HD
05	ICU HD
06	Outpatient HD
07	Home HD

TIU Note Titles

Item	Value
01	Site Specific TIU Note Title

Transportation Methods

Item	Value
1	ambulatory
2	bed
3	motorized w/c
4	wheel chair
5	stretcher

Preferences

System Preferences

The system preferences are exported with the following default values:

Allow USER control Study Status = FALSE
Allow USER delete blank F/S records = FALSE
Allow USER Reset Study Status = FALSE
Application Web Page URL = http://vista.med.va.gov/clinicalspecialties/clinproc/showProject.asp?pid=1
Blanks Placeholder = <blank>
Broker Timeout (sec) = 30
Color Disabled = -16777201
Color Editable = -16777211
Color of Background = -16777201
Color of Toolbars = 12632256
Color Read Only = 15793151
Color Read/Write = 12632256
Color Required = -16777192
Color Review = 12632256
Color Unknown = 255
Falls Assessment as Separate TIU Note = TRUE
Flowsheet Refresh Rate (min) = 15
Ignore Unfinished Status = TRUE
Overwrite Manual Input = TRUE
Pain assessment based on how patient tolerates pain = FALSE
Pain Level = 1
Report keyword = TREATMENT REPORT
Reverse Flowsheet Order = TRUE
Save Flowsheet Vitals = FALSE
Save Vitals = FALSE
Set the new study Cover to Read Only = FALSE
Show Additional Reports = TRUE
Show Disabled Studies to Users = FALSE
Show Flowsheet Event Copies = TRUE
Show Infectious Diseases information as Tree = TRUE
Show report signature field = TRUE
Show TIU Note Templates = FALSE
Show Treatment Status Report = TRUE
Study List Refresh Rate (sec) = 60
Study Load Limit = 5
Summary Report Name = Summary Report

Report List

Summary Report Template

```
TREATMENT REPORT for HEMODIALYSIS STUDY #<StudyID>
_____________________________________________________________________

Patient Name: <PatientName>
SSN:.........<PatientSSN>
DOB:.........<PatientDOB>
Age:.........<PatientAge>
Sex:.........<PatientSex>

Treatment Date:.....<cdsInfo.StudyDate>
ESRD Diagnosis:.....<Diagnosis>
Diagnosis Date:.....<DDate>
Initial Therapy Date:..<InitialTDate>
Modality:...........<Modality>
Code Status:........<CodeStatus>
Attending Nephrologist:<Attending Nephrologi>
Schedule:...........<SCHEDULE>
Transplant Candidate...<cdsSummary.TransCand>
  Work in Progress.....<cdsSummary.TransWIP>
  Referred to TC.......<cdsSummary.TransReff>


Station#: <Station>
Machine#: <Machine>

TREATMENT SUMMARY
_________________

Treatment Start Time:..<Treatment Start Time>
Treatment End Time:....<Treatment End Time>
Treatment Duration:....<Treatment Duration> (instrument data)
Duration  Adjusted:....<Treatment Duration M> (manual input)

Total UF:...........<Summary Total UF>         Total LP:.........<Summary
Total LP>
Mean UFR:...........<Summary Mean UFR>         Mean TMP:.........<Summary
Mean TMP>
Average BFR:........<Summary Avg BFR>         Average DFR:.......<Summary
Avg DFR>
Mean Dialysis Temp:....<Summary Mean Temp>         Mean Conductivity:.<Summary
Mean Cond>
Total KT:...........<Summary Total KT>         Total KT/V:........<Summary
Total KT/V>
URR:................<Summary URR>

Intra Access BF:.......<IABF>
VP at Zero BF:.........<VP0>
AVP at Zero BF:........<AVP0BF>
VP at 200 ml/min:......<VP200>

Overall Comments:
<Summary Comments>

RX
__

ORDER
  Dialyzer:........<cdsSummary.Dialyzer>
```

```
  Reuse: Max#:.....<cdsSummary.ReuseNum>
  Tx Length:.......<TxLength>
  Ultrafiltration:.<cdsSummary.RxUltra> kg/hr
  EDW:.............<cdsSummary.RxEDW> Kg
  BFR:.............<cdsSummary.BFR> cc/min
  Dialysate Flow:..<cdsSummary.DFlow> cc/min
  Temperature:.....<cdsSummary.Temp> C

DIALYSATE FORMULA
  K:...............<cdsSummary.DFK> meq/Liter
  HC03:............<cdsSummary.DFHCO3> meq/Liter
  NA:..............<cdsSummary.DFNA> meq/Liter
  CA:..............<cdsSummary.DFCA> meq/Liter

ANTICOAGULANTS
  Type:............<cdsSummary.ACType>
  Bolus:...........<cdsSummary.ACLoad>
  Maintenance:.....<cdsSummary.ACDoses>
  Duration:........<cdsSummary.ACEndTime>
  Other:...........<cdsSummary.ACOther>

MODELING
  NA:..............<cdsSummary.MODNA>
  UF:..............<cdsSummary.MODUF>

OTHER ORDERS
<cdsSummary.RxOther>

Rx and Lab Notes:
<cdsSummary.LabNotes>

PRE-TREATMENT
_____________

WEIGHT
  Pre-Weight:......<Summary Pre Weight> Kg
  Dry Weight:......<cdsSummary.RxEDW>  Kg
  Goal Weight:.....<Summary Goal Weight> Kg
TEMPERATURE
  Pre-Temp:........<Summary Pre Temp> F
PRE-BLOOD PRESSURE AND PULSE SEATED
  BP:..............<Sum Pre BP Sys Sit> / <Sum Pre BP Dia Sit> mm Hg
  Pulse:...........<Sum Pre Pulse Sit> bpm
PRE-BLOOD PRESSURE AND PULSE STANDING
  BP:..............<Sum Pre BP Sys Stand> / <Sum Pre BP Dia Stand> mm Hg
  Pulse:...........<Sum Pre Pulse Stand> bpm

<Pre Pain Report>

MENTAL STATUS
  Alert:...........<Sum Pre Alert>
  Confused:........<Sum Pre Confused>
  Sedate:..........<Sum Pre Sedate>
  Unresponsive:....<Sum Pre Unresponsive>
  Lethargic:.......<Sum Pre Lethargic>
  Restless:........<Sum Pre Restless>
  Oriented:........<Sum Pre Oriented>
                  (<Sum Pre Oriented Tex>)

OTHER
  Edema:...........<Sum Pre Edema>
  Respirations:....<Sum Pre Resp>
  Shortness of Breath: <Sum Pre SOB>
```

```
PATIENT EDUCATION
  Has the patient been educated?...<Educated>
    Education Key:.<EduKey>
    Education Init.<EduInit>

PATIENT TRANSPORTATION
  Transported by:..<PreTransportation>

SAFETY CHECKS
  Have the safety checks been performed? <SafetyChecks>

PRE-TREATMENT NOTES:
<cdsSummary.PreNotes>

ACCESS USED
___________

<ACCESS USED>

FLOWSHEET
_________

<FLOWSHEET>

Flowsheet Notes:
<Flowsheet Notes>

MEDICINE ADMINISTRATION
_______________________

<MEDICINE TABLE>

POST-TREATMENT
______________

WEIGHT
  Post-Weight:.....<Summary Post Weight> Kg
  Tx Goal Weight:..<cdsSummary.RxEDW> Kg
TEMPERATURE
  Post-Temp:.......<Summary Post Temp> F
POST-BLOOD PRESSURE AND PULSE SEATED
  BP:..............<Sum Post BP Sys Sit> / <Sum Post BP Dia Sit> mm Hg
  Pulse:...........<Sum Post Pulse Sit> bpm
POST-BLOOD PRESSURE AND PULSE STANDING
  BP:..............<Sum Post BP Sys Stan> / <Sum Post BP Dia Stan> mm Hg
  Pulse:...........<Sum Post Pulse Stand> bpm

<Post Pain Report>

MENTAL STATUS
  Alert:...........<cdsSummary.PostAlert>
  Confused:........<cdsSummary.PostConfu>
  Sedate:..........<cdsSummary.PostSedat>
  Unresponsive:....<cdsSummary.PostUnres>
  Lethargic:.......<cdsSummary.PostLetha>
  Restless:........<cdsSummary.PostRestl>
  Oriented:........<PostOriented>
    (type):........<PostOrientedText>

OTHER
  Edema:...........<cdsSummary.PostEdema>
  Respirations:....<cdsSummary.PostResp>
  Shortness of Breath: <cdsSummary.PostSOB>
```

```
OBSERVATIONS
  Was the treatment weight acheived? <cdsSummary.POWeight>
  Was any medication administered? <cdsSummary.POMedicat>
  How did the patient tolerate treatment?
    Vomiting:......<cdsSummary.TlrVom>
    Hypotension:...<cdsSummary.TlrHyp>
    Syncope:.......<cdsSummary.TlrSyn>
    Cramping:......<cdsSummary.TlrCram>
    Stable:........<Sum Post Stable>
    Other:.........<cdsSummary.TlrOther> (<cdsSummary.TlrOtherD>)

TRANSPORTATION
  Transported by:..<PostTransportation>

POST-TREATMENT NOTES
<cdsSummary.PostNotes>

FALLS RISK EVALUATION
<FallsAssessment>


_____________________________________________________

Report was generated by <Version>
                     at <Now>
```

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