CLINICAL PROCEDURES
IMPLEMENTATION GUIDE

Version 1.0

April 2004

Department of Veterans Affairs
V*ist*A Health Systems Design and Development

Revision History

Description	Date
Originally released.	April 2004

Table of Contents

1. Introduction

This implementation manual describes how to implement the Clinical Procedures (CP) application. It also contains setup instructions for Consults/Request Tracking, Text Integration Utility (TIU), Computerized Patient Record System (CPRS) and commercial off the shelf (COTS) interfaced devices. All setup instructions and their steps are required for a successful implementation of the Clinical Procedures package.

Topics discussed in this chapter are:

About Clinical Procedures

A clinical procedure is a clinical test where the result is usually obtained from an automated instrument such as pulmonary function devices, EKGs, ECHOs, EMGs, EEGs, endoscopy and bronchoscopy instruments, dialysis machines, or other similar COTS devices. CP is a conduit for passing final patient results, using Health Level 7 (HL7) messaging, between vendor clinical information systems (CIS) and Veterans Health Information Systems and Technology Architecture (VistA). The patient's test result or report is displayed through the Computerized Patient Record System (CPRS). The report data is stored on the Imaging Redundant Array of Inexpensive Disks (RAID) and in some instances, discrete data is stored in the Medicine database.

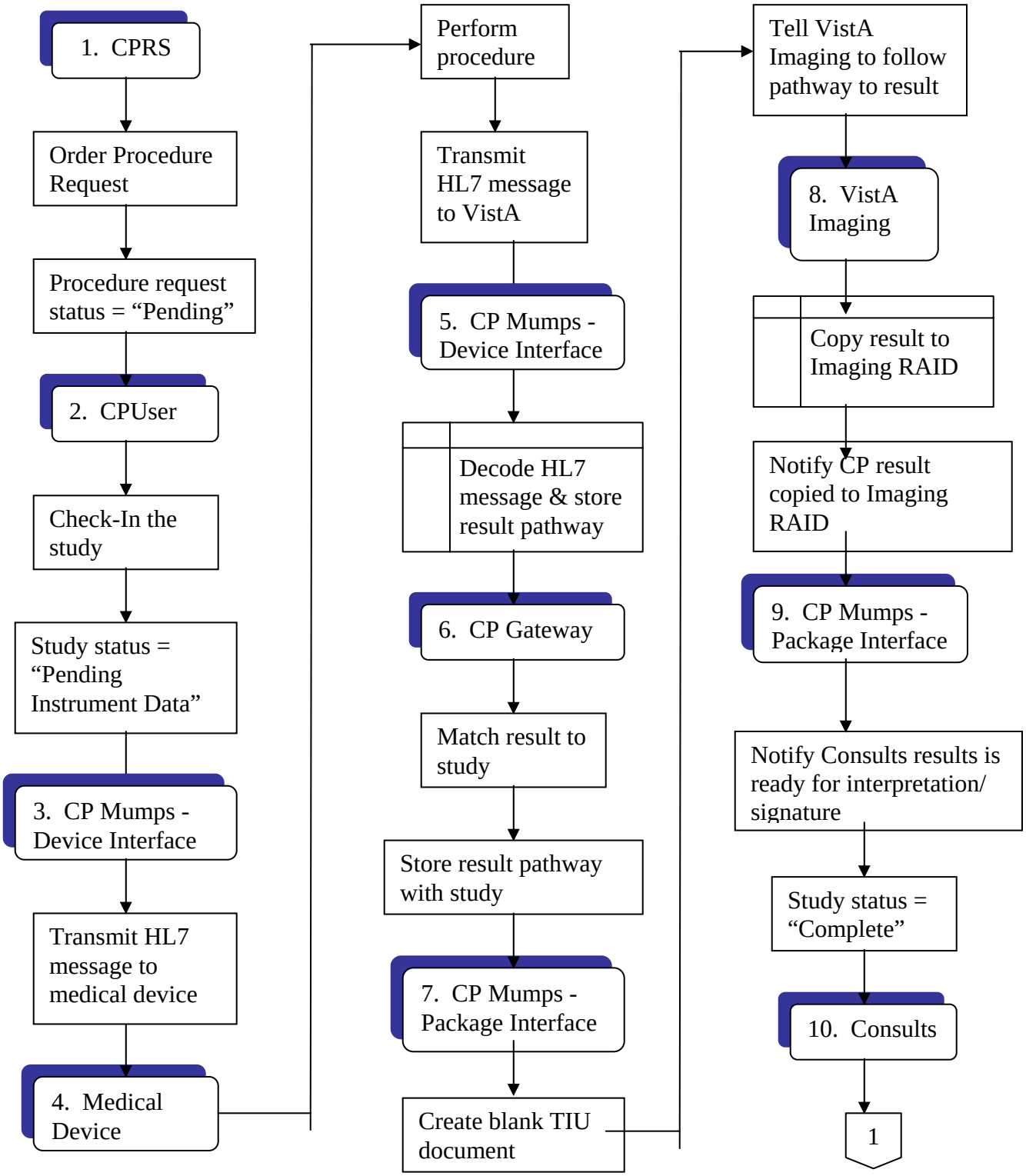
CP provides features that can be used across clinical departments such as general medicine, cardiology, pulmonary, women's health, neurology, and rehabilitation medicine. CP uses the procedure order function that is included with the Consults/Procedures package. For example, a clinician places an order for a procedure, such as an EKG, in the Consults/Procedures application.

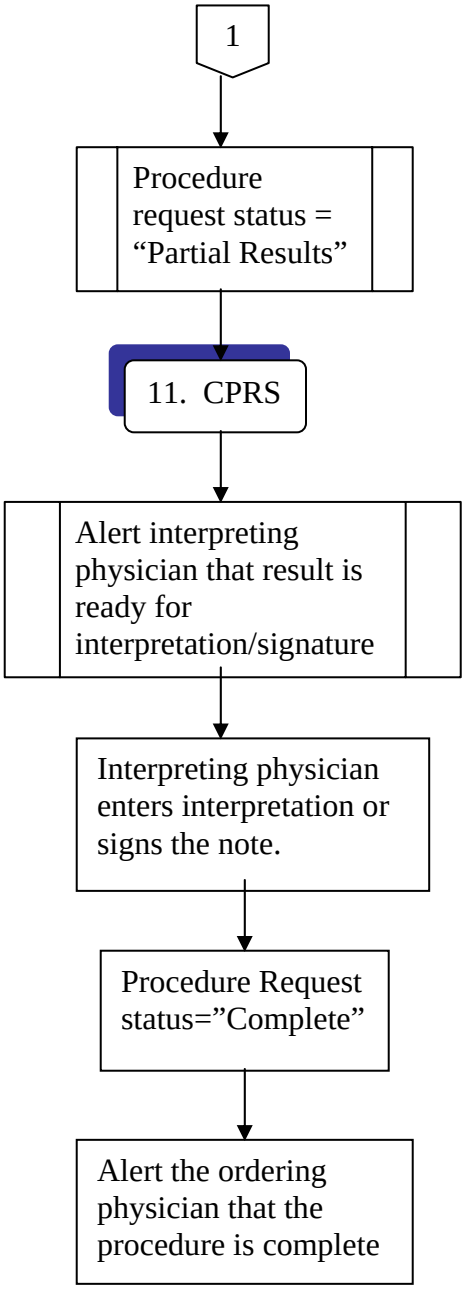
If the procedure is performed on a bi-directional instrument, the patient demographics are automatically transmitted to the instrument. When the procedure is complete, the result is then transmitted back to VistA. The result is stored in VistA Imaging and associated with a TIU document. The result and the TIU document are then associated with the original Consults order.

If the procedure is performed on a uni-directional instrument, then the clinician must use the CP User application to match the instrument results to the procedure order. Then the clinician submits the results to Imaging and creates the TIU document. Once the TIU document is in place, standard Consults functionality is used to complete and sign the TIU document.

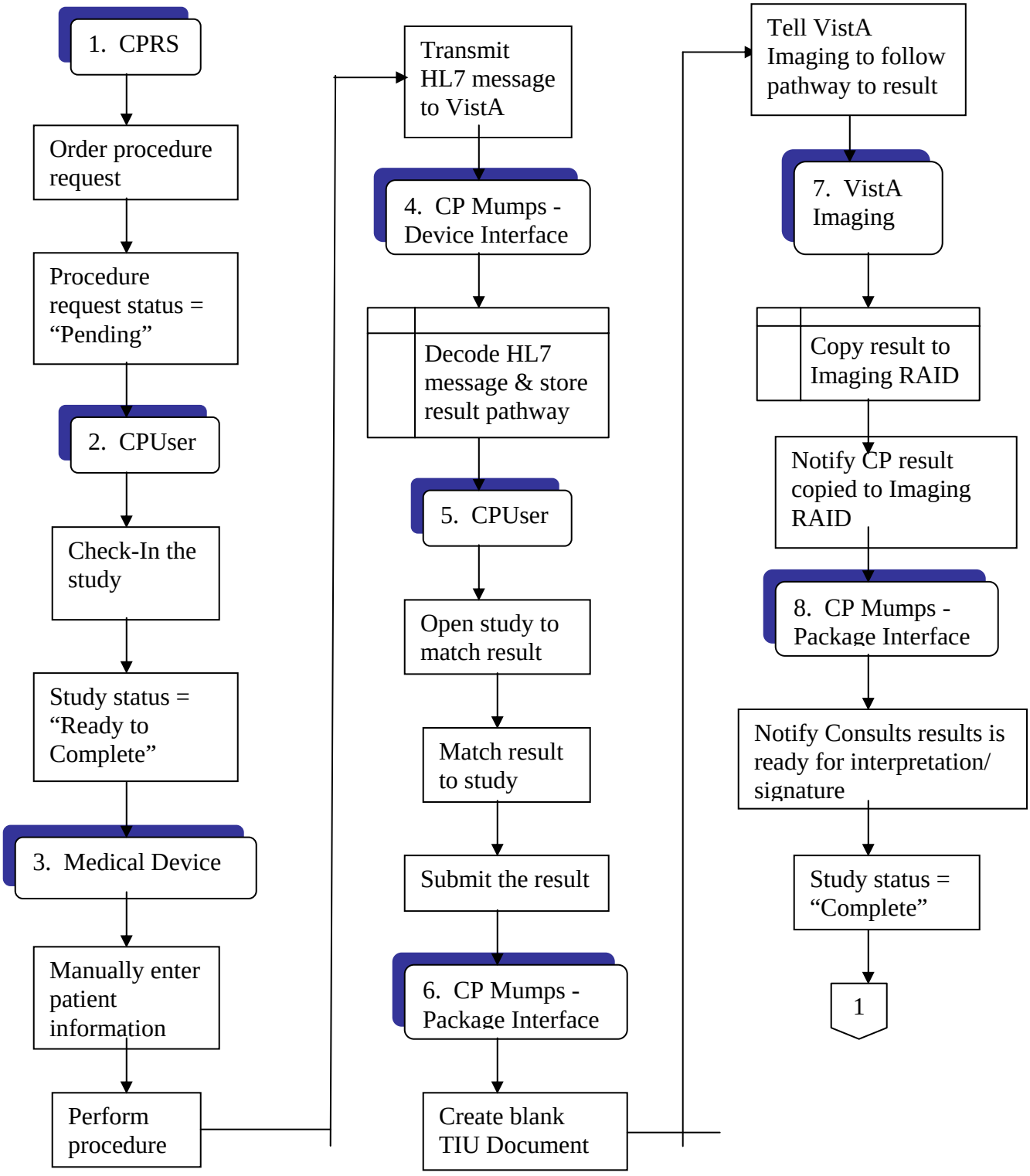
The following pages contain flowcharts explaining the bi-directional and uni-directional Clinical Procedures process flow.

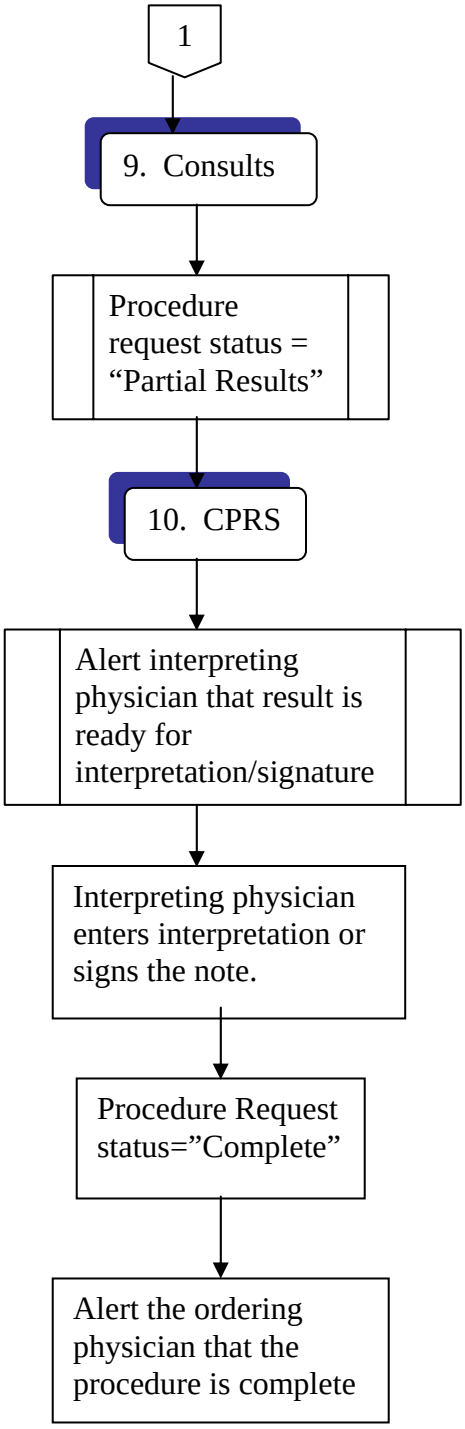
Clinical Procedures Bi-Directional Interface Process Flow:



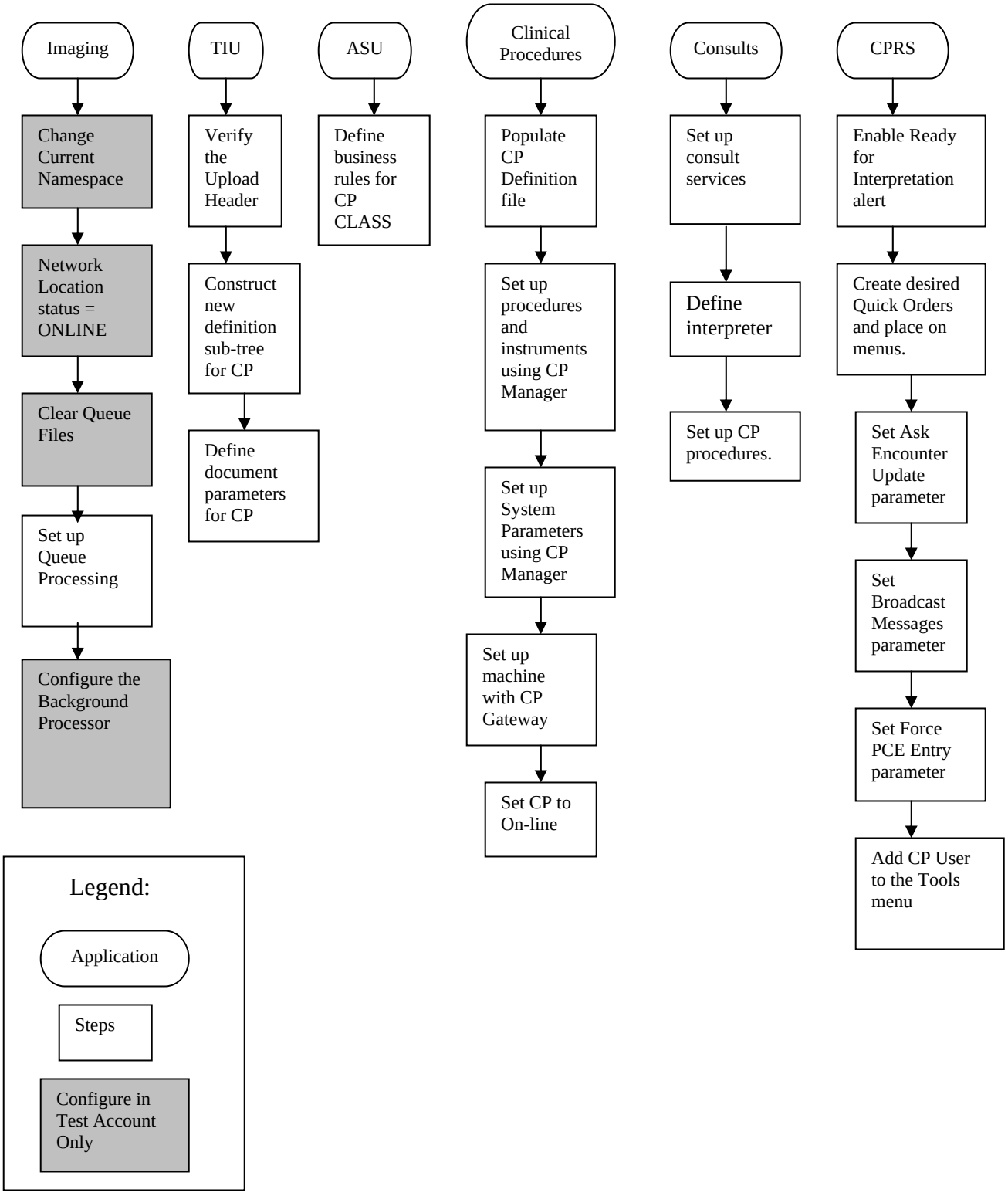

1
Procedure request status = “Partial Results”
11. CPRS
Alert interpreting physician that result is ready for interpretation/signature
Interpreting physician enters interpretation or signs the note.
Procedure Request status=”Complete”
Alert the ordering physician that the procedure is complete

Clinical Procedures Uni-Directional Interface Process Flow:




1
9. Consults
Procedure request status = "Partial Results"
10. CPRS
Alert interpreting physician that result is ready for interpretation/signature
Interpreting physician enters interpretation or signs the note.
Procedure Request status="Complete"
Alert the ordering physician that the procedure is complete

This is a flowchart describing the configuration of Clinical Procedures:



About CP User

CP User checks in a procedure request for a study. CP User also links the result from the automated instrument to the procedure ordered through Consults in CPRS. With CP User, if the device is bi-directional, the clinician manages the results and submits them to the requested device. The results then are automatically processed by CP Gateway, stored in VistA Imaging, and are ready for review within Consults. If the instrument is uni-directional, the clinician has to associate the results and submit them to the VistA Imaging system for storage. These attachments display under the appropriate TIU document for the original Consults order.

About CP Manager

CP Manager is used to configure the site files, CP INSTRUMENTS, CP PROCEDURES and required system parameters. It is recommended that access to CP Manager be restricted to users who manage the CP applications.

About CP Gateway

CP Gateway manages the flow of information from the instrument interfaces to the studies. CP Gateway polls VistA regularly for new data from instruments and processes this data into usable attachments for the VistA Imaging system. This module also manages the log files and purges log file entries.

Intended Audience

The Implementation Guide is intended for use by Clinical Application Coordinators (CAC), Technical Support Office (TSO), Information Resource Management (IRM), implementation managers, and Enterprise VistA Support (EVS). Each team member is responsible for different aspects of the implementation, and then the maintenance of the product.

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://vista.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.

You may also want to use the CP Site Installation Checklist, which is available on the CP website. Go to http://vista.med.va.gov/ClinicalSpecialties/clinproc/.
Click Documentation, and then click Site Installation Checklist. This list includes a high-level step-by-step guide to the installation and the implementation process.

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. 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

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.

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, 8-8.

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

NOTE: Both of these globals must 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.

2. Using CP Manager

This chapter describes how to use CP Manager.

Topics discussed in this chapter are:

CP Manager Toolbar

Here is a list of icon descriptions:

 New Instrument - Creates a new instrument.

 New Procedure - Creates a new procedure.

 Make a Copy of the Selected Item – Creates a copy of the selected instrument or procedure.

 Undo Changes - Cancels changes made since that last save to the current screen.

 Save - Saves changes made to current screen.

 Delete - Deletes an instrument or procedure.

 Print a Report - Prints reports listing instruments, procedures, or system parameters.

 Find a Parameter - Finds an instrument or procedure.

 Calculate a File's CRC Value - Calculates a file's CRC (Cyclical Redundancy Check) value.

 Instrument Analyzer - Indicates whether an instrument is ready for use or not and why.

 Refresh - Refreshes the parameter listing on the left side of the Clinical Procedures Manager screen.

 Help - Provides online help for this package.

 Clinical Procedures Home Page - Goes to the Clinical Procedures Home Page on the Web.

Finding a Parameter

Use this option when you want to find a specific automated instrument or procedure.

1. Select **Tools** > **Find a Parameter**.
2. Enter a partial or complete name of the instrument or procedure.
3. Click **OK** to begin the search.
4. If you find the parameter that you are searching for, click **Yes** on the confirmation window. The edit window for the parameter is displayed.

Deleting an Automated Instrument or Procedure

You may want to delete an instrument or a procedure that you are no longer using at your site. Before you delete an instrument or procedure, be sure that the CP procedure is not linked to a Consult procedure. (You cannot delete a procedure that is linked to Consults.) If you already used the CP procedure, then it is already linked to Consults. If the CP procedure is associated with a consult procedure, you must remove the links before you can delete the procedure.

To ensure that the links are removed, you can use FileMan to view the CP Definition file. If the **CONSULT PROCEDURE** column of the report is empty, then you know that there aren't any Consults/Procedure entries pointing to the definition. Here's an example of the report:

Using FileMan, do the following...

```
Select OPTION: 2 PRINT FILE ENTRIES

OUTPUT FROM WHAT FILE: CP DEFINITION
SORT BY: NAME// <Ret>
START WITH NAME: FIRST// <Ret>
FIRST PRINT FIELD: .01;L30;"CP DEFINITION"
THEN PRINT FIELD: GMRC PROCEDURE:
   By 'GMRC PROCEDURE', do you mean the GMRC PROCEDURE File,
       pointing via its 'CLINICAL PROCEDURE' Field ("AC" Cross-reference)? Yes// Y
  THEN PRINT GMRC PROCEDURE FIELD: .01;L30;"CONSULT PROCEDURE"
  THEN PRINT GMRC PROCEDURE FIELD: <Ret>
THEN PRINT FIELD: <Ret>
Heading (S/C): CP DEFINITION LIST// CP DEFINITIONS AND RELATED CONSULT PROCEDURES
STORE PRINT LOGIC IN TEMPLATE: <Ret>
DEVICE: HOME

CP DEFINITIONS AND RELATED CONSULT PROCEDURES       FEB  6,2004  09:12    PAGE 1
CP DEFINITION                  CONSULT PROCEDURE
-------------------------------------------------------------------------------

ANO SINGLE TUMOR (HOT/BICAP)
ANOSCOPY
ARRHYTHMIA INDUCTION BY PACING  ARRYTHMIA
ARTERIAL BLOOD GASES
ARTERIAL CANNULATION
ARTERIAL PUNCTURE
BIOPSY LUNG, PERCUTANEOUS NDL
BIOPSY, PLEURA
BONE MARROW                     BONE MARROW ASPIRATE
BONE MARROW INTERPRETATION      BONE MARROW BIOPSY
                                BONE MARROW ASSESSMENT
BRONC DIAGNOSTIC W/BAL
BRONC W/BRONC WASHING           BRONCHOSCOPY
BRONC W/TRANSBRONC LUNG BX
BRONCHOSCOPY, LASER
BRONCHOSCOPY, STENT PLACEMENT
...
```

After you have determined that the CP procedure is not linked to Consults, follow these steps to delete.

1. Use the GMRC MGR menu option. Under the Setup Procedure option, delete the CP procedure from the CLINICAL PROCEDURE field.
2. Logon to CP Manager.
3. Display the list of automated instruments or procedures on the CP Manager window.
4. Click the name of the instrument or procedure that you want to delete.
5. Select **File** > **Delete**.

6. Click **Yes** to confirm the deletion.

Printing Reports

You can print a listing of automated instruments, procedures, or system parameters. You can also print a detailed report of a selected instrument or procedure.

To print a list of instruments, procedures or system parameters, do the following:

1. Select **File > Print**.
2. Select **Automated Instruments**, **Procedures**, or **System Parameters**. If you previously selected a specific instrument or procedure, you can also select that instrument or procedure name.
3. Click **OK** to print.

To print a report of a selected instrument or procedure:

1. Select the instrument or procedure name.
2. Select **File > Print**.
3. From the list of available reports, select the procedure or instrument. You may have to enter a report title.
4. Click **OK** to print.

Example of an Automated Instruments report:

Automated Instruments Printed: 7/10/03 3:34:21 PM

NAME	PRINT NAME	SERIAL #	M RTN	PKG	ACTIVE
CLINIVISION	Clinivision	CL58374	MDHL7R1	CP V1.0	No
MUSE	Muse	M8372J2	MDHL7M1	CP V1.0	Yes
MUSE EKG	Muse EKG	M8372J2	MDHL7M1	CP V1.0	Yes
OLYMPUS	Olympus	O46237A	MDHL7E	CP V1.0	Yes
OLYMPUS EGD	Olympus EGD	O46237A	MDHL7E	CP V1.0	Yes

[End of Report]

Clinical Procedures V1.0 Page: 1

Example of a Procedures report:

Procedures Printed: 7/10/03 3:34:30 PM

NAME	TREATING SPECIALTY	TIU NOTE	LOCATION	ACTIVE	EXT DATA
BIOPSY LUNG	PULMONARY	PULMONARY NOTE	PULMONARY CLINIC	No	No
ECHO	CARDIOLOGY	CARDIOLOGY NOTE	CARDIOLOGY CLINIC	Yes	Yes
EGD DIAGNOSTIC	GASTROENTEROLOGY	EGD NOTE	GI LAB	Yes	Yes
HOLTER	CARDIOLOGY	CARDIOLOGY NOTE	CARDIOLOGY CLINIC	Yes	No
PACEMAKER FOLLOWUP	CARDIOLOGY	CARDIOLOGY NOTE	CARDIOLOGY CLINIC	Yes	Yes

[End of Report]

Clinical Procedures V1.0 Page: 1

Example of a System Parameters report:

System Parameters Printed: 7/10/03 3:34:40 PM

System Parameters For: DEV.DEV.FO-HINES.MED.VA.GOV

```
Parameter:   MD ALLOW EXTERNAL ATTACHMENTS              Type:     yes/no
Description: Allow non-instrument attachments           Multiple: No
      Value: NO

Parameter:   MD CRC BYPASS                              Type:     yes/no
Description: Bypass CRC Checking                        Multiple: No
      Value: YES

Parameter:   MD CRC VALUES                              Type:     free text
Description: Clinical Procedures CRC Values             Multiple: Yes
  Values:
  CPGATEWAY.EXE.1.0.0.20      = ODCE4C31
  CPGATEWAY.EXE.1.0.0.21      = ODCE4C31
  CPMANAGER.EXE.1.0.0.20      = CB12FEE0
  CPMANAGER.EXE.1.0.0.21      = CB12FEE0
  CPUSER.EXE.1.0.0.20         = B819E183
  CPUSER.EXE.1.0.0.21         = B819E183

Parameter:   MD DAYS FOR INSTRUMENT DATA                Type:     numeric
Description: Temporary instrument data life (Days)      Multiple: No
      Value: 2

Parameter:   MD FILE EXTENSIONS                         Type:     free text
Description: Imaging File Types                         Multiple: Yes
  Values:
  .bmp             = Bitmap Images
  .doc             = MS Word files
  .html            = Hypertext Markup Language files
  .jpeg            = JPEG Images
  .jpg             = JPEG Images
  .pdf             = Portable Document Format
  .rtf             = Rich text files
  .tiff            = TIFF Graphics
  .txt             = Text files

Parameter:   MD HFS SCRATCH                             Type:     free text
Description: VistA Scratch HFS Directory                Multiple: No
      Value: USER$:[HFS]

Parameter:   MD IMAGING XFER                            Type:     free text
Description: Imaging Network Share                      Multiple: No
      Value: \\Ish-imaging\Uploads

Parameter:   MD OFFLINE MESSAGE                         Type:     word processing
```

```
Description: Offline message                              Multiple: No
WP-Text:

Parameter:   MD ONLINE                                    Type:     yes/no
Description: Clinical Procedure Online/Offline            Multiple: No
      Value: YES

Parameter:   MD VERSION CHK                               Type:     YES/NO
Description: Version Compatibility                        Multiple: Yes
  Values:
  CPGATEWAY.EXE.1.0.0.20      = YES
  CPGATEWAY.EXE.1.0.0.21      = YES
  CPMANAGER.EXE.1.0.0.20      = YES
  CPMANAGER.EXE.1.0.0.21      = YES
  CPUSER.EXE.1.0.0.20         = YES
  CPUSER.EXE.1.0.0.21         = YES

Parameter:   MD WEBLINK                                   Type:     free text
Description: Clinical Procedures Home Page                Multiple: No
      Value:
vista.med.va.gov/ClinicalSpecialties/clinproc/
[End of Report]
```

Clinical Procedures V1.0 Page: 1

Example of a report for an individual automated instrument:

Instrument - Muse EKG Printed: 7/10/03 3:34:51 PM

Instrument Name: Muse EKG

```
Notification Mailgroup:     MD DEVICE ERRORS
Description:                Muse EKG Device Interface
Delete when submitted:      <Blank>
Printable Name:             Muse EKG
Default Ext.:               <Blank>
Serial Number:              M8372J2
Active:                     Yes
M Routine:                  MDHL7M1
Pkg Code:                   CP V1.0
Bi-Directional Instrument:  Yes
IP Address:                 10.3.25.28
Port:                       9300
HL7 Inst ID:                Muse EKG
HL7 Unv Svc ID:             93000=EKG
HL7 Link:                   MCAR OUT
Server Name:                <Blank>
Share Name:                 <Blank>
Path Name:                  <Blank>
Executable Name:            <Blank>
UNC:                        <Blank>
Text:                       <Blank>
URL:                        <Blank>
DLL:                        <Blank>
UUEncode:                   Yes
XML:                        <Blank>
XMS:                        <Blank>
[End of Report]
```

Clinical Procedures V1.0 Page: 1

Example of a report for an individual procedure:

Procedure - ECHO Printed: 7/10/03 3:35:02 PM

Procedure Name: ECHO

```
Treating Specialty:             CARDIOLOGY
Require External Data:          Yes
TIU Note Title:                 CARDIOLOGY NOTE
Hospital Location:              CARDIOLOGY CLINIC
Auto Submit to VistA Imaging:   Yes, Submit to VistA Imaging
External Attachment Directory:  /CARDPATH
Active:                         Yes

Associated Instruments:
------------------------------
MUSE
[End of Report]
```

Clinical Procedures V1.0 Page: 1

3. About Test Accounts and Imaging

This section explains how to prevent Imaging System conflicts at sites where a mirror of a VistA account has been created for test purposes. Be sure to follow the instructions in this section before you add any new images to the test account. These steps are required.

> **Note:** This section assumes that the test account has already been created.
>
> **Caution**: The changes described in this section are intended for test accounts only. Making these changes in a production account can compromise the Imaging database and could result in the loss of patient data.

Topics discussed in this chapter are:

Changing All Test Accounts

For all test accounts, you must change the current namespace and set the imaging network location operational status.

> **Caution:** The changes described in this section are intended for test accounts only. Making these changes in a production account can compromise the Imaging database and may result in the loss of patient data.

Changing the Current Namespace

You must change the value of Current Namespace (2006.1, .02) to prevent test images from mixing with and in some cases overwriting actual patient images. Using VA FileMan, change the Current Namespace field in the IMAGING SITE PARAMETERS file to **ZZ** as follows:

```
DVA>D P^DI

VA FileMan 22.0

Select OPTION: ENTER OR EDIT FILE ENTRIES

INPUT TO WHAT FILE: IMAGING SITE PARAMETERS// 2006.1  IMAGING SITE
PARAMETERS
                                              (1 entry)
EDIT WHICH FIELD: ALL// .02  CURRENT NAMESPACE
THEN EDIT FIELD: <enter>

Select IMAGING SITE PARAMETERS NAME: `1  IMGDEM01.MED.VA.GOV
CURRENT NAMESPACE: AB// ZZ

Select IMAGING SITE PARAMETERS NAME:
```

Note: If you have more than one million entries in the Imaging file (2005), use a single character for the namespace, such as **Z**.

After this change is made, the first image captured to the test account creates the ZZ directory on the VistA Imaging file servers. All test account images are stored in the ZZ directory and include the ZZ prefix in their file names such as, ZZ123456.tga.

Note: For test accounts at multi-divisional sites that are running the VistA Imaging "Consolidated Code", you must modify the Current Namespace field for each division defined in the file. Make the value for each instance of Current Namespace unique, such as ZX, ZY, or ZZ.

Setting the Imaging Network Location Status

Be sure the Imaging Network Location status for the test account is set to "online". There is an option on the Background Processor that lets you view each network and changes its status. Select **Edit > Network Location Manager** (Figure 3-1), and then select the **Online Status** checkbox (Figure 3-2).

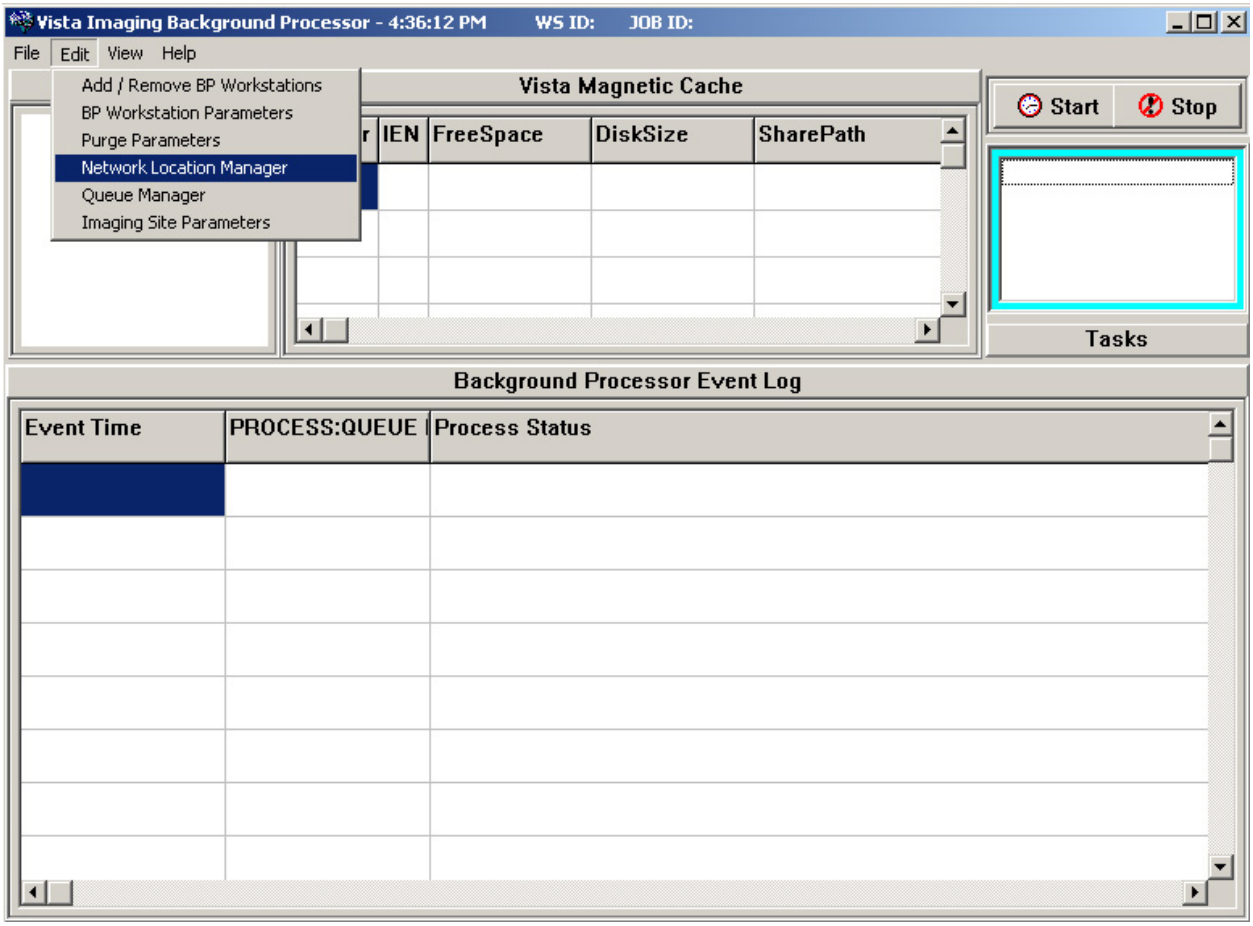


Fig. 3-1

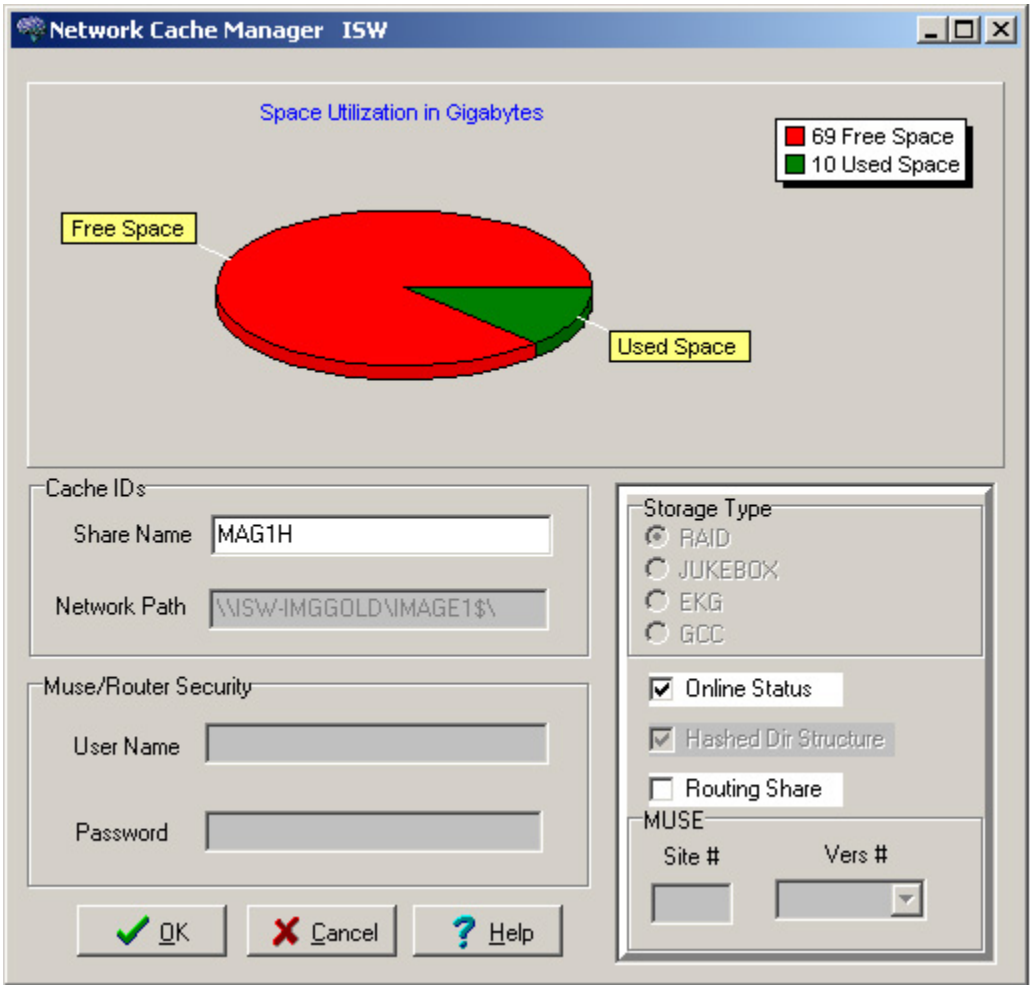

Network Cache Manager ISW
Space Utilization in Gigabytes
69 Free Space
10 Used Space
Free Space
Used Space
Cache IDs
Share Name
MAG1H
Network Path
\\ISW-IMGGOLD\IMAGE1$\
Muse/Router Security
User Name
Password
Storage Type
RAID
JUKEBOX
EKG
GCC
Online Status
Hashed Dir Structure
Routing Share
MUSE
Site #
Vers #
OK
Cancel
Help

Fig. 3-2

Configuring the Imaging Display Station

When the Imaging Display Station wants to use the test account, the station needs to know the name and port number of the account. Run MAGSYS.EXE to edit the MAG.INI file. For the procedure, refer to the Imaging System Installation Guide, V. 3.0. (http://vaww.va.gov/imaging/IMGinstallgd.pdf)

Changing Test Accounts that Use a Background Processor

If a Background Processor is needed for the test account, you must make the following changes:

1. Delete test account entries in the Background Processor Queue files. You need to delete the entries to keep the test Background Processor from reprocessing tasks left over from the production account. Use VA FileMan to delete all entries in the following two files:

   IMAGE BACKGROUND QUEUE file (2006.03)
   IMAGE BACKGROUND QUEUE POINTER file (2006.031)

   Caution: Only perform these steps on a test account. Use extreme caution when deleting all entries in a file.

```
DVA>D P^DI

VA FileMan 22.0

Select OPTION: ENTER OR EDIT FILE ENTRIES

INPUT TO WHAT FILE: IMAGE BACKGROUND QUEUE// 2006.03  IMAGE BACKGROUND
QUEUE
                                              (6543 entries)
EDIT WHICH FIELD: ALL// .01///@
    WARNING: THIS MEANS AUTOMATIC DELETION!!  QUEUE NAME
THEN EDIT FIELD: <enter>

Select IMAGE BACKGROUND QUEUE QUEUE NAME: ^LOOP
EDIT ENTRIES BY: QUEUE NAME// <enter>
START WITH QUEUE NAME: FIRST// <enter>
      ...
      JUKEBOX
      JUKEBOX
      JUKEBOX
      JUKEBOX
    LOOP ENDED!

Select IMAGE BACKGROUND QUEUE QUEUE NAME: ^

Select OPTION: ENTER OR EDIT FILE ENTRIES

INPUT TO WHAT FILE: IMAGE BACKGROUND QUEUE// 2006.031  IMAGE BACKGROUND
QUEUE
                                          POINTER   (5 entries)
EDIT WHICH FIELD: ALL// .01///@
    WARNING: THIS MEANS AUTOMATIC DELETION!!  QUEUE NAME
THEN EDIT FIELD: <enter>

Select IMAGE BACKGROUND QUEUE POINTER QUEUE NAME: ^LOOP
EDIT ENTRIES BY: QUEUE NAME// <enter>
START WITH QUEUE NAME: FIRST// <enter>
```

```
    ABSTRACT
    GCC
    IMPORT
    JBTOHD
    JUKEBOX
  LOOP ENDED!

Select IMAGE BACKGROUND QUEUE POINTER QUEUE NAME:
```

2. **Configure the Background Processor being used in the test account** to process only the ABSTRACTS and IMPORT queues. Turn off all other queue processing. Use the BP Workstation Parameters option to configure queue processing.

   a. From the Background Processor, choose **Edit** > **BP Workstation Parameters**.

   b. If there are multiple Background Processors listed in the top dialog, select the one that is being used for the test account.

   c. Ensure that only the options shown below are selected.

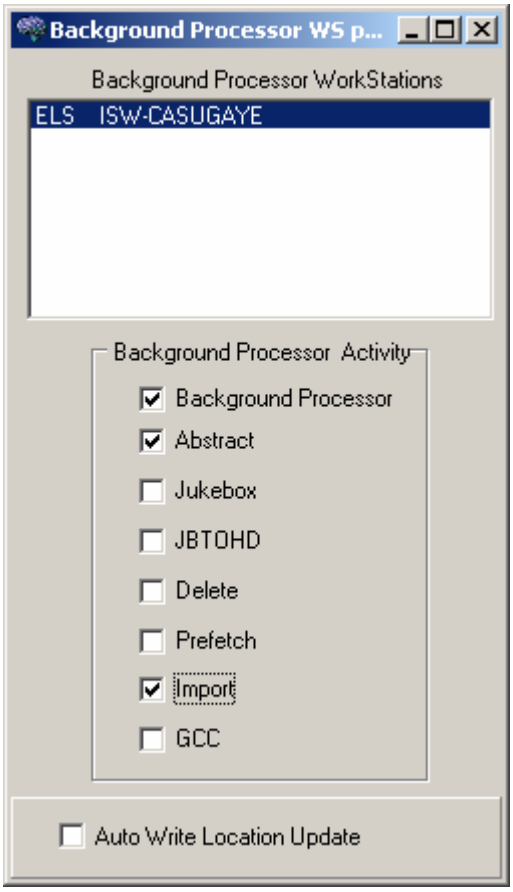


Fig. 3-3

   d. When you are finished, close the dialog.

Note: If you need to test the JUKEBOX, JBTOHD, or GCC queue-processing functions, you need to add new entries to the Network Locations file (2005.2) to prevent conflicts with the with the production account. For assistance, contact the VistA Imaging support team.

Caution: Using the DELETE queue processing function on a test account can lead to the deletion of image files on the production account. If it is necessary to use the DELETE queue processing function in the test account, contact the VistA Imaging support team.

3. Decide if you want to setup the test Background Processor on its own PC, or as a second instance on the same PC with the existing Background Processor. If you plan to setup the test and production Background Processor on the same PC, go to the next section, Connecting the PC to VistA Servers.

Connecting the Background Processor PC to VistA Servers

If both a test and production Background processor are running on the same PC, you need to connect the PC to the VistA production server and test server. You make this connection by editing the Windows Registry. If DNS or WINS cannot resolve the computer names entered in the registry, you will need to make further changes in the PC's HOSTS file.

1. Registry Changes

   Add the "string value" for each VistA Server to the Registry key and use the following syntax:

   < VistA Server name>,<Broker port> (i.e. VistA -Live,9200)

   HKEY_LOCALMACHINE\Software\Broker\Servers registry key.

   Sample entries are shown below.

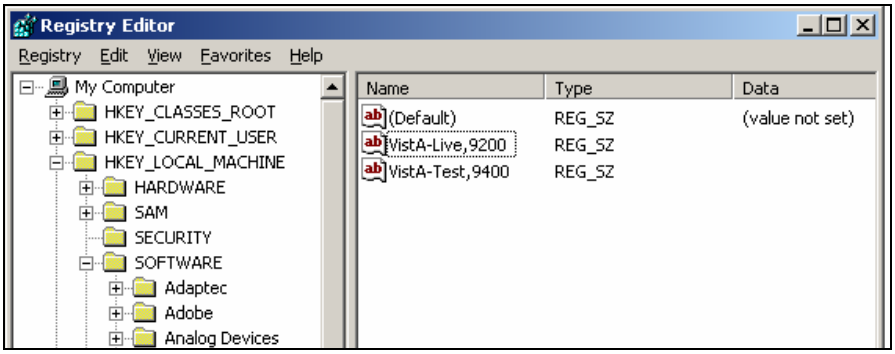


Fig. 3-4

You can edit the Registry with ServerList.exe (a utility distributed with the RPC Broker development toolkit) or manually with regedit.exe. See the RPC Broker System Guide for more detailed information on using ServerList.exe to edit the registry.

Caution: Use extreme caution when editing the registry manually. Improper changes can leave your system unstable or non-functional. The VA recommends that you edit the registry with ServerList.exe.

2. Editing the HOSTS File

   If your site cannot use DNS or WINS to resolve the names added to the registry, you need to create entries in your HOSTS file for each entry added to the registry. A sample HOSTS is shown below.

```
#HOSTS file
152.128.12.44 VistA-Live BROKERSERVER
DHCPSERVER
152.128.11.23 VistA-Test
#END
```

   The HOSTS file has no file extension. It is located in WINNT\SYSTEM32\DRIVERS\ETC.

Refreshing Existing Test Accounts

When a test account is refreshed with a copy of a production account, be sure to repeat the following steps:

- Changing the Current Namespace.
- Deleting test account entries in the Background Processor Queue files.
- Configure the Background Processor used in the Test Account. See Connecting the PC to VistA Servers, 3-9.

Also, be sure to manually delete the ZZ folder on the VistA Imaging file servers.

4. Setting Up TIU for Clinical Procedures

This chapter describes the steps to follow to set up TIU for CP. The purpose of setting up TIU is to design the CP document hierarchy that creates the TIU document title, which is displayed to an authorized "Interpreter". The procedures in this section describe how to configure the new Clinical Procedures Class in TIU. Be sure to follow these steps in sequential order.

Topics discussed in this chapter are:

Note: Be sure the TIU Enhancement for Clinical Procedures patch (TIU*1*109) is installed before you set up TIU.

Step 1 - Verify Clinical Procedures Class Upload Header

The Upload Utility option displays information about how headers are formatted for dictated documents, which are transcribed offline and uploaded into VistA. This option also displays "blank" character, major delimiter and end of message signal as defined by your site. If the Clinical Procedure CLASS output does not match Fig. 4-1, check to see if the TIU*1.0*109 patch was installed. The upload header for the Clinical Procedures Class is automatically set up when the TIU*1.0*109 patch is installed.

To verify that the upload header is appropriately defined for the Clinical Procedures Class, use the [TIU UPLOAD HELP] option. Since test data was exported with TIU*1.0*109, you should see the following:

Upload Utility: Access the following option:
Help for Upload Utility [TIU UPLOAD HELP]

Select DOCUMENT DEFINITION: **CLINICAL PROCEDURES CLASS**

$HDR:	CLINICAL PROCEDURES
TITLE:	GENERAL PROCEDURE
SSN:	555-12-1234
VISIT/EVENT DATE:	5/15/2001@08:15
AUTHOR:	HOWSER,DOOGEY
DATE/TIME OF DICTATION:	5/16/2001@09:25
LOCATION:	MEDICAL-CONSULT 6200
EXPECTED COSIGNER:	WELBY,MARCUS
CONSULT REQUEST NUMBER:	1455
TIU DOCUMENT NUMBER:	543
PROCEDURE SUMMARY CODE:	Normal
DATE/TIME PERFORMED:	5/15/2001@08:00

$TXT
CLINICAL PROCEDURES Text

*** File should be ASCII with width no greater than 80 columns.
*** Use "@@@" for "BLANKS" (word or phrase in dictation that isn't understood).

Fig. 4-1

Step 2 - Create CP Class Document Definitions

You need to create CP document classes and titles. A Document Definition provides the building blocks for the TIU package. A Document Definition organizes a document into a hierarchical structure. This structure allows documents to inherit characteristics such as signature requirements and print characteristics from the higher levels, including Class and Document Class. A Document Definition also lets you create and use boilerplate text, embedded objects, and CPRS templates.

Types of Class Document Definitions:

CL Class – Main class of documents, such as Clinical Procedures.
DC Document Class – Categories of documents with related characteristics, such as CP Cardiology, CP GI.
TL Title – TIU note title, such as CP EKG.

To implement Clinical Procedures, your facility must set up new document definitions for the Clinical Procedures Class within TIU.

The CLINICAL PROCEDURES CLASS is installed with patch TIU*1.0*109 and is automatically set to Active.

It is strongly recommended that you create Clinical Procedures Titles and Document Classes with the "CP" prefix. This will avoid confusion with previously created Titles and Document Classes. Only documents under the CP class have the CP functionality.

To construct a new document definition sub-tree for Clinical Procedures, do the following:

1. Go into the **TIU IRM Maintenance** menu.
2. Select **Document Definitions Manager > Create Document Definitions**.

A screen similar to the following is displayed. (An example of the hierarchy is shown here. On your screen, the levels under Clinical Procedures will not show):

```
Create Document Definitions     May 07, 2003@09:03:57      Page:    1 of  1
------------------------------------------------------------------------------
                              BASICS
           Name                                              Type
------------------------------------------------------------------------------
1     CLINICAL DOCUMENTS                                     CL
2       DISCHARGE SUMMARY                                    CL
3       PROGRESS NOTES                                       CL
4       ADDENDUM                                             DC
5       CLINICAL PROCEDURES                                  CL
6         CP CARDIOLOGY                                      DC
7           CP PULMONARY FUNCTION TEST                       TL
8           CP EKG                                           TL
9         CP GI TESTS                                        DC
10          CP ENDOSCOPY                                     TL
11          CP COLONOSCOPY                                   TL
12        CP HEMATOLOGY                                      DC
13          CP BONE MARROW                                   TL
14        CP RHEUMATOLOGY                                    DC

------------------------------------------------------------------------------
         ?Help   >Scroll Right   PS/PL Print Scrn/List   +/-          >>>
------------------------------------------------------------------------------
  (Title)              Restart                Status...
  (Component)          Boilerplate Text       Delete
Select Action: Next Level//
```

The above example suggests a Service oriented set of Document Classes with one or more Titles under each. You need to work with your Clinical Coordinator, IRMS, and the Consulting Services to develop a complete set of Document Definitions for Clinical Procedures.

To view a list of already existing titles, use the Next Level option to expand the class you want to view.

You may have to navigate down the hierarchy to add Document Classes or Titles. The following are examples of going to other levels, creating a document class, and creating a title.

Example of going to the next level:

```
Create Document Definitions     May 07, 2003@09:03:57      Page:    1 of  1
------------------------------------------------------------------------------
                              BASICS
          Name                                            Type
------------------------------------------------------------------------------
1     CLINICAL DOCUMENTS                                  CL
2       DISCHARGE SUMMARY                                 CL
3       PROGRESS NOTES                                    CL
4       ADDENDUM                                          DC
5       CLINICAL PROCEDURES                               CL

------------------------------------------------------------------------------
         ?Help   >Scroll Right   PS/PL Print Scrn/List   +/-          >>>
------------------------------------------------------------------------------
  (Title)              Restart                Status...
  (Component)          Boilerplate Text       Delete
Select Action: Next Level// <RET>  Next Level
Select CLINICAL DOCUMENTS Item (Line 2-5): 5.....  (Clinical Procedures level)

Create Document Definitions     May 07, 2003@09:03:57      Page:    1 of  1
------------------------------------------------------------------------------
                              BASICS
          Name                                            Type
------------------------------------------------------------------------------
1     CLINICAL DOCUMENTS                                  CL
2       DISCHARGE SUMMARY                                 CL
3       PROGRESS NOTES                                    CL
4       ADDENDUM                                          DC
5       CLINICAL PROCEDURES                               CL
6         CP CARDIOLOGY                                   DC
7         CP GI TESTS                                     DC
8         CP HEMATOLOGY                                   DC
9         CP RHEUMATOLOGY                                 DC

------------------------------------------------------------------------------
         ?Help   >Scroll Right   PS/PL Print Scrn/List   +/-          >>>
------------------------------------------------------------------------------
  (Title)              Restart                Status...
  (Component)          Boilerplate Text       Delete
```

Example of creating a Document Class:

```
Select ACTION: CLASS   Class/DocumentClass
Enter the Name of a new CLINICAL PROCEDURES: CP NEUROLOGY
TYPE: (CL/DC): DC  DOCUMENT CLASS
CLASS OWNER: CLINICAL COORDINATOR  Replace   <RET>
STATUS: (A/I): INACTIVE// A  ACTIVE
SEQUENCE: <RET>
MNEMONIC: <RET>
MENU TEXT: CP Neurology// <RET>

Entry Created

Create Document Definitions     May 07, 2003@09:03:57      Page:    1 of  1
------------------------------------------------------------------------------
                              BASICS
           Name                                              Type
------------------------------------------------------------------------------
1     CLINICAL DOCUMENTS                                    CL
2       DISCHARGE SUMMARY                                   CL
3       PROGRESS NOTES                                      CL
4       ADDENDUM                                            DC
5       CLINICAL PROCEDURES                                 CL
6         CP CARDIOLOGY                                     DC
7         CP GI TESTS                                       DC
8         CP HEMATOLOGY                                     DC
9         CP RHEUMATOLOGY                                   DC
10        CP NEUROLOGY                                      DC

------------------------------------------------------------------------------
         ?Help   >Scroll Right   PS/PL Print Scrn/List   +/-          >>>
------------------------------------------------------------------------------
  (Title)               Restart                 Status...
  (Component)           Boilerplate Text        Delete
```

Example of creating a Title:

You must go to the appropriate level before a Title can be added.

```
Select Action: Next Level// <RET>  Next Level
Select CLINICAL DOCUMENTS Item (Line 6-10): 10.....  (CP NEUROLOGY
level)

Create Document Definitions     May 07, 2003@09:03:57      Page:    1 of  1
------------------------------------------------------------------------------
                              BASICS
+          Name                                          Type
------------------------------------------------------------------------------
2       CLINICAL PROCEDURES                              CL
3         CP NEUROLOGY                                   DC

------------------------------------------------------------------------------
         ?Help   >Scroll Right   PS/PL Print Scrn/List   +/-          >>>
------------------------------------------------------------------------------
  (Class/DocumentClass) Next Level             Detailed Display/Edit
  Title                 Restart                Status...
  (Component)           Boilerplate Text       Delete
```

At this point a Title may be added.

```
Select Action: Title//    Title
 Enter the Name of a new NEUROLOGY: CP PSEUDOFOLLICULAR SCAN
CLASS OWNER: CLINICAL COORDINATOR  Replace   <RET>
STATUS: (A/I/T): INACTIVE// A  ACTIVE
SEQUENCE: <RET>
MENU TEXT: CP Pseudofollicular Scan  Replace <RET>

Entry Created

If you wish, you may enter another CP NEUROLOGY

Create Document Definitions     May 07, 2003@09:03:57      Page:    1 of  1
------------------------------------------------------------------------------
                              BASICS
+          Name                                          Type
------------------------------------------------------------------------------
2       CLINICAL PROCEDURES                              CL
3         CP NEUROLOGY                                   DC
4           CP PSEUDOFOLLICULAR SCAN                     TL

------------------------------------------------------------------------------
         ?Help   >Scroll Right   PS/PL Print Scrn/List   +/-          >>>
------------------------------------------------------------------------------
  (Title)               Restart                Status...
  (Component)           Boilerplate Text       Delete
Select Action: Next Level//
```

Step 3 - Define Clinical Procedures Class Document Parameters

You need to define a set of document parameters for the new CP Class.

1. Go into the **TIU Maintenance Menu**.
2. Select **TIU Parameters Menu** > **Document Parameters Edit**.

Note: (Entries in parentheses are recommended values.)

Parameters: Access the following menu: **TIU IRM Maintenance Menu [TIU IRM MAINTENANCE MENU]** **TIU Parameters Menu [TIU SET-UP MENU]** **Document Parameter Edit [TIU DOCUMENT PARAMETER EDIT]**
Select DOCUMENT DEFINITION: **CLINICAL PROCEDURES CLASS**
DOCUMENT DEFINITION: CLINICAL PROCEDURES// **<RET>**
REQUIRE RELEASE: **(NO)**
REQUIRE MAS VERIFICATION: **(NO)**
***REQUIRE AUTHOR TO SIGN:** **(YES)**
ROUTINE PRINT EVENT(S):
STAT PRINT EVENT(S):
MANUAL PRINT AFTER ENTRY: **(NO)**
ALLOW CHART PRINT OUTSIDE MAS: **(YES)**
***ALLOW >1 RECORDS PER VISIT:** **(YES)**
ENABLE IRT INTERFACE:
***SUPPRESS DX/CPT ON ENTRY:** **(NO)**
FORCE RESPONSE TO EXPOSURES:
***ASK DX/CPT ON ALL OPT VISITS:** **(YES)**
SEND ALERTS ON ADDENDA:
ORDER ID ENTRIES BY TITLE:
SEND ALERTS ON NEW ID ENTRY:
SEND COSIGNATURE ALERT:
EDITOR SET-UP CODE:
If document is to be uploaded, specify Filing Alert Recipients: Select FILING ERROR ALERT RECIPIENTS: <identify local recipients as appropriate>
Now enter the USER CLASSES for which cosignature will be required: Select USERS REQUIRING COSIGNATURE: <identify local recipients as appropriate>
Now enter the DIVISIONAL parameters: Select DIVISION:
CHART COPY PRINTER:
STAT CHART COPY PRINTER:

Note: You must set parameters marked with an asterisk '*****'. If a response is not entered for a particular parameter, the default value is 'No'.

5. About ASU Business Rules and the Role of the Interpreter

This section describes the suggested Authorization/Subscription Utility (ASU) business rules that you need to create and it also describes the role of the Interpreter.

Topics discussed in this chapter are:

How Business Rules Work

Business Rules authorize users or groups of users to perform specified actions on documents in particular statuses. For example, a provider, who is also the Author/Dictator, may view the note.

To add a business rule:

1. Go into the **User Class Management Menu**.
2. Select **Manage Business Rules**.
3. Enter specific words at the appropriate prompts (Status, Action, User Class). These words are combined to make a business rule.

Example of adding a business rule:
Select SEARCH CATEGORY: DOCUMENT DEFINITION// **<RET>**
Select DOCUMENT DEFINITION: **clinical procedures** CLASS
Select Action: Next Screen// **a** Add Rule
Please Enter a New Business Rule: **<RET>**

Select DOCUMENT DEFINITION: CLINICAL PROCEDURES// **<RET>** CLASS
DOCUMENT DEFINITION: CLINICAL PROCEDURES// **<RET>**
STATUS: **unsigned**
ACTION: **edit**
USER CLASS: **student**
AND FLAG: **and**
USER ROLE: **author/dictator**
DESCRIPTION: **<RET>**
No existing text
Edit? NO// **<RET>**

The following rule is constructed:

An **UNSIGNED** (CLASS) CLINICAL PROCEDURE may BE **EDITED** by a **STUDENT** who is also An **AUTHOR/DICTATOR**

Suggested Business Rules for CLINICAL PROCEDURES Class

1	A COMPLETED (CLASS) CLINICAL PROCEDURE may BE VIEWED by A USER
2	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE EDITED by A STUDENT who is also An AUTHOR/DICTATOR
3	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE DELETED by An AUTHOR/DICTATOR
4	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE VIEWED by An AUTHOR/DICTATOR
5	An UNCOSIGNED (CLASS) CLINICAL PROCEDURE may BE VIEWED by An AUTHOR/DICTATOR
6	An UNCOSIGNED (CLASS) CLINICAL PROCEDURE may BE VIEWED by An EXPECTED COSIGNER
7	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE PRINTED by An AUTHOR/DICTATOR
8	An UNCOSIGNED (CLASS) CLINICAL PROCEDURE may BE PRINTED by An AUTHOR/DICTATOR
9	An UNCOSIGNED (CLASS) CLINICAL PROCEDURE may BE EDITED by An EXPECTED COSIGNER
10	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE EDITED by An AUTHOR/DICTATOR
11	An UNCOSIGNED (CLASS) CLINICAL PROCEDURE may BE PRINTED by An EXPECTED COSIGNER
12	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE SIGNED by An AUTHOR/DICTATOR
13	An UNCOSIGNED (CLASS) CLINICAL PROCEDURE may BE COSIGNED by An EXPECTED COSIGNER
14	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE VIEWED by A CHIEF, MIS
15	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE DELETED by A CHIEF, MIS
16	An UNCOSIGNED (CLASS) CLINICAL PROCEDURE may BE VIEWED by A CHIEF, MIS
17	An UNCOSIGNED (CLASS) CLINICAL PROCEDURE may BE DELETED by A CHIEF, MIS
18	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE EDITED by An EXPECTED COSIGNER
19	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE VIEWED by An EXPECTED COSIGNER
20	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE EDITED by A CLINICAL SERVICE CHIEF

21	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE VIEWED by A CLINICAL SERVICE CHIEF
22	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE SIGNED by A CLINICAL SERVICE CHIEF
23	An UNSIGNED (CLASS) CLINICAL PROCEDURE may BE SIGNED by An EXPECTED COSIGNER
24	An UNDICTATED (CLASS) CLINICAL PROCEDURE may BE EDITED by An INTERPRETER
25	An UNDICTATED (CLASS) CLINICAL PROCEDURE may BE VIEWED by An INTERPRETER
26	An UNDICTATED (CLASS) CLINICAL PROCEDURE may BE DELETED by A CHIEF, MIS

Note: Be sure a rule similar to the following exists at the Clinical Documents Class level.

- A COMPLETED (CLASS) CLINICAL DOCUMENT may BE LINKED with a request by A CHIEF, MIS

This rule is not needed at the Clinical Procedures Class level because of inheritance.

Role of the Interpreter

INTERPRETER is a user role that is activated with USR*1*19 to support the Clinical Procedures Class. Interpreters explain the findings or results of a clinical procedure. In addition, most interpreters can receive alerts on the procedures that are in "Partial Result" status and that are ready for interpretation.

Business rules are used to determine what actions an interpreter can perform on a document of a specified document class, but the interpreters are designated in the Consults application. A business rule must be defined that allows interpreters to view documents.

Using CPRS Consults, the interpreter selects a procedure request, which has a status of Partial Results. Using the Consult option "Complete/Update Results", the interpreter enters the procedure summary code, the procedure date/time, and the interpretation of the results into the TIU document. (The "Complete/Update Results" option is only available to interpreters.) Any encounter related information can also be entered at this time. When finished, the interpreter electronically signs the note completing the process.

- You can designate a user to be an interpreter by adding the user to any of the following fields on the Consult Management menu (GMRC MGR). See Step 1 - Setting Up Consult Services, 7-1

  - INDIVIDUAL TO NOTIFY
  - SERVICE TEAM TO NOTIFY
  - NOTIFICATION BY PT LOCATION
  - UPDATE USERS W/O NOTIFICATIONS
  - UPDATE TEAMS W/O NOTIFICATIONS

6. Setting Up Clinical Procedures

This chapter describes how to set up CP procedures, instruments, and system parameters. It is recommended that you follow these steps in sequential order. Topics discussed in this chapter include:

Step 1 - Populate the CP Definition (#702.01) file

You can populate the CP Definition (#702.01) file with names of clinical procedures automatically by running the INIT^MDPOST routine, and manually by using the procedure edit screen. Editing the procedures is described in detail later in this chapter.

Before you decide which method to use, review Appendix B – Exported Procedures List, 15-1, for the list of procedures. If the clinical application coordinator (CAC) and the CP package coordinator decide to use these procedures for the medical center, IRM can run INIT^MDPOST to automatically populate the CP Definition file with a list of known procedures. These procedure definitions are not complete and must be edited using CP Manager to make them work properly. Additional procedures can also be added using CP Manager.

The application coordinators may initially populate the file manually and then run the INIT^MDPOST routine at a later time. This routine does not overwrite the existing data in the CP Definition file; it adds procedures that are not in the current CP Definition file.

All procedures are stored in a subfolder called Unassigned within the Procedures folder. All procedures are initially tagged inactive. Use CP Manager to activate specific procedures and associate the procedures with treating specialties.

Step 2 – Setting Up Instruments

Information on instruments is **not complete** after instrument information is added during installation. **You must go into CP Manager and enter the necessary fields before the package will work successfully.**

To access CP Manager:

1. Double-click **CP Manager** on the desktop.
2. Enter your access and verify codes.
3. Click **OK**. The following main screen is displayed:

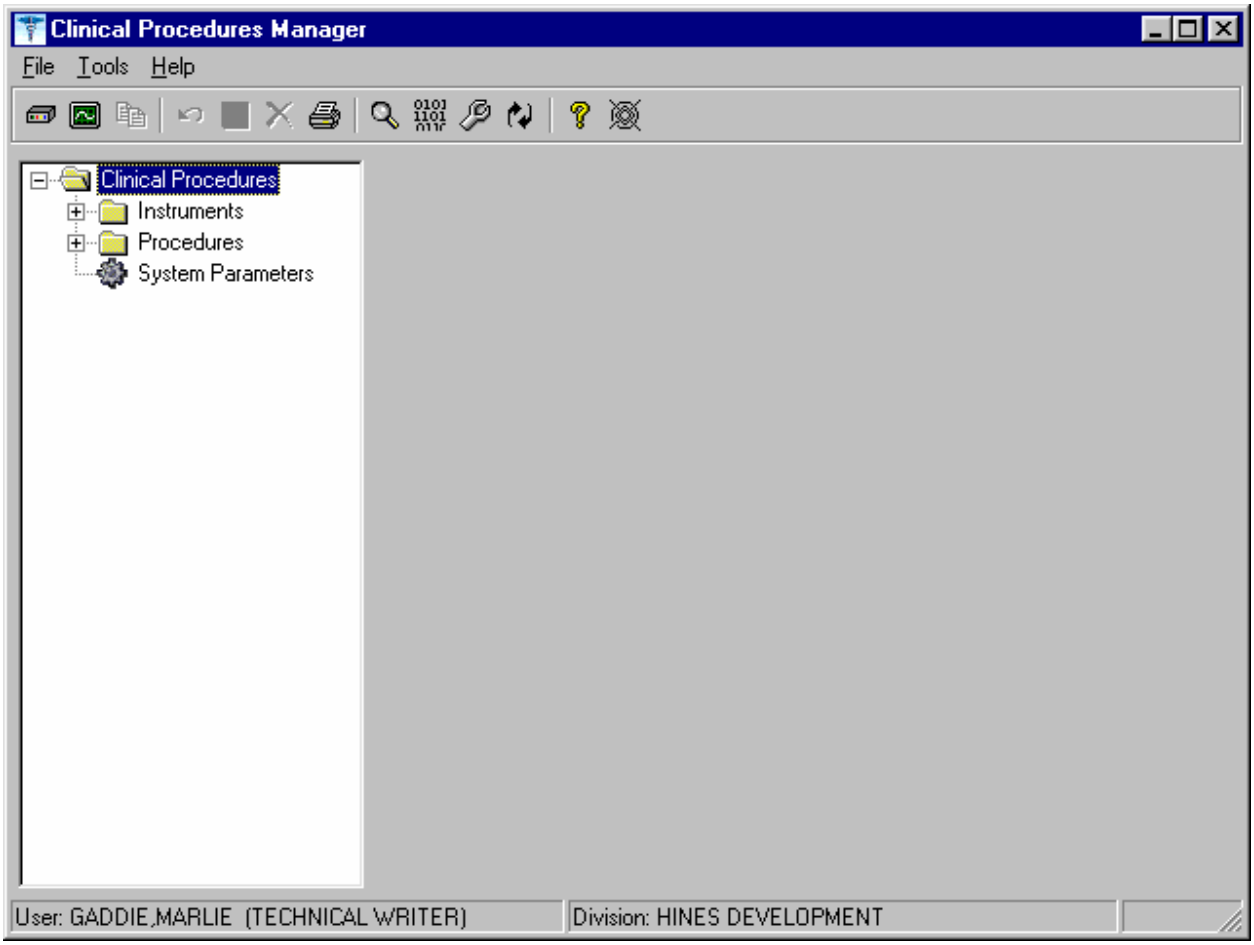


Fig. 6-1

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 Fig. 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, 2-4.

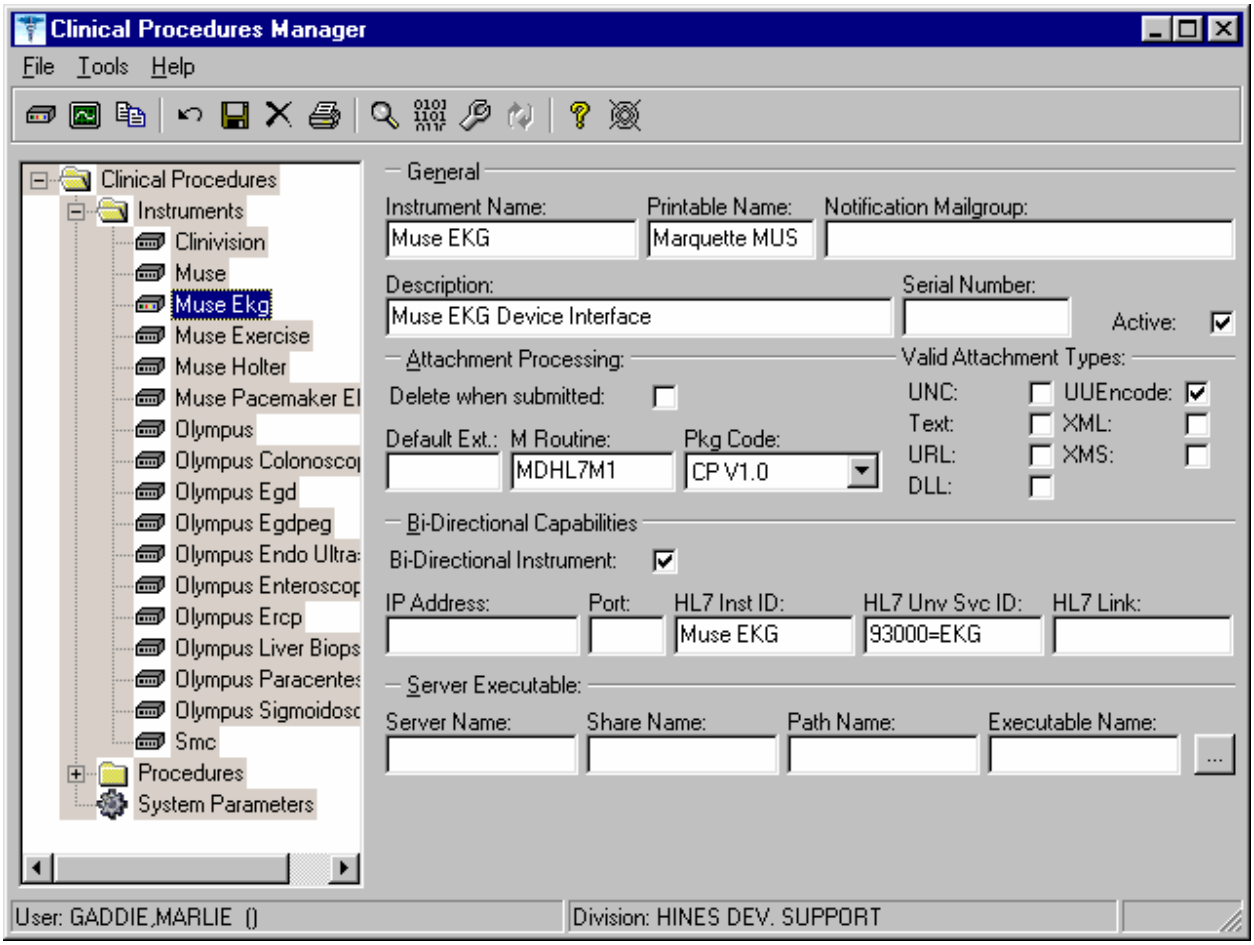


Fig. 6-2

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.

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, such as Muse EKG (Tampa), (3-30 characters). 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.

This field must be filled in for an active instrument to work properly.

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, 16-1, 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.

Bi-Directional Capabilities: This section contains specifics on the bi-directional capabilities of the instrument.

Bi-Directional Instrument: Select this option if this instrument supports a bi-directional interface.

IP Address: Enter the IP address for the instrument (7-15 characters). This field is for documentation purposes only. Refer to Chapter 10 – Setting Up HL7 Parameters, 10-1, for more information. Optional.

Port: Enter the port number for the instrument (a number between 1000 and 99999). This field is for documentation purposes only. Refer to Chapter 10 – Setting Up HL7 Parameters, 10-1, for more information. Optional.

HL7 Inst ID: Enter the name of the actual device as provided by the vendor. This field is used to ID the device (3-30 characters). You can contact TSO or NVS for the correct ID. Must be filled in for an active instrument to work properly.

HL7 Unv Svc ID: This field defines what type of procedure the device can perform if the device can perform more than one procedure (1-48 characters). Optional.

HL7 Link: There is one unique link for each instrument. Select the appropriate link to the instrument from the dropdown list. Must be filled in for an active instrument to work properly.

Server Executable: The following fields make up the path for the automated instrument server (http://servername/servershare/serverpath/server.exe). Some devices do not produce reports that can be saved. Enter these fields if you want to capture a report from that type of device.

Server Name: The network name of the automated instrument (1-30 characters).
Server Share: The name of the share drive on the automated instrument server (1-30 characters).
Server Path: The full directory path on the automated instrument share (1-150 characters).
Server Executable: The name of the executable that produces the report on the automated instrument (1-30 characters). Browse to find the path where the server.exe program resides.

Adding an Automated Instrument

If a site has an instrument that needs to interface with CP, and that instrument is not exported with the Clinical Procedures package, you need to add the instrument. Make sure that CP supports the instrument interface. (The Mallinckrodt Clinivision, Olympus Endoworks, GE Medical Systems Muse and Viasys/Sensormedics Vmax automated device interfaces are exported with Clinical Procedures.) You can also find an updated list of supported devices on the CP website at http://vista.med.va.gov/ClinicalSpecialties/clinproc/.
Click Medical Device Interfaces on the left navigation bar, and then click About Medical Interfaces.

If you are adding a new instrument (bi-directional or uni-directional) that is not supported by CP, then you can use the New Instrument Request form, which is also located on the CP website at http://vista.med.va.gov/ClinicalSpecialties/clinproc/. You can also check 16-1 for a list of instruments. Keep in mind that adding unsupported instruments is a complex task and may cause some image quality problems.

In most cases, you can edit an existing automated instrument instead of adding a new one because several automated instruments are installed with Clinical Procedures. To view the names of devices, click the Instruments folder. A list of automated instruments is displayed on the left side of the Clinical Procedures Manager window (Fig. 6-3).

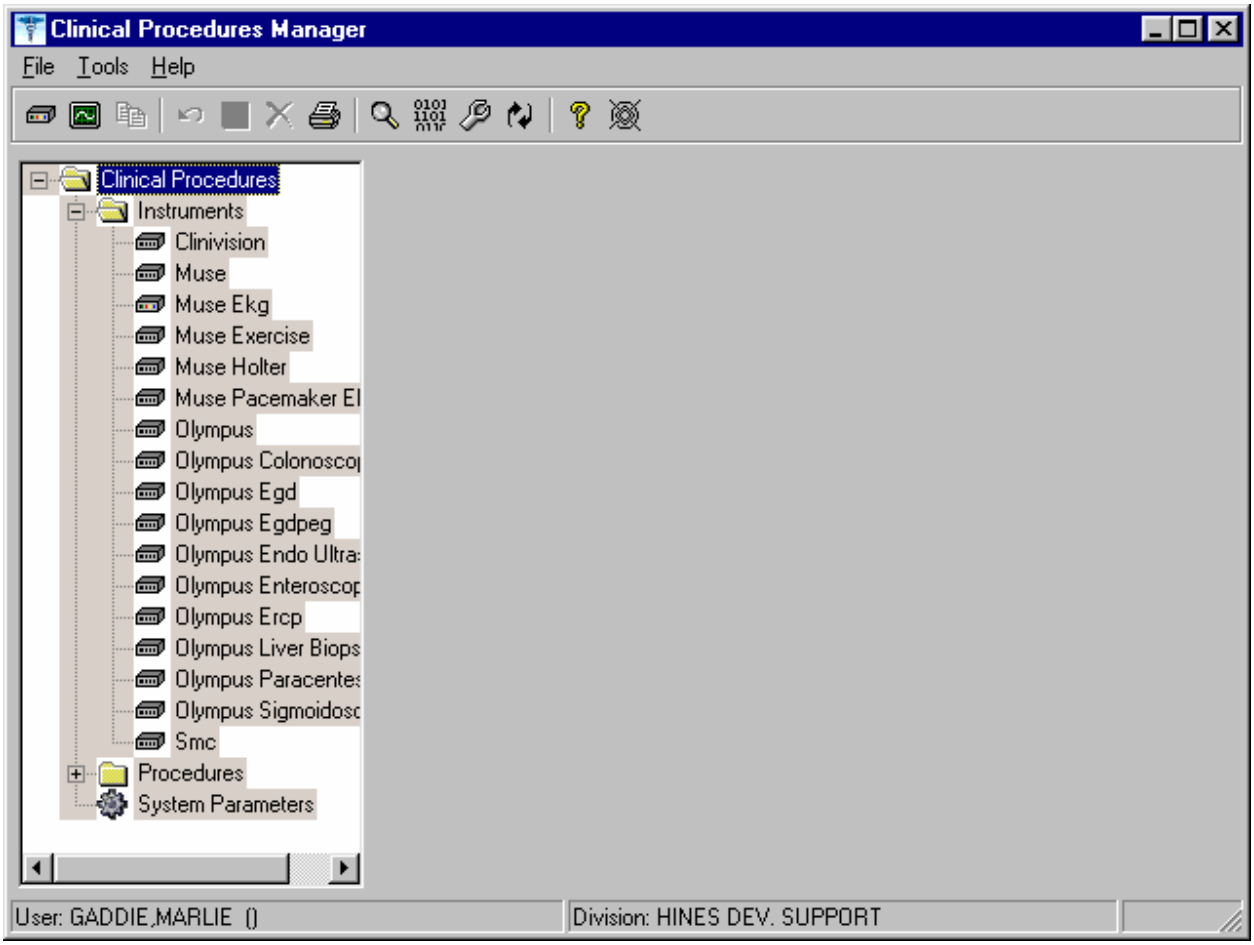


Fig. 6-3

Indicates active instruments.
Indicates non-active instruments.

1. Select **File** > **New** > **Instrument**. The New Instrument screen is displayed.

2. Enter a name that can be used to identify the automated instrument. 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, such as Muse EKG (Tampa), (3-30 characters). The name does not have to be the vendor's name.

   - If the device is uni-directional, 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 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.

This field must be filled in for an active instrument to work properly.

3. Click **OK**. The Edit screen is displayed. Fig. 6-4 is the edit screen for automated instruments. The Automated Instrument Name that you just entered is displayed.

4. Enter data for each field as applicable. Refer to Editing an Automated Instrument, 6-3, for detailed field descriptions.

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

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

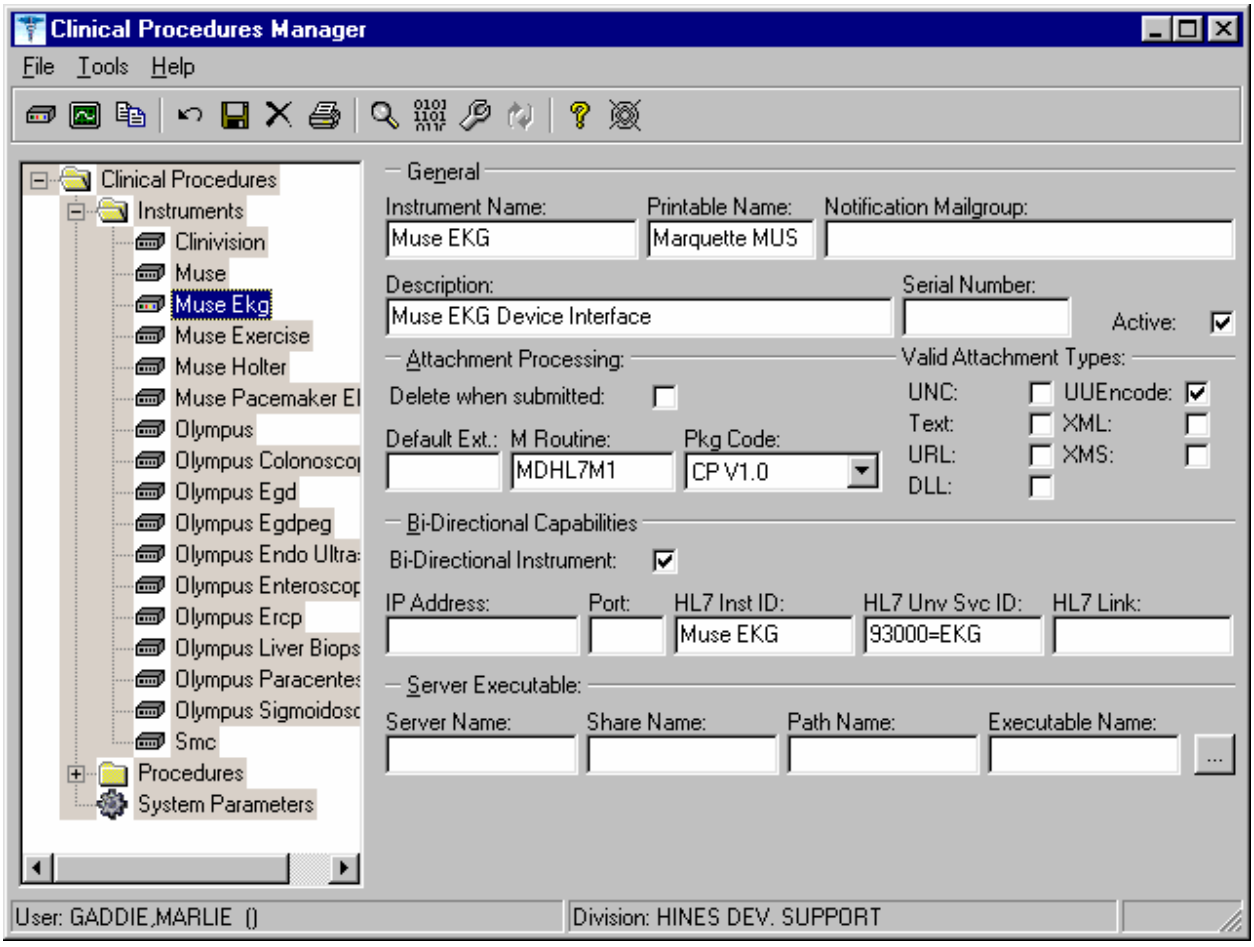


Fig. 6-4

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 Fig. 6-5 is displayed. This window indicates the ready status of the instrument and lists other information as well.

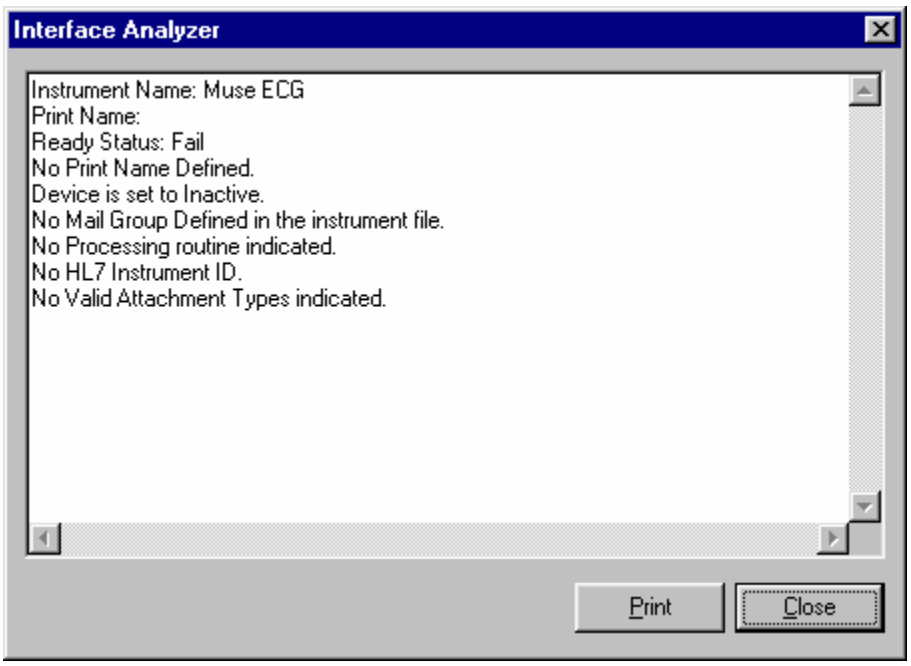


Fig. 6-5

- 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 Fig. 6-6.

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.

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

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, 2-4.

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

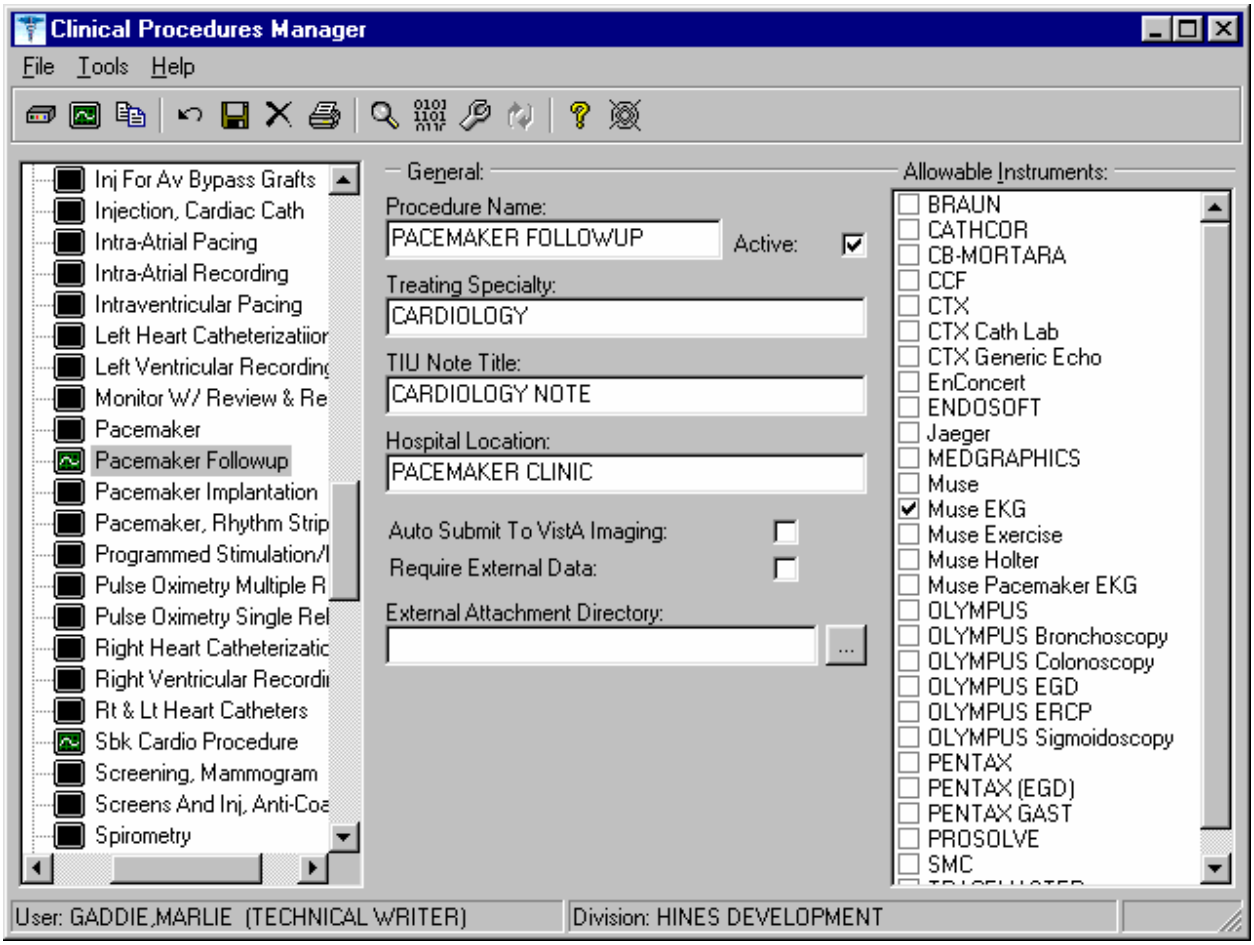


Fig. 6-6

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.

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.

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.

Be

You can enter a COUNT or NON-COUNT clinic for the hospital location. A COUNT clinic captures workload. If you are using a COUNT clinic, you must check-in the patient through the Appointment Manager in Scheduling. And then you must wait about 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.)

A NON-COUNT clinic is used only for scheduling purposes and not for workload reporting. If you are using a NON-COUNT clinic, you will have to establish a new visit with CP User. If the Medical Administrative Service (MAS) schedules appointments for patients who are having clinical procedures, enter a NON-COUNT clinic for the location. This will avoid creating a duplicate workload.

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.

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.

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 Fig. 6-7.

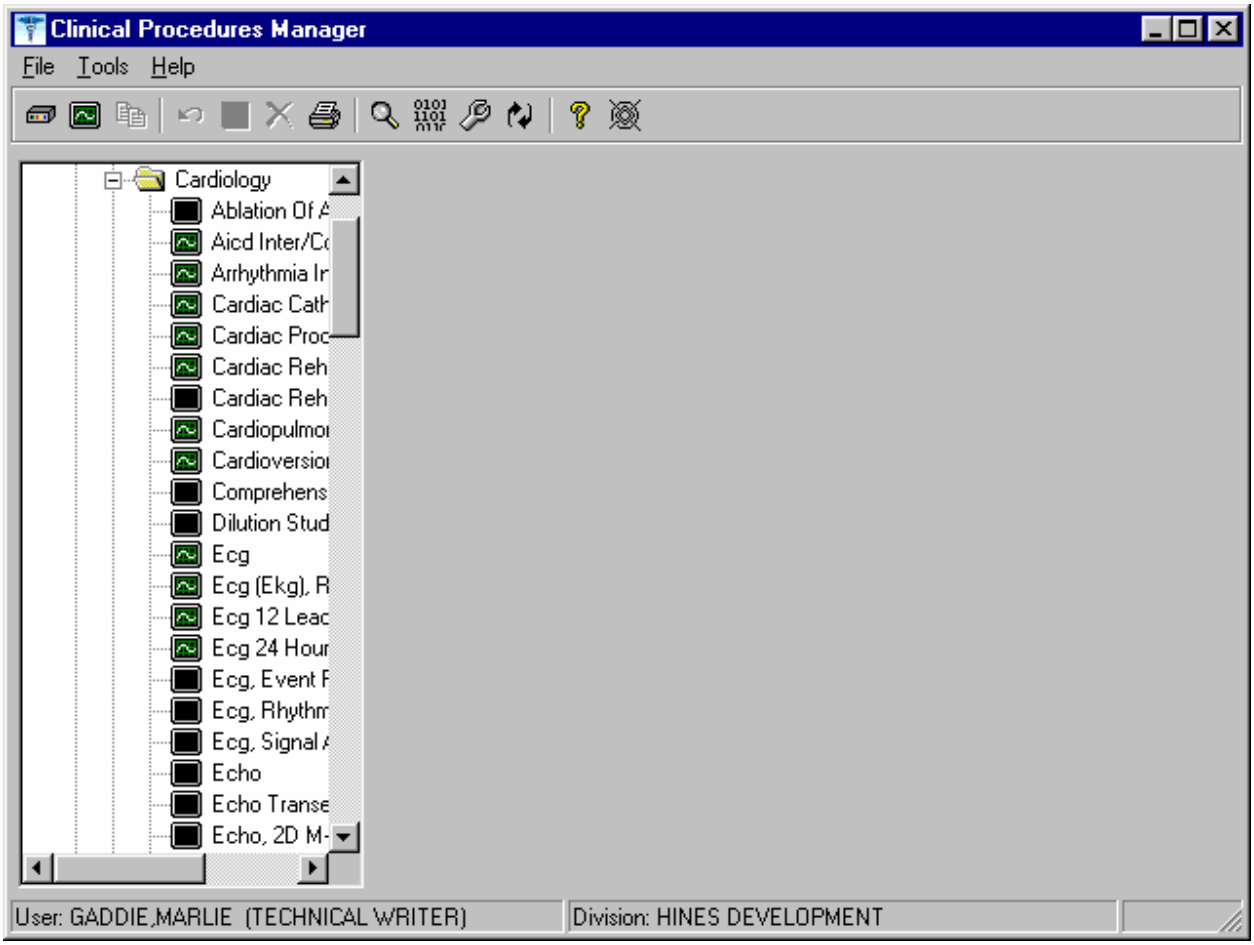


Fig. 6-7

- 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. Fig. 6-8 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, 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, 2-4.

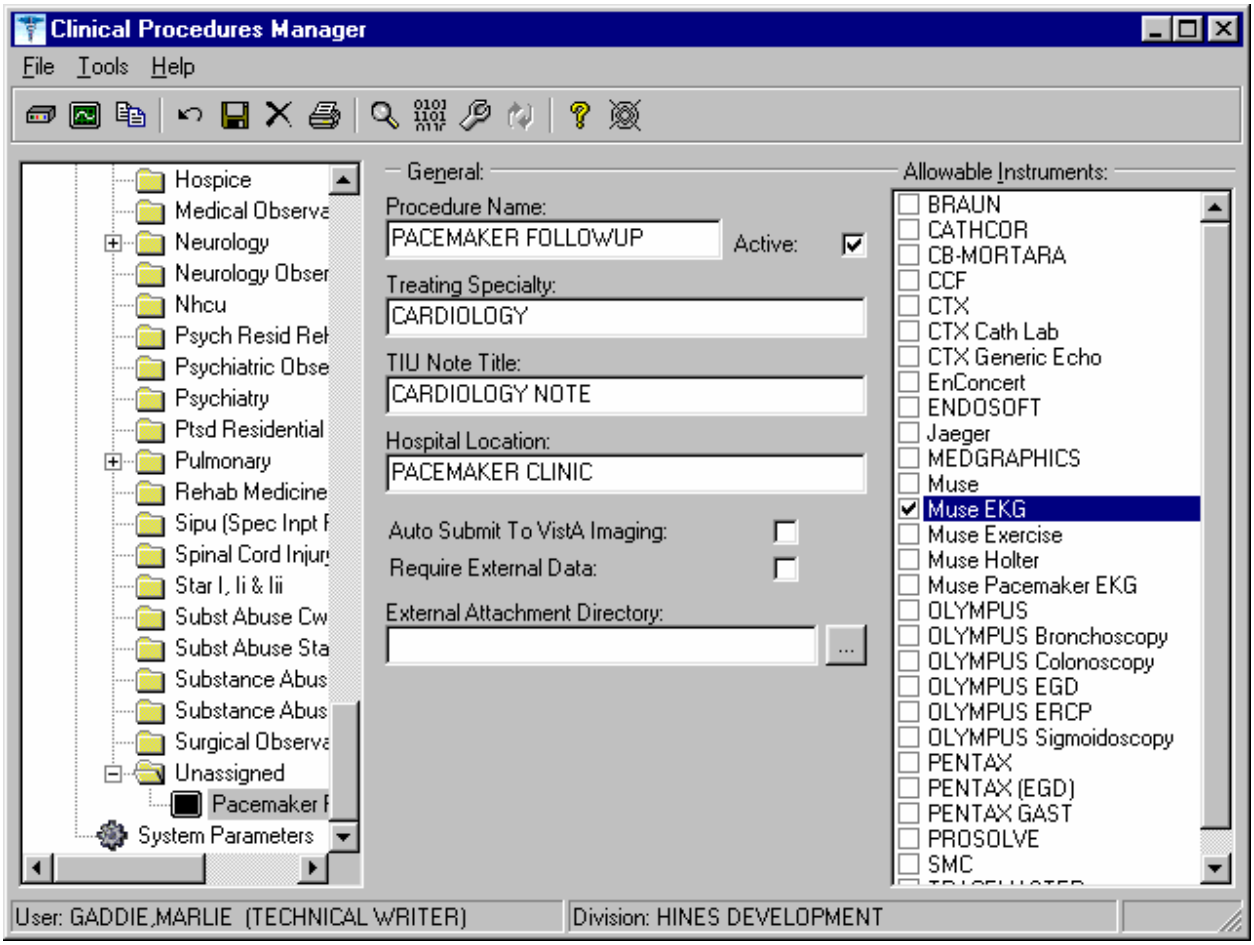

Clinical Procedures Manager
File Tools Help
Hospice
Medical Observa
Neurology
Neurology Obser
Nhcu
Psych Resid Ref
Psychiatric Obse
Psychiatry
Ptsd Residential
Pulmonary
Rehab Medicine
Sipu (Spec Inpt F
Spinal Cord Injur
Star I, Ii & Iii
Subst Abuse Cw
Subst Abuse Sta
Substance Abus
Substance Abus
Surgical Observa
Unassigned
Pacemaker F
System Parameters
General:
Procedure Name:
PACEMAKER FOLLOWUP
Active:
Treating Specialty:
CARDIOLOGY
TIU Note Title:
CARDIOLOGY NOTE
Hospital Location:
PACEMAKER CLINIC
Auto Submit To VistA Imaging:
Require External Data:
External Attachment Directory:
Allowable Instruments:
BRAUN
CATHCOR
CB-MORTARA
CCF
CTX
CTX Cath Lab
CTX Generic Echo
EnConcert
ENDOSOFT
Jaeger
MEDGRAPHICS
Muse
Muse EKG
Muse Exercise
Muse Holter
Muse Pacemaker EKG
OLYMPUS
OLYMPUS Bronchoscopy
OLYMPUS Colonoscopy
OLYMPUS EGD
OLYMPUS ERCP
OLYMPUS Sigmoidoscopy
PENTAX
PENTAX (EGD)
PENTAX GAST
PROSOLVE
SMC
User: GADDIE,MARLIE (TECHNICAL WRITER)
Division: HINES DEVELOPMENT

Fig. 6-8

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
CRC Values
Days to keep instrument data
Imaging File Types
* Imaging Network Share
Offline Message
Version Compatibility
* VistA Scratch HFS Directory

1. Click **System Parameters**, which is displayed under the Clinical Procedures folder. The System Parameters Edit window is displayed. See Figure 6-9.

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

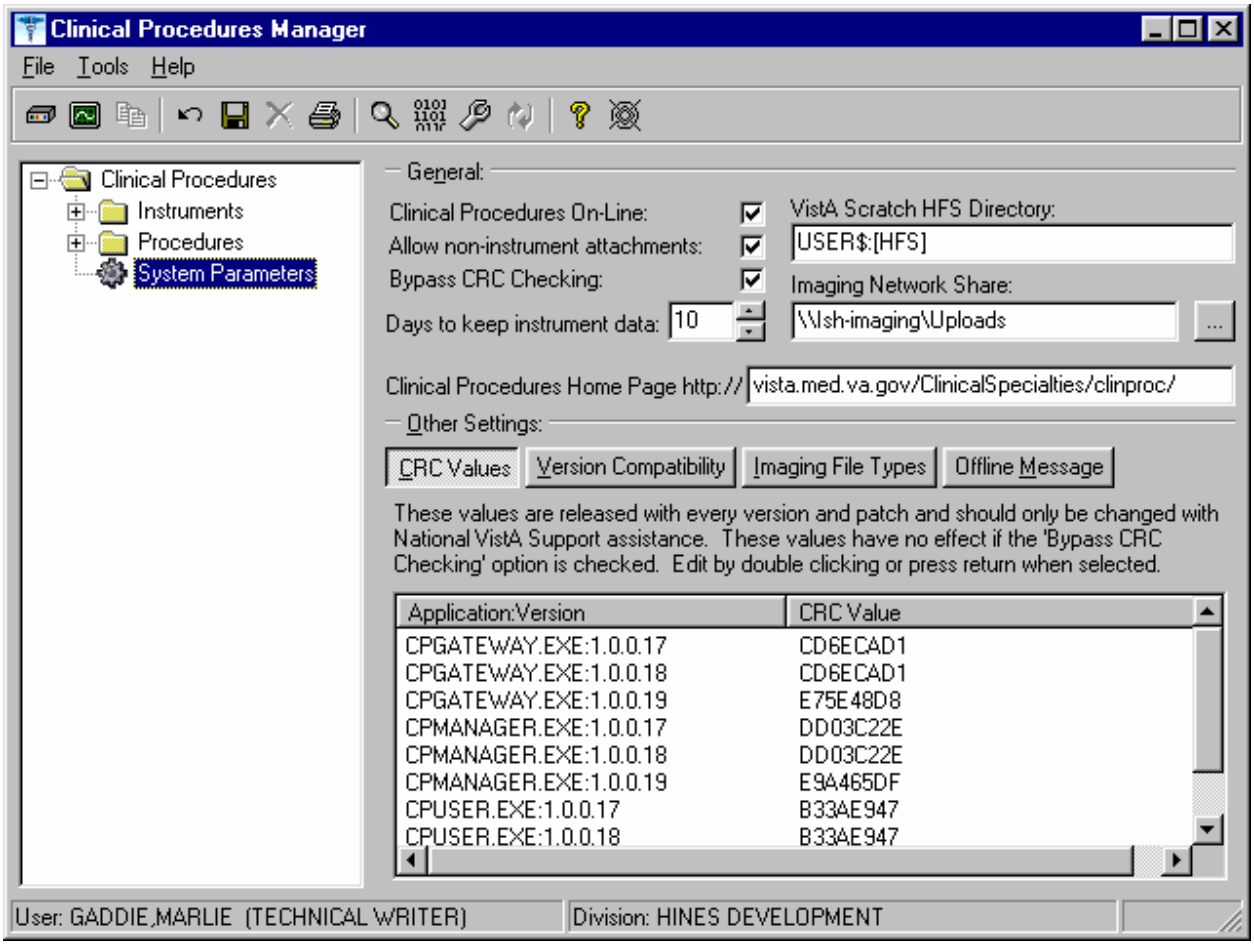


Fig. 6-9

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.

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.

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, (Fig. 6-10). 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

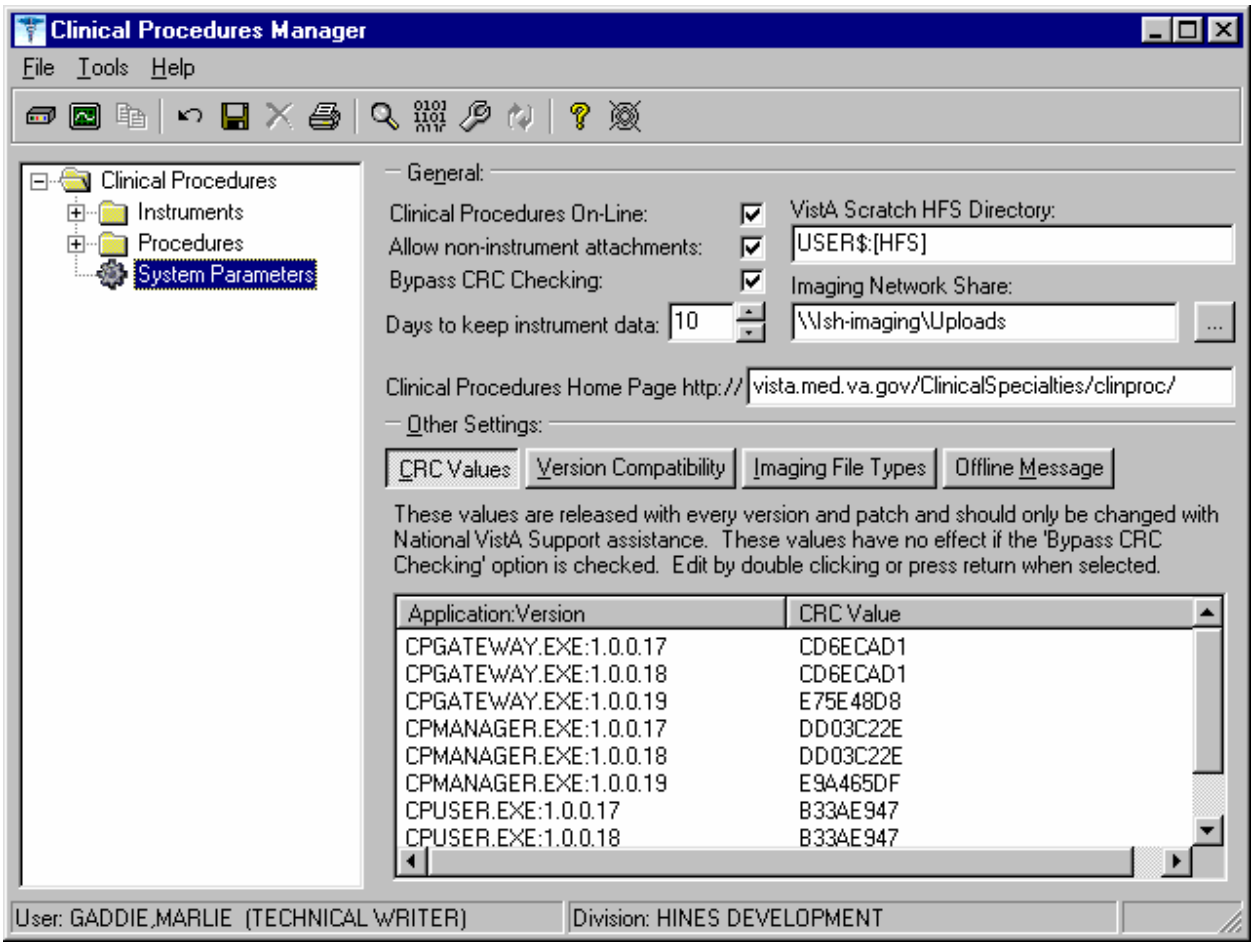


Fig. 6-10

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, (Fig. 6-11).

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

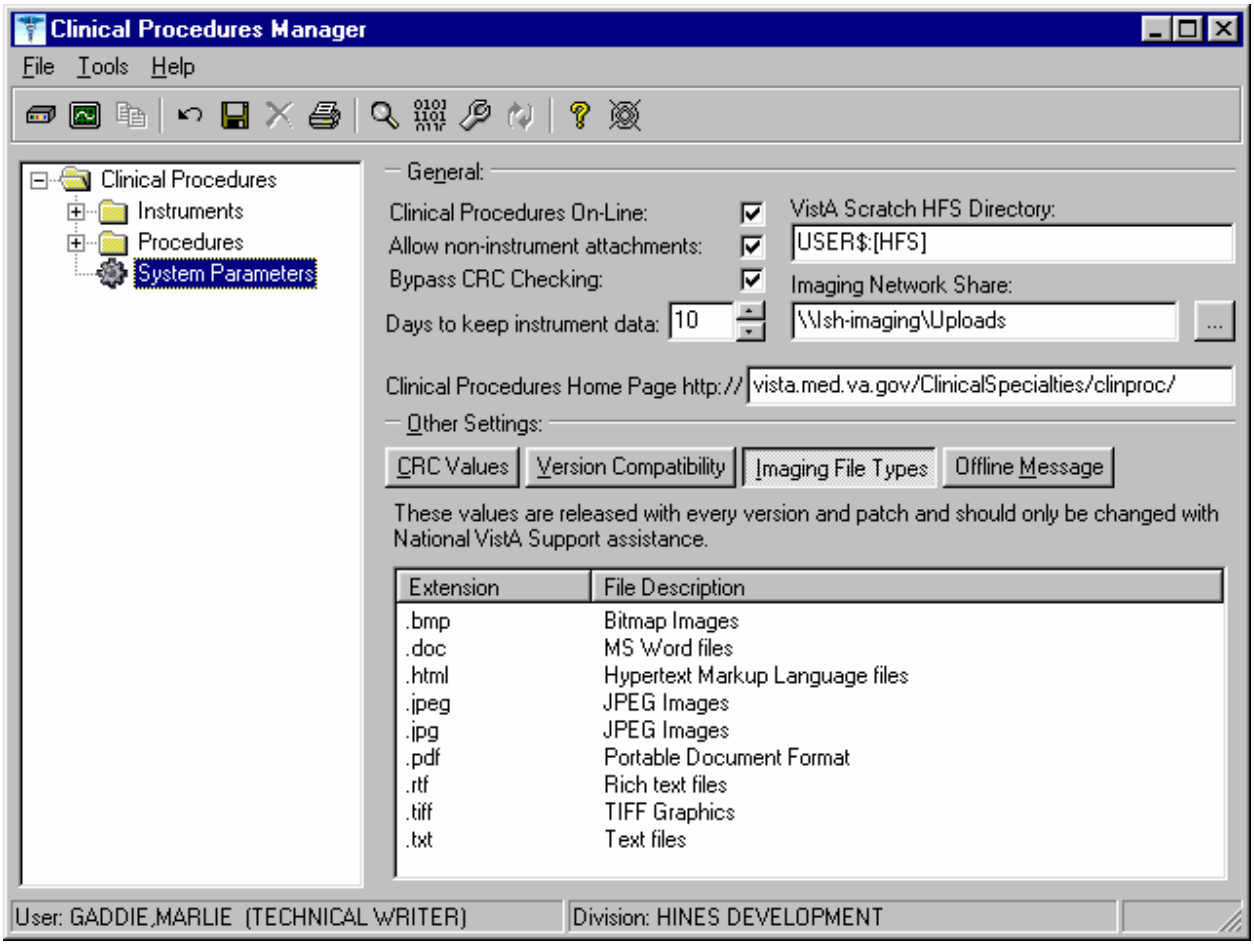


Fig. 6-11

Imaging Network Share

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.

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 6-12.

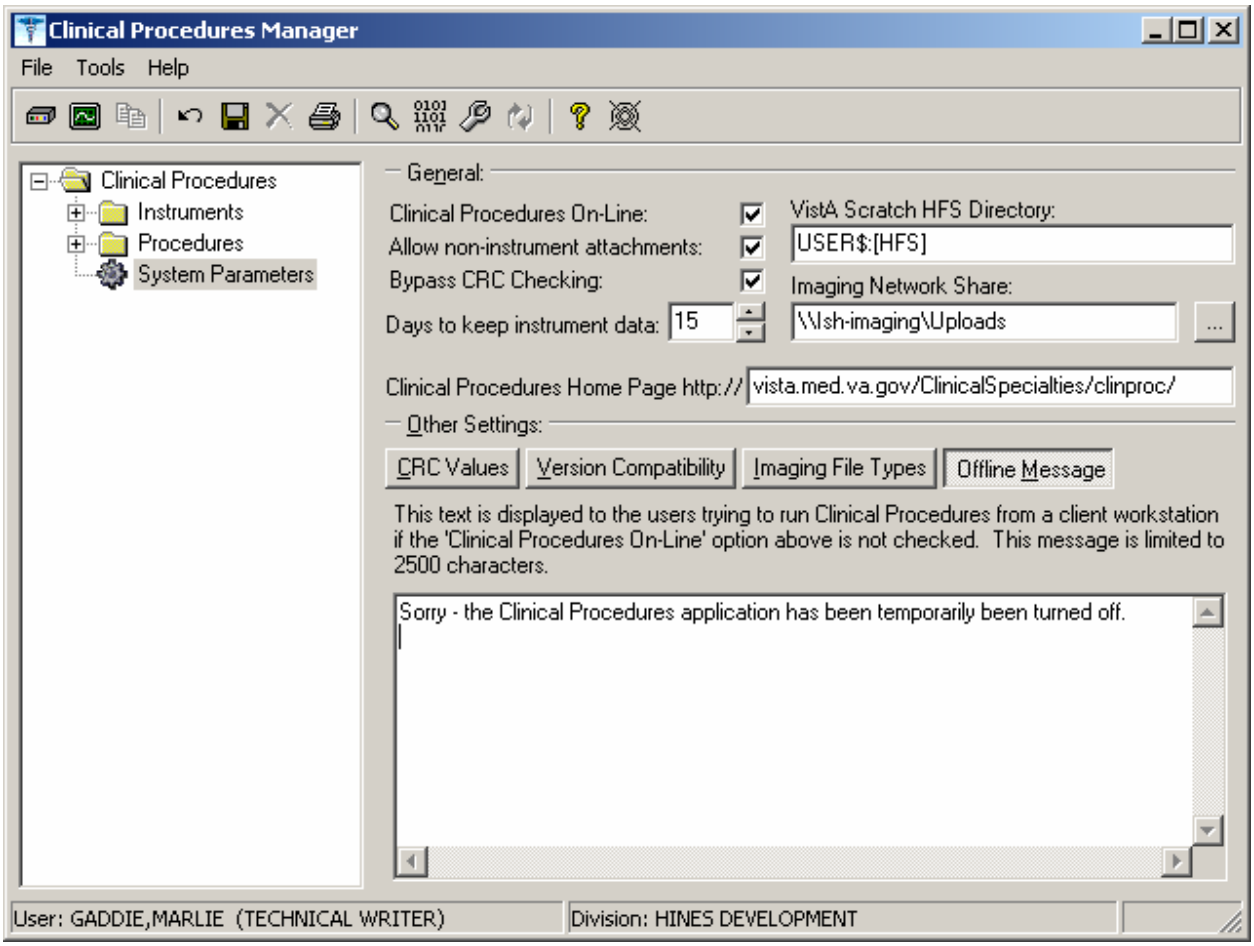


Fig. 6-12

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 6-13.

To check the client version number:

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, (Fig. 6-13).

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

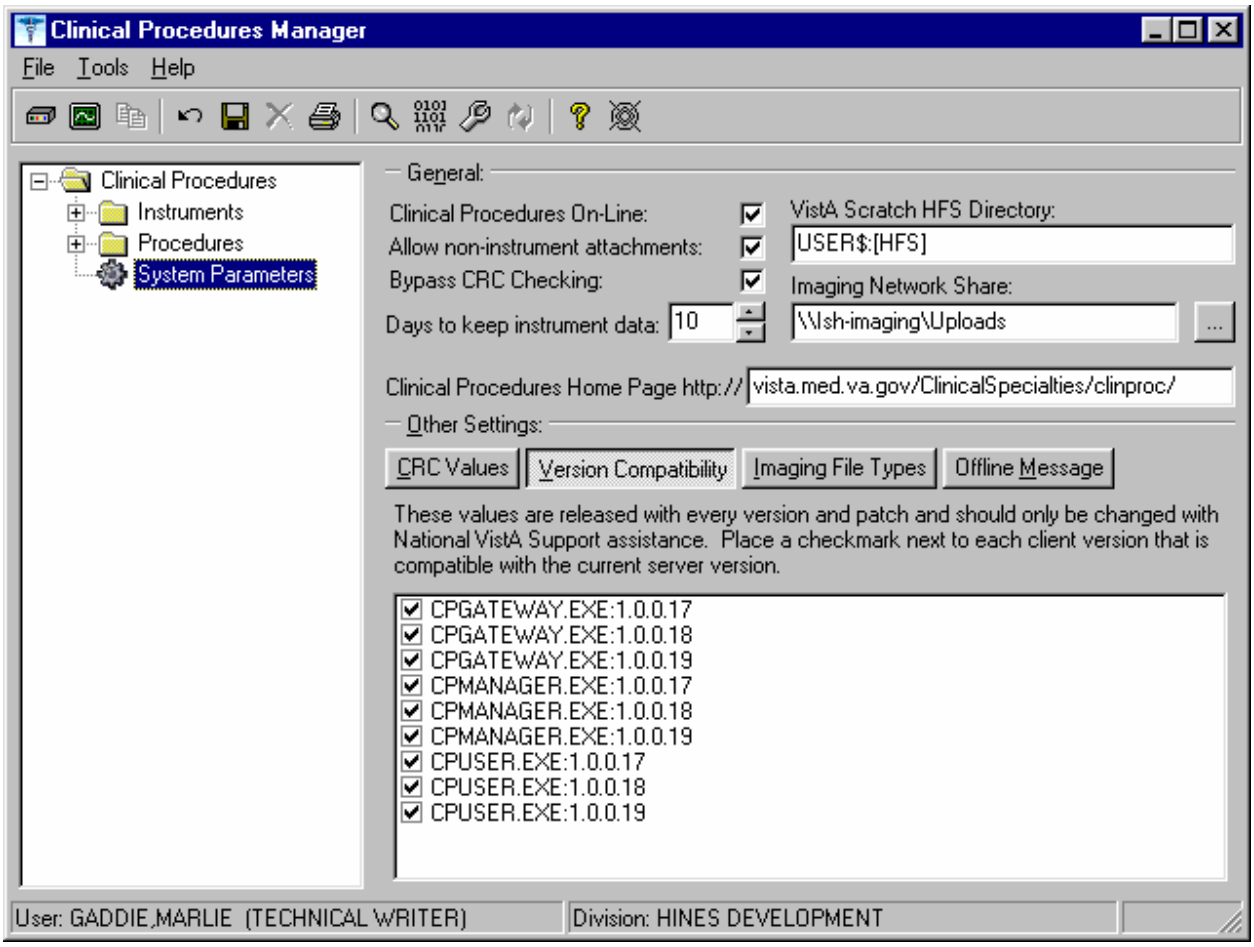


Fig. 6-13

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

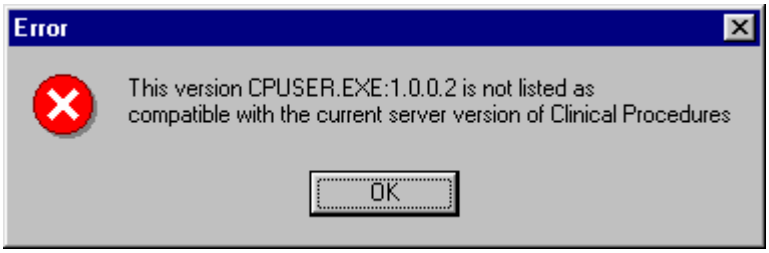


Fig. 6-14

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.

7. Setting Up Consults for Clinical Procedures

This section explains how to set up services and procedures in the Consults package. Be sure the GMRC*3*17 patch is present before you implement Consults.

Topics discussed in this chapter are:

Step 1 – Setting Up Consult Services

Consult services must be set up so that users can receive alerts about procedure status and be able to process the procedure. You need to determine if a consult service exists that can be used only for CP procedures or if you need to create new consult services. A CP consult service is a subspecialty service that deals specifically with CP procedures. Be sure to use the CP prefix when you add a service.

Create a New Consult Service/Define an Interpreter:

You use the Consult Management menu to create a new consult service, to define an interpreter, and add that new consult service under the All Services specialty/subspecialty. A new consult service has to be added to the "All Services" specialty/subspecialty before the CP procedures will appear on the Consults tab in CPRS.

```
   RPT    Consult Tracking Reports ...
   SS     Set up Consult Services
   SU     Service User Management
   CS     Consult Service Tracking
   RX     Pharmacy TPN Consults
   GU     Group update of consult/procedure requests
   UA     Determine users' update authority
   UN     Determine if user is notification recipient
   NR     Determine notification recipients for a service
   TD     Test Default Reason for Request
   LH     List Consult Service Hierarchy
   PR     Setup procedures
   CP     Copy Prosthetics services
   DS     Duplicate Sub-Service
   IFC    IFC Management Menu ...
   TP     Print Test Page

****** Select Consult Management Option: SS  Set up Consult Services
Select Service/Specialty:CP CARDIOLOGY
  Are you adding 'CP CARDIOLOGY' as a new REQUEST SERVICES (the 123RD)? No// Y
(Yes)

SERVICE NAME: CP CARDIOLOGY// <RET>
```

```
ABBREVIATED PRINT NAME (Optional): CARDIOL
INTERNAL NAME: <RET>
Select SYNONYM: <RET>
SERVICE USAGE: <RET>
SERVICE PRINTER: <RET>
NOTIFY SERVICE ON DC: <RET>
REPRINT 513 ON DC: <RET>
PREREQUISITE:
  No existing text
  Edit? NO// <RET>
PROVISIONAL DX PROMPT: <RET>
PROVISIONAL DX INPUT: <RET>
DEFAULT REASON FOR REQUEST: <RET>
  No existing text
  Edit? NO// <RET>
RESTRICT DEFAULT REASON EDIT: <RET>

Inter-facility information
IFC ROUTING SITE: <RET>
IFC REMOTE NAME: <RET>
Select IFC SENDING FACILITY: <RET>
```

To define an interpreter, you can enter a user name in one of the following fields.

Note: Users entered into Update Users W/O Notifications or Update Teams W/O Notifications will not receive alerts.

- INDIVIDUAL TO NOTIFY
- SERVICE TEAM TO NOTIFY
- NOTIFICATION BY PT LOCATION
- UPDATE USERS W/O NOTIFICATIONS
- UPDATE TEAMS W/O NOTIFICATIONS

```
SERVICE INDIVIDUAL TO NOTIFY: SMITH,JOE MD
Select SERVICE TEAM TO NOTIFY: CONSULT TEAM
Select NOTIFICATION BY PT LOCATION: <RET>
PROCESS PARENTS FOR NOTIFS: <RET>
Select UPDATE USERS W/O NOTIFICATIONS: HOUSER,TOM
Select UPDATE TEAMS W/O NOTIFICATIONS: <RET>
Select UPDATE USER CLASS W/O NOTIFS: <RET>
Select ADMINISTRATIVE UPDATE USER: <RET>
Select ADMINISTRATIVE UPDATE TEAM: <RET>
PROCESS PARENTS FOR UPDATES: <RET>

SPECIAL UPDATES INDIVIDUAL: <RET>
RESULT MGMT USER CLASS: <RET>
UNRESTRICTED ACCESS: <RET>
Select SUB-SERVICE/SPECIALTY: <RET>

Add/Edit Another Service? NO// <RET>
```

Now the service you just created must be added to the All Services service/specialty.

```
Select Consult Management Option: SS  Set up Consult Services
Select Service/Specialty:ALL SERVICES       GROUPER ONLY
SERVICE NAME: ALL SERVICES// <RET>
ABBREVIATED PRINT NAME (Optional): ALL// <RET>
Select SYNONYM: <RET>
SERVICE USAGE: GROUPER ONLY// <RET>
SERVICE PRINTER: <RET>
NOTIFY SERVICE ON DC: <RET>
REPRINT 513 ON DC: <RET>
PREREQUISITE:
  No existing text
  Edit? NO// <RET>
PROVISIONAL DX PROMPT: <RET>
PROVISIONAL DX INPUT: <RET>
DEFAULT REASON FOR REQUEST:
  No existing text
  Edit? NO// <RET>
RESTRICT DEFAULT REASON EDIT: <RET>

SERVICE INDIVIDUAL TO NOTIFY: SMITH,JOE MD
Select SERVICE TEAM TO NOTIFY: CONSULT TEAM
Select NOTIFICATION BY PT LOCATION: <RET>
PROCESS PARENTS FOR NOTIFS: <RET>
Select UPDATE USERS W/O NOTIFICATIONS: HOUSER,TOM
Select UPDATE TEAMS W/O NOTIFICATIONS: <RET>
Select UPDATE USER CLASS W/O NOTIFS: <RET>
Select ADMINISTRATIVE UPDATE USER: <RET>
Select ADMINISTRATIVE UPDATE TEAM: <RET>
PROCESS PARENTS FOR UPDATES: <RET>

SPECIAL UPDATES INDIVIDUAL: <RET>
RESULT MGMT USER CLASS: <RET>
UNRESTRICTED ACCESS: <RET>
Select SUB-SERVICE/SPECIALTY: CP CARDIOLOGY
  Are you adding 'CP CARDIOLOGY' as a new SUB-SERVICE (the 13TH for this
REQUEST SERVICES)? No// Y
  (Yes)
  MNEMONIC:
Select SUB-SERVICE/SPECIALTY: <RET>

Add/Edit Another Service? NO//<RET>
```

Editing Users of an Existing Consult Service:

You can also use the Service User Management option to edit a Consult Service's Update Users fields.

```
   RPT    Consult Tracking Reports ...
   SS     Set up Consult Services
   SU     Service User Management
   CS     Consult Service Tracking
   RX     Pharmacy TPN Consults
   GU     Group update of consult/procedure requests
   UA     Determine users' update authority
   UN     Determine if user is notification recipient
   NR     Determine notification recipients for a service
   TD     Test Default Reason for Request
   LH     List Consult Service Hierarchy
   PR     Setup procedures
   CP     Copy Prosthetics services
   DS     Duplicate Sub-Service
   IFC    IFC Management Menu ...
   TP     Print Test Page


Select Consult Management Option: SU  Service User Management

Select Service/Specialty: cp cardiology
```

Make sure data is entered for the applicable fields listed below:

```
SERVICE INDIVIDUAL TO NOTIFY: SMITH,JOE MD
Select SERVICE TEAM TO NOTIFY: CONSULT TEAM
Select NOTIFICATION BY PT LOCATION: <RET>
Select UPDATE USERS W/O NOTIFICATIONS: HOUSER,TOM
Select UPDATE TEAMS W/O NOTIFICATIONS: <RET>
Select UPDATE USER CLASS W/O NOTIFS: <RET>
Select ADMINISTRATIVE UPDATE USER: <RET>
Select ADMINISTRATIVE UPDATE TEAM: <RET>
SPECIAL UPDATES INDIVIDUAL: <RET>

Select Service/Specialty: <RET>
```

Step 2 - Creating Consult Procedures

Consult procedures in the GMRC file (#123.3) must be linked to clinical procedures. Be sure to use the "CP" prefix when you create new consult procedures to differentiate them from other consult procedures.

The following example shows how to create the consult procedure CP EKG 12 LEAD STAT and link it to the clinical procedure definition EKG, ROUTINE (12 LEADS).

```
Select Consult Management Option:  PR   Setup procedures
Select Procedure:CP EKG 12 LEAD STAT
NAME:  CP EKG 12 LEAD STAT//  <RET>
INACTIVE: NO// <RET>
Select SYNONYM: EKG// <RET>
INTERNAL NAME: <RET>
Select RELATED SERVICES: CP CARDIOLOGY// <RET>
TYPE OF PROCEDURE: ECG// <RET>
CLINICAL PROCEDURE: EKG, ROUTINE (12 LEADS)// <RET>

PREREQUISITE:
  No existing text
  Edit? NO// <RET>
PROVISIONAL DX PROMPT: REQUIRED// <RET>
PROVISIONAL DX INPUT: LEXICON// <RET>
DEFAULT REASON FOR REQUEST:
Patient's heart is beating abnormally.  Needs analysis.
  Edit? NO// <RET>
RESTRICT DEFAULT REASON EDIT: NO EDITING// <RET>

Orderable Item Updated
```

Field Descriptions:

NAME: The name of the procedure as it appears in the GMRC Procedure file (#123.3).

INACTIVE: Indicates if a procedure is no longer in use.

SYNONYM: Enter other names commonly used to refer to this procedure.

INTERNAL NAME: Enter a name for the procedure that is used internally by the facility.

RELATED SERVICES: Indicates which Consult services from the Request Services (#123.5) file are responsible for processing requests for this procedure.

TYPE OF PROCEDURE: Not applicable.

CLINICAL PROCEDURE: Provides a mapping between the CP Definitions (#702.01) file and the GMRC Procedures file. (CP definition entries must be active before you can map them.)

Orders placed for a procedure having a valid entry in this field are processed and resulted using the Clinical Procedures package.

PREREQUISITE: Enter information on any consults or procedures that must be performed prior to ordering this consult. This field is presented to the ordering person upon selecting a Consult service and lets the ordering person abort the ordering if necessary. TIU objects may be embedded within this field, which are resolved for the current patient during ordering. Any TIU objects must be contained within vertical bars, such as |BLOOD PRESSURE|.

PROVISIONAL DX PROMPT: Used by CPRS to determine how to prompt for the provisional diagnosis when ordering this procedure. Set to OPTIONAL if you want the user to be prompted for the provisional diagnosis but also can let the user bypass answering the prompt. Set to SUPPRESS if you do not want the user to be presented with the provisional diagnosis prompt. Set to REQUIRED if you want to enforce the user to answer the prompt before continuing to place the order.

PROVISIONAL DX INPUT: Determines the method that CPRS uses to prompt the user for input of the provisional diagnosis when ordering this procedure. Set to FREE TEXT and the user may type any text from 2-80 characters in length. Set to LEXICON and the user is required to select a coded diagnosis from the Clinical Lexicon.

DEFAULT REASON FOR REQUEST: Enter default text that can be used as the reason for request when ordering this procedure. This field allows boilerplate text to be imported into the reason for request. If the user places an order using a quick order having boilerplate text, that text supersedes any default text stored in this field. This field may contain any text including TIU objects. TIU Objects must be enclosed in vertical bars, such as |PATIENT NAME|.

RESTRICT DEFAULT REASON EDIT: Set to UNRESTRICTED, NO EDITING, or ASK ON EDIT ONLY. If ASK ON EDIT ONLY is used, the user can only edit the default reason if the order is edited before releasing to the service. If a default reason for request exists, the option set in this field affects the ordering person’s ability to edit the default reason.

8. Setting Up CPRS for Clinical Procedures

This section explains how to set up notifications and parameters in the CPRS package. Topics discussed in this chapter are:

- Step 1 – Setting Up the Notification - Recommended
- Step 2 – Editing Parameters – Some parameters must be defined. See Step 2 – Editing Parameters, 8-3.

Step 1 – Setting Up the Notification

You must enable the CONSULT/PROC INTERPRETATION notification if you want to receive the "Ready for interpretation" alert in CPRS. You can enable the alert for one user, several users, or for the entire service. Use the Notification Mgmt Menu [ORB NOT COORD MENU].

```
   1      Enable/Disable Notifications
   2      Erase Notifications
   3      Set Urgency for Notifications (GUI)
   4      Set Deletion Parameters for Notifications
   5      Set Default Recipient(s) for Notifications
   6      Set Default Recipient Device(s) for Notifications
   7      Set Provider Recipients for Notifications
   8      Flag Orderable Item(s) to Send Notifications
   9      Archive(delete) after <x> Days
   10     Forward Notifications ...
   11     Set Delays for Unverified Orders ...
   12     Set Notification Display Sort Method (GUI)
   13     Send Flagged Orders Bulletin
   14     Determine Recipients for a Notification
   15     Display Patient Alerts and Alert Recipients
   16     Enable or Disable Notification System
   17     Display the Notifications a User Can Receive

Select Notification Mgmt Menu Option: 1 Enable/Disable Notifications


               Set PROCESSING FLAG Parameters for Notifications

Processing Flag may be set for the following:

     1   User          USR    [choose from NEW PERSON]
     2   Team (OE/RR)  OTL    [choose from OE/RR LIST]
     3   Service       SRV    [choose from SERVICE/SECTION]
     4   Location      LOC    [choose from HOSPITAL LOCATION]
     5   Division      DIV    [HINES DEV. EVALUATION]
     6   System        SYS    [EVL.DEV.ISC-CHICAGO.VA.GOV]
     7   Package       PKG    [ORDER ENTRY/RESULTS REPORTING]

Enter selection:
```

Set this parameter according to the individual preference of your site.

```
------------ Setting Processing Flag ------------
```

```
Select Notification: ?

There are currently no entries for Notification.

 Answer with OE/RR NOTIFICATIONS NUMBER, or NAME, or PACKAGE ID, or
     MESSAGE TEXT
 Do you want the entire 49-Entry OE/RR NOTIFICATIONS List? N  (No)

Select Notification: CONSULT/PROC INTERPRETATION
Are you adding CONSULT/PROC INTERPRETATION as a new Notification? Yes// <RET>
YES

Notification: CONSULT/PROC INTERPRETATION// <RET>  CONSULT/PROC INTERPRETATION
CONSULT/PROC INTERPRETATION
Value: ?

Code indicating processing flag for the entity and notification.

     Select one of the following:

          M         Mandatory
          E         Enabled
          D         Disabled

Value: Enabled
```

- Select Mandatory to specify that the notification cannot be turned off by the user.
- Select Enabled to specify that the user can turn off the notifications.
- Select Disabled to specify that notifications are not used.

After you set up the notification, you can set up quick orders and place them on appropriate order menus. Refer to the CPRS Setup Guide, which can be found in the VistA Documentation Library (VDL).

Step 2 – Editing Parameters

You can edit the following parameters in CPRS to indicate who should enter Patient Care Encounter information and how Windows messages are sent. You can also add CP User to the CPRS Tools menu.

Use the CPRS Manager menu to set these parameters:

- Ask Encounter Update (ORWPCE ASK ENCOUNTER UPDATE) Required.
- Broadcast Messages to Other Apps (ORWOR BROADCAST MESSAGES) Required.
- Force PCE Entry (ORWPCE FORCE PCE ENTRY) Required.
- Add CP User to the CPRS Tools Menu Optional.

Ask Encounter Update (ORWPCE ASK ENCOUNTER UPDATE)

The ORWPCE ASK ENCOUNTER UPDATE parameter determines if the user should be prompted to enter encounter information when signing a note. The Encounter Form in the AICS package is used to collect workload data. If a specific Encounter Form is not set up and linked to a hospital location, a generic Encounter Form is presented. Each service that has a study associated with it must set this parameter to Always.

```
Select OPTION NAME: CPRS MANAGER MENU  ORMGR     CPRS Manager Menu

   CL     Clinician Menu ...
   NM     Nurse Menu ...
   WC     Ward Clerk Menu ...
   PE     CPRS Configuration (Clin Coord) ...
   IR     CPRS Configuration (IRM) ...

Select CPRS Manager Menu Option: IR  CPRS Configuration (IRM)

   OC     Order Check Expert System Main Menu ...
   TI     ORMTIME Main Menu ...
   UT     CPRS Clean-up Utilities ...
   XX     General Parameter Tools ...

Select CPRS Configuration (IRM) Option: XX  General Parameter Tools

   LV     List Values for a Selected Parameter
   LE     List Values for a Selected Entity
   LP     List Values for a Selected Package
   LT     List Values for a Selected Template
   EP     Edit Parameter Values
   ET     Edit Parameter Values with Template
   EK     Edit Parameter Definition Keyword

Select General Parameter Tools Option: EP  Edit Parameter Values
                        --- Edit Parameter Values ---

SELECT PARAMETER DEFINITION NAME: ORWPCE ASK ENCOUNTER UPDATE     Ask
Encounter Update

ORWPCE ASK ENCOUNTER UPDATE may be set for the following:

     1   User          USR    [choose from NEW PERSON]
     2   Location      LOC    [choose from HOSPITAL LOCATION]
     3   Service       SRV    [choose from SERVICE/SECTION]
     4   Division      DIV    [HINES DEVELOPMENT]
     5   System        SYS    [DEV.DEV.FO-HINES.MED.VA.GOV]
     6   Package       PKG    [ORDER ENTRY/RESULTS REPORTING]
```

`Enter selection:` Set this parameter according to the individual preference of your site.

```
-------- Setting ORWPCE ASK ENCOUNTER UPDATE --------
ASK ENCOUNTER UDPATE: ALWAYS
```

If the site wants credit for workload for the inpatient and outpatient, select Always at this prompt.

Broadcast Messages to Other Apps (ORWOR BROADCAST MESSAGES)

The ORWOR BROADCAST MESSAGES parameter tells CPRS to send a message to all VistA applications stating that a new patient record is open or a new TIU note has been selected. This parameter setting allows all applications on the desktop, such as CP User, and VistA Imaging, to synchronize with CPRS. Always set this parameter to System.

```
Select PARAMETER DEFINITION NAME: ORWOR BROADCAST MESSAGES     Broadcast
Window Messages to Other Apps

ORWOR BROADCAST MESSAGES may be set for the following:

     1   User          USR    [choose from NEW PERSON]
     5   System        SYS    [DEV.DEV.FO-HINES.MED.VA.GOV]
     10  Package       PKG    [ORDER ENTRY/RESULTS REPORTING]

Enter selection: 5  System   DEV.DEV.FO-HINES.MED.VA.GOV

- Setting ORWOR BROADCAST MESSAGES  for System: DEV.DEV.FO-HINES.MED.VA.GOV -
Enable Broadcasting Windows Messages: YES// <RET>
```

Force PCE Entry (ORWPCE FORCE PCE ENTRY)

If encounter data is missing, the user should be asked to enter the missing data. You must select Yes to the Force GUI PCE ENTRY prompt.

```
Select PARAMETER DEFINITION NAME: ORWPCE FORCE PCE ENTRY     Force PCE Entry

ORWPCE FORCE PCE ENTRY may be set for the following:

     1   User          USR    [choose from NEW PERSON]
     2   Location      LOC    [choose from HOSPITAL LOCATION]
     3   Service       SRV    [choose from SERVICE/SECTION]
     4   Division      DIV    [HINES DEVELOPMENT]
     5   System        SYS    [DEV.DEV.FO-HINES.MED.VA.GOV]
     6   Package       PKG    [ORDER ENTRY/RESULTS REPORTING]
```

`Enter selection:` Set this parameter according to the individual preference of your site.

```
---------- Setting ORWPCE FORCE PCE ENTRY ----------
FORCE GUI PCE ENTRY: ?

Do you wish to force entry of PCE data in the CPRS GUI?.

     Select one of the following:

          0         NO
          1         YES

FORCE GUI PCE ENTRY: 1  YES
```

When data is needed and the user is the primary encounter provider, the ORWPCE FORCE PCE ENTRY parameter is checked to determine if the user needs to enter the missing encounter information before being allowed to sign the note. When this parameter is set to YES, users are asked to enter the missing data. When this parameter is set to NO, users are asked if they want to enter encounter information.

When data is needed and the user is the primary encounter provider, continued checks are made during the note-signing process to determine if there is still missing data. The user is continually prompted to enter the data, regardless of the ORWPCE FORCE PCE ENTRY setting.

If data is not needed or if the user is not the primary encounter provider, “Yes” and “No” prompts are displayed and the user determines what to enter.

Add CP User to the CPRS Tools Menu (ORWT TOOLS MENU)

You can use the ORWT TOOLS MENU to set up access to CP User from the CPRS Tools menu. You can set up the options for the site and then override them as appropriate at the division, service, and user levels. Here are some guidelines:

- Enter each item in the format, NAME=COMMAND.

  NAME is the name that displays on the menu, such as CP User. If you want to provide keyboard access, you can also enter **&** in front of a letter, such as CP &User.

  COMMAND is the directory path followed by the executable name.

Notes:

- You must surround a path that contains space characters, such as C:\Program Files\... with quotation marks. You can also include switches in the path. Here's an example:

  ```
  CP User="C:\Program Files\Clinical Procedures\CP User.exe" /cprs
  /dfn=%DFN /s=%SRV /p=%PORT
  ```

- You can pass context-sensitive parameters, which are entered as placeholders, and then converted to the appropriate values at runtime. The placeholder parameter used with Clinical Procedures is:

  %DFN Indicates the DFN of the currently selected patient in CPRS. This parameter passes the current patient to Clinical Procedures. You can also use %DFN as a placeholder in other CP applications.

  %SRV Indicates the name of the server that CPRS is currently connected to. This parameter passes the current server name to Clinical Procedures. You can also use %SRV as a placeholder in other CP applications.

  %PORT Indicates the listener port that CPRS is currently communicating through. This parameter passes the current listener port to Clinical Procedures. You can also use %PORT as a placeholder in other CP applications.

- Command line switches, such as nonsharedbroker, can be used. Refer to Appendix A - CP Application Startup Options and Command Line Switches, 14-1 for more information.

Example: Create a tools menu option that contains CP User.

From the system prompt, do the following:

```
Select PARAMETER DEFINITION NAME: orwt TOOLS MENU     CPRS GUI Tools Menu ORWT TOOLS MENU may
be set for the following:
     1   User          USR    [choose from NEW PERSON]
     2   Location      LOC    [choose from HOSPITAL LOCATION]
     2.5 Service       SRV    [choose from SERVICE/SECTION]
     3   Division      DIV    [REGION 5]
     4   System        SYS    [OEC.ISC-SLC.VA.GOV]
Enter selection: 1  User   NEW PERSON
Select NEW PERSON NAME: DOE,JOHN          JD

-------------- Setting ORWT TOOLS MENU  for User: DOE,JOHN --------------
Select Sequence: 1
Are you adding 1 as a new Sequence? Yes//   YES
Sequence: 1//    1
Name=Command: CP User="<directory name>\CP User.exe" /cprs /dfn=%DFN /s=%SRV /p=%PORT
Select Sequence:
```

Fig. 8-1

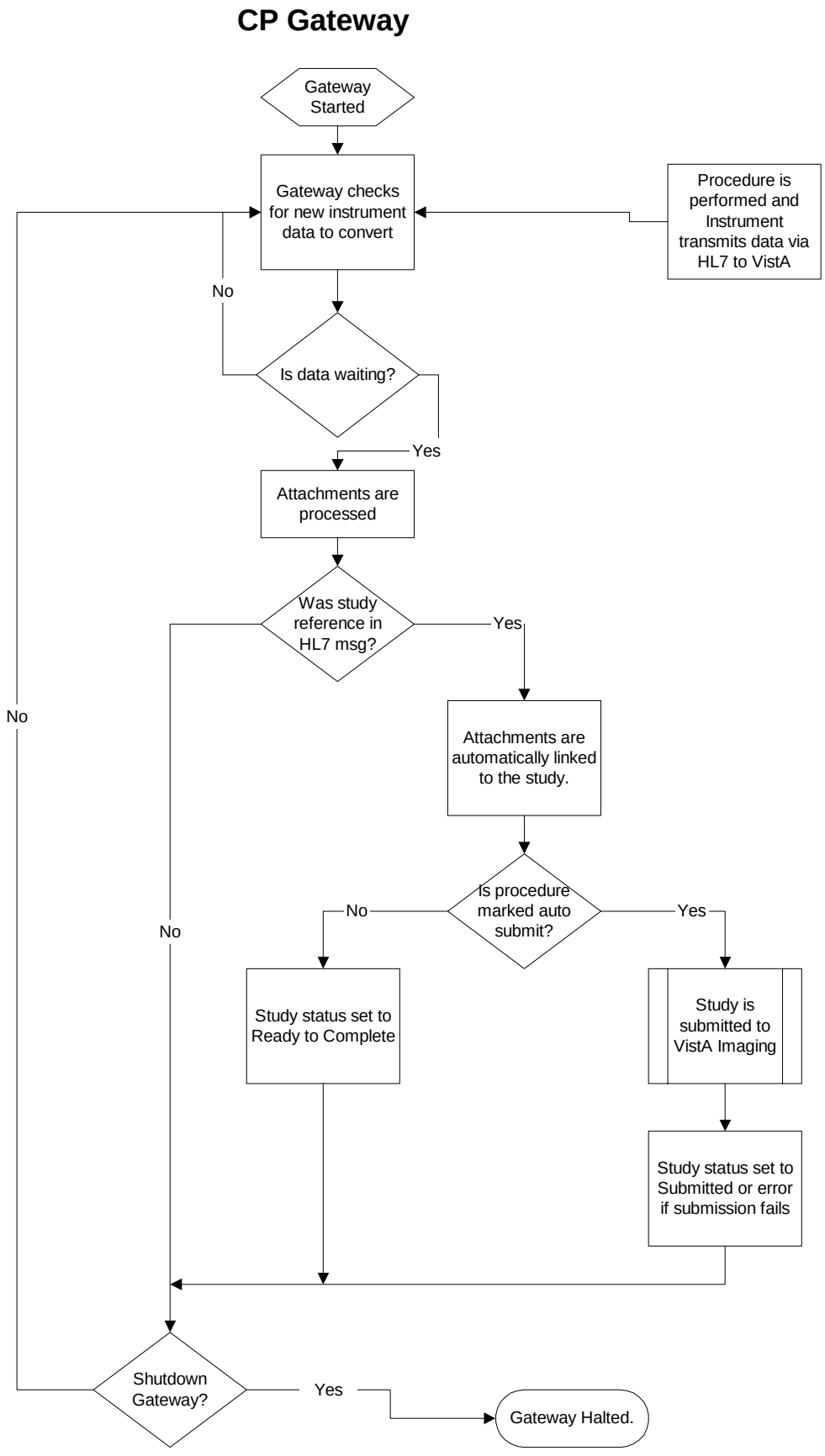
When you select "CP User" from the CPRS Tools menu, CP User is displayed and the actual server, port, and global reference are substituted for the command line switches.

9. Working with CP Gateway

CP provides bi-directional capabilities for the HL7 interface. With this feature, the VistA system can send information about a patient procedure directly to the instrument, which eliminates duplicate entries of patient data into an instrument. CP Gateway sends the results to the VistA M environment and converts the data into a usable format for the CP and VistA Imaging applications.

Every night after midnight, CP Gateway purges data based on the value in the **Days to keep Instrument Data** field (See **CP Manager > System Parameters**). This purge only deletes the raw data that comes from the instrument. The data to be purged has already been matched to a study.

The following flowchart describes what the CP Gateway does.


CP Gateway
Gateway Started
Gateway checks for new instrument data to convert
Procedure is performed and Instrument transmits data via HL7 to VistA
No
Is data waiting?
Yes
Attachments are processed
Was study reference in HL7 msg?
Yes
No
Attachments are automatically linked to the study.
Is procedure marked auto submit?
No
Yes
No
Study status set to Ready to Complete
Study is submitted to VistA Imaging
Study status set to Submitted or error if submission fails
Shutdown Gateway?
Yes
Gateway Halted.

Starting the CP Gateway application is the same as starting any VistA Broker application, which requires a VistA application and the appropriate command line switches. Refer to Appendix A - CP Application Startup Options and Command Line Switches, 8-8, for more information.

After the application starts, three checks are performed to ensure that the proper environment exists.

- Verifies that the CP Gateway is a compatible version with the server installation.
- Verifies that the CP Gateway is the only one running in the selected environment (such as UCI and Volume set).
- Verifies that the CP Gateway has Read Write and Delete access to the directory stored in the MD IMAGING XFER DIRECTORY parameter.

If any of these checks fail, the processor shuts down. If the checks are acceptable, the application displays on the workstation as shown, Figure 9-1.

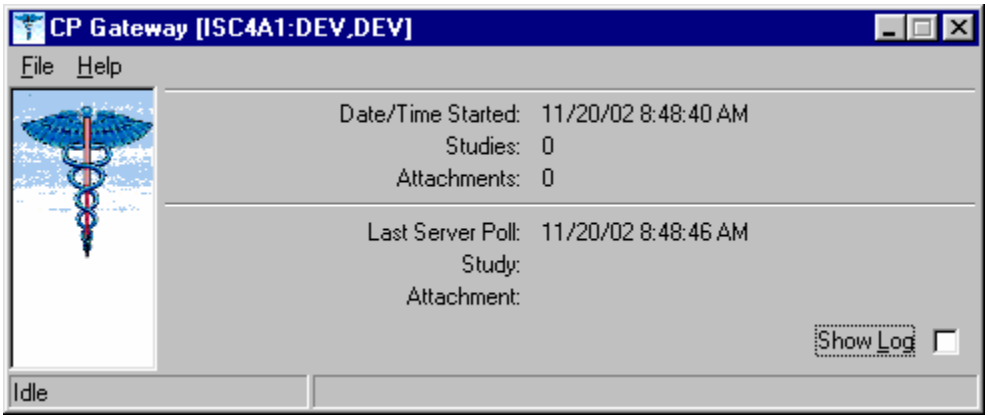


Fig. 9-1

Click **Show Log** to view the application log. A session log is kept for the currently running session but is not saved to the workstation's hard drive for patient security reasons.

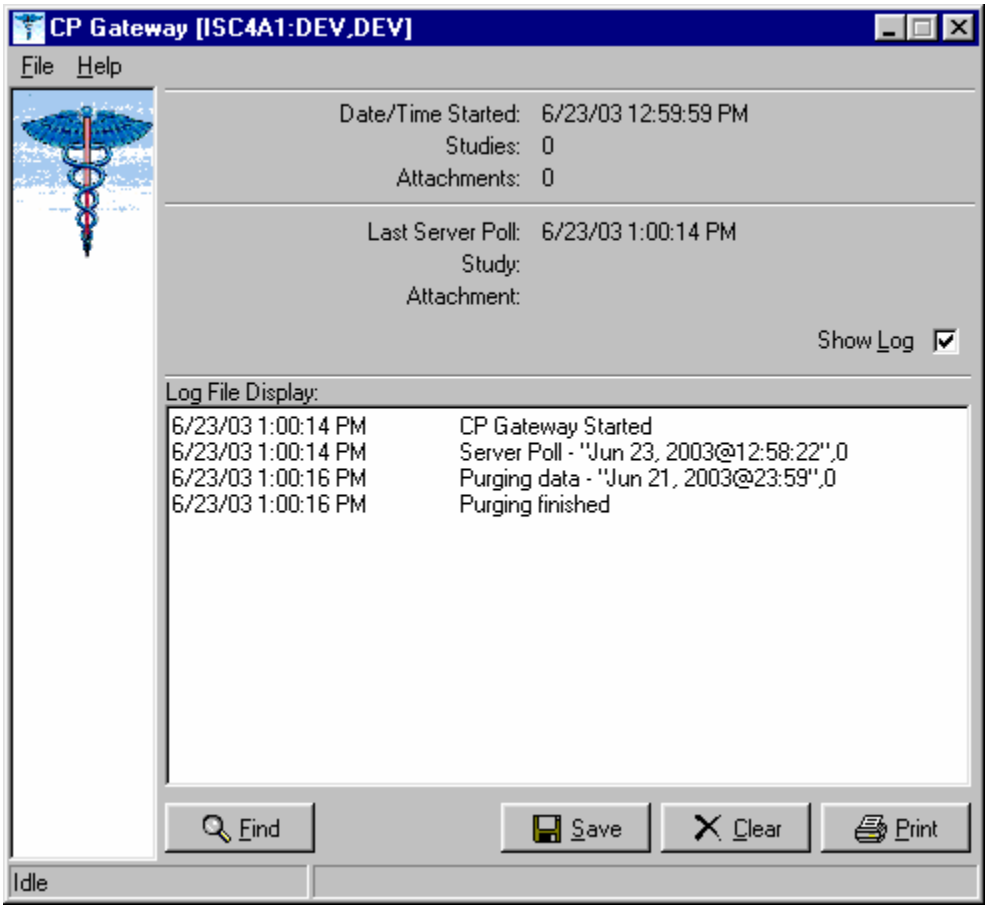


Fig. 9-2

The log file tracks all the background operations and any problems that occur during the processing of attachments, Fig. 9-2. In addition, the log file lists the date/time stamp of the background operation, a description of the background operation, and the number of studies to process at that time.

Log File Options

The following options are available while viewing the log file.

- Click **Find** to rapidly search the log file. A standard Windows find dialog is displayed and you can search the entire log file for a text value.

- Click **Save** if you want to save the entire contents of the log to an external file. The log file is saved in Rich Text Format (RTF) and can easily be opened in MS Word or other word processing applications.

- Click **Clear** to clear all entries in the current sessions log file. Be careful since you cannot recover past log entries if you have not previously saved them to a file.

- Click **Print** to select a printer and print the log. Be careful to check the size of the log file as it may be large if you have not cleared it recently.

You can display information about the server and you can also manage how the Gateway works.

- Choose **File > Status**. The server settings are displayed, Figure 9-3.

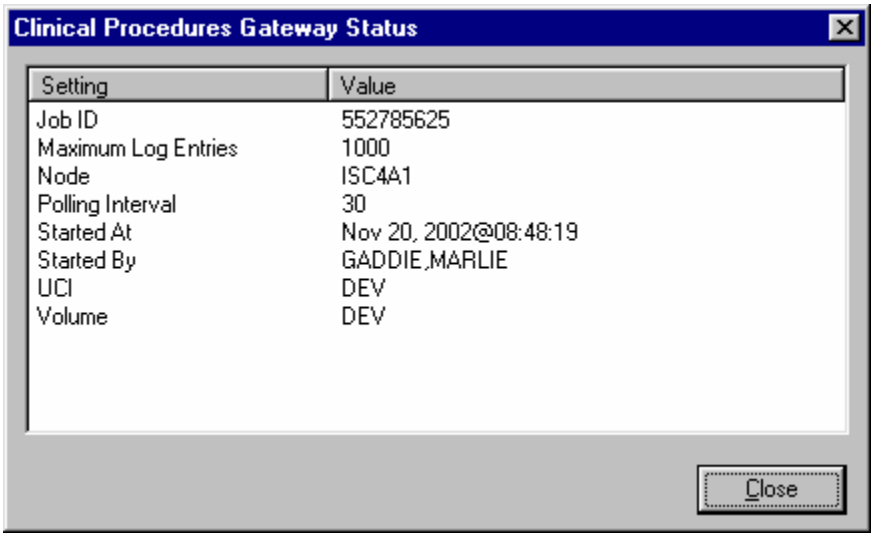


Fig. 9-3

- Choose **File > Shutdown**. The server process is stopped and the application is terminated.

- Choose **File > Set Poll Interval**, Figure 9-4. The CP Gateway polls for new instrument data to transmit to VistA. You can adjust the number of seconds between polling operations. Enter a value from 10 to 300 seconds. The new value becomes effective after the next polling operation so it may take up to 5 minutes for the new value to be used.

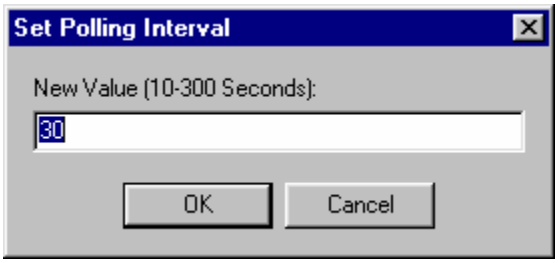


Fig. 9-4

- Choose **File > Set Maximum Log Entries.** You can adjust the number of entries that are stored in the log file. Enter a value from 100 to 10000. After this value is reached, entries are deleted from the beginning of the log to keep the log file from growing too large. The new value becomes effective after the next polling operation so it may take up to 5 minutes for the new value to be used. When the CP Gateway is shut down, all entries are deleted from the log file.

10. Setting Up HL7 Parameters

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

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

Keep in mind that 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.)

- Define IP addresses and ports

    1. Choose HL Main Menu > Interface Developer Options > Link Edit.
    2. Select the MCAR INST entry in the HL Logical Link (#870) file.
    3. Set Autostart to “Enabled”.
    4. Create a new entry in the HL Logical Link (#870) file using MCAR OUT as an example. Name the new entry based on the instrument you are using. For example, if you are using the MUSE device, name the entry MCAR1 MUSE.
    5. Set the TCP/IP Address to the address of your medical device.
    6. Set Autostart to “Enabled”.

```
Select OPTION NAME: hl main menu       HL7 Main Menu


          Systems Link Monitor
          Filer and Link Management Options ...
          Message Management Options ...
          Interface Developer Options ...
          Site Parameter Edit
```

```
Select HL7 Main Menu Option: interface developer options  HL MENU INTERFACE TK
Interface Developer Options


   EA     Application Edit
   EP     Protocol Edit
   EL     Link Edit
   VI     Validate Interfaces
          Reports ...


Select Interface Developer Options Option: el Link Edit
```

```
Select HL LOGICAL LINK NODE: MCAR INST
```

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

          NODE: MCAR INST

   INSTITUTION:

        DOMAIN:

    AUTOSTART: Enabled

    QUEUE SIZE: 100

    LLP TYPE: TCP <RET>
```

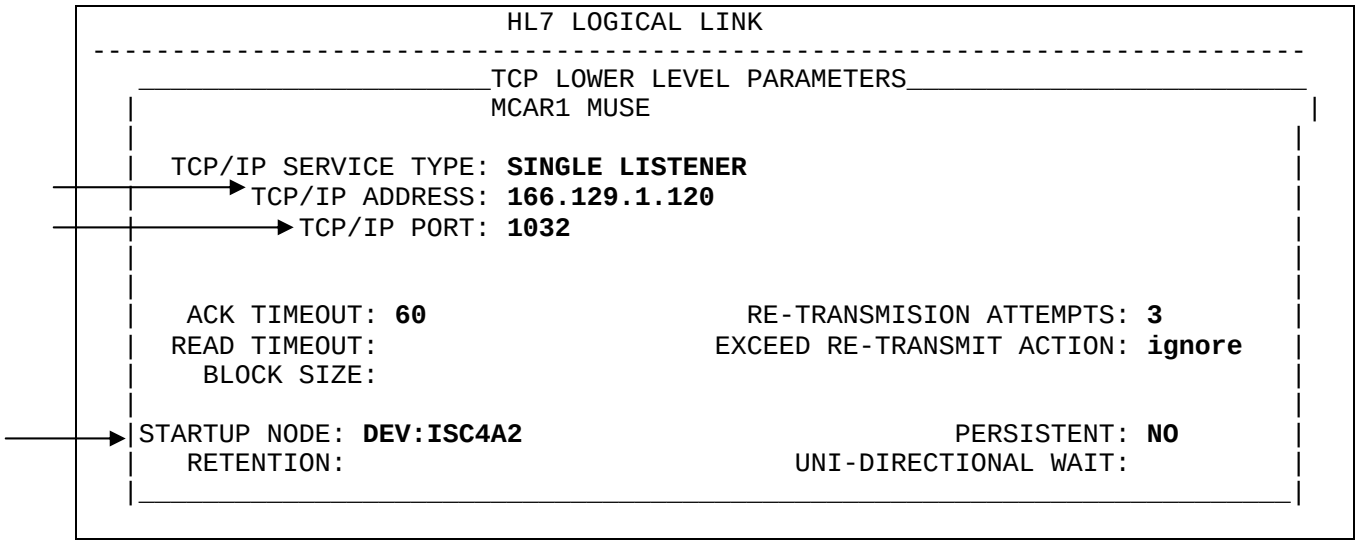
Hit Return at the LLP TYPE prompt to go to the HL7 LOGICAL LINK screen.

```
                          HL7 LOGICAL LINK
------------------------------------------------------------------------------
   _____________________TCP LOWER LEVEL PARAMETERS_____________________________
   |                    MCAR INST                                             |
   |                                                                          |
   |  TCP/IP SERVICE TYPE: SINGLE LISTENER                                    |
   |       TCP/IP ADDRESS:                                                    |
   |       TCP/IP PORT: 1026                                                  |
   |                                                                          |
   |                                                                          |
   |   ACK TIMEOUT: 60                  RE-TRANSMISION ATTEMPTS: 3            |
   |  READ TIMEOUT:                    EXCEED RE-TRANSMIT ACTION: ignore      |
   |    BLOCK SIZE:                                                           |
   |                                                                          |
   |STARTUP NODE: DEV:ISC4A2                          PERSISTENT: NO          |
   |   RETENTION:                           UNI-DIRECTIONAL WAIT:             |
   |__________________________________________________________________________|
```

```
Select HL LOGICAL LINK NODE: MCAR1 MUSE
  Are you adding 'MCAR1 MUSE' as a new HL LOGICAL LINK (the 58TH)? No// Y
```

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

          NODE: MCAR1 MUSE

   INSTITUTION:

        DOMAIN:

    AUTOSTART: Enabled

    QUEUE SIZE: 10

    LLP TYPE: TCP
```

Enter TCP at the LLP TYPE prompt to go to the HL7 LOGICAL LINK screen.



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 setup 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.

- Activate the HL Logical Links (e.g., MCAR INST and MCAR1 MUSE).

1. Choose HL Main Menu > Filer and Link Management Options >Start/Stop Links.
2. Select HL LOGICAL LINK NODE: **MCAR INST**
3. Activate the Link. Select Background.
4. Select HL LOGICAL LINK NODE: (in this example it is **MCAR1 MUSE**)
5. Activate the Link. Select Background.

```
Select OPTION NAME: hl main menu       HL7 Main Menu


          Systems Link Monitor
          Filer and Link Management Options ...
          Message Management Options ...
          Interface Developer Options ...
          Site Parameter Edit


Select HL7 Main Menu Option: filer and link management options


   SM     Systems Link Monitor
   FM     Monitor, Start, Stop Filers
   LM     TCP Link Manager Start/Stop
   SA     Stop All Messaging Background Processes
   RA     Restart/Start All Links and Filers
   DF     Default Filers Startup
   SL     Start/Stop Links
   PI     Ping (TCP Only)
   ED     Link Edit
   ER     Link Errors ...


Select Filer and Link Management Options Option: sl  Start/Stop Links

This option is used to launch the lower level protocol for the
appropriate device.  Please select the node with which you want
to communicate.

Select HL LOGICAL LINK NODE: MCAR INST
```

Activate the Link.

```
The LLP was last shutdown on NOV 06, 2000 16:03:47.
This LLP will start on node DEV:ISC4A2 if it is run in the Background.

Method for running the receiver: B// <RET> BACKGROUND
Job was queued as 266473.
```

Now you need to activate the device interface link. It is MCAR1 MUSE in this example.

```
Select HL LOGICAL LINK NODE: MCAR1 MUSE
```

Activate the Link.

```
The LLP was last shutdown on NOV 06, 2000 16:23:14.
This LLP will start on node DEV:ISC4A2 if it is run in the Background.

Method for running the receiver: B// <RET> BACKGROUND
Job was queued as 266474.
```

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, 6-3.

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
  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 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: LUSHENE,ROBERT E
  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: LUSHENE,ROBERT E
  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: ACKERMAN,NIEN-CHIN               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: ACKERMAN,NIEN-CHIN
  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.

11. Configuring the Automated Instrument Share Folder

CP uses VistA Imaging as the main storage facility for the images and documents that come from a medical device. After one or more medical devices have been installed at the facility, you need to complete the setup. The vendor can provide you with the directory that is used to store the images and documents. You need to make that directory viewable to the VistA Imaging background processor, which will allow VistA Imaging to retrieve the document and store it on the VistA jukebox.

Here is a list of information you need to ensure that the share folder is set up correctly:

- Directory name that holds the documents and images on the medical device. Be sure to get the directory name from the vendor when the device is installed.
- VistA Imaging User (IU) and VistA Imaging Administrator (IA) accounts that are used when starting up the VistA Imaging background processor. You can get these names from the VistA Imaging coordinator at your facility.
- The medical device and the Imaging background processor ***must*** be on the same Windows domain.
- The medical device must have the same TCP/IP subnet mask as the Imaging background processor.
- You need administration privileges to complete the setup.
- You need to make the directory viewable on the medical device that has the documents and images.
- The network path to the results folder cannot contain symbols, such as dollar signs ($).

Example: Setting up an automated instrument share folder:

This example describes how to share a Windows 2000 directory for the Widget EKG automated instrument where the medical device (Widget EKG) and the Imaging background processor are on the same domain VHAExample and subnet 255.255.240.0.

The directory that has the documents and images is C:\widget\doc. The VistA Imaging user is VHAISHIU and has an administrator logon to Windows.

1. Using Windows Explorer, go to the parent directory of the folder that contains the folder to be shared (doc folder) (Fig. 11-1).

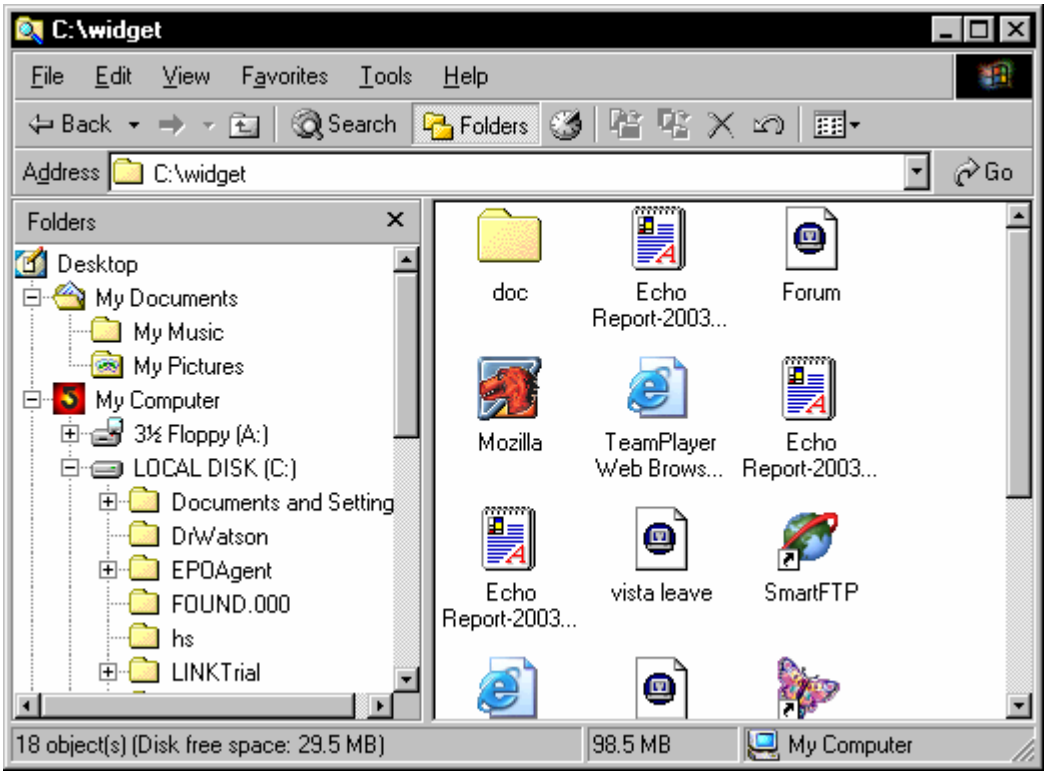


Fig. 11-1

2. Right-click the **doc** folder. Select **Sharing** from the drop-down menu. The Sharing tab on the doc properties dialog box is displayed, Figure 11-2.

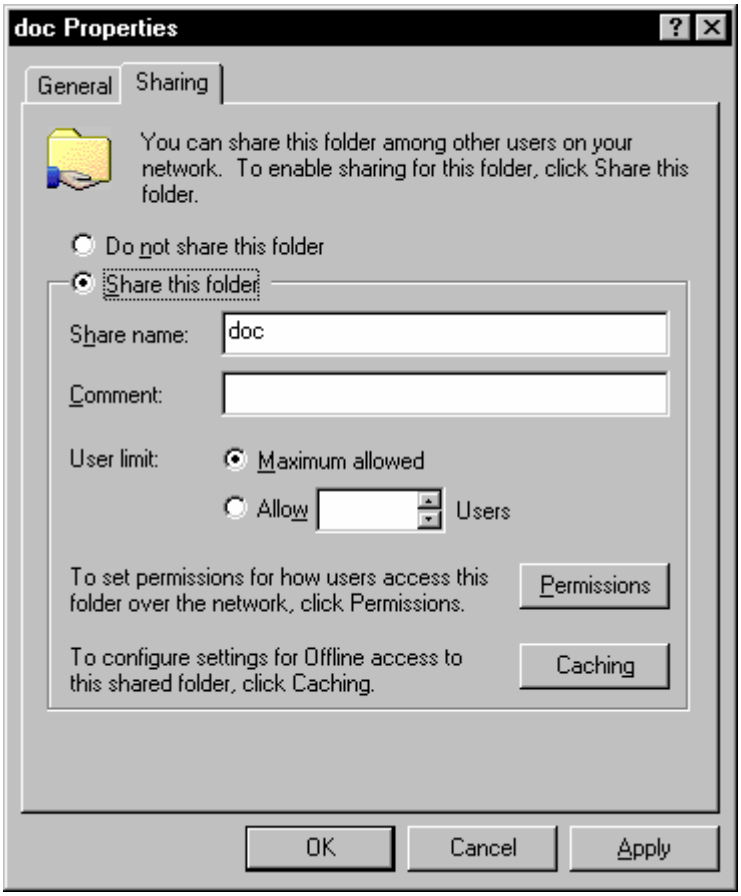


Fig. 11-2

3. Click **Share this folder**.
4. Click **Permissions**.

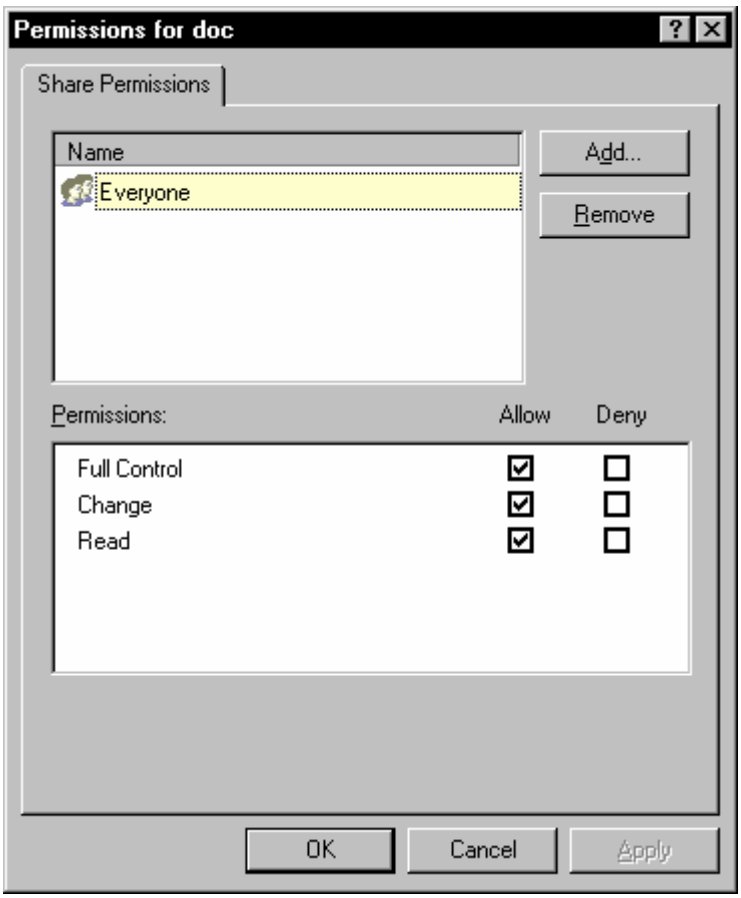


Fig. 11-3

5. Select **Everyone**, and then click **Remove**. (Fig. 11-3).
6. Click **Add**. The Select Users, Computers, or Groups window is displayed.

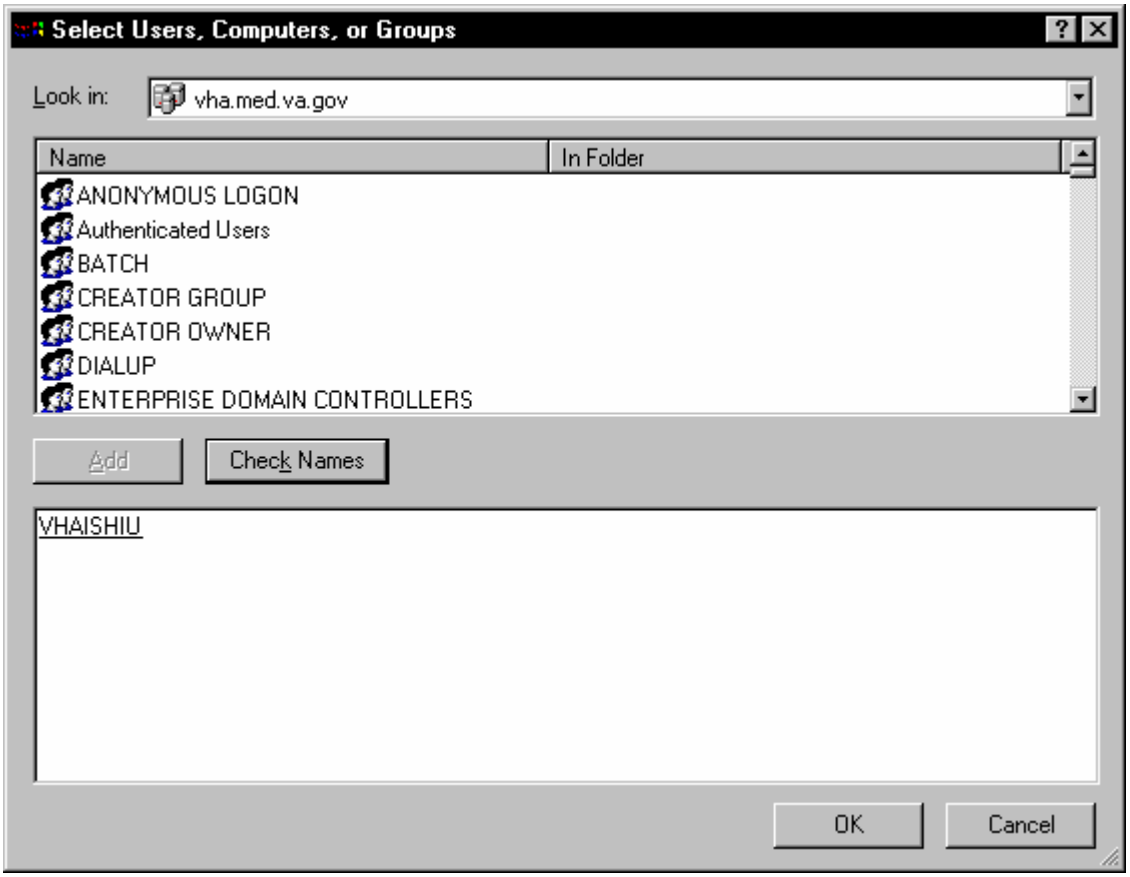


Fig. 11-4

7. Enter the name of the VistA Imaging (VHAISHIU) User (IU) into the bottom window and click **Check Names**. A line is displayed under the name if it is valid. Click **OK** to add the user (Fig. 11-4). The Select Users, Computers, or Groups window closes and VHAISHIU is displayed in the Permissions dialog box.

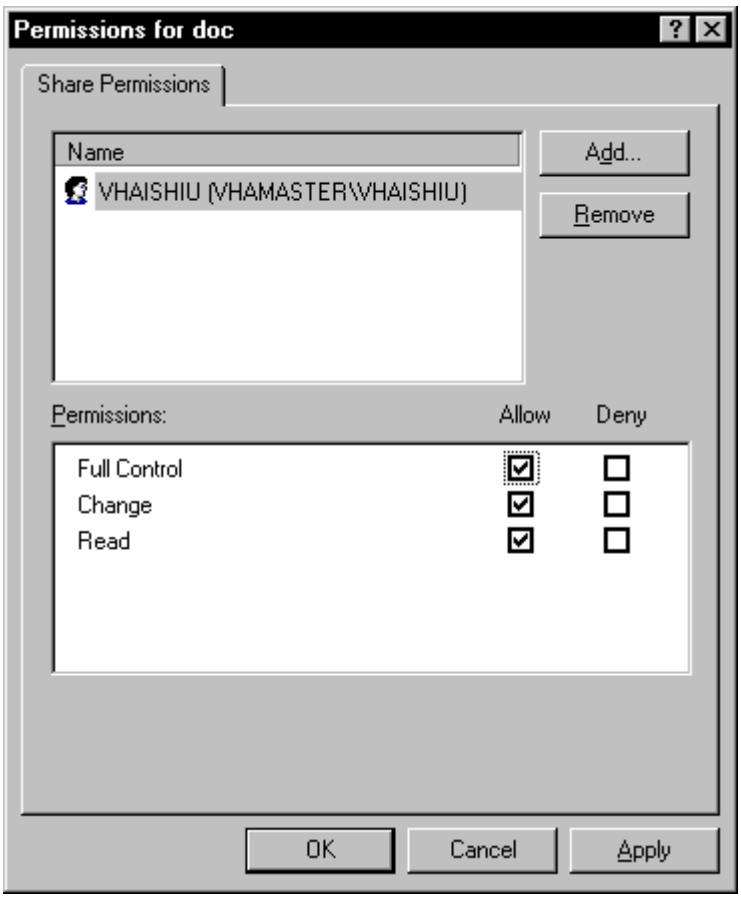


Fig. 11-5

8. Make sure the check boxes are selected in the "Allow" column for "Full Control", "Change" and "Read" (Fig. 11-5).
9. Click **Apply** and then click **OK**. A hand displays under the file, which means that the file is now accessible to the VistA Imaging user.
10. To test that the shared folder is set up correctly, have the VistA Imaging coordinator logon as VHAISHIU on a different PC. Check that the shared folder is viewable.

12. Troubleshooting

Here are frequently encountered errors and resolutions that can occur while running Clinical Procedures. To resolve most of these errors, you need access to CP Manager and CP User.

1. You tried to launch a CP application and received the following error:

Fig. 12-1

a) Highlight the CP application icon on your desktop. (When CP in installed, shortcuts for the applications are created on the desktop.)
b) Right-click, and then click **Properties**.
c) Enter the command line switch "/nonsharedbroker" in the **Target** field.
d) Press **OK**.

You can also add the "/nonsharedbroker" switch to the applications in **Start** > **Programs** > **Clinical Procedures.**

2. If you receive the following error:

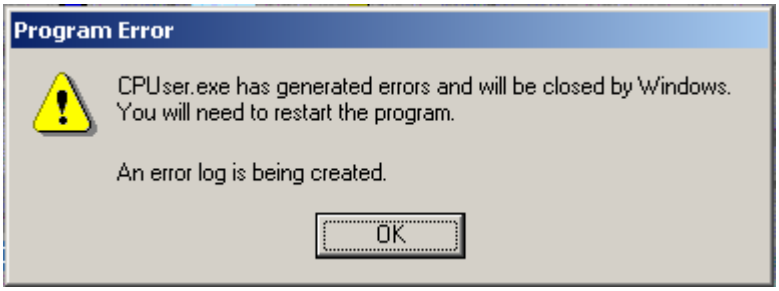


Fig. 12-2

You need the MD GUI USER option to access CP User and the MD GUI MANAGER option to access CP Manager. Call IRM.

3. During a CP Study Check-In, a procedure request was ordered but is not listed.

   a) The GRMC procedure has not been linked to a CP procedure. You need to cancel the procedure request, and then use the following **Procedure Setup** option to link the GMRC procedure to the CP procedure.

```
Select OPTION NAME: GMRC MGR       Consult Management

Select Consult Management Option:  PR   Setup procedures
Select Procedure:CP EKG 12 LEAD STAT
NAME:  CP EKG 12 LEAD STAT//  <RET>
INACTIVE: NO// <RET>
Select SYNONYM: EKG// <RET>
INTERNAL NAME: <RET>
Select RELATED SERVICES: CP CARDIOLOGY// <RET>
TYPE OF PROCEDURE: ECG// <RET>
CLINICAL PROCEDURE: EKG, ROUTINE (12 LEADS)// <RET>
```

   If you entered "?" in the Clinical Procedure field and you do not find a procedure that you want, use CP Manager to define and activate the CP procedures.

   b) Open **CP Manager**.
   c) Enter the name of the CP Procedure in the **Procedure Name** field. See Setting Up Clinical Procedures, 6-1.
   d) Re-order the consult procedure.

4. **Allowable Instruments** are associated with the CP procedure but you cannot see the instruments during **Study Check-In**.

   a) Open **CP Manager**.
   b) Expand the Procedures folder, and then select the procedure.
   c) In the **Allowable Instruments** list, select the check box for the specific instrument.

5. After a study is checked-in, you can't find the study entry in **CP User**.

   a) Open **CP Manager**.
   d) Expand the Procedures folder, and then select the procedure.
   b) Check that a treating specialty has been assigned.

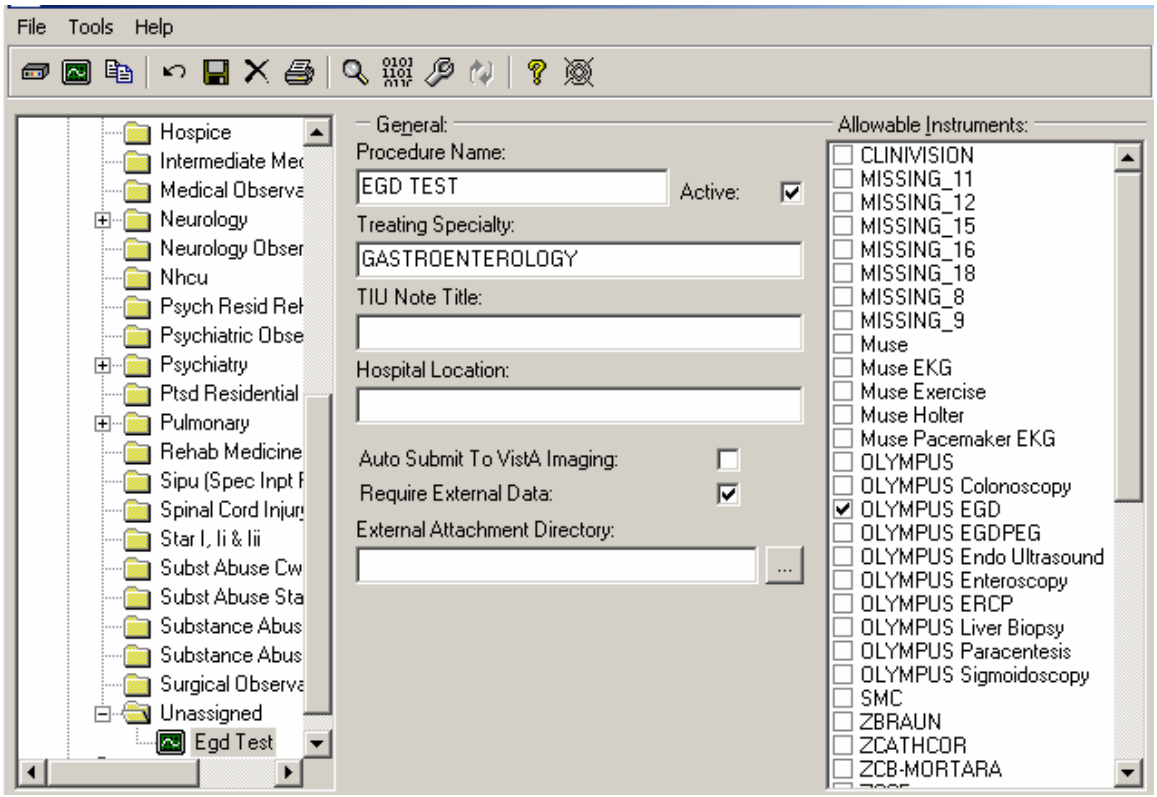


Fig. 12-3

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**.

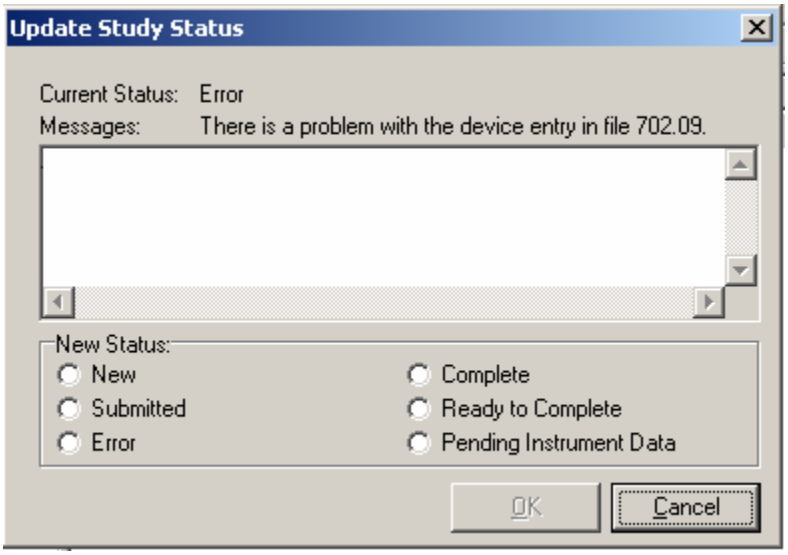


Fig. 12-4

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.

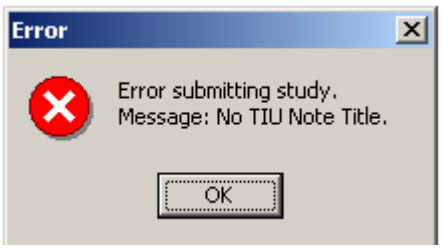


Fig. 12-5

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.

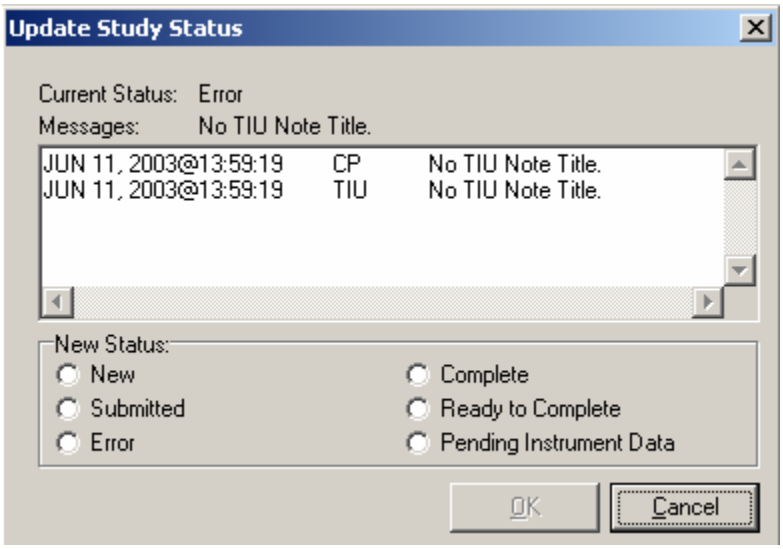


Fig. 12-6

a) Open **CP Manager**
b) Select the procedure, and check that a **TIU Note Title** is assigned.
c) Open **CP User** and Update the Study Status to **Ready to Complete**.
d) Open the study and manually submit the results. By manually submitting the result, you prevent any re-occurrences of the error.

9. These errors indicate that a Hospital Location has not been defined for the CP procedure.

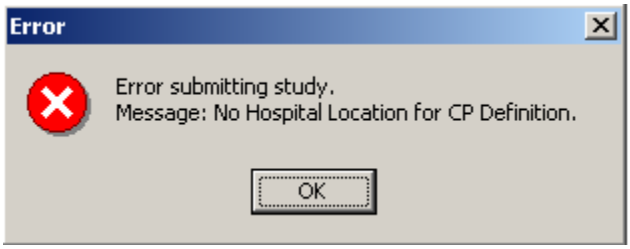


Fig. 12-7

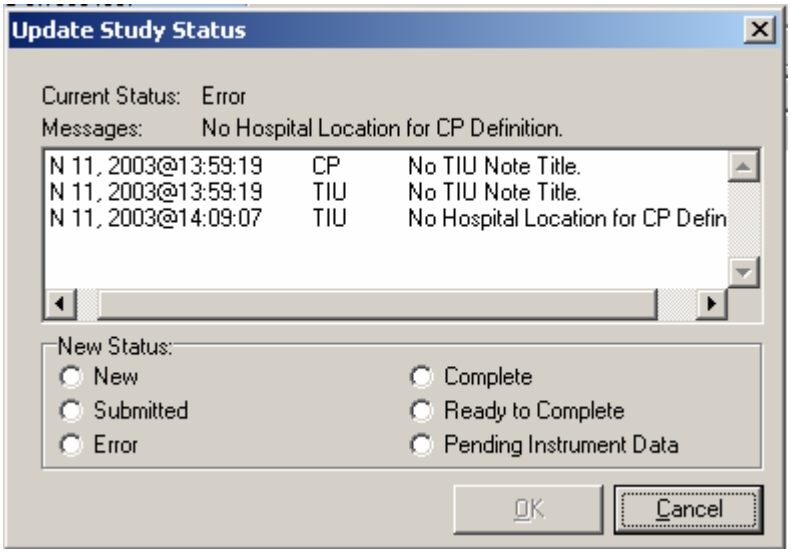


Fig. 12-8

a) Open **CP Manager** and check that the Hospital Location has been defined.
b) Open **CP User** and Update the Study Status to **Ready to Complete.**
c) Open the study and submit it manually.

10. If the **Complete/Update Result** option in **CPRS** > **Action** > **Consults Results** is unavailable**,** you need to be updated as the Interpreter. Use the `Service User Management > SERVICE INDIVIDUAL TO NOTIFY` option to assign the Interpreter role.

```
Select Consult Management Option: SU Service User Management

Select Service/Specialty:   GASTROENTEROLOGY
Select UPDATE USERS W/O NOTIFICATIONS: CASUGAY,ELSIE
        //
Select UPDATE USERS W/O NOTIFICATIONS:
Select ADMINISTRATIVE UPDATE USER: SMITH,CHARMAINE
        //
Select ADMINISTRATIVE UPDATE USER:
SERVICE INDIVIDUAL TO NOTIFY: DEMO,CP       CD     123     IRM FIELD OFFICE
IRM FIELD OFFICE
   PROGRAMMER
Select SERVICE TEAM TO NOTIFY: consultteam//
Select NOTIFICATION BY PT LOCATION:

Select Service/Specialty:
```

11. If you get the following error message:

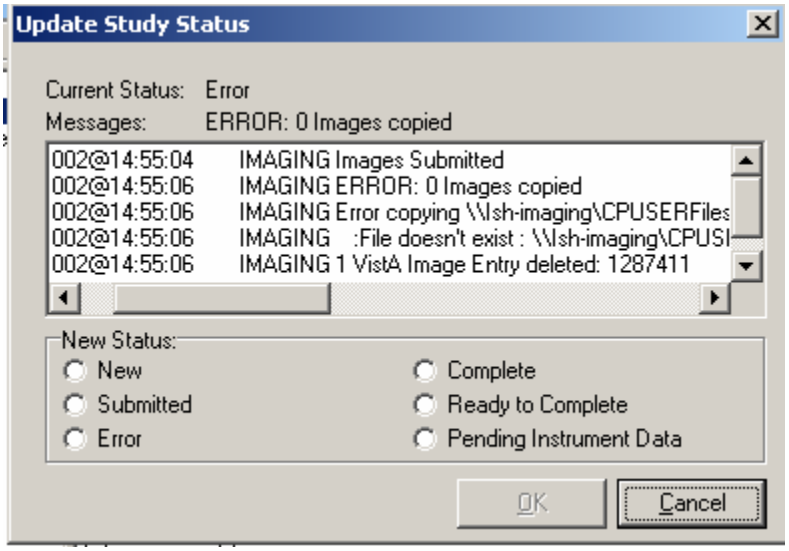


Fig. 12-9

Make sure that the Imaging Background Processor can access the Network Share, where the result resides.

a) Open **CP Manager**.
b) Click **Clinical Procedures**.
c) Click **System Parameters**.
d) Check the path of the **Imaging Network Share.** (The Imaging Network Share must be a shared directory that can be accessed by the Imaging Background Processor and CP Gateway.)

12. If a study remains in "Submitted" status, check the Imaging Background Processor log for errors and make sure that the "Import" checkbox is checked for the Import BP parameter.

    From the Background Processor, choose **Edit** > **BP Workstation Parameters.** (You may need to find someone who is responsible for the Imaging Background Processor application.)

13. If the Interpreter does not receive an alert that the procedure is ready for interpretation, check if the **CONSULT/PROC INTERPRETATION** notification is enabled and if the user has the Interpreter role.

    a) You must enable the CONSULT/PROC INTERPRETATION notification if you want to receive the "Ready for interpretation" alert in CPRS. You can enable the alert for one user, several users, or for the entire service. Use the Notification Management Menu.
    b) To assign the interpreter role, use the Consult Management menu. If user wants to receive alerts, do not enter them into the Update Users W/O Notifications field. This field is for users who want the role of interpreter but do not want to receive alerts. Refer to Setting Up Consult Services, 7-1.

```
Select Consult Management Option: SU  Service User Management

Select Service/Specialty:    GASTROENTEROLOGY
Select UPDATE USERS W/O NOTIFICATIONS: CASUGAY,ELSIE
         //
Select UPDATE USERS W/O NOTIFICATIONS:
Select ADMINISTRATIVE UPDATE USER: SMITH,CHARMAINE
         //
Select ADMINISTRATIVE UPDATE USER:
SERVICE INDIVIDUAL TO NOTIFY: DEMO,CP       CD     123     IRM FIELD OFFICE
IRM FIELD OFFICE
   PROGRAMMER
Select SERVICE TEAM TO NOTIFY: consultteam//
Select NOTIFICATION BY PT LOCATION:
```

14. If you receive the following error while trying to interpret a procedure:

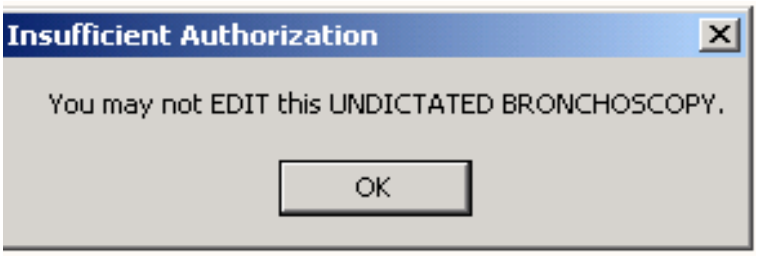


Fig. 12-10

This message can occur if business rules have not been set up or if insufficient business rules have been set up for this document title.

To add a business rule:

a) Go into the **User Class Management Menu**.
b) Select **Manage Business Rules**.
c) Enter specific words at the appropriate prompts (Status, Action, User Class). These words are combined to make a business rule.

13. Glossary

Access Code A unique sequence of characters known by and assigned only to the user, the system manager and/or designated alternate(s). The access code (in conjunction with the verify code) is used by the computer to identify authorized users.

Action A functional process that a clinician uses in a computer program. For example, "Edit" and "Search" are actions. Protocol is another name for Action.

ADP Coordinator/ADPAC/Application Coordinator Automated Data Processing Application Coordinator. The person responsible for implementing a set of computer programs (application package) developed to support a specific functional area such as clinical procedures, PIMS, etc.

Application A system of computer programs and files that have been specifically developed to meet the requirements of a user or group of users.

Archive The process of moving data to some other storage medium, usually a magnetic tape, and deleting the information from active storage in order to free-up disk space on the system.

ASU Authorization/Subscription Utility, an application that allows sites to associate users with user classes, allowing them to specify the level of authorization needed to sign or order specific document types and orderables. ASU is distributed with TIU in this version.

Attachments Attachments are files or images stored on a network share that can be linked to the CP study. CP is able to accept data/final result report files from automated instruments. The file types that can be used as attachments are the following:

.txt	Text files
.rtf	Rich text files
.jpg	JPEG Images
.jpeg	JPEG Images
.bmp	Bitmap Images
.tiff	TIFF Graphics (group 3 and group 4 compressed and uncompressed types)
.pdf	Portable Document Format
.html	Hypertext Markup Language

.DOC (Microsoft Word files) are not supported. Be sure to convert .doc files to .rtf or to .pdf format.

Automatic Version Updates Updating an account with new software versions without user intervention.

Background Processing Simultaneous running of a "job" on a computer while working on another job. Examples would be printing of a document while working on another, or the software might do automatic saves while you are working on something else.

Backup Procedures The provisions made for the recovery of data files and program libraries and for restart or replacement of ADP equipment after the occurrence of a system failure.

Boilerplate Text A pre-defined TIU template that can be filled in for titles to speed up the entry process. TIU exports several titles with boilerplate text, which can be modified to meet specific needs; sites can also create their own.

Browse Lookup the file folder for a file that you would like to select and attach to the study. Such as clicking the "..." button to start a lookup.

Bulletin A canned message that is automatically sent by mail to a user when something happens to the database.

Business Rule Part of ASU, Business Rules authorize specific users or groups of users to perform specified actions on documents in particular statuses (e.g., an unsigned CP note may be edited by a provider who is also the expected signer of the note).

Class Part of Document Definitions, Classes group documents. For example, "CLINICAL PROCEDURES" is a class with many kinds of Clinical Procedures notes under it. Classes may be subdivided into other Classes or Document Classes. Besides grouping documents, Classes also store behavior which is then inherited by lower level entries.

Consult Referral of a patient by the primary care physician to another hospital service/ specialty, to obtain a medical opinion based on patient evaluation and completion of any procedures, modalities, or treatments the consulting specialist deems necessary to render a medical opinion.

Contingency Plan A plan that assigns responsibility and defines procedures for use of the backup/restart/recovery and emergency preparedness procedures selected for the computer system based on risk analysis for that system.

CP Clinical Procedures.

CP Study A CP study is a process created to link the procedure result from the medical device or/and to link the attachments browsed from a network share to the procedure order.

CPRS Computerized Patient Record System. A comprehensive VistA program, which allows clinicians and others to enter and view orders, Progress Notes and Discharge Summaries (through a link with TIU), Problem List, view results, and reports (including health summaries).

Device A hardware input/output component of a computer system, such as CRT, printer.

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).

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.

14. Appendix A – CP Application Startup Options and Command Line Switches

Topics discussed in this chapter are:

Introduction

Clinical Procedures was designed to operate as a standalone client or, when desired, launched from the tools menu of CPRS. CP uses the new Shared Broker environment and is also backwards compatible with previous releases of the RPC Broker. This functionality is achieved through the use of command line switches, which are applied to the Desktop Icons, Start Menu items, or the command assigned to an item on the CPRS tools menu.

What is a Command Line Switch?

A command line switch is a setting that is included in the call to the executable that controls the behavior of the executable. A common switch setting deployed in the VistA environment specifies the proper server on the proper listener port for the RPC Broker to connect to without user intervention. This is commonly seen when you create a desktop icon for CPRS with the /s=BrokerServer /p=9200 switch. The connection to the VistA server is defined as BrokerServer on listener port 9200. (See the RPC Broker manuals for a complete description of defining a valid connection to pass to applications.)

Shared Broker Environment

CP was developed when the Shared Broker was being implemented. The Shared Broker provides a more responsive workstation environment by eliminating multiple sign-on requirements and preserving VistA server resources by combining several client applications into a single process/connection. CP provides this new functionality.

To assist sites in the migration to Shared Broker, CP is backwards compatible with the previous RPC Broker environment with a simple command line switch in the desktop icon, start menu item, and CPRS Tools Menu items. During the client GUI installation, desktop icons and start menu items are installed using the command line switch, /NonSharedBroker. By appending this command line switch, a call to launch a CP application causes the application to run with the old style broker and does not require that the workstation be upgraded with the latest broker client software.

Example:

\\MyAppServer\CP\CPuser.exe /server=BrokerServer /Port=9200 /NonSharedBroker

In this example, CPUser is executed from the server MyAppServer in share name CP and tries to connect to the VistA server defined as BrokerServer on listener port 9200. In addition, this command causes CPUser to connect to the previous version of the broker instead of the Shared Broker.

CPRS Tools Menu

If you want to use CP User from the CPRS tools menu, you need to launch CP User in a mode that causes it to listen to CPRS for patient changes and to exit when CPRS is closed. When appending the command line switch /cprs to the command in the CPRS Tools Menu command line, CP runs in a slave mode and does not allow patients to be selected within the CP environment. CPRS provides placeholders for the site to utilize when creating command lines for the tools menu. These are:

%srv	Holds the name of the server that CPRS is currently connected to.
%port	Holds the listener port that CPRS is currently communicating through.
%dfn	Holds the DFN of the currently opened patient record in CPRS.

Example command line for CPRS tools menu:

CPUser=\\MyAppServer\CP\CPuser.exe /cprs /server=%s /port=%p /dfn=%d

In this example, the CPUser.exe on server MyAppServer in the Share CP runs as a slave under the CPRS application while connecting to the server that CPRS defined in %s on the listener port defined in %p. In addition, CP User opens the patient defined in %d upon starting.

For instructions on setting up the CPRS Tools menu, refer to, Adding Clinical Procedures to the CPRS Tools Menu, 8-8

All Command Line Switches

Clinical Procedures V. 1.0 command line parameters available from the command prompt or within Windows shortcut definitions and the CPRS Tools menu commands are defined by application.

CP User.exe [/**server**=*servername*] [/**port**=*listenerport*] [/**cprs**] [/**dfn**=*patientdfn*] [/**helpdir**=*helpdirectory*] [/**debug**={on|off}] [/**brokertimeout**=*seconds*] [/**bypasscrc**] [/**NonSharedBroker**]

CP Manager.exe [/**server**=*servername*] [/**port**=*listenerport*] [/**helpdir**=*helpdirectory*] [/**debug**={on|off}] [/**brokertimeout**=*seconds*] [/**bypasscrc**] [/**NonSharedBroker**]

CP Gateway.exe [/**server**=*servername*] [/**port**=*listenerport*] [/**helpdir**=*helpdirectory*] [/**debug**={on|off}] [/**brokertimeout**=*seconds*] [/**bypasscrc**] [/**NonSharedBroker**]

Switches:

Name	Description	Default
/server	Specifies a VistA server to which you are connected.	BROKERSERVER
/port	Specifies an alternate listener port on the selected server.	9200
/cprs	Specifies that the application is to run in slave mode under CPRS. This switch **must** be utilized when adding the CP User application to the CPRS tools menu.	
/dfn	Specifies the patient dfn (record identifier) to open upon application startup. This switch **must** be utilized when adding the CP User application to the CPRS tools menu.	
/helpdir	Location of the Clinical Procedures windows help files.	*../appdir/help* of the application.
/debug	Sets the debug mode for both the RPC Broker and the Clinical Procedures application.	Off
/brokertimeout	Overrides the timeout for the RPC Broker when executing a Remote Procedure.	30

Name	Description	Default
/bypasscrc	Overrides the system parameters setting to check an applications crc32 value upon application startup. This switch should only be used during testing to avoid the messages if the site is implementing CRC verification.	
/NonSharedBroker	This switch instructs the application to **not** utilize the shared broker functionality. Used when the Shared Broker has not been implemented on the target workstation.	

servername IP Address or Name of VistA server as it appears in the client Hosts. file. Default Hosts. file locations:
NT 4.0 = c:\winnt\system32\drivers\etc\hosts.
Win95/98 = c:\windows\hosts.

listenerport TCP Port that the Broker is running on the VistA server.

helpdirectory Directory path to a location containing the Clinical Procedures V. 1.0 Help Files.

seconds Integer value specifying the number of seconds the RPC Broker waits for a server response to an RPC.

patientdfn Value of the patient dfn to access when starting the CP User application.

15. 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

16. Appendix C - Instrument Processing Routines

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

Instrument Name:	**Processing Routine:**
CLINIVISION	MDHL7R1
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

17. Index