Medsphere®

Transforming Healthcare Through Open Source

Foundations Training Guide

Foundations Training for System Administrators

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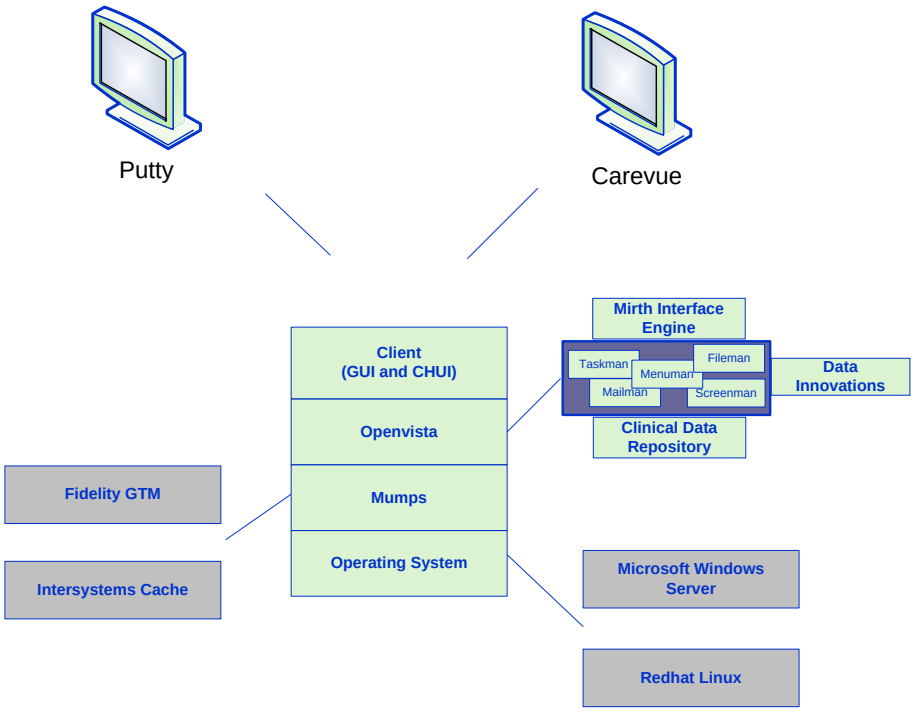
I. Overview

Medsphere fully embraces the idea of an open architecture and continually seeks to design OpenVistA around the concept of a layered application. This layered approach further embraces the idea of "plug in" software, so that the core Openvista system remains relatively constant but the end application and the user experience is ever being enhanced. Some tools that enable this "plug in" methodology is the Mirth Interface Engine and the Clinical Data Repository. We are continually seeking tools and partners that extend the capabilities of the Openvista application beyond the original design.



Foundations training will cover the core concepts that are contained with the Openvista system and will be those key tasks that must be maintained on an ongoing basis. This material will include most of the system administration tasks that Openvista requires but will also stretch into other key systems that we use as part of our toolset.

A. Audience

The intended audience for this document is the technical staff that will be responsible for OS and database availability and integrity or system administrators that assist in maintenance of the system.

B. Objectives

The guide will introduce the foundation of and expose the infrastructure that makes OpenVistA. You will see how the operating system, database application, and mumps routines work together to store and communicate clinical data. This is not a comprehensive guide on OS, operating system, Cache or GT.M (the database), or MUMPS routines. In further chapters this guide will cover FileMan, TaskMan, Configurators, as well as printers and HL7 interfaces.

C. Further Resources

If you would like to find out more about certain topics that are not covered here you have many options to get more information:

Medsphere Systems Technology Consultant

Hardhats - This is a group of users and developers that have worked to document and improve VA's Vista.
http://www.hardhats.org

Cache (database)
http://www.intersystems.com

GT.M (database)
http://www.fisglobal.com/solutions/Banking%20and%20Wealth/Services/Database%20Engine

Red Hat (OS)
http://www.redhat.com

Windows Server (OS)
http://www.microsoft.com

II. System Layout

A. OS

The OS is the primary foundation on which the other applications rest. There is little day to day direct interaction between the OS and the system administrator, but some maintenance is required. The physical hardware, logical printers, and partitions are controlled here. The OS also provides a level of security that is established and maintained. Backup file management will be controlled at this level. On top of this layer, the MUMPS database is installed. Specific databases further delineate the disk space here. Several layers of backups, one that addresses the database and another focuses on specific transactions, are configured. The database also has security functions. Openvista, OpenVistA, is layered over the MUMPS database and stores and displays the data in the databases.

1. Windows Server

Microsoft Windows Server can host the database and Openvista applications. The administration of this server is equivalent to any Windows application or database server. User security, group policies, and patch management will all need to be addressed. Openvista also allows failover clustering through Windows. The logical printers that Openvista uses are installed through Windows printing. IIS is installed to store images that are associated with patient visits. Anti-virus installation and continual updates to the virus definitions are a must.

2. Linux

The enterprise edition of the open source Linux OS from Red Hat is an alternative to Windows. Hardware and physical disk management must be administered, as well as, user security, printers, and patch management. Anti-virus software is also necessary for the OS. An instance of a FTP server or Samba is configured to allow file sharing. Webdav and Apache are installed to store images captured and associated with patient visits. The logical printer that Openvista uses must be installed through Linux printer services.

B. Cache or GT.M

Mumps or M is a language that was developed at Massachusetts General Hospital. This language is mainly used in banking and healthcare applications today. Information is stored in variables called globals. These globals are stored in strings of data that are multidimensional arrays. These arrays grow as more and more data is stored in them. The array takes the place of the table concept in most relational models. Subprograms built with the M language are called routines and are used to manipulate the data inside the globals. Openvista allows for administrators to manipulate data at the database level through the programmer's prompt. This prompt will ask for a username and password that is held in the user's database.

1. Databases and Namespaces

Cache or GT.M brings the globals together into databases. These databases are linked by namespaces. This reduces the amount of data duplication. Each database is held in a single physical file on the server; cache.dat for Cache or default.dat for GT.M. The database has more to do with the physical location of the data on the disk. The database file is grown as the data approaches the limit of the file size. The database can grow the file in preset increments as long as there is free disk space. Once disk space is no longer available the database crashes. If the database decreases in size, the space taken up on disk is not returned to free space. Namespaces are a logical link of data in the different databases. Currently, Openvista does not utilize this kind of organization.

Today, Openvista has a database for each namespace. These separate namespaces and databases are referred to as UCI's in Openvista. Typically, there are three different namespaces on each server, production, test, and train. You can switch between the different namespaces using the **d ^%CD** command at the programmer's prompt or the **^swi** command at the Openvista menu prompt.

2. Backups and Journals

In order to assure facilities data integrity, this section will address backups of the data. There are a couple of different ways to accomplish this. The first is created a physical backup of the .dat file. In order to do this, you must stop the database first. You can corrupt the data if you don't stop the database first. The other option does not require the database to come down. This is also the way that we recommend backing up your data. Your Technology Consultant (TC) will set this up and please contact your TC if you have any questions about this.

Journals are used to maintain transaction integrity. They are used during a restore in conjunction with the full backup files. During the restore you can choose to use the journals to restore data that was added or modified since the most recent backup. Once a new backup file is created old journals are no longer needed and are deleted.

C. OpenVistA

1. Overview

The different groupings of the globals are called files in Openvista. These files can be addressed in FileMan by their name or a number. For example, the tests in the lab are defined in the file Laboratory Test which is file #60 and the drug file that contains the formulary for a facility is Drug file #50. Openvista has divided the information for different modules into different files. However, it also has combined information that is often disparate because this system is fully integrated. An example of this, is file #200, or the New Person file. This information contains the user file, so there are names, usernames (called verify codes), and passwords (called verify codes). However, it also contains provider information, such as DEA numbers. Therefore, if a person is not a user of the system then that person is not defined as a provider and cannot place an order.

2. End User Environments

The primary end user application is either CPRS or CareVue. These applications are used to enter orders or view order results. These applications also provide a longitudinal view of data on a particular patient. This means that not only can you see clinical information on the current visits of patients in the facility, but you can view historical information on patients. Nurses and doctors are the most common groups that will use these applications. They are GUI applications that are installed on the hard drive of the end user's pc. Multiple shortcuts to the executable files for the applications can contain switches to point to the RPC brokers. To connect to the Openvista server you need the hostname and the port number for the RPC broker that corresponds to the namespace or environment that you are trying to connect to. Once you make a connection, a screen will pop up asking for the access and verify codes; these are similar to usernames and passwords.

Bar Code Medication Admin, BCMA, is an application that performs two important functions. The first is to provide an electronic MAR, or Medication Administration Record, which tracks the medications that were given or need to be given for a patient for a particular day. The second function is that it provides the "Five Rights of Medication Administration". Right patient, right drug, right patient, right time, right route. This application is a point of care application which uses bar code scanners.

The Vitals package is used to record a patient's temperature, pulse, respiration, blood pressure, pain, pulse oximetry and height and weight. When both height and weight are entered into the patient's record the system automatically compiles the BMI (body mass index). The Vital package can be included in the CPRS software or installed as a stand alone package. The parameters can be set to include the qualifiers for each vital e.g. Blood Pressure can have modifiers as cuff size, position, method, and location. The parameters also allows the setting of abnormal values of each vital. Different templates can be created for specialties e.g. adult versus pediatric. The package allows graphing of each or combination of certain vitals. Patient data objects can be used to insert most current readings of vitals in clinical documentation. Cumulative vital reports can be generated from the reports tab in CareVue.

The ancillary groups, such as the Radiology or Lab departments use a character based application, commonly called "CHUI" or "roll and scroll." This application utilized a terminal emulator that is described later in this chapter. The menus that appear on the terminal are based on the security and role the user is in. Currently, a GUI application is in development to replace the roll and scroll application for the Pharmacy department. It is called Openvista Meds. This application will specifically allow the people in the Pharmacy department to access the same programs in Openvista, but through a GUI gateway. It also will create multiple terminal session without having to enter an access and verify code for every instance of the terminal session.

3. Navigation

The navigation of the application through the roll and scroll sessions have a unique set of shortcuts and rules. First, there is not role for the mouse. Basically, the mouse does not exist. Navigation through the menus is very easy and takes very few keystrokes. Openvista, only, is case insensitive. In the main menu below, called the eve menu, we can observe some shortcuts.

You last signed on today at 09:00

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

Capacity Planning ...

Select Systems Manager Menu Option:

The text to the left of the main column placed there to signify shortcuts. Therefore, if you want to go to FileMan, you can just enter FM. Also, if you wanted to go to Taskman Management, you only have to enter the first few letters to drill down to the next menu. If you enter text that is not unique, Openvista will give you a list of the possible options. You can hit Enter until you find the option you are looking for and then enter the number beside the option.

Output from what File: USER CLASS// Laboratory
1 LABORATORY EXTRACT (0 entries)
2 LABORATORY INSTRUMENT CODE (3 entries)
3 LABORATORY SITE (1 entry)
CHOOSE 1-3:

At the prompt below, Openvista remembers what you entered the last time you were at the prompt. Therefore, there is a default entry to the left of the double slashes. If that is the selection you want all you have to do is hit <Enter>.

Output from what File: USER CLASS// (6 entries)

However, if you mistype or enter text that is not an allowable option, then Openvista will return a double question mark. See below:

Select USER CLASS NAME: jeremy ??

If you need to go back a menu you can hit <Enter> at an empty prompt or enter ^ at the prompt.

4. Putty

The most common third party client application that we use is PuTTY, it is a robust terminal emulator. Putty stores the connection information to the Openvista server and has a very small footprint on the end user's PC. From the administrator point of view, one of the best aspects of this tool is the copy and paste function. To copy text, all you have to do is highlight it with the mouse cursor. To paste, just a single right click is needed. Everyone who is not using a GUI application to access information from Openvista is using a terminal emulator.

In the Windows environment, all that is needed to move files onto the server is to map a drive to a directory with the needed permissions. In the Linux environment, the easiest way to move files is to use a secure FTP program. We recommend open source programs such as WinSCP or FileZilla. These file transfer clients form a secure connect on a different port from the standard FTP port.

Here are links to where to can get the most up to date versions of these applications:

PuTTY
http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html

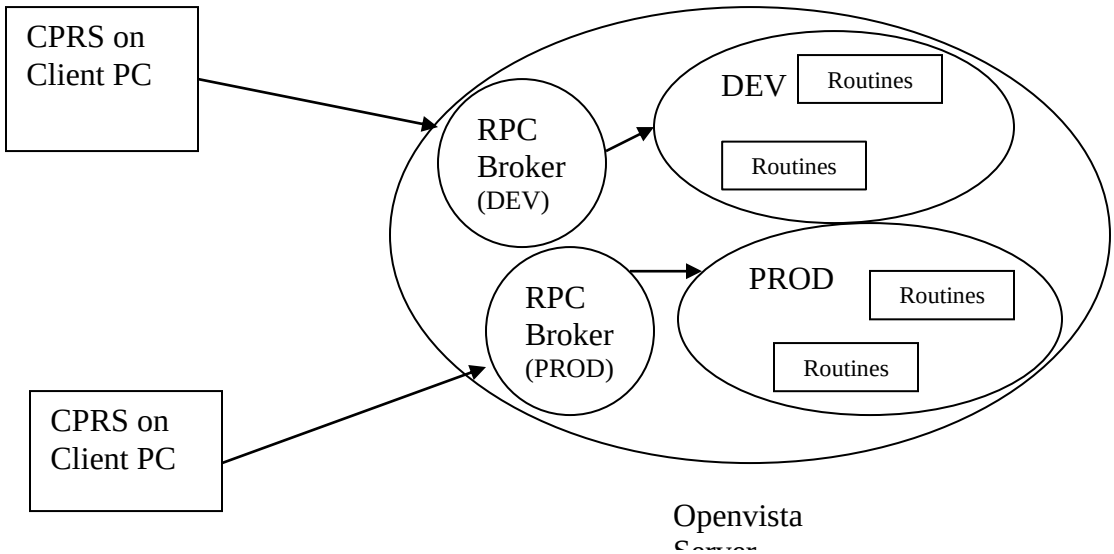
WinSCP
http://winscp.net/eng/index.php

III. TaskMan/ RPC Broker

A. Overview

TaskMan is similar to a process daemon or a traffic cop. Its responsibility is to kick off routines according to a schedule that is defined in the configuration utility. Facilities can add routines to the schedule for TaskMan so that reports or other tasks can run automatically. Only one TaskMan can run in an environment, and each environment has its own TaskMan running. This is a very important routine that must stay running in order for Openvista to operate correctly.

The RPC broker is a routine that communicates with the client on the PC and Openvista on the server. The broker is also a TCP port on the server for that namespace. The client on the PC points the port to access the data on that namespace. There is an instance of the RPC broker for every namespace on the Openvista server. The RPC broker is used in conjunction with the order clients CPRS and CareVue. These clients are configured to send their calls to routines on the Openvista server to the port that corresponds to the RPC broker port that listens for the environment the client is authenticated to. *****Note: The RPC broker port must be open on the network and the server's firewall, or the client on the PC will not be able to connect.*****



The rest of the chapter will provide some steps to restart TaskMan or the RPC broker if they are stopped.

B. TaskMan

Often, when entering OpenVista Roll & Scroll, one gets a message like this:

WARNING -- TASK MANAGER DOESN'T SEEM TO BE RUNNING!!!!

Fortunately, this is easy to fix. Go to a regular MUMPS prompt, and do the following:

D RESTART^ZTMB

The way I remember the command is by thinking "**RESTART** the **Z**ombie **T**o**MB**". Don't ask me why, but it works to remember it. After restarting TaskMan, you can check the status by doing:

D ^ZTMON

If it say something like “TaskMan is late by 5276152248 seconds. not running.." then there are still issues. If it says "TaskMan is current.." then TaskMan is properly running

You can also restart TaskMan through the TaskMan Management Utilites menu from the Taskman Management menu in the EVE menu. See below:

```
        Spool Management ...
        Information Security Officer Menu ...
        Taskman Management ...
        User Management ...
FM      VA FileMan ...
HL7     HL7 Main Menu ...
        Application Utilities ...
        Capacity Planning ...
Select Systems Manager Menu Option: taskman Management

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

MTM Monitor Taskman
Check Taskman's Environment
Edit Taskman Parameters ...
Restart Task Manager
Place Taskman in a WAIT State
Remove Taskman from WAIT State
Stop Task Manager
Taskman Error Log ...
Clean Task File
Problem Device Clear
Problem Device report.
SYNC flag file control
Select Taskman Management Utilities Option:

C. RPC Broker

The preferred method for starting and stopping the RPC broker listener is through the STATUS field of the RPC BROKER SITE PARAMETERS file (#8994.1). While TaskMan is running, you should be able to start and stop Listeners at any time by setting the STOPPED Listener to START and a RUNNING Listener to STOP. Out of the six possible states: START, STARTING, RUNNING, STOP, STOPPING, and STOPPED, you can only enter START when a Listener is STOPPED and STOP when a Listener is RUNNING. The other states are controlled by the Broker itself. To start or stop them manually at the Programmer's Prompt you can run the command(s) listed below:

To start: >**D STRT^XWBTCP(Listener port)**
To stop: >**D STOP^XWBTCP(Listener port)**

The RPC Broker can also be restarted from the RPC Broker Menu that is organized under the Operations Menu:

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

Then RPC Broker Management:

System Status
Introductory text edit
CPU/Service/User/Device Stats
Kill off a users' job
Alert Management ...
Alpha/Beta Test Option Usage Menu ...
Clean old Job Nodes in XUTL
Delete Old (>14 d) Alerts
Foundations Management
Kernel Management Menu ...
Post sign-in Text Edit
RPC Broker Management Menu ...
User Management Menu ...

Then, either Start or Stop the broker.

RPC Listener Edit
Start All RPC Broker Listeners
Stop All RPC Broker Listeners
Clear XWB Log Files
Debug Parameter Edit
View XWB Log

It is key to remember that the RPC Broker can only run while the Task Manager is running, so if TaskMan is down then the RPC Broker will be down. To access the GUI, the RPC Broker must be online.

RPC Broker utilizes TCP ports to communicate with the clients. So, if at the operating system prompt and a netstat command is issued on either a UNIX or DOS prompt, then one of the following ports should be up and in a listening state:

```
Production:     9260
TRAIN:          9261
DEV:            9262
THRD:           9263
```

IV. FileMan

A. Overview

FileMan is a group of utilities that are built into Openvista that allow someone to see or manipulate the data that is arrays. There are several things that an administrator can do inside FileMan. The configurators utilized FileMan to enter data into the database. It does not show all the fields in a certain files to help maintain the integrity of the data in the database. There are some reasons such as missing some linking in part of the lab module so that you should not enter data in FileMan. FileMan is also the report writing engine in Openvista. You can also export data to a foreign format such as a comma separated file in Excel. There are links that are made during data entry not through FileMan.

This chapter will go over the most common functions of FileMan, but there are many others. The Hardhats group has more information on FileMan if you would like to find out more.

*******Note: The highlighted text is the either the selected option or the entered text. ********

B. Data Dictionary

The Data Dictionary is a tool that allows you to see the attributes of the file. You can see if a particular field in a file is a certain data type, such as text, set, or number. The length of the field and the if the fields are pointers to fields in other files are all found in the data dictionary. Below is an example of how to navigate to it.

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

Select Systems Manager Menu Option: fm  VA FileMan

VA FileMan Version 22.0

Enter or Edit File Entries
Print File Entries
Search File Entries
Modify File Attributes
```

```
        Inquire to File Entries
        Utility Functions ...
        Data Dictionary Utilities ...
        Transfer Entries
        Other Options ...

Select VA FileMan Option: data Dictionary Utilities

        List File Attributes
        Map Pointer Relations
        Check/Fix DD Structure

Select Data Dictionary Utilities Option: list File Attributes
 START WITH What File: NEW PERSON// rpc BROKER SITE PARAMETERS
(1 entry)
     GO TO What File: RPC BROKER SITE PARAMETERS//   (1 entry)
     Select SUB-FILE:
Select LISTING FORMAT: STANDARD// brief
ALPHABETICALLY BY LABEL? No//   (No)
Start with field: FIRST//
DEVICE:   TELNET
BRIEF DATA DICTIONARY #8994.1 -- RPC BROKER SITE PARAMETERS FILE   8/13/08    PAGE 1
SITE: MEDSPHERE INSTITUTION   UCI: TRAIN,TRAIN              (VERSION 1.1)
------------------------------------------------------------------------------

DOMAIN NAME                 8994.1,.01    POINTER TO DOMAIN FILE (#4.2)


MAIL GROUP FOR ALERTS       8994.1,2    POINTER TO MAIL GROUP FILE (#3.8)


LISTENER                  8994.1,7   8994.17  POINTER
  Multiple

  BOX-VOLUME PAIR           8994.17,.01    POINTER
                          TO TASKMAN SITE PARAMETERS FILE (#14.7)
BRIEF DATA DICTIONARY #8994.1 -- RPC BROKER SITE PARAMETERS FILE   8/13/08    PA
GE 2
SITE: MEDSPHERE INSTITUTION   UCI: TRAIN,TRAIN              (VERSION 1.1)
------------------------------------------------------------------------------

  PORT                    8994.17,1  8994.171
  Multiple

    PORT                  8994.171,.01    NUMBER

                  Type a Number between 9000 and 32000, 0 Decimal Digits

    TYPE OF LISTENER          8994.171,.5    SET
                              '0' FOR Original;
                              '1' FOR New Style;


    STATUS                  8994.171,1    SET
                              '1' FOR START;
                              '2' FOR STARTING;
```

'3' FOR RUNNING;
'4' FOR STOP;
'5' FOR STOPPING;
'6' FOR STOPPED;
BRIEF DATA DICTIONARY #8994.1 -- RPC BROKER SITE PARAMETERS FILE 8/13/08 PA
GE 3
SITE: MEDSPHERE INSTITUTION UCI: TRAIN,TRAIN (VERSION 1.1)

CONTROLLED BY LISTENER STARTER 8994.171,2 SET
'0' FOR NO;
'1' FOR YES;

C. Inquire

The Inquire function will show the data that is in the files. An example of how to use this tool is to view a test in the lab module, or a drug in the drug file. You cannot change any of this data. The output from this tool can be copied and pasted into another file so that you can email or print the contents of the files in Openvista. An example file to examine is file #1; it is referred to the file of files. Basically, it is an index of all the files that is contained in Openvista. This listing will help you find certain information that you are looking for. Below is a walkthrough of example data, which are two Laboratory tests from file #60, in Openvista.

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

Select Systems Manager Menu Option: *fm* VA FileMan

VA FileMan Version 22.0

Enter or Edit File Entries
Print File Entries
Search File Entries
Modify File Attributes

Inquire to File Entries
Utility Functions ...
Data Dictionary Utilities ...
Transfer Entries
Other Options ...

Select VA FileMan Option: *inquire* to File Entries

Output from what File: OPTION// *60* LABORATORY TEST (2045 entries)

Select LABORATORY TEST NAME: *hiaa* 5-HIAA,24HR Urine
Another one:
Standard Captioned Output? Yes// (Yes)
Include COMPUTED fields: (N/Y/R/B): NO// *y* Computed Fields

NAME: 5-HIAA,24HR Urine TYPE: BOTH
SUBSCRIPT: CHEM, HEM, TOX, SER, RIA, ETC.
HIGHEST URGENCY ALLOWED: ROUTINE REQUIRED TEST: YES
REQUIRED COMMENT: ORDER COMMENT PRINT NAME: hiaa
COLLECTION SAMPLE: 24Hr Urine
INSTITUTION: LUTHERAN MEDICAL CENTER ACCESSION AREA: CHEMISTRY SEND OUT

Select LABORATORY TEST NAME: *cbc*
1 CBC & Diff
2 CBC No Diff
CHOOSE 1-2: 1 CBC & Diff
Another one:
Standard Captioned Output? Yes// (Yes)
Include COMPUTED fields: (N/Y/R/B): NO// y Computed Fields

NAME: CBC & Diff TYPE: BOTH
SUBSCRIPT: CHEM, HEM, TOX, SER, RIA, ETC.
LAB COLLECTION SAMPLE: purple HIGHEST URGENCY ALLOWED: STAT
REQUIRED TEST: YES REQUIRED COMMENT: ORDER COMMENT
PRINT NAME: CBCD
NUMBER: 1 LAB TEST: WBC
NUMBER: 2 LAB TEST: RBC
NUMBER: 3 LAB TEST: HGB
NUMBER: 4 LAB TEST: HCT

NUMBER: 5	LAB TEST: MCV
NUMBER: 6	LAB TEST: MCH
NUMBER: 7	LAB TEST: MCHC
NUMBER: 8	LAB TEST: RDW
NUMBER: 10	LAB TEST: MPV
NUMBER: 11	LAB TEST: Neutrophils-5P
NUMBER: 12	LAB TEST: Lymphocytes-5P
NUMBER: 13	LAB TEST: Monocytes-5P
NUMBER: 14	LAB TEST: Eosinophil-5P
NUMBER: 15	LAB TEST: BASOPHILS-5P
NUMBER: 16	LAB TEST: ABS Neutrophils
NUMBER: 17	LAB TEST: ABS Lymph

D. Enter/Edit

This function is very similar to Inquire, except you can change the data in fields. *******Note: It is not recommended to do extensive editing through this function.******* Entering data through enter/edit can cause errors, because some fields are pointers to other files. A pointer is a place holder. The database uses a pointer to another field instead of duplicating data. This also prevents data corruption. If you change the value in one location, then it is changed for the whole application. Enter/edit does not create the links like entering tests or drugs through the menus. Below is an example of changing information in the New Person file.

Select VA FileMan Option:

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

Select Systems Manager Menu Option: *fm* VA FileMan

```
        VA FileMan Version 22.0


        Enter or Edit File Entries
```

Print File Entries
Search File Entries
Modify File Attributes
Inquire to File Entries
Utility Functions ...
Data Dictionary Utilities ...
Transfer Entries
Other Options ...

Select VA FileMan Option: *enter* or Edit File Entries

Input to what File: LABORATORY TEST// *200* NEW PERSON (126 entries)
EDIT WHICH FIELD: ALL// *name*
1 NAME
2 NAME COMPONENTS
CHOOSE 1-2: *1* NAME
THEN EDIT FIELD:

Select NEW PERSON NAME: *coleman* COLEMAN,JEREMY M JC
SYSTEM MANAG
ER
NAME: COLEMAN,JEREMY M// *Coleman, Jeremy X*

E. Loop Function

The purpose of the Loop feature in FileMan is to set the same determined value to the same field, for all the entries in a file. Using Option 1, Enter/Edit, in FileMan to edit the file where the data that needs to be changed are located in. The example below uses the LABORATORY TEST file.

Select OPTION: 1 ENTER OR EDIT FILE ENTRIES
Input to what File: LABORATORY TEST// (1982 entries)

At the EDIT WHICH FIELD prompt enter the field name which will be changed and then three forward slashes ("///") with the data you want to set the field to.

In the example below the field entry is changed from ALL to just one field, REQUIRED COMMENT, which will be set to ORDER COMMENT.

EDIT WHICH FIELD: ALL// REQUIRED COMMENT///ORDER COMMENT
THEN EDIT FIELD:

Enter ^LOOP, to set this one field, for all tests.

Select LABORATORY TEST NAME: ^LOOP
EDIT ENTRIES by: NAME//
Start with NAME: FIRST//

11 Deoxycortisol
17 Hydroxyprogesterone
17 Keto Steroids Fractionation

... many more tests....

Below is another example, in the LABORATORY TEST file, for the field TYPE, to be set to NEITHER, for all tests.

Input to what File: LABORATORY TEST// (2182 entries)
EDIT WHICH FIELD: ALL// TYPE///NEITHER
THEN EDIT FIELD:

Select LABORATORY TEST NAME: ^LOOP
EDIT ENTRIES by: NAME//
Start with NAME: FIRST// ZZ
Go to NAME: LAST// ZZZ
Within NAME, EDIT ENTRIES by:

V.Configurators

A. Overview

A configurator is a script by which large amounts of data can populate a file in Openvista so it does not have to be done manually. The data is collected from the customer and is populated into an Excel spreadsheet. This spreadsheet is not the configurator even though it commonly referred to as the configurator. The spreadsheet is called the collector. These scripts use Openvista utilities, such as Fileman, to input the data from the collectors. As the scripts run, they create three log files, which are text files, on the computer that runs the script, typically the TC's computer. The general log file holds the output the TC see in the DOS window as it runs. The iolog (Input/ Output Log) contains information that is generated by the script interacting with the Openvista server. For example, if the script utilizes Fileman, then the iolog has the screen capture of the script entering data into the database through Fileman. The error log has all the errors that are generated during the run of the script. Some of these configurators can only be run once. This depends on how the script is written and the type of data entered. Configurators are only used during the implementation phase by Medsphere staff.

This is an example of the general log file:

Sep 12 08:20:51 (II) - Configurator starting
Sep 12 08:20:51 (II) - Options:
Sep 12 08:20:51 (II) - logging.overwrite = 1
Sep 12 08:20:51 (II) - configurator.configurator = Medsphere_Configurator_Laboratory_LaboratorytestsiteSpecimens
Sep 12 08:20:51 (II) - platform.platform = Medsphere_Platform_xxx
Sep 12 08:20:51 (II) - platform.namespace = xxx
Sep 12 08:20:51 (II) - transport.host = xxx.xxx.xxx.xxx
Sep 12 08:20:51 (II) - transport.port = 23
Sep 12 08:20:51 (II) - Load Data phase
Sep 12 08:20:51 (WW) - "library/Medsphere/Configurator/Laboratory/LaboratorytestsiteSpecimens.txt" does not exist
Sep 12 08:20:51 (WW) - "library/Medsphere/Configurator/Laboratory/LaboratorytestsiteSpecimens.tsv" does not exist
Sep 12 08:20:51 (II) - Loaded 515 rows
Sep 12 08:20:51 (II) - Login phase
Sep 12 08:21:12 (II) - Load Mappings phase
Sep 12 08:21:28 (II) - Mapped 8578 entries in the TOPOGRAPHY FIELD file (File #61)
Sep 12 08:21:34 (II) - Mapped 30 entries in the DELTA CHECKS file (File #62.1)
Sep 12 08:21:40 (II) - Mapped 1956 entries in the LABORATORY TEST file (File #60)
Sep 12 08:21:40 (II) - Loaded 3 mappings
Sep 12 08:21:40 (EE) 125 LABORATORY TEST "HCG, QUANTITATIVE-WEL" maps to multiple entries in the LABORATORY TEST file (File #60)
Sep 12 08:21:40 (II) - Validated 512 rows; marked 1 rows invalid
Sep 12 08:21:40 (II) - Prepare phase
Sep 12 08:21:42 (II) - Process phase
Sep 12 08:21:42 (II) 2 Processing row 2: SERUM

B. Available Configurators *as of July 31, 2008*

Foundation	**Nutrition**
Charge Master	Clinical Site Parameters
Device	Clinical Site Parameters Drugs
New Person	Clinical Site Parameters Labs
Patch Sequence	Communication Office
Room Bed	Diet Patterns
Service Section	Diets
Title	Encounter Types
	Food Preferences
Laboratory	Isolation Precaution Type
Accession Area	Nutrition Locations
Auto Instrument	Production Diets
Auto Instrument Tests	Production Facility
Collection Sample	Service Points
Data Name	Standing Orders
Lab Descriptions	Supplemental Feeding Menus
Lab Shipping Configuration	Supplemental Feeding Sites
Lab Shipping Configuration Tests	Supplemental Feedings
Laboratory Test	Tube feeding
Laboratory Test Panels	
Laboratory Test Site Specimens	**Pharmacy**
Load Work List	ADM Identifier
Load Work List Tests	Drug
Rename Topography Field	Pricing
	Rename Orderable Item
Radiology	
Delete Message	
Inactivate Procedure	
Procedure	
Procedure Message Text	

C. Process

1. The SME will determine the data that is to collected and retrieve the specification and collector spreadsheet.
2. The SME will give the specification and collector spreadsheet to the client and instruct them how to populate the collector, using the specification. A due date for the return of the collector spreadsheet should be determined and then that date should be sent to the assigned Technical Project Manager.
3. When the client sends the populated collector spreadsheet back to the SME then they review it to make sure the client has filled it in correctly. Verify that everything has been included and that the collector spreadsheet is in the correct format, per the specifications.
4. The SME place the collector spreadsheet in the proper client related page on the Medsphere Intranet when that becomes available. Then they should alert the Technical lead on the project (TC) that it is out there. Most of the time it will be ran in production but there are cases where it may be ran in another area so it must be specified.
5. The TC should thoroughly review the spreadsheet to make sure that it is formatted correctly and that that the data meets the specification requirements.
6. When it is complete, the SME will be notified if there are any errors. If there are errors then the SME will have them corrected on the spreadsheet and start at step 3 again.
7. Once the configurator runs, without errors, then the SME must be notified that the data has been populated in the area requested.
8. The SME will go in and verify that the data looks correct and if it does will notify the client that the data has been built successfully.
9. The SME will also notify the TC so they know there were no problems with the data load.

VI. Printers

A. Overview

Printers in Openvista are easily managed. In either of the OS's, Windows or Linux, Openvista uses the print management of the server to communicate to the printers. It is recommended that all printer objects on the server communicate directly with printers. This setup makes troubleshooting easier and a removes another device, such as a printer server or management appliance, to fail and bring printing to a halt. There are instructions on how to load printers in the most typical circumstances.

B. Term Type layout

Term types are kinds of printers. As you setup each individual printer you assign a term type. Therefore, if you have to make a change to the orientation or spacing of the print, you can change the settings on the term type and that will change all the printers that use that term type. The number in the name of each term type corresponds to how many characters will fit on a single line. So if the higher the number, the more characters per line, and the smaller the print on the page will be.

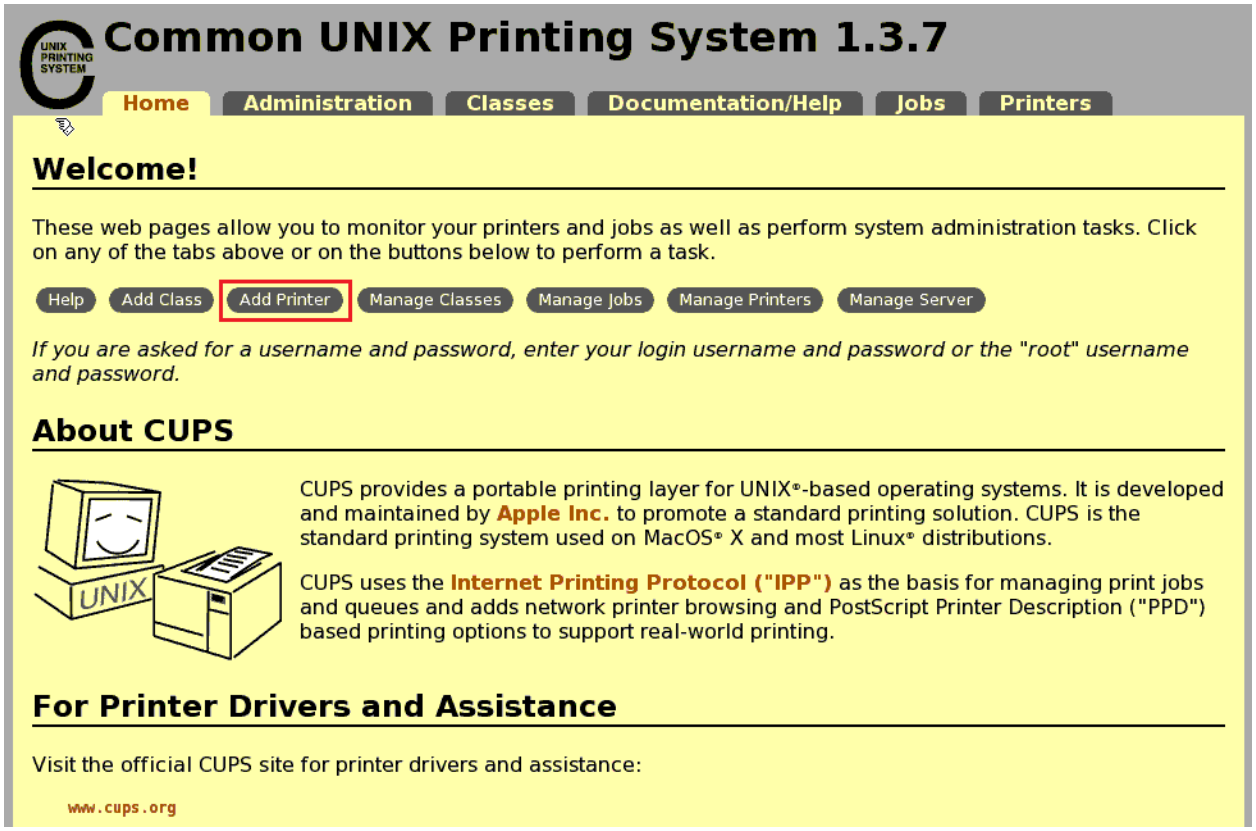
C. Create a report printer

These instructions will go over the general installation of a printer on Red Hat Linux. Due to wide variety of printers and print management options in Microsoft Windows this document will not address installation of print objects in that OS. If you need documentation on installing printers on Windows please refer to http://www.microsoft.com.

Linux

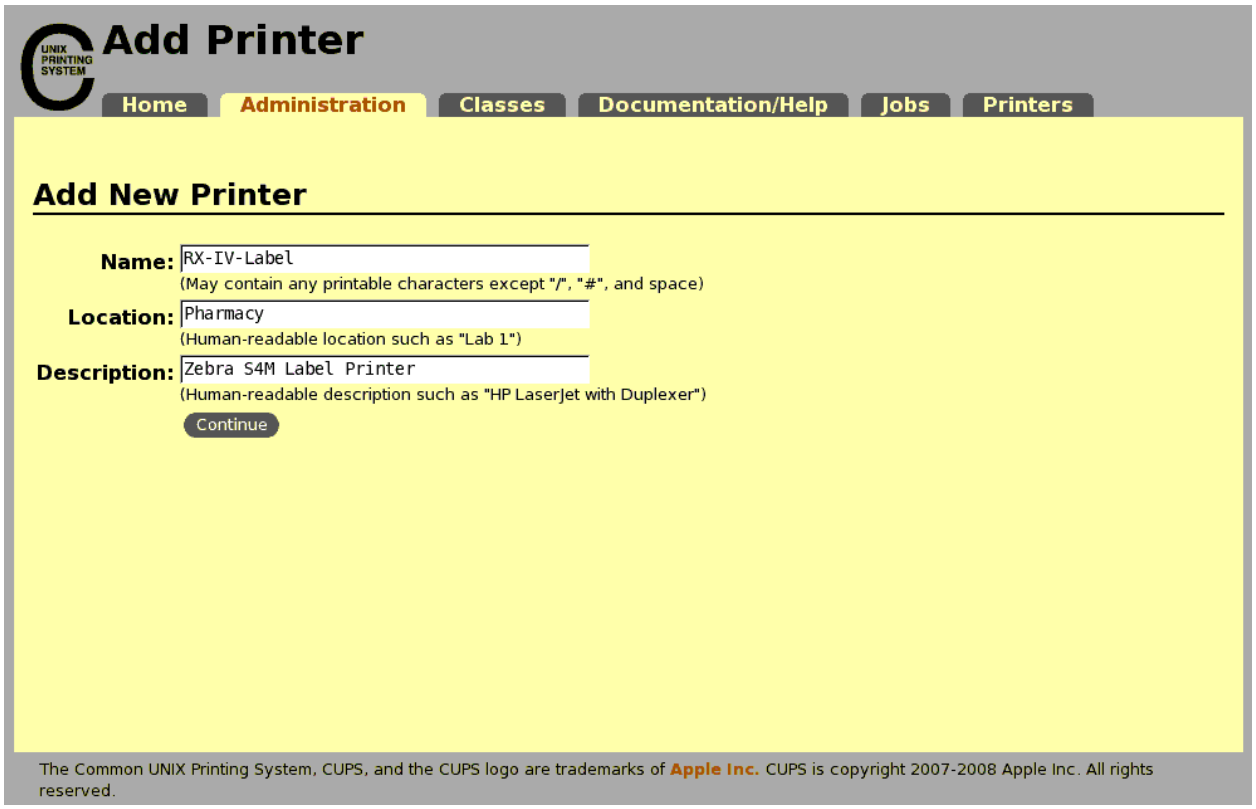
Open a browser to access the CUPS (Common UNIX Printing System) Administration console. The URL for CUPS will be the IP address of the server, followed by a colon, followed by the CUPS port, 631. If the IP address of the CUPS server is 192.168.0.1, the URL for the CUPS Administration console, would be http://192.168.0.1:631.

1. From the Home page of the CUPS administration console, click on **Add Printer**.



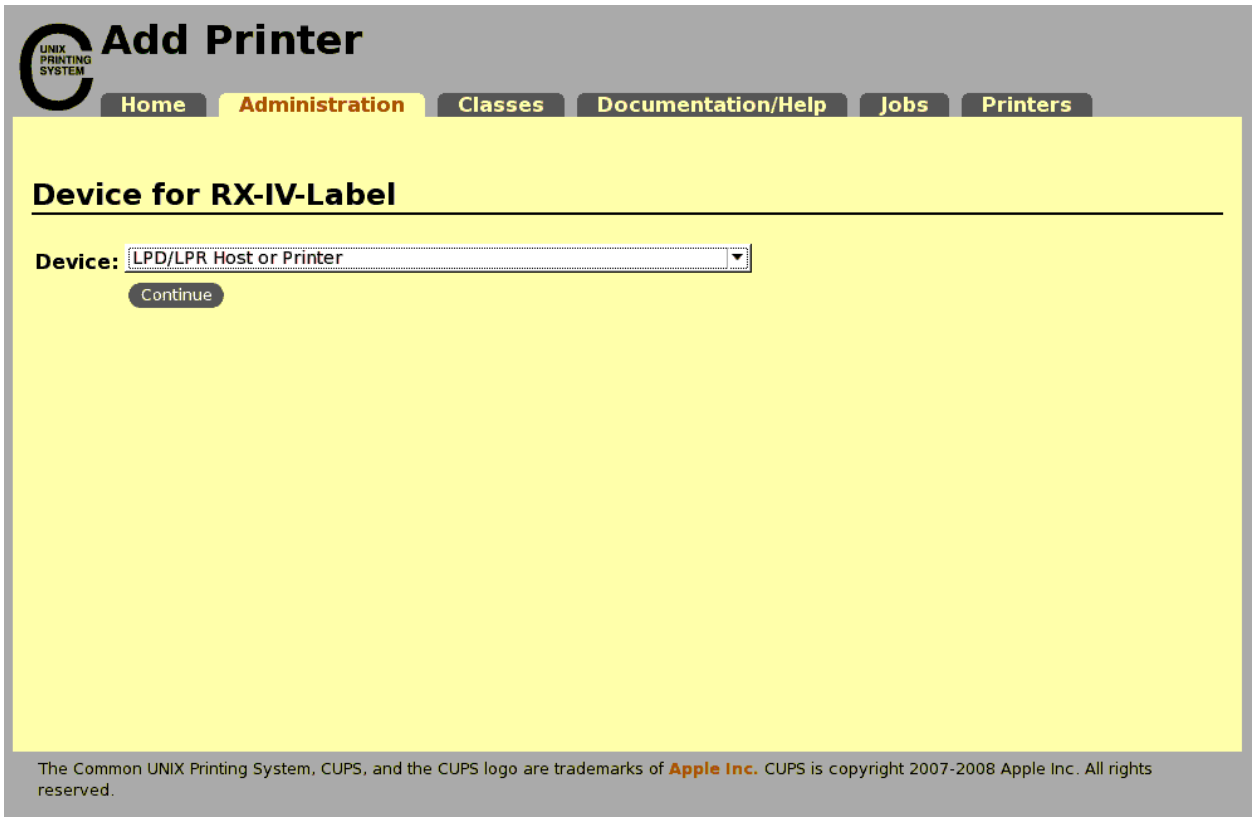
The Add Printer page will appear.

2. On the Add Printer page, enter the name, location, and description of the printer being added. Click on **Continue**.



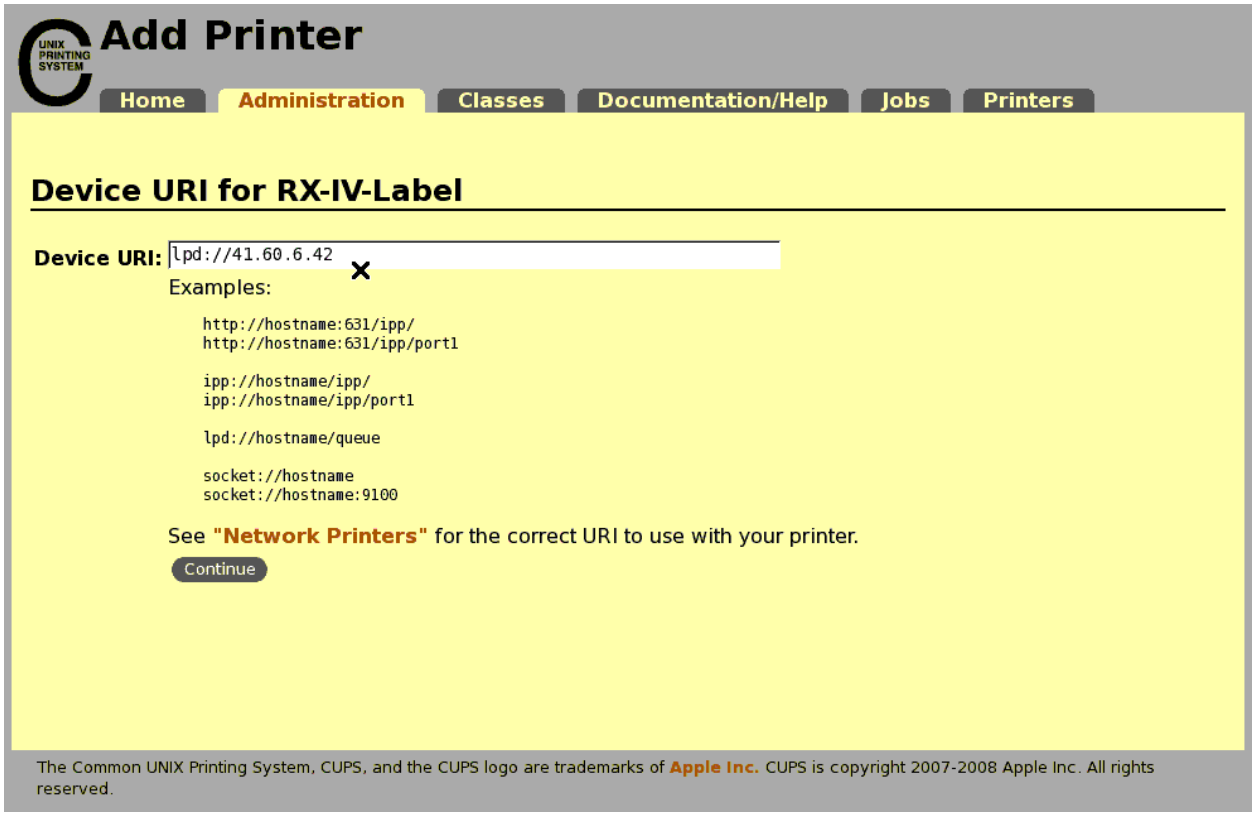
The Device for <printer name> page will appear.

3. Right-click on the down arrow on the Device line. Select **LPD/LPR Host or Printer**. Click on **Continue**.



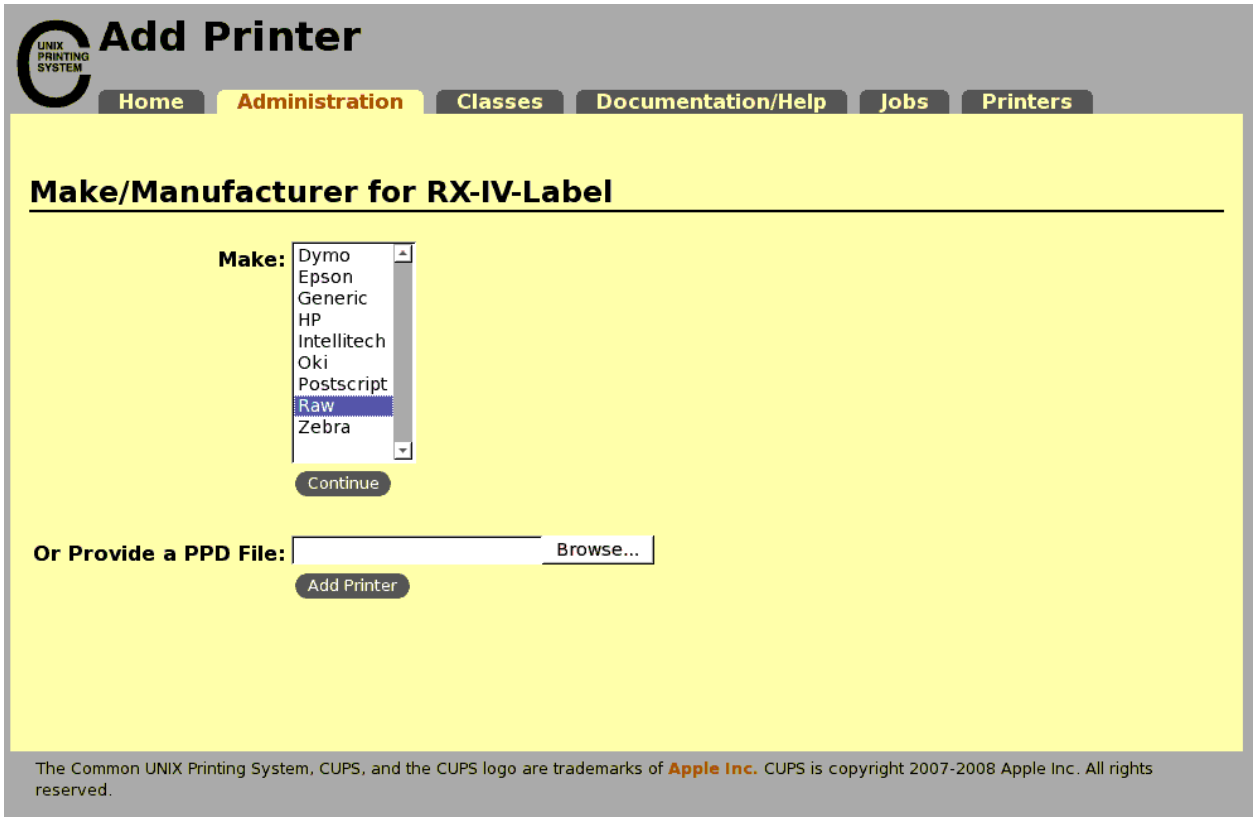
The Device URI for RX-IV-Label page will appear.

4. Right-click on the **Raw** selection in the **Make:** window. Click on **Continue**.



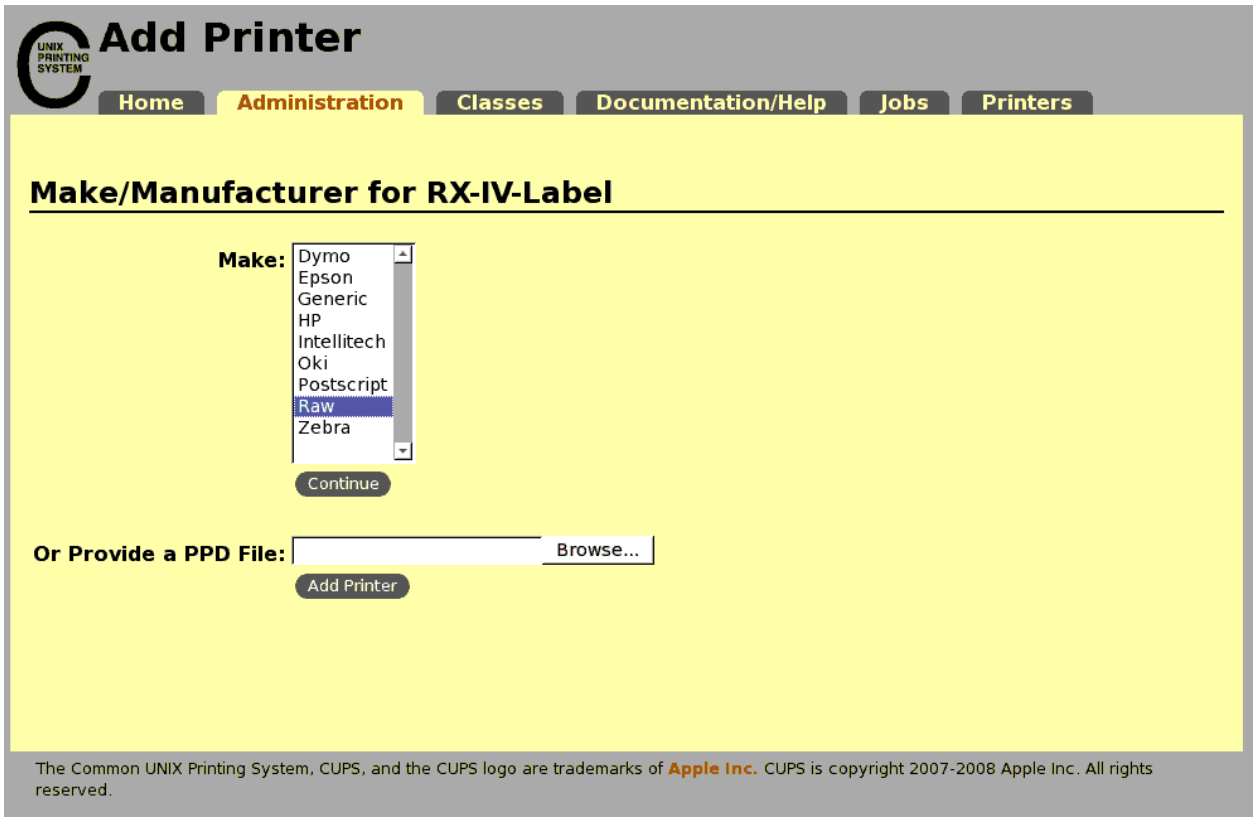
The Make/Manufactuer for RX-IV-Label page will appear.

5. Right-click on the **Raw** selection in the **Make:** window. Click on **Continue**.



The Device URI for RX-IV-Label page will appear.

6. Right-click on the **Raw Queue(en)** selection in the **Model:** window. Click on **Add Printer**.



NOTE

You may be promped to enter your User Name and Password. The User Name and password for root an account in the root group, or an account in the openvista group should be entered.

The printer is now installed in the OS. The next sets of instructions pertain to in the installation of printers in Openvista only.

This will cover setting up an HP Laser printer in the following formats on an 8.5 x 11 sheet of paper.

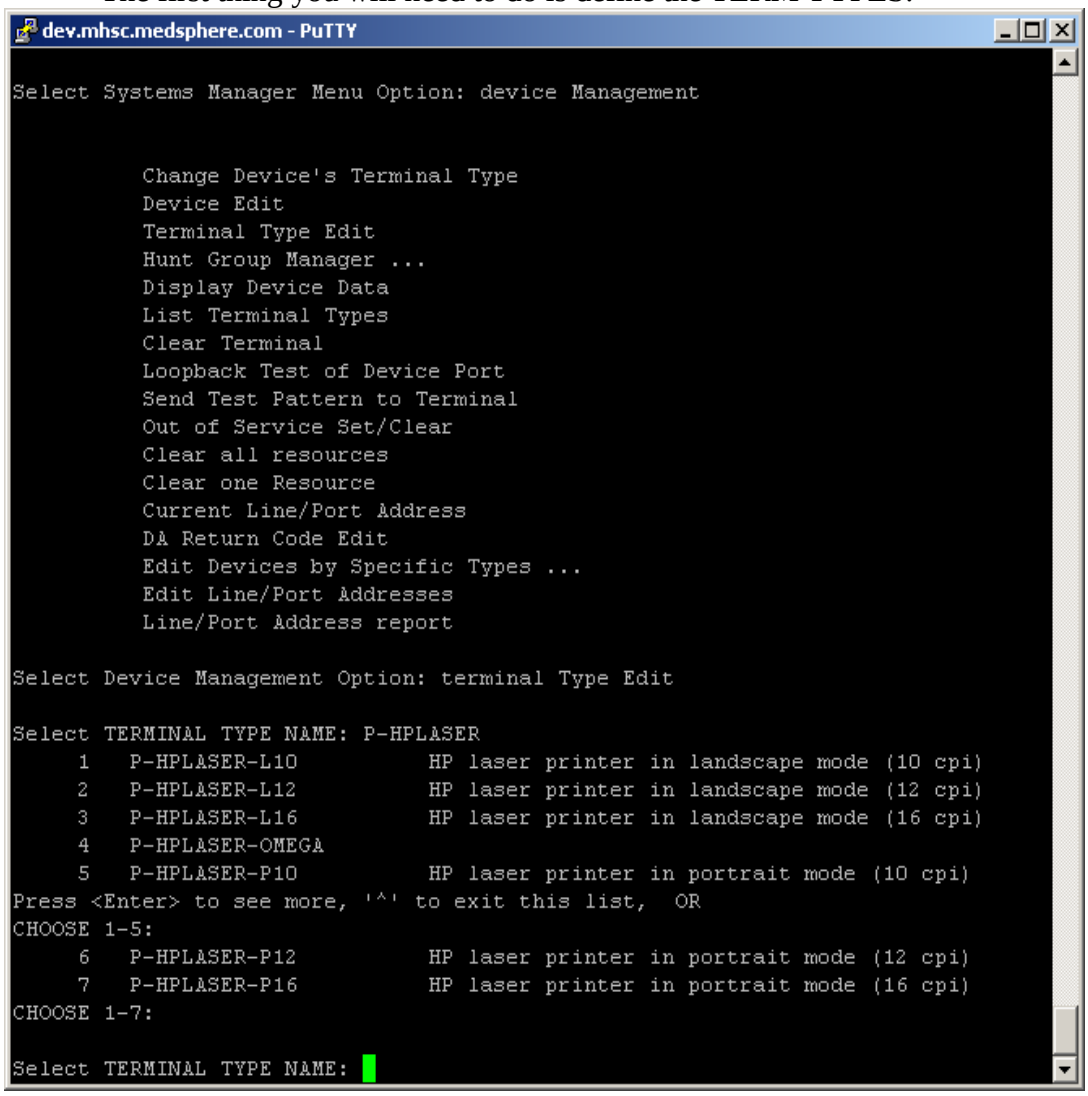
Portrait:

1. 80 columns (10 cpi)
2. 96 columns (12 cpi)
3. 128 columns (16 cpi)

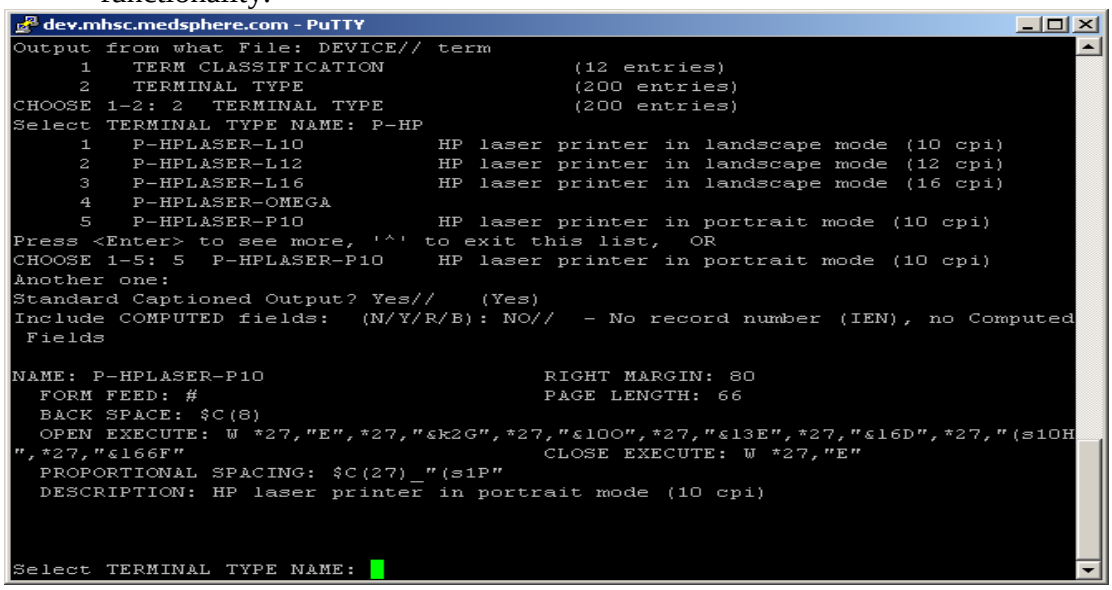
Landscape:

1. 110 columns (10 cpi)
2. 132 columns (12 cpi)
3. 180 columns (16 cpi)

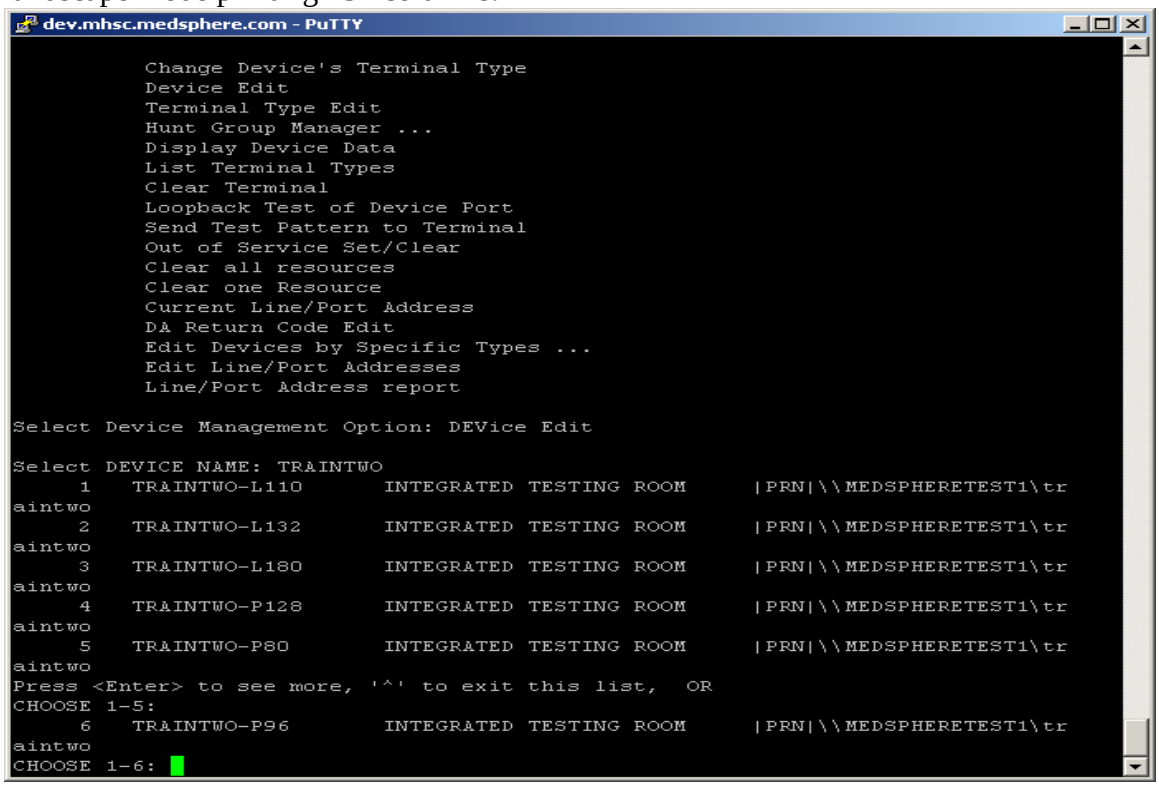
The first thing you will need to do is define the TERM TYPES.



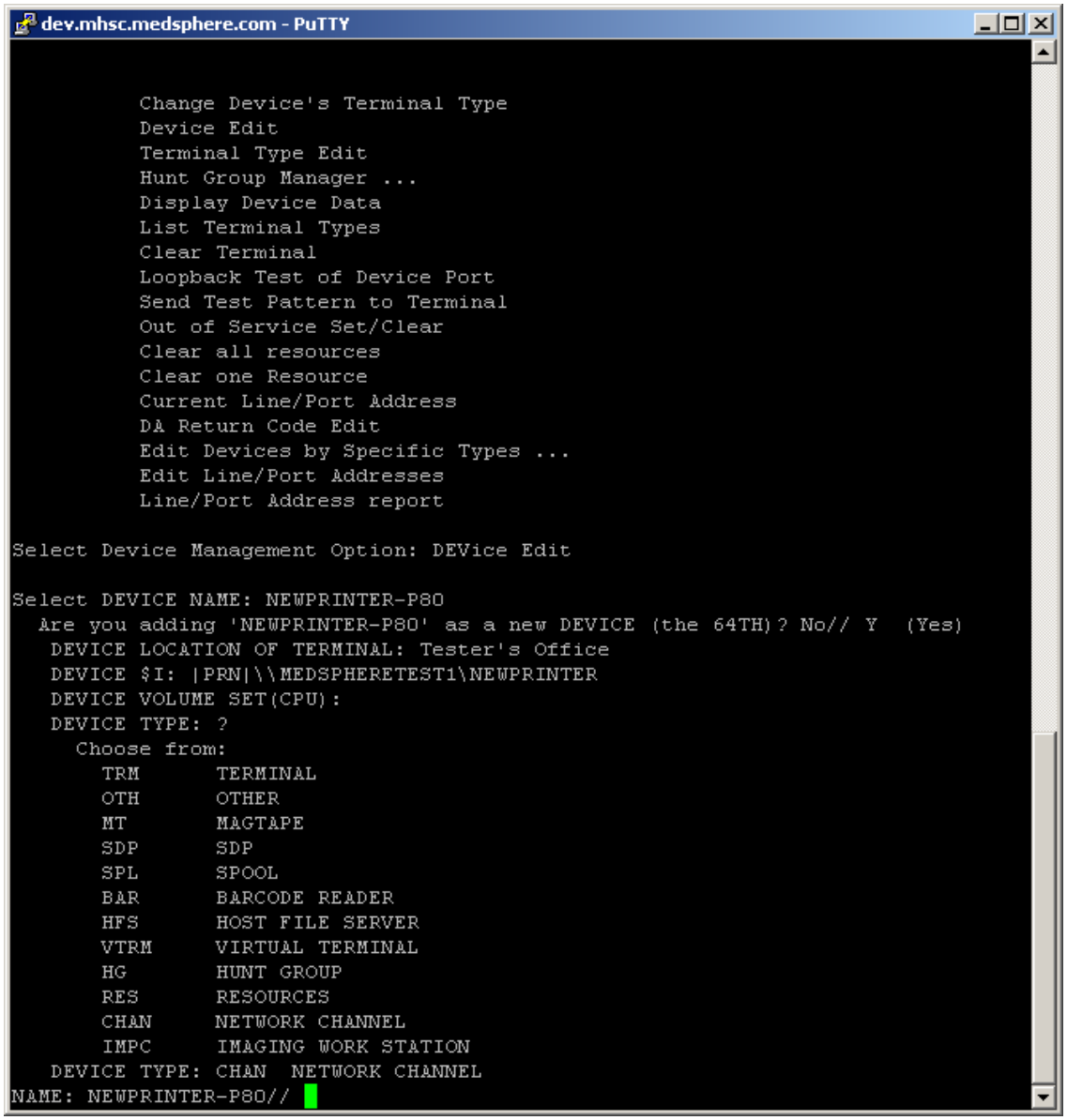
These are the fields that will need to be defined in the TERM TYPE file for basic printer functionality.



In the OPEN EXECUTE statement above, the **"&l0O"** is the PCL command to put the printer into portrait mode. To print in landscape mode you would use **"&l1O"** instead. That is lower case L, 0 or 1, upper case O.The 10 in **"(s10H"** defines the pitch (10 cpi) in this case. This would be 12 for 12 CPI. Next, you will need to define the logical printer. Shown here are six printers printing in 10, 12, and 16 CPI in both portrait and landscape mode. TRAINTWO-L132 would be a printer in landscape mode printing 132 columns.

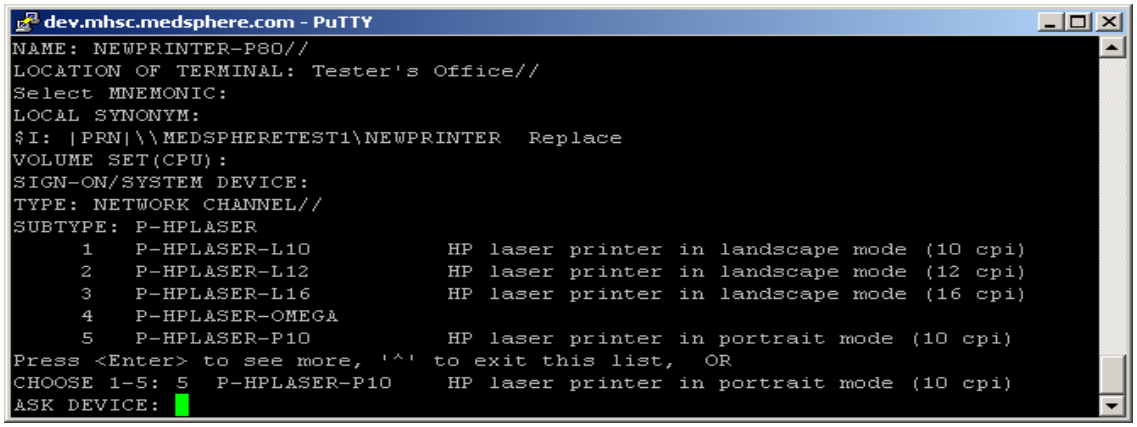


The following shows how you would define a logical printer named NEWPRINTER-P80.

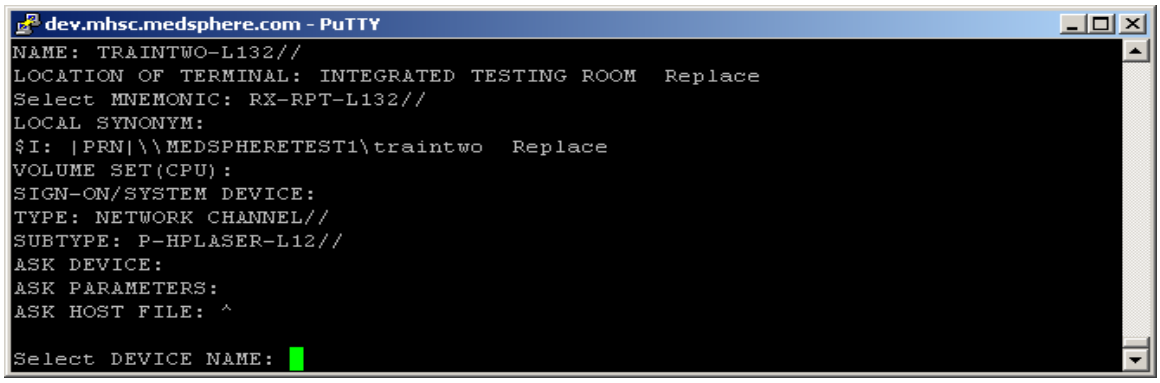


You will notice, after you define the device type, which is always CHAN for a printer, it takes you back to the top to review what you have defined.

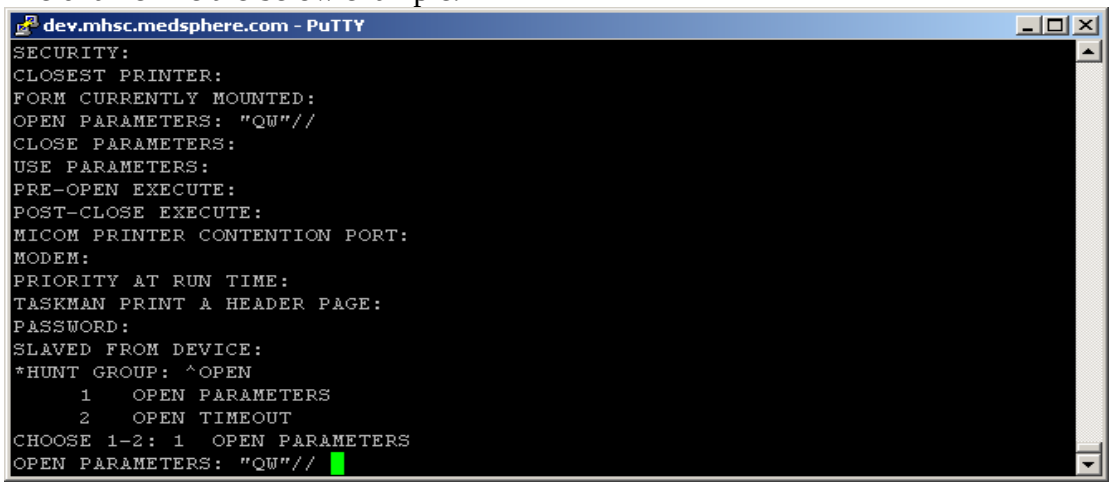
Newline through all of the fields until you get to SUBTYPE which is the TERM TYPE you defined earlier. Since this is a portrait 80 column report you will want to choose P-HPLASER-P10 as your SUBTYPE.



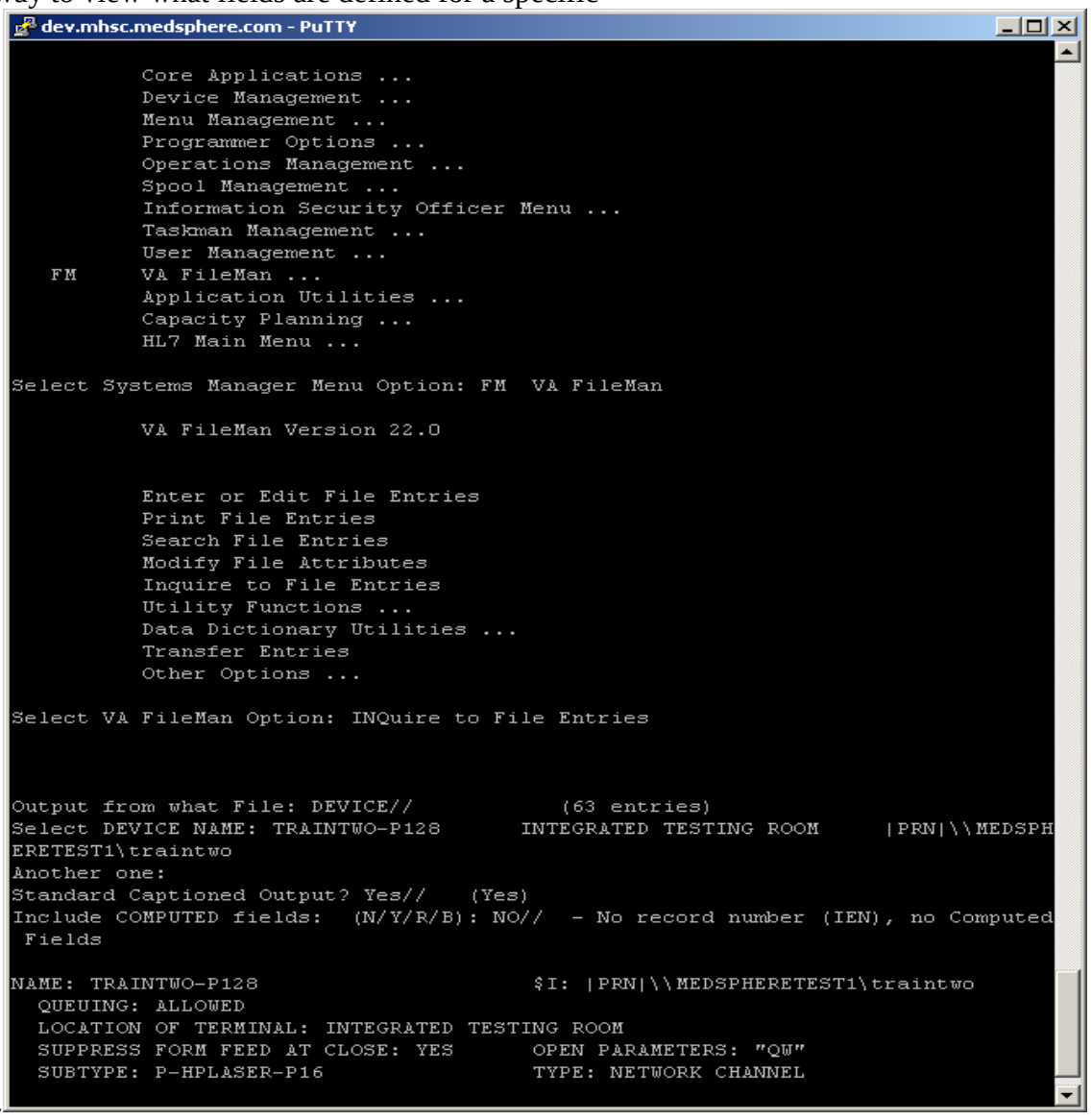
Anytime you want to save and exit, use the ^ key and it will take you out of the editor and save what you have done.



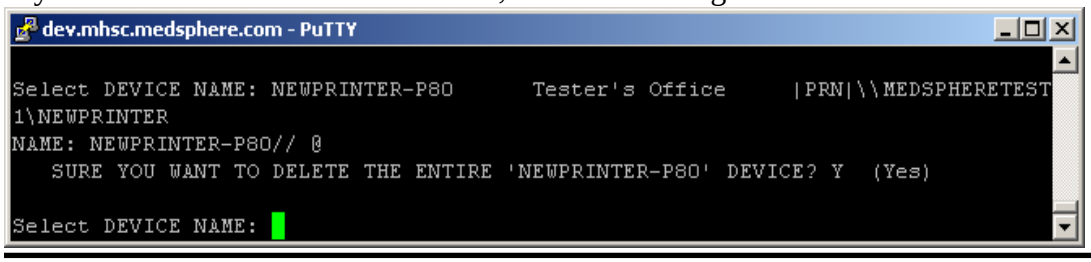
If you want to jump to a specific field without going through all of the fields you can use the ^fieldname like the below example.



Entering part of a field name will give you all of the fields that start like that. If there is only one it would take you directly to that field without giving you an option.
The following screenshot will show you the minimum fields that are necessary to build a printer. It is also a way to view what fields are defined for a specific printer.



If you ever want to remove a DEVICE, do the following.



Anytime you use an @ symbol on a line it will ask you if you want to delete the line. If it's at the NAME: prompt then it will ask if you want to delete the entire device.

D. Specialty printers

This section will cover the how the various specialty printers are set up.

Diet Card Printer

Device:

NAME:DIET-CARD ***(Windows/Cache)***$I: |PRN|DIETCARD
QUEUING: ALLOWED ***(Linux/GT.M)*** $I: lpr -P diet01 -o raw
LOCATION OF TERMINAL: Dietary Kitchen
SUPPRESS FORM FEED AT CLOSE: YES SUBTYPE: P-HPLASER-OMEGA
TYPE: NETWORK CHANNEL

Windows/Cache
SUBTYPE (defined as TERM TYPE)
NAME: P-HPLASER-OMEGA SELECTABLE AT SIGN-ON: NO
RIGHT MARGIN: 132 FORM FEED: #
PAGE LENGTH: 47 BACK SPACE: $C(8)
OPEN EXECUTE: W
*27,"E",*27,"&k4S",*27,"&l1O",*27,"&l6D",*27,"(8U",*27,"(s1p12v0s3b4113T",*27,"&l2E",*27,
"&l47F",*27,"(s0P"
CLOSE EXECUTE: W *27,"E" 12 PITCH: &k4S
RESET: "E" DESCRIPTION: Diet Card - CG Omega Bold
16 PITCH: &k2S DEFAULT PITCH: &k2S

Linux/GT.M
Select TERMINAL TYPE NAME: P-HPLASER-OMEGA Diet Card - CG Omega Bold
NAME: P-HPLASER-OMEGA//
SELECTABLE AT SIGN-ON: NO//
RIGHT MARGIN: 132//
FORM FEED: #//
PAGE LENGTH: 47//
BACK SPACE: $C(8)//
*OLD XY CRT:
XY CRT:
OPEN EXECUTE: W *27,"E",*27,"&k2G",*27,"&k4S",*27,"&l1O",*27,"&l6D",*27,"(8U",*2
7,"(s0P" Replace
OPEN EXECUTE DESCRIPTION:
THERE ARE NO LINES!
Edit? NO//

CLOSE EXECUTE: W *27,"E"//
ONLINE CHECK:
10 PITCH: "&k0S"//
12 PITCH: "&k4S"//
16 PITCH: "&k2S"//
DEFAULT PITCH: "&k2S"//
X PITCH:
6 LINES PER INCH: "&l6D"//
8 LINES PER INCH: "&l8D"//
DEFAULT LINES PER INCH: "&l6D"//
.
.
.
RESET: "E"//

Diet Label Printer

Device:

NAME: DIET-LABEL ***(Windows/Cache)***$I: |PRN|DIETLABEL
QUEUING: ALLOWED ***(Linux/GT.M)***$I: lpr -P diet01 -o raw
LOCATION OF TERMINAL: Dietary Kitchen
SUPPRESS FORM FEED AT CLOSE: YES SUBTYPE: P-DEC-LABEL-DIET
TYPE: NETWORK CHANNEL

Windows/Cache
SUBTYPE (defined as TERM TYPE)
NAME: P-DEC-LABEL-DIET SELECTABLE AT SIGN-ON: NO
RIGHT MARGIN: 132 FORM FEED: #
PAGE LENGTH: 8 BACK SPACE: $C(8)
OPEN EXECUTE: W *27,"[9t",*27,"[5i",*27,"[4w"
CLOSE EXECUTE: W *27,"[1w",*27,"[4i"

After the printer is set up you must edit the 119.9 file and give it these parameters:

Select VA FileMan Option: ENTER or Edit File Entries

Input to what File:// 119.9 FH SITE PARAMETERS
(1 entry)
EDIT WHICH FIELD: ALL// ALL

Select FH SITE PARAMETERS: 1
SITE: 1//
Select LABEL PRINTERS: DIET-LABEL//
LABEL PRINTERS: DIET-LABEL//
SIZE OF LABELS: 4 x 1-1/3 (Laser labels - 14 labels per sheet)
// ?

Choose from:
1 3-1/2 x 15/16 (Single strip labels)
2 4 x 1-7/16 (Single strip labels)
3 2-5/8 x 1 (Laser labels - 30 labels per sheet)
4 4 x 1-1/3 (Laser labels - 14 labels per sheet)
SIZE OF LABELS: 4 x 1-1/3 (Laser labels - 14 labels per sheet)
//
Select LABEL PRINTERS:

Linux/GT.M

NAME: P-DEC-LABEL-DIET// SELECTABLE AT SIGN-ON: NO//
RIGHT MARGIN: 132// FORM FEED: #//
PAGE LENGTH: 8// BACK SPACE: $C(8)//
*OLD XY CRT: XY CRT:
OPEN EXECUTE: W *27,"&k2G",*27,"[9t",*27,"[5i",*27,"[4w"
OPEN EXECUTE DESCRIPTION:
THERE ARE NO LINES!
Edit? NO//
CLOSE EXECUTE: W *27,"[1w",*27,"[4i"

Main Lab printer (This happens to be a 10 part accession label.)
NOTE: This printer must be named LABLABEL.

Device:

NAME: **LABLABEL** ***(Windows/Cache)***$I: |PRN|lablabel
(Linux/GT.M) $I: lpr -P lablabel -o raw
QUEUING: ALLOWED LOCATION OF TERMINAL: Lab
MARGIN WIDTH: 80 PAGE LENGTH: 60
OPEN PARAMETERS: "W" ***("QW" for GT.M)***
SUBTYPE: P-ZEBRA-S4M-LABLABEL TYPE: NETWORK CHANNEL

Windows/Cache

SUBTYPE (defined as TERM TYPE)
NAME: **P-ZEBRA-S4M-LABLABEL** RIGHT MARGIN: 0
FORM FEED: $C(0) PAGE LENGTH: 65500
OPEN EXECUTE: W $C(2),"^XA^PON^LHO,O^MMC^XZ",$C(3)
CLOSE EXECUTE: S IONOFF=1

Linux/GT.M

NAME: P-ZEBRA-S4M-LABLABEL
SELECTABLE AT SIGN-ON:
RIGHT MARGIN: 0//
FORM FEED: $C(0)//
PAGE LENGTH: 65500//

BACK SPACE:
*OLD XY CRT:
XY CRT:
OPEN EXECUTE: W $C(2),"^XA^PON^LHO,O^MMC^XZ",$C(3)
Replace
OPEN EXECUTE DESCRIPTION:
THERE ARE NO LINES!
Edit? NO//
CLOSE EXECUTE: S IONOFF=1//

You must modify file 69.9 (Laboratory Site)

Field 350
.01 – PRINTER DIVISION:
.02 - LOG PRINTER FOR ROUTINE LC:
.03 - ACCESSION PRINTER: LABLABEL

Field 360 (Multiple)
.01 - LABEL DEVICE: LABLABEL
.02 PRINTER TYPE: ZEBRA ZPL II COMPATIBLE
.03 - LABEL STOCK: 2.5X4 10 PART
.04 - ALTERNATE LABEL ENTRY: EN
.05 - ALTERNATE LABEL ROUTINE: MSCS4M

.01 - LABEL DEVICE: CARDIOLABEL
.02 PRINTER TYPE: ZEBRA ZPL II COMPATIBLE
.03 - LABEL STOCK: 2.5X4 10 PART
.04 - ALTERNATE LABEL ENTRY: EN
.05 - ALTERNATE LABEL ROUTINE: MSCS4M

.01 - LABEL DEVICE: LABHISTO
.02 PRINTER TYPE: ZEBRA ZPL II COMPATIBLE
.03 - LABEL STOCK: 1X3
.04 - ALTERNATE LABEL ENTRY: EN
.05 - ALTERNATE LABEL ROUTINE: MSCAP1X1

SETUP FOR THE LABLABEL:

The way the label is setup, the X,Y home (0,0) is at the bottom left corner. So, this has to be kept in mind when choosing the X,Y AXIS values for each field. The file 21469.9 is sent with preset fields. These will probably need to be modified for each site. If there is a field that is not wanted, you can just leave the X AXIS and Y AXIS field null. The routine will only print that field if there is a value. Here is an example from file 21469.9.

NUMBER: 1 NAME: HOSPITAL
ZEBRA LABEL PARAMETERS: LABEL PRINT ORIENTATION: INVERTED
LABEL HOME X AXIS: 0 LABEL HOME Y AXIS: 0
BARCODE PRINTER TYPE: S4M
1X2 LABEL: 1 FONT: DN
FIELD ORIENTATION: ROTATED 90 DEGREES CLOCKWISE
PATIENT NAME HEIGHT: 25 PATIENT NAME WIDTH: 10
PATIENT NAME X AXIS: 810 PATIENT NAME Y AXIS: 440
DOB HEIGHT: 17 DOB WIDTH: 10
DOB X AXIS: 810 DOB Y AXIS: 650
PATIENT ID HEIGHT: 20 PATIENT ID WIDTH: 10
PATIENT ID X AXIS: 790 PATIENT ID Y AXIS: 440
ORDER NUM HEIGHT: 20 ORDER NUM WIDTH: 10
ORDER NUM X AXIS: 790 ORDER NUM Y AXIS: 540
PATIENT LOC HEIGHT: 20 PATIENT LOC WIDTH: 10
PATIENT LOC X AXIS: 790 PATIENT LOC Y AXIS: 690
UID HEIGHT: 20 UID WIDTH: 10
UID X AXIS: 700 UID Y AXIS: 440
COLLECTION SAMPLE HEIGHT: 20 COLLECTION SAMPLE WIDTH: 10
COLLECTION SAMPLE X AXIS: 700 COLLECTION SAMPLE Y AXIS: 600
URGENCY HEIGHT: 25 URGENCY WIDTH: 10

Type <Enter> to continue or '^' to exit:
URGENCY BOX X AXIS: 680 URGENCY BOX Y AXIS: 715
URGENCY BOX GRAPHIC X: 35 URGENCY BOX GRAPHIC Y: 63
URGENCY BOX GRAPHIC Z: 35
ACCESSION NUMBER ORIENTATION: ROTATED 90 DEGREES
ACCESSION NUMBER HEIGHT: 20 ACCESSION NUMBER WIDTH: 10
ACCESSION NUMBER X AXIS: 680 ACCESSION NUMBER Y AXIS: 440
TEST LIST HEIGHT: 20 TEST LIST WIDTH: 10
TEST LIST X AXIS: 660 TEST LIST Y AXIS: 440

Almost all fields have a height and width value. These should only be modified after placing the data at its correct X,Y point. These fields do need to be filled in regardless of whether or not the data is going to print on the label. The routine will throw an undefined error if they are not filled in. Since the build LR*5.2*1501 is sent with all these fields defined, user's just need not to delete them

BARCODE FORMAT: 1 BARCODE TYPE: INTERLEAVED 2 OF 5
BARCODE HEIGHT: 60 BARCODE WIDTH: 90
BAR CODE FIELD DEFAULT (BY): 2 PRINT INTERPRETATION LINE: NO
PRINT INTERP LINE ABOVE CODE: NO BARCODE X AXIS: 1070

```
  BARCODE Y AXIS: 75                INTERLEAVED 2/5 ORIENTATION: NORMAL
  MOD 10 CHECK DIGIT: NO
  BARCODE FIELD ORIENTATION (FW): ROTATED 90 DEGREES
  BARCODE FONT: DN                  BARCODE FONT HEIGHT: 30
  BARCODE FONT WIDTH: 10
BARCODE FORMAT: 2                   BARCODE TYPE: CODE39 W/OUT CHECK
  BARCODE HEIGHT: 60                BARCODE WIDTH: 90
  BAR CODE FIELD DEFAULT (BY): 2       CODE39 ORIENTATION: NORMAL
  PRINT INTERPRETATION LINE: NO        PRINT INTERP LINE ABOVE CODE: NO
  BARCODE X AXIS: 1070              BARCODE Y AXIS: 75

Type <Enter> to continue or '^' to exit:
  CHECK DIGIT?: NO
  BARCODE FIELD ORIENTATION (FW): ROTATED 90 DEGREES
  BARCODE FONT: DN                  BARCODE FONT HEIGHT: 30
  BARCODE FONT WIDTH: 10
BARCODE FORMAT: 3                   BARCODE TYPE: CODE39 W/CHECK
  BARCODE HEIGHT: 60                BARCODE WIDTH: 90
  BAR CODE FIELD DEFAULT (BY): 2       CODE39 ORIENTATION: NORMAL
  PRINT INTERPRETATION LINE: NO        PRINT INTERP LINE ABOVE CODE: NO
  BARCODE X AXIS: 1070              BARCODE Y AXIS: 75
  CHECK DIGIT?: YES
  BARCODE FIELD ORIENTATION (FW): ROTATED 90 DEGREES
  BARCODE FONT: DN                  BARCODE FONT HEIGHT: 30
  BARCODE FONT WIDTH: 10
```

There is one field in file 21469.9 called BARCODE PRINTER TYPE. It is a set of codes field. Currently, there are only two types allowed, S4M, and 140XI. This setting is required. This will determine on how the code is configured for the barcodes. The different types of barcodes are Code 128, Code 39 w/check digit, Code 39 w/out check digit, and Interleaved 2 of 5. The type of printer will depend on the code used to set up the printer fonts and ZPL code for printing the barcode.

```
NUMBER: 1                           NAME: HOSPITAL
ZEBRA LABEL PARAMETERS: LABEL       PRINT ORIENTATION: INVERTED
  LABEL HOME X AXIS: 0              LABEL HOME Y AXIS: 0
  BARCODE PRINTER TYPE: S4M
1X2 LABEL: 1                        FONT: DN
```

FIELD ORIENTATION: ROTATED 90 DEGREES CLOCKWISE
PATIENT NAME HEIGHT: 25 PATIENT NAME WIDTH: 10
PATIENT NAME X AXIS: 810 PATIENT NAME Y AXIS: 440
DOB HEIGHT: 17 DOB WIDTH: 10
DOB X AXIS: 810 DOB Y AXIS: 650
PATIENT ID HEIGHT: 20 PATIENT ID WIDTH: 10
PATIENT ID X AXIS: 790 PATIENT ID Y AXIS: 440
ORDER NUM HEIGHT: 20 ORDER NUM WIDTH: 10
ORDER NUM X AXIS: 790 ORDER NUM Y AXIS: 540
PATIENT LOC HEIGHT: 20 PATIENT LOC WIDTH: 10
PATIENT LOC X AXIS: 790 PATIENT LOC Y AXIS: 690
UID HEIGHT: 20 UID WIDTH: 10
UID X AXIS: 700 UID Y AXIS: 440
COLLECTION SAMPLE HEIGHT: 20 COLLECTION SAMPLE WIDTH: 10
COLLECTION SAMPLE X AXIS: 700 COLLECTION SAMPLE Y AXIS: 600
URGENCY HEIGHT: 25 URGENCY WIDTH: 10

This is an example of a 10 part lab label. Most of the data is pretty self explanatory. The W:AMB on the top two labels is the patients location (W for ward, B for bed). The urgency will only print on the top two labels if it's a STAT and will print reversed (as it shows).

EXAMPLE OF LABLABEL:

The X Axis is Horizontal or Parallel to the label below. The Y Axis is Vertical.

LAB LABELS:

<table>
<tr><td colspan="2">PATIENT, NAME DOB
12345 ORD#:1234 W:AMB

||||||||||||||||||||||||||||||||||||||||||||||||
1234567890 GREEN
CH 0519 1 STAT
CREAT;GLUC R;SODIUM;K+…..</td><td colspan="2">PATIENT, NAME DOB
12345 ORD#:1234 W:AMB

||||||||||||||||||||||||||||||||||||||||||||||||
1234567890 GREEN
CH 0519 1 STAT
CREAT;GLUC R;SODIUM;K+…..</td></tr>
<tr><td>12345
PATIENT,NAME
1234567890</td><td>12345
PATIENT,NAME
1234567890</td><td>12345
PATIENT,NAME
1234567890</td><td>12345
PATIENT,NAME
1234567890</td></tr>
<tr><td>PATIENT,NAME
ORDERING,PROVIDER
05/19/10 08:24
12345</td><td>PATIENT,NAME
ORDERING,PROVIDER
05/19/10 08:24
12345</td><td>PATIENT,NAME
ORDERING,PROVIDER
05/19/10 08:24
12345</td><td>PATIENT,NAME
ORDERING,PROVIDER
05/19/10 08:24
12345</td></tr>
</table>

This is an example of a 10 part lab label. Most of the data is pretty self explanatory. The W:AMB on the top two labels is the patients location (W for ward, B for bed). The urgency will only print on the top two labels if it's a STAT and will print reversed (as it shows).

The 12345 on all of the labels is the patient's identifier. The 1234567890 is the specimens unique identifier (UID). On the bottom 4 labels, the 05/19/10 08:24 is the specimens collection date/time.

DOB on the top two labels is actually the patients Date Of Birth. CH 0519 1 on the top two labels is the specimens accession number. And the line, "CREAT;GLUC R;SODIUM;K+….", is the test list. The list will print as many tests that fit on this line. If there are three dots, …, this means there is more to the list, just not enough room to print them all.

COMPLETE EXAMPLE OF FILE 21469.9:

NUMBER: 1 NAME: HOSPITAL
ZEBRA LABEL PARAMETERS: LABEL PRINT ORIENTATION: INVERTED
LABEL HOME X AXIS: 0 LABEL HOME Y AXIS: 0
BARCODE PRINTER TYPE: S4M
1X2 LABEL: 1 FONT: DN
FIELD ORIENTATION: ROTATED 90 DEGREES CLOCKWISE
PATIENT NAME HEIGHT: 25 PATIENT NAME WIDTH: 10
PATIENT NAME X AXIS: 810 PATIENT NAME Y AXIS: 440
DOB HEIGHT: 17 DOB WIDTH: 10
DOB X AXIS: 810 DOB Y AXIS: 650
PATIENT ID HEIGHT: 20 PATIENT ID WIDTH: 10
PATIENT ID X AXIS: 790 PATIENT ID Y AXIS: 440
ORDER NUM HEIGHT: 20 ORDER NUM WIDTH: 10
ORDER NUM X AXIS: 790 ORDER NUM Y AXIS: 540
PATIENT LOC HEIGHT: 20 PATIENT LOC WIDTH: 10
PATIENT LOC X AXIS: 790 PATIENT LOC Y AXIS: 690
UID HEIGHT: 20 UID WIDTH: 10
UID X AXIS: 700 UID Y AXIS: 440
COLLECTION SAMPLE HEIGHT: 20 COLLECTION SAMPLE WIDTH: 10
COLLECTION SAMPLE X AXIS: 700 COLLECTION SAMPLE Y AXIS: 600
URGENCY HEIGHT: 25 URGENCY WIDTH: 10

Type <Enter> to continue or '^' to exit:
URGENCY BOX X AXIS: 680 URGENCY BOX Y AXIS: 715
URGENCY BOX GRAPHIC X: 35 URGENCY BOX GRAPHIC Y: 63
URGENCY BOX GRAPHIC Z: 35
ACCESSION NUMBER ORIENTATION: ROTATED 90 DEGREES
ACCESSION NUMBER HEIGHT: 20 ACCESSION NUMBER WIDTH: 10

```
  ACCESSION NUMBER X AXIS: 680        ACCESSION NUMBER Y AXIS: 440
  TEST LIST HEIGHT: 20                TEST LIST WIDTH: 10
  TEST LIST X AXIS: 660               TEST LIST Y AXIS: 440
BARCODE FORMAT: 1                     BARCODE TYPE: INTERLEAVED 2 OF 5
  BARCODE HEIGHT: 60                  BARCODE WIDTH: 90
  BAR CODE FIELD DEFAULT (BY): 2      PRINT INTERPRETATION LINE: NO
  PRINT INTERP LINE ABOVE CODE: NO    BARCODE X AXIS: 1070
  BARCODE Y AXIS: 75                  INTERLEAVED 2/5 ORIENTATION: NORMAL
  MOD 10 CHECK DIGIT: NO
  BARCODE FIELD ORIENTATION (FW): ROTATED 90 DEGREES
  BARCODE FONT: DN                    BARCODE FONT HEIGHT: 30
  BARCODE FONT WIDTH: 10
BARCODE FORMAT: 2                     BARCODE TYPE: CODE39 W/OUT CHECK
  BARCODE HEIGHT: 60                  BARCODE WIDTH: 90
  BAR CODE FIELD DEFAULT (BY): 2      CODE39 ORIENTATION: NORMAL
  PRINT INTERPRETATION LINE: NO       PRINT INTERP LINE ABOVE CODE: NO
  BARCODE X AXIS: 1070                BARCODE Y AXIS: 75

Type <Enter> to continue or '^' to exit:
  CHECK DIGIT?: NO
  BARCODE FIELD ORIENTATION (FW): ROTATED 90 DEGREES
  BARCODE FONT: DN                    BARCODE FONT HEIGHT: 30
  BARCODE FONT WIDTH: 10
BARCODE FORMAT: 3                     BARCODE TYPE: CODE39 W/CHECK
  BARCODE HEIGHT: 60                  BARCODE WIDTH: 90
  BAR CODE FIELD DEFAULT (BY): 2      CODE39 ORIENTATION: NORMAL
  PRINT INTERPRETATION LINE: NO       PRINT INTERP LINE ABOVE CODE: NO
  BARCODE X AXIS: 1070                BARCODE Y AXIS: 75
  CHECK DIGIT?: YES
  BARCODE FIELD ORIENTATION (FW): ROTATED 90 DEGREES
  BARCODE FONT: DN                    BARCODE FONT HEIGHT: 30
  BARCODE FONT WIDTH: 10
BARCODE FORMAT: 4                     BARCODE TYPE: CODE128
  BARCODE HEIGHT: 90                  BARCODE WIDTH: 60
  BAR CODE FIELD DEFAULT (BY): 2      CODE 128 ORIENTATION: NORMAL
  PRINT INTERPRETATION LINE: NO       PRINT INTERP LINE ABOVE CODE: NO
  UCC CHECK DIGIT: NO                 MODE: NO SELECTED MODE
  BARCODE X AXIS: 720                 BARCODE Y AXIS: 440
  BARCODE FIELD ORIENTATION (FW): ROTATED 90 DEGREES
  BARCODE FONT: DN                    BARCODE FONT HEIGHT: 30
  BARCODE FONT WIDTH: 10

Type <Enter> to continue or '^' to exit:
1X2 LABEL: 2                          FONT: DN
  FIELD ORIENTATION: ROTATED 90 DEGREES CLOCKWISE
  PATIENT NAME HEIGHT: 25             PATIENT NAME WIDTH: 10
```

```
  PATIENT NAME X AXIS: 810          PATIENT NAME Y AXIS: 30
  DOB HEIGHT: 17                  DOB WIDTH: 10
  DOB X AXIS: 810                 DOB Y AXIS: 240
  PATIENT ID HEIGHT: 20           PATIENT ID WIDTH: 10
  PATIENT ID X AXIS: 790          PATIENT ID Y AXIS: 30
  ORDER NUM HEIGHT: 20            ORDER NUM WIDTH: 10
  ORDER NUM X AXIS: 790           ORDER NUM Y AXIS: 130
  PATIENT LOC HEIGHT: 20          PATIENT LOC WIDTH: 10
  PATIENT LOC X AXIS: 790         PATIENT LOC Y AXIS: 280
  UID HEIGHT: 20                  UID WIDTH: 10
  UID X AXIS: 700                 UID Y AXIS: 30
  COLLECTION SAMPLE HEIGHT: 20    COLLECTION SAMPLE WIDTH: 10
  COLLECTION SAMPLE X AXIS: 700   COLLECTION SAMPLE Y AXIS: 190
  URGENCY HEIGHT: 25              URGENCY WIDTH: 10
  URGENCY BOX X AXIS: 680         URGENCY BOX Y AXIS: 300
  URGENCY BOX GRAPHIC X: 35       URGENCY BOX GRAPHIC Y: 63
  URGENCY BOX GRAPHIC Z: 35
  ACCESSION NUMBER ORIENTATION: ROTATED 90 DEGREES
  ACCESSION NUMBER HEIGHT: 20     ACCESSION NUMBER WIDTH: 10

Type <Enter> to continue or '^' to exit:
  ACCESSION NUMBER X AXIS: 680    ACCESSION NUMBER Y AXIS: 30
  TEST LIST HEIGHT: 20            TEST LIST WIDTH: 10
  TEST LIST X AXIS: 660           TEST LIST Y AXIS: 30
BARCODE FORMAT: 1                 BARCODE TYPE: INTERLEAVED 2 OF 5
  BARCODE HEIGHT: 60              BARCODE WIDTH: 90
  BAR CODE FIELD DEFAULT (BY): 2  PRINT INTERPRETATION LINE: NO
  PRINT INTERP LINE ABOVE CODE: NO  BARCODE X AXIS: 1070
  BARCODE Y AXIS: 675             INTERLEAVED 2/5 ORIENTATION: NORMAL
  MOD 10 CHECK DIGIT: NO
  BARCODE FIELD ORIENTATION (FW): ROTATED 90 DEGREES
  BARCODE FONT: DN                BARCODE FONT HEIGHT: 30
  BARCODE FONT WIDTH: 10
BARCODE FORMAT: 2                 BARCODE TYPE: CODE39 W/OUT CHECK
  BARCODE HEIGHT: 60              BARCODE WIDTH: 90
  BAR CODE FIELD DEFAULT (BY): 2  CODE39 ORIENTATION: NORMAL
  PRINT INTERPRETATION LINE: NO   PRINT INTERP LINE ABOVE CODE: NO
  BARCODE X AXIS: 1070            BARCODE Y AXIS: 675
  CHECK DIGIT?: NO
  BARCODE FIELD ORIENTATION (FW): ROTATED 90 DEGREES
  BARCODE FONT: DN                BARCODE FONT HEIGHT: 30
  BARCODE FONT WIDTH: 10
BARCODE FORMAT: 3                 BARCODE TYPE: CODE39 W/CHECK

Type <Enter> to continue or '^' to exit:
  BARCODE HEIGHT: 60              BARCODE WIDTH: 90
```

BAR CODE FIELD DEFAULT (BY): 2 CODE39 ORIENTATION: NORMAL
PRINT INTERPRETATION LINE: NO PRINT INTERP LINE ABOVE CODE: NO
BARCODE X AXIS: 1070 BARCODE Y AXIS: 675
CHECK DIGIT?: YES
BARCODE FIELD ORIENTATION (FW): ROTATED 90 DEGREES
BARCODE FONT: DN BARCODE FONT HEIGHT: 30
BARCODE FONT WIDTH: 10
BARCODE FORMAT: 4 BARCODE TYPE: CODE128
BARCODE HEIGHT: 90 BARCODE WIDTH: 60
BAR CODE FIELD DEFAULT (BY): 2 CODE 128 ORIENTATION: NORMAL
PRINT INTERPRETATION LINE: NO PRINT INTERP LINE ABOVE CODE: NO
UCC CHECK DIGIT: NO MODE: NO SELECTED MODE
BARCODE X AXIS: 720 BARCODE Y AXIS: 25
BARCODE FIELD ORIENTATION (FW): ROTATED 90 DEGREES
BARCODE FONT: DN BARCODE FONT HEIGHT: 30
BARCODE FONT WIDTH: 10
COMMON LABELS: COMMON Y AXIS 1: 25
Y AXIS 2: 230 Y AXIS 3: 435
Y AXIS 4: 640 PATIENT ID X AXIS: 625
PATIENT ID HEIGHT: 20 PATIENT ID WIDTH: 10
PATIENT NAME X AXIS: 595 PATIENT NAME HEIGHT: 20

Type <Enter> to continue or '^' to exit:
PATIENT NAME WIDTH: 10 ACCESSION NUMBER X AXIS: 565
ACCESSION NUMBER HEIGHT: 20 ACCESSION NUMBER WIDTH: 10
SECOND PATIENT NAME X AXIS: 515 SECOND PATIENT NAME HEIGHT: 20
SECOND PATIENT NAME WIDTH: 10 ORDERING PROVIDER X AXIS: 485
ORDERING PROVIDER HEIGHT: 20 ORDERING PROVIDER WIDTH: 10
COLLECTION DATE/TIME X AXIS: 455 COLLECTION DATE/TIME HEIGHT: 20
COLLECTION DATE/TIME WIDTH: 10 SECOND PATIENT ID X AXIS: 425
SECOND PATIENT ID HEIGHT: 20 SECOND PATIENT ID WIDTH: 10
COMMON LABEL FONT NAME: D COMMON LABEL FONT ORIENTATION: NORMAL
COMMON LABEL FIELD ORIENTATION: ROTATED 90 DEGREES

Radiology Flashcard printer (It is a simple line printer so the Term Type is a line printer Term Type.)

Device:
NAME: RADFLASHCARD $I: |PRN|LEXMARK
QUEUING: ALLOWED LOCATION OF TERMINAL: RADIOLOGY
SUPPRESS FORM FEED AT CLOSE: YES MARGIN WIDTH: 30
PAGE LENGTH: 20 OPEN PARAMETERS: "W"

MNEMONIC: FLASH
SUBTYPE: P-LPTR TYPE: NETWORK CHANNEL

SUBTYPE (defined as TERM TYPE)
NAME: P-LPTR RIGHT MARGIN: 132
FORM FEED: # PAGE LENGTH: 66
BACK SPACE: $C(8)

Pharmacy IV label to print on a Zebra printer

NAME: **RX-IV-LBL**
$I: lpr -P RXIVLBL -o raw (Unix) or |PRN|\\xxx.xxx.xxx.xxx\RXIVLBL (Windows)
QUEUING: ALLOWED
LOCATION OF TERMINAL: PHARMACY
SUPPRESS FORM FEED AT CLOSE: YES
OPEN PARAMETERS: "QW"
MNEMONIC: IV
SUBTYPE: P-TCP ZEBRA IV LABEL
TYPE: NETWORK CHANNEL

SUBTYPE (defined as TERM TYPE)
NAME: **P-TCP ZEBRA IV LABEL**
SELECTABLE AT SIGN-ON: YES//
RIGHT MARGIN: 0//
FORM FEED: #//
PAGE LENGTH: 65500//

NUMBER: 1 CTRL CODE ABBREVIATION: FI
FULL NAME: FORMAT INITIALIZATION CONTROL CODE: W "^XA^LH0"
NUMBER: 2 CTRL CODE ABBREVIATION: SB
FULL NAME: START OF BARCODE
CONTROL CODE: W "^FO50,20^BY3,^B3N,N,100,N,N"
NUMBER: 3 CTRL CODE ABBREVIATION: ST
FULL NAME: START OF TEXT
CONTROL CODE: W "^FO",PSJBARX,",",PSJBARY,"^A0N,25,25" S
PSJBARY=PSJBARY+40
NUMBER: 4 CTRL CODE ABBREVIATION: ETF
FULL NAME: END OF TEXT CONTROL CODE: W "^FS"
NUMBER: 6 CTRL CODE ABBREVIATION: EB
FULL NAME: END OF BARCODE CONTROL CODE: S LINE=LINE+1,PSJBARY=130
NUMBER: 7 CTRL CODE ABBREVIATION: STF
FULL NAME: START OF TEXT FIELD CONTROL CODE: W "^FD"
NUMBER: 8 CTRL CODE ABBREVIATION: SBF

FULL NAME: START OF BARCODE FIELD CONTROL CODE: W "^FD"
NUMBER: 9 CTRL CODE ABBREVIATION: ETF
FULL NAME: END OF TEXT FIELD CONTROL CODE: W "^FS"
NUMBER: 10 CTRL CODE ABBREVIATION: SL
FULL NAME: START OF LABEL
CONTROL CODE: W "^XA",! S PSJBARY=50,PSJBARX=60
NUMBER: 11 CTRL CODE ABBREVIATION: EL
FULL NAME: END OF LABEL CONTROL CODE: W "^XZ",!
NUMBER: 12 CTRL CODE ABBREVIATION: EBF
FULL NAME: END OF BARCODE FIELD CONTROL CODE: W "^FS",!
NUMBER: 13 CTRL CODE ABBREVIATION: SM
FULL NAME: START MED ROUTINE
CONTROL CODE: W "^FO",PSJBARX,",",PSJBARY,"^A0N,36,30",!!
NUMBER: 14 CTRL CODE ABBREVIATION: EM
FULL NAME: END MED ROUTINE CONTROL CODE: S PSJBARY=PSJBARY+40
NUMBER: 15 CTRL CODE ABBREVIATION: SMF
FULL NAME: START MED ROUTE FIELD CONTROL CODE: W "^FD"
NUMBER: 16 CTRL CODE ABBREVIATION: EMF
FULL NAME: END MED ROUTE FIELD CONTROL CODE: W "^FS",!

Pharmacy Unit Dose label to print on a Zebra printer

Linux environment with Zebra 140XII printer.

Device:
NAME: **RX-UD-LBL** $I: lpr -P CCHPRRXUD -o raw
QUEUING: ALLOWED
LOCATION OF TERMINAL: PHARMACY UNIT DOSE PRINTER
SUPPRESS FORM FEED AT CLOSE: YES OPEN COUNT: 12033
OPEN PARAMETERS: "QW"
MNEMONIC: UD
SUBTYPE: P-ZEBRA 140XII TYPE: NETWORK CHANNEL

SUBTYPE (defined as TERM TYPE)
NAME: **P-ZEBRA 140XII** RIGHT MARGIN: 0
FORM FEED: $C(0) PAGE LENGTH: 65500
OPEN EXECUTE: W $C(2),"^XA^PON^LH0,0^MMC^XZ",$C(3)
CLOSE EXECUTE: S IONOFF=1

Windows Environment with Zebra S4M printer.

Device:
NAME: **RX-UD-LBL** $I: |PRN|RXLABEL
QUEUING: ALLOWED

LOCATION OF TERMINAL: PHARMACY DEPARTMENT
SUPPRESS FORM FEED AT CLOSE: YES OPEN PARAMETERS: "W"
SUBTYPE: P-ZEBRA S4M TYPE: NETWORK CHANNEL

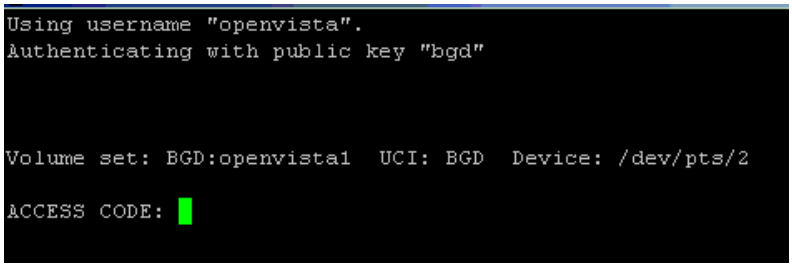
SUBTYPE (defined as TERM TYPE)
NAME: **P-ZEBRA S4M** RIGHT MARGIN: 0
FORM FEED: $C(0) PAGE LENGTH: 65500
OPEN EXECUTE: W $C(2),"^A0,1^XA^PON^LHO,O^MMC^XZ",$C(3)
CLOSE EXECUTE: S IONOFF=1
DESCRIPTION: ZEBRA S4M DIRECT BAR CODE PRINTER

VII. Security, Keys, Menus

A. Operating System Security

All users of Openvista will need an Operating System account to access the system. These accounts give access to resources within the Operating System. The actual use of these accounts will generally be provided to technical resources whose job involves the administration of the server, interface engine or MUMPS code. The key point here is the Operating System maintains a security mechanism that is separate from both Cache or GT.M and from Openvista. But, to complete tasks that involve systems that are in all three domains will require an account in all three areas. For example, printing is one of those functions that will require a setup in both Openvista and in the OS. But, for a majority of the users an account within Openvista will provide all of the security that will be needed. For those users that do not need access to the operating system, Medsphere has adopted the use of the "Tied" account. This account is an operating system account that automatically gives the user an Access Code/Verify Code prompt without asking them for an OS account. The key point here is that the tied account is created for the convenience of the users and for enhanced security. A standard user will not be able to login to the operating system and gain access to any files or directories.

An example of a tied account login:



An example of an operating system login:

The security on the Cache level has two different functions: 1)Cache stores the data; 2)programming language that manipulates the data. Therefore, the security at this level restricts the data that a user can see, but also what a user can do to the data that is visible. For most users the security for this level is handled through a built in user called Unknown User. The security settings for this user will allow user to view data and call routines, but without a specific user account they

cannot modify routines are data directly through Cache. The administrators for Cache will need specified accounts in Cache that will allow them to create backups, perform restores, and check the status of Cache. You can manage the security from the System Management Portal. But, for all but the system administrators and programmers, access into Cache is handled generically through the Unknown User.

In GT.M, the MUMPS level security is handled through the Operating System. Linux users must be members of the **gtm** group to access the GT.M binaries. Users must also be part of the **openvista** group to access routines and database files under **/opt/openvista**.

B. Openvista Security

Openvista has a separate security infrastructure that is native to the application and the data is stored in the New Person file (#200). Most systems have a separate provider and user database. The username is referred to as the access code and the password as the verify code. Both the Access Code and Verify Code are hidden to the user and should not be shared.

1. Add a User

- From the Eve Menu, choose User Management.
- Choose to Add a New User.

Select Systems Manager Menu Option: User Management

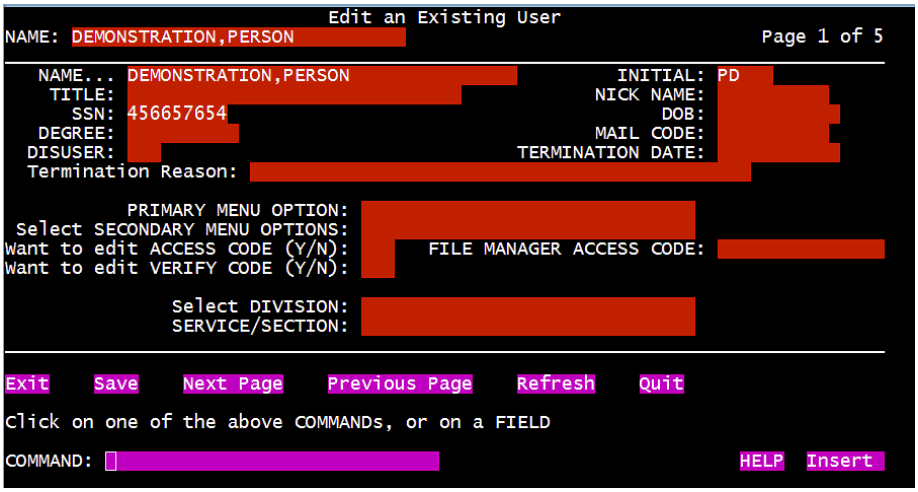
Add a New User to the System
Grant Access by Profile
Edit an Existing User
Deactivate a User
Reactivate a User
List users
User Inquiry
Switch Identities
Clear Electronic signature code
Electronic Signature Block Edit
Manage User File ...
OAA Clinical Trainee ...
Person Class Edit
Reprint Access agreement letter

- Enter the new users name Last,First with no space between.

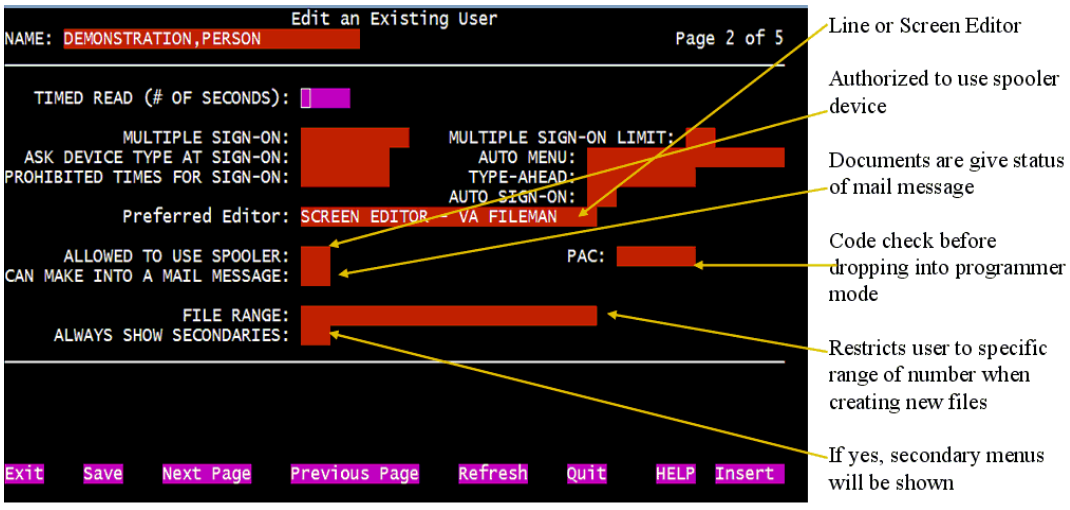
Enter NEW PERSON's name (Family,Given Middle Suffix):
DEMONSTRATION,PERSON
Are you adding 'DEMONSTRATION,PERSON' as a new NEW PERSON (the 129TH)? No// Y

INITIAL: PD
SSN: 456657654
SEX: M

- On this first screen, you will need to add:
    - Primary Menu
    - Secondary Menu
    - Division
    - Service/Section

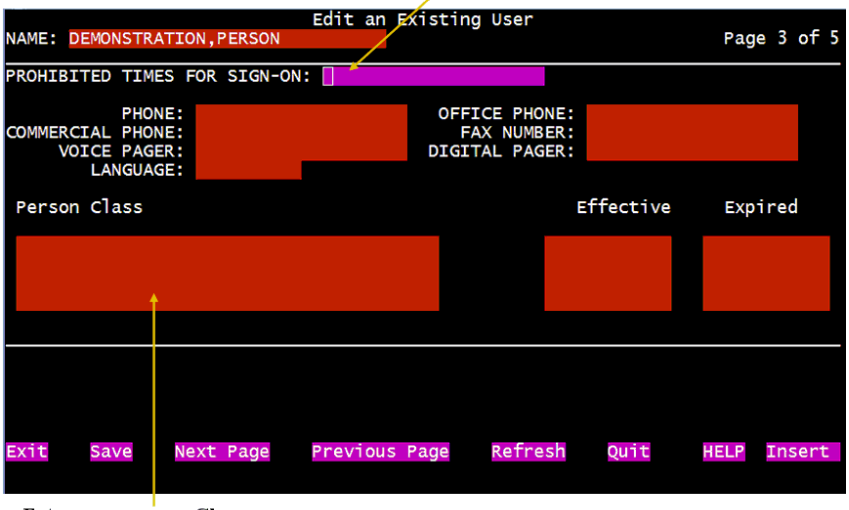


- Go to the next page and complete:



- Choose Next Page:

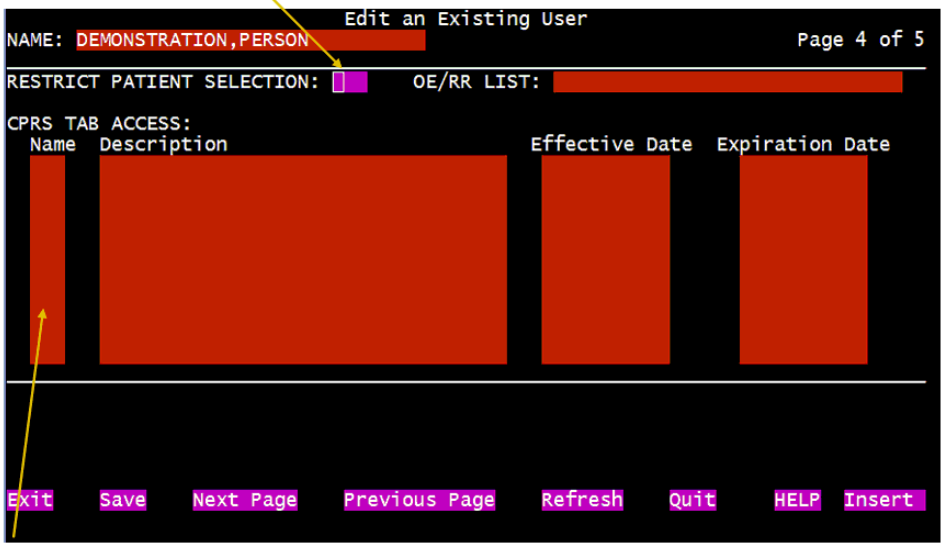
This is a pair of times when user will not be allowed access to the computer system (entered in military time (1700-0700)



Enter users person Class

- Then, the last page:

Used to restriction patient selection to specific patient (Patient Selection List)



Assignment of the COR tab is mandatory for the user to access the Clinical Information System

- You can also access these screens again by using the Edit an Existing user option under the User Management menu. This will allow you to make edits to previously defined users. The system will prompt you to enter the last name of the user and does not file users by either Access or Verify Codes.
- When adding a user who will be involved with the Clinical Information System, assure these steps are taken:
  - Assign the primary/secondary menu options of

    - OR CPRS GUI
    - GMV Vitals
- Assign the COR Tab
- Authorized to Write Med Orders **(Used to determine if provider is authorized to write orders)**
- Assign the proper keys in accordance with user's function:
    - Provider
    - ORES (Provider/Physician)
    - ORELSE (Nurse)
    - OREMAS (Admin Staff)
    - MAG Keys (All who will use the imaging process)

2. Access Code/Verify Code Pair

- ACCESS CODE

6-20 characters mixed alphanumeric.

An example of an acceptable Access Code: PDNE317

- VERIFY CODE

8-20 characters mixed alphanumeric and punctuation (except '^', ';', ':')

Example of an acceptable Verify Code: 8586IFO]

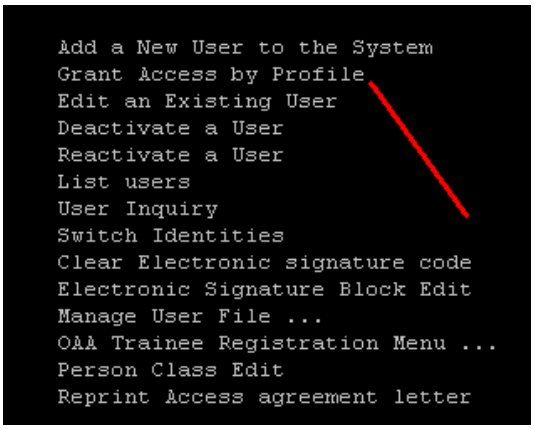
- VERIFY CODE never expires

This field will control if the users VERIFY code will expire at the interval set by the Kernel System Parameter LIFETIME OF VERIFY CODE. This field should only be used for access to the VistA system from other systems making connection with the RPCBroker and have very controlled access. Only persons with the XUMGR key are allowed to set this flag.

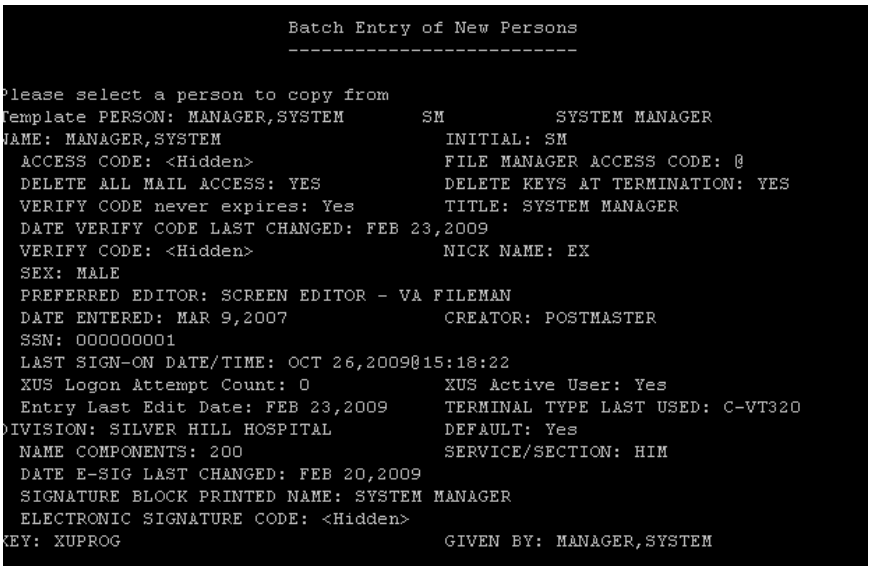
3. Grant Access by Profile – Cloning

To give access to multiple users, by copying or cloning a single user, access the Grant Access by Profile under the User Management Menu. This option will copy the New Person record from one user to another and you can also choose to copy to multiple users. If there are numerous users that need to be added, then this is the best function.

- Choose the Grant Access by Profile from the User Management Menu.



- Enter the name of the user in the format:
  - Lastname,Firstname.



- Choose to Copy the Person's User Class.

C. Keys

The set of permissions that allow users to see or do certain tasks is referred to as keys in Openvista. These keys are set in each environment and per user. If a user does not have a certain key to change the settings on a printer, for example, Openvista sends a message saying that it did not find the information with a double question mark, '??'. Below is a list of keys and users that generally have these keys.

User	Menu Options - P = Primary Menu	Keys	FM Access Code	CPRS COR TAB
		Nutrition		
Nutrition Leads/Superusers	NUTR CONFIG MENU (P)	FHMGR	#	**Y**
	OR CPRS GUI CHART	FHAUTH		
	GVM V/M GUI			
Clinical Nutrition Staff	FHDIET (P)			**Y**
	OR CPRS GUI CHART			
	GVM V/M GUI			
Food Service Staff	FOOD SERVICE MENU (P)			
		Radiology		
Radiology System Analyst	RA OpenvistaERALL (P)	RA ALLOC;RA VERIFY;RA MGR	#	**Y**
Interpreting Radiologist	RA RADIOLOGIST (P)	RA VERIFY		
Radiology Clerk	RA CLERK (P)	RA ALLOC		
Rad/Nuc Med Technologist	RA TECH (P)	RA ALLOC		
Radiology Transcriptionist	RA Transcriptionist (P)	RA ALLOC		
		Laboratory		
Laboratory User	LRMENU (P)	LRNAT;LRAU;LREM;LRMICRO; LRSP;	#	**Y**
(User menus/keys are as		LRAPMOD;LRLAB;LRSUPER;		
determined by Lab Manager)		LRASUPER;LRCY;LRLEDI;LRPHMAN;		
		LRPHMAN;LRDATA;LRLAISON; LRPHSUPER		
		Pharmacy		
Pharmacist Superuser	PHARMACY SUPERUSER (P)	GMRA-ALLERGY VERIFY;GMRA-SUPERVISOR;	#	**Y**
	XUSERREL	ORELSES;PROpenvistaIDER;PSA ORDERS;		
	XMUSER	PSAMGR;PSB BUMGR;XUPROG		
	XMEDITING	PSB CPRS MED BUTTON;PSB MANAGER;		
	FHPATM	PSD ERROR;PSD PARAM;PSD TRAN;		
	PSB PHARMACY	PSDMGR;PSGW PARAM;PSGW PURGE;		
	MSC RM PHARM CALCULATOR	PSGW TRAN;PSGWMGR;PSJRPHARM;		
	MSCIC DRUG CHARGE ENTRY	PSJI MGR;PSJI PURGE;PSJU MGR;PSJU PL;		
	OR CPRS GUI CHART	PSNMGR;PSOA PURGE;PSOINTERFACE;		
	PSB GUI CONTEXT –	PSOLOCKCLOZ;PSORPH;XUM		

	USER	GR;		
Pharmacist User	PHARMACIST MENU (P)	GMRA-ALLERGY VERIFY,GMRA SUPERVISOR;		**Y**
	PSJ PDV	MAG CAPTURE;MAGCAP ADMIN;MAGCAP TIU;		
	FHPATM	ORELSE;PSA ORDERS;PSAMGR;		
	OR CPRS GUI CHART	PSB BUMGR;PSB CPRS MED BUTTON;		
	GMV V/M GUI	PSD ERROR,PSDMGR;PSJ RPHARM;PSJU PL;		
	PSB GUI CONTEXT – USER	PSORPH		
	PSB PHARMACY			
	XMUSER			
Pharmacy Technician	PHARMACY TECHNICIAN (P)	PSD TECH;PSJ PHARM TECH; PSJU PL;		
	FHPATM	PSJ RPHARM;PSJI PHARM TECH		
	XMUSER			
	PSJ PDV			
	OR CPRS GUI CHART			
Bar Code Medication Administration (BCMA)				
BCMA Coordinator	PSB GUI CONTEXT – USER	PSB MANAGER		
	PSB NURSE	PSB BUMGR		
	OR BCMA ORDER COM	PSB CPRS MED BUTTON		
ALLIED HEALTH PROFESSIONAL				
HEALTH SERVICES WORKER	ALLIED PROFESSIONAL			**Y**
	OR CPRS GUI CHART			
ADT				
Admissions Director	DG SYSTEMS DEFINITION MENU	MAG DELETE;MAGCAP ADMIN;MAGCAP TIU;	#	**Y**
	DG BED CONTROL EXTENDED	MSCGMAGSAV;OREMAS;XUMGR		
	MODIFIED FILEMAN			
	DG INPATIENT LIST			
	DG INPATIENT ROSTER			
	DG LOAD/EDIT PATIENT DATA			
	DG PTF CREATE			
	ELECTRONIC SIGNATURE CODE EDIT (XUSESIG)			
	CLEAR ELECTDRON SIGNATURE CODE (XUSESIG)			
	OR CPRS GUI CHART			

	XT OPTIONS TEST			
	RN-LPM MENU			
ADM CLERK	OFFICE ASSISTANT (P)	OREMAS; MACGMAGSAV		**Y**
	OR CPRS GUI CHART			
Health Information Management				
HIM Director	TIU MAIN MENU MRT	DG SECURITY OFFICER;DG SENSITIVITY;	#	**Y**
	USR CLASS MANAGEMENT MENU	DG SUPERVISOR;DGJ CLERK SUPER		
	DGPF RECORD FLAGS MENU	DGJ SUPER;DGJ TS UPDATE;DGPF PRF ACCESS;		
	DG BED CONTROL	DGPF LOCAL FLAG EDIT;DGPF PRF CONFIG;		
	DG SECURITY OFFICER MENU	DGPF RECORD FLAG ASSIGNMENT; MAG DELETE;		
	DGJ IRT MENU	MAGCAP ADMIN;MAGCAP PHOTOID; MAGCAP TIU'		
	XDR Main Menu	XDR;XDRMGR;DG ELIGIBILITY		
	GMV V/M GUI	MSCGMAGSAV;OREMAS;XUMGR;		
	OR CPRS GUI CHART			
	XUSESIG CLEAR			
	XMUSER			
	MODIFIED FILEMAN			
Medical Records Technician	TIU MAIN MENU MRT	MSCGMAGSAV;OREMAS		**Y**
	OR CPRS GUI CHART			
	RN-LPN MENU			
Transcriptionist				
Coder	OR CPRS GUI CHART			**Y**
NURSING				
RN	NURSE MENU	ORELSE		**Y**
	GMRV V/M ENTRY MENU	GMV MANAGER		
	OR CPRS GUI CHART	MAGCAP TIU;MAGCAP ADMIN;MAG PHOTID		
	GMV V/M GUI	MSCGMAGSAV		
	PSJU 7D MAR	PSB CPRS MED BUTTON		
	PSJU 24H MAR			
	PSB NURSE			
	PSB GUI CONTEXT			
	OR BCMA ORDER COM			
LPN	NURSE MENU	GMV MANAGER		**Y**
	GMRV V/M ENTRY MENU	MAGCAP TIU;MAGCAP ADMIN;MAG PHOTID		
	GMV V/M GUI	PSB CPRS MED BUTTON		
	PSJU 7D MAR			
	PSJU 24H MAR			
	OR CPRS GUI CHART			
Nursing Assistant	NURSE MENU			**Y**
	GMRV V/M ENTRY MENU			

	GMV V/M GUI			
	OR CPRS GUI CHART			
Ward Clerk	OFFICE ASSISTANT	OREMAS; MSCGMAGSAV		**Y**
	OR CPRS GUI CHART			
PHYSICIAN MENU				
MD, OD, DDS, DPM	OR CPRS GUI CHART	ORES		**Y**
		PROpenvistaIDER, MSCGMAGSAV		
Physical Therapy				
Physical Therapist	ALLIED PROFESSIONAL MENU (P)			**Y**
	OR CPRS GUI CHART			
PT Tech	ALLIED PROFESSIONAL MENU (P)			**Y**
	OR CPRS GUI CHART			
Allied Health Professional				
Respiratory Therapist	ALLIED PROFESSIONAL MENU (P)			**Y**
	OR CPRS GUI CHART			
Social Worker	ALLIED PROFESSIONAL MENU (P)			**Y**
	OR CPRS GUI CHART			
EEG/EMG	ALLIED PROFESSIONAL MENU (P)			**Y**
	OR CPRS GUI CHART			
Occupational Therapy	ALLIED PROFESSIONAL MENU (P)			**Y**
	OR CPRS GUI CHART			
Quality Assurance	ALLIED PROFESSIONAL MENU (P)			**Y**
	OR CPRS GUI CHART			
Risk Management	ALLIED PROFESSIONAL MENU (P)			**Y**
	OR CPRS GUI CHART			
Utilization Review	ALLIED PROFESSIONAL MENU (P)			**Y**
	OR CPRS GUI CHART			
Pulmonary Function	ALLIED PROFESSIONAL MENU			**Y**

	(P)			
	OR CPRS GUI CHART			
Physician Assistant	NURSE MENU	ORELSE		**Y**
	GMRV V/M ENTRY MENU			
	OR CPRS GUI CHART			
	GMV V/M GUI			

VIII. Interfaces

A. Universal

1. Overview

The Vista Universal Interface is the systems communication path to the instruments though the Universal Interface and then on to the Data Innovations server. The Universal Interface is controlled by Taskman and is initiated through the HL7 v1.5 Menu Options. Once a task has been initiated, the there are generally 2 ports that are opened in the Operating System and those will be opened to the DI Server.

To Start/Stop the DI Universal Interface:

1. To Stop or to Verify that the DI-UI tasks are not running:

   a. From the Eve Menu, enter Taskman.
   b. Choose to List Tasks.
   c. Then choose Running Tasks.
   d. Return through this list and look for:

579606: ^HLLP, HL7 Message Processor for LAB INTERFACE2.

Device DATA INNOpenvistaATIONS - OUTBOUND. CCDH,CCDH. From 2/6/2008 at 7:04,

By CRITESER,ROBERT E JR. Started running 2/6/2008 at 7:09.

Job #: 8720 [2210]

579608: ^HLLP, HL7 Message Processor for LAB INTERFACER.

Device DATA INNOpenvistaATIONR - INBOUND. CCDH,CCDH. From 2/6/2008 at 7:04,

By CRITESER,ROBERT E JR. Started running 2/6/2008 at 7:09.

Job #: 8242 [2032]

   e. If you do not find these tasks running, then it is ok to move on to step 2. If they are running, then you must stop each occurrence. To stop a tasks:

      1. From the Eve Menu, go to Taskman.

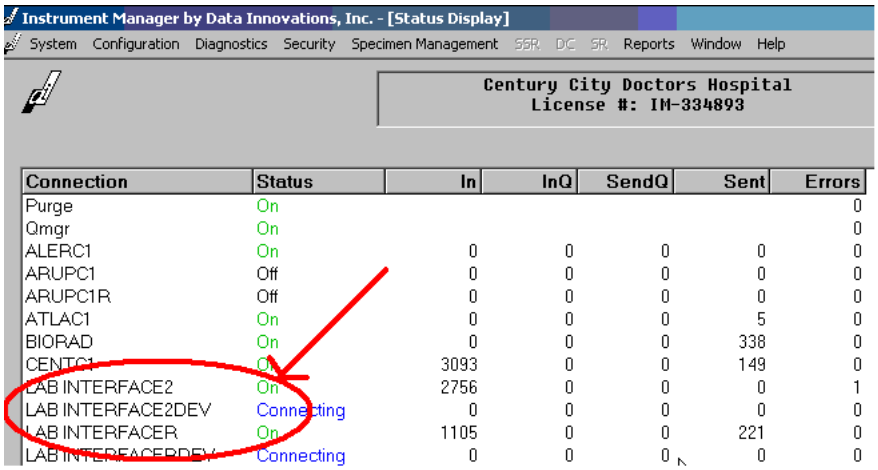
2. Then choose, Delete Tasks.

3. Enter your task number. Notice in the tasks listed above, the number that is to the far left is your task number.

f. The DI connections must also be stopped:

2. Login to the DI Instrument Manager and choose Status from the System menu.

3. Choose to stop the LAB INTERFACE2 AND LAB INTERFACER connections.



4. To start the UI-DI background tasks:

a. In the DI-Instrument Manager, choose to start both connections. **NOTE:** It is important that you start the DI connections prior to starting the Openvista tasks. If you fail to do this, then Openvista will go schedule the tasks to restart in 5 minutes. If you are not aware of this and then start them again, then you could have 2 tasks running.

b. From the Eve Menu, enter: ^HL7 and then choose the HL7 V1.5 OPTIONS.

c. Then choose the Initiate Background Task option from this menu.

d. Then type in ??:

Select HL7 NON-DHCP APPLICATION PARAMETER NAME: ??

Choose from:

LAB INTERFACE2 057 DII LA AUTO INST

LAB INTERFACER 057 DII LA AUTO INST

e. Choose to initiate both interfaces as a background task.

f. Both connections should go to an "ON" state within Instrument Manager, if they do not then contact Medsphere Support.

B. HL7 Interfaces

1. Overview

The System Link Monitor displays the status of the active interfaces. The System Link Monitor is accessed via the HL7 Main Menu. The interface link name appears in the "NODE" column.

HL7 messages are used to transmit data between Open Vista and other systems. Messages sent to and from Vista generally are sent through an interface engine before reaching their destination. The interface engine can store the messages in its database and perform data transformations on the HL7 message, so that the message can be processed by the receiving system.

Most OpenVista sites use the Mirth as the interface engine. The Mirth software and Mirth documentation may be obtained from http://www.mirthproject.org/. The Mirth interface engine is designed and supported by WebReach (http://www.webreachinc.com/).

Open Vista has an HL7 Main Menu where most of the HL7 interface monitoring and setup options are located.

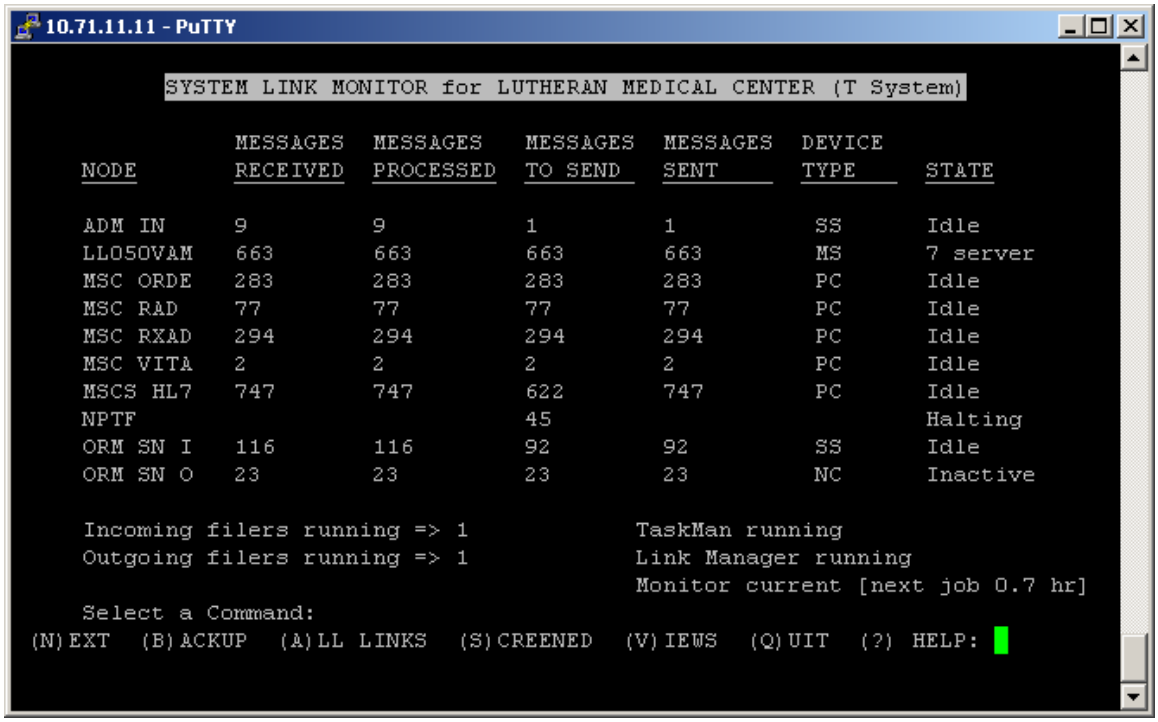
2. SysMon

The System Link Monitor displays the status of the active interfaces. The System Link Monitor is accessed via the HL7 Main Menu. The interface link name appears in the "NODE" column.

An active link will not be listed as a node until at least one message has been received or transmitted by the link. Active links will have a status of Idle, Reading, Transmitting. An active multi-listener link will have a status of server.

Inactive links may have the status of halting or shutdown or may not be listed in the System Monitor.

Multi listeners can receive and processes multiple messages at the same time. Single threaded listeners will process a single message at a time.



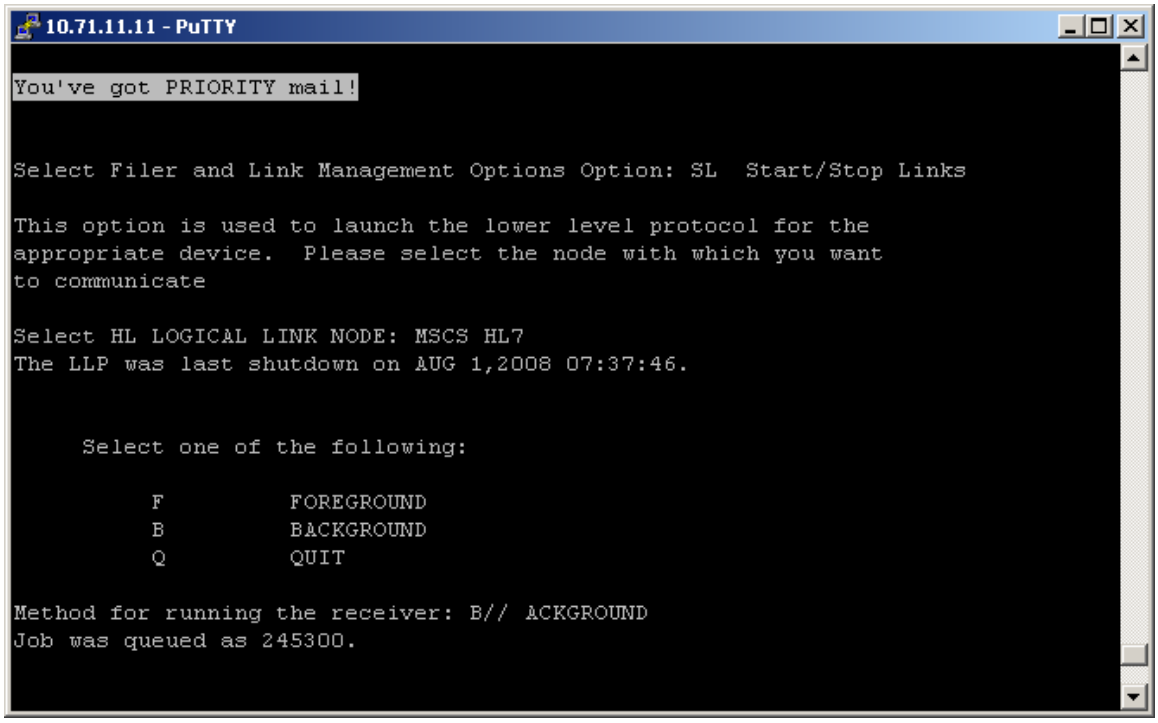
The (N)ext and (B)ackup commands can be used to page advance through multiple pages of logicial links.

C. Start/Stop Filers

The Start/Stop Links menu option may be selected from the HL7 Main Menu.

The user will be prompted for the name of the link to start or stop. The user may enter a partial match for the link name or may enter "?" to see a list of link entries in the HL Logical Link file (file #772).

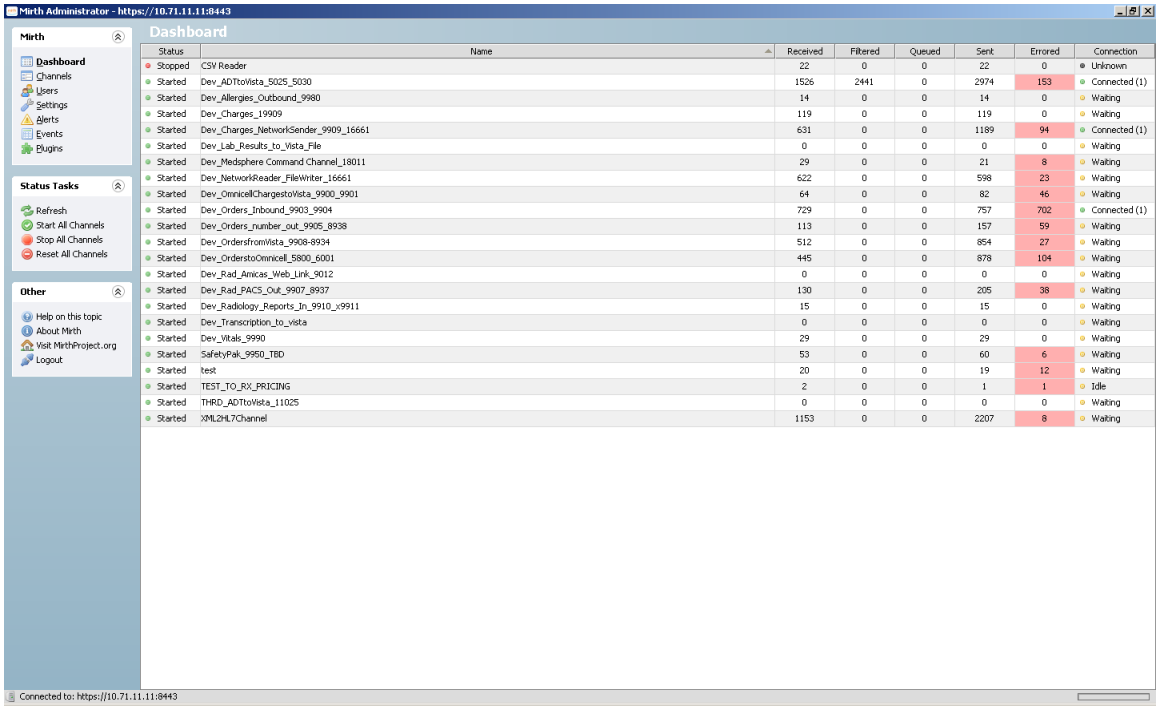
If the user selects a link that is not currently started they will be prompted for the method of running the link. The user should select (B) ackground to start a logical link. The link start job will be queued in TaskMan and the job number will be displayed.



If the user selects a link that has been started then the user will be asked if it is ”Okay to shut down this job?” The user may respond with (Y)es or (N)o.

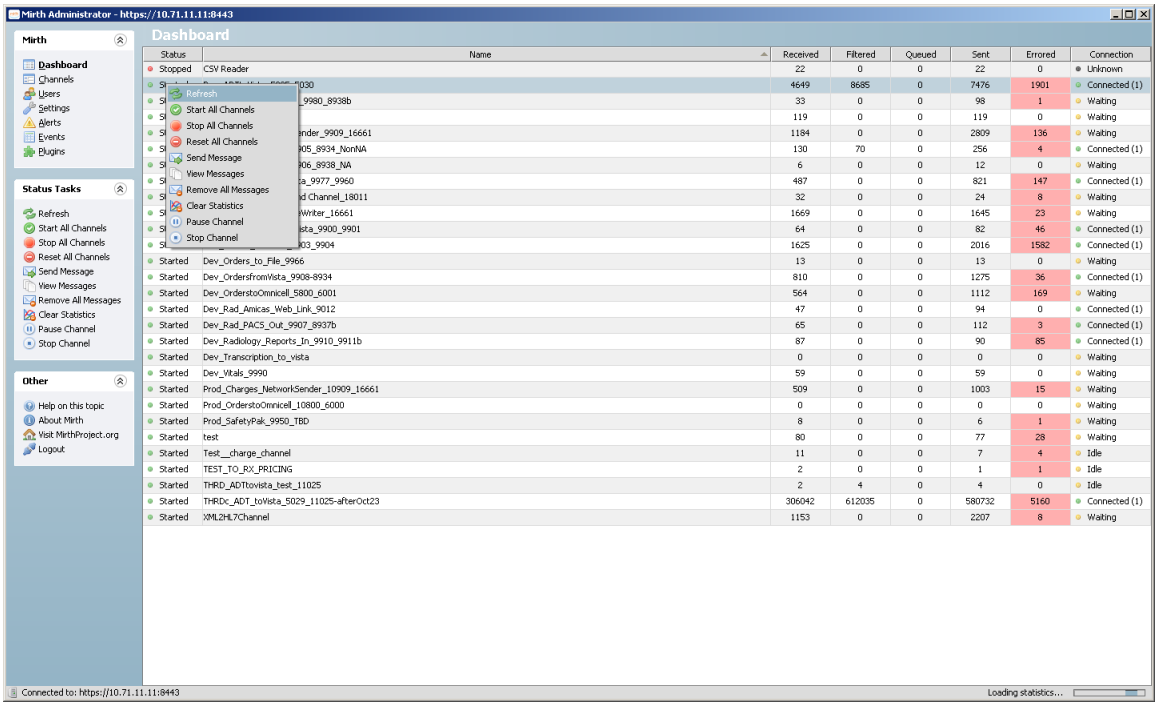
D. Mirth

HL7 messages transmitted to and from Vista will be transmitted through the Mirth engine. Most sending and receiving logical links in Vista will be matched with a single Mirth channel. The Mirth engine is part of our core infrastructure and is the layer that handles our HL7 messaging capabilities. The engine is installed on the same hardware platform as the Openvista server.



The Mirth dashboard lists the Mirth channels that are currently deployed. A channel may have a status of Started or Stopped. The dashboard also displays the number of HL7 messages that have been received, sent, and that have errored.

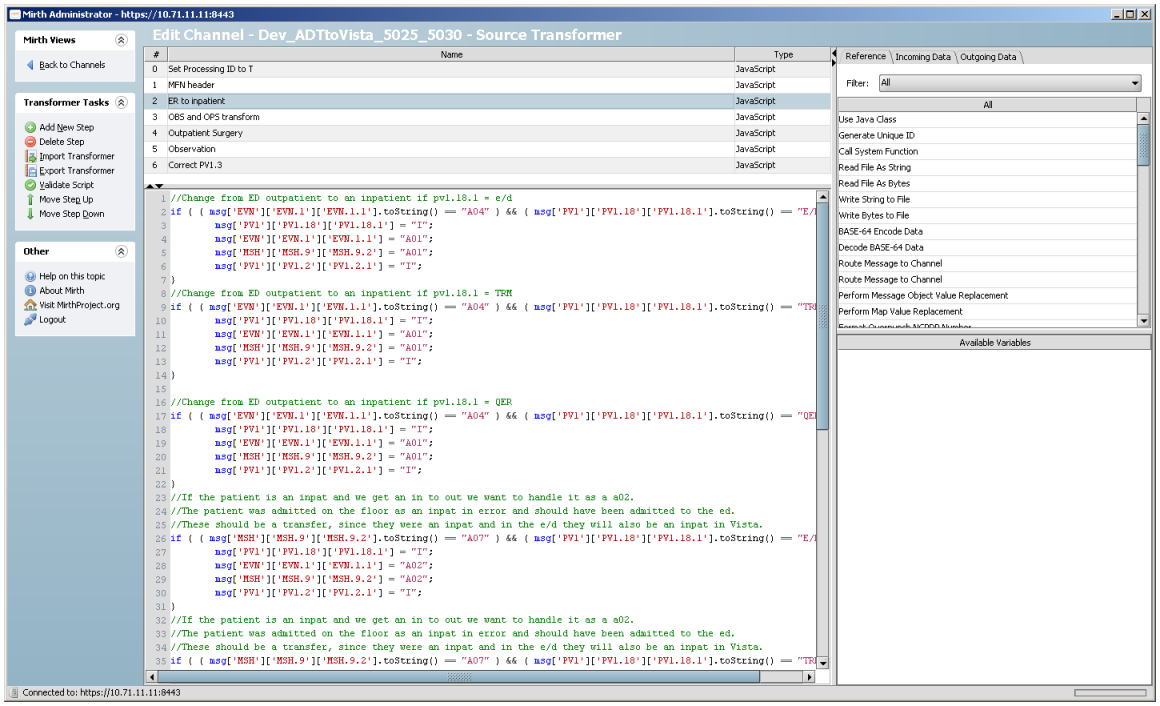
To start and stop a channel in Mirth you can select an individual channel and either select Start Channel or Stop Channel from the Status Tasks Menu or you may right click the channel and select Start Channel or Stop Channel. Alternatively, all channels may be started or stopped at once by selecting Stop All Channels or Start All Channels.



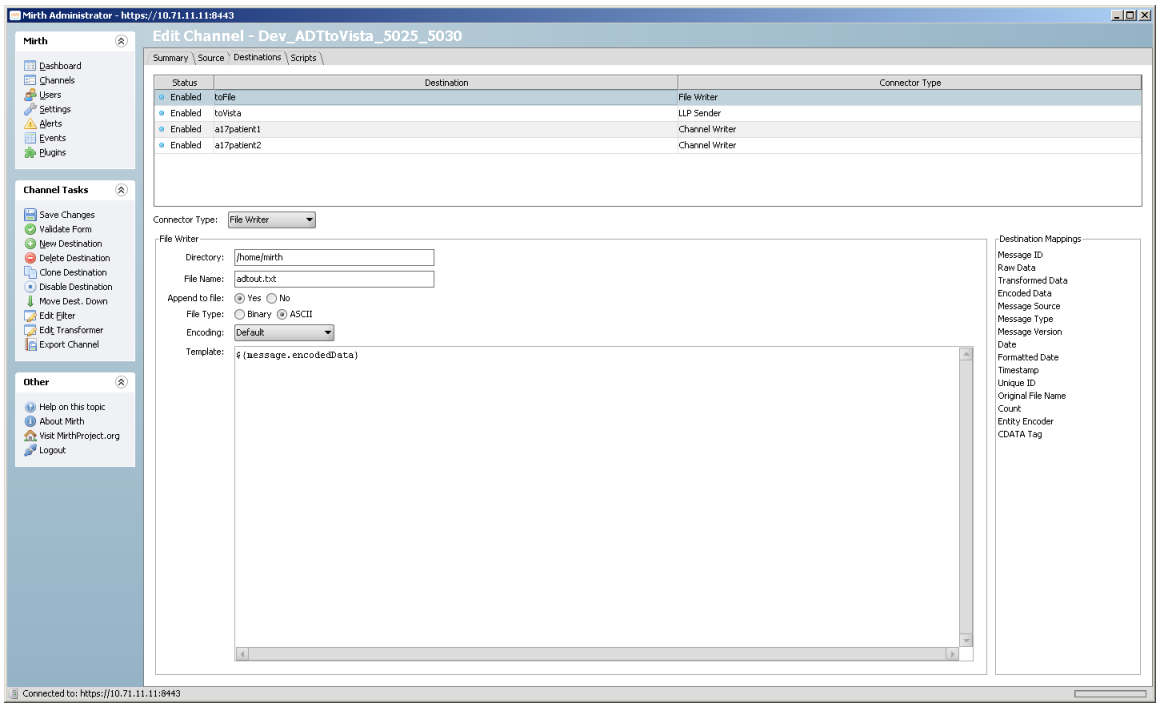
The user may select a single channel listed on the dashboard to see the messages HL7 messages that have been received and processed by Mirth.

Channels may perform transforms on messages received from Vista or other systems before sending the message to the destination system. Common transforms include padding medical record numbers with leading zeros and copying data from one HL7 field to another.

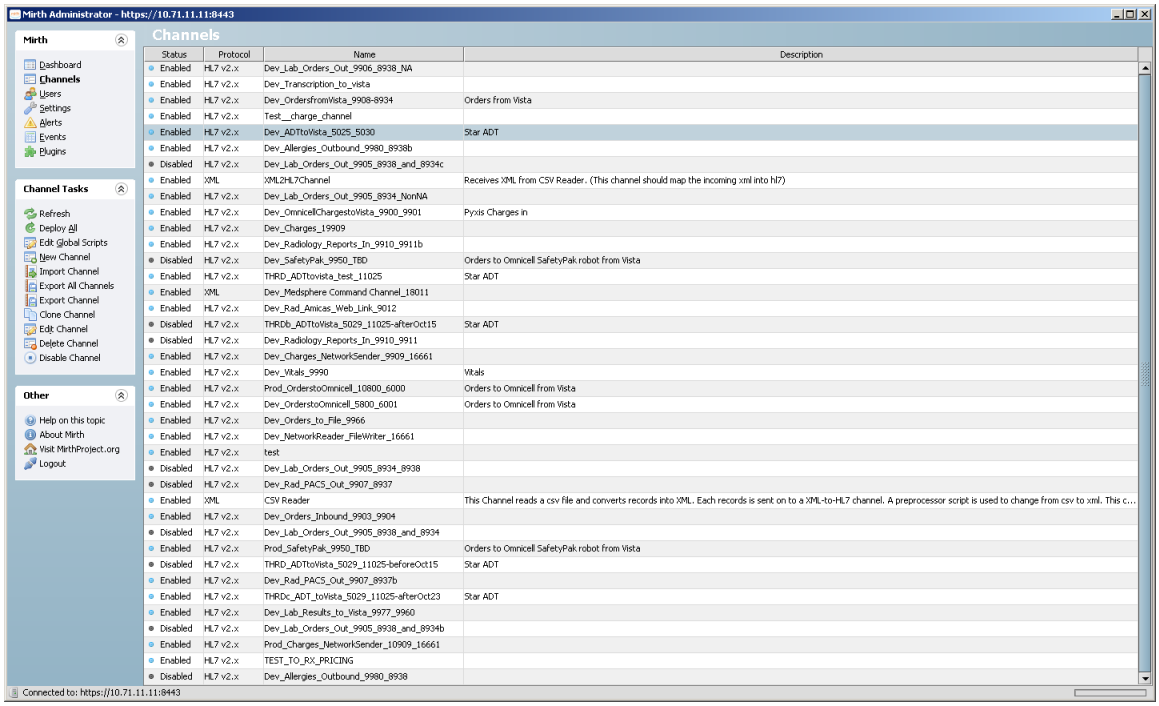
Tranforms may be added from the channels tab and by selecting edit a transform. Transforms are written in JavaScript.



Mirth can send messages to multiple destinations. Production Mirth channels should send data to a back up log file. The toFile destination defines the path and name of the log file for a Mirth channel.



Channels must be saved and deployed before they become active and will be displayed on the dashboard.



Mirth Resources

Mirth Support:

http://www.webreachinc.com/

support@webreachinc.com

Mirth Application Website:

http://www.mirthproject.org

Mirth Documentation:

http://www.mirthproject.org/index.php?option=com_content&task=view&id=65&Itemid=94

Mirth Download from Source Forge:
http://sourceforge.net/project/showfiles.php?group_id=162856

Appendices

Appendix A Quick Reference Guide

PURPOSE: To provide the MSC Specialists a quick reference of the menu options and samples of certain tasks to assist with the management of the Open VistA system.

Kernel:

1. Create new accounts for users and terminate accounts for expired users.

New Accounts:
Systems Manager Menu [EVE]
User Management [XUSER]
Add a New User [XUSERNEW]
The following fields are the only ones that are "Required". All others may be filled in and in the case of CPRS users, page 4 and 5 should be.

Enter name in the format of [Lastname,Firstname MI]: **USER,TEST A**
Initials: **TAU**
Sex: **F**
SSN: **000000112**
Primary Menu Option: **EVE**
Access Code: **(auto generated)**
Service/Section: **Admin**

Terminate Accounts:
Systems Manager Menu [EVE]
User Management [XUSER]
Deactivate a User [XUSERDEACT]

Disable User: **USER,TEST A**
Termination Date: **t@1630**
Delete All Mail Access: **Yes**
Delete Keys at Termination: **Yes**

2. Add or delete options from users' menus.

If adding a single menu option to a user, add it in the **Secondary Menu Options** multiple field under Edit an Existing User [XUSEREDIT].

You may delete single options under this field by selecting the options and keying in an "@" sign at the option name. Enter return at the "Are you sure you want to delete this menu option?//Yes"

If you are adding a menu option(s) to a group of users, you might want to add it (them) to the local menu option for that group.

Systems Manager Menu [EVE]
Menu Manager [XUMAINT]
Edit Options [XUEDITOPT]

Select OPTION to edit: **ODVA NUR**
NAME: ODVA NUR// **<RET>**
MENU TEXT: Nurse Menu// **<RET>**
PACKAGE: **<RET>**
OUT OF ORDER MESSAGE: **<RET>**
LOCK: <**RET>**
REVERSE/NEGATIVE LOCK: **<RET>**
DESCRIPTION:
This is the primary menu for nurses.
EDIT Option: **<RET>**
TYPE: menu **<RET>**
Select ITEM: **GMRV VITAL PRINT**
ARE YOU ADDING 'GMRV VITAL PRINT' AS A NEW MENU (THE 1ST FOR THIS OPTION)? Y **<RET>(**YES)
MENU SYNONYM: **<RET>**
SYNONYM: **<RET>**
DISPLAY ORDER: **10**
Select ITEM: **<RET>**
CREATOR: SITE,MANAGER// **<RET>**
HELP FRAME: **<RET>**
PRIORITY: **<RET>**
Select TIMES PROHIBITED: **<RET>**
Select TIME PERIOD: **<RET>**
RESTRICT DEVICES?: **<RET>**
Select PERMITTED DEVICE: **<RET>**

The new menu will now be available on all users that are assigned the ODVA NUR menu.

3. Create new options and add to menus (FileMan Sort and Print Templates).

a. Create the FileMan Template

VA FileMan [DIUSER]
Print File Entries
Select VA FileMan Option: PRint File Entries

OUTPUT FROM WHAT FILE: CONTRACT NURSING HOME PATIENTS//

SORT BY: NAME//

START WITH NAME: FIRST//
FIRST PRINT FIELD: .01 NAME
THEN PRINT FIELD: SEX
THEN PRINT FIELD: 4 NURSING HOME
THEN PRINT FIELD:]
Heading (S/C): CONTRACT NURSING HOME PATIENTS LIST Replace ... With Replace

STORE PRINT LOGIC IN TEMPLATE: BARRY
Are you adding 'BARRY' as a new PRINT TEMPLATE? No// Y (Yes)
DO YOU ALWAYS WANT TO SUPPRESS SUB HEADERS WHEN PRINTING TEMPLATE? Yes// (Yes)

b. Create a new option

Systems Manager Menu [EVE]
Menu Manager [XUMAINT]
Edit Options [XUEDITOPT]

Select OPTION to edit: ODVA CNH Print
Located in the Z (Local) namespace.
ARE YOU ADDING 'ODVA CNH Print' AS A NEW OPTION (THE 721ST)? Y <RET> (YES)
OPTION MENU TEXT: CNH Print Menu
NAME: ODVA CNH Print// <RET>
MENU TEXT: CNH Print Menu// <RET>
PACKAGE: <RET>
OUT OF ORDER MESSAGE: <RET>
LOCK: <RET>
REVERSE/NEGATIVE LOCK: <RET>
DESCRIPTION:
1>Prints information for Contract Nursing Home Patients.<RET>
2><RET>
EDIT Option: <RET>
TYPE: **print**
Print Template: **[BARRY]** (System returns file name/number and creator)
CREATOR: SITE,MANAGER// <RET>

c. Assign the menu with the options given in #2 above

4. Allocate and de-allocate security keys.

SYSTEMS MANAGER MENU ... [EVE]
Menu Management ... [XUMAINT]
Key Management ... [XUKEYMGMT]
Allocation of Security Keys [XUKEYALL]
Select user: USER,TEST<RET>

Select another user: <RET>
Select Key: XUPROG<RET>
Select another key: <RET>
You have selected the following user and security key:
USER,TEST XUPROG
Do you wish to continue? YES<RET>
USER,TEST XUPROG - **given**

De-allocation of Security Keys [XUKEYDEALL]
Select user: USER,TEST<RET>
Select another user: <RET>
Select Key: XUPROG<RET>
Select another key: <RET>
You have selected the following user and security key:
USER,TEST XUPROG
Do you wish to continue? YES<RET>
USER,TEST XUPROG - **removed**

5. Find users or release users under operations management.

SYSTEMS MANAGER MENU ... [EVE]
Operations Management ... [XUSITEMGR]
User Management Menu ... [XUOPTUSER]
Find a user [XU FINDUSER]
User name: USER,TEST<RET>

Release user [XUSERREL]
User name: USER,TEST<RET>
User Realeased!

6. Add/edit print devices and terminal types.

SYSTEMS MANAGER MENU ... [EVE]
Device Management ... [XUTIO]
Device Edit [XUDEV]
The following fields are the only ones that need defined on a GENERIC laser printer:
Name: NOR-TEST-PTR
Location: Nor-Test
$I: |PRN|NAME OF HOST\PRINTER NAME
Type: TRM
Subtype: P-HPLASER10
Mnemonic: Whatever
Right Margin: 80
Page Length: 60
Suppress Form Feed: Yes

SYSTEMS MANAGER MENU ... [EVE]
Device Management ... [XUTIO]
Terminal Type Edit [XUTERM]
The type of device you are setting up will determine what parameters/fields are completed.
Refer to the Kernel Systems Manual, Chapter 16, Terminal Type.

7. Stop, start and monitor Task man.

SYSTEMS MANAGER MENU ... [EVE]
TaskMan Management ... [XUTM MGR]
TaskMan Management Utilities ... [XUTM UTIL]
Stop Task Manager [XUTM STOP]
Do you want the Submanagers to shut down when they finish what they are doing? Yes

Start TaskMan
>D ^ZTMB

Monitor TaskMan [XUTM ZTMON]

```
Checking TaskMan. Current $H=54180,45147 (MAY 04, 1989 @12:32:27)
                    RUN NODE=54180,45145 (MAY 04, 1989 @12:32:25)
TaskMan is current.

Checking the Status List:
TaskMan job 4 status 54180,45145^RUN^Main Loop.
There are 3 idle submanagers

Checking the Schedule List:
TaskMan has 29 tasks in the Schedule List.
None of them are overdue.

Checking the IO Lists: Last TM scan: 54180,45146^_LTA9995:
Device: _LTA9995: is not available, and there are 7 tasks
waiting.

Checking the Job List:
There are no tasks waiting for partitions.
For KDE:ISC6V2 there are 2 tasks. Not responding

Checking the Task List:
There are 5 tasks currently running.

Enter monitor action: UPDATE//
```

8. Schedule and unscheduled tasked jobs.
SYSTEMS MANAGER MENU ... [EVE]
TaskMan Management ... [XUTM MGR]

Schedule/Unschedule Options

9. Review system status.

SYSTEMS MANAGER MENU ... [EVE]
Operations Management ... [XUSITEMGR]
System Status

10. Monitor HL7 messaging.

HL7 Main Menu
Filers and Link Management
Monitor, Start, Stop Filers

```
Task Number of   Asked
Incoming Filer   To Stop     Last Known Date/Time Time Difference
2713062          No          16-JUN-99 @ 14:33:52 0 Day 00 Hr 00 Min 00 Sec
[End of list - total of 1]

Task Number of   Asked
Outgoing Filer   To Stop     Last Known Date/Time Time Difference
2713063          No          16-JUN-99 @ 14:33:49 0 Day 00 Hr 00 Min 03 Sec
[End of list - total of 1]

(+I) Start incoming filer (-I) Stop incoming filer (*I) Delete incoming filer
(+O) Start outgoing filer (-O) Stop outgoing filer (*O) Delete outgoing filer
(N) Next 4 lines in list (B) Back 4 lines in list (Q) Quit
```

11. Set up a new HL7 link.
Dependant on the type of interface you are creating the link for. Refer to HL7 User Manual.
HL7 Main Menu
Select Interface Developer Options Option: Link Edit
Select HL LOGICAL LINK NODE: VABAY
HL7 LOGICAL LINK

```
---------------------------------------------------------------------------
NODE: VABAY
INSTITUTION: BAY PINES
DOMAIN: BAY-PINES.VA.GOpenvista
AUTOSTART:
QUEUE SIZE: 10
LLP TYPE: TCP
```

12. Stop and restart links and filers.
You can do this under several options:
To Stop:
Start/Stop Links

Stop All Messaging Background Processes – Stops ALL filers
Monitor, Start, Stop Filers – Shown above
To Start:
Start/Stop Links

Default Filers Startup – Starts up the default number of filers from HL7 Site Params
Monitor, Start, Stop Filers – Shown above
Restart/Start All Links and Filers – Starts everything

13. Start/stop individual links.
Start/Stop Links

14. Stop and start RPC Broker
>D STOP^XWBTCP(Listener port)
>D STRT^XWBTCP(Listener port)

15. System Shutdown/Startup Sequence
Shutdown sequence:

1. Lab Universal Interface(s)
2. HL7 link and filers
3. RPC Broker
4. TaskMan
5. System

Startup sequence:

1. System
2. TaskMan
3. RPC Broker
4. HL7 link & filers
5. Lab Universal Interface(s)

Appendix B Export Data to a foreign format

Purpose: The purpose of this guide is to show you how to extract data from files in a FileMan format and export it to a foreign file format. For this example, I will send it to a comma separated file that Excel can open. I have change the color of the user entered type to red. The other type is the menus and interaction of the OpenVistA server. I have also increased the size of the font for the menu option I am selecting.

```
    Core Applications ...
      Device Management ...
      Menu Management ...
      Programmer Options ...
      Operations Management ...
      Spool Management ...
      Information Security Officer Menu ...
      TaskMan Management ...
      User Management ...
FM    VA FileMan ...
HL7   HL7 Main Menu ...
      Application Utilities ...
      Capacity Planning ...

Select Systems Manager Menu Option: fm

      VA FileMan Version 22.0


      Enter or Edit File Entries
      Print File Entries
      Search File Entries
      Modify File Attributes
      Inquire to File Entries
      Utility Functions ...
      Data Dictionary Utilities ...
      Transfer Entries
        Other Options ...

Select VA FileMan Option: other
```

Audit Menu ...
Statistics
VA FileMan Management ...
Data Export to Foreign Format ...
Import Data
Browser

Select Other Options Option: **data**

[Note: The menu below will cycle through several times. Basically, you are going to go through all these options if this is the first time you are exporting this particular data set.]

Select Fields for Export
Create Export Template
Export Data
Print Format Documentation

Select Data Export to Foreign Format Option: **select**

Output from what File: CHARGE EVENT// **60 LABORATORY TEST**
(2001 entries)

First Export FIELD: **name**

Then Export FIELD: **100 SITE/SPECIMEN (multiple)**
Then Export SITE/SPECIMEN SUB-FIELD: **[Enter]**
Then Export FIELD: **[Enter]**
STORE EXPORT LOGIC IN TEMPLATE:

STORE EXPORT LOGIC IN TEMPLATE: **labexport**
Are you adding 'labexport' as a new PRINT TEMPLATE? No// **y (Yes)**

Select Fields for Export
Create Export Template
Export Data
Print Format Documentation

Select Data Export to Foreign Format Option: **create**

Output from what File: LABORATORY TEST// **[Enter]** **(2001 entries)**

Enter SELECTED EXPORT FIELDS Template: **labexport** **SELECTED EXPORT FIELDS**
(JUN 3,2008@11:58) User #101 File #60

Do you want to see the fields stored in the labexport template?
Enter Yes or No: NO// **n** **NO**

Do you want to delete the labexport template
after the export template is created?
Enter Yes or No: NO// **[Enter]**

Select FOREIGN FORMAT: **excel**

1 EXCEL (COMMA) ** DISTRIBUTED BY VA FILEMAN **
2 EXCEL (DATA PARSE) ** DISTRIBUTED BY VA FILEMAN **
3 EXCEL (PIPE)
4 EXCEL (TAB) ** DISTRIBUTED BY VA FILEMAN **
CHOOSE 1-4: **1** **EXCEL (COMMA)** **** DISTRIBUTED BY VA FILEMAN ****

Select PRINT TEMPLATE:

Select PRINT TEMPLATE: **labprint**
Are you adding 'labprint' as a new PRINT TEMPLATE? No// **y** **(Yes)**

Enter the data types of the fields being exported below.

Do you want to continue?
Enter Yes or No: YES// **[Enter]**

Select Fields for Export
Create Export Template
Export Data
Print Format Documentation

Select Data Export to Foreign Format Option: **export**

Output from what File: LABORATORY TEST// **[Enter]** **(2001 entries)**

Choose an EXPORT template or '^' to Quit: labprint **EXPORT**
(JUN 3,2008@12:01) User #101 File #60
Do you want to delete the labprint template
after the data export is complete?

Enter Yes or No: NO// **y** **YES**

[Note: You do not have to do this if you want all the file entries. This is a crude search method and you may have to play with it to make sure you get exactly what you are looking for.]
Do you want to SEARCH for entries to be exported? NO// **y** **YES**

-A- SEARCH FOR LABORATORY TEST FIELD: **name**
-A- CONDITION: ?
Answer with CONDITION NUMBER, or NAME
Choose from:
1 NULL
2 CONTAINS
3 MATCHES
4 LESS THAN
5 EQUALS
6 GREATER THAN

You can NEGATE any of these conditions by preceding them with "'" or "-".
Thus, "'NULL" means "NOT NULL".
-A- CONDITION: **2** **CONTAINS**
-A- CONTAINS: **GLUCOSE**

-B- SEARCH FOR LABORATORY TEST FIELD: **[Enter]**

IF: A// **[Enter]** **NAME CONTAINS (case-insensitive) "GLUCOSE"**

STORE RESULTS OF SEARCH IN TEMPLATE: LABSEARCH
Are you adding 'LABSEARCH' as a new SORT TEMPLATE? No// **Y** **(Yes)**
Edit? NO//

Sort by: NAME// **[Enter]**
Start with NAME: FIRST// **[Enter]**
DEVICE: **HFS** **Host File Server**
HOST FILE NAME: /tmp/// **[Enter]**
FILE NAME: **labexport.csv**

Browse to the directory on the server and the file is located at the directory, tmp, this will differ from customer to customer. If this is a Linux server you must use an ftp program to get to the file.