Syntermed Live™ User Manual

System Requirements:
- Windows 2000 (SP4), Windows XP, Windows Vista
- 512 MB RAM (1 GB RAM for Vista)
- 100 MB available hard drive space

The following items are required, but are installed automatically by Syntermed if they are not already on the system:
- Microsoft .NET Framework v2.0
- Microsoft WSE 3.0

The following items are required to run the Emory Cardiac Toolbox:
- 1280 x 1024 display resolution
- 32 MB video RAM

Overview:

The Syntermed Live™ application can be used for the transfer of medical images and data to a secure server for storage where it can subsequently be accessed, displayed, and processed on any PC connected to the Internet using either proprietary software applications, a DICOM viewer, or a Web Browser.

Syntermed Live™ is comprised of two components. The first is the file management program called the Master Control Program (MCP) which resides on the local PC and the second is the Syntermed Live component executing on the Syntermed server which is involved with data archiving, management, display, and processing.

Master Control Program:

MCP is an application designed to simplify the process of managing data that can be viewed using Syntermed's suite of applications. The main MCP interface watches a specified directory for DICOM compliant files and displays the *Patient Name* and *Study Date* in a sortable list view. By default, all files are grouped by a concatenation of the *StudyInstanceUID, PatientName* and *StudyDate* fields which are assigned by the manufacturer at the time of image capture. Files can be brought into MCP in many different ways including manual file transfer and even utilizing a standard DICOM export to MCP's built in DICOM receiver *(for more information see Syntermed's DICOM Conformance Statement)*.

MCP attempts to recognize all of the most common data sets of DICOM files for use with Syntermed's applications. When MCP recognizes a file or set of files, the *Status* column in the study list will display the type of file or study (i.e. ECTb, NeuroQ, NeuroQ Reformatted (v1.0), etc…). If the data is not in a standard Syntermed DICOM format, this field will be left blank meaning that only raw data is present for that study. Not matter what data is present, if it is in DICOM format, the user can still attempt to launch them to allow for further data manipulation in the secondary application. Once a study has been processed and has been read by the physician, it can be archived so that it is not cluttering up the current view, but it is still available for later retrieval.

With MCP the user has the ability to set up multiple sites for viewing/storing studies. Each site can be configured to use data stored either locally or in a network location. There is no limit on the number of sites that can be configured. Each site is delineated by separate tab at the top of the study list. Also, each site can be configured to send/retrieve studies differently. This will enable a physician to easily read and manage studies remotely for multiple hospitals/clinics.

MCP also provides a feature to export the patients study to the Syntermed Live server(s). Once the data has been transferred to the server(s) it can be accessed remotely by the physician if he enters the appropriate username and password. The data on the server(s) can either be downloaded to view on his local machine with the appropriate application or he can view the patient's data in an Internet Browser eliminating the need for a specific medical imaging application.

Installation & First Time Use:

MCP is installed using a standard Windows Installer (msi) package. Simply locate and double-click the supplied *setup.exe* file to begin the installation of MCP and follow the on-screen instructions. *To install MCP, the user must have administrative rights to the computer.*

During installation, the user is prompted for a directory to install the application. By default, the installation directory is *C:\Program Files\Syntermed\MCPv2*.
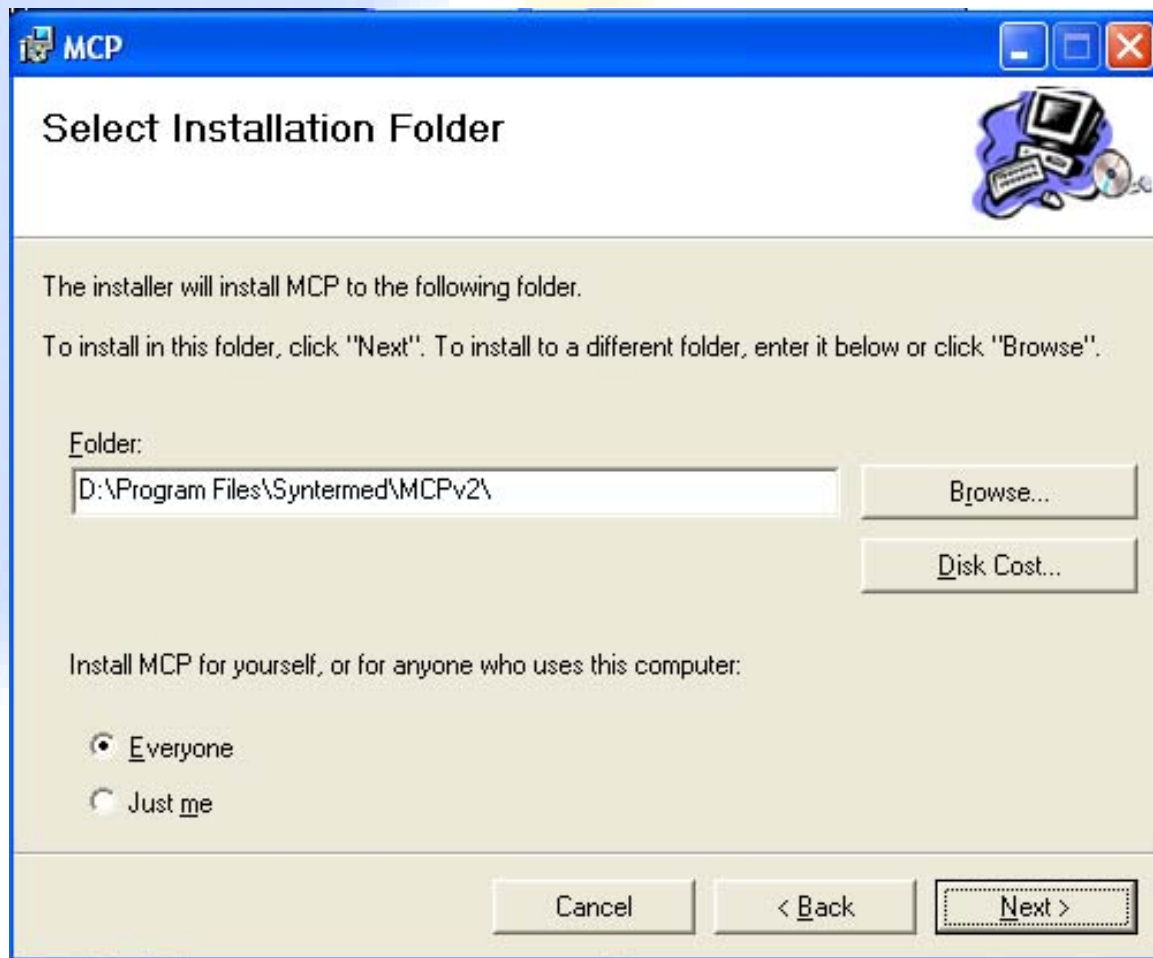
Figure 1 : Installation Folder

After installation, there will be icons for MCP labeled as Syntermed

 located on the Desktop and in the Start Menu (in the MCP folder). Launch MCP by double-clicking one of these icons.

The first time MCP is launched, MCP has to do a little administrative maintenance. First, MCP checks to see if this is a new installation or if this is an upgrade from a previous version. It does this so that all previous application configuration settings will be applied in the new version without any user intervention. If this is a new installation, MCP sets everything up as default (which we will define later in this document). Second, MCP checks for the existence of a valid license. If no valid license exists, the user is prompted to supply it. A valid license can only be provided by Syntermed or one of Syntermed's official partners.

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Once the license has been supplied, MCP checks for the availability of a newer version. If one is available, the user is prompted to download and install this new version automatically. Finally, after all these steps are complete, MCP shows the main user interface.

Main User Interface:

The main user interface of MCP contains the following components (described in detail below):

- Tabbed Study list, including *Browse* tab
- Secondary list
- Main menu
- Launch button
- Live Export button
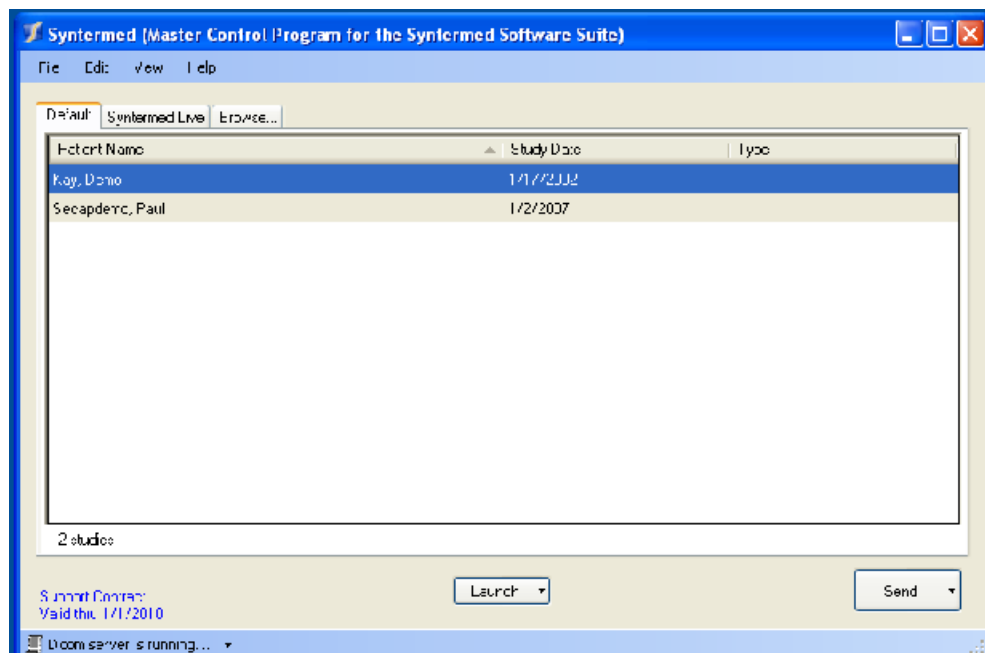- DICOM Server status
- Support Status
- Status Bar

**Figure 2: Main User Interface**

[Tabbed Study list]
The default location for data is *C:\Documents and Settings\All Users\Application Data\MCP\Data* and this information is configurable through the *Sites* dialog. One of the key features of MCP is to allow

multiple sites to be configured, so multiple tabs (sites) can be created thus allowing users to keep data from different hospitals/clinics/departments separate.

The *Browse...* tab allows the user to attempt to work with data in any available folder.

[Context (right-click) menu]
The user can click right on any of the studies where a drop down list will provide multiple options for handling the data
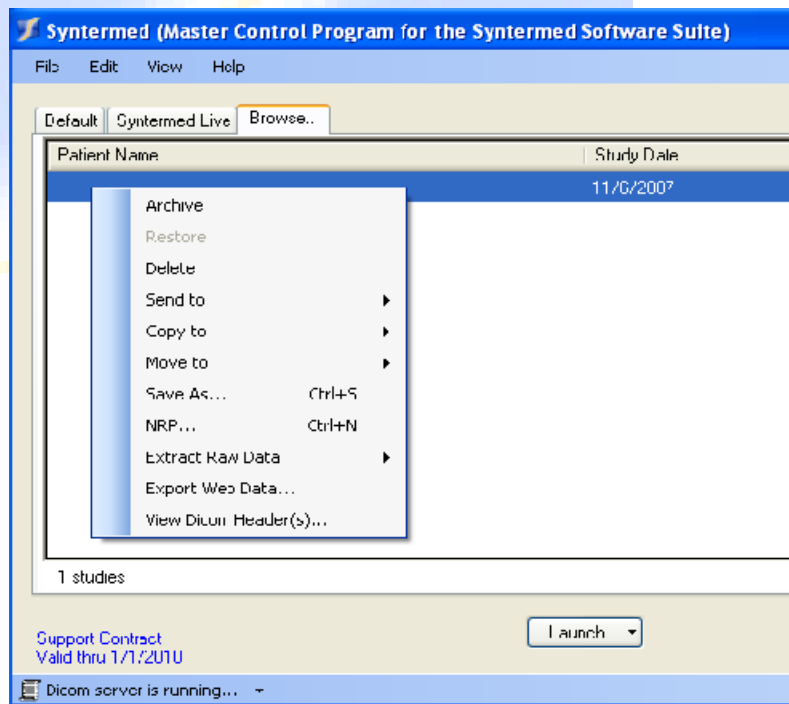
[Archive Study]
The *Archive Study* item in the context menu for the *Study* list will move the selected study out of the current view and into the archive.

[Restore Study]
The *Restore Study* item in the context menu for the *Study* list will move a study from the archive back to the current study list view. *This item is only applicable while viewing the archived studies in MCP.*

[Delete Study]
The *Delete Study* item in the context menu for the *Study* list will delete all files associated with the selected study after prompting the user for confirmation.

[Send to]
The *Send to* item in the context menu for the *Study* list will allow the user to select whether to send a study to the Syntermed Live server(s) or to an alternatively configured *Recipient*.

[Copy To]
The *Copy Study To* item in the context menu for the *Study* list presents the user with a list of all other available sites. Once a site is selected, all files associated with the selected studies are copied to the alternate site and a copy will also exist on the original site.

[Move To]
The *Move Study To* item in the context menu for the *Study* list presents the user with a list of all other available sites. Once a site is selected, all files associated with the selected studies are moved to the alternate site and only one copy on the alternate site will be stored.

[Save As…]
The *Save File…* item in the context menu for the *Study* list will prompt the user for a desired location to save the selected study. A user is only able to save an ECTb review file formatted study.

[NRP…]
The *NRP…* item in the context menu for the *Study* list will launch the Nuclear Report Professional application which is used for generation of a digital Nuclear Cardiology report.

[Extract Raw Data]
The *Extract Raw Data* item in the context menu for the *Study* list will allow the user to extract the raw data files from the Toolbox Review file into the current Site tab or to one of the other configured Sites.

[Export Web Data…]
The *Export Web Data* item in the context menu for the *Study* list will allow the user to extract the necessary data and upload to the Live server for viewing the study using an Internet Browser.
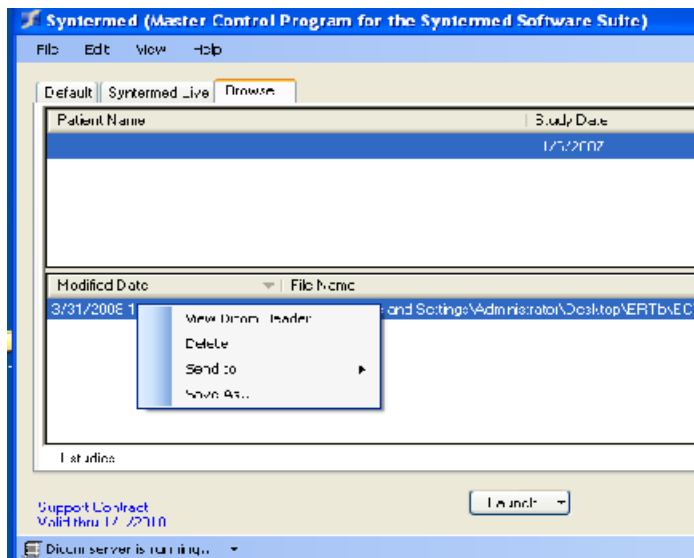
[View DICOM Header]
The *View DICOM Header* item in the context menu for the *Secondary list* will launch a separate window to display all of the DICOM tags (and their corresponding values) that MCP uses.

[Secondary list]
The *Secondary* list is hidden by default because only more experienced users should need to use it. To see the files available for each patient, select *View -> Show Files*. The file(s) that relate to the selected study in the *Study* list are shown in the *Secondary List* along with their created date and their detected file type.

[Context (right-click) menu]

[View DICOM Header]
The *View DICOM Header* item in the context menu for the *Secondary list* will launch a separate window to display all of the DICOM tags (and their corresponding values) that MCP uses. (*This item is only available when the show files option is selected from the view menu.).*

[Delete]
The *Delete File* item in the context menu for the *Secondary* list will delete the selected file after prompting the user for confirmation. (*This item is only available when the show files option is selected from the view menu.).*

[Send To]
The *Send To* item in the context menu for the *Secondary list* will allow the user to select whether to send a study to the Syntermed Live server(s) or to an alternatively configured *Recipient.* (*This item is only available when the show files option is selected from the view menu.).*

[Save As…]
The *Save As…* item in the context menu for the *Secondary* list will prompt the user for a location to save the selected file(s). (*This item is only available when the show files option is selected from the view menu.).*

[Main menu]
The Main menu shows four menus, *File, Edit, View* and *Help.*

[File menu]
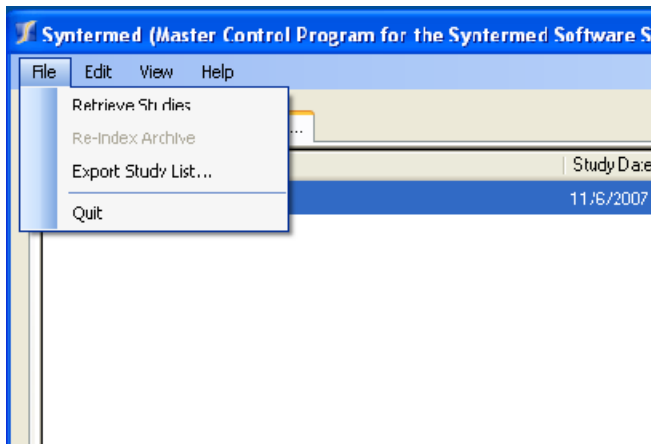
[Retrieve Studies]
Keyboard Shortcut – F9
The *Retrieve Studies* item in the *File* menu will attempt to retrieve studies for the currently selected site if configured.

[Re-index Archive]
The *Re-index Archive* item in the *File* menu will regenerate the XML file list for the selected site's Archive. This item should be used to realign all the files appropriately if the

archive is moved to a new location or computer. *This item is only available while viewing studies that have been archived.*
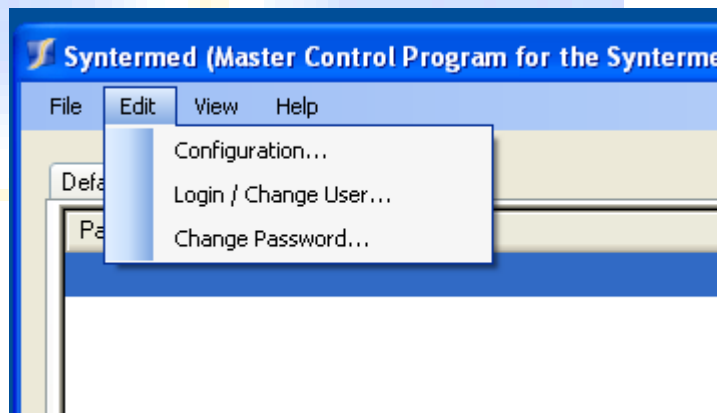
[Export Study List]
The *Export Study List…* item in the *File* menu will prompt the user for a desired location to save the study list.

[Quit]
Keyboard Shortcut – CTRL+Q
The *Quit* item in the *File* menu will completely shut down MCP.

[Edit menu]

[Configuration…]
The *Configuration…* item in the *Edit* menu will bring up the configuration dialog screen with options labeled General, DICOM, Live, Sites / Folders, and Recipients.

[Login / Change User…]
The *Login / Change user…* item in the *Edit* menu will prompt you to exit the program and *Login* again if there needs to be a change in the user.

[Change password…]
The *Change Password…* item in the *Edit* menu will allow the current user to change his / her login password.

[View menu]
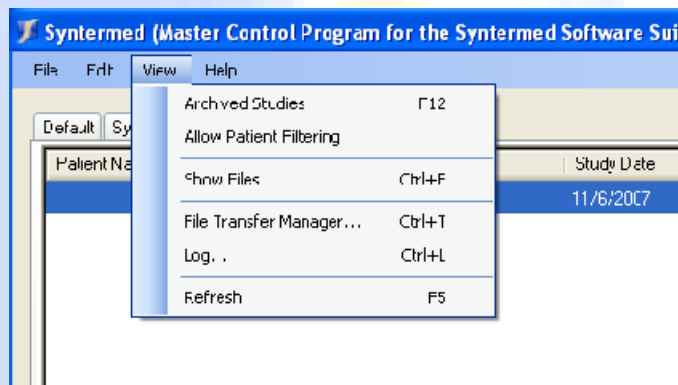
[Archived Studies]
Keyboard Shortcut – F12
The *Archive* item in the *View* menu will switch the study list to view studies that have been archived. The background color of the study list will change while viewing the archive.

[Allow Patient Filtering]

[Show Files]
Keyboard Shortcut – CTRL+F
The *Show Files* item in the *View* menu will show a second list underneath the main study list. This list will show all the files associated with the selected study.

[File Transfer Manager…]
Keyboard Shortcut – CTRL+T
The *File Transfer Manager* item in the *View* menu will show a dialog screen which allows the user to view the data sent too the Syntermed server and the data received by the Syntermed server.
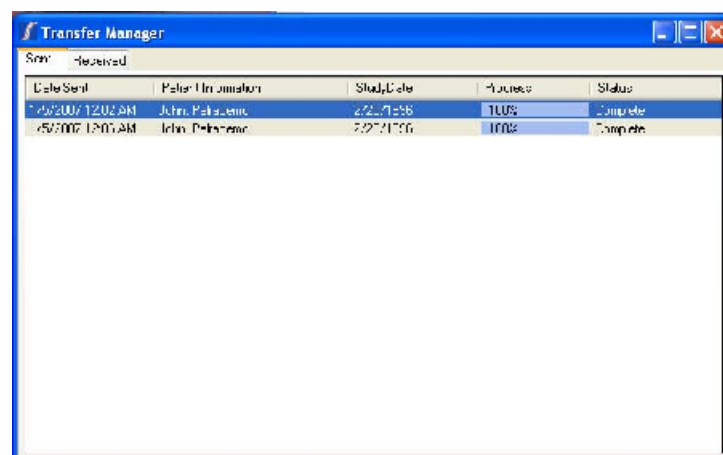
[Log File]
Keyboard Shortcut – CTRL+L
The *Log File* item in the *View* menu will open the Audit Log dialog (shown below). This dialog contains a sortable list of audit log entries for MCP.
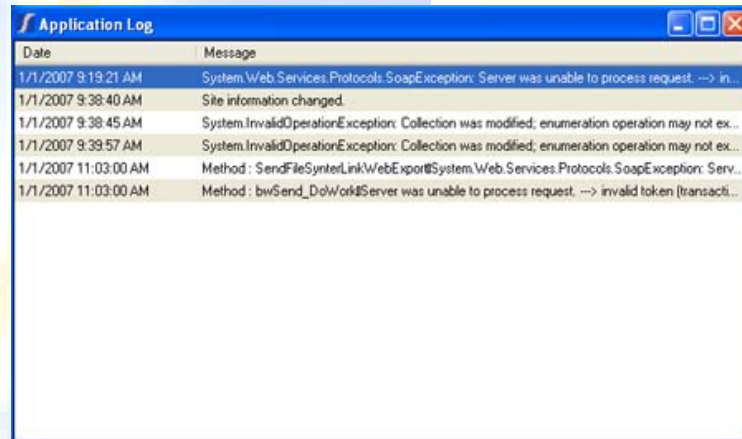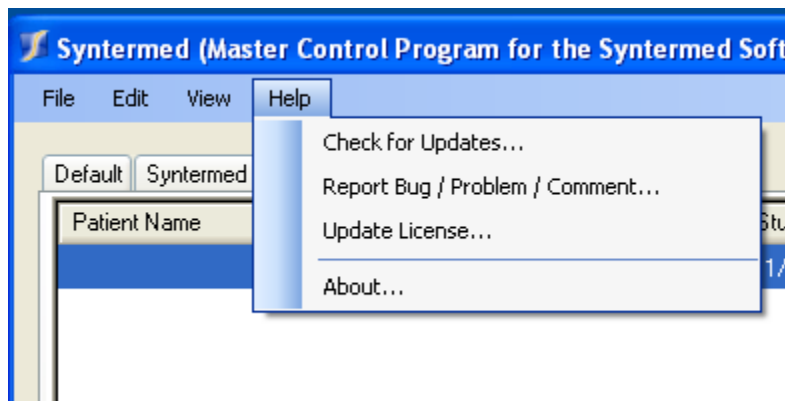

Figure 3 : Audit Log

[Refresh]
Keyboard Shortcut – F5
The *Refresh* item in the *View* menu will refresh the main study list.

[Help menu]

[Check for Updates…]
The *Check for Updates* item in the *Help* menu checks the Internet for the latest available version of MCP.

[Report Bug / Problem / Comment…]
The *Report Bug / Problem / Comment…* item in the *Help* menu allows the user report problems or posts comments about software issues directly to Syntermed Support.

[Update License…]
The *Update License* item in the *Help* menu allows the user to select a new license file from the disk.

[About…]
The *About* item in the *Help* menu shows the Manufacturer and version information for MCP.

[Launch Button]
The *Launch* button is located at the bottom of the user interface.
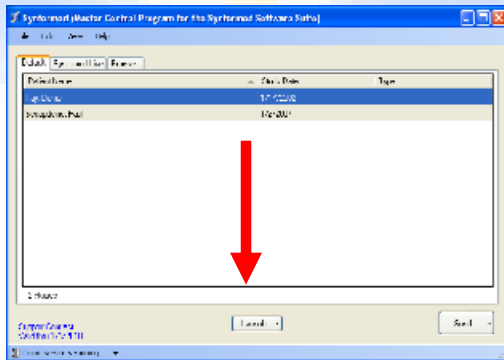
When a study is selected, clicking this button will launch the selected study with the default, licensed application. The default application which can be configured by going to the Edit -> Configuration -> *General* dialog.

By selecting the down arrow adjacent to the *Launch* button, the user can bypass the default setting and select which licensed application to launch with the data chosen.
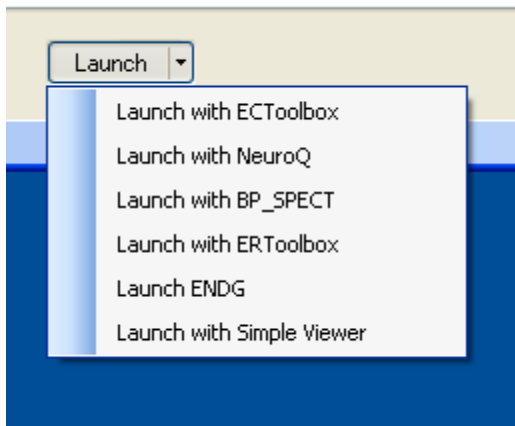
[Dicom Server control]
The *DICOM Server* control is located at the bottom left corner of the user interface. If the DICOM server is not started, it will say *Dicom server is stopped.* To start the Dicom server click on the drop down arrow and select Start.

[Support Status]
The *Support Status* is displayed in the bottom left corner of the user interface. If the Support Contract is current, it will give the expiration date in blue. If the Support Contract has expired, it will display in red.
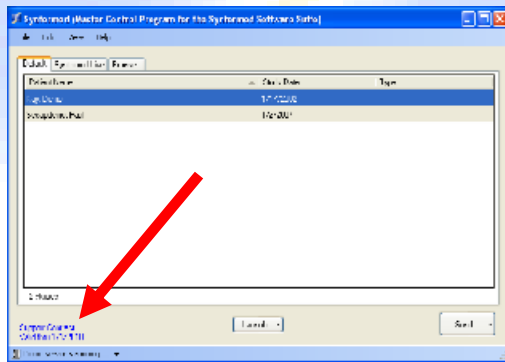
Select the Support Status to see the advantages of keeping your Support Contract valid, how to renew your Support Contract and where to go to find more information.
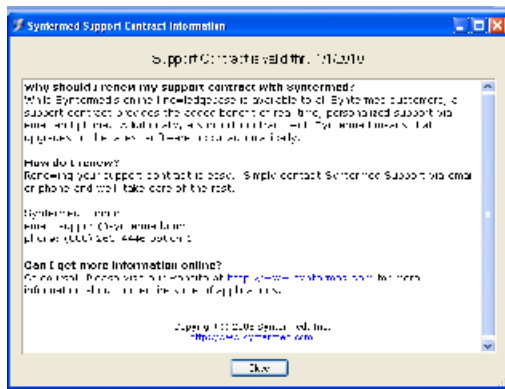
[Send]
The *Send* button will process the selected data with the Emory Cardiac Toolbox in a way that will prepare the data for online Web Review. This process will run in the background and when it is complete, the study will automatically be uploaded to the Syntermed Live server(s). The default

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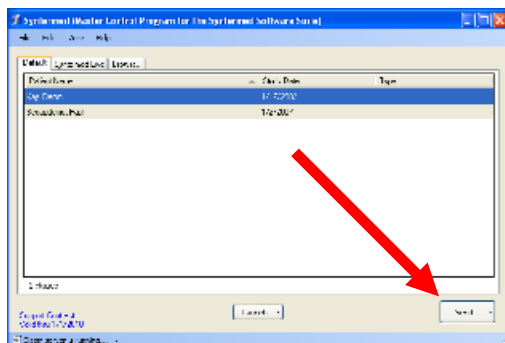
recipient and file type can be configured by going to the Edit ->
Configuration -> *Live* dialog. Options include: Send (review file only),
Send for Web Review, Send to External Site for Web Review.

By selecting the down arrow adjacent to the *Send* button, the user can
bypass the default setting and
select from the pull down list
where and what to send for the
selected data.
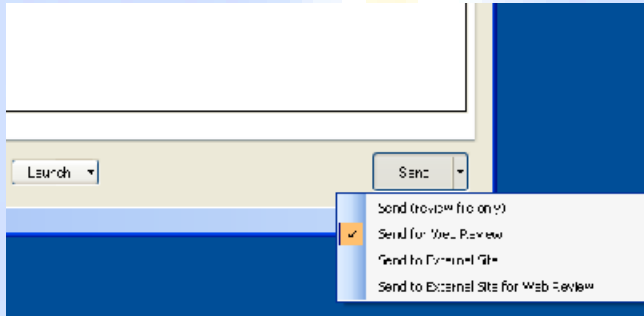
[Study Count]
A real-time count the available studies in the current view in MCP.
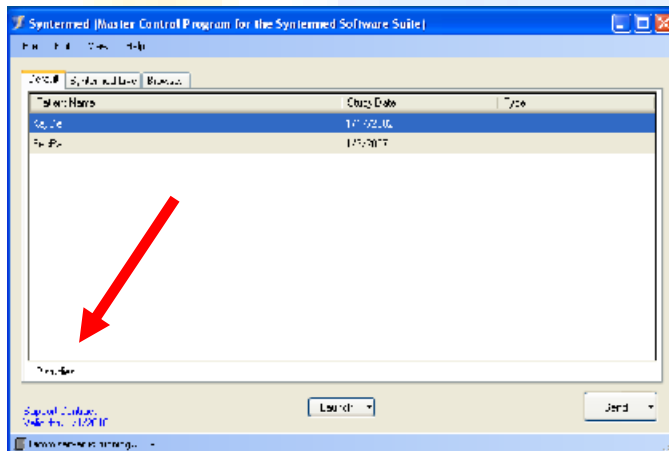
[Status Bar]
The *Status Bar* serves multiple functions in MCP. On the left is the
DICOM Server Control. Next, there is a hidden progress meter. The
progress meter will become visible during any operation that will take
more then a few seconds to complete (such as scanning a directory for
files). Next, there is a hidden label which shows any information
related to the send/retrieve functions of MCP. While a send/receive
function is active, this label will be visible and also clickable. By
clicking this label, the *File Transfer Manager* will be displayed.

Application Configuration:

MCP is a fully user configurable application, so there are many different options that can be changed. In this section, we will go over the items located in the *Configuration* dialog. These options relate to the entire application. You can bring up the *Configuration* dialog by clicking the *Edit* menu item.

Once loaded, there will be a vertical tabbed interface containing five tabs. Those tabs will be *General, Live, Sites / Folders, Recipients and Proxy*. The options on each one of these tabs are described below. Excluding the options for the individual *Sites / Folders* and *Recipients*, all options are saved by clicking the *Save and Close* button at the bottom of the window. When the *Save and Close* button is clicked, the user is prompted to verify the operation, then the *Configuration* dialog is closed and the user is returned to the main user interface.

All information in this dialog is stored in the various XML files which are located in the MCP data folder (*C\Documents and Settings\All Users\Application Data\MCP*).

General Configuration:
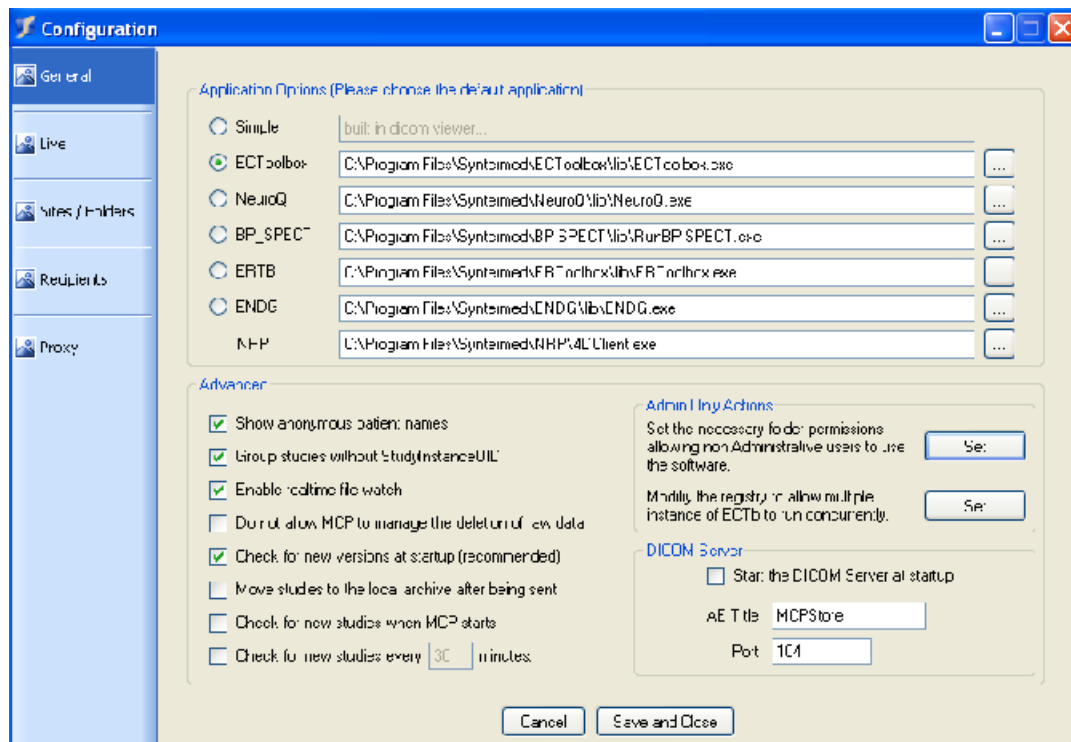
The *Application Options* section allows the user to select the default launch application for the data.

[ECToolbox]
The EC*Toolbox* option allows the user to configure where the Emory Cardiac Toolbox application resides. The default is *C:\Program Files\Syntermed\ECToolbox\lib\ECToolbox.exe*.

[NeuroQ]
The *NeuroQ* option allows the user to configure where the NeuroQ application resides. The default is *C:\Program Files\Syntermed\NeuroQ\lib\NeuroQ.exe*.

[BP_SPECT]
The BP_SPECT option allows the user to configure where the BP_SPECT application resides. The default is C:\Program Files\Syntermed\BP_SPECT\lib\RunBP_SPECT.exe

[ERTB]
The ERTB option allows the user to configure where the Emory Reconstruction toolbox application resides. The default is C:\Program Files\Syntermed\ERToolbox\lib\ERToolbox.exe

[ENDG]
The ENDG option allows the user to configure where the Emory Normal Database Generator application resides. The default is C:\Program Files\Syntermed\ENDG\lib\ENDG.exe

[NRP]
The NRP option allows the user to configure where the Nuclear Report Professional application resides. The default is C:\Program Files\Syntermed\NRP\4DClient.exe

[Advanced Options]
The *Advanced* section contains options related to advanced operation of MCP.

[Show Anonymous Patient Names]
The *Show Anonymous Patient Names* item will display the Patient Names of the data sets in an anonymous way for lectures, etc.…

[Group Studies Without StudyInstanceUID]
The *Group Studies Without StudyInstanceUID* will group data sets based on the Patient Name and Study Date, rather then the manufacturer assigned Study UID from the DICOM export

[Enable Realtime File Watch]
The *Enable Realtime File Watch* checkbox tells MCP whether to watch the file system for changes, rather then forcing the user to hit *Refresh*.

[Do Not Allow MCP to Manage the Deletion of Raw Data]
The *Do not delete MCP to manage the deletion of raw data* checkbox tells MCP to never delete the raw data from the MCP database.

[Check for New Versions at Startup]
The *Check for New Studies at Startup* check box will tell MCP to attempt to retrieve studies every time MCP is launched. By default, this option is not checked. *When enabling this option, studies will only be retrieved for sites configured to Allow Automatic Retrieval. Syntermed Live is automatically included.*

[Move Studies to the Local Archive After Being Sent]
The *Move Studies to the Local Archive After Being Sent* check box will tell MCP to archive studies after they are sent to a recipient. By default, this option is not checked. *Default behavior is to only archive reformatted files, unless only raw data is selected.*

[Check for New Studies When MCP Starts]
The *Check for New Studies When MCP Starts* checkbox tells MCP to always check the webservice for a newer version at startup.

[Check for New Studies Every Specified Interval Minutes]
The *Check for New Studies* Every Minute check box allows the user to tell MCP when to attempt to retrieve studies at a

specified interval. By default, this option is not checked. *When enabling this option, studies will only be retrieved for sites configured to Allow Automatic Retrieval. Syntermed Live is automatically included.*

[DICOM Server]
The DICOM Server options are used to configure the functionality of the included freeware **OfficDicom** utility.

[Start the DICOM Server at Startup]
The *Start DICOM Server at Startup* check box tells MCP whether or not to launch the DICOM server when MCP launches. By default, the *Start DICOM Server on Startup* check box is not checked.

[AE (Local/Calling) Title]
The *AE (Local/Calling) Title* option allows the user to configure the AETitle used to communicate from a standard DICOM client. The default value is *MCPStore*. This value will be needed to configure the DICOM export on the camera workstation.

[Port]
The *Port* option allows the user to configure the Port used to communicate from a standard DICOM client. The default value is *104*. This value is also the standard port used for DICOM export.

[DICOM Server Service]
The *DICOM Server Service* section of the *DICOM* tab is used to configure the optional DICOM Service component.

[Service Installer]
The *Service Installer* section allows the user to install the optional DICOM service component. This component will run apart from MCP as a Windows Service so that the user can even be logged out of the machine and it will still successfully receive DICOM data. *This is an optional component of MCP that is only available at additional cost.*

[Start]
The *Start* button allows the user to start the service if it is not already running.

[Stop]
The *Stop* button allows the user to start the service if it is not already running.
[Restart]
The *Restart* button allows the user to start the service if it is not already running.

Syntermed Live Options:

The Live configuration allows the user to log onto the Syntermed Live server using their username and password to access their data. There are also options on this screen to select Toolbox screens for exporting and managing the data on the server.
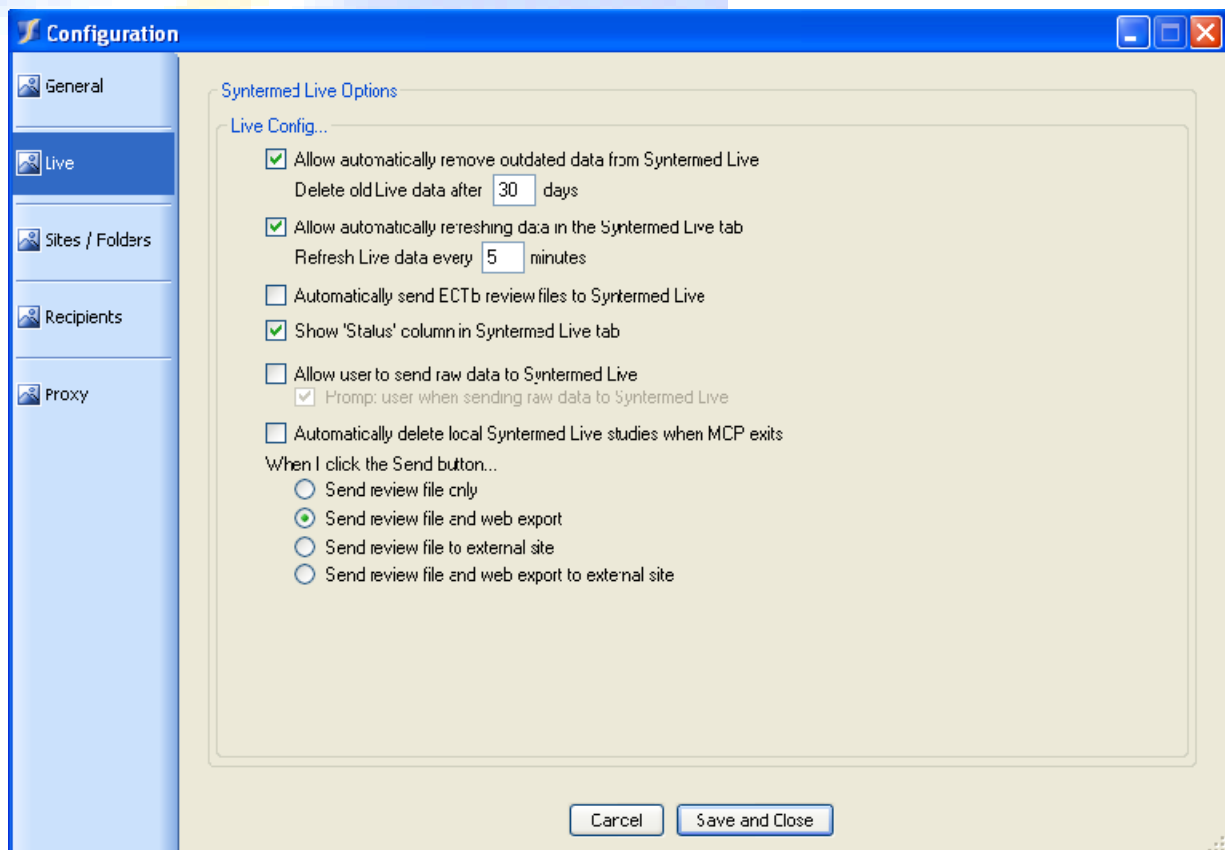

Figure 6 : Live Options Dialog

Syntermed Live Options allows the user to set username/password and preferences for managing the data from the Syntermed Live server.

Live Config…

[Allow automatically remove outdated data from Syntermed Live]

The *Allow Automatically Remove Outdated Data from Syntermed Live* checkbox allows the user to set the number of days data downloaded from the Syntermed Live server(s) will be stored locally before deletion. The default is 30 days.

[Allow automatically refreshing data in the Syntermed Live Tab]

The *Allow Automatically Refreshing Data in the Syntermed Live Tab* in the *View* section allows the user to set a time indicating how often the Syntermed Live display will be refreshed.

[Automatically send ECTb review files to Syntermed Live]

The *Automatically send ECTb review files to Syntermed Live* allows the user to set the preference to send the ECTb review file to Syntermed Live as it appears in the default folder. i.e. when a ECTb review file is created on a OEM station and sent to MCP, it is then sent automatically up to Syntermed Live.

[Show 'Status' column in Syntermed Live]

The Show 'Status' column in Syntermed Live Tab allows user to select to see the latest status for that patient study, Read or Unread, Sent or Resent.

[Allow user to send raw data to Syntermed Live]

The *Allow user to send raw data to Syntermed Live* permits the user to send raw data to Syntermed Live and whether to be prompted if they try to.

[Automatically delete local Syntermed Live studies when MCP exits]

The Automatically delete local Syntermed Live studies when MCP exits option allows the user to delete all data in the local Syntermed Live tab when they exit MCP. Note: This does not remove the studies from Syntermed Live.

[When I click the Send Button…]

The *When I Click the Send Button* allows the user to choose a default function for the send button.

Sites / Folders Configuration:

Sites serve multiple functions in MCP. First, sites are used to keep studies from different locations in separate locations on a local computer or on a network. Second, if desired, sites can be individually configured to retrieve studies. Sites are viewed using the tabbed interface in the main user interface. Each tab represents a different site. In this section, we will describe how to configure sites.

The *Sites / Folders* configuration dialog can be accessed by clicking *Sites /Folders* tab. All information in this dialog is stored in the *Sites.xml* file in the application's installation directory.
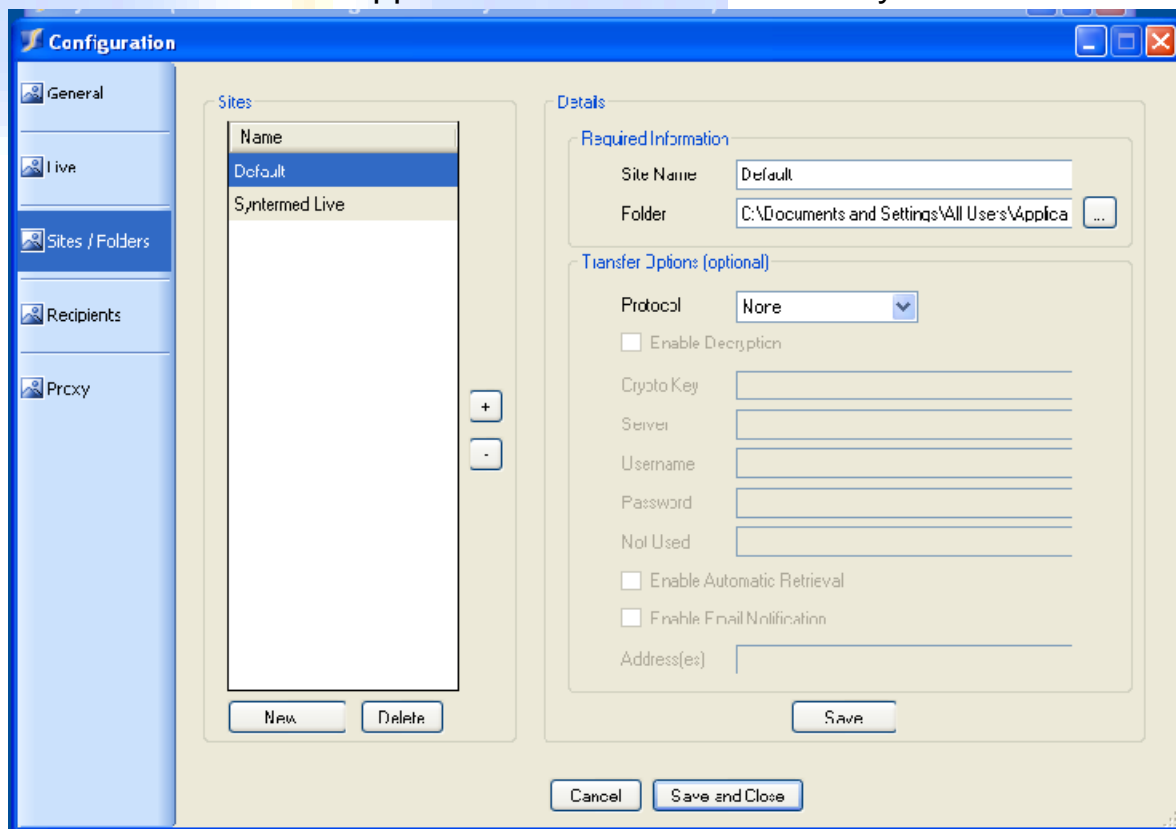
Figure 7 : Sites Configuration Dialog

[Sites listing]
The *Sites* listing is comprised of multiple components. The *Sites* list itself, the *New...* button, the *Delete* button and the *+/-* buttons. Each of these components is described below.

[Sites list]

The *Sites* list shows a list of all available sites. Upon selecting one from the list, the options are shown in the *Site Details* area.

[New… button]

The *New…* button will set up the *Site Details* area for the creation of a new site. When creating a new site, a *Site Name* and *Folder* are required. After clicking *Save*, the new site will show up in the *Sites* list.

[Delete button]

The *Delete* button will delete the selected site in the *Sites* list. Before permanent deletion, the user is prompted to validate the operation. Once the site is deleted, it is removed from the *Sites* list.

[+ button]

The + button will move the selected site in the *Site List* up one step if possible.

[- button]

The – button will move the selected site in the *Site List* down one step if possible.

[Details]

The *Details* area is comprised of several components. The *Site Name* and *Folder* are the only required components. All other components are related to the transfer of studies and are enabled/disabled based on their relation to the chosen *Protocol*. By clicking the *Save* button; the settings for the individual site are saved. If you navigate away from a site without clicking the *Save* button, all changes will be lost.

[Site Name]

The *Site Name* option allows the user to specify a user friendly name for the site. This name will be the text shown on the tab that represents the site in the main user interface.

[Folder]

The *Folder* option allows the user to specify a directory where the studies should be stored.

[Protocol]

The *Protocol* is a drop down menu which provides the user with four options of a protocol to use to transfer studies. When an option is chosen from the drop down, the applicable items are enabled for configuration of that protocol. The four options are as follows:

- *None* – tells MCP that there will be no study transfer from this site.
- *FTP* – tells MCP that the FTP protocol will be used to transfer studies from this site. *FTP uses TCP port 21. In a hospital environment, this port may be blocked. You may need to verify this will your IT department.*
- *Local* – tells MCP that files will simply be encrypted and moved to locally available location (i.e. a folder on the same computer or an accessible share on a remote computer).
- *UNC* – tells MCP that files will be moved to a secure network share. Credentials must be supplied to access this network resource.

MCP supplies the user with multiple options for convenience. The user may chose a protocol based on the recommendation of the IT department, the user's familiarity of the protocol, etc…

[Enable Decryption]

The *Enable Decryption* checkbox allows the user to configure MCP to decrypt the study upon retrieval. *All studies sent outside of a secured corporate network must be encrypted to meet with HIPAA compliance standards.*

[Crypto Key]

The *Crypto Key* option allows the user to configure a public key for the encryption/decryption of studies. Basically, the *Crypto Key* is a password that locks the study before sending it out over the Internet, or decrypts it after retrieving it from the Internet. By doing this client side encryption, the user is not burdened with the extra cost of SSL certification to transmit data over the Internet to meet HIPAA compliance. Also, it allows the user to be in control of the public key or "password". The same *Crypto Key* must be provided on both the sending and retrieving ends to successfully view the studies.

[Server] [Path]

The *Server* option allows the user to configure the server for study transfer. The server will be different based on the *Protocol*

specified. If *Local* or *UNC* are chosen for the *Protocol*, the *Server* option will be listed as the *Path* for ease of understanding.

[UserName]
The *UserName* option allows the user to specify the username needed to login to the server, depending on the chosen *Protocol*.

[Password]
The *Password* option allows the user to specify the password needed to login to the server, depending on the chosen *Protocol*.

[Path] [Not Used]
This option is only available when the *FTP* option is chosen as the *Protocol*. In the case that *FTP* is the desired protocol; the *Path* option represents a (optional) subdirectory in the FTP server. For any other protocol choices, this option is *Not Used*.

[Enable Automatic Retrieval]
The *Enable Automatic Retrieval* check box allows the user to allow or prevent a site from having studies retrieved on a schedule or at startup as described in the **Application Configuration** section of this document.

[Enable Email Notification]
The *Enable Email Notification* checkbox tells MCP to send an email notification upon retrieval of a new study for the selected site.

[Email Address(es)]
The *Email Address(es)* textbox is used to tell MCP what email addresses to send notifications to upon retrieval of new studies. Multiple email addresses must be semi-colon delimited.

Recipients Configuration

Recipients are profiles used to tell MCP how and where to send data when the *Send Study* button is clicked.

The *Recipients* configuration dialog can be accessed by clicking the *Recipients* tab. Once loaded, there is an interface consisting of a Recipient listing on the left and the related *Recipient Details* area on the right.

All information in this dialog is stored in the *Recipients.xml* file in the application's installation directory.
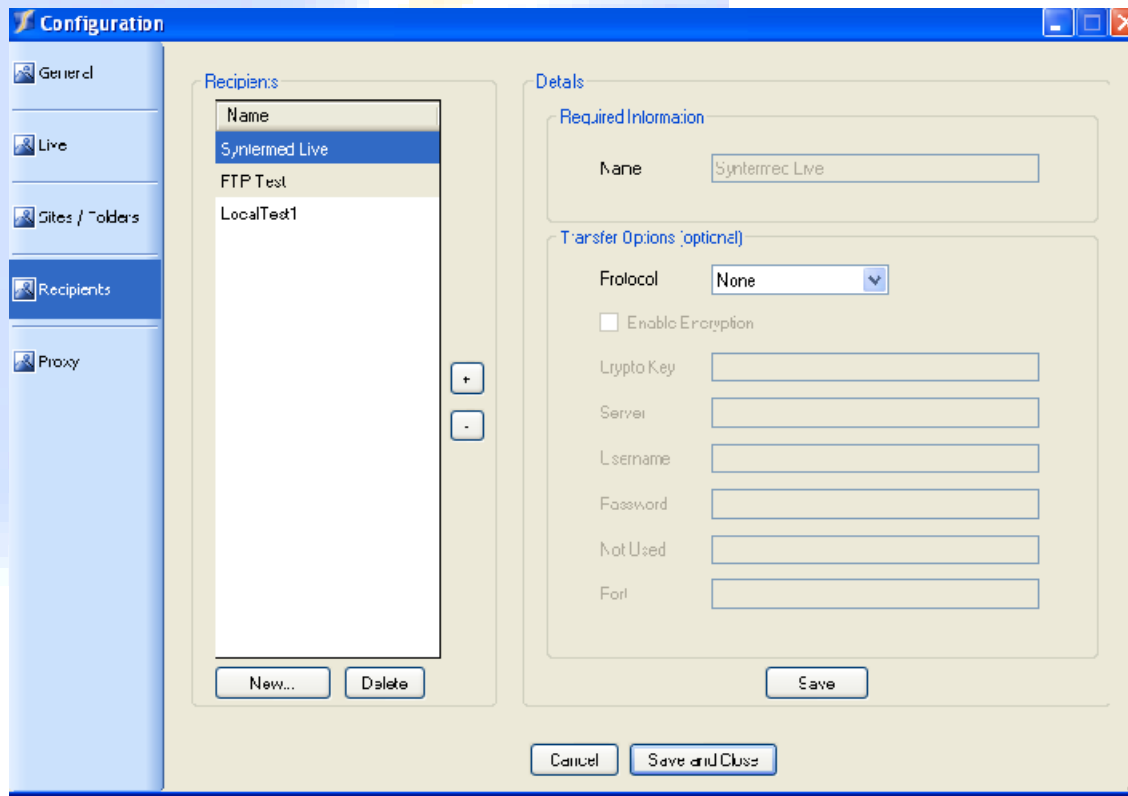
Figure 8: Recipients Configuration Dialog

[Recipient listing]
The *Recipient* listing is comprised of multiple components. The *Sites* list itself, the *New...* button, the *Delete* button and the +/- buttons. Each of these components is described below.

[Recipients list]
The *Recipients* list shows a list of all available sites. Upon selecting one from the list, the options are show in the *Recipient Details* area.

[New… button]
The *New...* button will set up the *Recipient Details* area for the creation of a new site. When creating a new site, a *Name* and *Folder* are required. After clicking *Save*, the new site will show up in the *Recipient* list.

[Delete button]
The *Delete* button will delete the selected site in the *Recipient* list. Before permanent deletion, the user is prompted to validate the operation. Once the site is deleted, it is removed from the *Recipient* list.

[+ button]
The + button will move the selected site in the *Recipient List* up one step if possible.

[- button]
The – button will move the selected site in the *Recipient List* down one step if possible.

[Recipient Details]
The *Recipient Details* area is comprised of several components. The *Recipient Name* and *Folder* are the only required components. All other components are related to the transfer of studies and are enabled/disabled based on their relation to the chosen *Protocol*. By clicking the *Save* button; the settings for the individual site are saved. If you navigate away from a recipient without clicking the *Save* button, all changes will be lost.

[Name]
The *Recipient Name* option allows the user to specify a user friendly name for the site. This name will be the text shown on the tab that represents the site in the main user interface. The default is set to Syntermed Live.

[Protocol]
The *Protocol* is a drop down menu which provides the user with four options of a protocol to use to transfer studies. When an option is chosen from the drop down, the applicable items are enabled for configuration of that protocol. The four options are as follows:

- *None* – tells MCP that there will be no study transfer to this recipient.
- *FTP* – tells MCP that the FTP protocol will be used to transfer studies to this recipient. *FTP uses TCP port 21. In a hospital environment, this port may be blocked. You may need to verify this will your IT department.*
- *HTTP* – tells MCP that the HTTP protocol will be used to transfer studies to this recipient. This protocol may only be

used to send studies. It is not applicable for retrieval of studies. *HTTP uses TCP port 80. In a hospital environment, this port may be blocked. You may need to verify this will your IT department.*

- *Local* – tells MCP that files will simply be encrypted and moved to locally available location (i.e. a folder on the same computer or an accessible share on a remote computer).
- *UNC* – tells MCP that files will be moved to a secure network share. Credentials must be supplied to access this network resource.

MCP supplies the user with multiple options for convenience. The user may chose a protocol based on the recommendation of the IT department, the user's familiarity of the protocol, etc…

[Enable Encryption]
The *Enable Encryption* checkbox allows the user to tell MCP whether or not the study should be encrypted before being sent. *All studies sent outside of a secured corporate network must be encrypted to meet with HIPAA compliance standards.*

[Crypto Key]
The *Crypto Key* option allows the user to configure a public key for the encryption/decryption of studies. Basically, the *Crypto Key* is a password that locks the study before sending it out over the Internet, or decrypts it after retrieving it from the Internet. By doing this client side encryption, the user is not burdened with the extra cost of SSL certification to transmit data over the Internet to meet HIPAA compliance. Also, it allows the user to be in control of the public key or "password". The same *Crypto Key* must be provided on both the sending and retrieving ends to successfully view the studies.

[Server] [Path]
The *Server* option allows the user to configure the server for study transfer. The server will be different based on the *Protocol* specified. If *Local* or *UNC* are chosen for the *Protocol*, the *Server* option will be listed as the *Path* for ease of understanding.

[UserName]
The *UserName* option allows the user to specify the username needed to login to the server, depending on the chosen *Protocol*.

[Password]
The *Password* option allows the user to specify the password needed to login to the server, depending on the chosen *Protocol*.

Syntermed Live Tab

The Syntermed Live tab in the MCP screen displays all of the files that are stored from your site on the Syntermed Live server. From this screen you can download the ECTb Review File to read on your local machine. There are icons to the left of the patients name which indicate the type of data associated with this patients record in the Syntermed Live database.
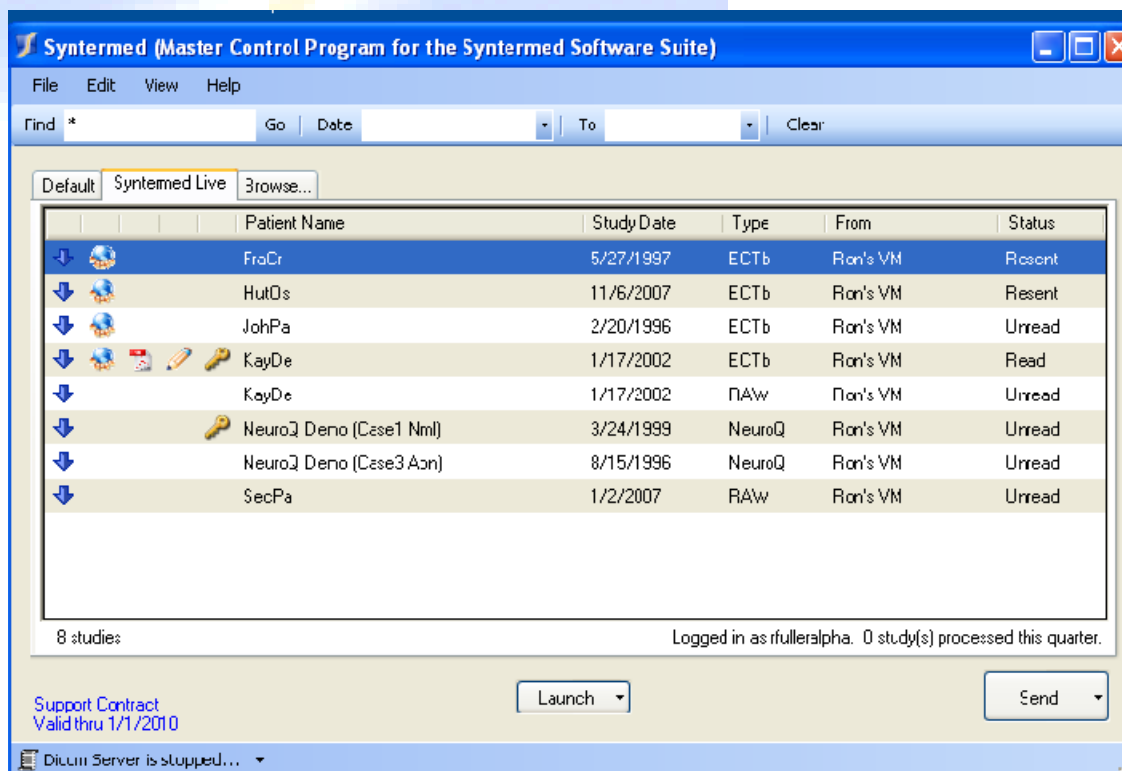
Figure 9 : Syntermed Live Tab Dialog

 - This Icon indicates that there is an ECTb Review File for this patient that has not yet been downloaded to the local PC.

 - The Save Icon indicates that the ECTb Review File has been downloaded from the Syntermed Live server and it is on the local PC.

 - The WWW Icon indicates that the patient's study is available to be read using an Internet browser.

- The PDF Icon indicates that there is a report associated with this patient.

- The pencil Icon indicates that there is a comment associated with this patient.

Options from Syntermed Live Tab

There are options that can be selected from the Syntermed Live tab that can be seen by clicking on the right mouse button when a patient study is selected. The list of options is shown below.
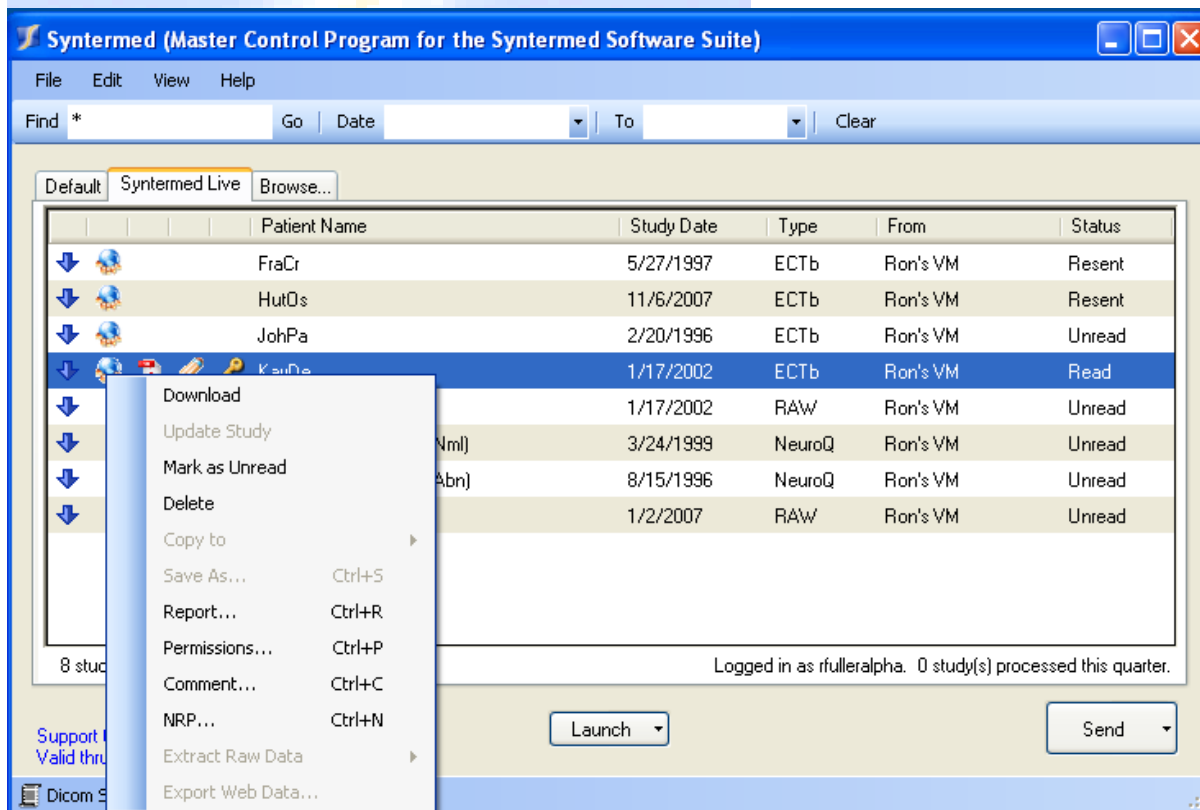
Figure 10: Syntermed Live Options

[**Download**]
The *Download* option allows the user to download the ECTb Review file from the Syntermed Live database. This can also be accomplished by clicking on the arrow button.

[**Mark as Read**]
The *Mark as Read* option allows the user to set the Status for the patient as Read indicating that the study has been interpreted.

[Report]

The *Report* option allows the user to add a report to the patients study in the database. The report dialog is shown below. The process to add a report is to browse to the report on your PC for the patient and then click on the Upload Report button to send the report to the database and associate it with the patient. **Note: These reports must be pdf files.**
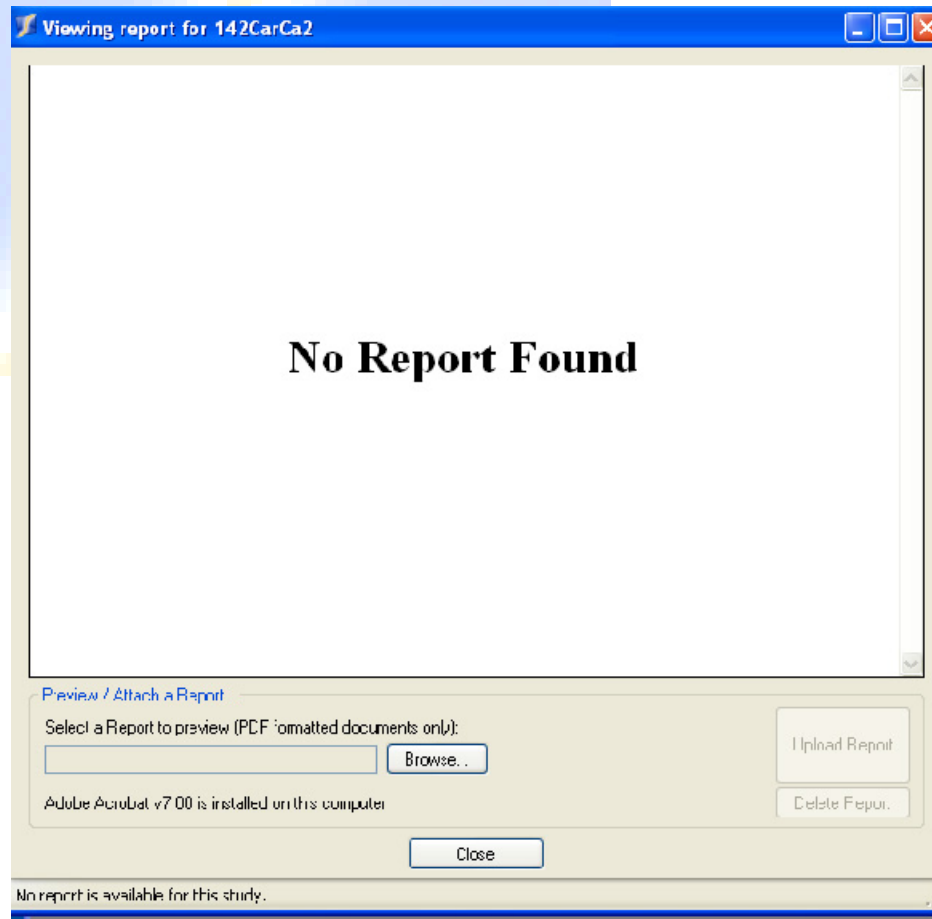
Figure 11: Report Dialog

[Permissions]

The *Permissions* option allows the user to send an email to the referring physician notifying him that his patients study is ready to be reviewed by him. The image below shows the permissions screen. The process would be to select a study with web enabled images (www Icon) and then go to the permissions screen. From the list of referring physicians in the bottom table, select a physician and then click the Add button. His/her name will be

listed in the top table which will indicate that they have permission to view this study. Once you click the close button they will be sent a notification email. Adding referring physicians to the list is performed in your Syntermed Live account (see referrings section below under Syntermed Live).
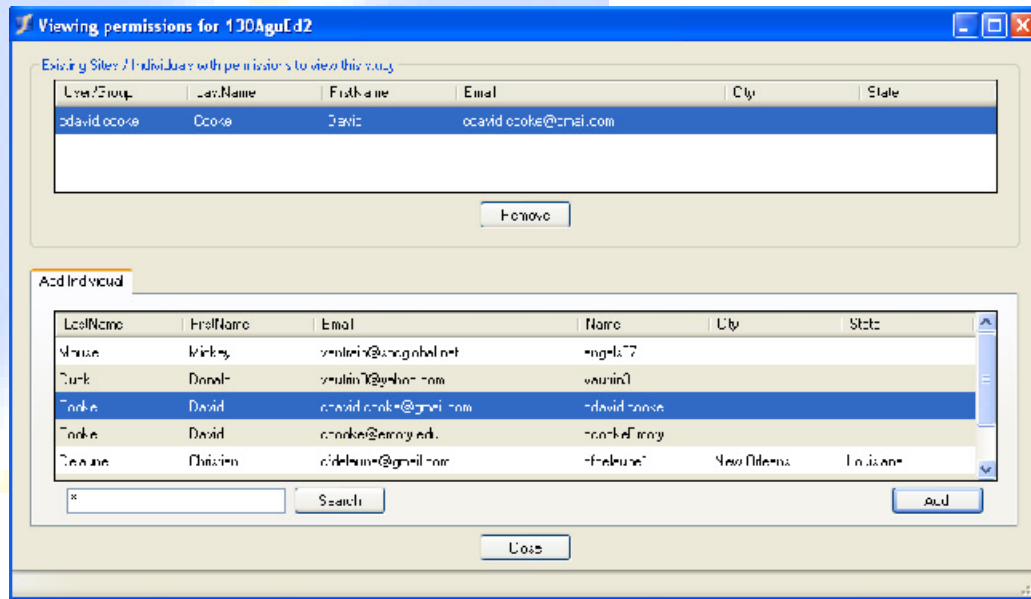
Figure 12: Permissions Dialog

[Comment]
The *Comment* option allows the user to associate a comment to the patient's study. The dialog is shown below and you can enter any comment you want listed for this patient.
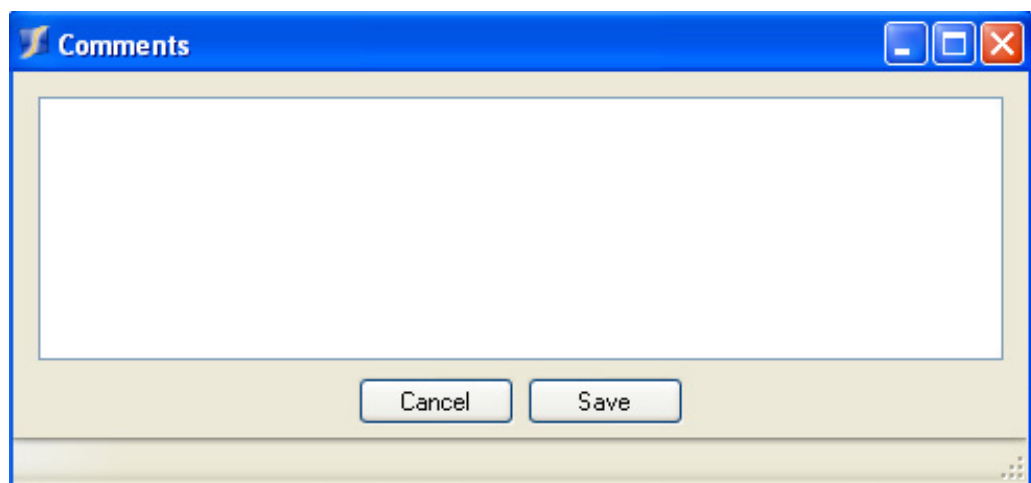
Figure 13: Comment Dialog
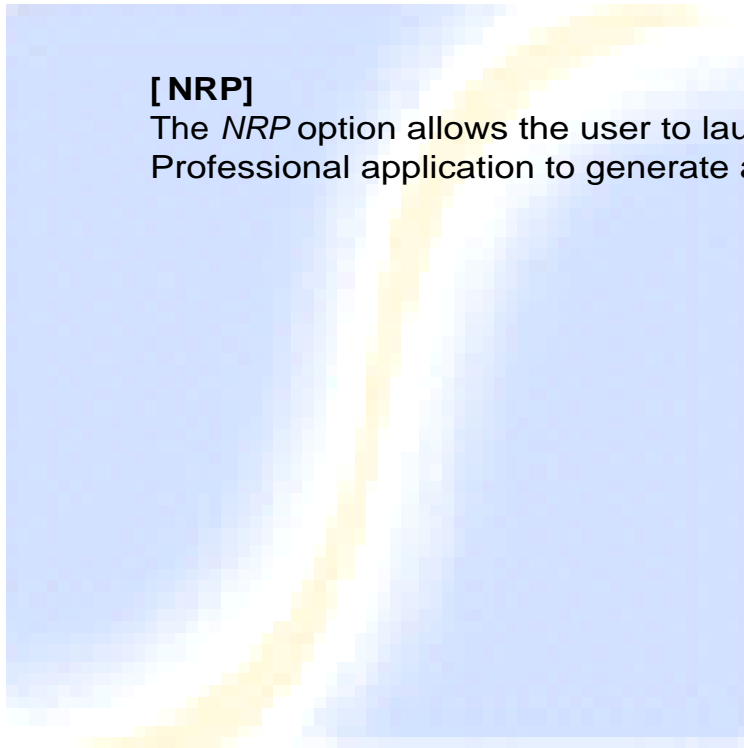
[NRP]
The *NRP* option allows the user to launch the Nuclear Report
Professional application to generate a nuclear cardiology report.

Syntermed Live:

The Syntermed Live application provides institutions with the ability to transmit, access, retrieve, and archive their medical images and data using the Syntermed Live server. The Syntermed Live server supports all images generated from the Syntermed proprietary applications, i.e. Emory Cardiac Toolbox, NeuroQ, etc. and also medical images and reports from other medical modalities. The Syntermed Live server can be accessed from any Internet Browser on any PC. The current url for the beta test sites is https://beta.syntermedlive.com which will be changed once the product is released commercially. There are three basic functions involved with Syntermed Live: Login, File Management, and Display which are described below.

Login:

Access to the HIPAA compliant Syntermed Live server is controlled by unique username and passwords assigned to each site through Syntermed. This login information will only allow the site to access data that was uploaded from their particular institution.

Figure 14: Login Dialog

File Management:

File management is comprised of a number of processes that allow the user to manage how the data is accessed, stored,
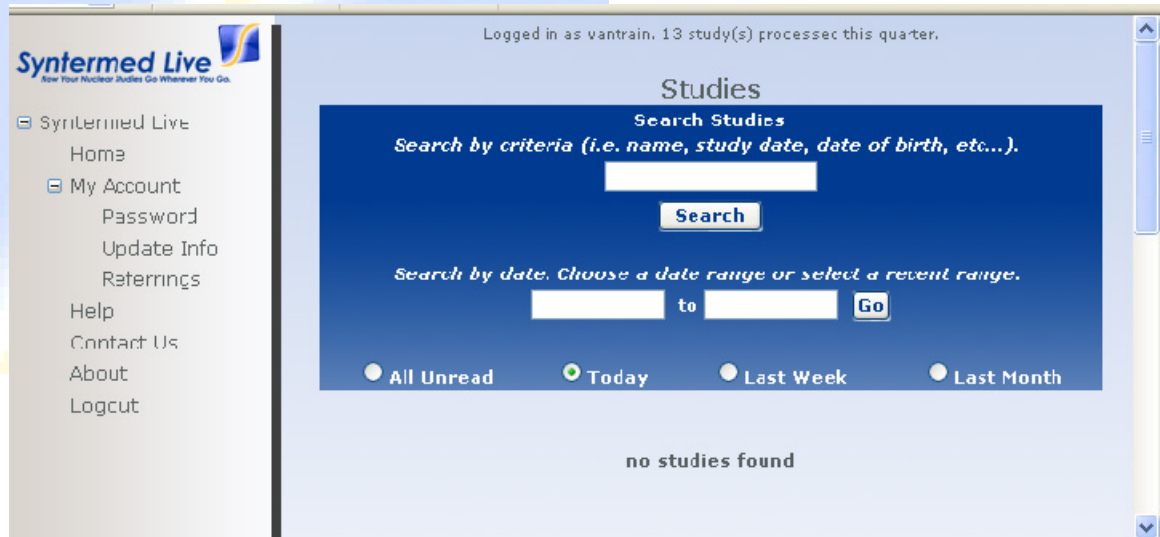
Figure 15: Home Dialog

[Home]
The *Home* screen for Syntermed Live provides the ability to search and list patient studies related to the site, view the data in an Internet Browser, perform advanced functions, and download the data in a single file so that it can be read using a Syntermed proprietary application.

[Search Studies]
The *Search Studies* option allows the user to specify how they want to search the Syntermed Live database to locate and list their patient data. The data can be searched by criteria, date, or by specifying a category by checking a radial dial check box. The Search screen is shown below.

[Search by criteria]
The *Search by criteria* option allows the user to search the database by specifying a name, study date, date of birth or by entering other information related to the study. Note: the

wildcard search is an * and entering this symbol with list all patients in the database.

[Search by date]
The *Search by date* option allows the user to search the database by entering a date range.

[Category Search]
The *Category Search* option allows the user to search the database by any of the following categories: All Unread, Today, Last Week, Last Month. These can be selected by clicking on the radial dial associated with the category.

Once the search of the database has completed a table will be displayed with all of the patients located resulting from that search.

Figure 16: Home Dialog

The patient table lists the patient name, date of study, who the study came from, the status of the study (read or unread) and there are three symbols which provide different links to manage or view the data. These symbols are defined below.

PDF   - The PDF symbol will link you to a report that displays all the patients' information in report form.
Adobe Acrobat reader is required to view the PDF report. A free version of Adobe Reader can be obtained http://www.adobe.com.

View   - View Link: The View link will display all of the patient's images in a web browser.

Password:

Figure 17: Password Dialog

[Change Your Password]
The *Change Your Password* option allows the user to change their password for Syntermed Live.

Update Info:

Figure 18: Update Info Dialog

[Update Info]
The *Update Info* option allows the user to change their personal information.
The user must enter an email address into the E-mail field before the updated data can be saved.

Referrings:

Figure 19: Manage Referrings Dialog

[Manage Referrings]

Figure 20: Add Referring Dialog

Entering the users email address into the search bar will generate a list of the user's information or generate an invitation link. This will also display the status of pending requests and allow you to resend or delete an earlier request.

Figure 21: Send Request Dialog

[Generating an Invitation Link]
When entering a user email into the search bar and no name is found within the system an invitation link will be generated.   The user will need to log into the email account and confirm the request by clicking the invitation link. The link will take the user to a user information profile page they must fill out.   Once saved this link will send a request to the system to approve or deny the request. After the request is approved a confirmation email will be sent to the email specified in the user profile. The user will then be able to log into the system with the user credentials they specified in their user profile.

Figure 22: Request Sent Dialog

[Help]
The *help* option provides quick access to this User Manual and how to videos.

[Contact Us]
The *Contact Us* option allows the user to send an email to the Syntermed Live staff.

[About]
The *About* option provides the current version of Syntermed Live software that is being executed on the server.

[Logout]
The *Logout* option will log the user out of Syntermed Live.

Syntermed Live Display:

The options for displaying the patient's images are controlled by the two symbols that were defined above.

 View presents the data in a web browser. The various screens used for this option are shown below. These screens are related to the Emory Cardiac Toolbox output.
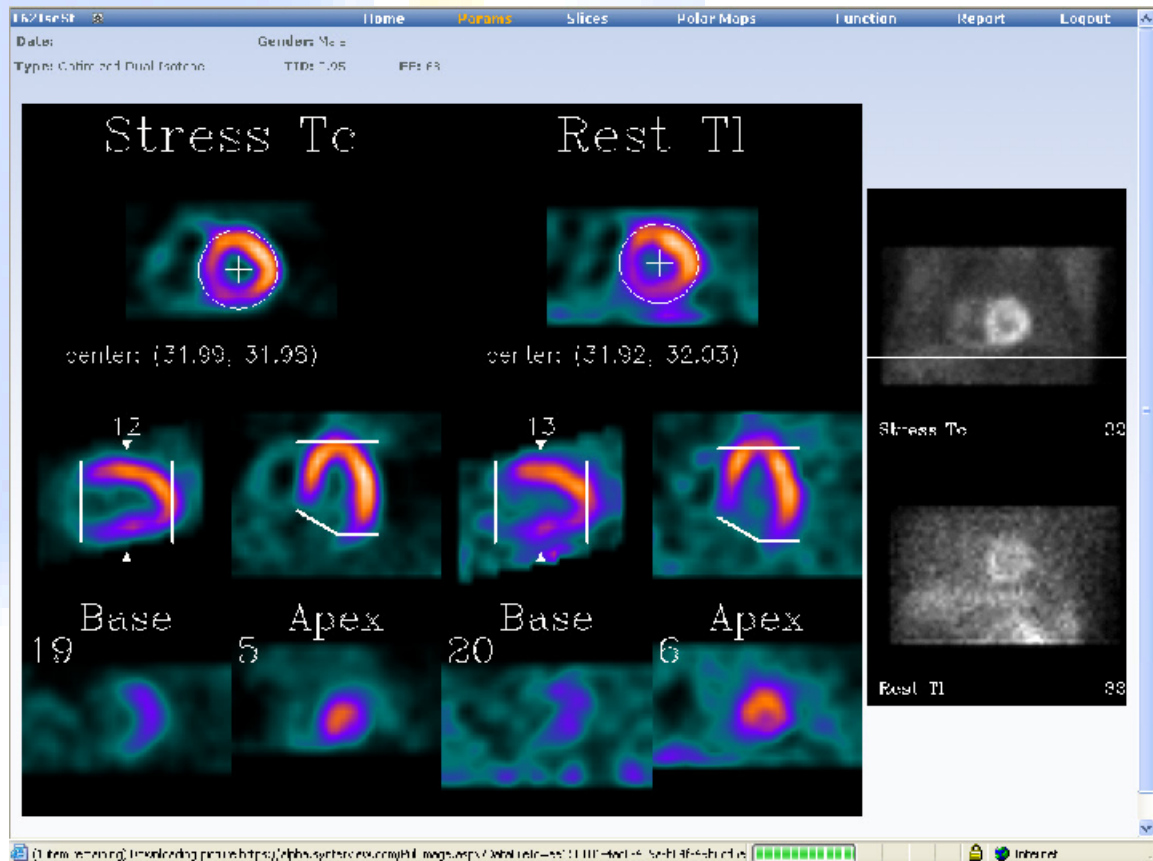
Parameters:

Figure 23: Parameters Screen

[Params]

The *Params* menu option displays the processing parameters that were used to process the SPECT myocardial perfusion study. Also displayed are the raw SPECT projection files in a dynamic display. These images are helpful to the physician for quality control of the study.
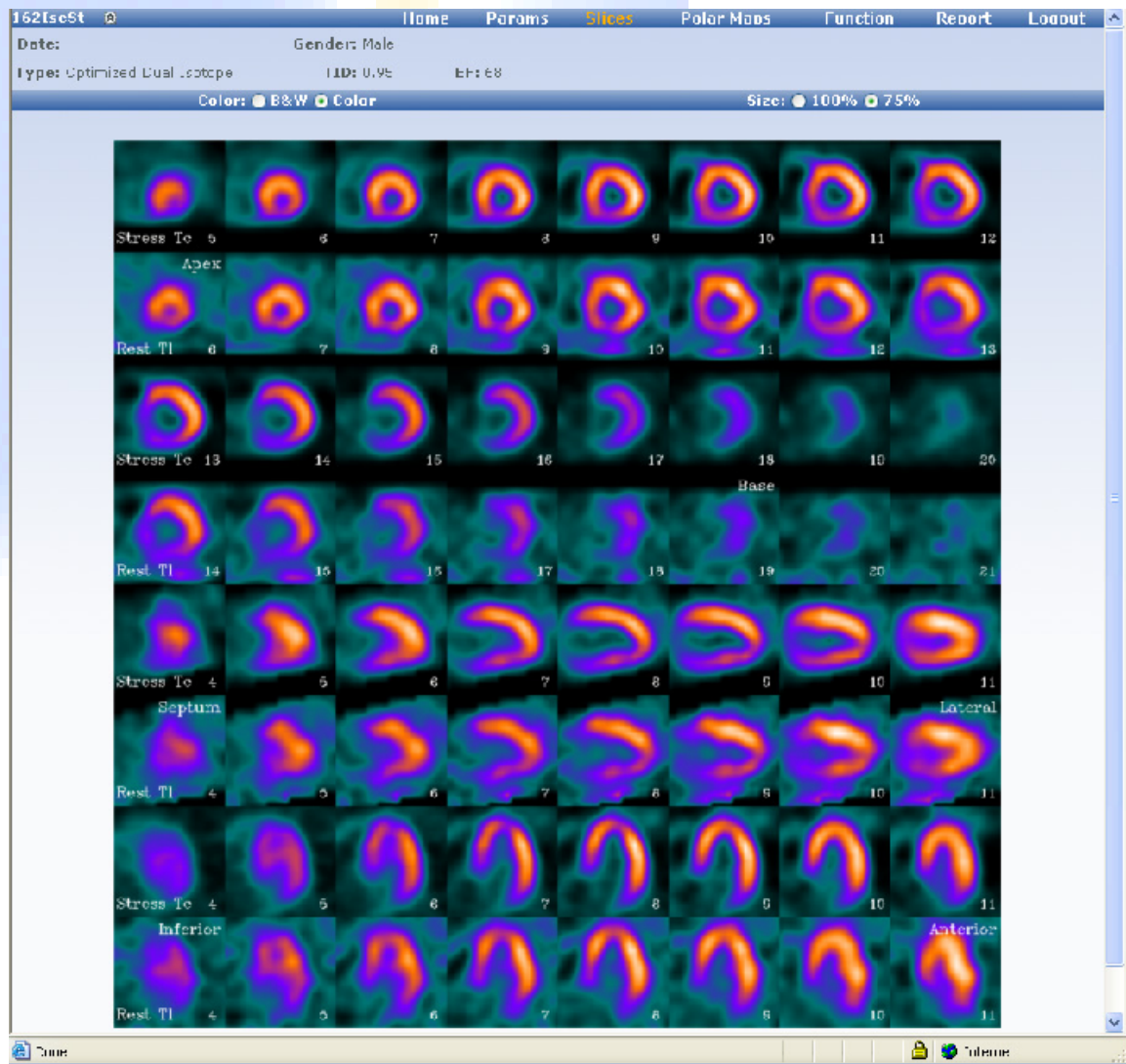
Slices:

Figure 24: Slices Screen

[Slices]

The *Slices* menu option displays short axis, vertical, and horizontal long axis for stress and rest. There is a second row of additional image interactive options related to color, zoom, motion, and size which can be selected to change the display of the slices.
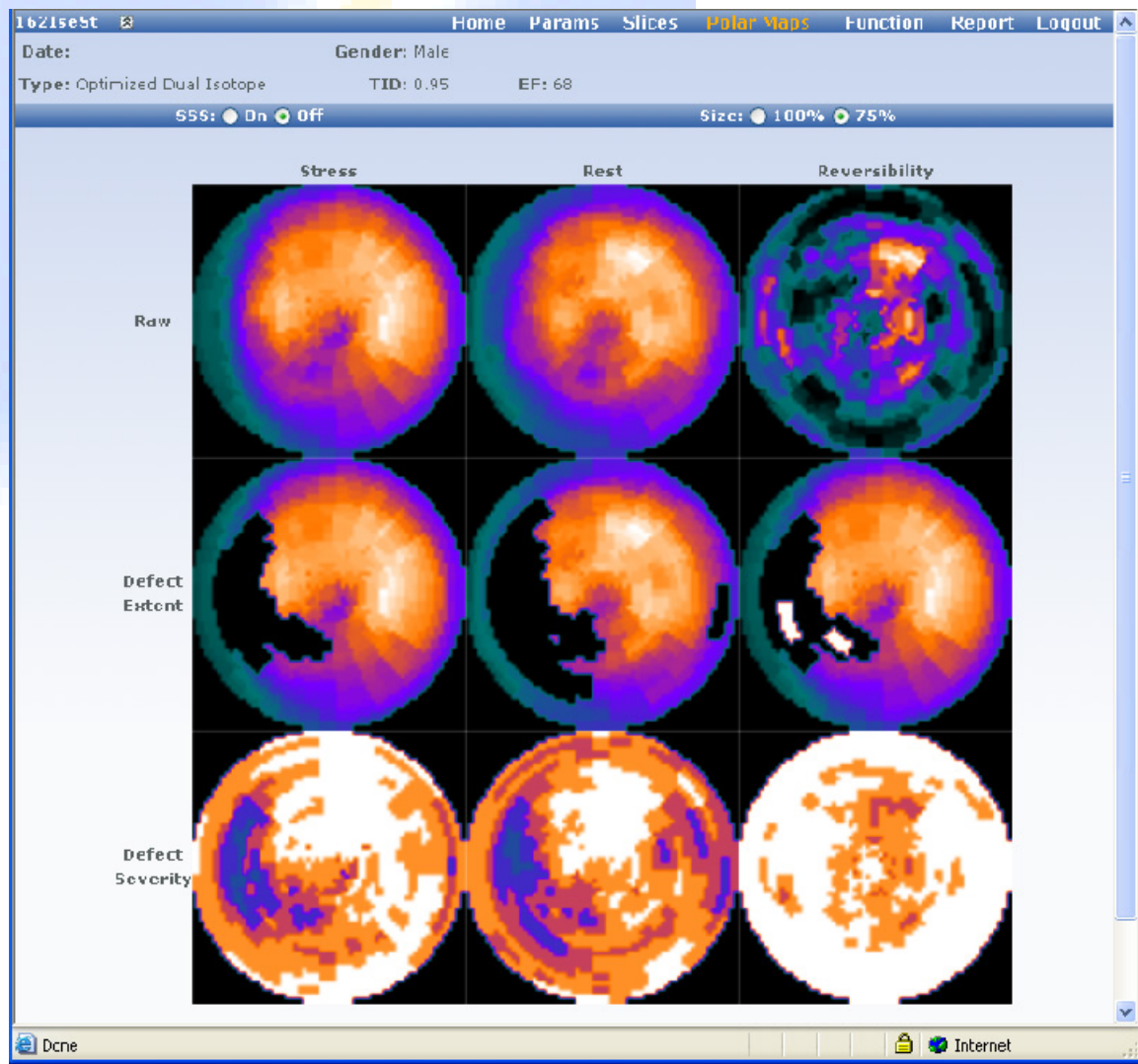
Polar Maps:

Figure 25 Polar Map Screen

[Polar Map]

The *Polar Map* menu option displays the various quantitative polar maps that were generated by the Emory Cardiac Toolbox. There are polar maps representing raw, defect extent, and defect severity for stress, rest, and reversibility. The second interactive menu bar allows the user to change the size of the images being displayed.
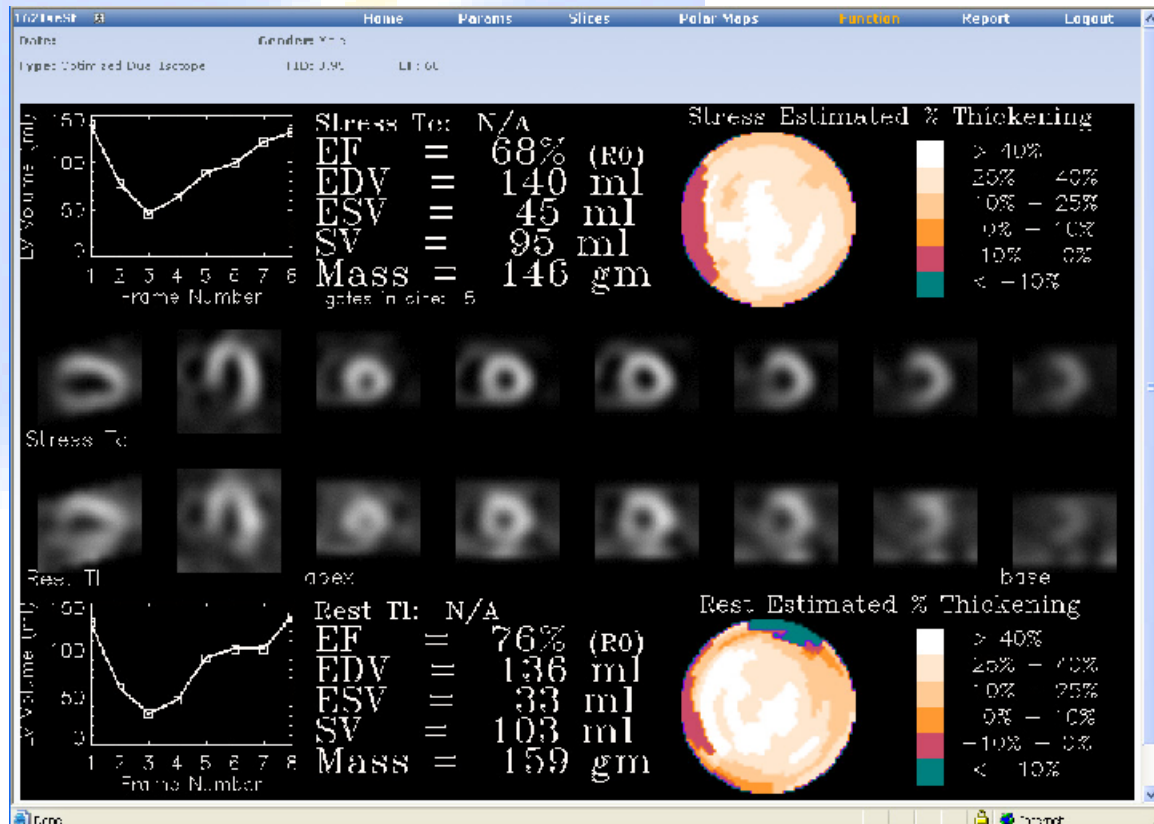
Function:

Figure 26: Function Screen

[Function]

The *Function* menu option displays the results of the functional analysis that was generated by the Emory Cardiac Toolbox. This analysis provides information related to the ejection fraction (EF), End Diastolic Volume (EDV), End Systolic Volume (ESV), Stroke Volume (SV), and Mass. This display is in dynamic mode so that wall motion can be evaluated. There is also a wall thickening polar map. The second interactive menu bar allows the user to change the color, zoom, and display endo and epi cardial borders.
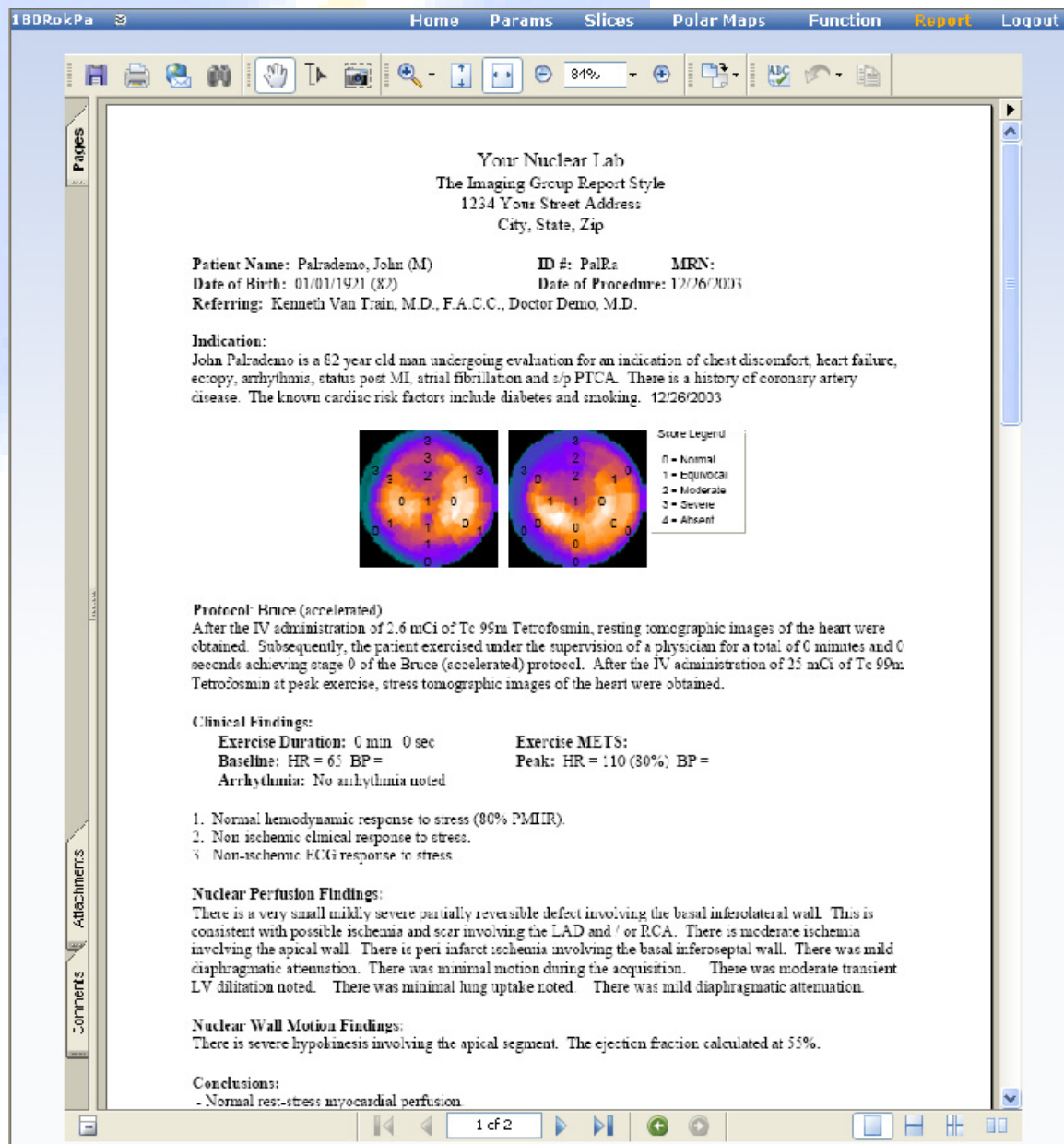
Report

Figure 27: Report Screen

[Report]
The *Report* menu option displays the report that is associated with this patient.

[Home]

The *Home* menu option will bring the user back to the Home screen.

Figure 28: Home Screen
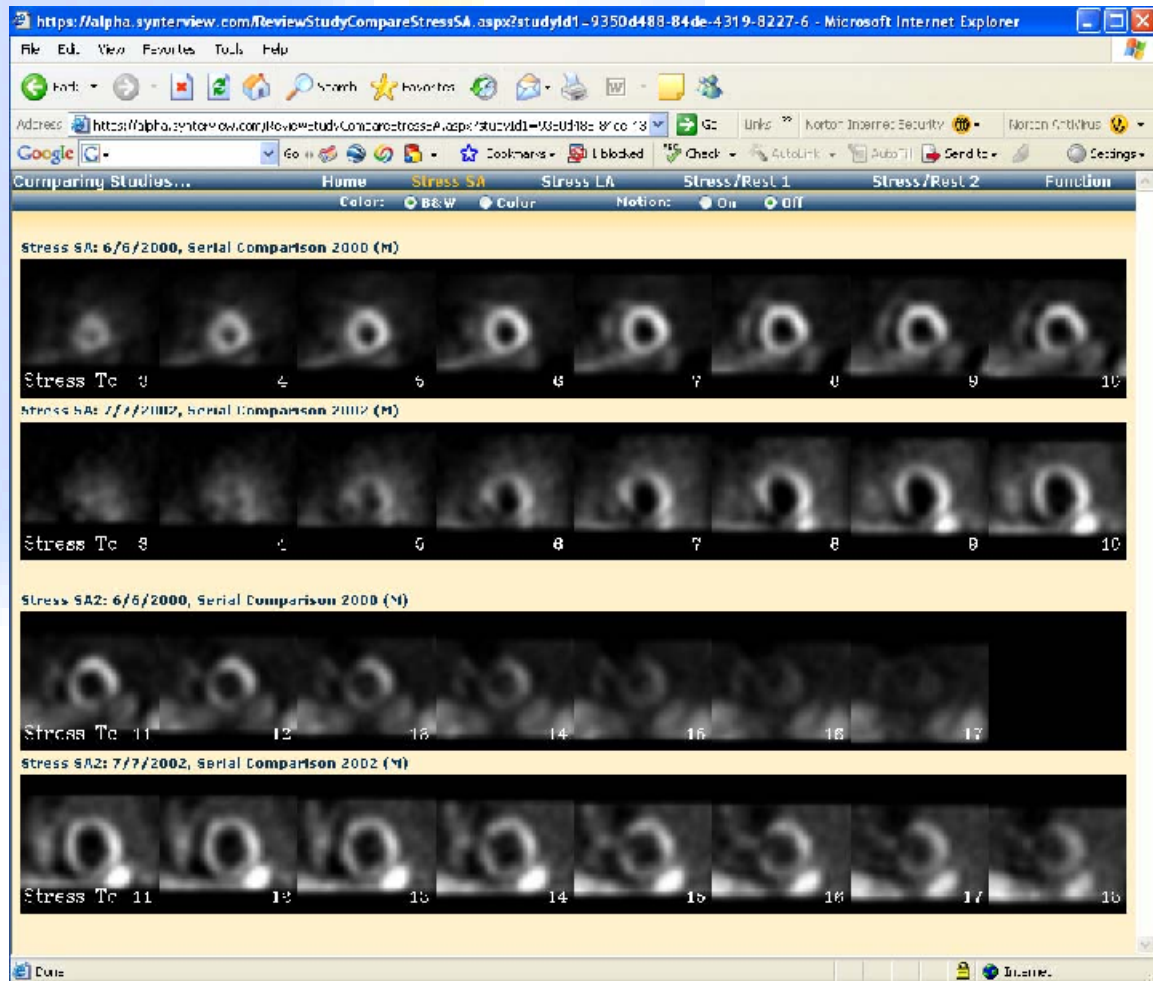
Compare Studies (2):

Figure 21: Compare Studies Screen

[Compare Studies]
The *Compare Studies* option provides the ability to display two studies simultaneously. The first study is located in the first and third row and the second study in the 2nd and 4th row. The first menu bar provides options to display the Stress Short Axis, Stress Long Axis, Stress and Rest from study 1, Stress and Rest for study 2, and the motion. The second interactive menu bar allows the user to change the color and motion.

Referring Physician Module: A module will be included in the Syntermed Live application that will allow the user to send an email notification to a referring physician whom they can click to launch their patient's data and report using in a web browser. Information related to this module will be included in a subsequent manual.

Other Image Data:

In addition to the Emory Cardiac Toolbox data, Syntermed Live can also display other data as demonstrated below.
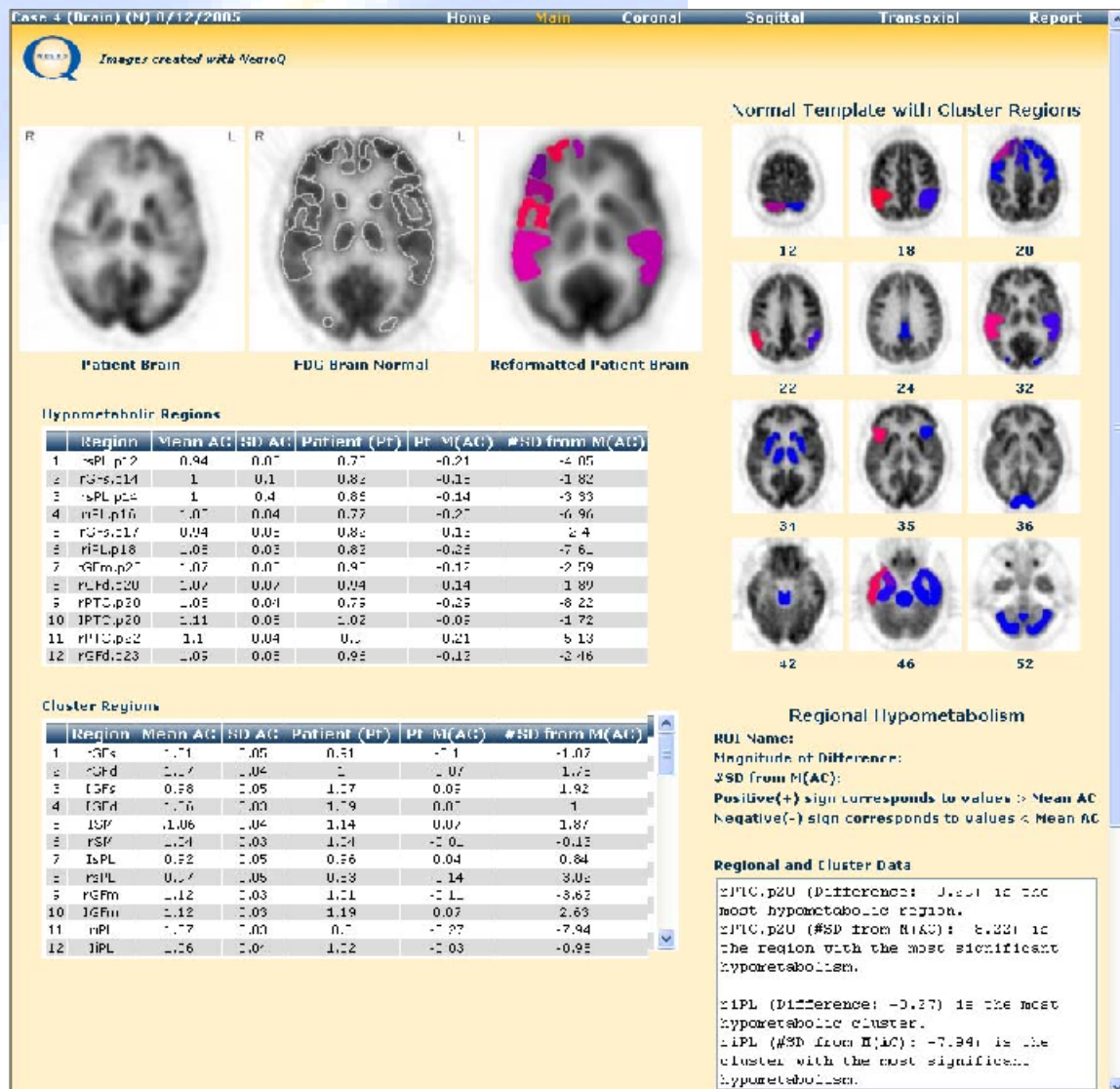
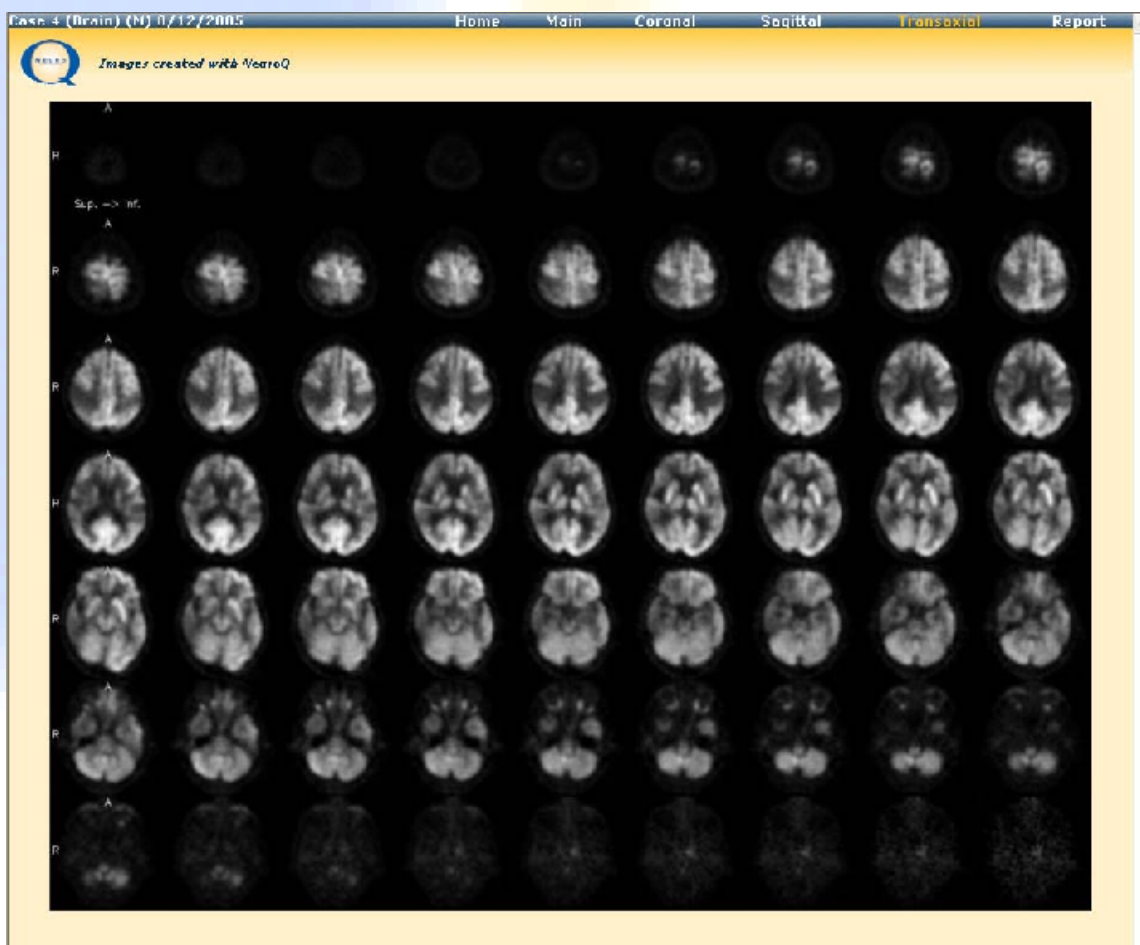## Brain PET and NeuroQ:

Figure 22: NeuroQ with Quantitative Output
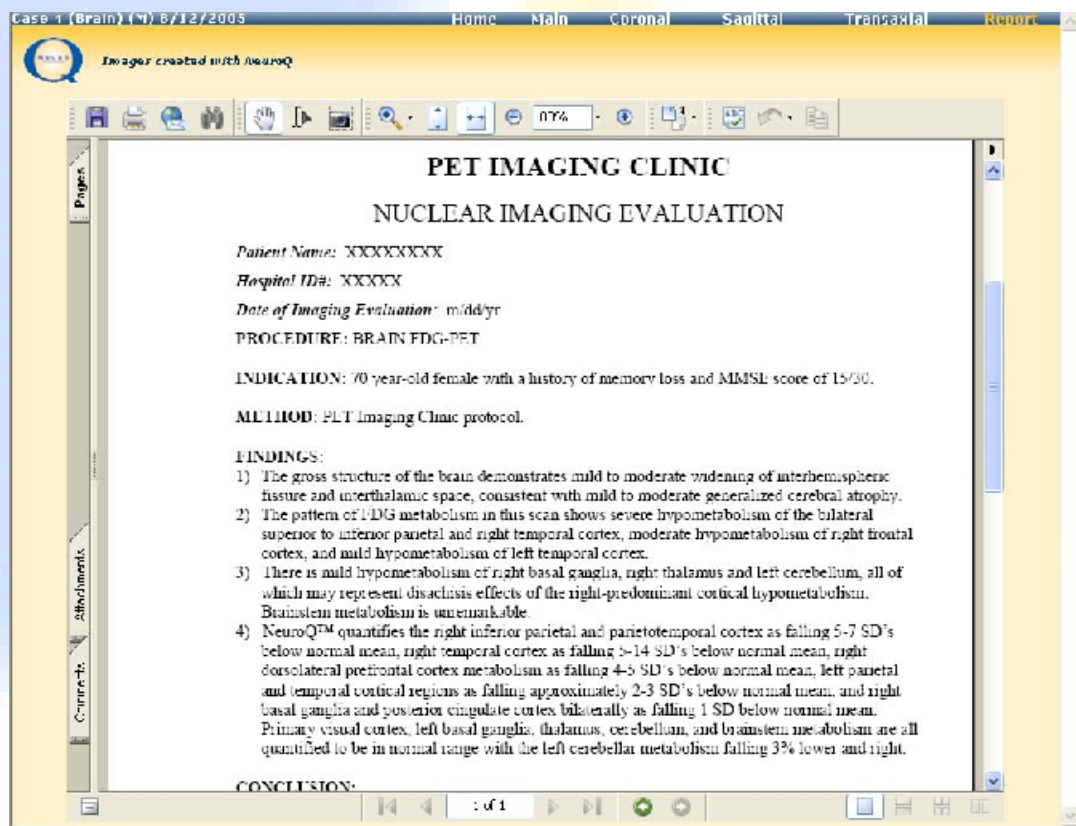
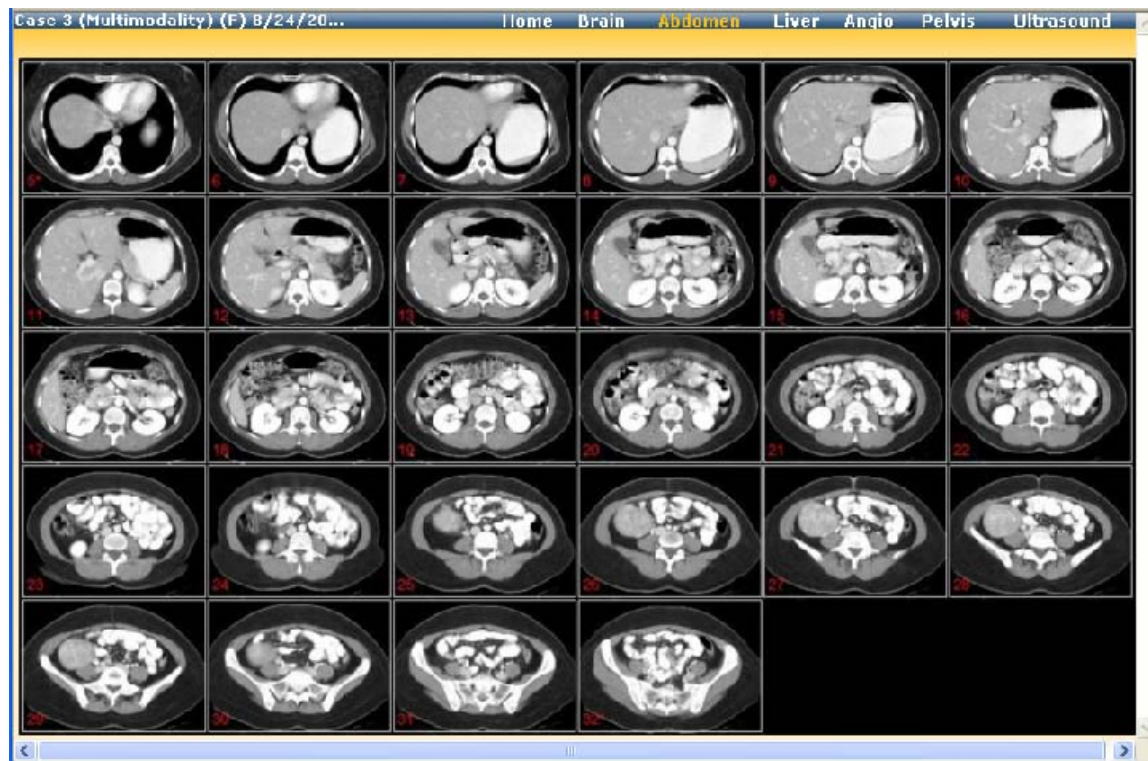**Figure 23: NeuroQ – Transaxial Images**

Figure 24: NeuroQ Report
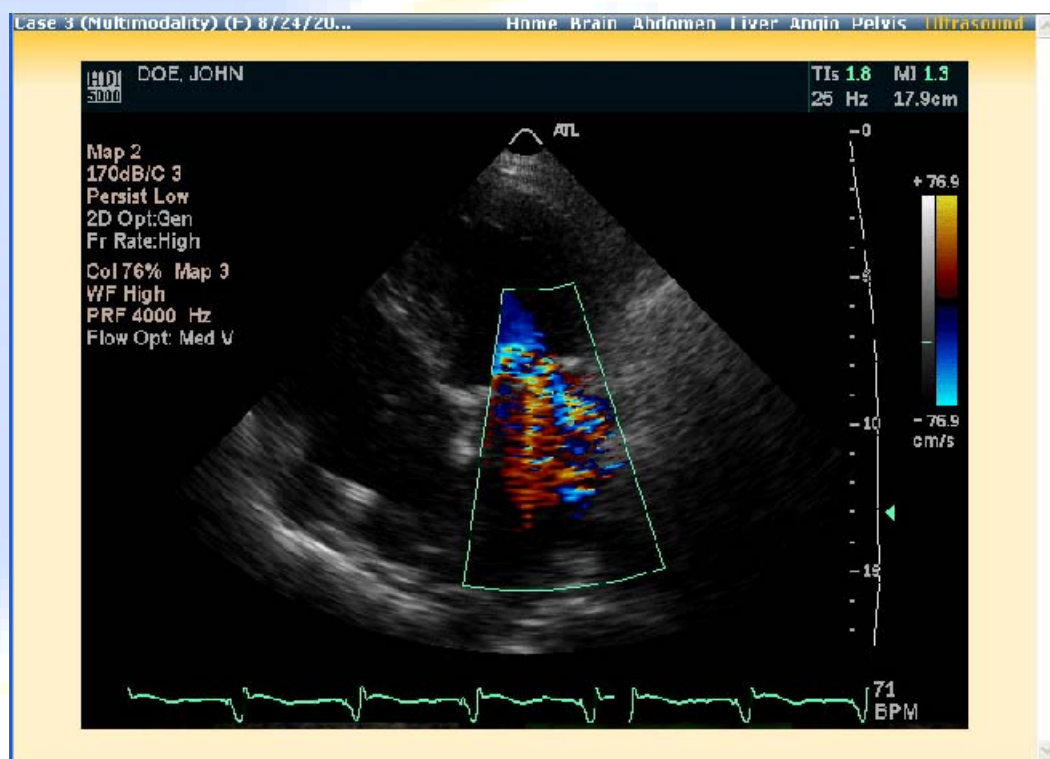

Figure 25: CT

Figure 26: Ultrasound

Figure 27: Angio Brain

Appendix A: Copyright

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The Master Control Program (MCP) for Syntermed applications is a joint development project between Posmedic LLC and Syntermed.

The Syntermed Live program is solely owned by Syntermed.

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