Introduction

ProSolv® CardioVascular is a web-based, software-only, vendor- and hardware neutral solution designed to provide multi-modality cardiovascular image and information management in a versatile and cost effective manner supporting all cardiovascular modalities. From a single workstation, with a single log-on at any location, a physician can review patient studies and create reports within all cardiovascular modalities. ProSolv® CardioVascular accepts images and information from any DICOM compliant acquisition device. In addition, our reporting tools have set the standard for customization and advanced analysis capabilities, with auto-interpretation, interactive diagrams; with auto-summary, and spell-check. Our ability to customize reports that mimic exacting requirements is unsurpassed in the industry. The ProSolv® CardioVascular software has been carefully designed to address each of the major issues of importance to the field of cardiovascular image and information management, including multimodality viewing, advanced analysis, customized workflow automation through HIS, ADT/Orders, DICOM Modality Worklists, Results and Billing integrations. ProSolv CardioVascular offers two different clinical user interfaces:

ProSolv CardioVascular Client is an installed application for Microsoft Windows. Much of the content of this User Manual is devoted to the functions of the Client. The Client gives full capability for image viewing and analysis, and on-line completion and distribution of clinical reports. When viewing images, the computer monitor screen is organized to maximize the available pixels for digital images rather than controls, buttons and icons. The default screen permits two side-by-side, high-resolution viewing windows. This layout highlights the ability of digital imaging to display two or more cardiac images simultaneously, which is one of the principle advantages of digital imaging over videotape or ciné film and has many clinical uses such as viewing serial studies or different views of the same study. To ensure that the highest resolution images are displayed, none of the lateral borders of the monitor are used for anything other than imaging. Almost all manipulation of images can be performed by clicking on toolbar buttons or pressing keyboard keys. The controls are designed to be intuitive, requiring relatively brief instruction.

ProSolv CardioVascular WebViewer is a lightweight, Web-based application that provides for efficient, distributed viewing of images and completed reports. The WebViewer is described more fully in a separate document, *Web Viewer User Manual* (document control: PMAN-0014755-A).

Intended Use

Use
ProSolv CardioVascular provides the functionality for viewing, measuring, analyzing, archiving, and reporting digital studies generated by digital-imaging instruments from a multitude of manufacturers.

Users
ProSolv CardioVascular is intended for use by doctors and non-physicians (e.g., sonographers, technologists, nurses) who are affiliated with medical labs that use images obtained from digital-imaging DICOM instruments (echo, vascular, nuclear cardiology, cardiac catheterization, MRI, etc.)

Administration of Server-based Applications

ProSolv® CardioVascular is a client-server type application with a significant component of the system's capability being provided by a set of server-based applications.

Software/Hardware
The ProSolv CardioVascular image management and reporting system is software that runs on standard PC equipment using Windows 2000 or later operating systems. The software can be used in a variety of network configurations:

- Stand-alone workstation
- Network of workstations connected through TCP/IP networking, utilizing the ProSolv CardioVascular Core Server components
- Mini-server Workstation providing both client and server applications

For more information, refer to the *Hardware Requirements* document (document control PSUP-0013745-B).

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Safety Information

DANGER, WARNING and CAUTION Safety Statements

The DANGERS, WARNINGS and CAUTIONS that appear throughout this manual are not only preventative measures designed to uphold the safety of both the service person and operator, but also enhance equipment reliability.

The definitions for DANGER, WARNING and CAUTION comply with ANSI Z535.2, American National Standard for Environmental and Facility Safety Signs and ANSI Z535.4, Product Safety Signs and Labels, issued by the American National Standards Institute.

DANGER indicates an imminently hazardous situation, which if not avoided, will result in death or serious injury.

WARNING indicates an imminently hazardous situation, which if not avoided, could result in death or serious injury.

CAUTION indicates a potentially hazardous situation, which if not avoided, may result in minor to moderate injury. It may also be used to alert against unsafe practices.

Important indicates an emphasized note. It is something you should be particularly aware of; something not readily apparent. Important is typically used to prevent equipment damage.

Note indicates a note. It is something you should be particularly aware of; something not readily apparent. A note is typically used as a suggestion.

Electrical Power

Do not perform service with equipment energized. Always de-energize the equipment when performing service. Even when de-energized, equipment components can retain an electrical charge capable of causing electric shock. Always use caution and common sense when performing service.

When installing equipment electrical wiring must comply with the local electrical codes in your area governing the installation of electronic equipment.

Heavy Objects

Heavy objects are objects that weigh 50 pounds or more, or are objects that are too large or bulky to be

moved or handled by one service person. Installing, removing or servicing heavy objects may require two or more service personnel. When installing, removing or servicing heavy objects, always use suitable gear such as heavy gloves and eye protection. Always uses the appropriate support machinery when installing, removing or moving heavy objects. Always use caution and common sense when installing, removing or servicing heavy objects.

Safety Devices

Safety devices are protection components, which include, but not limited to, fuses, circuit breakers, interlock switches, equipment panels and covers. Do not disable, alter, modify or remove safety devices when performing service.

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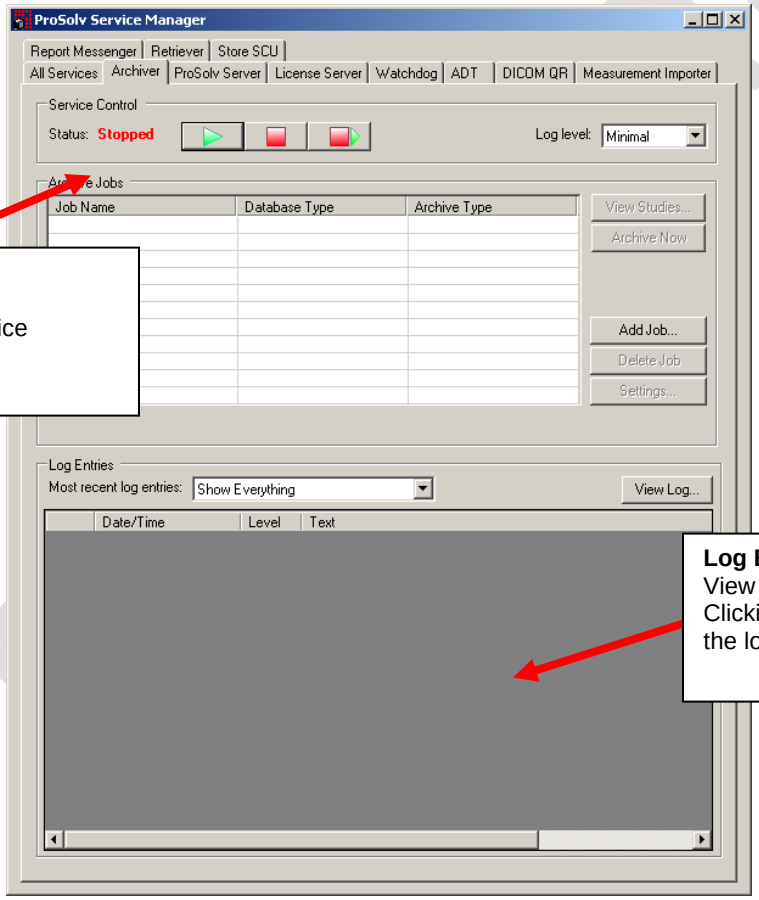
1. Service Manager

Windows service-mode applications that are integrated with ProSolv®'s Service Manager framework can run without a user interface and without having a local user being logged on. They share a common, tab-based user interface for managing their configuration and state.

The Service Manager provides a User Interface (UI) to configure and view the status of the ProSolv® Services. Each of the Services has a separate tab on the main window. If a service is not installed, a tab does not appear for that service. A shortcut to launch the Service Manager is installed on the user's Desktop. The first tab labeled, "All Services", lists the services that are installed along with the version numbers. Each Service tab has the same set of common controls described below.



Service Control Section
View service status
Start/stop/restart the service
Set the Service Log Level

Log Entries Section
View the last entries of the log file. Clicking the **View Log** button opens the log file in a text editor.

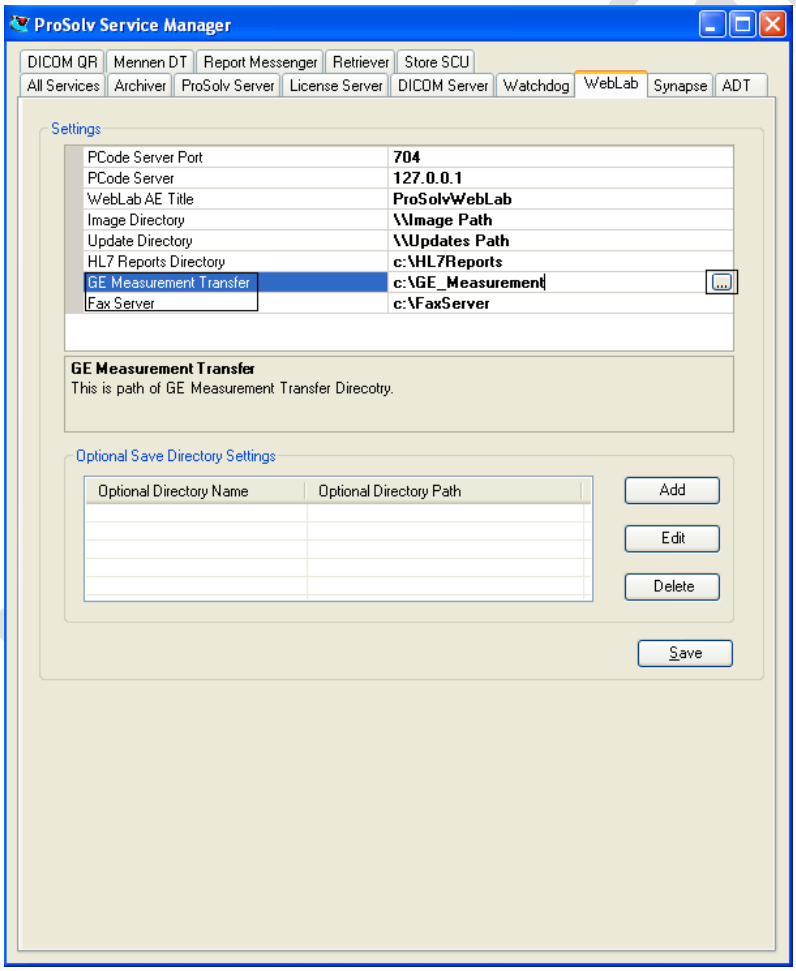
1.1. Integrations

1.1.1. WebLab Integration Configuration

ProSolv.WebLab is a Web Service that allows ProSolv CardioVascular Client to communicate with ProSolv Application Server Service and access patient data via HTTP or HTTPS protocols. ProSolv.WebLab acts as a Client's proxy, using its own credentials (ProSolv Service User account) to access and route patient data from the server to the Client application.

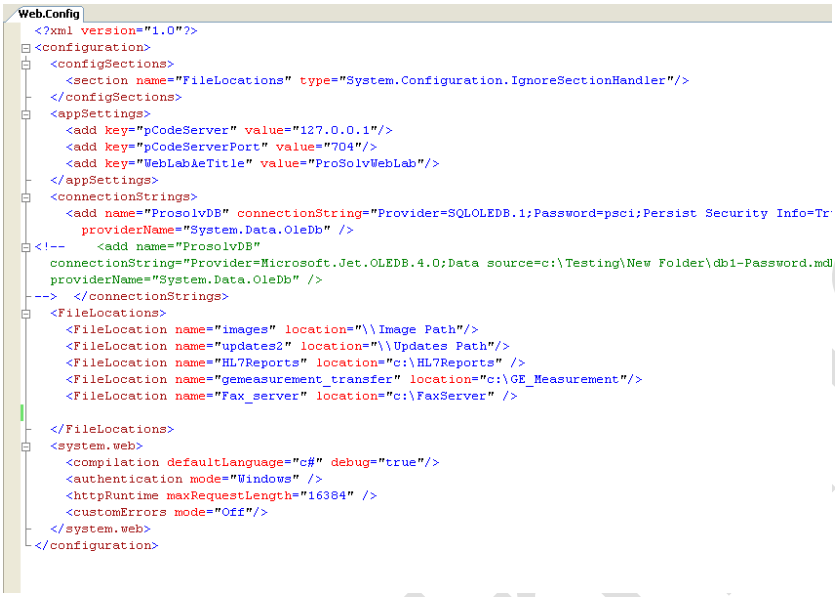
To configure the WebLab integration:

1. Start the ProSolv® Service Manager.
2. Click the "WebLab" tab.



3. Modify settings by clicking in the Settings table and entering new information or browsing to required locations.

Note: The values modified in the GUI are read from and written to an xml file in \ProSolv CardioVascular\Services 4.0\ProSolv.WebLab\Web.Config. Values can be modified by the user in GUI itself. A snapshot of the xml file is provided here:



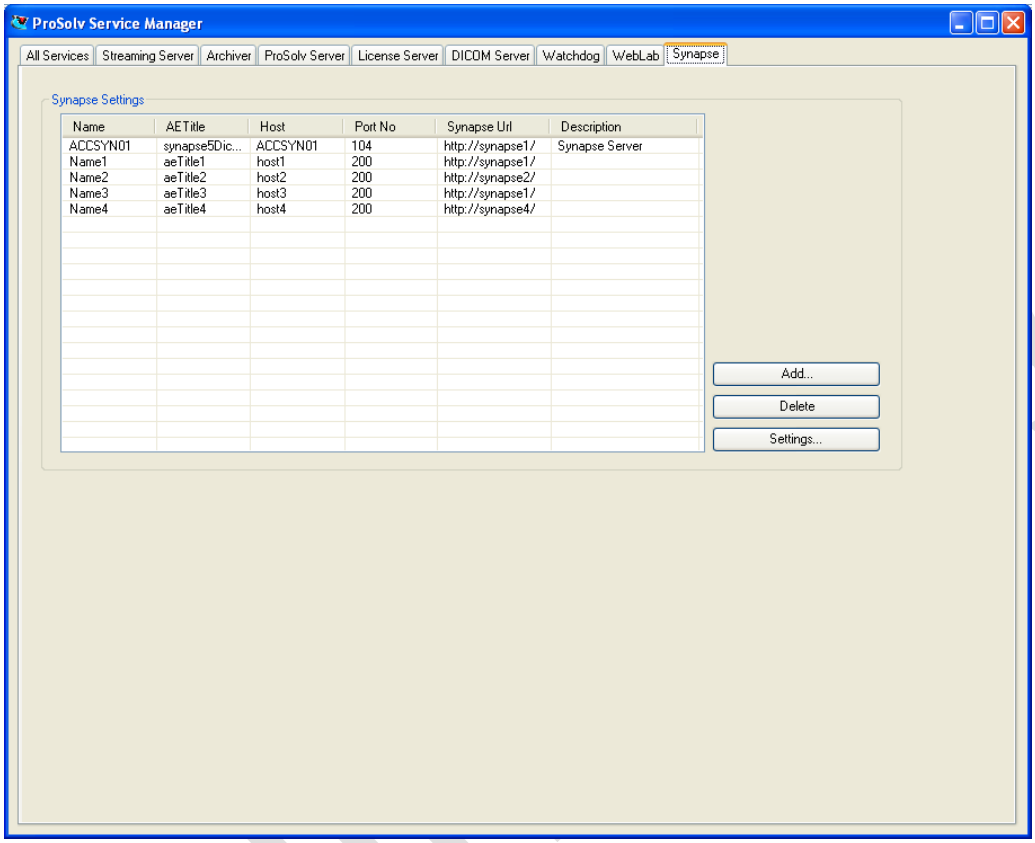
4. Click the **Save** button to accept changes.
5. To update directory paths, click the **Browse** button to browse to a specific directory and select the required folder.
6. Click the **Save** button to accept any changes.

NOTE: The Optional Save Directory Settings should not be modified by the customer.

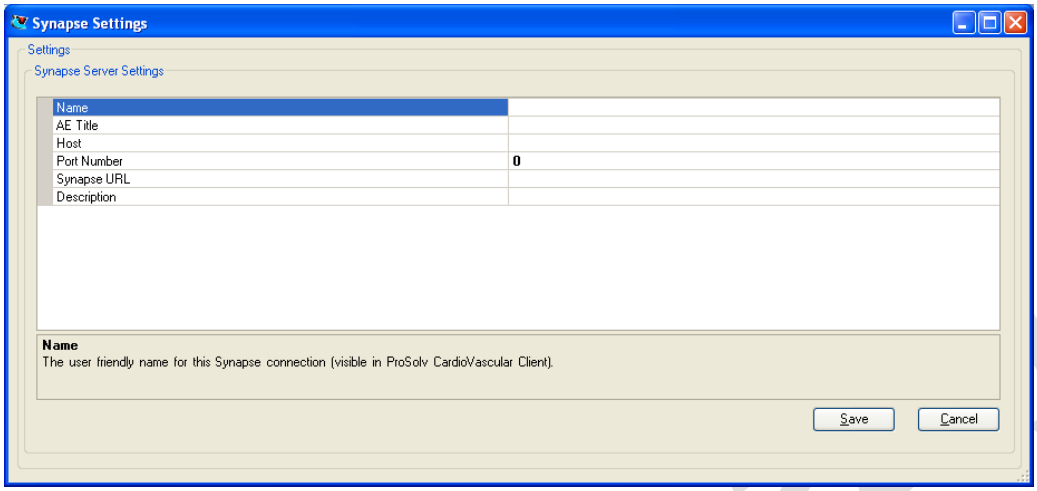
1.1.2. Synapse Integration Configuration

To configure the Synapse integration:

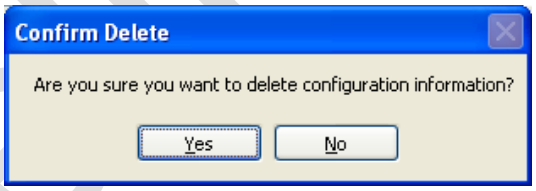
1. Start the ProSolv® Service Manager.
2. Click the "Synapse" tab. All available settings will be displayed in the Synapse Settings table.



3. Modify Settings by using the **Add**, **Delete** or **Settings** buttons to the right of the table.
4. To add a setting, click the **Add** button to the right of the Synapse Settings table.
5. At the Synapse Settings dialog box, enter the new information.



6. Click the **Save** button to accept the changes.
7. To edit a setting, click the **Settings** button to the right of the Synapse settings table and enter the updated information.
8. Click the **Save** button to accept the changes.
9. To delete a setting, click the **Delete** button to the right of the Synapse Settings table.
10. At the confirmation dialog box, confirm or cancel the operation. Click the **Yes** button to delete all related data from the database and refresh the Optional Save Directory Settings table. Click the **No** button to cancel the change.



1.1.3. OpenECG Integration Configuration

OpenECG is the integration with the Epiphany product. The modalities supported in the OpenECG integration are: Resting ECG and Holter. This integration allows physicians to view studies and modify and sign reports using the OpenECG software from an existing workstation configured with ProSolv Client. Studies captured via OpenECG will appear in a ProSolv study list, and when selected will launch OpenECG web client.

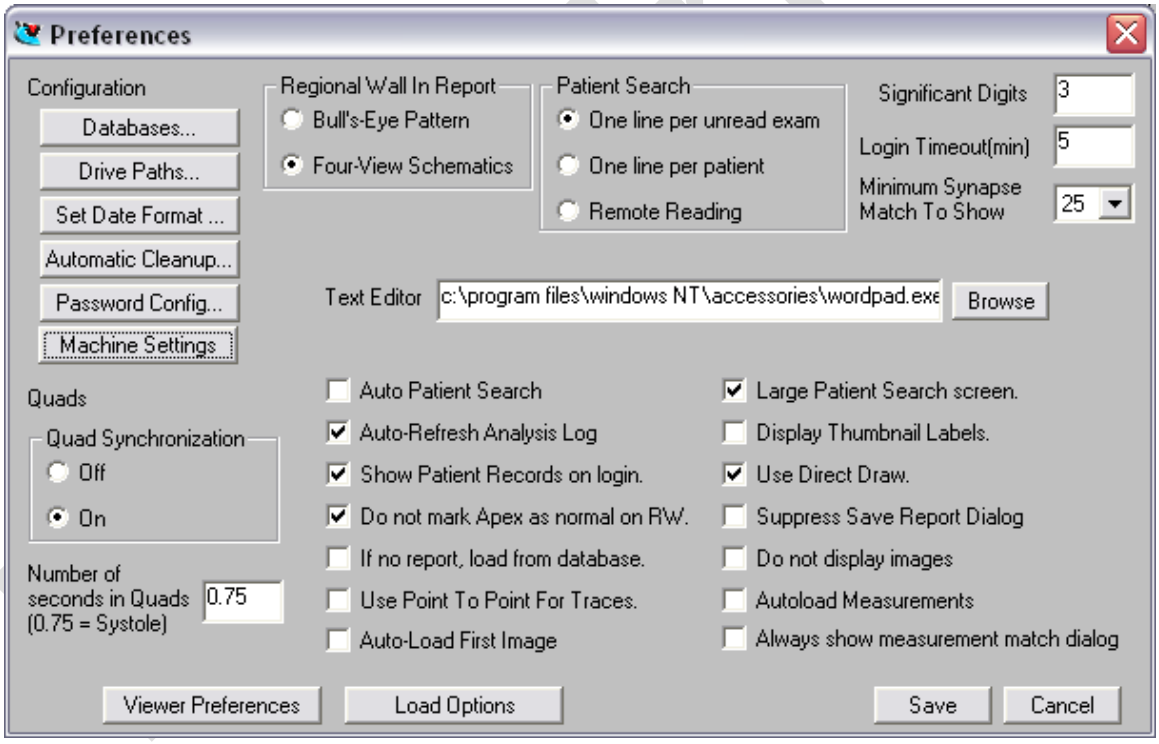
The ProSolv Server will import measurements and PDF report files from the OpenECG server, in fashion consistent with ProSolv report data and measurements, and will be completely searchable using SQL queries.

The ProSolv system will also act as a bi-directional "gateway" for ADT, Orders, Billing, and HL7 Result messages between a Hospital Information Systems and the OpenECG server. ProSolv will forward ADT and Orders messages from HIS to OpenECG and will also forward Billing and Result messages from OpenECG to HIS. This approach will consolidate and improve the system integrations.

All ProSolv users that are going to use the integration must have their ProSolv User Names added to the user list that is tied to the OpenECG server. The User Name is used for authentication between the two systems and hence must always match. Passwords on the other hand are not used for authentication and they don't have to match.

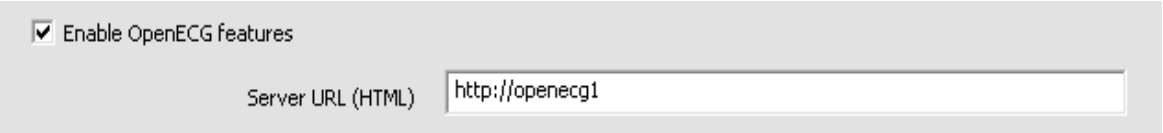
To configure the OpenECG integration:

1. Select Tools, then Preferences from the ProSolv menu.



2. Click on the **Machine Settings** button on the Preferences window.
3. On the Machine Settings Window, check the "Enable OpenECG features" checkbox and enter the URL of the OpenECG Web

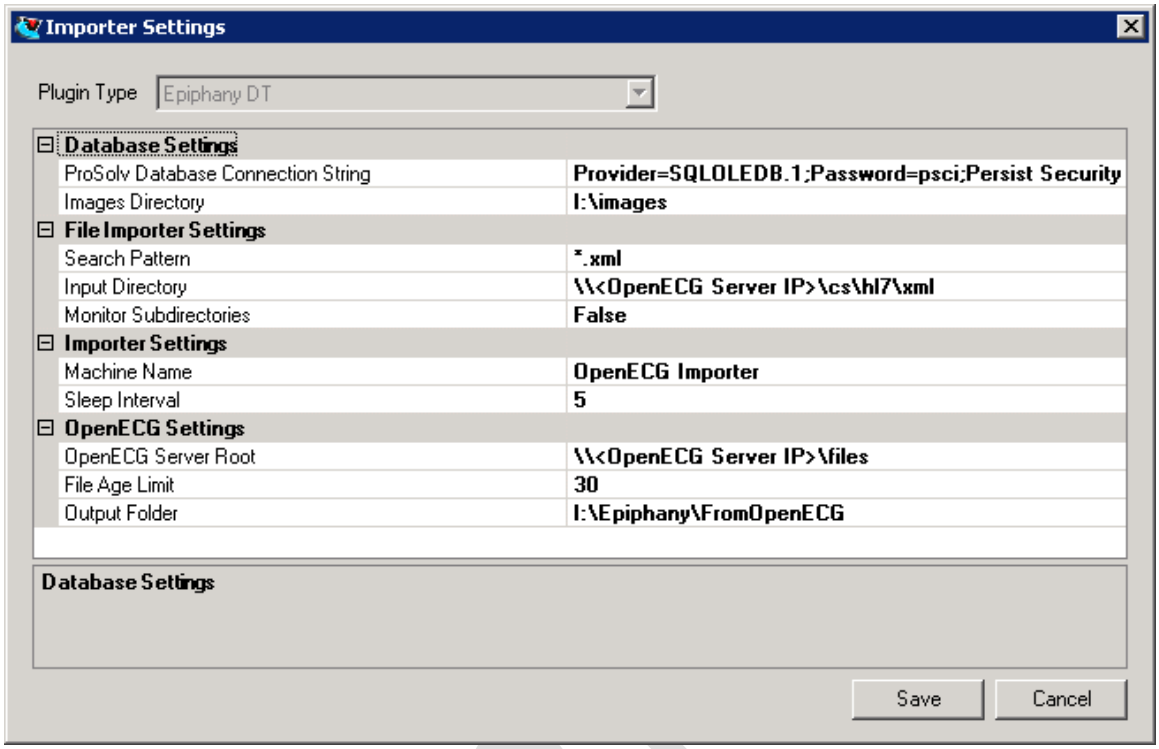
Interface (Note: Typically this is: http://<ECG Management Server Machine Name>).



4. A short cut to the OpenECG URL needs to be placed on the desktop of all workstations. The short cut needs to point to the Server URL listed above in step '3'.
5. To configure client components, the Measurement Importer, ADT and Report Messenger Plug-ins must be installed.

ECG Management Module DT Service Configuration

The ECG Management Server will export an XML and a PDF report whenever a study is confirmed within the Web Interface. These files are stored on file shares on the ECG Management Server. The ProSolv Measurement Import Service needs to be configured to import these files into the system. This is done by configuring the ECG Management Module Plug-in that is part of the Measurement Import Service. Please note that in order for the Plug-in to be able to access files on the remote ECG Management Server server, the Measurement Import Service must be running under a Domain Account that has read access to those file share.



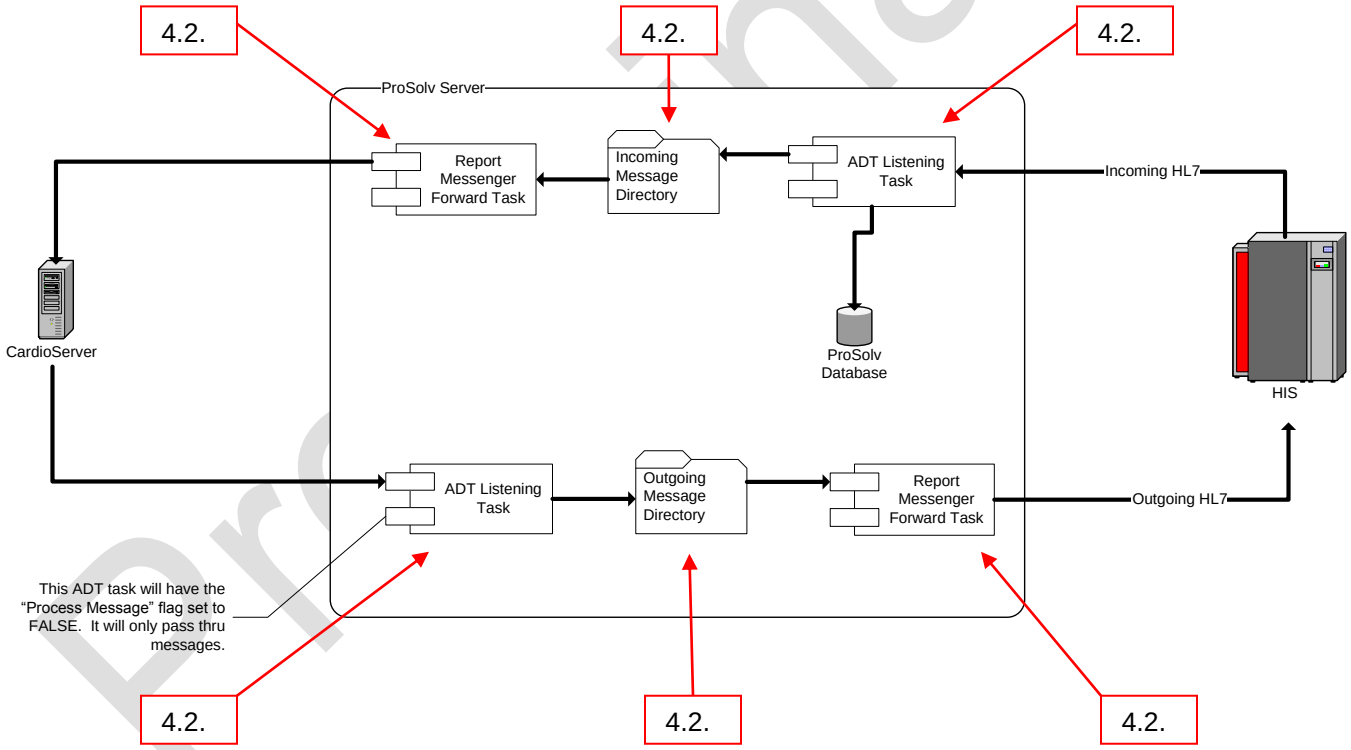
Name	Description	Recommended Values
Database Settings		
ProSolv Database Connection String	Connection string to the ProSolv® database. Click the "…" button to bring up the Connection editor.	Provider=SQLOLEDB.1;Password=psci;Persist Security Info=True;User ID=prosolv;Initial Catalog=Prosolv;Data Source=localhost
Image Directory	Path to the Images Folder.	\\<ImageStore>\psdata$
File Importer Settings		
Search Pattern	File pattern that the importer is going to be watching for.	*.xml
Input Directory	UNC path to the CardioServer export folder.	\\<CardioServer Server IP>\cs\hl7\xml
Monitor Subdirectories	An option to enable monitoring of subdirectories. The default settings of the CardioServer Server does not allow for exporting files to subdirectories.	False
Importer Settings		
Machine Name	A unique name that describes the importer task.	OpenECG Importer
Sleep Interval	Number of seconds between polls of the Input Directory.	5

Name	Description	Recommended Values
OpenECG Settings		
OpenECG Server Root	UNC path to the root folder of the CardioServer server.	\\<CardioServer Server IP>\files
File Age Limit	Number of days to keep incoming files before deleting them.	30
Output Folder	Path to the folder where the input files are stored after they have been processed.	\\<AppServer>\ProSolv Database\Epiphany\From CardioServer

Note: Use recommended values unless Site requests otherwise.

HL7 Message Routing Configuration

All HL7 messages are routed through the ProSolv Server to/from the CardioServer. The ProSolv Report Messenger and ProSolv ADT Services are used in tandem to perform the message forwarding.

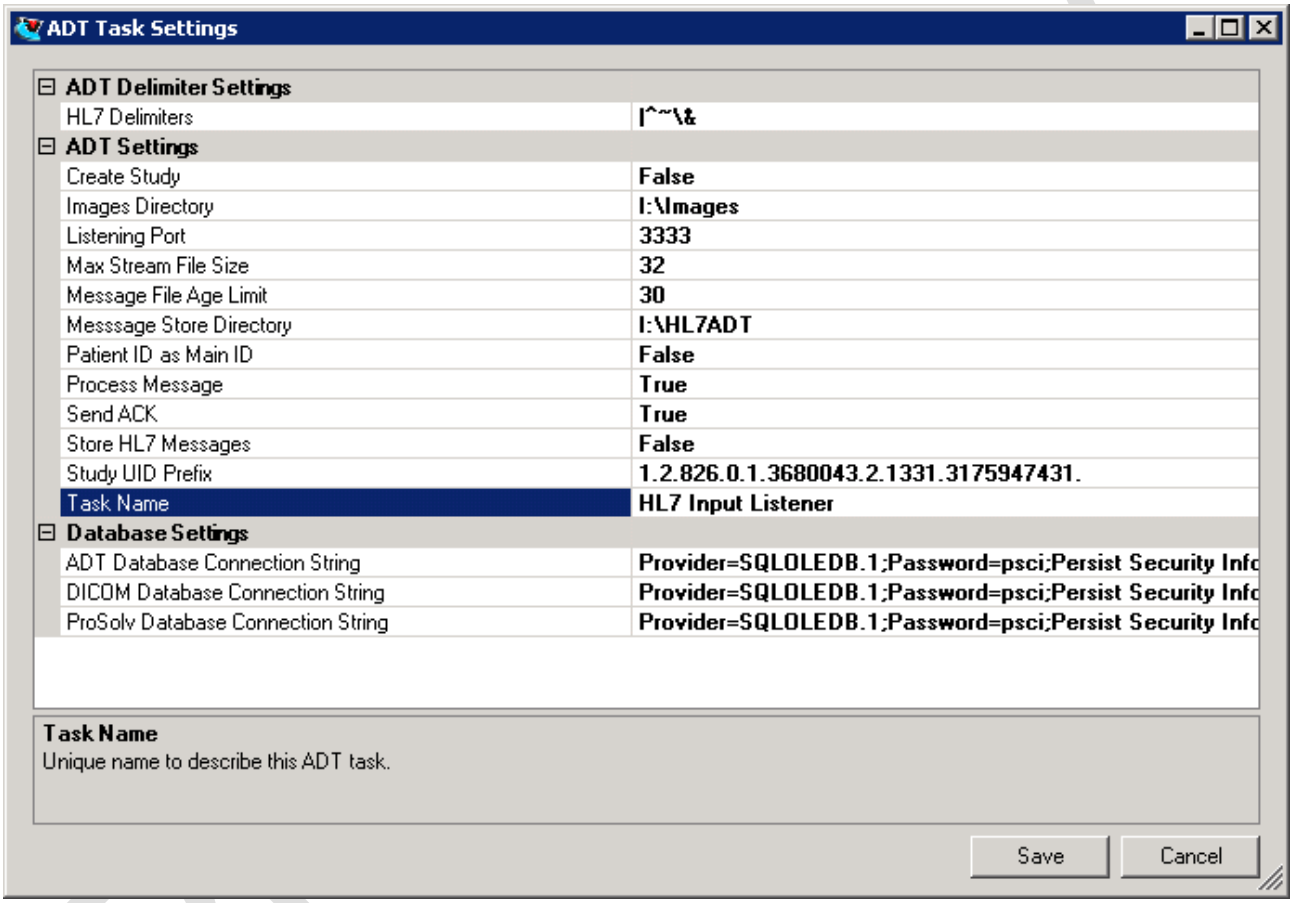


HL7 Message Routing Configuration

The ADT service needs to be configured to receive HL7 messages from the HIS on some predefined port number. This task will be responsible

for receiving all incoming HL7 from the HIS. These messages will be processed and entered into the ProSolv Database. The messages will also be saved to a folder so that they can be forwarded to the OpenECG server.

Create a directory: I:\HL7ADT



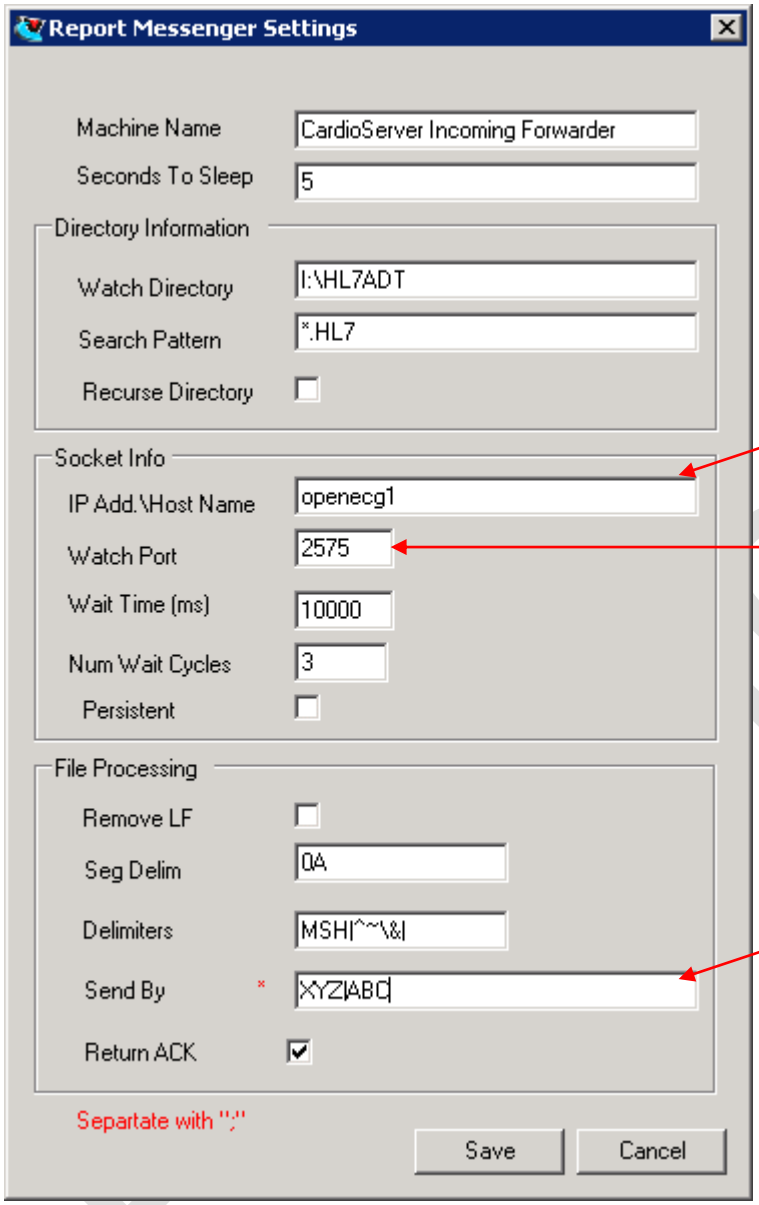
Name	Description	Recommended Values
ADT Delimiter Settings		
HL7 Delimiters	HL7 Delimiters can be added as needed	|^~\&
ADT Settings		
Create Study	Changing this option to TRUE will result in studies getting created in the system for each order	False
Images Directory	Path to the images folder	\\<ImageStore>\psdata$
Listening Port	Port that the service is listening on	3333
Max Stream File Size	Number of MB to set for the maximum stream file size.	32
Message File Age Limit	Number of days to keep incoming files before deleting them.	30

Name	Description	Recommended Values
ADT Delimiter Settings		
Message Store Directory	Path to the location of the incoming HL7 messages.	\\<AppServer>\ProSolv database\HL7ADT
Patient ID as Main ID	Boolean for setting Patient ID as the main identifier.	False
Process Message	Boolean for setting whether the message needs to be processed. Setting this to False results in just storing messages.	True
Send ACK	Boolean for turning on ACK messages, this might be required by the HIS system.	True
Store HL7 Messages	Boolean for storing HL7 messages. Setting this to False will not create individual message files.	True
Study UID Prefix	Study UID Prefix	1.2.826.0.1.3680043.2.1331.3175947431.
Task Name	Desired task name	HL7 Input Listener
Database Settings		
ADT Database Connection String	Connection string to the ProSolv® database. Click the "…" button to bring up the Connection editor.	Provider=SQLOLEDB.1;Password=psci;Persist Security Info=True;User ID=prosolv;Initial Catalog=Prosolv;Data Source=<sqldb>
DICOM Database Connection String	Connection string to the ProSolv® database. Click the "…" button to bring up the Connection editor.	Provider=SQLOLEDB.1;Password=psci;Persist Security Info=True;User ID=prosolv;Initial Catalog=Prosolv;Data Source=<sqldb>
ProSolv Database Connection String	Connection string to the ProSolv® database. Click the "…" button to bring up the Connection editor.	Provider=SQLOLEDB.1;Password=psci;Persist Security Info=True;User ID=prosolv;Initial Catalog=Prosolv;Data Source=<sqldb>

Note: Use recommended values unless Site requests otherwise.

Report Messenger Service Configuration

The Report Messenger service needs to be configured to forward HL7 messages over to the Open ECG Server. The service will monitor the output folder of the ADT service for HL7 messages. As it finds HL7 messages it will forward to the Open ECG Server that is preconfigured to list on a certain port number.



IP address or Machine Name of the OpenECG Server

Port that the OpenECG server is listening on.

Configure according to incoming HL7 messages (Sending facility / application)

Name	Description	Recommended Values
Machine Name	Desired machine name	CardioServer Incoming Forwarder
Seconds to Sleep	Number of seconds between polls of the Input Directory.	5
Watch Directory	Directory to watch for input files	\\<AppServer>\ProSolv Database\HL7ADT
Search Pattern	Pattern to search on	*.hl7
Recurse Directory	Option to check subdirectories	Unchecked
IP Add.\Host Name	Host IP	<IP OpenECG Server>

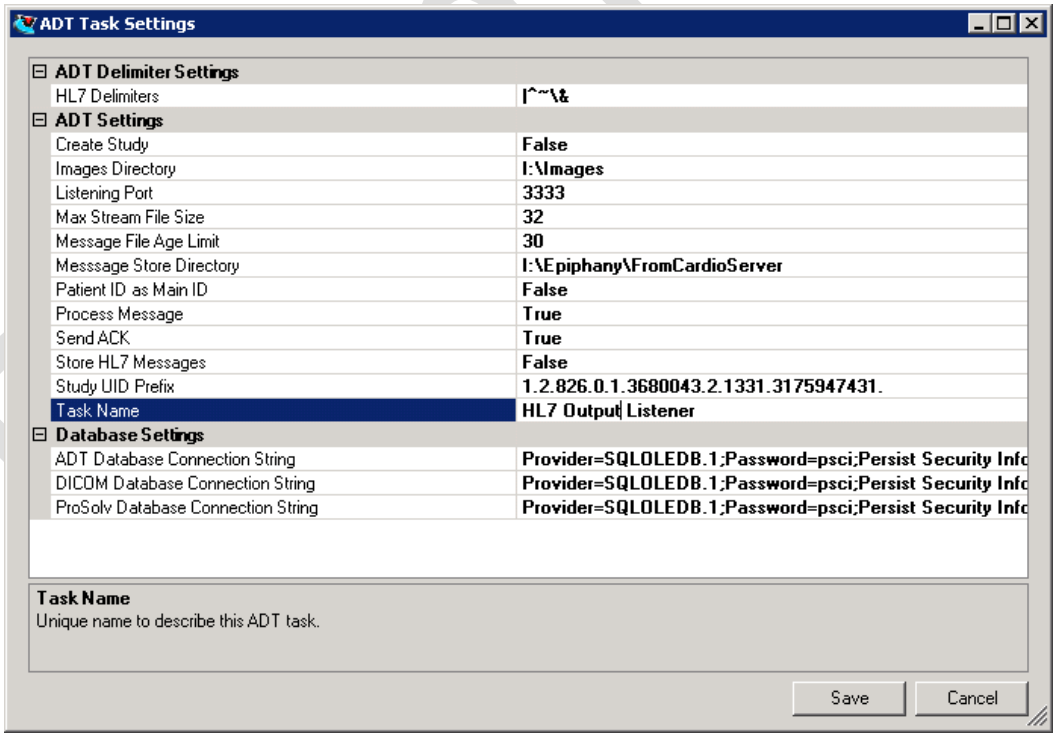
Name	Description	Recommended Values
Watch Port	Host Port	<Port OpenECG is Listening on>
Wait Time	Number of milliseconds between polls of the Input Directory.	10000
Num Wait Cycles	Number of tries	3
Persistent	Checking for persistent connections	Unchecked
Remove LF	Removes Line Feed from the message	Unchecked
Seg Delim	Segment delimiter	0A
Delimiters	Standard HL7 delimiters	MSH|^~\&|
Send By	Sending facility / application	PROSOLV|;PSV|
Return ACK	Option to enable return of ACK message	Checked

Note: Use recommended values unless Site requests otherwise.

ADT Listening Task Configuration

An ADT Listening Task needs to be configured that will receive a message stream from the OpenECG Server on some predefined port number. These messages will not be processed and stored in the ProSolv Database. To accomplish this, the "Process Message" flag should be set to FALSE for this task. The messages will be saved to a folder so that they can be forwarded to the HIS. The ADT Task should be configured to store messages to a folder on the ProSolv Server.

Create a directory**:** I:\Epiphany\FromCardioServer**.**



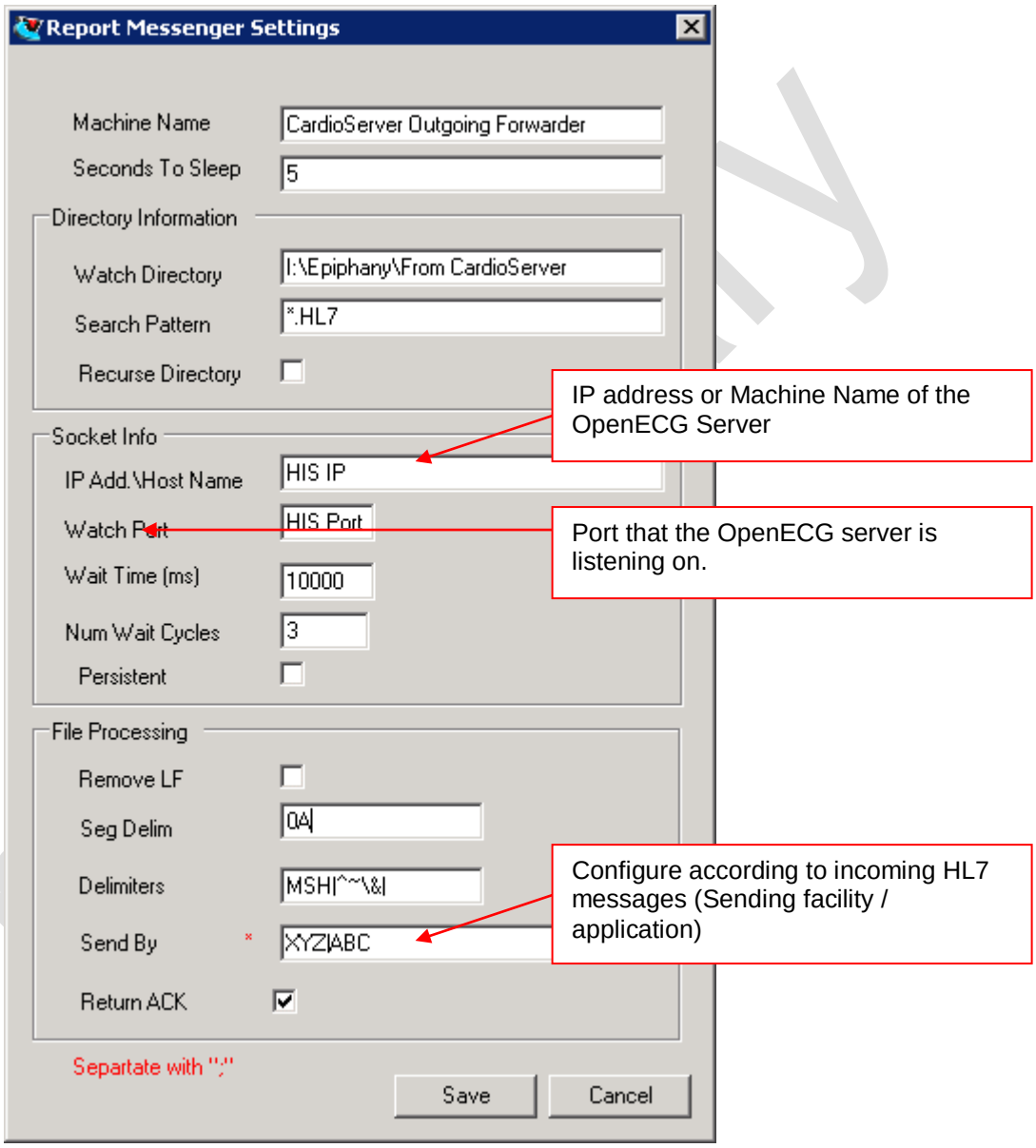
Name	Description	Recommended Values
ADT Delimiter Settings		
HL7 Delimiters	HL7 Delimiters can be added as needed.	|^~\&
ADT Settings		
Create Study	Changing this option to TRUE will result in studies getting created in the system for each order	False
Images Directory	Path to the images folder	\\<ImageStore>\psdata$
Listening Port	Port that the service is listening on	3333
Max Stream File Size	Number of MB to set for the maximum stream file size.	32
Message File Age Limit	Number of days to keep incoming files before deleting them.	30
Message Store Directory	Path to the location of the incoming HL7 messages.	\\<AppServer>\ProSolv Database\Epiphany\From CardioServer
Patient ID as Main ID	Boolean for setting Patient ID as the main identifier.	False
Process Message	Boolean for setting whether the message needs to be processed. Setting this to False results in just storing messages.	True
Send ACK	Boolean for turning on ACK messages, this might be required by the HIS system.	True
Store HL7 Messages	Boolean for storing HL7 messages. Setting this to False will not create individual message files.	True
Study UID Prefix	Study UID Prefix	1.2.826.0.1.3680043.2.1331.3175947431.
Task Name	Desired task name	HL7 Input Listener
Database Settings		
ADT Database Connection String	Connection string to the ProSolv® database. Click the "…" button to bring up the Connection editor.	Provider=SQLOLEDB.1;Password=psci;Persist Security Info=True;User ID=prosolv;Initial Catalog=Prosolv;Data Source=<sqldb>
DICOM Database Connection String	Connection string to the ProSolv® database. Click the "…" button to bring up the Connection editor.	Provider=SQLOLEDB.1;Password=psci;Persist Security Info=True;User ID=prosolv;Initial Catalog=Prosolv;Data Source=<sqldb>
ProSolv Database Connection String	Connection string to the ProSolv® database. Click the "…" button to bring up the Connection editor.	Provider=SQLOLEDB.1;Password=psci;Persist Security Info=True;User ID=prosolv;Initial Catalog=Prosolv;Data Source=<sqldb>

Note: Use recommended values unless Site requests otherwise.

Report Messenger Forward Task Configuration

A Report Messenger Forward Task needs to be configured to monitor the folder that the ADT Task stores messages. The Report Messenger

task will pull in the messages and send them to the HIS on a predefined port number.



Name	Description	Recommended Values
Machine Name	Desired machine name	CardioServer Forwarder to HIS
Seconds to Sleep	Number of seconds between polls of the Input Directory.	5

Name	Description	Recommended Values
Watch Directory	Directory to watch for input files	\\<AppServer>\ProSolv Database\Epiphany\From CardioServer
Search Pattern	Pattern to search on	*.hl7
Recurse Directory	Option to check subdirectories	Unchecked
IP Add.\Host Name	IP Address of the OpenECG server	<IP of HIS system>
Watch Port	OpenECG HL7 Port Number (Default is 2575)	<Port that HIS is listening on>
Wait Time	Number of milliseconds between polls of the Input Directory.	10000
Num Wait Cycles	Number of tries	3
Persistent	Checking for persistent connections	Unchecked
Remove LF	Removes Line Feed from the message	Unchecked
Seg Delim	Segment delimiter	0A
Delimiters	Standard HL7 delimiters	MSH|^~\&|
Send By	Sending facility / application	<Sending Facility>
Return ACK	Option to enable return of ACK message	Checked

Note: Use recommended values unless Site requests otherwise.

1.1.4. MacLab Integration Configuration

The MacLab equipment exports data by depositing files in a directory that the Prosolv Measurement Importer monitors. These files end with the extension "h7c" for cardiac and "h7e" for electrophysiology. The cardiac file (not the EP) are retrieved and put into the database. Once a match is made on the client the values are added to variables and are available to be put on the report.

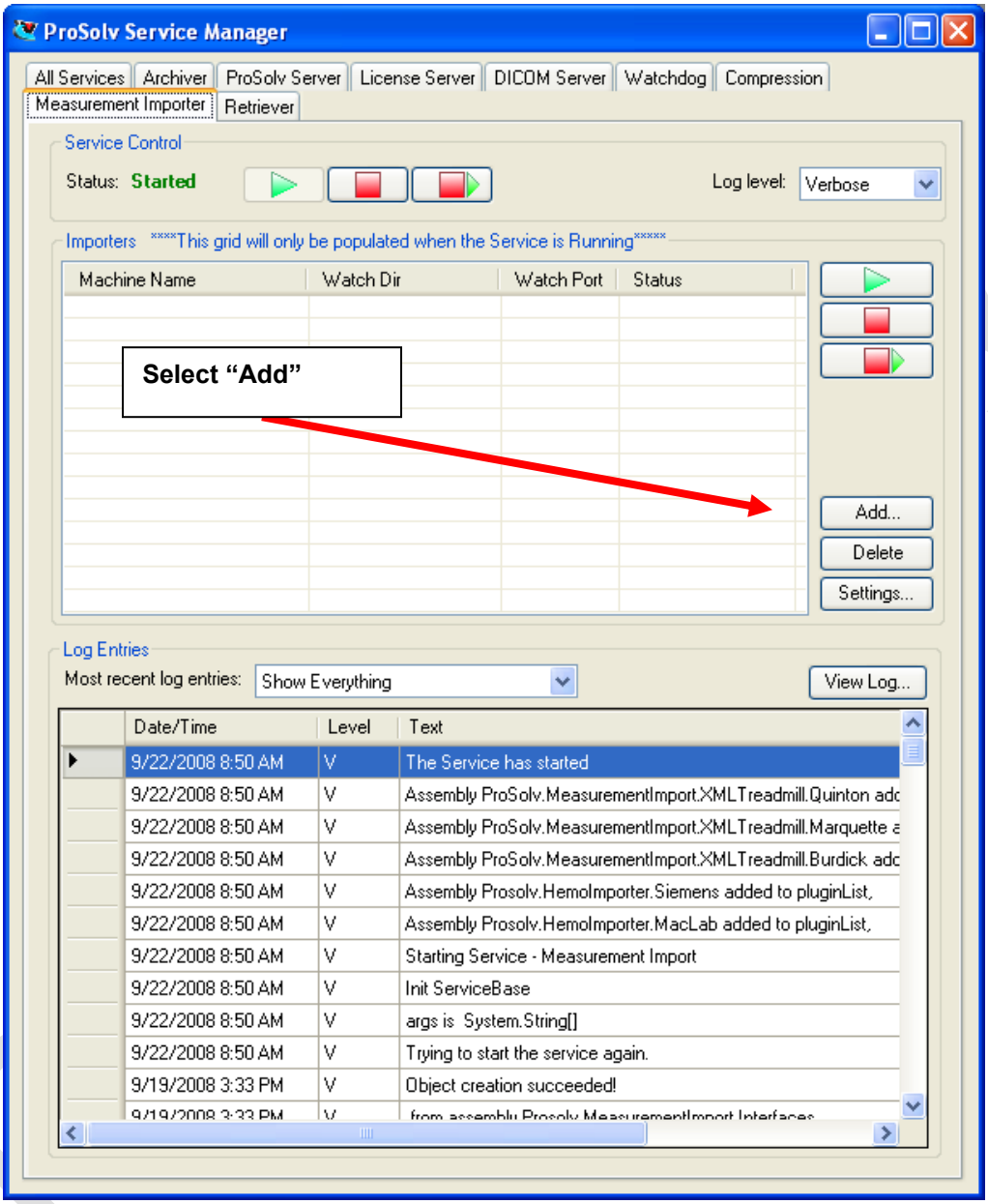
MacLab is also capable of exporting tiff image files that contain wave forms. MacLab's output may or may not contain these image files. The export with tiff image files may populate the Prosolv Importer input directory in two formats:

1) Deposited directly in the input folder with the names matching the "h7?" and ending with snapxxxx.tif :
    a. (0a9ac3e9-0981-41cc-aa0b-939d5d8c8acdsnap0001.tif)
    b. 0a9ac3e9-0981-41cc-aa0b-939d5d8c8acd.h7c
2) A new subdirectory holding the data and tiff files put into the input directory with names that may not match.

These image tiff files are put into the studies image directory for viewing when a match takes place at the client

To configure the MacLab integration:

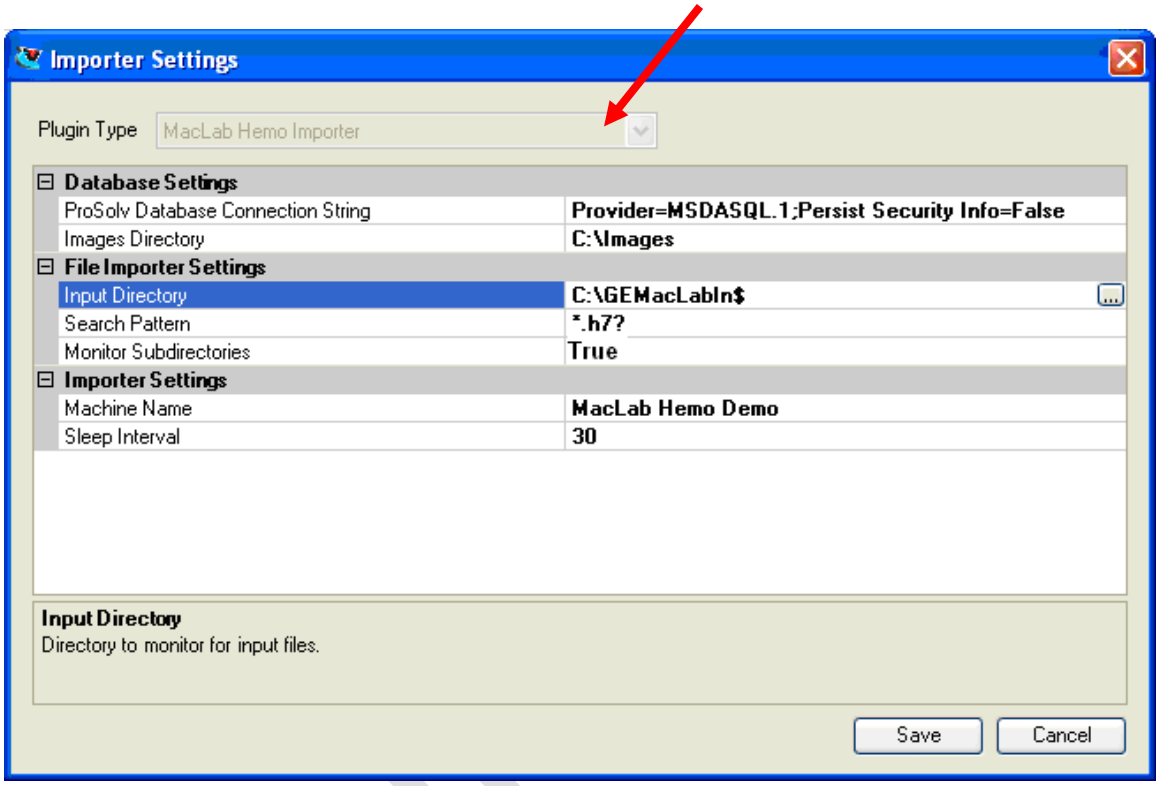
1. Start the ProSolv® Service Manager.
2. Select the "Measurement Importer" tab.



3. Select <**Add**> to configure a new MacLab Importer.

4. Make sure that MacLab Hemo Importer is selected in the window before configuring.

Select "MacLab Hemo Importer"



Name	Description	Recommended Values
Database Settings		
Images Directory	Path to the Images Folder.	I:\Images
ProSolv Database Connection String	Connection string to the ProSolv® database. Click the "…" button to bring up the Connection editor.	Provider = SQLOLEDB.1 Password = psci Persist Security Info = True User ID = prosolv Initial Catalog = Prosolv Data Source = localhost
File Importer Settings		
Input Directory	Path to the folder where the hemodynamic output files will be deposited by MacLab.	I:\GEMacLabIn\Input
Search Pattern	Filter pattern of files to import. MacLab = "*.h7?" This allows	*.h7?

Name	Description	Recommended Values
	for h7c and h7e files	
Monitor Subdirectories	False = will not process files in subdirectories.	True
Importer Settings		
Machine Name	A unique name that describes the importer task.	MacLab Importer
Sleep Interval	Number of seconds between polls of the Input Directory.	30

Note: Use recommended values unless Site requests otherwise.

5. After completing the entries select <**Save**>, select the entry and start the service.

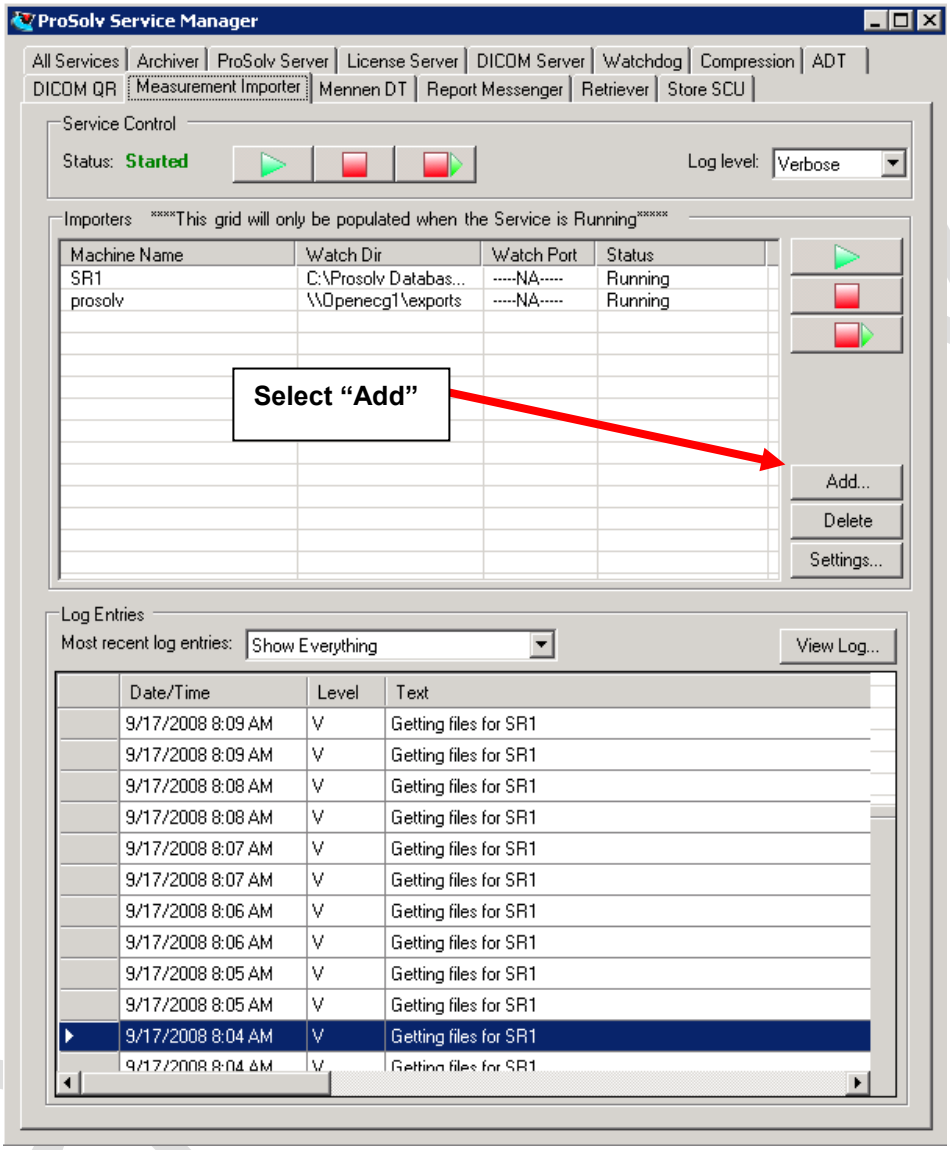
Note: Configure the above per your specific system. The MacLab system will also need to be configured so that it deposits files in the Input Directory that is specified in this configuration step.

1.1.5. Siemens Sensis Integration Configuration

The new generation of our recording solution is adapting to the user's workflow featuring customizable workflow support programs and new advanced measurement functions. As a truly integrated solution AXIOM Sensis XP combines both electrophysiology and hemodynamics in one system.

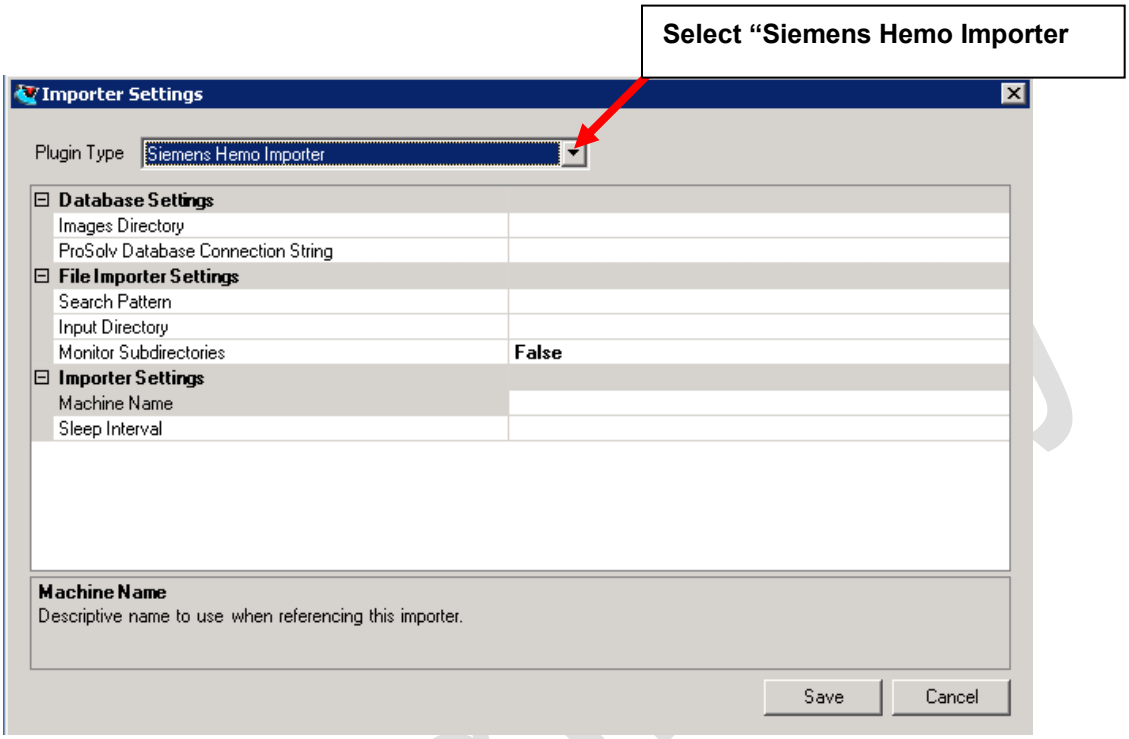
To configure the Siemens Sensis integration:

1. Start the ProSolv® Service Manager.
2. Select the "Measurement Importer" tab.



3. Select <**Add**> to configure a new Siemens Importer.

4. Make sure that Siemens Hemo Importer is selected in the window before configuring.

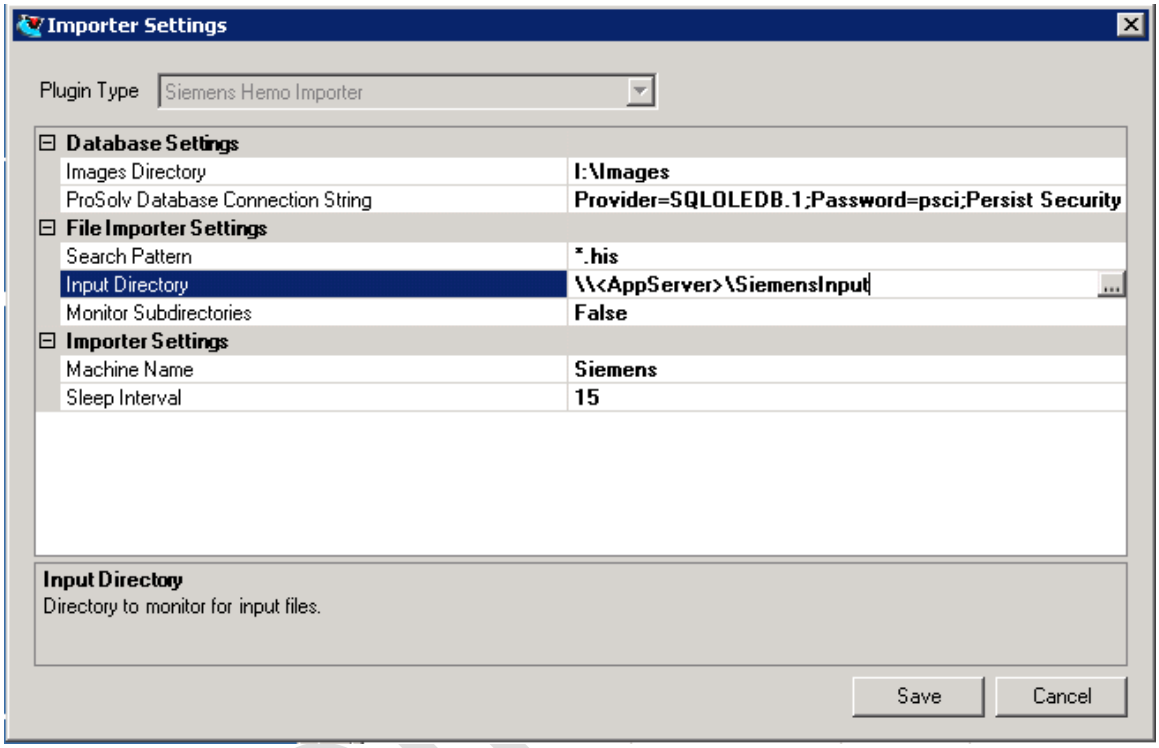


Configuration Setting	Description	Recommended Value
Plugin Type	Drop down list of supported importers	
Image Directory	Directory location where the ProSolv Study images are located.	
ProSolv Database Connection String	Connection string pointing to the ProSolv database.	
Search Pattern	Filter pattern of files to import. Siemens = "*.his"	
Input Directory	Directory location where the hemodynamic output files will be deposited by the OEM and then processed.	
Monitor Subdirectories	False = will not process files in subdirectories. True = not supported	
Machine Name	Unique name to describe this importer task.	
Sleep Interval	Amount of time to sleep in between checks for new input files.	

5. After completing the entries hit <**Save**>, select the entry and start the service.

Note: Configure the above per your specific system. The Siemens Sensis system will also need to be configured so that it deposits files in the Input Directory that is specified in this configuration step.

Note: The screen below displays the recommended configuration values.



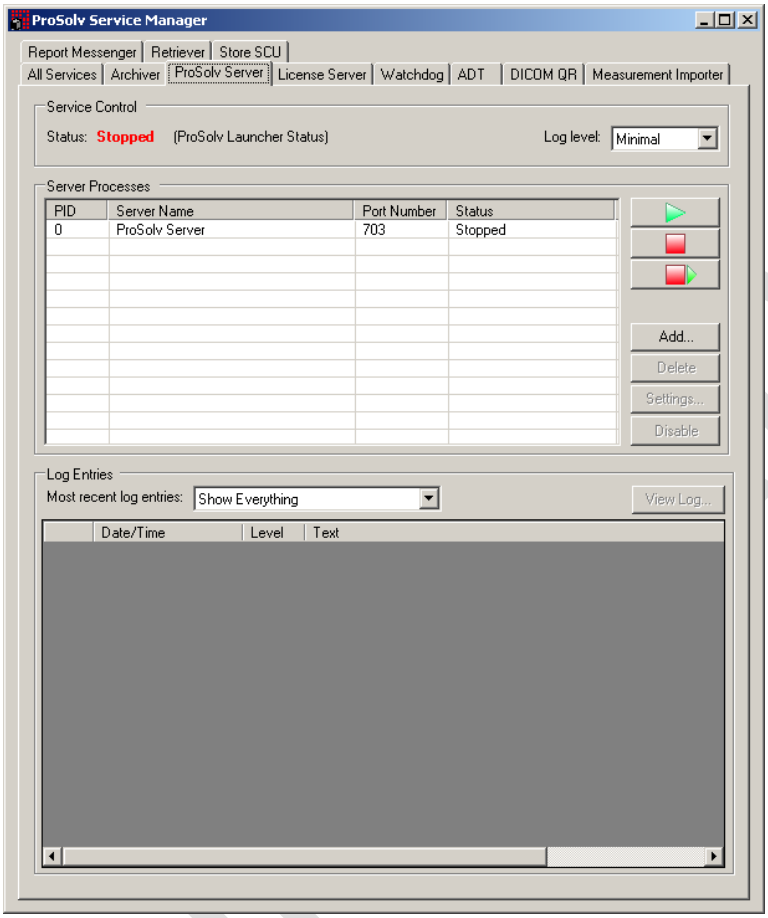
1.2. ProSolv® Server

The ProSolv® Server application enables users to share centrally located databases, as well as images and reports. The ProSolv® Server is actually a background process that gets spawned by the ProSolv® Launcher Windows Service. This allows a site to have multiple ProSolv® Servers running on the same machine. The ProSolv® WebLab Web Service provides HTTP communications between the ProSolv® Client and Server.

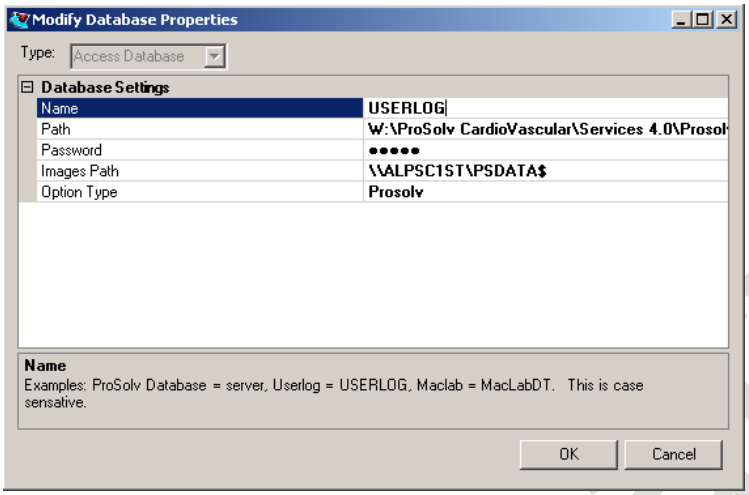
1.2.1. Configuration

To configure the ProSolv® Server:

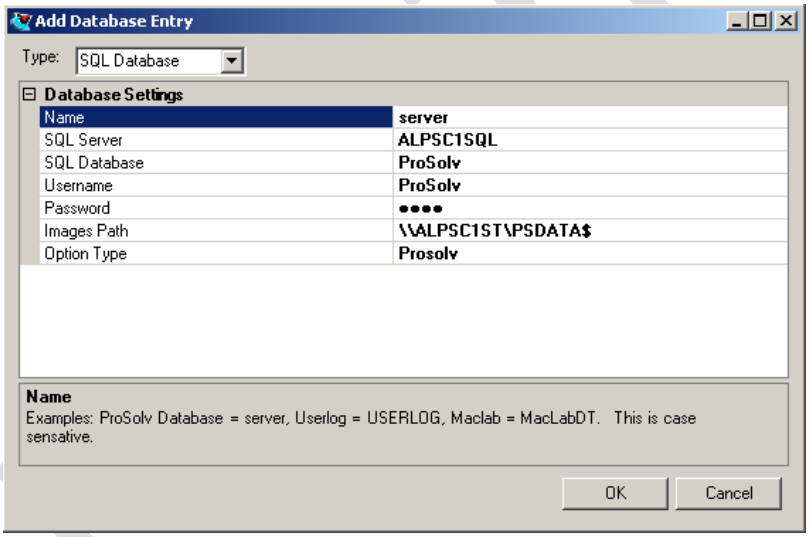
1. Start the ProSolv® Service Manager.
2. Click the "ProSolv® Server" tab.



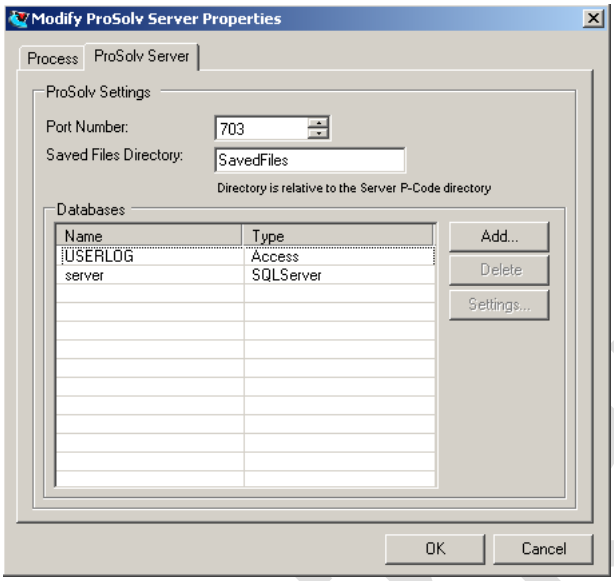
3. To add a new ProSolv® Server process, click the **Add** button. This will bring up the Add ProSolv® Server screen. Alternatively, select existing ProSolv® Server and click **Settings**.
4. There needs to be a minimum of two entries under ProSolv® Server -> Databases list. **NOTE:** USERLOG and server are case-sensitive. USERLOG should be all uppercase and server must be all lowercase.
    a. USERLOG – for user activity auditing

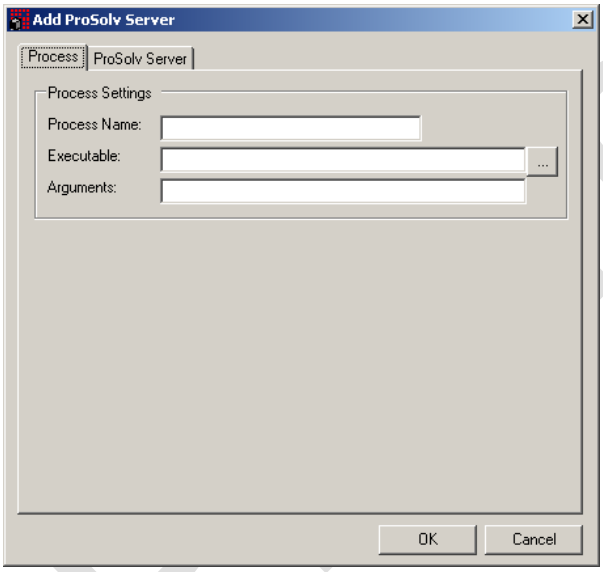


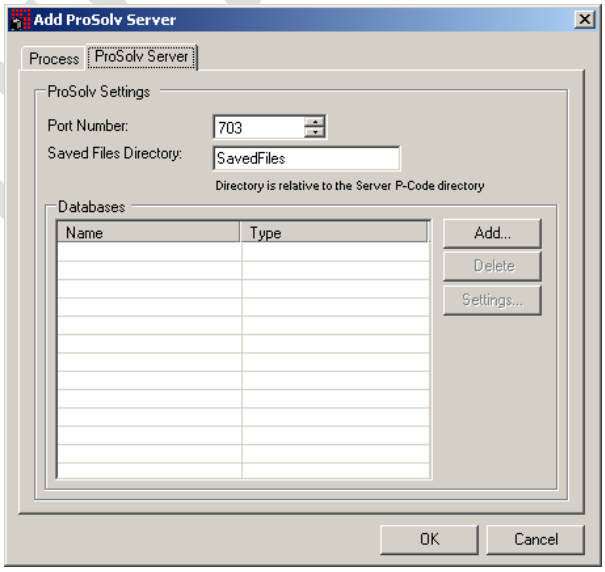
b. server – the actual ProSolv® server configuration object:



c. Complete the ProSolv® Server tab appears as follows:







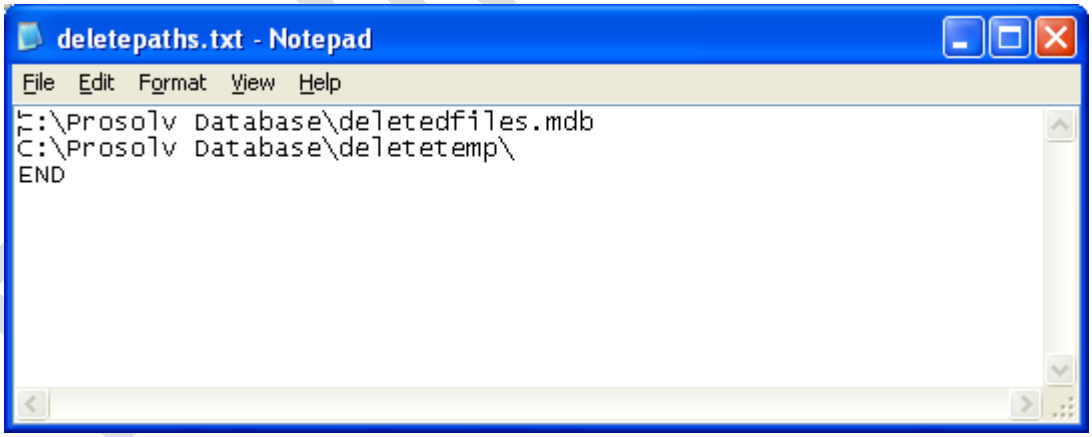
Configuration Setting	Description	Recommended Value
Process Name	Unique name to describe this ProSolv® Server process	
Executable	Path to the ProSolv.exe to spawn	
Arguments	Optional arguments to pass to the ProSolv®.exe process, default is 'apps\server\server.pxe'	
Port Number	TCP Port Number	

Configuration Setting	Description	Recommended Value
Saved Files Directory	Folder that stores the saved P-Code files	
Database	List of databases that this server will use. The following names must be used: server - ProSolv® Database USERLOG – User log database	

5. Click **OK** to save the settings.
6. To start the newly configured process, click the Green **Start** button to the right of the Process List.
7. To stop the process, click the Red **Stop** button.
8. To restart the process, click the **Restart** button.
9. To remove a process, select it in the list and click the **Delete** button.
10. To modify a process' settings, select it in the list and click the **Settings** button.
11. To disable a process from being spawned and pinged by Watchdog, click the **Disable** button.

To configure the Server Service – Non Service Manager:

1. **Server Files:** Navigate to the Services 4.0\apps\server directory and modify deletepaths.txt to reference the locations of the deletedfiles.mdb database and the deletetemp directory. This is typically under the \prosolv database directory.



2. **Deleted Files:** Navigate to the \ProSolv Database directory referenced above and verify the users group has full permissions to the deletedfiles.mdb database and the deletetemp folder.

1.3. License Server

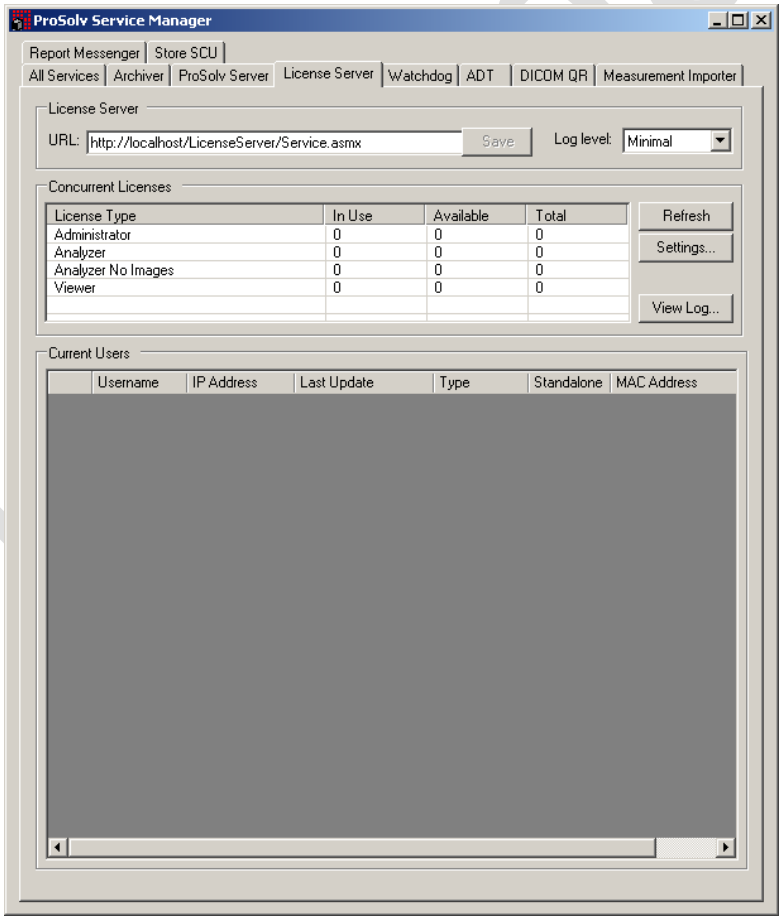
The License Server is in charge of distributing concurrent licenses to client users. The License Server is a Web Service that handles license requests from the ProSolv® Server. The License Server determines the amount of licenses for each of the application types from the license file that is installed on the server.

The License Server Tab in the Service Manager displays a list of all users that are currently logged into the ProSolv® Server. It also displayed the number of licenses that are in use and how many are remaining for each application type.

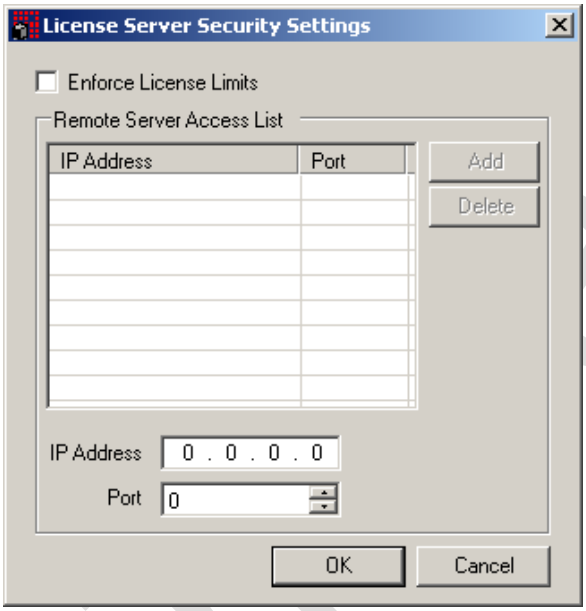
1.3.1. Configuration

To configure the License Server:

1. Start the ProSolv® Service Manager.
2. Click the "License Server" tab.



3. If this is a remote/secondary server that is requesting licenses from a primary license server put the address of the main license server on the URL line. Ex: http://*192.168.0.1*/LicenseServer/Service.asmx where the IP address is the IP address of the main license server.
4. To modify the configuration, click the **Settings** button. This will bring up the License Server Security Settings screen.



Configuration Setting	Description	Recommended Value
Enforce License Limits	Boolean flag indicating if the License Server should reject a license request if all of the licenses are currently in use.	
Remote Server Access List	List of Remote ProSolv® Servers that can request a license from this License Server.	

5. If you are configuring a primary/main license server that will be sharing licenses with other license servers, you must include the IP address and Port of the requesting ProSolv® server on this screen.
6. To save the settings, click the **OK** button.

1.3.2. Enterprise Licensing Methodology

In many cases, an Enterprise purchases a multi-user concurrent license for the entire enterprise comprised of a main license server and multiple local (or remote) license servers. Configure the license servers as follows:

1. On the primary/main License Server, create and add a license for the total number of concurrent licenses for the entire enterprise.
2. On the local/remote License Server(s) create and add a single user concurrent license. The URL will point to the main license server.
3. By default the "Enforce License Limits" flag on both should be unchecked.

1.4. Watchdog Service

The Watchdog Service monitors the ProSolv® Services and is capable of sending alert emails to administrative staff. The Watchdog Service will ping each service on a designated time interval. The default setting performs the ping every 5 minutes. If the Watchdog cannot ping the service, then it attempts to restart the service. It will continue to try to restart the service for the next 30 minutes. If the Watchdog cannot restart the service after 30 minutes, it flags the service to indicate that the service cannot be restarted. Watchdog can also monitor drive space and send an alert email if free space falls below a certain percentage.

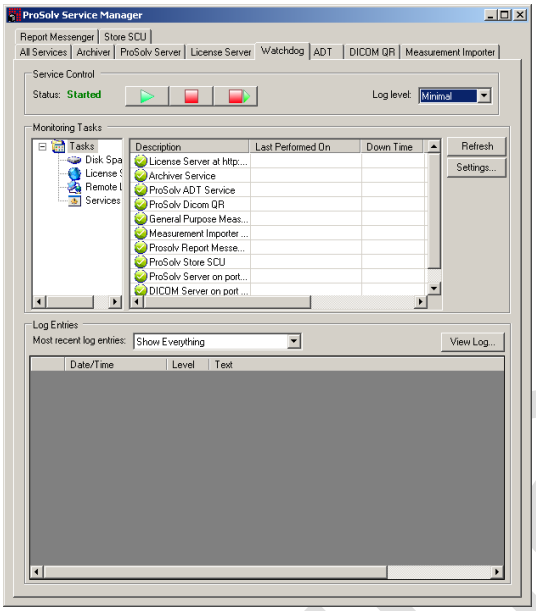
The Watchdog Tab in the Service Manager shows the list of services that are currently being monitored. It displays an icon next to each task. The following icons can be displayed:

- Green Check Icon – indicates that the Service is running
- Yellow X Icon – indicates that the Service has failed a ping test and that Watchdog is trying to restart the service
- Red X Icon – indicates that Watchdog was not able to restart the service after 30 minutes

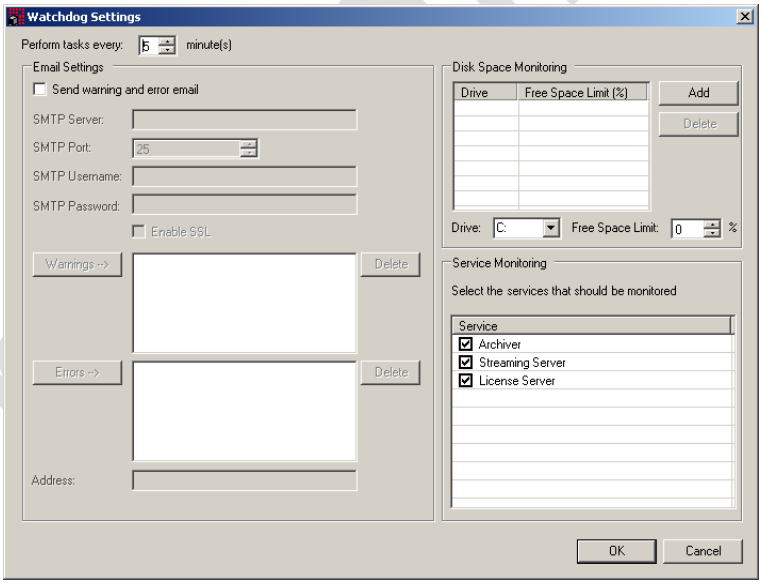
1.4.1. Configuration

To configure the Watchdog Service:

1. Start the ProSolv® Service Manager.
2. Click the "Watchdog" tab.



3. To modify the configuration, click the **Settings** button. This will bring up the Watchdog Settings screen.



Configuration Setting	Description	Recommended Value
Perform Tasks every	Time interval to perform the ping tests.	
Send warning and error email	Boolean flag indicating if Watchdog should sent alert emails.	

Configuration Setting	Description	Recommended Value
SMTP Server	The name of the SMTP server to use for sending email.	
SMTP Port	The port number for SMTP	
SMTP Username	User account that has access to the SMTP server	
SMTP Password	SMTP user account password	
Enable SSL	Boolean flag indicating if SSL should be used when sending email	
Warnings	List of email addresses that will receive warning emails	
Errors	List of email addresses that will receive error emails	
Disk Space Monitoring	List of drives and percentage limits that Watchdog will monitor	
Service Monitoring	List of Services that Watchdog should monitor. Services that are not checked will not be pinged by Watchdog	

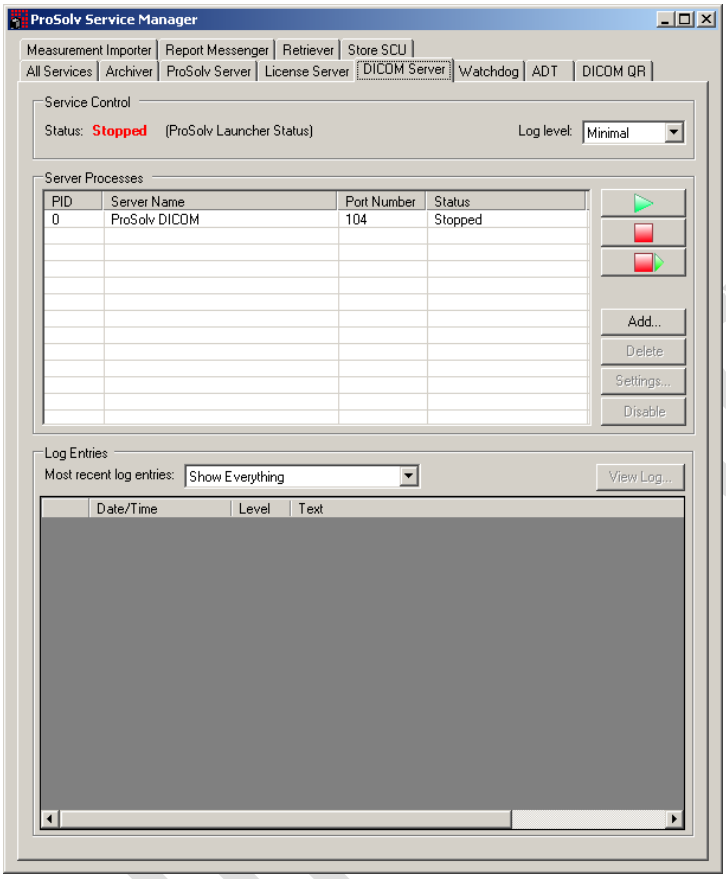
1.5. DICOM Server Service (DICOM Store SCP)

The ProSolv® DICOM Server is intended to receive and convert DICOM images sent over a network from DICOM devices. Studies received by the DICOM Server are stored in the ProSolv® database. The DICOM Server is actually a background process that gets spawned by the ProSolv® Launcher Windows Service. This allows a site to have multiple DICOM Servers running on the same machine.

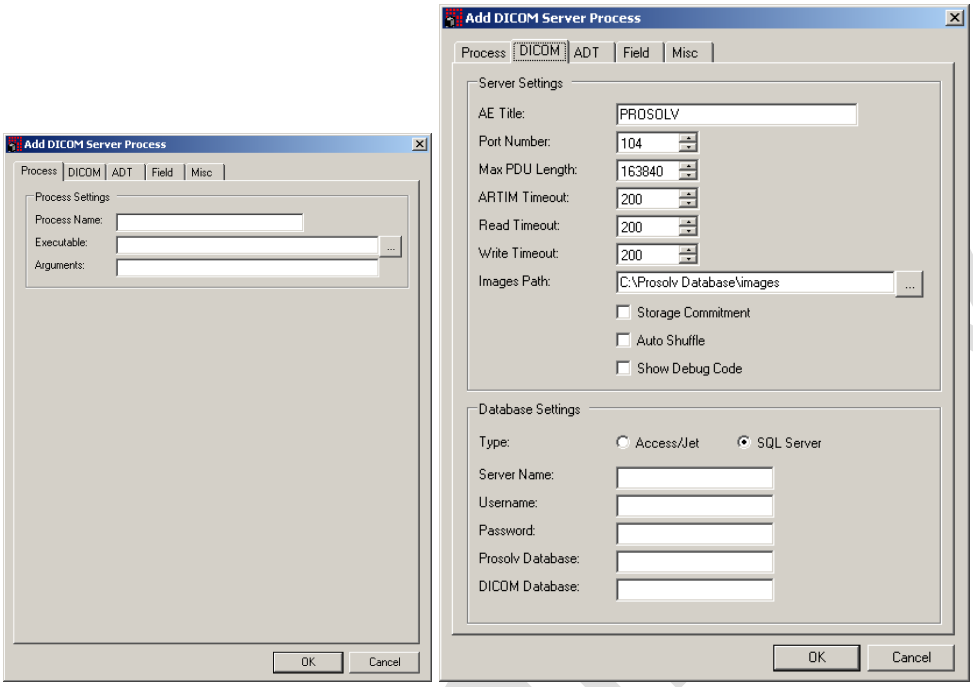
1.5.1. Configuration

To configure the DICOM Server Service:

1. Start the ProSolv® Service Manager.
2. Click the "DICOM Server" tab.

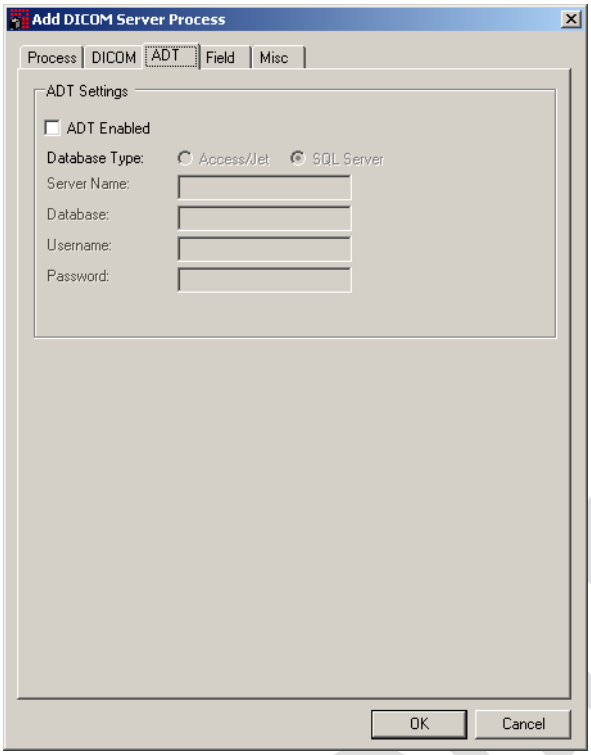


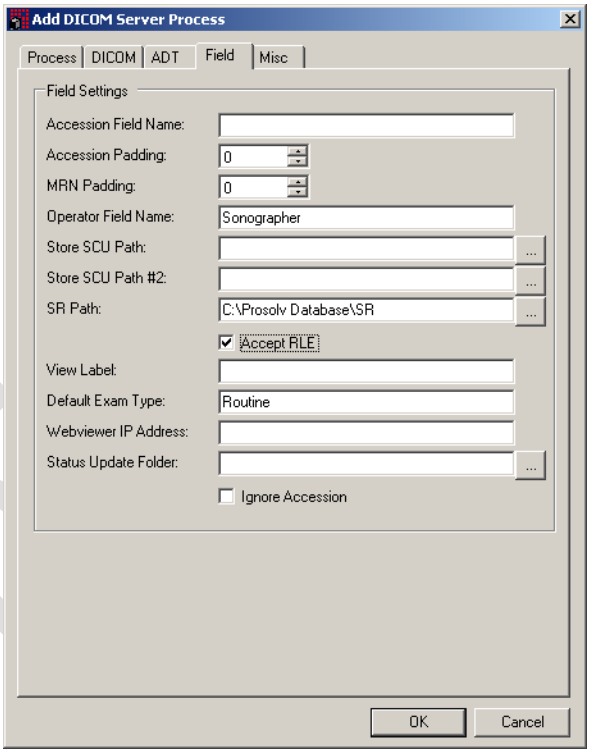
3. To add a new DICOM Server process, click the **Add** button. This opens the Add DICOM Server screen.



Configuration Setting	Description	Recommended Value
Process Name	Unique name to describe this DICOM Server process	
Executable	Path to the psdcmserv.exe to spawn	
Arguments	Optional arguments to pass to the psdcmserv.exe process	
AE Title	The AE Title of this Store SCU process	
Port Number	The port number for this Store SCU process	
Max PDU Length	The maximum length that a PDU can be	
ARTIM Timeout	ARTIM timeout value in milliseconds	
Read Timeout	Network read timeout in milliseconds	
Write Timeout	Network write timeout in milliseconds	
Image Path	Directory location for Image Store	
Store Commitment	Boolean flag indicating if Store Commitment should be included in association	
Auto Shuffle	Boolean flag indicating if the DICOM Server should attempt to autoshuffle the study images	
Show Debug Code	Boolean flag indicating if the DICOM	

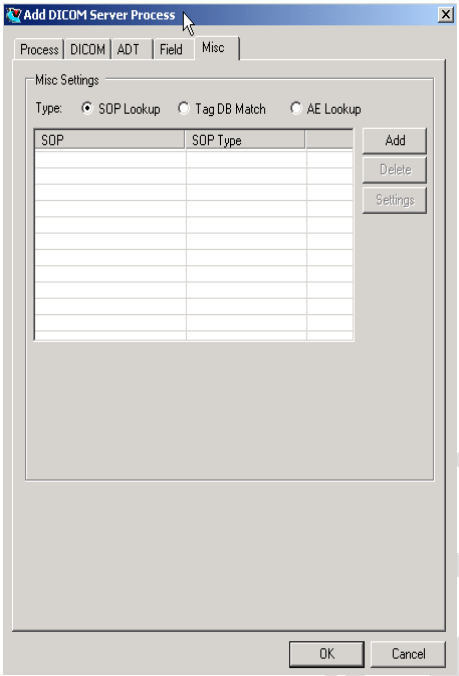
Configuration Setting	Description	Recommended Value
	Server should log debug statements	
Database Settings	Database settings for the DICOM and ProSolv® databases	

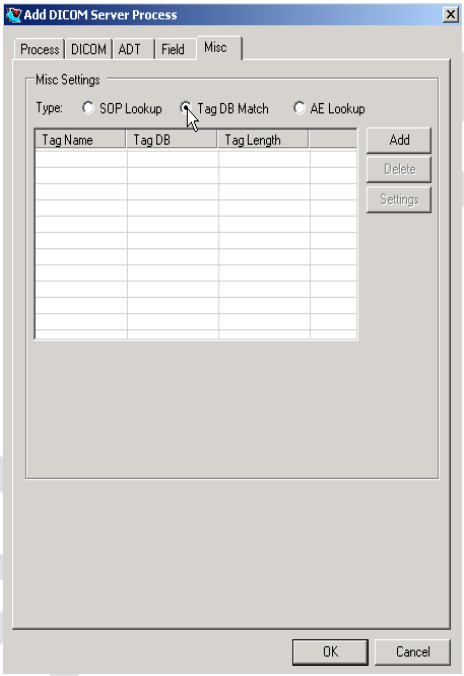


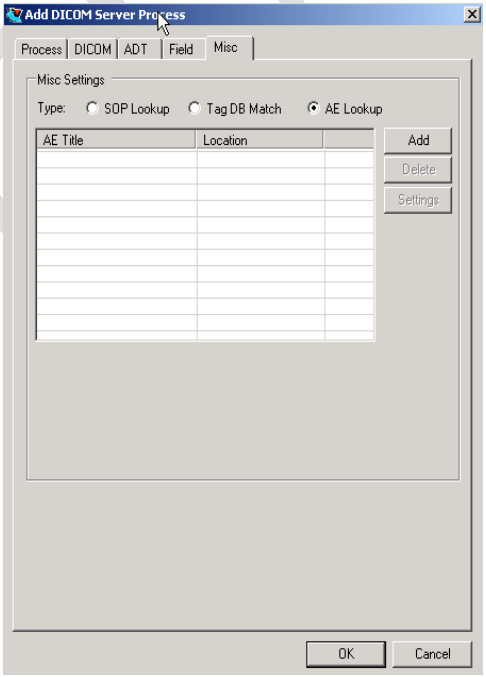


Configuration Setting	Description	Recommended Value
ADT Enabled	Boolean flag indicating if the DICOM Server should perform ADT operations	
Database Type	Database settings for the ADT Database	
Accession Field Name	The Accession Field Name	
Accession Padding	The Accession padding	
MRN Padding	MRN Padding	
Operator Field Name	The name to use for the Operator DICOM tag	
Store SCU Path	The folder to store images for Store SCU	
Store SCU Path #2	The second folder to store images for Store SCU	
SR Path	The folder where SR data is stored	

Configuration Setting	Description	Recommended Value
Accept RLE	Boolean Flag indicating if Server should accept RLE images	
View Label	Label to use for the view field	
Default Exam Type	Value to use for the default exam field	
Webviewer IP Address	The URL of the ProSolv® webviewer	
Status Update Folder	The folder to store status update logs	
Ignore Accession	Boolean flag indicating if accession should be ignored	







Configuration Setting	Description	Recommended Value
Misc Settings	Select which of the 3 misc items to configure	
Add	Add a new entry	
Delete	Remove an entry	
Settings	Edit an entry	
SOP	A DICOM SOP Class	
SOP Type	Exam type to use for that SOP Class	
Tag Name	DICOM Tag to match. This is a hex number without any leader (i.e. 00080018).	

Configuration Setting	Description	Recommended Value
Tag DB	The name of the column in the EXAM table to store the tag data	
Tag Length	The maximum length of data to store	
AE Title	The AE Title of an instrument used to determine an exam location. Leave this field blank to specify a default Exam Location if nothing else matches. The default location should be the last one in the list.	
Location	The Exam Location to use for that AE title	

4. To start the newly configured process, click the Green **Start** button to the right of the Process List.
5. To stop the process, click the Red **Stop** button.
6. To restart the process, click the **Restart** button.
7. To remove a process, select it in the list and click the **Delete** button.
8. To modify a process' settings, select it in the list and click the **Settings** button.
9. To disable a process from being spawned and pinged by Watchdog, click the **Disable** button.

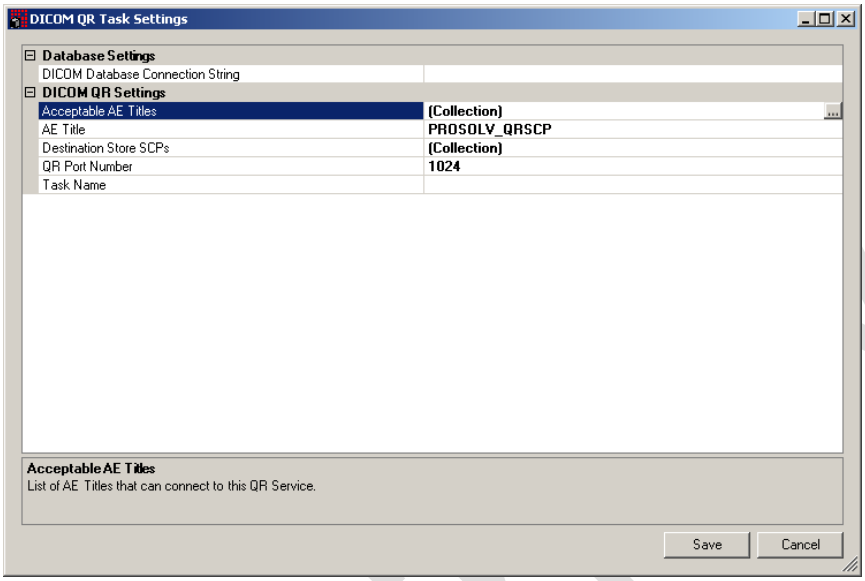
1.6. DICOM Query/Retrieve SCP Service

The QR SCP Service provides DICOM QR services to requesting QR SCU devices. The QR SCP service is multithreaded and is capable of running multiple "tasks" that can act as separate QR SCP devices.

1.6.1. Configuration

To configure the DICOM Query/Retrieve SCP Service:

1. Start the ProSolv® Service Manager.
2. Click the "DICOM QR" tab.
3. To configure the service, it must be started. Click the Green **Start** button in the Service Control group box to start the service.
4. To add a new task, click the **Add** button. This opens the DICOM QR Task Settings screen.



Configuration Setting	Description	Recommended Value
DICOM Database Connection String	Connection string to the ProSolv® DICOM database. Click the **"…"** button to bring up the Connection editor	
Acceptable AE Titles	List of QR SCU AE Titles that the QR SCP Service will accept association from	
AE Title	The AE Title of this QR SCP task	
Destination Store SCP's	List of Store SCP's that can receive images from the QR SCP Task	
Task Name	Unique name to describe this QR SCP Task	

5. Click the **Save** button to add the task after it has been configured.
6. To start the newly configured task, click the Green **Start** button to the right of the Task List.
7. To stop the task, click the Red **Stop** button.
8. To restart the task, click the **Restart** button.
9. To remove a task, select it in the list and click the **Delete** button.
10. To modify a task's settings, select it in the list and click the **Settings** button.

1.7. DICOM Store SCU Service

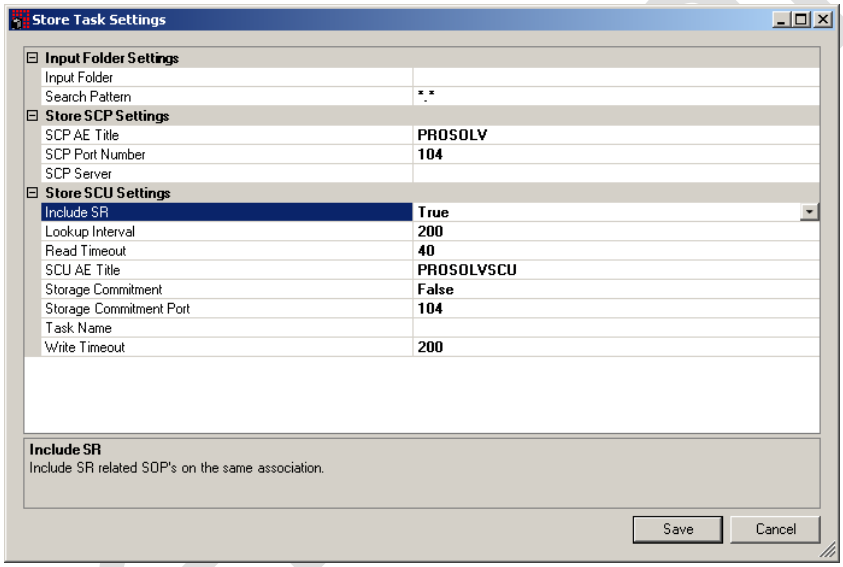
The Store SCU Service monitors an input folder for DICOM images and sends them to a designated Store SCP device. The service is multithreaded and is capable of running

multiple "tasks" that can monitor several input folders and forward images to several SCP devices.

1.7.1. Configuration

To configure the DICOM Store SCU Service:

1. Start the ProSolv® Service Manager.
2. Click the "Store SCU" tab.
3. To configure the service, it must be running. started. Click the Green **Start** button in the Service Control group box to start the service.
4. To add a new Task, click the **Add** button. This opens the Store Task Settings screen.



Configuration Setting	Description	Recommended Value
Input Folder	Directory that this task should monitor for input DICOM images	
Search Pattern	Search filter to reduce the file types that the task should monitor. *.* will include all files.	
SCP AE Title	The AE Title of the Store SCP device that is to receive the images	
SCP Port Number	The port number of the Store SCP device that is to receive the images	
SCP Server	The machine name or IP address of the Store SCP device that is to receive the images	

Configuration Setting	Description	Recommended Value
Include SR	Boolean flag that indicates if SR related SOP's are included on the association	
Lookup Interval	Amount of time in seconds that the task will sleep in between checks for new image files	
Read Timeout	Network read timeout in milliseconds	
SCU AE Title	The AE Title of this Store SCU Task	
Storage Commitment	Boolean flag indicating whether or not to include Storage Commitment on the same association	
Storage Commitment Port	Port number to use for Storage Commitment	
Task Name	Unique name used to describe this Store SCU Task	
Write Timeout	Network writes timeout in milliseconds	

5. Click the **Save** button to add the task after it has been configured.
6. To start the newly configured task, click the Green **Start** button to the right of the Task List.
7. To stop the task, click the Red **Stop** button.
8. To restart the task, click the **Restart** button.
9. To remove a task, select it in the list and click the **Delete** button.
10. To modify a task's settings, select it in the list and click the **Settings** button.

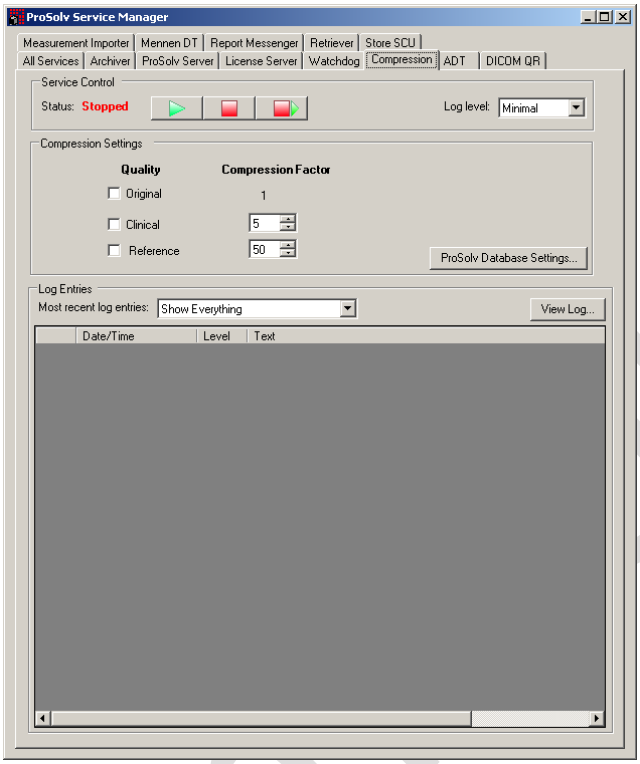
1.8. Image Compression Service

The Image Compression Service creates compressed versions of images in ProSolv® Studies. It monitors the file system for the creation of new ProSolv® Studies. When it detects a new study, it processes the contents of the study image folder and creates compressed versions of the images files. Note, Image Compression Service currently only compresses loops and only from modalities XA (Catheterization) or US (Ultrasound).

1.8.1. Configuration

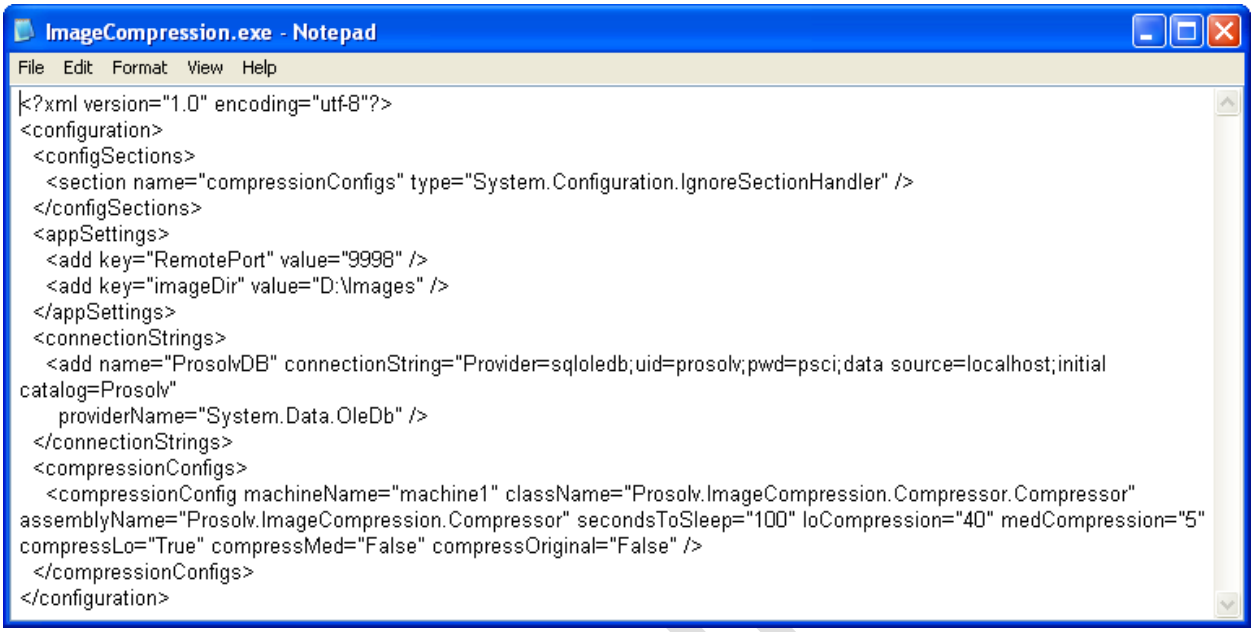
To configure the Image Compression Service:

1. Start the ProSolv® Service Manager.
2. Click the "Compression" tab.



Configuration Setting	Description	Recommended Value
ProSolv® Database Connection String	Connection string pointing to the ProSolv® database	
Original	Check this box to create JPEG2K versions of the original images	
Clinical	Check this box to create Clinical versions of the images at the designated compression factor	

3. Navigate to '\ProSolv CardioVascular\Services 4.0\Image Compression Service' folder and open ImageCompression.exe.config file using Notepad for editing.
4. Update configuration values as follows:
    a. ImageDir: location of image files
    b. ImageDir: MachineName: host name of the server running the Compression service, if cluster, use virtual host name defined in ProSolv® Apps cluster group



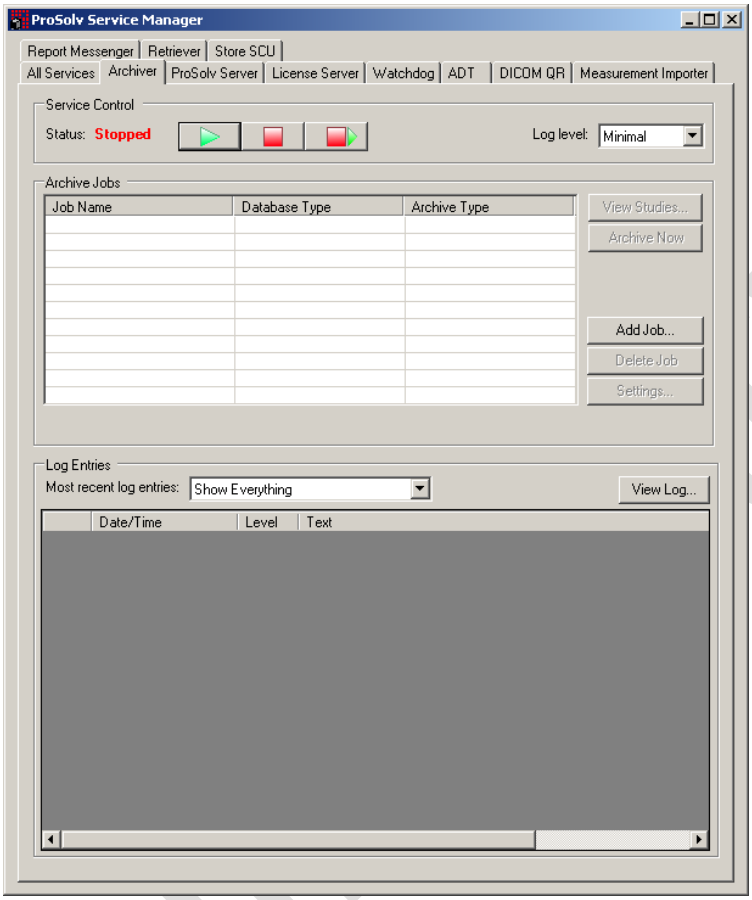
1.9. Archiver Service

The Archiver Service archives ProSolv® Study images to free disk space on the image store. The Archiver can archive images to a DICOM PACS, FTP Site, or a Network Share. The Archiver can run multiple "jobs" that can be scheduled to run at different times.

1.9.1. Configuration

To configure the Archiver Service:

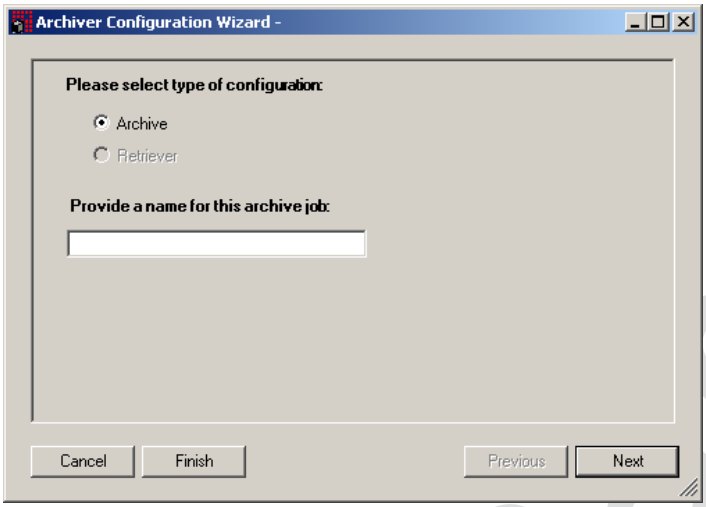
1. Start the ProSolv® Service Manager.
2. Click the "Archiver" tab.



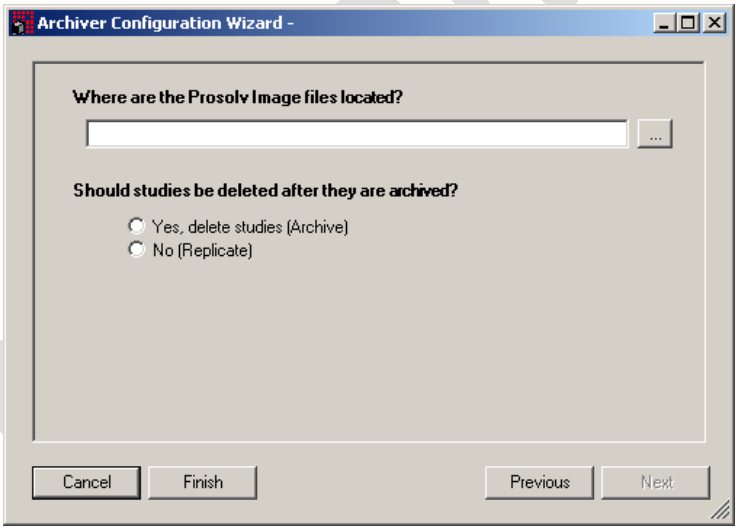
3. To create a new Archive Job, click the **Add Job** button. This opens the Archive Job Wizard.
4. To delete a job, select the job in the list and click **Delete Job**.
5. To modify a job's settings, select the job in the list and click **Settings**.
6. To manually start an Archive Job, select the job in the list and click **Archive Now**.

1.9.2. Archiver Job Wizard

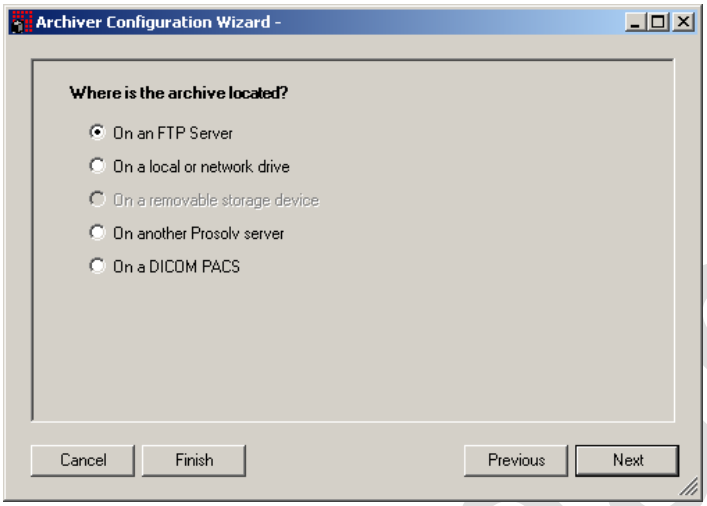
The Archiver Job Wizard provides an interface to allow users to more easily configure the settings for an Archive Job. It guides the user through the proper steps based on user input.



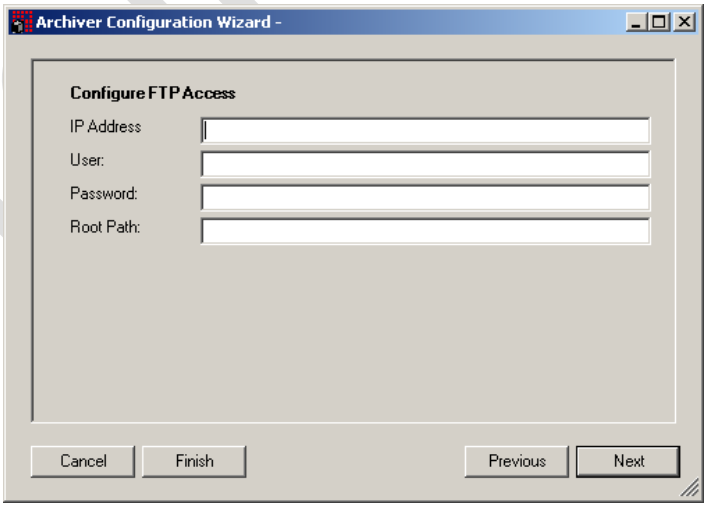
Configuration Setting	Description	Recommended Value
Archiver Job Name	Unique name to describe this Archive Job	



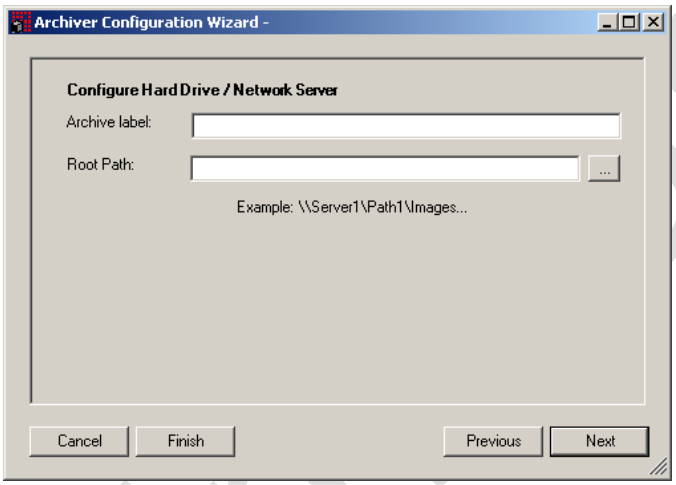
Configuration Setting	Description	Recommended Value
Image Path Location	Directory where the ProSolv® Study images are located	
Delete study after archival?	Checking yes here will delete the local ProSolv® Study images after they have been archived. Checking No here will not delete the local copy.	



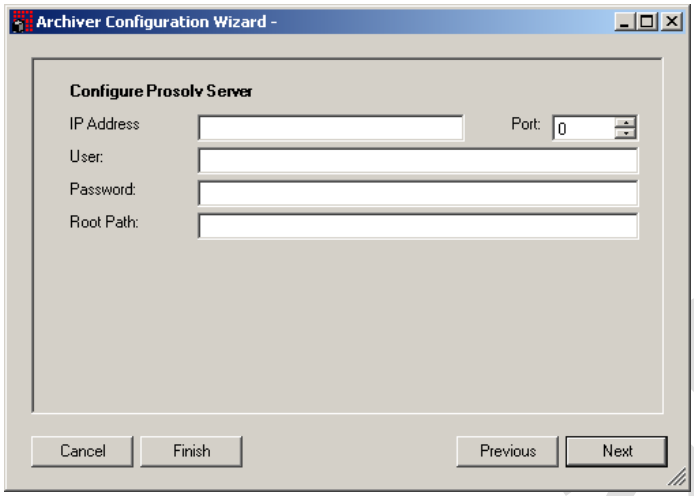
Configuration Setting	Description	Recommended Value
FTP Server	The study will be archived to a designated FTP server.	
Local or Network Drive	The study will be archived to a designated local or remote file share.	
ProSolv® Server	The study will be archived to another ProSolv® Server.	
DICOM PACS	The study will be archived to a designated DICOM PACS.	



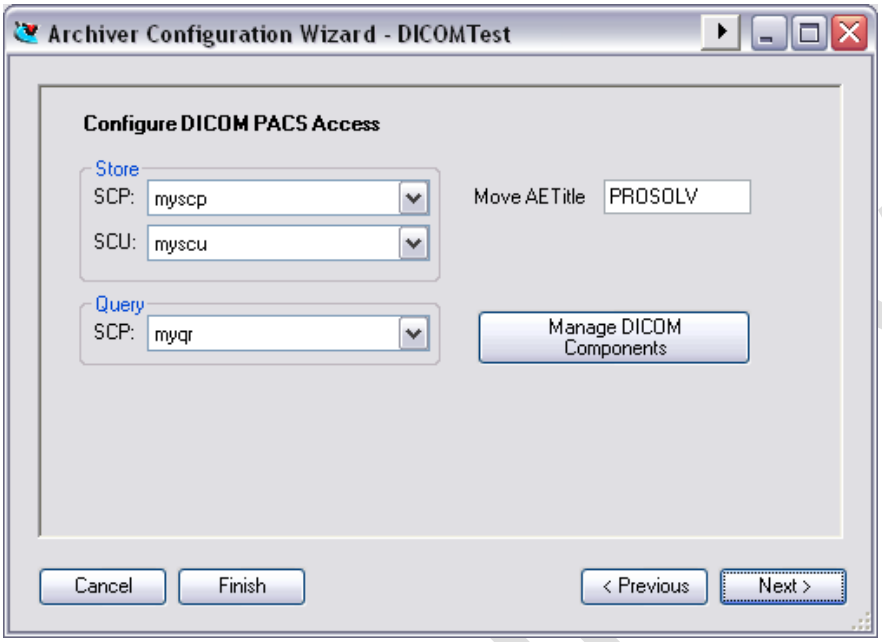
Configuration Setting	Description	Recommended Value
IP Address	FTP Server IP Address or host name	
User	FTP account Username	
Password	FTP account Password	
Root Path	The root path of where to upload the images on the FTP server	



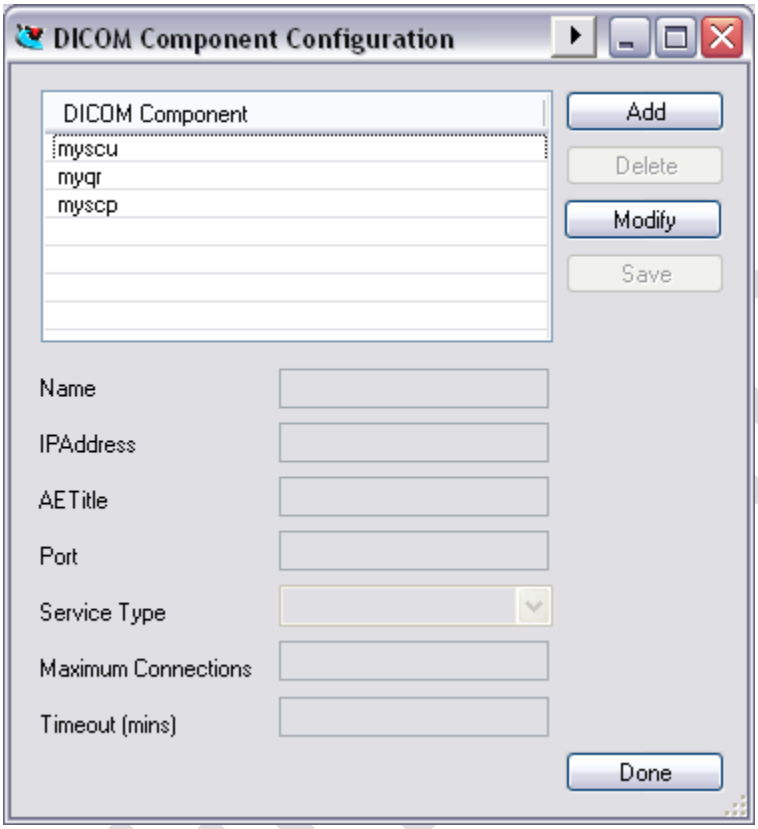
Configuration Setting	Description	Recommended Value
Archive Label	Unique name used to label this file share	
Root Path	Directory path to the file share resource. NOTE: Remote files shares must be designated as an UNC path.	



Configuration Setting	Description	Recommended Value
IP Address	IP Address or host name of the ProSolv® Server	
Port	Port number that the ProSolv® Server is running	
User	ProSolv® Server user account to use when archiving	
Password	ProSolv® Server user account password to use when archiving	
Root Path	Root file path of where to store the images on the ProSolv® Server	

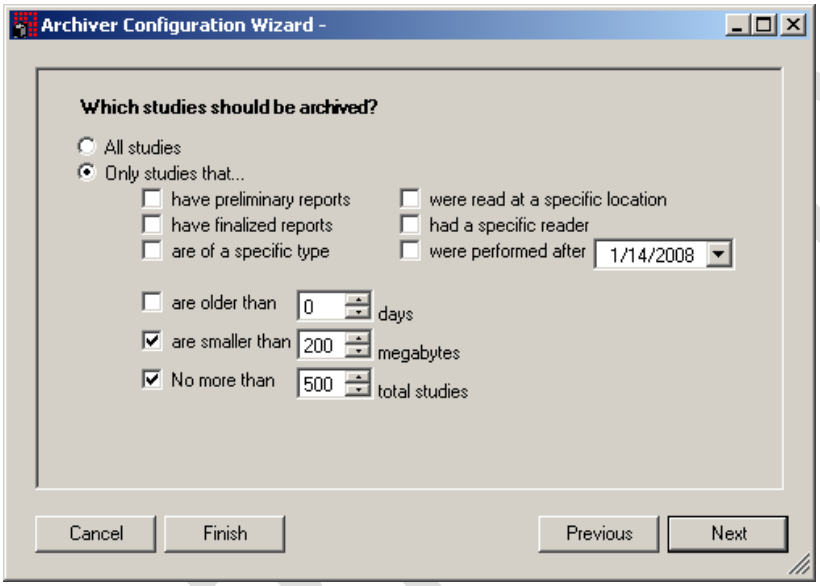


Configuration Setting	Description	Recommended Value
Store SCP	The Store SCP device that is to receive the archived images	
Store SCU	The Store SCU device that is to perform the archiving	
Move AE Title	The AE Title of the Device that is to perform the DICOM move	
Query SCP	The Query SCP device that should be used when querying studies	
Manage DICOM Components	Click this button to launch the DICOM Device Configuration Screen to add or remove DICOM components	



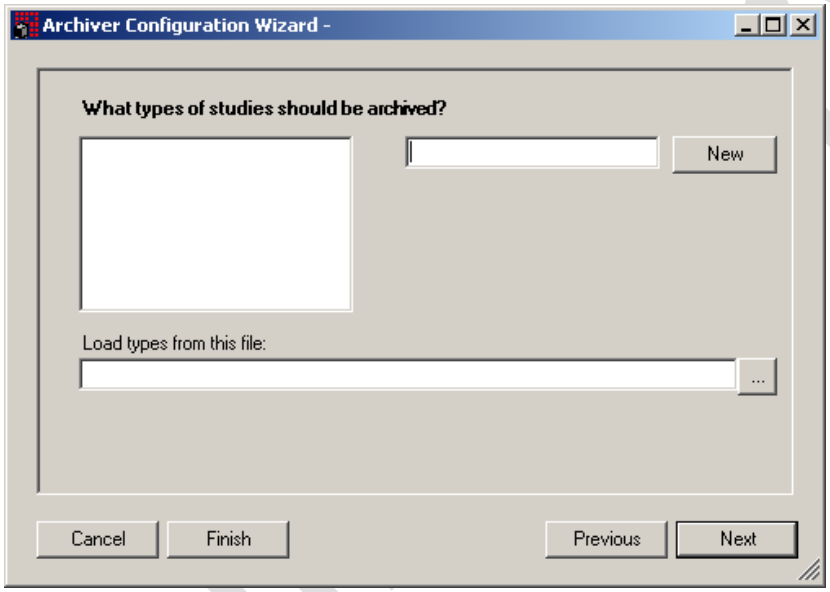
Configuration Setting	Description	Recommended Value
Add	Click this button to define a new device	
Delete	Select the component to delete, then click this button to delete the selected device	
Modify	Select the component to modify in the list, then click this button to modify the selected device	
Save	Click this button to save the newly defined device	
Name	Unique name to describe this DICOM device	
IP Address	IP Address or hostname where the device resides	
Port	Port number that the device is running	
Service Type	Available options here are: QR SCP, Store SCU, or Store SCP	

Configuration Setting	Description	Recommended Value
Maximum Connections	The Maximum number of connections allowed on this device (not required)	
Timeout	Network read/write timeout values (not required)	

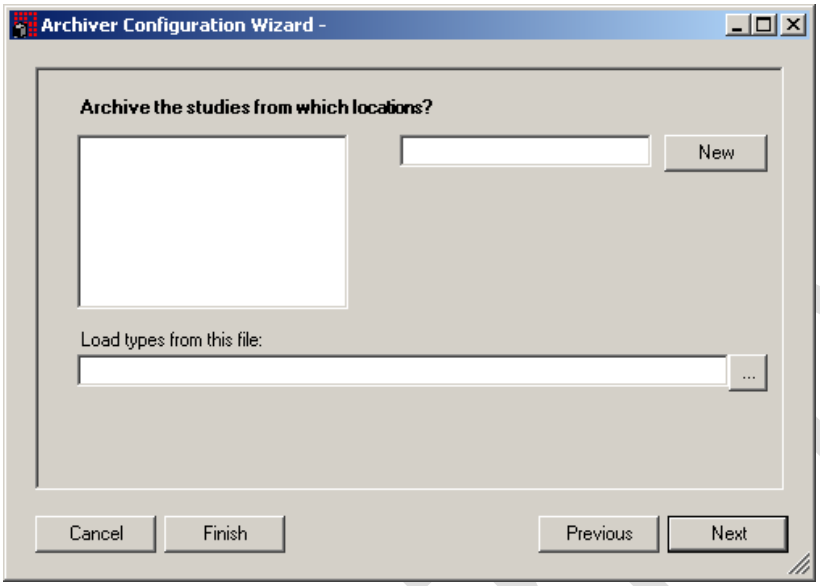


Configuration Setting	Description	Recommended Value
All Studies	Check this option to archive all of the ProSolv® studies	
Only studies that	Check this option to define a set of criteria that will determine which studies should be archived	
Have preliminary reports	Archive studies that have preliminary reports	
Have finalized reports	Archive studies that have finalized reports	
Are of a specific type	Archive studies that are of a specific type	
Were read at a specific location	Archive studies that were read at a specific location	
Had a specific reader	Archive studies that had a specific reader	
Were performed after	Archive studies that were performed after a designated date	

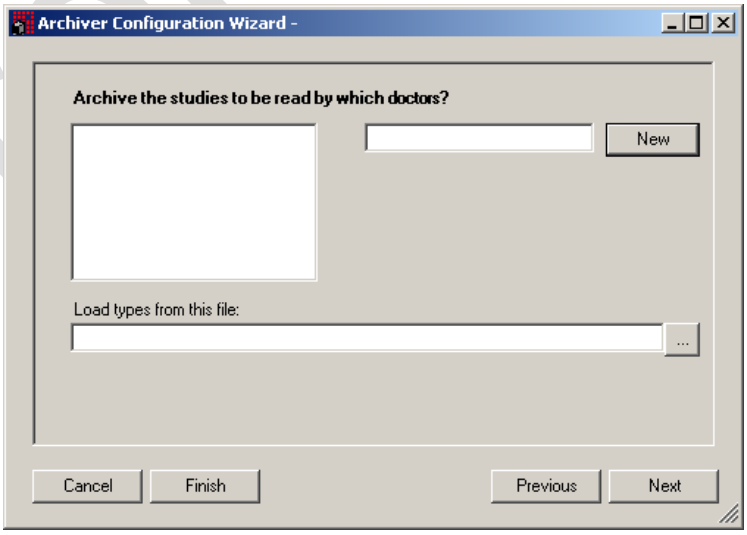
Configuration Setting	Description	Recommended Value
Are older than	Archive studies that are older than a designated number of days	
Are smaller than	Archive studies that are smaller than a designated size	
No more than	Set a maximum number of studies that can be archived	



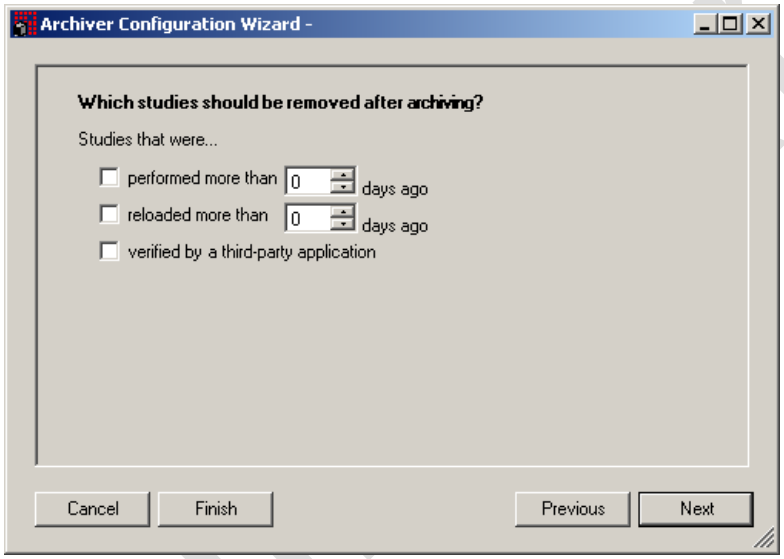
Configuration Setting	Description	Recommended Value
Left list box	Lists the current study types that will be archived	
Right text box	Designate a new study type to be archived. Click **New** to add the new type.	
Load types from this file	Select a predefined type's file to load the study types from.	



Configuration Setting	Description	Recommended Value
Left list box	Lists the current study locations that will be archived	
Right text box	Designate new study locations to be archived. Click **New** to add the new type.	
Load types from this file	Select a predefined locations file to load the study locations from.	



Configuration Setting	Description	Recommended Value
Left list box	Lists the current study reading doctors that will be archived	
Right text box	Designate a new reading doctor to be archived. Click **New** to add the new type.	
Load types from this file	Select a predefined reading doctor's file to load the study reading doctors from.	



Configuration Setting	Description	Recommended Value
Performed more than	Designate a number of days that a study must be in age to be removed after archiving	
Reloaded more than	Designate a number of days that a study must have been reloaded by to be removed after archiving.	
Verified by a third-party application	Check this box to remove a study after archiving if it has been verified by a third-party application.	

1.9.3. Archive to DICOM PACS

Archiving to DICOM PACS involves six processes. First the Archiver Store SCU (1) sends images to the PACS Store SCP (2). When retrieving the images the Archiver Query/Retrieve(QR) SCU(3) tells the PACS QR SCP(4) to

send the images with the PACS Store SCU(5) back to our Dicom Server Store SCP(6).

From the PACS we need information about their Store SCP and QR SCP. The information needed is the AE Title, IP Address, and port number of each SCP. In some cases, this information is the same for both the Store and QR SCP.

Likewise the PACS needs to know information about the Archiver StoreSCU, Archiver QR SCU, and the Dicom Server Store SCP. For the Store SCU and QR SCU, they need the AE Title and in some cases they also want the IP Address. For the Dicom Server Store SCP, they need the AE Title, IP Address, and port number. Note: A different ProSolv® Dicom Server instance may be configured for the retrieve but it is not necessary.

From the "Manage Dicom Components" you need to setup 3 different Dicom components: Archiver Store SCU, PACS Store SCP, and PACS QR SCP.

Store SCU Component

Configuration Setting	Description	Recommended Value
Name	StoreSCU	
IP Address	127.0.0.1(this is not used but still need to enter data)	
AETitle	PROSOLV® (this is what is normally used and what you need to give to PACS)	
Port	0 (this is also not used but still need to enter data)	
Service Type	Choose STORESCU	
Maximum Connections	2 (consult with PACS if they have a limit of connections)	
Timeout	3 (minutes)	

Store SCP Component

Configuration Setting	Description	Recommended Value
Name	PACS Store SCP	
IP Address	xx.xxx.xxx.xxx (PACS Store SCP IP is supplied by PACS)	
AETitle	PACSAE (PACS Store SCP AE Title is supplied by PACS)	
Port	104 (PACS Store SCP Port Number is supplied by PACS)	

Configuration Setting	Description	Recommended Value
Service Type	Choose STORESCP	
Maximum Connections	2 (consult with PACS if they have a limit of connections)	
Timeout	3 (minutes)	

QRore SCP Component

Configuration Setting	Description	Recommended Value
Name	PACS Store SCP	
IP Address	xx.xxx.xxx.xxx (PACS Store SCP IP is supplied by PACS)	
AETitle	PACSAE (PACS Store SCP AE Title is supplied by PACS)	
Port	104 (PACS Store SCP Port Number is supplied by PACS)	
Service Type	Choose QRSCP	
Maximum Connections	2 (consult with PACS if they have a limit of connections)	
Timeout	3 (minutes)	

After setting up these components, they must be selected from the drop down list boxes on the "Configure Dicom Access" dialog. If you have only setup these three they should already be selected.

For the Move AE Title, enter the AE Title of the Dicom Server SCP that you gave to PACS (the SCP that PACS sends the images to during its retrieval process).

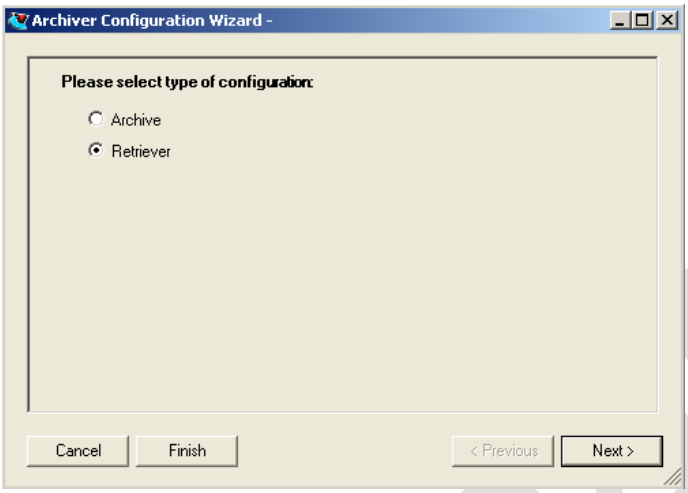
1.10. Retriever Service

The Retriever Service retrieves ProSolv® Studies that have been archived from an external PACS.

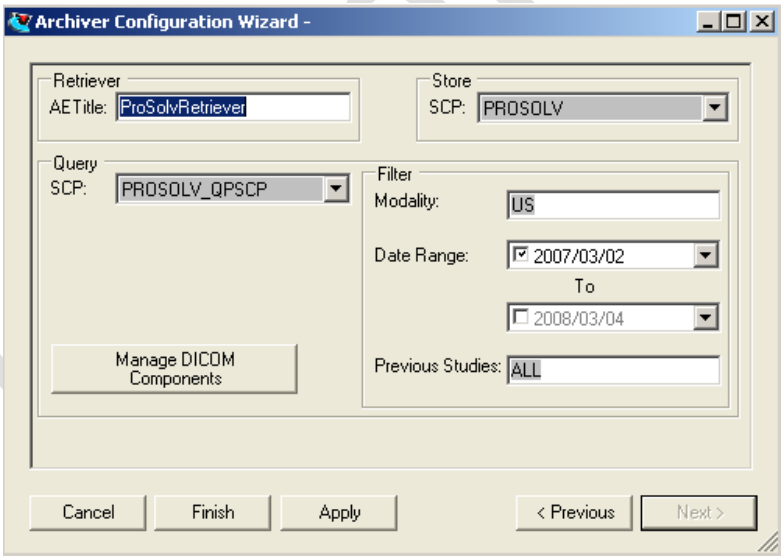
1.10.1. Configuration

To configure the Retriever Service:

1. ADT needs to be configured to send MRN based requests to retrieve studies from external PACS. Please refer to the ADT configuration section for details on how to configure ADT to send requests to the Retriever.
2. Go to Archiver tab. Click **Add Job**, **Select Retriever**, and click **Next**.



3. Please use Manage DICOM Components as described in a previous section.
    a. Store SCP
    b. Query/Retrieve SCP



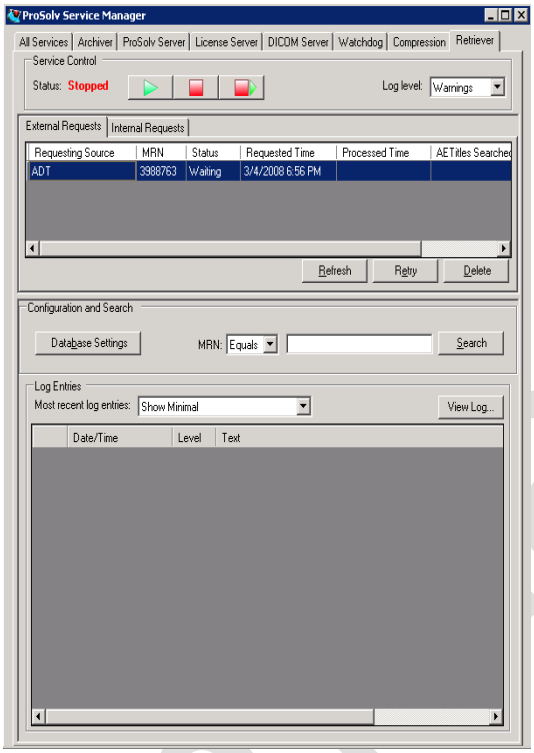
Configuration Setting	Description	Recommended Value
Retriever AETitle	Retriever's AE Title. By default, this is set to ProSolv®Retriever.	
Store SCP	AETitle for Move SCP. The server where the images need to be sent to store be stored	

Configuration Setting	Description	Recommended Value
Query SCP	AETitle for Query/Retrieve SCP	
Modality Filter	Modality filter used to query external PACS. In the above example, only "US" exams will be retriever from QR SCP "PROSOLV_QRSCP"	
Date Range	Date range filter to query external PACS. If no date range is selected then all the studies in the external PACS will be queried.	
Previous Studies	By default, it is set to ALL. A value in this field indicates previous number of studies to be retrieved for a particular patient. For example, if value10 is specified in this field then only the last 10 studies for a patient will be retrieved.	

4. Click **Apply** to save the configuration.
5. Click **Finish** to close the configuration dialog.

1.10.2. Retrieve Queues

The Retriever Tab in the Service Manager displays status on its current tasks. The external Requests queue lists all the requests that need to be retrieved from external PACS based on Patients MRNs. The Internal Requests queue lists all the retrieve requests based on Study UIDs.



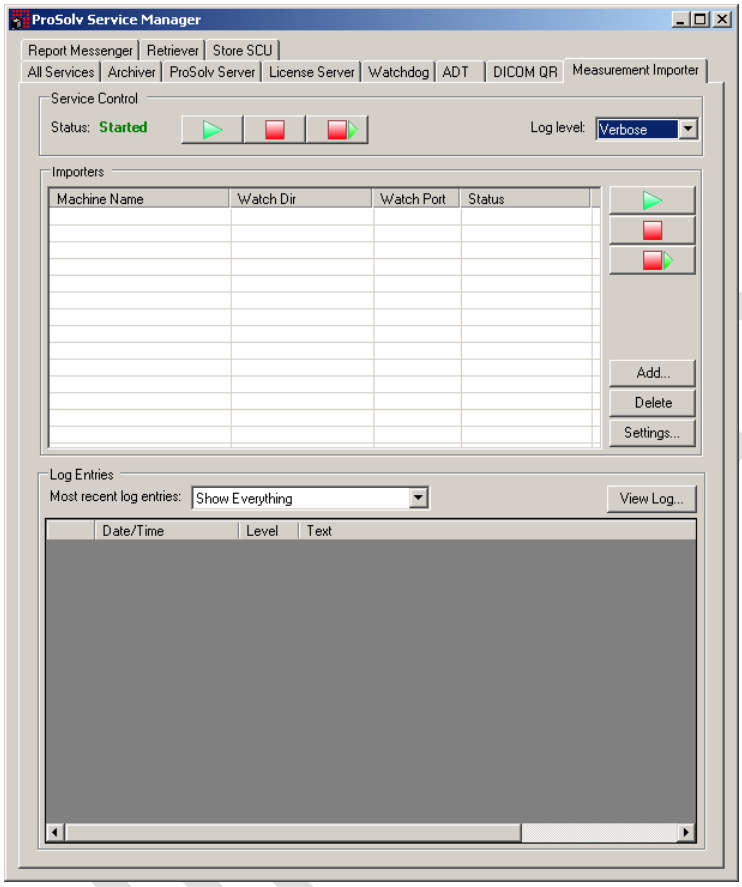
1.11. Measurement Importer Service

The Measurement Importer Service imports measurements from several different medical devices. The service consists of a set of "plugins". Each plugin can handle importing a measurement from a different type of device (e. g. HPDT, Burdick, etc.). The General Measurement Import Service is multithreaded and can run each plugin in a separate thread. All US measurement interfaces not supported by the Measurement Importer Service are supported by stand-alone applications, such as Toshiba, ATL, and Cypress.

1.11.1. Configuration

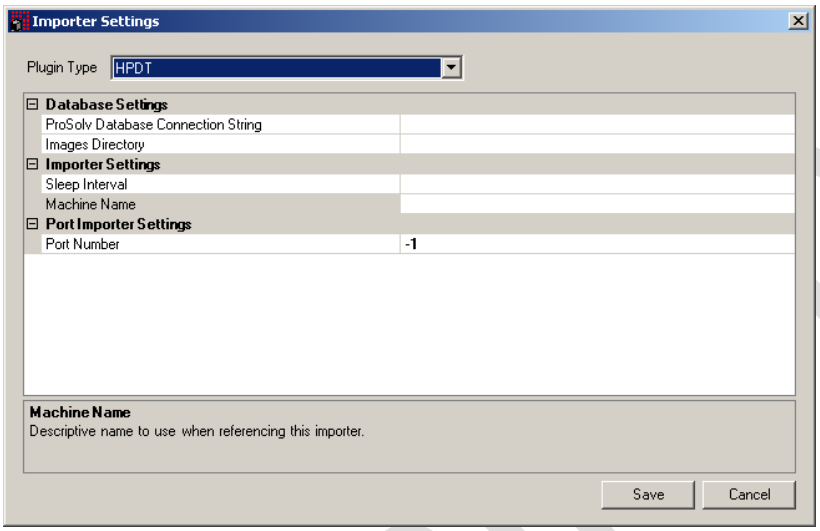
To configure the Measurement Importer Service:

1. Start the ProSolv® Service Manager.
2. Click the "Measurement Importer" tab.



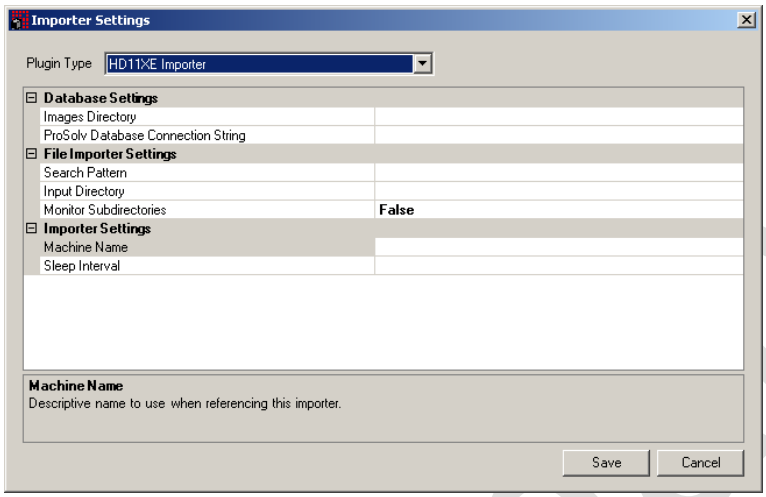
3. To add a new importer task, click the **Add** button. This opens the Importer settings screen and allows the user to configure the setting for the importer.
4. To start the importer, click the Green **Start** button.
5. To stop the importer, click the Red **Stop** button.
6. To restart the importer, click the **Restart** button.
7. To remove an importer, select it in the list and click the **Delete** button.
8. To modify an importer's settings, select it in the list and click the **Settings** button.

1.12. HPDT Importer



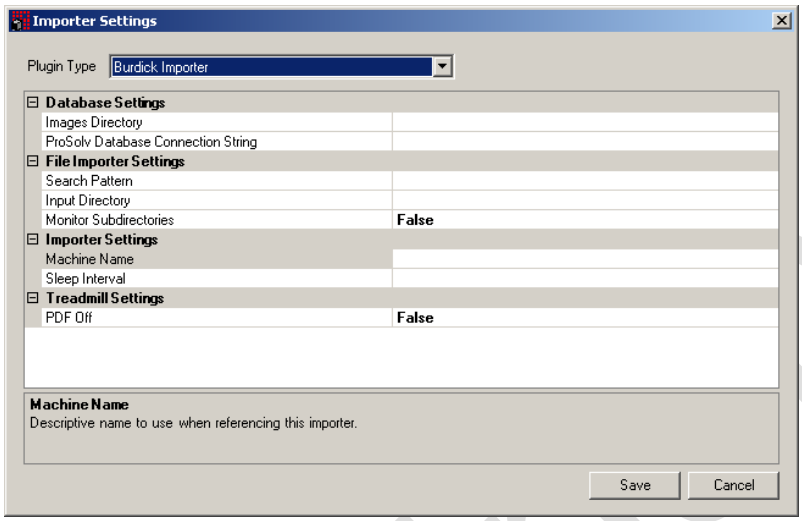
Configuration Setting	Description	Recommended Value
ProSolv® Database Connection String	Connection string pointing to the ProSolv® database	
Image Directory	Directory location where the ProSolv® Study images are located	
Sleep Interval	Amount of time to sleep in between checks for new input files	
Machine Name	Unique name to describe this importer task	
Port Number	TCP Port number to listen on for input data	

1.13. HD11XE Importer



Configuration Setting	Description	Recommended Value
ProSolv® Database Connection String	Connection string pointing to the ProSolv® database	
Image Directory	Directory location where the ProSolv® Study images are located	
Search Pattern	Filter pattern of files to import. *.* will include all files	
Input Directory	Directory location where the Epiphany XML output files will be located	
Monitor Subdirectories	Boolean indicating if the service should monitor subdirectories for input files	
Machine Name	Unique name to describe this importer	
Sleep Interval	Amount of time to sleep in between checks for new data	

1.14. Burdick/Marquette/Quinton Treadmill Importers



Configuration Setting	Description	Recommended Value
ProSolv® Database Connection String	Connection string pointing to the ProSolv® database	
Image Directory	Directory location where the ProSolv® Study images are located	
Search Pattern	Filter pattern of files to import. *.* will include all files	
Input Directory	Directory location where the Epiphany XML output files will be located.	
Monitor Subdirectories	Boolean indicating if the service should monitor subdirectories for input files	
Machine Name	Unique name to describe this importer task	
Sleep Interval	Amount of time to sleep in between checks for new input files	
PDF Off	Boolean flag indicating if PDF Conversion should be turned on/off	

1.15. Mennen Hemodynamic Import Service

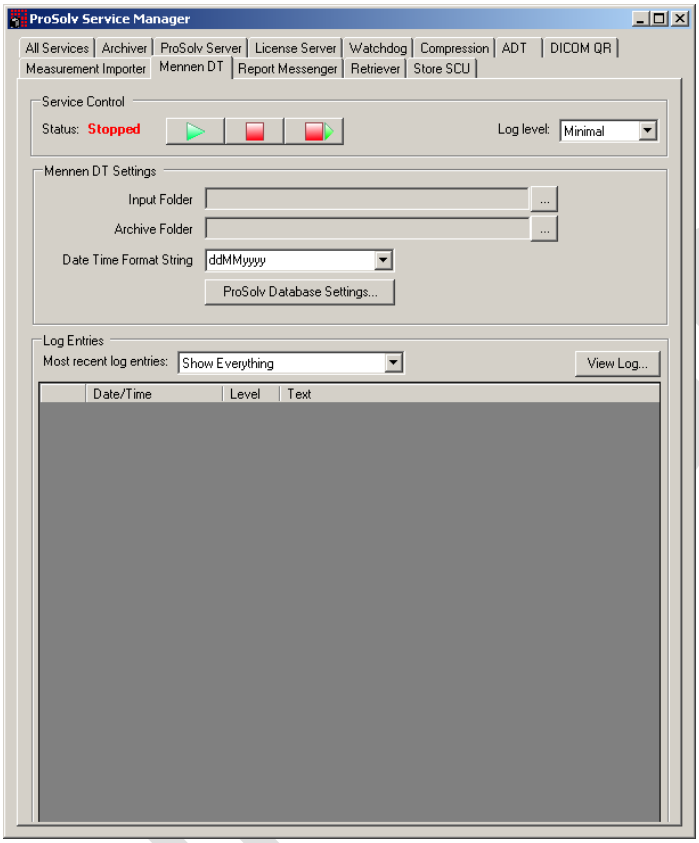
The Mennen Service imports measurements from the Mennen Hemodynamic device.

1.15.1. Configuration

To configure the Mennen Hemodynamic Import Service:

1. Start the ProSolv® Service Manager.

2. Click the "Mennen DT" tab.



Configuration Setting	Description	Recommended Value
Input Folder	Directory location to monitor for input data files	
Archive Folder	Directory location to store input data files after processing	
Date Time Format String	Date/Time format to use when add data to the database	
ProSolv® Database Settings	Connection string pointing to the ProSolv® database	

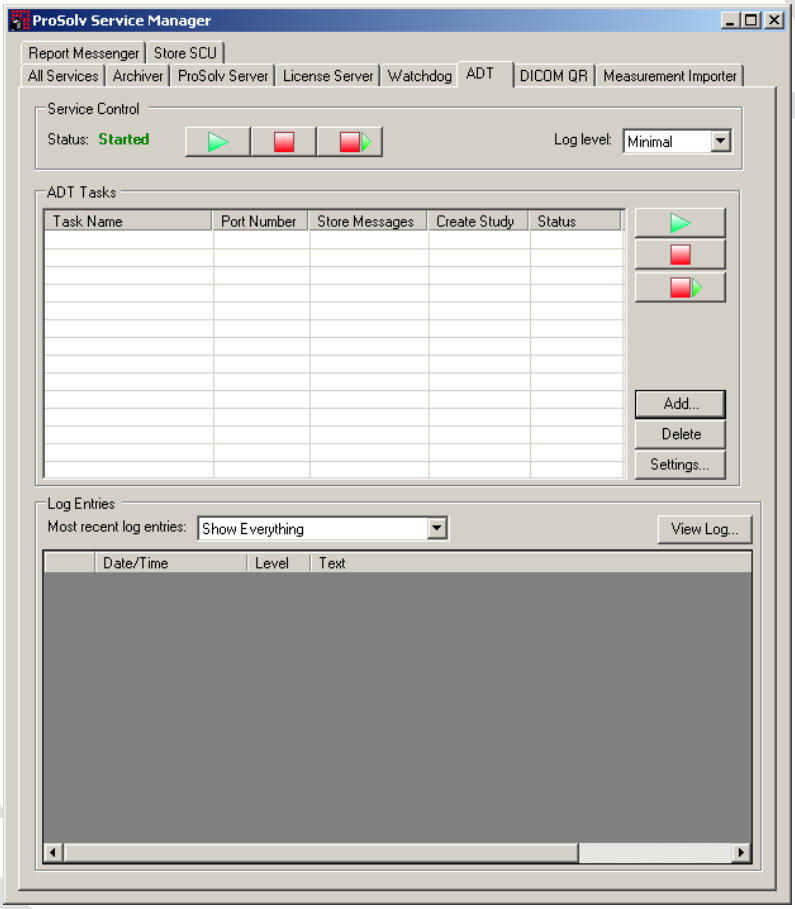
1.16. HL7 ADT Service

The Admission Discharge Transfer (ADT) Service accepts and subsequently parses HL7 messages. The ADT Service retrieves information necessary to enable an efficient patient data and image management solution. The ADT Service is multithreaded and is capable of running multiple "tasks" that can serve multiple TCP input ports.

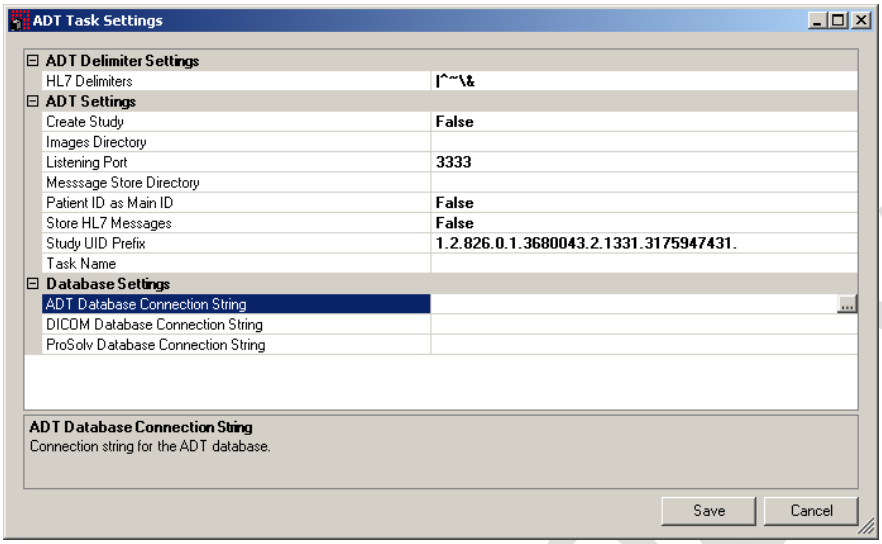
1.16.1. Configuration

To configure the HL7 ADT Service:

1. Start the ProSolv® Service Manager.
2. Click the "ADT" tab.



3. To configure the service, it must be running. Click the Green **Start** button in the Service Control group box to start the service.
4. To add a new Task, click the **Add** button. This opens the ADT Task Settings screen.



Configuration Setting	Description	Recommended Value
HL7 Delimiters	List of delimiters to use for the HL7 messages	
Create Study	Boolean flag indicating whether the service should create ProSolv® studies in the database	
Images Directory	Location of the ProSolv® study images	
Patient ID as Main ID	Boolean flag indicating if the Patient ID should be used as the main identifier	
Store HL7 Messages	Boolean flag indicating if HL7 messages should be written to log files	
Study UID Prefix	The prefix to use for Study UIDs	
Task Name	Unique name to describe this ADT task	
ADT Database Connection String	Connection string to the ADT database (by default, included into the ProSolv® database). Make sure the password is included in the connection string.	
DICOM Database Connection String	Connection string to the DICOM database. Make sure the password is included in the connection string.	
ProSolv® Database Connection String	Connection string to the ProSolv® database. Make sure the password is included in the connection string.	

5. Click the **Save** button to add the task after it has been configured.

6. To start the newly configured task, click the Green **Start** button to the right of the Task List.
7. To stop the task, click the Red **Stop** button.
8. To restart the task, click the **Restart** button.
9. To remove a task, select it in the list and click the **Delete** button.
10. To modify a task's settings, select it in the list and click the **Settings** button.

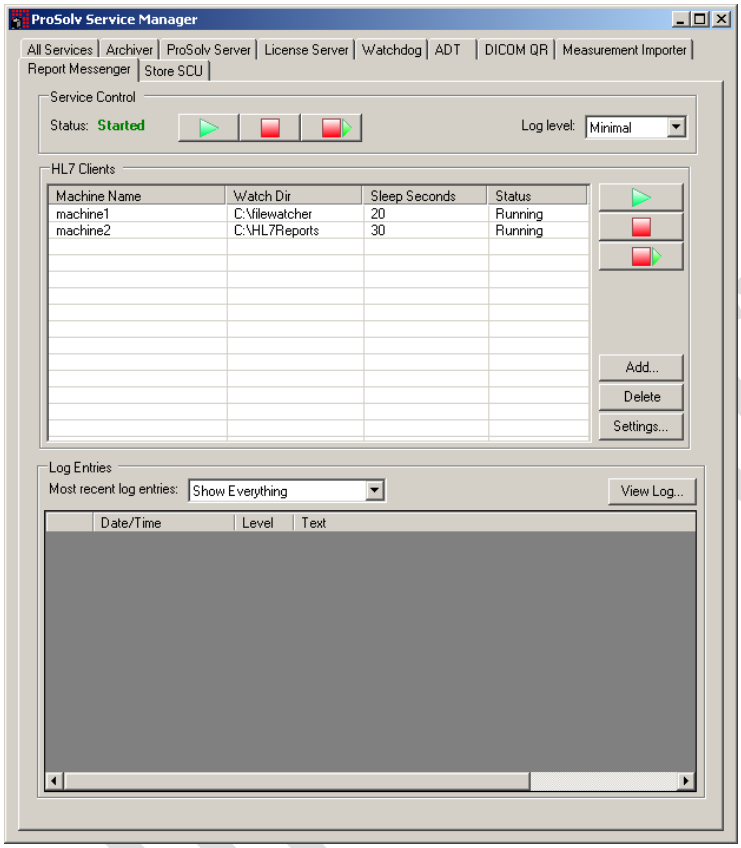
1.17. HL7 Report Messenger Service

The Report Messenger Service sends HL7 formatted messages from a designated folder to the designated receiving system. The Report Messenger Service is multithreaded and is capable of running multiple "tasks" that can monitor several input folders and forward to several receiving systems.

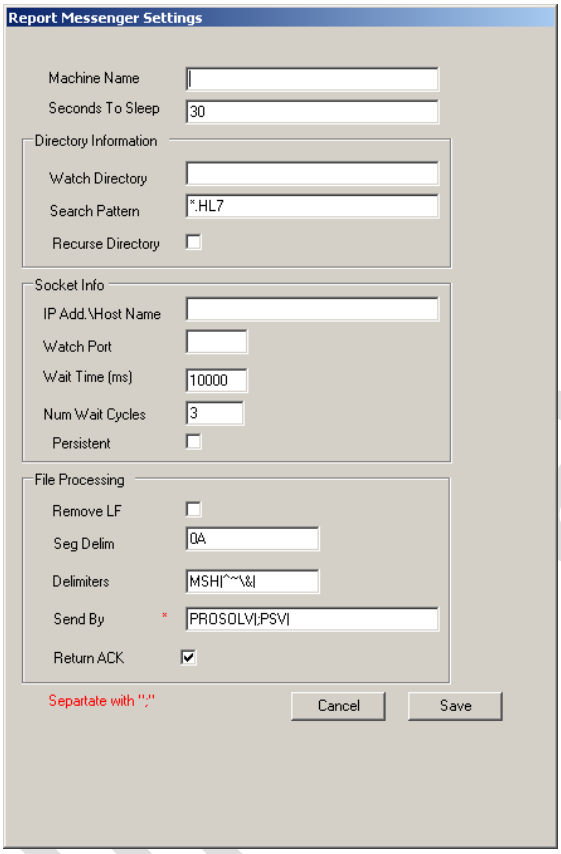
1.17.1. Configuration

To configure the HL7 Report Messenger Service:

1. Start the ProSolv® Service Manager.
2. Click the "Report Messenger" tab.



3. To configure the service, it must be started. Click the Green **Start** button in the Service Control group box to start the service.
4. To add a new task, click the **Add** button. This opens the Report Messenger Settings screen.



Configuration Setting	Description	Recommended Value
Machine Name	Unique name to describe this HL7 task	
Seconds to Sleep	Amount of time to sleep between checks for new HL7 files	
Watch Directory	Input directory to monitor for new HL7 messages	
Search Pattern	Search filter to reduce the types of files that should be processed	
Recurse Directory	Boolean flag indicating if subdirectories should be monitored	
IP Add.\Host Name	IP Address or Host Name of the receiving application	
Watch Port	Port number of the receiving application	
Wait Time	Time in milliseconds to wait	
Num Wait Cycles	Numbers of cycles to perform when waiting	

Configuration Setting	Description	Recommended Value
Persistent	Boolean flag indicating TBD	
Remove LF	Boolean flag indicating if line feeds should be removed during processing	
Seg Delim	Designates the Segment Delimiters for the message	
Delimiters	Designates the message delimiters	
Send By	Sending device name	
Return ACK	Boolean flag indicating if a Return ACK should be sent	

5. Click the **Save** button to add the task after it has been configured.
6. To start the newly configured task, click the Green **Start** button to the right of the Task List.
7. To stop the task, click the Red **Stop** button.
8. To restart the task, click the **Restart** button.
9. To remove a task, select it in the list and click the **Delete** button.
10. To modify a task's settings, select it in the list and click the **Settings** button.

2. DICOM Modality Worklist Application

The ProSolv® DMWL interface responds to the Worklist requests sent to the application by the different modalities.

2.1. Configuration

To configure the DICOM Modality Worklist Application:

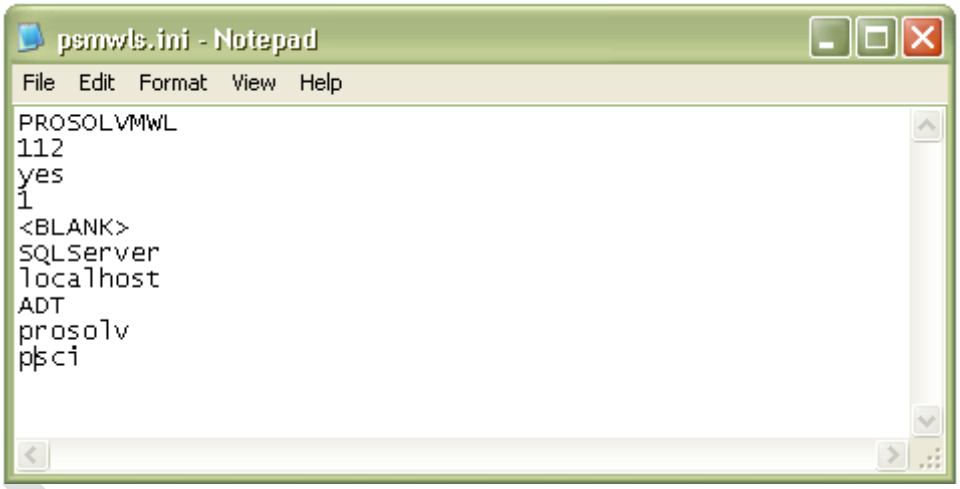
1. Place the ProSolv® DMWL executable file (***ProSolv® WorkList Server.exe***) and the ***psmwls.ini*** file in the same application folder (\ProSolv CardioVascular\SR).
2. Open (double-click) the ***psmwls.ini*** file and specify the appropriate configuration information as shown below. The format of the file is dependent on the type of database engine used (SQL Server or Jet Access; only SQL Server is supported as of 4.0.)
3. The shortcut to ProSolv® DMWL should be added to the Startup folder so ProSolv® DMWL will launch on login.

psmwls.ini for a SQL Server database engine:

Line Numbers	Explanation	Possible Values	Example
1	This line indicates the AE title of the ProSolv DMWL application (the application will use this title to associate with the different modalities).	Printable ASCII characters that are supported by the Operating System	***PROSOLVDMWL***
2	This line indicates the port number used by the DMWL application to accept requests from the different modalities.	1 – 65535	***112*** ***113***
3	This line indicates whether the ProSolv DMWL application should generate and send the study UID to the modality (in response to the study/order).	***yes*** or ***no***	***no***
4	This line indicates the number of AE titles following this line (if there are 2 acceptable AE titles that this application should use, enter ***2*** in this line).	1 - infinity	***2***
5 thru (4 + number at line 4)	This line indicates the acceptable AE titles for this application. The application will refuse associations to modalities with AE titles other than those specified in these lines.	Printable ASCII characters that are supported by the Operating System	***<BLANK>*** (using this AE title would allow associations from all possible clients)
6 (assuming line 4 contains "1")	This line indicates the type of the ADT database used by this application.	***SQLServer*** or ***Access***	***SQLServer***

Line Numbers	Explanation	Possible Values	Example
7	This line indicates the network address of the SQL Server (the IP address of the machine that has SQL Server running on it).	***localhost*** ***w.x.y.z*** (where w,x,y,z are in range 0-255)	***localhost*** ***192.168.229.81***
8	This line indicates the name of the ADT database on the SQL Server.	Printable ASCII characters that are supported by the Operating System	***ADT*** ***ADTTEST***
9	This line indicates the username associated with the ADT database that would allow the ADT application to connect to the database directly.	Printable ASCII characters that are supported by the Operating System	***ProSolv®*** ***adt*** ***sa***
10	This line indicates the password associated with the ADT database for the user specified in line 9.	Printable ASCII characters that are supported by the Operating System	***psci*** ***hl7231adt***

The following screen capture displays an example of how the ***psmwls.ini*** file should look when configuration is completed for a SQL Server database engine. It reflects a setup specifying one acceptable AE title (a ***1*** is placed in line 4 and there is only one line following it):

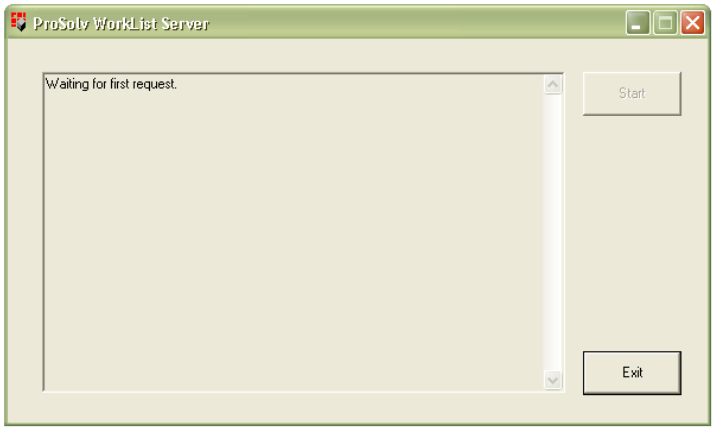


2.2. Starting the ProSolv® DICOM MWL Application

To start the application, double-click the ***ProSolv® Worklist*** icon. The application will begin listening to requests automatically.

2.3. Exiting the ProSolv® DICOM MWL Application

To exit the application, click the **Exit** button (refer to the screen capture below):



3. DICOM Structured Reporting Application

The ProSolv® DICOM SR application processes DICOM Structured Reporting files from the specified folder. The application also stores the measurement information retrieved from the files into the ProSolv® database (to be subsequently displayed by the ProSolv® Client application).

3.1. Configuration

To configure the DICOM Modality SR application:

1. Place the ProSolv® DICOMSR executable file (ProSolv® SR EchoVascular.exe) and the SR.ini file into the application folder (\ProSolv CardioVascular\MWL).
2. Open the SR.ini file (double-click the icon) and specify the appropriate configuration information as shown below. The format of the file is dependent on the type of the database engine used (SQL Server or Jet Access).
3. The shortcut to ProSolv® DICOM SR should be added to the Startup folder so ProSolv® SR will launch on login. The first table is for SQL, the second is for Access database.

SQL

Line number	Explanation	Possible Values	Example

Line number	Explanation	Possible Values	Example
1	The full path to the folder that contains the DICOM SR files to be processed by this application.	Windows formatted file path ending with a '*' symbol to indicate all files in that folder (directory path should be valid and existing)	***C:\SRFolder****
2	How often DICOM SR application will check the directory for new DICOM SR objects. (milliseconds)	***5000***	***5000***
3	The type of ProSolv® database where retrieved file data is stored.	***SQLServer*** or ***Access***	***SQLServer***
4	The network address of the SQL Server (IP address of the machine that the SQL Server is running on).	***localhost*** ***w.x.y.z*** (where w,x,y,z are in range 0-255)	***localhost*** ***192.168.229.81***
5	The name of the ProSolv® database on the SQL Server.	Printable ASCII characters that are supported by the Operating System	***ProSolvDB*** ***ProSolvDBTEST***
6	The username associated with the ProSolv® database that allows the DICOM SR application to connect to the database directly.	Printable ASCII characters that are supported by the Operating System	***prosolv*** ***sa***
7	The password associated with the ProSolv® database and the user specified in line 5.	Printable ASCII characters that are supported by the Operating System	***psci***
8	The type of DICOM Server database.	***SQLServer*** or ***Access***	***SQLServer***
9	The network address of the SQL Server (IP address of the machine that the SQL Server is running on).	***localhost*** ***w.x.y.z*** (where w,x,y,z are in range 0-255)	***localhost*** ***192.168.229.81***
10	The name of the DICOM Server database on the SQL Server.	Printable ASCII characters that are supported by the Operating System	***DCMServ*** ***DCMServTEST***

Line number	Explanation	Possible Values	Example
11	The username associated with the DICOM Server database that allows the ADT application to connect to the database directly.	Printable ASCII characters that are supported by the Operating System	***prosolv sa***
12	The password associated with the DICOM Server database and the user specified in line 9.	Printable ASCII characters that are supported by the Operating System	***psci***

Access

Line number	Explanation	Possible Values	Example
1	The full path to the folder that contains the DICOM SR files that are processed by this application.	Windows formatted file path ending with a '*' symbol to indicate all files in that folder (directory path should be valid and existing)	***C:\SRFolder****
2	How often DICOM SR application will check the directory for new DICOM SR objects. (milliseconds)	***5000***	***5000***
3	The type of ProSolv® database where retrieved file data is stored.	***SQLServer*** or ***Access***	***Access***
4	The full path to the ***.mdb*** file on the ProSolv® database.	Windows formatted file path	***C:\DCMServ\prosolv.mdb***
5	The password associated with the ProSolv® database.	Printable ASCII characters that are supported by the Operating System	***stick***
6	The type of DICOM Server database.	***SQLServer*** or ***Access***	***Access***
7	The full path to the ***.mdb*** file on the DICOM Server database.	Windows formatted file path	***C:\DCMServ\dcmserv.mdb***

Line number	Explanation	Possible Values	Example
8	The password associated with the DICOM Server database.	Printable ASCII characters that are supported by the Operating System	This line can be left blank if the database is not password protected

4. Witt Hemodynamic Import Application

The Witt Service imports measurements from the Witt Hemodynamic device. It consists of two Windows applications that have to be run from the desktop.

4.1. Installation

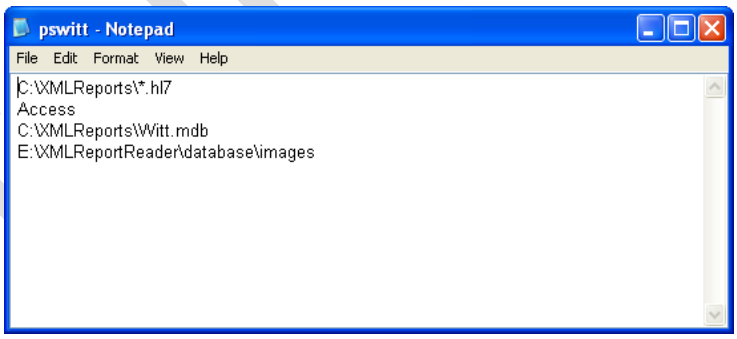
To install the Witt Hemodynamic Import Application:

1. Copy the Witt files to the desired installation folder on the target machine (\ProSolv CardioVascular\Witt).

4.2. Configuration

To configure the Witt Hemodynamic Import Application:

1. Copy Witt.mdb file from the installation folder to main ProSolv Database folder.
2. Open the text file, pswitt.ini, from the installation folder in a text editor.
3. Edit the file to contain the information listed in the tables below. The first table is for SQL, the second is for Access database.



SQL

Line number	Explanation	Possible Values	Example

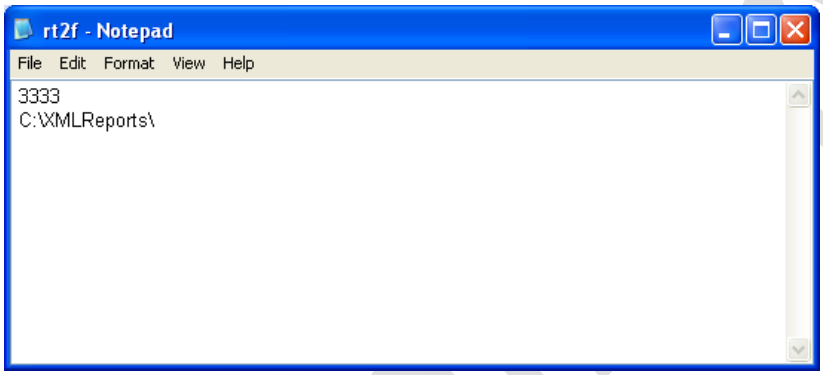
Line number	Explanation	Possible Values	Example
1	The full path to the folder that contains the Witt files that are processed by this application.	Windows formatted file path ending with a '*' symbol to indicate all files in that folder (directory path should be valid and existing)	***\\<AppServer>\From_Witt****
2	The type of Witt database where retrieved file data is stored.	***SQLServer*** or ***Access***	***SQLServer***
3	The network address of the SQL Server (IP address of the machine that the SQL Server is running on).	***localhost*** ***w.x.y.z*** (where w,x,y,z are in range 0-255)	***localhost*** ***192.168.229.81***
4	The name of the Witt database on the SQL Server.	Printable ASCII characters that are supported by the Operating System	***ProSolvWittDB***
5	The username associated with the Witt database that allows the application to connect to the database directly.	Printable ASCII characters that are supported by the Operating System	***prosolv*** ***sa***
6	The password associated with the Witt database and the user specified in line 5.	Printable ASCII characters that are supported by the Operating System	***psci***

Access

Line number	Explanation	Possible Values	Example
1	The full path to the folder that contains the Witt files that are processed by this application.	Windows formatted file path ending with a '*' symbol to indicate all files in that folder (directory path should be valid and existing)	***\\<AppServer>\From Witt****
2	The type of Witt database where retrieved file data is stored.	***SQLServer*** or ***Access***	***Access***
3	The full path to the Witt ***.mdb*** file.	Windows formatted file path	***\\<AppServer>\ProSolv Database\Witt.mdb***

Line number	Explanation	Possible Values	Example
4	The full path to the images folder of the ProSolv® database.	Printable ASCII characters that are supported by the Operating System	***\\<AppServer>\ProSolv Database\images***

4. Open the text file, rt2f.ini, from the installation folder in a text editor.



5. Edit the file to contain the information listed in the tables below.

Line number	Explanation	Possible Values	Example
1	Port number for HL7RealTime2File.exe application.	1-65535	***3336***
2	The full path to the folder where Witt files should be stored for processing.	***SQLServer*** or ***Access***	***\\<AppServer>\From_Witt****

6. Launch HL7RealTime2File.exe. This application reads the HL7 data stream and writes out data files.
7. Launch Witt.exe. This application processes the data files. **Note** that both applications must be running for the Witt interface.