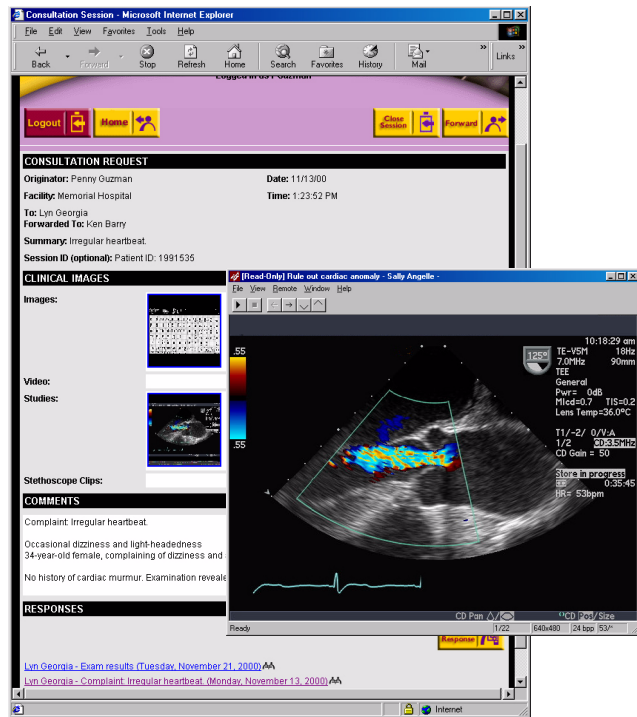


# TeleConsult<sup>®</sup> 3.1.1

## Client User's Manual

Part Number: 85-0000-73 B



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# INTRODUCTION

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## **TELECONSULT® SUBSCRIPTION**

With TeleConsult Subscription, physicians correspond and collaborate with other health care providers in their community, securely over the Internet. TeleConsult provides a session-based text dialog along with ability to collaborate, in real time, on digital clinical image files.

These TeleConsult *sessions* are shared among subscribing members and viewed from their Internet browsers. The originator specifies a list of member recipients for the session. Any subscribing member may forward the session to another TeleConsult member. As members create responses to sessions, links to their comments are added to the bottom of the session page.

Members can collaborate on digital still images such as digitized x-rays, multiframe and single frame DICOM studies, video such as echo ultrasounds and digital heart and lung sounds. For example, a physician on call can review clinical information for a patient from home, while consulting and collaborating with the resident in the Emergency room, in real-time.

Using this system provides more timely feedback to the physician, improves patient care, and facilitates case management in difficult, multi-specialty cases. TeleConsult extends the reach of specialists in both time and distance throughout integrated delivery networks. The software workflow logic encapsulates the communications process among clinicians and optimizes the specialist consultation process.

The open architecture provides for integration with standard, hospital information systems: HL7, DICOM, ODBC, as well as custom interfaces.

TeleConsult is a Multimedia Consultation Database. With TeleConsult, the user can:

- Capture and store video clips
- Capture, store and annotate still images with text, graphics and audio
- Capture and playback stethoscope clips
- Store, play and annotate DICOM studies

## **Security**

Access control configuration provides for customized views of data based on user roles that restrict or allow access to the data. Security and Patient Record Confidentiality is provided by roles-based database access, password protection, and encryption.

---

## **TELECONSULT CLIENT**

TeleConsult Client is software used to access the information on the TeleConsult server over the Internet from remote locations. The workflow for TeleConsult Client is sessions-based. The session originator enters the relevant patient and medical information into the Session page and uses the address book to specify a set of recipients.

When the session members receive the request they can add a textual and/or audio response. A list of responses is appended to the bottom of the Session page. Each session member and the originator will be notified that the new response is available.

Once a recipient finishes a response, the originator and other session members are notified by e-mail or by fax (their preference). All of the session members can view the completed results because TeleConsult Subscription is a collaboration product.

Responses can be cancelled if they are not completed. The originator can close a consultation, at anytime, to prevent any more people from submitting responses (this also locks any drafts from being edited).

Draft responses are not displayed to anyone except the creator of the draft. You can add multimedia data to a session when the consultation is in draft mode.

## **TELECONSULT CAPTURE STATIONS**

Using the TeleConsult Capture station, you can acquire and store still images, video clips, audio clips, DICOM studies, and stethoscope clips into the TeleConsult multimedia database. The capture station user interacts with a local copy of the database; the applicable content is replicated to and from the server system. The user never interacts directly with the server system. The capture station provides full functionality even when offline, or not connected to the Internet, because the desktop maintains its own copy of a subset of the server database.

### **Replication**

TeleConsult uses replication to distribute data to and from the server. Replication allows TeleConsult to make duplicate copies of content, move those copies to different locations, and synchronize that data automatically so that all copies have the same data.

---

## **CONVENTIONS USED IN THIS MANUAL**

Bold	highlights and cautions are bolded.
[Keys]	Named keys are shown enclosed in square brackets. [Enter] refers to the Enter key.
File > Save As	Select the menu choice (File) then the submenu choice (Save As).

## **WHERE TO GET HELP**

Contact Global Telemedix directly by mail, telephone, FAX or e-mail, for technical support, service or sales.

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Westford, MA 01886

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FAX: 978.692.0070

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info@globaltelemedix.com

Internet:  
www.globaltelemedix.com

## **COMMENTS AND SUGGESTIONS**

Comments or suggestions concerning this manual are welcome. Please e-mail any comments to techpubs@globaltelemedix.com. Please include a reference to the document part number 85-000073.

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## **YEAR 2000 READINESS DISCLOSURE**

This Year 2000 Readiness Disclosure speaks as of the date hereof. Global Telemedix, Inc. assumes no obligation and no obligation should be implied to update or inform you in the future of any facts, circumstances or events which occur after the date hereof that may change, alter, or modify this year 2000 readiness disclosure.

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Global Telemedix has designed its products to be “Year 2000 Compliant”. In this context, “Year 2000 Compliant” means that the Software was designed and tested to accurately process (calculate, compare and sequence) date data between the twentieth and twenty-first centuries and to handle the year 2000 as a leap year. This Year 2000 Compliant definition does not apply, (i) to the Software to the extent it interoperates with or exchanges data with other software, hardware, firmware, operating systems, and/or data that is not Year 2000 Compliant or, (ii) to any damage caused by any software or hardware supplied by anyone other than Global Telemedix, Inc., or (iii) by anyone's modification, alteration, or misuse of Global Telemedix's products.



# TELECONSULT<sup>®</sup> SUBSCRIPTION BASICS

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TeleConsult Subscription is an easy to use Internet-based communication tool; it provides a discussion platform that includes comments and clinical images. Using TeleConsult, care providers can capture diagnostic clinical results (high resolution still images, digitized X-Rays, videos, files, ultrasound, stethoscope clips etc.) at the point of care and upload these images to a secure web site for remote review, consultation and real-time collaboration.

These *sessions* are shared among selected members and viewed from their Internet browsers. The originator specifies a list of member recipients for the session. Any member may forward the session to another TeleConsult member. As members create responses, links to their comments are added to the bottom of the session page.

The following instructions explain how to log in to your TeleConsult home page, create a new session and add digital images and audio clips. You will learn how to save, forward and respond to a session. The Collaboration section describes the steps required to successfully collaborate on clinical still images, video and DICOM files.

## **SET UP**

### **Monitor Resolution**

Set your monitor to True color / 32 or 24 - bit color

1. Select Settings > Control Panel from the Windows Start menu.
2. Select the Display icon
3. Click the Settings tab from the Display properties dialog box
4. Select True Color (32-bit) from the Color drop-down menu.

## Configuring Internet Explorer

You must configure Microsoft® Internet Explorer™ (IE) to automatically check for new pages to ensure you get the most current information.

1. From the IE browser, select Tools > Internet Options as shown below (Figure 1-1). The Internet Options dialog box is displayed (Figure 1-2).



Figure 1-1: Configuring the IE browser

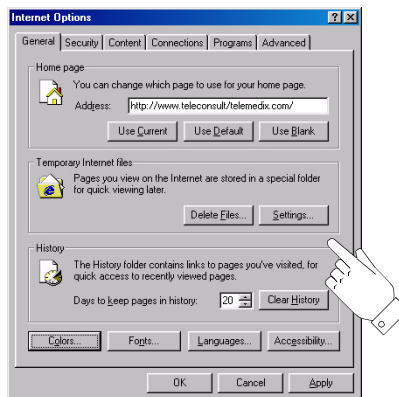


Figure 1-2: Internet Options - General tab



2. Click on the Settings button from the Temporary Internet files section. The Settings dialog box is displayed.

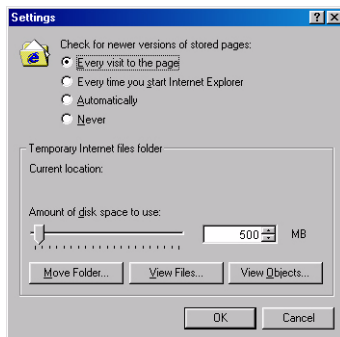


Figure 1-3: Internet Options - Settings Dialog

3. Set the *Amount of disk space to use* in the Temporary Internet Files Folder section to approximately 10% of the available space on your hard drive. Global Telemedix recommends between 500 and 2000MB of disk space. This setting is relevant to *Subscribing*, or automatically downloading session clinical content on a scheduled basis. Refer to the *Subscribing* section on page 1-12.
4. Select *Every visit to the page* under the Check for newer versions of stored pages section, as shown above.

## **LOGGING ON TO TELECONSULT**

Use the Microsoft Internet Explorer (5.01 (minimum)) to start TeleConsult.

### **Open Internet Explorer**

Launch Internet Explorer - Double click on the Microsoft Internet Explorer browser icon (located on your PC desktop).



### **The Telemedix URL**

You can access the TeleConsult application from the Telemedix.com web site [www.telemedix.com](http://www.telemedix.com).

1. Select the text in the browser Address bar and type the Telemedix.com URL ([www.telemedix.com](http://www.telemedix.com)) to access the Telemedix.com web site (Figure 1-4). A URL, or uniform resource locator, is the Internet address of a specific Internet page.

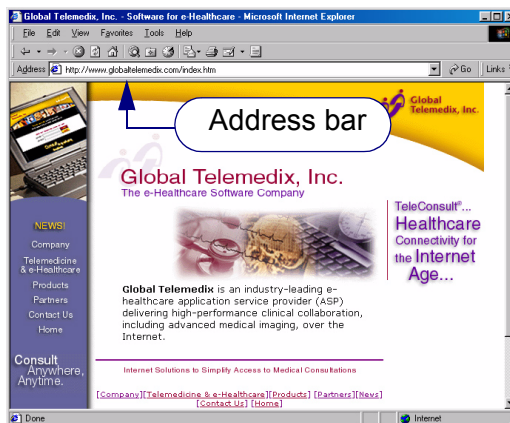


Figure 1-4: Internet Explorer Browser Address bar

2. Press the [Enter] key. The Telemedix web site is displayed (Figure 1-5).



Figure 1-5: Telemedix.com Web Site

3. Select the TeleConsult link from the Telemedix.com web site (Figure 1-5). The Subscriber login page is displayed (Figure 1-6).



Figure 1-6: TeleMedix Subscriber Login Page

4. Click the Subscriber login text to display the TeleConsult Login page (Figure 1-7).

5. Type your Username and your case-sensitive Password in the text boxes.



Figure 1-7: TeleConsult Login Page



6. You can click the Login button or press the keyboard [Enter] key to display your customized TeleConsult home page (Figure 1-8). Contact your Information Systems department or Global Telemedix (refer to the *Where to Get Help* section on page xvii) if you encounter any problems.

## YOUR HOME PAGE

All pending and completed TeleConsult sessions are listed on your personal home page. The list includes name of the originator, date the session was sent, an optional Session ID field and a brief Summary of each request. Each item in the list is linked to a detailed view of that specific session.

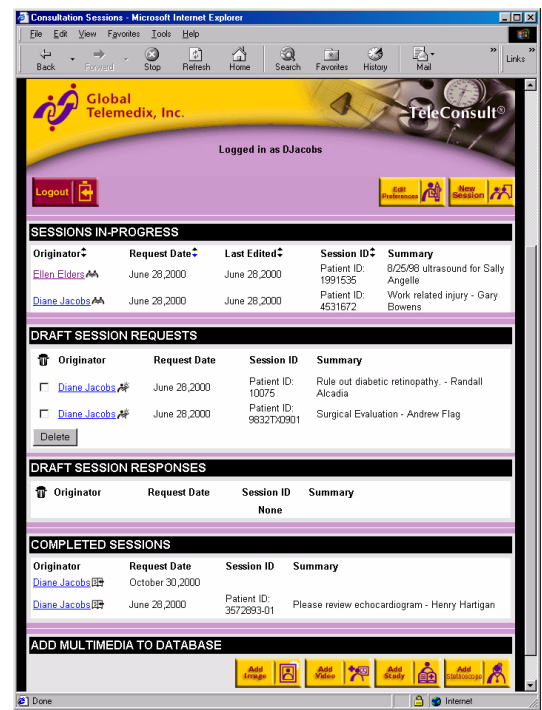


Figure 1-8: Typical Home Page

## Home Page Layout

All pending and completed TeleConsult sessions are listed on your personal home page in the first four sections. Refer to the *Listed Sessions* section on page 1-18 for a detailed description.

## Adding Multimedia to the Database


This section is displayed if you have the role of Content Creator. You can add multimedia to your TeleConsult Subscription database directly from your homepage, without having to create a session.

These documents include clinical images (still images, video, stethoscope clips or DICOM files) that were acquired on the TeleConsult Capture station or files that were stored on disk and saved to the server through the TeleConsult multimedia component applications and the TeleConsult web-based application.

Images that are saved to your TeleConsult Subscription database can be linked to a session. Refer to the *Linking Multimedia* section on page 1-38 for more information.

## Status Icons

Status icons are displayed after the session originator's name. Hold your cursor over the icons to display the status of the session.

 Status: In Progress

 Status: Draft

 Status: Completed

Figure 1-9: Status Icons

## In Progress

Sessions that have been saved as final and have been sent to the recipients. Refer to the *Saving the Session* section on page 1-41. These sessions have not been closed. Refer to the *Closing a Session* section on page 1-25.

## Draft

Sessions that have been saved-as-draft. These sessions have not yet been sent to recipients; they can be edited until they are saved as final. Refer to the *Saving the Session* section on page 1-41.

## Completed

The originator can terminate a session that has been saved as final (Refer to the *Saving the Session* section on page 1-41). This *Closed* session is read only, no responses can be added; the recipients are automatically notified (by e-mail or fax) when a session is closed.

## Internet Explorer Buttons

### Refresh button



You may need to click the Internet Explorer browser Refresh button to review changes you have made. For example, after acquiring an image, clicking the Refresh button will reload the page and display the image thumbnail of the new image.

**Warning:** When adding or editing text you must save the data to the server, by using either the save as draft or save as final button, before you click on the browser Refresh button. Clicking the Refresh button before saving the session will delete the newly entered text.

## TeleConsult Buttons

Use the TeleConsult buttons to navigate through the forms when possible. Using the TeleConsult buttons provides an updated or refreshed version of the page.

### Log Out Button



Use the Logout button to return to the Login page.

**Warning:** Closing the browser without using the Logout button (by selecting File > Close or clicking the [x] in the upper right-hand corner) will leave the session open on the server, consuming resources for at least 15 minutes.

Browsing outside of the TeleConsult database without first selecting the Logout button causes the session to remain open. Anyone with access to the PC can use the browser Back button and view any previously displayed database pages.

### Home Button



Click the Home button to return to your own password-protected page.

### Edit Preferences Button



The Edit Preferences button is located at the top right section of your home page. From this page you can set the option of using the TeleConsult multimedia component applications to view images or to play video and sound files; or, you can choose to use the default IE browser applications to display these files.

**Note:** You cannot collaborate using the IE browser default multimedia applications.

You can also edit your user information such as your demographics and session notification method (e-mail and fax are the current supported notification methods).

# Setting the Preferences

1. Click on the Edit Preferences button your home page to display the Preferences page (Figure 1-10).
2. Select the appropriate Yes or No radio buttons. The default is Yes; use the TeleConsult multimedia component applications.  
For example: with Yes selected, still-image JPEG files are displayed with TeleConsult Image. With the setting to No, the JPEG file will be sent to the browser and TeleConsult Image will not be used.

**TeleConsult Preferences - Microsoft Internet Explorer**

Global Telemedix, Inc. TeleConsult®

Logged in as PGuzman

Logout Home Subscribe Save

**MULTIMEDIA DOWNLOAD PREFERENCES**

Download single-frame images using GTI's TCI Format: ☒ Yes ☐ No

Download video captures using GTI's TCM Format: ☒ Yes ☐ No

Download DICOM studies using GTI's TCS Format: ☒ Yes ☐ No

Allow Download of JPEG Lossy DICOM Content: ☒ Yes ☐ No

Allow Download of JPEG Lossless DICOM Content: ☒ Yes ☐ No

Allow Download of JPEG Lossy TCI Image Content: ☒ Yes ☐ No

JPEG compression rate for downloads: 1x

**USER INFORMATION**

Username: PGuzman Password:  Re-enter Password:

Title: Dr. Last Name: Guzman

First Name: Penny M.I.:

Street: 35 Hewlett City/Town: Warwick

State: RI Zip Code:

Country:  Facility:

Home Phone: 401.776.4576 Work Phone: 401.887.9976

ISDN Line 1:  ISDN Line 2:

ISDN Call Size: 64k Fax Number:

E-Mail:  Notification Method: E-Mail

**SONOS DSR IMPORT PREFERENCES**

Separate Patients: ☒ Yes ☐ No

Separate Studies: ☒ Yes ☐ No

Separate Series: ☒ Yes ☐ No

TeleConsult® 2000 Global Telemedix, Inc.

Figure 1-10: Preferences Page

## JPG Compression Rate

Your Subscription administrator can set a compression ratio limit for the images that you are downloading to your PC. For example, a physician who is off site, logs into TeleConsult from his laptop to access the files on the server, over the Internet. TeleConsult will compress images up to the limit set by the administrator. For example: if the Subscription administrator sets the Subscription JPG compression ratio to 30X and you select 50X, the images will be compressed at 30X.



A JPEG file is designed for compressing either full-color or gray-scale images. JPEG handles only still images. JPEG is *lossy*, meaning that the decompressed image isn't quite the same quality as the original image.

The degree of lossiness can be varied by adjusting the compression ratio. Increasing the compression ratio decreases the file size and the time required to download the file but it also decreases output image quality.

You can change the compression from 1X (no compression) to 50X by selecting the compression ratio from the drop-down list.

**Note:** When you change JPEG preferences, you will have to *flush* your browser cache before you see the new compression ratio you selected. From the Internet browser menu select: Tools > Internet Options and click the Delete Files button.

## Sonos DSR Import Preferences

When the DICOM Viewer's menu item File > Open Media Set is used to open a DSR volume, the patient, study, series, and/or images will be displayed in a hierarchy in a way that is consistent with both DICOM semantics and the contents of the DSR Volume.

When there is not enough necessary information to match the Patient with the DSR images, the images will be considered as:

1. Belonging to the same Patient if the option 'Separate Patient' is 'No'.
2. Belonging to different Patients if the option 'Separate Patient' is 'Yes'.

When there is not enough necessary information to match DSR images to the proper Study then the images will be considered as:

1. Belonging to the same Study if the option 'Separate Study' is 'No'.
2. Belonging to different Study if the option 'Separate Study' is 'Yes'.

When there is not enough necessary information to match DSR images to the proper Series then all such images will be considered as '

1. Belonging to the same Series if the option 'Separate Series' is 'No'.
2. Belonging to different Series if the option 'Separate Series' is 'Yes'.

## Editing your User Information

Scroll down the Preferences Page to the User Information section.

1. Type your demographic information and contact information in the text boxes or select the information from the drop down lists.
2. Select your preferred Session notification method and include the applicable Fax or e-mail address (e-mail or fax are the current supported Notification methods).

## Subscribing

You can choose to have clinical content, that is embedded in a session in-progress, automatically downloaded on a scheduled basis to avoid waiting for the files to download when you login. The clinical images in Draft and Closed sessions is not automatically downloaded. You *Subscribe* to automatically download the waiting sessions and unsubscribe when you no longer want to automatically download sessions.

When you subscribe, TeleConsult creates and adds a Channel to your browser Favorites list. You can use the default schedule or setup a schedule to suit your circumstances.

**Note:** To take advantage of Subscribing you must use Microsoft® Internet Explorer™ 5.0, SP1 or greater.



Click the Subscribe button. Enter Network Password dialog box is displayed.

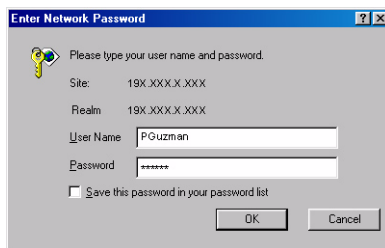
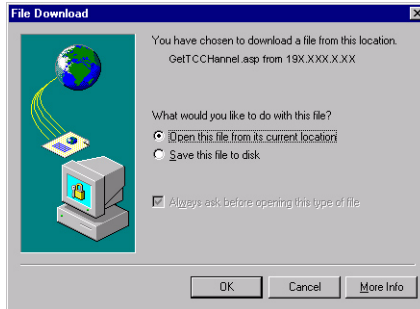


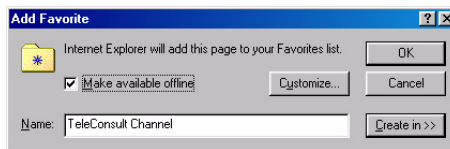
Figure 1-11: Enter Network Password Dialog Box

3. Type your TeleConsult username and password and click the OK button.

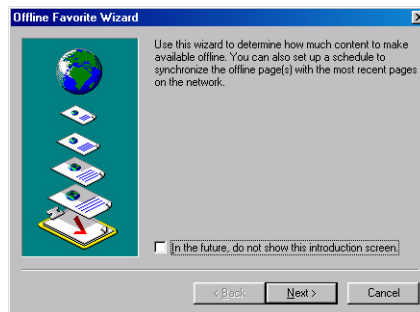
4. The File Download dialog box may be displayed. Select *Open this file from its current location* and press the OK button.



5. The Add Favorite dialog box is displayed.



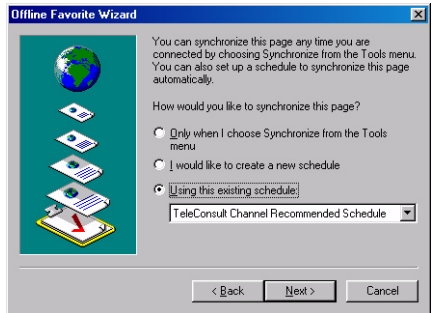
6. Select the *Make available offline* checkbox and then click the Customize button. The Offline Favorite Wizard is displayed.



7. Select the Next button to setup to the following page.



8. Click the Next button to display the Synchronize method dialog box.



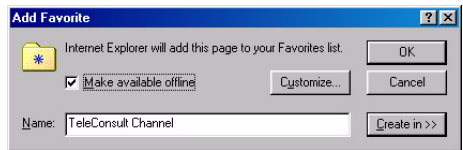
9. Select *Using this existing Schedule* and click the Next button.

Note: If the *Using this existing schedule* option is not displayed, contact your Subscription administrator.

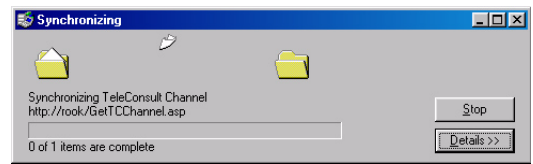
10. Type your TeleConsult Username and password, and click the Finish button.



11. The Add Favorite dialog box is displayed, click on the OK button.



The Synchronizing progress indicator is displayed



## Changing your Subscription Schedule

Follow the steps below to change the properties of your subscription.

- 1. Select Favorites > Channels from the IE browser menu.

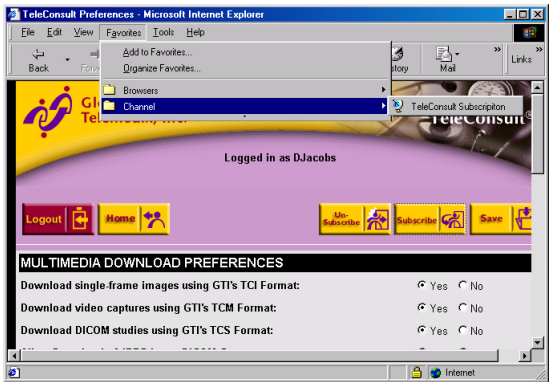
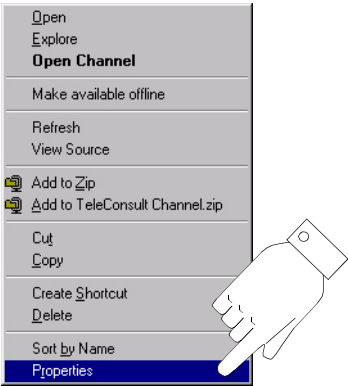
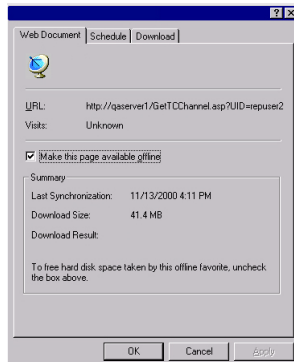


Figure 1-12: TeleConsult Channel

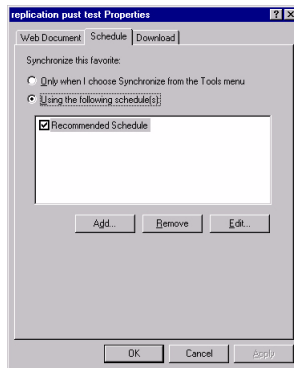
- 2. Click the right mouse button on the TeleConsult Channel to display the options menu.



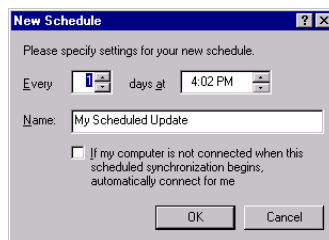
3. Select Properties from the menu to display the Properties dialog box.



4. Select the Schedule tab from the TeleConsult Channel Properties dialog box, then click the Add button.



5. Set the duration and the time of day to download your Session pages on the Schedule tab and click on the OK button.



## Unsubscribing



To unsubscribe right click on the Channel, in the Favorites list to display the context menu. Select Delete from the menu.

## **WORKING WITH SESSIONS**

TeleConsult Subscription is a web-based discussion platform that includes comments and clinical images. These *sessions* are shared among selected members and viewed with their Internet browsers. From your home page, you can create new sessions, review existing sessions, and edit a drafted session or a drafted response.

The originator specifies a list of recipients for the session. Any session member may forward the session to another TeleConsult Subscription member. As members create responses to sessions, links to their comments are added to the bottom of the session page.

### **Moving around the Page**

Review information by scrolling forward and backward along the page. Add and edit information in the text boxes. Where a predefined list of choices applies, you can choose an option from the drop-down list without having to type the information.

### **Member Roles**

The Subscription Administrator sets the member roles that allow a user to create a session, add multimedia content or view multimedia. Refer to the TeleConsult Subscription Administration Guide, part number 85-000085.

- Originator - The Session creator.  
The Originator has permission to:
  - Enter the initial Session
  - Specify the Session recipients
  - Delete a draft session
  - Close a session that has been completed by all session members
- ContentCreator - Has permission to add multimedia objects to the TeleConsult database.
- Viewer - Has permission to create responses and review clinical multimedia.
- The Viewer can add a response to a Session and can forward the Session to another Subscribing member, causing this person to be added to the Session recipient list.

---

## Listed Sessions

The sessions are listed on your home page in one of four sections.

- **Sessions in Progress**

The Sessions in Progress section contains sessions that have been originated by you or another member and were saved as final. You can add responses to these sessions and review any comments, responses and the clinical images.

- **Draft Session Requests**

Sessions that you originated and have saved as a draft to be completed later. You can edit draft sessions and add clinical images.

- **Draft Session Responses**

Sessions responses that you saved-as-draft; you can complete these responses later. You can edit drafted responses until they are saved as final and are sent to the recipients and originator or the session is closed by the originator.

- **Completed Session Section**

Completed sessions have been *closed*. Completed sessions are available for review by all session members. The clinical images can be opened and used for collaboration; however, new responses cannot be added. Refer to *Closing a Session* section on page 1-25.

- **Add multimedia to the Database**

This section is displayed if you have the role of Content Creator. Refer to the *Adding Multimedia to the Database* section on page 1-7.

## Status Icons

Status icons are displayed after the session originator's name. Hold your cursor over the icons to display the status of the session. A description of the status icons is provided in the *Status Icons* section on page 1-8.

## Notification

A notification (e-mail or fax) is sent to inform session members that there is a session waiting for their review. The type of notification used is selected in the Edit Preferences section of each members home page. Refer to the *Preferences Page* section on page 1-10.

A Notification is sent to all session members when:

- A new session saved as final
- A response is saved as final
- A session is closed
- A session is forwarded



### Time-out

As a security measure, TeleConsult will become inactive after fifteen minutes of non-use. Return to the Login page to log on.

Your TeleConsult Subscription Administrator can change this time-out period in the NT IIS configuration. Refer to *Web Session Timeout* section of Administration manual.

**Warning:** As a security measure, sessions will expire if TeleConsult is idle for fifteen minutes, even if the user is entering text.

When you are entering text to a page for more than fifteen minutes and the session expires, the information will be lost. Save the session as a draft periodically to avoid losing information. Refer to *Saving the Session* section on page 1-41.

### Opening a Session

Click on a session from the Session's In-Progress list on your homepage to display the page. Reference Figure 1-8: *Typical Home Page*, located on page 1-7).

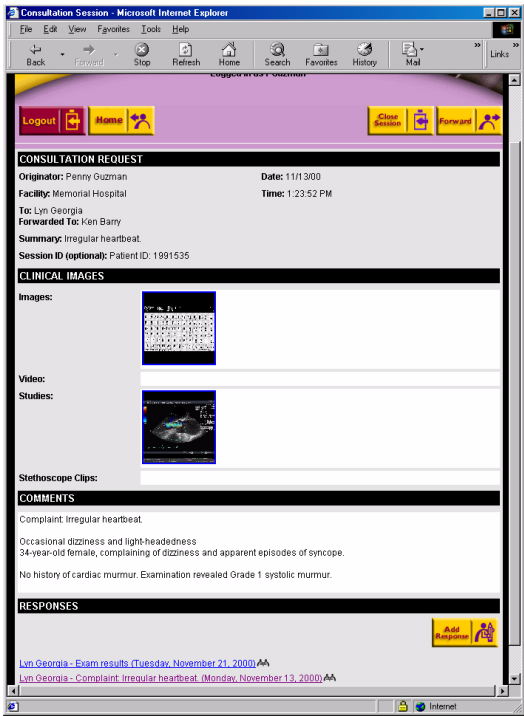


Figure 1-13: Example of a Session

## The Session Page

The Session page is divided into four sections:

- The **Consultation Request** section contains the originator's name and facility, a list of the session recipients and a Summary field. You can use the optional Session ID field to uniquely identify each session.
- **Clinical Images:** This field may contain still images, video clips, DICOM studies and heart and lung sounds that are acquired from medical devices or are retrieved from a disk. These multimedia objects are also launched over a secure Internet connection when collaborating.
- **Comments:** Type the patient's medical history, comments, questions or observations in the Comments section. The text frame scrolls as you type to accept additional text.
- **Responses:** A list of links to the session recipient's comments are displayed in the Response section. All members of the session can view the request and all completed responses. Responses may include both textual information and audio clips.

## Reviewing Images

Click on a thumbnail to display the image; the corresponding TeleConsult multimedia software component opens and displays the image file. For details on using the TeleConsult multimedia components refer to the *Using TeleConsult® Image* section, located on page 2-1, *Using the DICOM Viewer* section, located on page 3-1, *Using the Video Viewer* section on page 4-1 and the *Using TeleConsult® Stethoscope* section on page 5-1

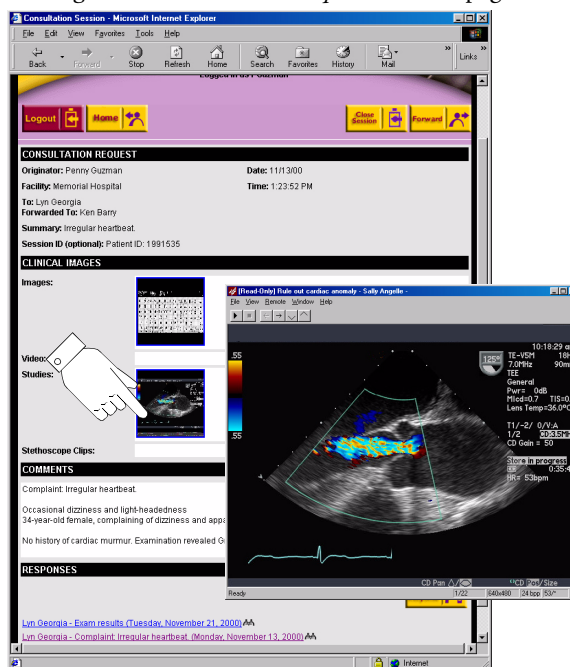


Figure 1-14: Session Page with Image Thumbnails

## Playing Stethoscope clips

Click on the Stethoscope multimedia-object icon, that is displayed in the session page, to play the clip.

TeleConsult Stethoscope requires additional hardware. Contact Global Telemedix for more information (refer to the See “Where to Get Help” on page xvii.).

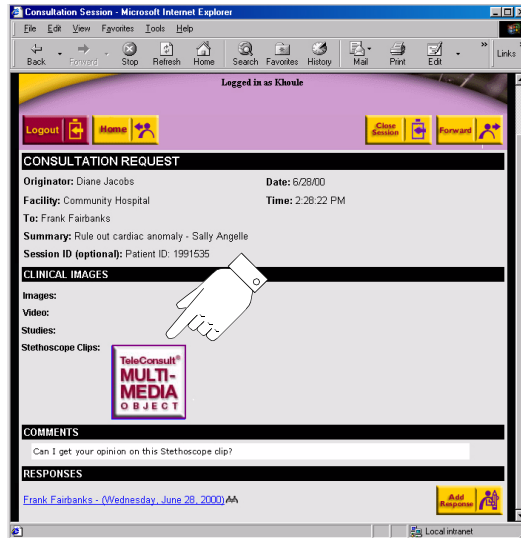


Figure 1-15: TeleConsult Stethoscope Multimedia Icon

## Forwarding a Session

Any session member may forward the session to any member that has permission to view the images (Viewer Role). When a session is forwarded, a notification (e-mail or fax) is sent to inform session members that there is a session waiting for their review.

1. Open the session by clicking on the Session from the list on your home page.
2. Click the Forward button.
3. Select the recipients from the Address book by clicking on the button adjacent to the *To* field.



## Responding to a Session

When you respond to a session, all members of the session can view the original session, corresponding multimedia and all completed responses. Responses may include both textual information and audio clips. You can also respond to an existing response as part of the discussion.

The list of responses is appended to the bottom of the consultation page. Each session member and the originator will be notified that the new response is available.

1. Open the session by clicking on the Session from the list on your home page.
2. Click the Add Response button, located on the bottom of the page, to reply to a session. The Session Response page is displayed.
3. Type your reply in the Comments text box. The text box area will expand to accept text as you type.

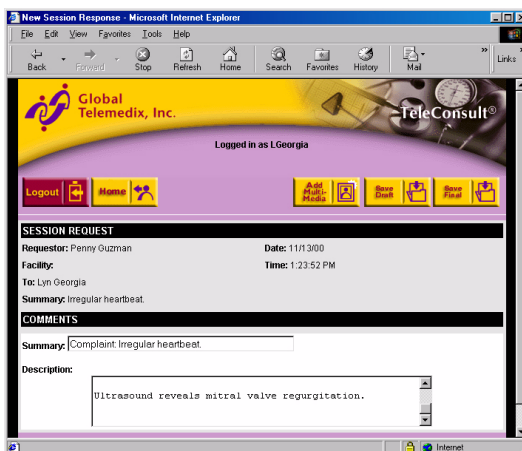


Figure 1-16: Session Response Page

4. Click the Save Draft button to save the response as draft to edit and complete later.
5. Click the Save Final button to send notification to the recipients.



## Adding Audio Files to your Response

To record audio files an audio input device (microphone) must be connected to your computer.

1. Click the Add Multimedia button; from the Response page an Add Audio button is displayed.

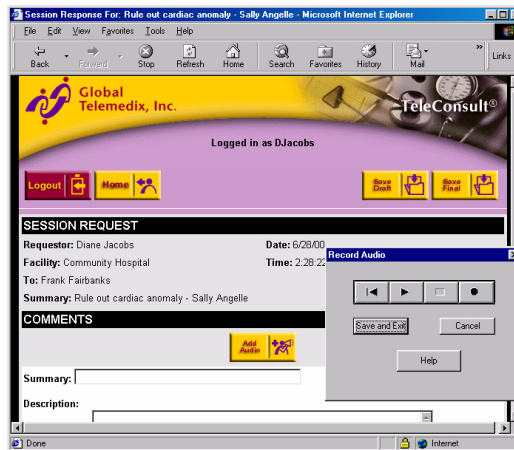
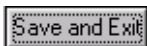


Figure 1-17: Adding Audio to the Response



## Recording the Audio Comments

2. Click the Add Audio button; the Record Audio window is displayed.
3. Click the Record button (dot) to begin recording.
4. Click the Stop button (square) to stop recording or playing.
5. Click the Rewind button to go back to the start of the audio file.
6. Click the Rewind button and then click the Play button to review your recording.
7. Click the Save and Exit button to store the file. A speaker icon is displayed on the page indicating an audio file is available.
8. Click the browser Refresh button to view the speaker icon as shown in Figure 1-18, located on page 1-24.



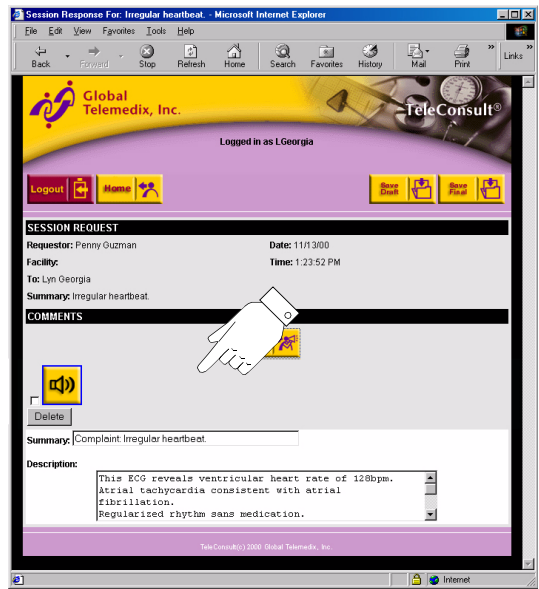


Figure 1-18: Completed Response with Audio Icons

## Saving a Response

You can save a response as draft or as final.



1. Click the Save Draft button to keep the response on the Draft Session Responses list, to complete later.
2. Click the Save Final button to send notification of the response to the listed recipients. Responses are appended to the bottom of the session page. The recipients are automatically notified when a session is waiting for review.

## Closing a Session

The originator can terminate a session that has been saved as final (Refer to the *Saving the Session* section on page 1-41).

Click the Close the Session button, located on the session page. The session is now listed at the bottom of the page in the Completed Sessions field.

All images and responses in the closed session are read only. The recipients are automatically notified that a session is now closed.

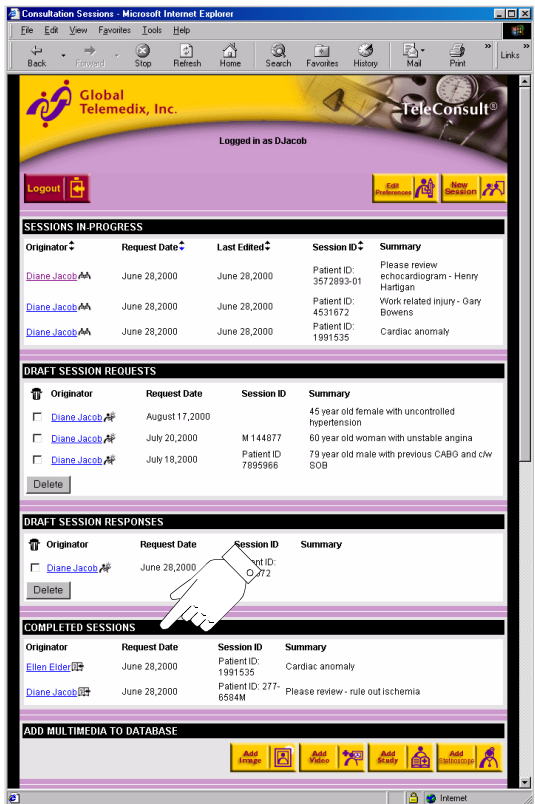


Figure 1-19: Home Page with Completed Sessions

## CREATING A NEW SESSION



Click the New Session button from your home page to open the Consultation Request page. The Consultation Request and Comments sections divide the page.

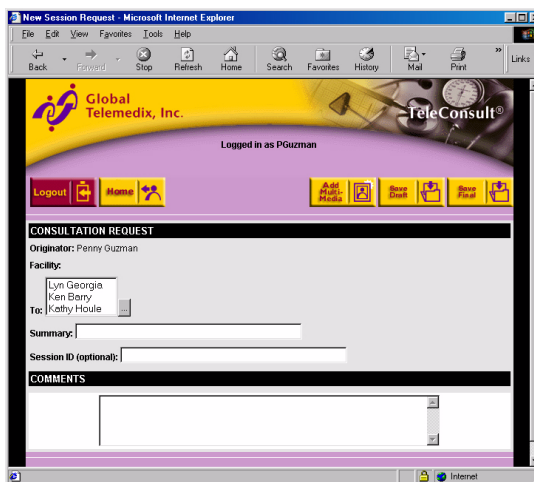


Figure 1-20: New Session Page



**Note:** Use the TeleConsult buttons when navigating through the TeleConsult application pages. Clicking the browser Back button is not advised when creating a new session.

### Consultation Request Section

The Consultation Request section contains the originator's name, a list of subscribing members, a Summary text box and a Session ID text box.

1. Type a description into the Summary field that you want displayed adjacent to the Session listed on your home page (page 1-7).
2. You can use the optional Session ID field to uniquely identify each session. The Session ID field is displayed in the Sessions in Progress list on your home page (Figure 1-8, located on page 1-7).



3. Select the session recipient's in the To field or click on the Address Book button to select the recipient's name from the Address book. Selecting the Location will select all of the users in that facility. Recipients are listed alphabetically by location and name. The location is obtained from the Facility field, located in each user's Edit Preferences page.

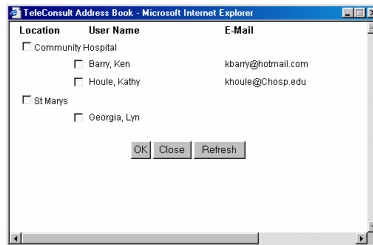


Figure 1-21: Address Book

## Comments Section

Type the patient's medical history, comments, questions or observations in the Comments section. The text frame will scroll as you type to accept additional text.

## Adding Audio Comments

1. Click the Add Multimedia button.
2. Click the Add Audio button located next to the comment field; the Record Audio window is displayed.



Figure 1-22: Record Audio Window

3. Click the Record button (dot) to begin recording.
4. Click the Stop button (square) to stop recording or playing.
5. Click the Review button to go back to the start of the audio file and click play to start the video.
6. Click the Save and Exit button to store the file. A speaker icon is displayed on the page indicating an audio file is available.
7. Click the browser Refresh button to view the speaker icon.



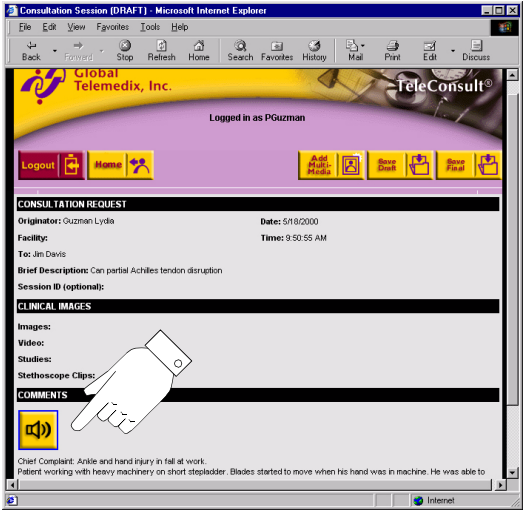


Figure 1-23: Recorded Audio Comment Icon

## Adding Multimedia

TeleConsult acquires images from medical devices, from files on a disk or from a PACS.



1. Click the Add Multimedia button, located on a new or drafted session page to add clinical images. The Add Multimedia page is displayed.

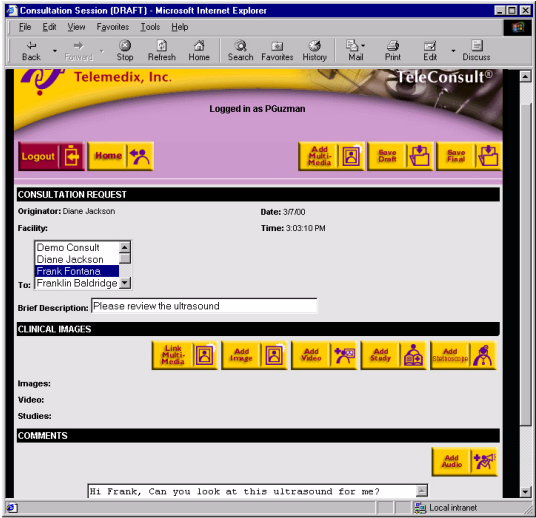


Figure 1-24: Add Multimedia Page

2. Click the Add image, Add Video or Add Study button to acquire or add still images, video clips, and DICOM studies. Click the Add Stethoscope button to add heart and lung sounds. The corresponding TeleConsult software components open; these multimedia objects are also launched over an Internet (https) connection when collaborating.

You can also link existing multimedia that resides in your TeleConsult database. Refer to the *Linking Multimedia* section on page 1-38.



## Adding Still Images

Clicking the Add Image button opens the TeleConsult Image application. TeleConsult Image software captures images from external medical-imaging devices, stores the digital files in multiple formats, and permits image editing and annotation and real-time collaboration. Refer to the *Using TeleConsult® Image* section, located on page 2-1 for more information about TeleConsult Image.

### Acquiring a Still Image

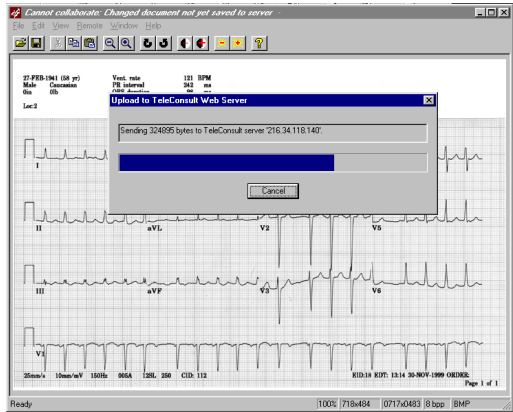
Select File > Acquire, from the TeleConsult Image application, to acquire images from an external image-capture device such as a laser-film scanner or Dermatology scope.

### Opening Still Image Files on Disk

1. Choose File > Open from the TeleConsult Image Main menu to open an existing image file. The names of all image files that have the extension tci are displayed.
2. Choose All Files from the File of Types drop-down list to view the supported image formats. An arrow pointing downward, located to the right of the dialog box indicates that a drop-down list is available. The available image formats are tci (the TeleConsult Still-Image viewer format), tct (the TeleConsult Still-Image viewer thumbnail), tiff, jpg, bmp and pcx.

# Saving Image Files

1. Select File > Save to the Server and Exit, from the TeleConsult Image, to store the image in the database and create an image thumbnail on the page. The *Uploading to TeleConsult server* message window is displayed while the file is being saved.



2. Click the browser Refresh button to view the thumbnail of the image.

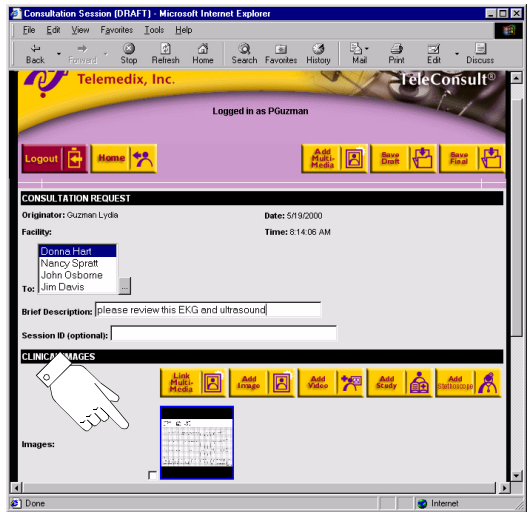


Figure 1-25: Session Page with Image Thumbnail

## Adding Video

The Video player will play mpg, avi and tcm (the TeleConsult Video viewer format) full-motion, digital, and video files that contain both sound and picture elements. The Video Viewer captures live video from any NTSC or PAL video device with optional hardware and software. Contact Global Telemedix for more information; refer to the See “Where to Get Help” on page xvii.

## Opening Video Files on a Disk

1. Choose File > Open from the Main menu to open an existing video file that is stored on a disk.
2. Choose All Files from the File of Types drop-down list to view the supported image formats. An arrow pointing downward, located to the right of the dialog box, indicates that a drop-down list is available.

## Video File Size

The memory required to acquire Video s can vary depending on the type of Winnov hardware and various video formats that are used. Refer to the *Video File Size* section on page 4-7.

## Configuring the Video Format

Configure the video format before acquiring a video file.

1. Select File > Acquire from the Video Viewer menu to display the capture window.
2. Click on the Global Telemedix icon, located in the upper left corner. A drop-down menu is displayed.



Figure 1-27: Configure Video Menu

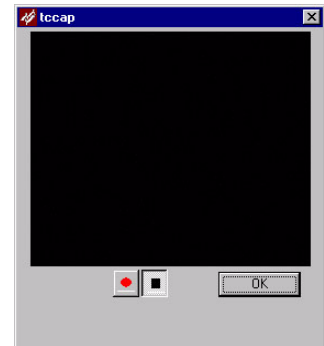


Figure 1-26: Video Capture Window

- Click on Configure Video Format. The Video Capture Settings dialog box is displayed.

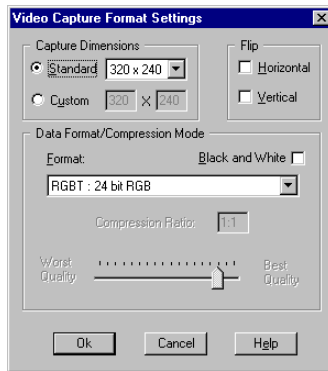




Figure 1-28: Video Capture Setting

- Set the Capture Dimensions, Data Format, Compression Ratio and the desired Quality.

## Acquiring Video



- Click the Add Multimedia button, located on the new or draft session page, to add video to your session. The Add Multimedia page is displayed.
- Click the Add Video button. The Video Viewer application opens.
- Select File > Acquire from the File Menu, the capture window is displayed (Figure 1-26, located on page 1-31).
- Click on the button with the red dot  to begin recording.
- Click on button with the black square  to stop recording.
- Click the OK button to end the capture. The acquired video is displayed.

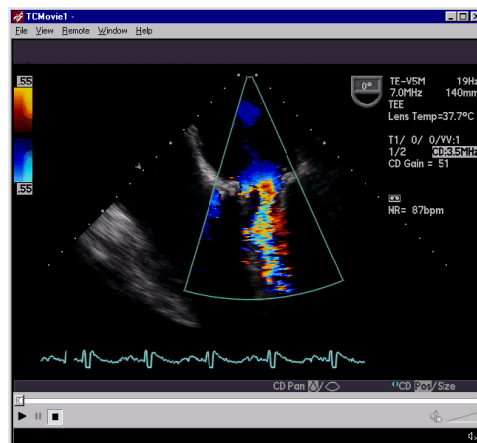


Figure 1-29: Newly Acquired Video

## Saving the Video File

1. From the Video Viewer Main menu select File > Save to Server and Exit. While the video is being saved, the *Upload to the TeleConsult Web Server* message window is displayed.

**Note:** Move to a specific frame before saving the file to make the displayed frame the thumbnail frame. This is especially important if the first frame is black.

**Note:** There is an upload time limit. The error message *Script Timed Out* is displayed when the file is too large to upload within the time limit. See your Subscription Administrator to increase this time limit.

2. Click the browser Refresh button to display the video thumbnail. The thumbnail is displayed in the page.

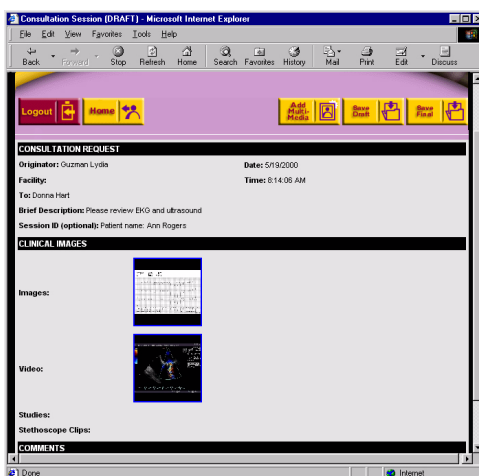





Figure 1-30: Session Page with Thumbnail of Video File

## Playing a Video

You can use the View menu options or the command buttons to play a movie.

1. Double click on the Video thumbnail, that is embedded in the session page, to open the movie file.
2. Select View > Auto Replay, so that when the end of the movie is reached during play, it will restart at the beginning.
3. Select View > Play or click  to start the video.
4. Select View > Stop or click  to stop the movie and reset to the beginning.
5. Select View > Pause or click  to stop the video and display the current frame. Click the Play button to resume.

**Seek bar**

The Seek bar indicates the progress of the current video.  
Use the Seek bar indicator to step forward or backward along the video frames.

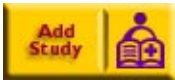


Figure 1-31: Video Viewer Seek Bar

**Adding DICOM Files**

TeleConsult Stack plays multi-frame DICOM studies and permits collaboration on DICOM files between multiple users. TeleConsult Stack requires optional hardware and software.

**Opening DICOM Files on a Disk**



1. Click the Add Study button from the Add Multimedia section of the Session page. The TeleConsult Stack application opens.



Figure 1-32: TeleConsult Stack

2. Choose File > Open from the Main menu to open an existing DICOM file.
3. Choose All Files from the File of Types drop-down list to view the supported image formats. An arrow pointing downward, located to the right of the dialog box indicates that a drop-down list is available. The supported file formats are dcm or no extension (DICOM files) and tcs (TeleConsult DICOM viewer format).
4. Select the image file to open. The document is displayed.

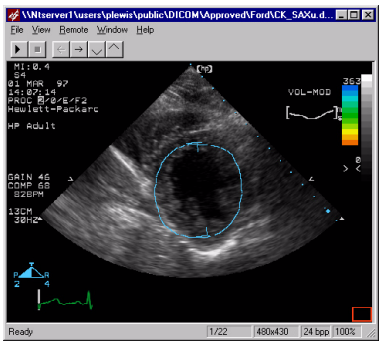


Figure 1-33: TeleConsult Stack with DICOM file



## Open DICOM Media Set

You can open a DicomDIR file. TeleConsult Stack recognizes the DICOM organization of the files.

1. Browse through the DICOM directories and select the file to open.
2. Select a DicomDIR file; the hierarchically organized information in the DicomDIR file is displayed.
3. Expand the view for a patient, study or series to view a list of available images.
4. Selecting a single image, displays a preview of the first frame of that image.

## Acquire from DICOM PACS

You can extract DICOM images from a third-party DICOM PACS and add them to a session. You can select and upload multiple DICOM images.

This menu works like the menu item File > Open DICOM File Set, but instead of letting you select a DicomDIR file, the dialog displays the hierarchically organized DICOM information from the DICOM PACS. You can configure these setting in the View > Options dialog box (refer to the Acquire from DICOM PACS section on page 3-2).

## Reviewing DICOM Images

You can play a DICOM series from the View menu or by using the command buttons.

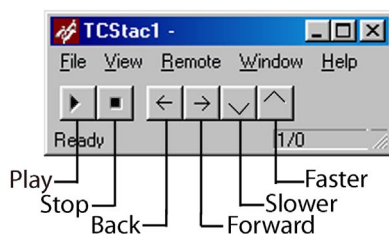


Figure 1-34: TeleConsult Stack Command Buttons

- **Play** - Run the sequence of multi-frame images.
- **Stop** - Halts the frames from playing.
- **Back** - Return to the previous frame, each click moves one frame at a time.
- **Forward** - Search forward one frame at a time.
- **Faster** - Increase the playing rate. The DICOM file set defines the default-playing rate.
- **Slower** - Decrease the playing rate
- **View > AutoReplay** menu - Restart the frame sequence when the end is reached during play. Select View > Auto Replay to set.

## Saving the DICOM Study

1. From the TeleConsult Stack Main menu select File > Save to Server and Exit. *The Upload to the TeleConsult Web Server* dialog box is displayed while the file is being saved.

**Note:** Move to a specific frame before saving the file to make the displayed frame the thumbnail frame. This is especially important if the first frame is black.

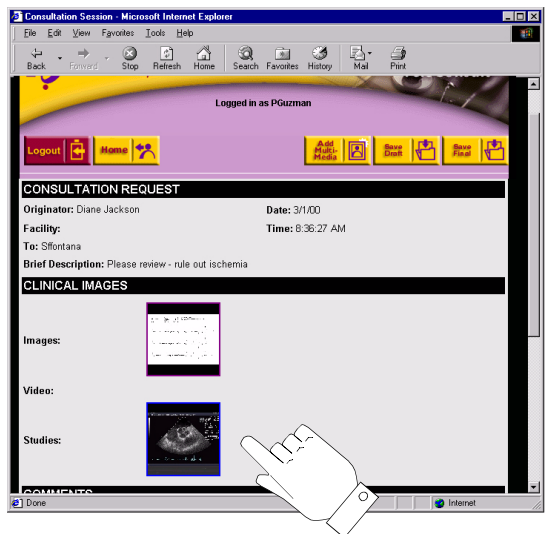


Figure 1-35: Session with DICOM Image Thumbnail



2. Click the browser Refresh button to view the thumbnail.

## Adding Stethoscope Clips

TeleConsult Stethoscope allows real time capture of heart and lung sounds and saves them in a session. You can transmit the heart and lung sounds in real-time, over the Internet, to another conference member while you are examining the patient.

TeleConsult Stethoscope requires optional hardware. Contact Global Telemedix for more information. Refer to the See “Where to Get Help” on page xvii.



1. Click the Add Multimedia button from the Session page.
2. Click the Add Stethoscope button from Session page to open the TeleConsult Stethoscope application (Figure 1-36).

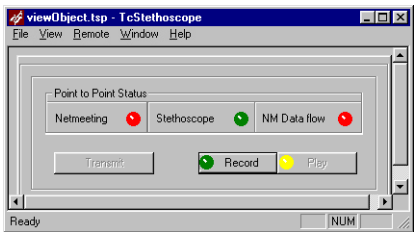


Figure 1-36: TeleConsult Stethoscope

3. Place the stethoscope on the patient and press the Record button. The Record button will change to a Stop button (Figure 1-37).

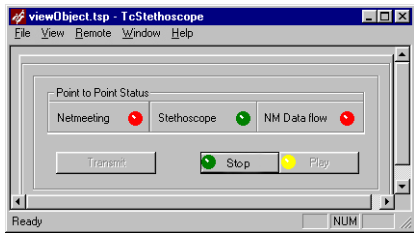


Figure 1-37: Recording Stethoscope Sounds

4. Click the Stop button when finished recording.

## Saving the Stethoscope Files

1. Select File > Save to Server and Exit. A Stethoscope multimedia-object icon is displayed in the form indicating a stethoscope file is available.
2. Click the browser Refresh button to view the icon.



## Linking Multimedia

Clinical documents (still images, video, stethoscope clips or DICOM files) that have been previously added to a session (when adding multimedia to a session) or replicated to the TeleConsult server can be “linked” or associated to a new session. Any files that are in the TeleConsult database are available for linking. These documents are unique to your subscription.



1. From the new or a draft session, select the Add Multimedia button. Click the Link Multimedia button, the Link Multimedia Objects Search page is displayed.

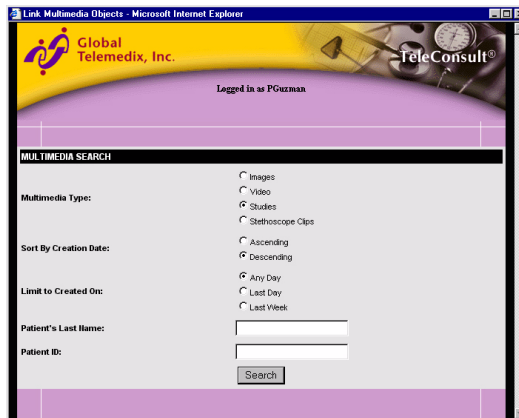


Figure 1-38: Link Multimedia Objects Search Page

2. Select the type of images to add to the session page. In our example we selected Studies.

3. Click the Search button; the available images are displayed.

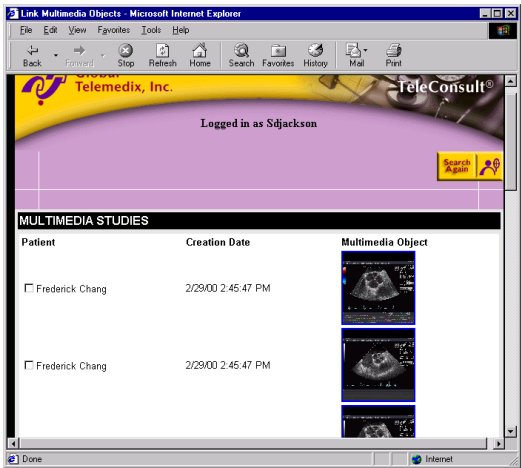
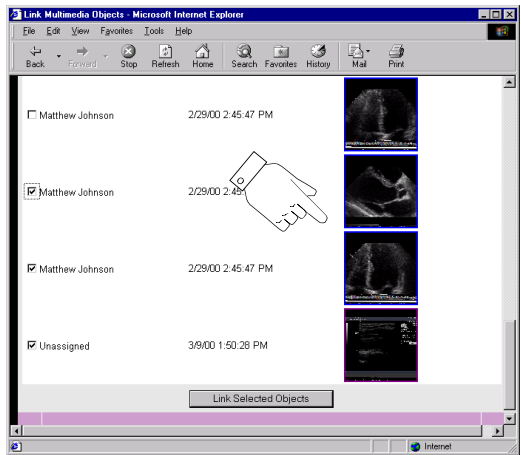
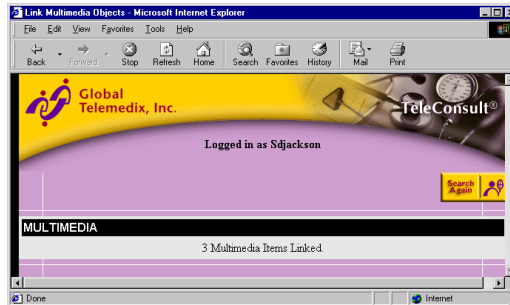


Figure 1-39: The Link Multimedia Objects Page

4. Click on the thumbnails to open the document and view the full-size image and play the studies.
5. Select the documents that you want to add to the session request and click the Link Select Objects button.



6. The Multimedia Items Linked message is displayed next to the amount of images that are linked.



7. Click the Search Again button to link additional multimedia.
8. After you have finished linking documents, close the Multimedia window by clicking the [x] in the upper right corner.
9. Click the browser Refresh button on the session page to display the thumbnails of the linked images.

## Deleting Multimedia Objects

Select the checkbox adjacent to the thumbnail of the image to delete and click the Delete button or save the page (as draft or final) to delete any multimedia object.

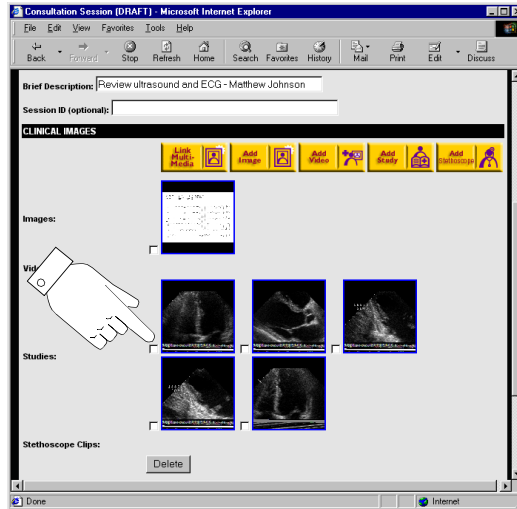
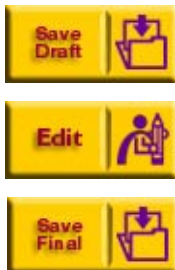


Figure 1-40: Delete Multimedia Checkboxes

**Warning:** Selecting the checkbox adjacent to the multimedia object and clicking the Save button or Delete button will immediately and permanently delete the object.



## Saving the Session

You can save the session in two modes: draft and final.

1. Click the Save Draft button to keep the Session on the Draft Session Request list, to complete later.
2. To edit a drafted response open the response and click the Edit button.
3. Click the Save Final button to automatically notify the recipients that the session is waiting for their review.

---

## **COLLABORATION**

You can collaborate on still images, movies and DICOM documents from the TeleConsult multimedia applications. Collaboration allows TeleConsult users on different PCs, which may be in different locations, to review TeleConsult clinical documents together, in real-time.

All of the members involved in the collaboration view the same multimedia objects. One member, the Master, controls the views. The collaboration master may change, but there can only be one master at time. Refer to the *Collaboration Control* section on page 1-48.

### **Replication**

Collaboration requires that all users have rights to access the document. Refer to the *Adding Multimedia* section on page 1-28. Session recipients have access to all linked images. Images that are acquired with the TeleConsult Desktop Capture stations must have been replicated to the server before collaboration can occur.

Replication allows TeleConsult to make duplicate copies of content, move those copies to different locations, and synchronize the data automatically so that all copies have the same data values.

Replication is only possible from a TeleConsult Capture Station. The Capture Station maintains a subset of the database located at the server. The user interacts with this local copy of the database and the applicable content is replicated to and from the web server.

Content received, captured, or loaded on the Capture Station must be replicated to the web server in order to be accessed by other users in your Subscription. Additionally, since the desktop system provides the user interface for a TeleConsult user at that site, other information created there must also be replicated to the server system.

### **Newly Created Documents**

A new document, such as an image acquired from a camera, must be saved to the TeleConsult web server before collaboration can take place.

### **Edited Documents**

Some changes to a document will prevent collaboration from occurring until the document is saved to the server.

For example: The TeleConsult Image application options in the Edit menu that sharpen, smooth, despeckle, paste, crop or resize all change the image. The changed image must be saved to the server before collaborating. These features are disabled during an active Collaboration call.



## Configuring NetMeeting

NetMeeting must be setup before you can collaborate. This information should be setup the first time NetMeeting runs on the computer.

1. Select Tool > Options from the NetMeeting menu. The Options dialog box is displayed.

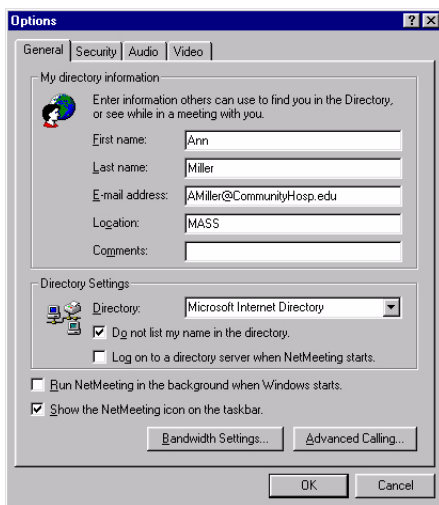


Figure 1-41: NetMeeting Options -General Tab

2. Enter your directory information, the NetMeeting e-mail address must be exactly the same as your TeleConsult user e-mail address (see the Edit Preferences section on page 1-9).
3. Under Directory Settings, select the check box next to *Log on to a directory server when NetMeeting starts*.
4. Select the box next to *Run NetMeeting in the background when Windows starts*.
5. Type the name of the Directory server or the IP address in the Directory field. Contact your Administrator if you have any problems.

## TeleConsult Menus

The TeleConsult component application menus can change depending on:

- The location of the file: embedded in a web page or on a disk
- If a document is open or not open during collaboration. Refer to Chapter 2, *Using TeleConsult® Image*, Chapter 3, *Using the DICOM Viewer* and Chapter 4, *Using the Video Viewer*.

## Special Notes

- Different members involved in a collaboration may have different screen resolutions. To ensure that all collaborating members see the same thing, the TeleConsult software forces all documents to fit into an area equal to the smallest screen size of any conference member.  
For example for three collaborating members with screen sizes of 1280x1024, 1024 x 768 and 800 x 600. The document is displayed in the upper left 800x600 of each member's screen.
- The software allows more than two members in a conference for multipoint collaboration. One has control the other members are slaves.
- A document that is changed during collaboration can only be saved by the user who was in control (master) when the document was opened.

## Collaboration User Interface

TeleConsult web-applications provide a user interface for all collaboration operations, so the user does not have to interact with NetMeeting directly. The TeleConsult Collaboration Address Book is available for the TeleConsult web-based products.

## Accepting Calls Automatically

When an incoming call occurs, the Accept the Call dialog box is displayed. You can have calls answered automatically by selecting the corresponding checkbox.

## Auto Launch

Once you are connected, the TeleConsult multimedia applications (Image viewer , DICOM Viewer and Video Viewer) automatically detect the members in the conference and start the application on the conference member's side. When a new member joins the conference the TeleConsult multimedia applications will automatically detect the new members and start the application the new members side of the conference.

## Address Book

The address book shows the names of all the session recipients for collaboration.

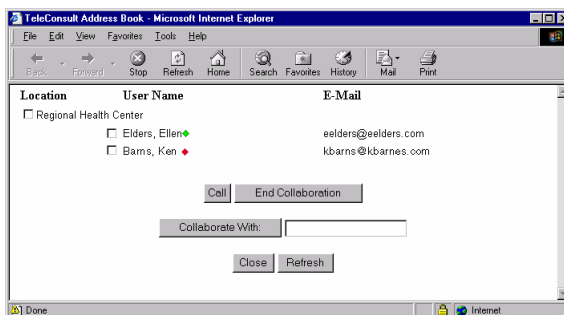


Figure 1-42: Collaboration Address Book

### Using the Address book

1. Click the checkbox next to the name of the person that you want to call for collaboration. You can select multiple people to collaborate with by selecting checkboxes next to their names and then clicking the Collaborate button.
2. Clicking the name of the facility will select all available members in that facility.
3. Alternatively, you can collaborate by typing in an IP address of the person.
4. Click the End Collaboration button to shut down the collaboration.

### Address Book Buttons

#### Call Button

Select a one or many Session recipients and click the Call button to place the conference call.

#### End Collaboration button

Click the End Collaboration button to end the NetMeeting call.

#### Collaborate With

To place a call manually, type an IP address or a machine name in the Collaborate With text field. Press the call button to call the machine named in the text box.

#### Close

Closes the Address book window.

#### Refresh button

Click Refresh button to re-calculate the list of available people.

### Collaboration Status Icons

**Green Diamond** - A green diamond indicates the user is logged into TeleConsult. The member may be in another call. For multipoint collaboration, you may place a call to a member that is in another conference call; the collaborating conference member must accept your call.

**Blue Diamond** - The member is currently in a conference call with you.

**Red Diamond** - The members are not available for collaboration. The user may not be logged on to TeleConsult or NetMeeting may not be running or be setup properly. Refer to the *Configuring NetMeeting* section on page 1-43.

## Placing the Conference call

1. Open the Address Book from any TeleConsult multimedia application by selecting the Remote > Collaborate menu item.

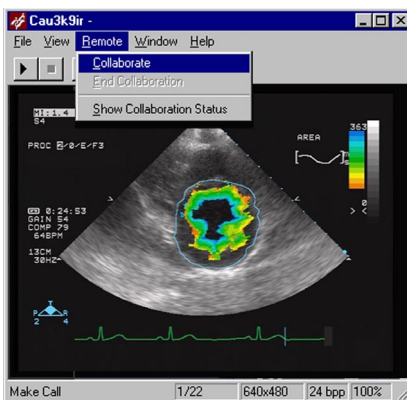


Figure 1-43: Placing the Collaboration Call

2. Click a user name to place a call. The call is placed to the member and the corresponding TeleConsult multimedia application displays the clinical document.

## Dialing Manually

The Address Book allows the user to make a call manually.

1. Type the member's IP address or the machine name in the *Collaborate With:* text box.
2. Click the Call button; the call is placed to the machine named in the text box.

## Multipoint Collaboration

For multipoint collaboration, you may place a call to a member that is in another conference call; the collaborating conference member must accept your call.

1. Click the box next to one or more users and then click the Call button.
2. When the member who placed the call leaves the conference, the call ends.
3. The master can add members to an existing collaboration by selecting Remote > Collaborate from the Main menu.
  - 3.1 Select the recipients from the Address book.
  - 3.2 Click the Call button.

## Collaborating on New Multimedia

The set of multimedia objects can change as the user opens and closes windows. Click the Address book Refresh button to re-calculate the Address Book and update the list of available recipients.

## Collaboration Status Window

Select Remote > Show Collaboration Status to display the Status window.

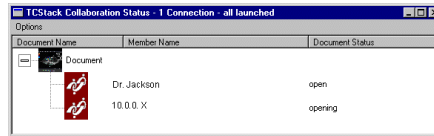


Figure 1-44: Collaboration Status Window

The Collaboration Status window provides a list of the members involved in the collaboration. A thumbnail of the image, the conference member's name and the document status (opened or closed) are displayed.

- **Document Name column** - displays a thumbnail of the document.
- **Member Name column** - the name of the conference member (NetMeeting user name).
- **Document Status column** - shows if the remote conference member has successfully opened the document and is synchronized. There are nine possible Status values:
  - **Starting** - The member has joined the conference and the master has attempted to start the TeleConsult component application.
  - **Started** - When the Consult client application has successfully started, the status will be shown as Started. Note that since the member will quickly start to open the document, the status will quickly change to Opening, so Started maybe displayed momentarily.
  - **Not Started** - The member has joined the NetMeeting conference but the TeleConsult component application has not been started.
  - **Open** - The remote conference member is fully synchronized for this document.
  - **Opening** - the remote conference member is in the process of opening the document. When the document opens successfully on the member's side the status will change to Started.
  - **Failed** - the remote conference member could not open the document.
  - **Unknown** - the state of the remote conference member is not known.
  - **NonConferenced** - collaboration on the document is disallowed. The reasons for this depend on which TeleConsult component application is running. If the image was just acquired using File > Acquire, then the other members don't have access to the file until it is replicated to the server.
  - **Access Denied** - The member does not have access to the particular multimedia document.

## Collaboration Control

One member (the Master) controls the collaboration; other collaboration members are designated as the slaves. They can see what is on the master's workstation but they have no control over what is displayed.

The collaboration master may change, but there is only one master at a time. After the conference call is established, the document on the master's workstation is displayed on the other member's workstation. As the master moves and resizes the document and pans or zooms the view, the changes are duplicated on the far-member's screen.

Other changes that are duplicated on the far-end member's side are changes to the contrast or brightness, inverting, scrolling, flipping or rotating a still image and annotations (except for audio annotations that are not allowed during collaboration).

TeleConsult generally knows who should be in control when collaboration begins, but in some rare cases, there will be no clear choice for controller. In this case, all conference participants start out as slaves and one of them must choose to be the master.

## Taking Control

Select the Become Master button from the TeleConsult window on the far-end members side to take control of the collaboration.

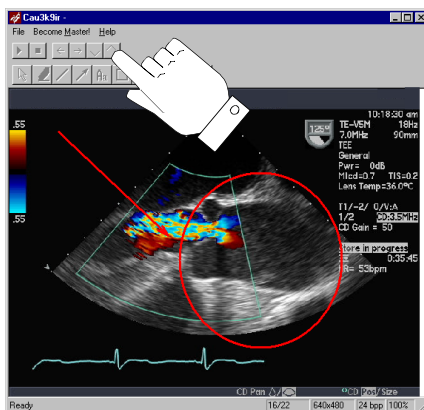


Figure 1-45: Become Master button

## Annotation

You can add annotations to still images using TeleConsult Image and DICOM images using TeleConsult Stack. Refer to the TeleConsult Image Annotation section on page 2-22 and the TeleConsult Stack Annotation section on page 3-11.

Annotation allows you to add text, highlight portions of an image, and draw on an image. The original image is never modified; the annotations are saved on a layer separate from the image.

## Adding Annotations

Only the master of the collaboration can annotate images. When the conference master changes the new master may annotate. You can add text, highlight portions of an image and draw on an image. The original image is never modified; the annotations are saved on a layer separate from the image. You have the option to view the layer of annotations or shut the annotation layer off.

## Displaying the Toolbar

1. Choose View > Annotations from the menu. The Annotation Toolbar is displayed. Tools that are shown grayed are not available for use.

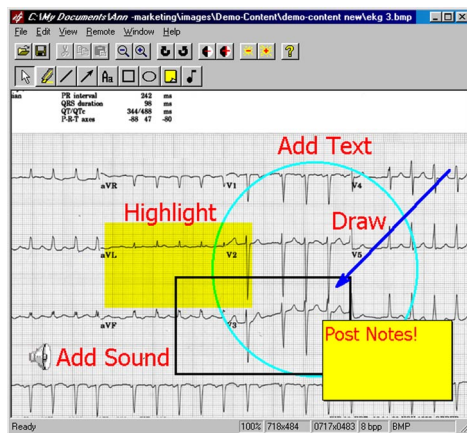


Figure 1-46: Annotation Toolbar and Sample Annotator

2. Click on any one of the toolbar buttons. The cursor becomes a crosshair.
3. Click on the image and drag the annotation into place.

## Annotation Attributes

Selecting View > Annotation Attributes to change the annotation preferences such as line color and arrowhead type.

## Editing Annotations

1. Select the annotation you wish to delete and press the Delete key or choose Edit > Cut, from the Main menu, to remove.
2. Click on the annotation to select and drag to move.

## Saving Annotations

Selecting File > Save to Server and Exit saves the annotations with the image file. Annotations can be added and saved with the image file at any time, even if the session has been closed. The option to save the annotations is enabled or disabled by the Subscription administrator. Refer to the TeleConsult Subscription Administration Guide, part number 85-000085 for detailed information.

## Transmitting Heart Sounds

From TeleConsult Stethoscope you can transmit the heart and lung sounds in real-time, over the Internet, to another conference member while you are examining the patient. TeleConsult Stethoscope requires additional hardware. Contact Global Telemedix for more information; refer to the *Where to Get Help* section on page xvii

Transmitting TeleConsult Stethoscope sound does not work like collaboration with other TeleConsult component applications. Collaboration is only available for real-time stethoscope sound, not on clips that are stored in a session. With Image Viewer, Video Viewer and DICOM Viewer applications, you can store a multimedia object (in a file or in server database) and then later view/play that file simultaneously on the master and far-end during a conference.

With TeleConsult Stethoscope, you can't play a stored Stethoscope clip simultaneously on both the master and far-end sides. You can let the Master listen through the stethoscope while the sound is simultaneously played on the far-end.

1. Place the stethoscope on the patient and press the Transmit button. The NM Data Flow button will turn green when the data starts to flow and the Transmit button will change to a Stop button.
2. Press the Stop button when you are finished transmitting the audio file. The call automatically disconnects after 3 minutes without data flow.



## Ending the Collaboration

### From TeleConsult Applications

Select Remote > End Collaboration from TeleConsult Image, Stack, Movie or Stethoscope.

### From the Address Book

Click the End Collaboration button to disconnect the call.

### From NetMeeting

From NetMeeting, click on the Hang Up Call button; the call is disconnected.

Depending on how the conference call was created, clicking the Hang Up Call button might hang up some or all of the other members of multipoint collaboration. NetMeeting designates the member that places the call that starts the conference as the *top provider*. When the top provider leaves the conference, the conference ends.





# USING TELECONSULT® IMAGE

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## **OVERVIEW**

TeleConsult Image software captures still images from external medical-imaging devices, stores the image files in multiple file formats, and permits image annotation and real-time image collaboration.

TeleConsult Image is used in two very different ways: with a TeleConsult Web server or as a stand-alone application. With the TeleConsult web server, you never start the TeleConsult image application; it is launched from the TeleConsult web pages.

### **Acquiring Images**

Using TeleConsult Image, you can acquire images from an external image-capture device such as a laser-film scanner or dermatology scope.

The images can be stored in two ways:

- Save the images on a web server using TeleConsult Image with TeleConsult Internet-base software
- Save the images in files on a disk

### **Viewing Still Images**

You can view still-image files with TeleConsult Image. The supported image file formats are tci (TeleConsult Image format), tct (TeleConsult Image thumbnail), tiff, jpg, bmp and pcx.

### **Collaborating**

Collaboration allows TeleConsult users on different PCs, which may be in different locations, to work on TeleConsult Image documents together. Any member of the conference can be in control of the annotation, pan, zoom, and rotation of images.

## **OPENING TELECONSULT IMAGE**

TeleConsult Image is used with TeleConsult Internet Software and as a stand-alone application. Using TeleConsult without the web interface requires special licensing. Contact Global Telemedix, Inc. for more information. Refer to the *Where to Get Help* on page xvii.

### **From the TeleConsult Web Interface**

Click on an Image thumbnail in the TeleConsult Session page, TeleConsult Image opens and displays the full-size image file.

## Opening Image Files on Disk

1. Open the TeleConsult Image application (Figure 2-1).

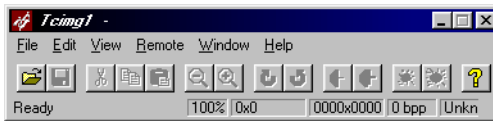


Figure 2-1: TeleConsult Image Main Window

2. Choose File > Open from the TeleConsult Main menu to open an existing image file. The names of all image files that have the extension.tci are displayed.
3. Choose All from the File of Types drop-down list. The drop-down list provides a catalog of the supported image formats. The available image formats are tci (TeleConsult Image format), tct (TeleConsult Image thumbnail), tiff, jpg, bmp and pcx. An arrow pointing downward, located to the right of the dialog box indicates that a drop-down list is available.
4. Select the name of the image file you want to access. The thumbnail of the image is displayed in the upper right-hand corner of the dialog box.

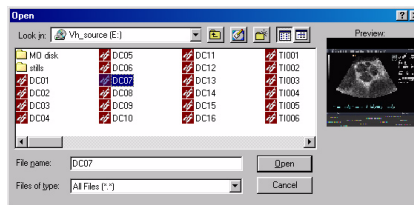


Figure 2-2: Browsing Image files

5. Click the Open button. The image is displayed in the TeleConsult Image window.

## Opening Multiple Images

- For files stored on disk select File > New to open multiple Image windows.
- From the web-interface, click on multiple image thumbnails in succession.

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## **MAIN MENU**

The Main menu provides the tools and options to configure your software.

The menus can change depending on:

- The location of the image file: embedded in a web page or on a disk
- If an image is open or not open
- Whether annotations are being viewed
- During collaboration

The following brief descriptions of the individual menu options are included for reference.

### **File Menu**

**NEW** - Opens a new TeleConsult Image window. The New option is available for images that are newly acquired or stored on the user's file system.

- File > New allows you to open multiple documents at the same time or to create new documents.
- File > New is not required when using TeleConsult Image with the TeleConsult web application. Click on several image thumbnails in succession to open multiple images; new images are created with the use of buttons or menu options.

**OPEN** - Display an image in the current TeleConsult Image window. The available image formats are tci (TeleConsult Image format), tct (TeleConsult Image thumbnail), tiff, jpg, bmp and pcx.

**CLOSE** - Use File > Close when multiple TeleConsult Image windows are open and you want to close only one. Select File > Exit to close all open images.

**Close and Exit** - Closes all open TeleConsult Image windows.

**SAVE** - Preserve the open file with the extension tci (TeleConsult Image).

**SAVE TO SERVER AND EXIT** - the Save to Server and Exit option appears only for web-based images. The Save command is used to save images in files on disk.

**SAVE AS** - Rename and/or save the image in one of the following formats: pcx, tci (TeleConsult Image format), tiff, jpg and bmp. The option of saving an image in gif format requires additional licenses. Contact Global Telemedix for more information (refer to the *Where to Get Help* section on page xvii).

**SUMMARY INFO** - Display a dialog box containing four separate tabs: Summary, Statistics, Annotations and Image.

- The Summary tab contains fields to enter the Author's name, keywords, comments, a title for the image, the subject of the image and the template used. The information is typed in and saved with the image. You can set up default information by selecting Options > Configure > Default Summary Info.

- The Statistics tab contains file-tracking information. Who saved the file last, the Revision number (number of times the image was saved or edited), Total Editing Time, the date and time the image was created, printed or saved.

- The Annotations tab shows the last person to change the document
- The Image tab displays information about the image file such as: the number of bytes (file size), file image type, bit depth, dimensions, and how and when the file was created.

**ACQUIRE** - Obtain images from an external image-capture device such as a laser-film scanner or dermatology scope.

**ACQUIRE SETUP** - Select capturing source type and TWAIN parameters.

**PRINT** - Send the image file to the printer.

**PRINT PREVIEW** - Display the page as it will appear when printed.

**PRINT SETUP** - Specify printer settings such as the number of copies, paper size and paper source.

**EXIT** - Close all of the TeleConsult Images that are open. To close just one image, click the [x] in the window upper right corner with the mouse or use File > Close.

## Edit Menu

**CUT ANNOTATION** - Move selected annotation to the clipboard. Cut Annotation is only displayed when viewing the annotations. TeleConsult Image does not allow images to be cut.

- Select Edit > Select All and then select Edit > Cut Annotation to remove all annotations and copy them to the clipboard.
- To select and cut multiple annotations click on one annotation to select and press the [Shift] key while clicking on the others to select them.

**COPY** - If the annotations are displayed and an annotation is selected, the annotation is copied to the clipboard.

- Select Edit > Select All to copy all annotations to the clipboard.
- To copy multiple annotations click on one annotation to select and press the [Shift] key while clicking on the others to select them.
- When annotations are not displayed, choose Edit > Select All and then Edit > Copy to copy the *image* to the clipboard. Select File > New and select Edit > Paste to create a new, duplicate of the image.
- To copy a section of the image, click and drag an area with the mouse to select a square area to be copied to the clipboard. Selecting Edit > Paste replaces the current image with the contents of the clipboard.
- Choose File > New to open a new TeleConsult Image window and then select Edit > Paste to create a new image file from the contents of the clipboard.

**PASTE** - Insert an image or annotation from the clipboard.

- If annotations are displayed, then the copied annotation is pasted from the clipboard.
- If annotations are not displayed, and there is an image copied to the clipboard Paste replaces the current image, if there is one.

**Note:** Annotations are TeleConsult Image specific. You can copy and paste annotations from the clipboard into other TeleConsult images. Annotations cannot be copied into the clipboard from outside of TeleConsult Image. You cannot paste annotations from TeleConsult Image into other programs.

**DELETE** - Erase the selected annotation.

- Delete discards the annotation; it does not place the annotation on the clipboard.
- Delete is only displayed when viewing the annotations.
- **SELECT ALL** - Selects all annotations if the annotations are displayed, otherwise, Select All chooses the entire image.
- A cut or copy command will apply to all of the selected annotations.



**Crop** - Select part of an image and discard the rest.

- Click and drag the mouse over the area that you want to keep and select **EDIT > CROP**. The area outside of the selected rectangle is discarded the resolution remains the same as the original.
- **CROP** is an image feature. **CROP** is not displayed when viewing the annotations.

**RESIZE** - Change the size of an image without changing the content.

- Click and drag the mouse to draw a rectangle on the existing image the size and shape you want the new image to become. **SELECT EDIT > RESIZE**. The image size changes to fit that rectangle.
- **Resize** is not displayed when viewing annotations (**View > Annotations**).

**BRING TO FRONT** - Use when annotations overlap one another.

- **BRING TO FRONT** places the selected annotation on the top of all other annotations.
- The **BRING TO FRONT** option is only displayed in annotation mode.
- **SEND TO BACK** - Use when annotations overlap one another.
- The **SEND TO BACK** option will make the selected annotation go to the back of all other annotations.
- The **SEND TO BACK** option is only displayed when viewing annotations (**View > Annotations**).

**SHARPEN** - Enhance blurry images by increasing the amount of contrast of adjacent pixels.

**SMOOTH** - Clean up an image. Includes or eliminates stray pixels.

**DESPECKLE** - Applies to monochrome images only, not color. Despeckle will detect edges in an image (areas where significant shade changes occur) and blur all of the selection except for the edges. This has the effect of removing noise while preserving detail.

## View Menu

**TOOLBAR** - Show or hide the series of icons that provide quick access to the various options

**THUMBNAIL** - Provide a TeleConsult directory of image files on the disk. The Thumbnail view is a smaller view of an image. Clicking on **VIEW > THUMBNAIL** displays the Browse for Folder dialog box. Select the directory that contains the images.

The TeleConsult Thumbnail directory is displayed. Click on the thumbnail to open the larger size image.

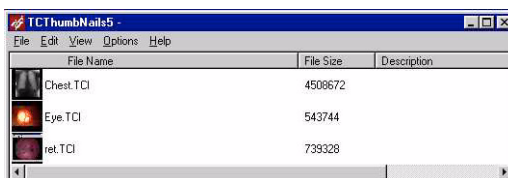


Figure 2-3: TeleConsult Image Thumbnail Directory

**ANNOTATIONS** - Show or hide the annotation toolbar and the annotations for the image.

**PAN WINDOW** - Show or hide a smaller superimposed window on the image. Use the Pan window when the image is larger than the active window. Moving the highlighted Pan window section moves the image correspondingly.

**SCROLL UP** - Move a zoomed image up.

**SCROLL DOWN** - Move a zoomed image down.

**SCROLL LEFT** - Move a zoomed image left.

**SCROLL RIGHT** - Move a zoomed image right.

**ZOOM OUT** - Reduce the image view

**ZOOM IN** - Magnify the image view

**FULL SCREEN** - Display the image on the entire monitor screen. Press [Esc] to cancel.

**SET CONTRAST WINDOW** - Applies to DICOM Images. It is used to adjust contrast and brightness on grayscale images.

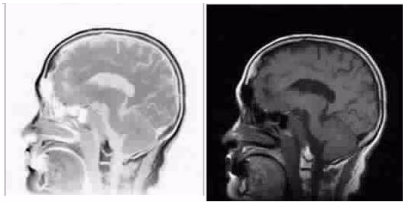
**FLIP HORIZONTAL** - Turn the image horizontally by 180°.

**FLIP VERTICAL** - Turn the image vertically by 180°.

**ROTATE LEFT** - Turn the image 90° counter clockwise.

**ROTATE RIGHT** - Turn the image 90° clockwise.

**INVERT IMAGE** - The invert command changes a positive image to a negative of that image as shown below.



**OPTIONS** - The Options submenu contains the image options for acquisition, document summary, collaboration, thumbnail, printing and annotation. Clicking on an option from the submenu causes a dialog box to appear with labeled tabs. Click on the tab to scroll to the corresponding option box.

**ACQUISITION LABEL** - Select the Label Acquired Image check box to automatically add an electronic label when acquiring an image, click again to clear the labeling option.

The Acquisition label allows you to add the Time and Date the image file was acquired, and administration information. You can also select the default label location and font.

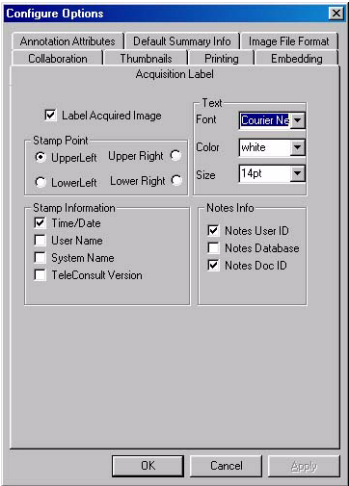


Figure 2-4: Acquisition Label Tab

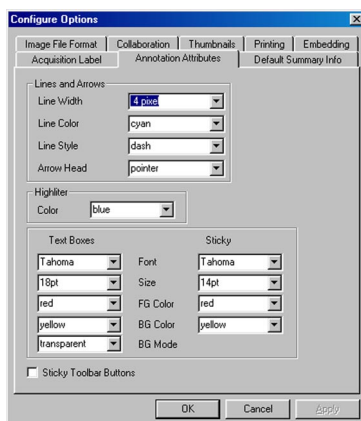
**ANNOTATION ATTRIBUTES** - Display a dialog box of annotation options.

Figure 2-5: Annotation Attributes Tab

Attributes include:

- Line color, type and optional arrowhead
- The default font, color and size of the text used in a text box. The foreground (FG), background (BG) color and the background mode (BM) = transparent, opaque or tinted.
- The Sticky option allows you to add a “self stick” note to the image.
- Use the Sticky toolbar option to set the last tool used as the default tool. If the Sticky toolbar option is not set, the Select tool is used as the default tool.
- **IMAGE FILE FORMATS** - Display a dialog box of file formats for acquired files.
- TeleConsult Image Internal Storage Formats
- **LossLess Compression** is a compression technique that decompresses data back to its original form without any loss. The decompressed file and the original file are identical.
- **Tiff LZW** can offer better than 5:1 compression for some 8-bit images. For some other 8-bit images it's about twice as good as TIFF packed. It depends on the nature of the images. A disadvantage of LZW is that it is not appropriate for 24-bit images and it requires a separate license. Contact Global Telemedix for more information. Reference the *Where to Get Help* section on page xvii.
- **TIFF Packed** is the basic general-purpose format that is used by TeleConsult Image for lossless image storage.
- **Lossy Compression** provides a JPG file with a high degree of compression that results in very small compressed files, but there is a certain amount of loss when they are restored.

- The **JPG Quality vs. Compression** offers High Quality (high file size) to Highly Compressed (low quality, small file size).

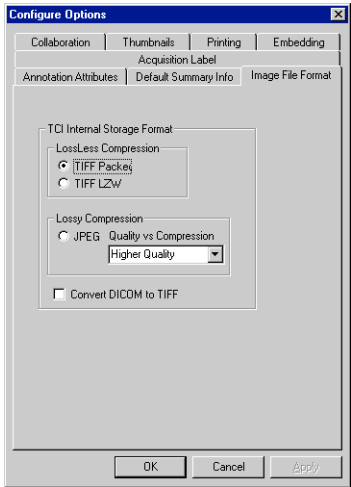


Figure 2-6: Image File Format Tab

**COLLABORATION** - The Auto-Launch check box and the Auto Disconnect Remote option are not supported at this time; it will be supported in a future release of TeleConsult Image.

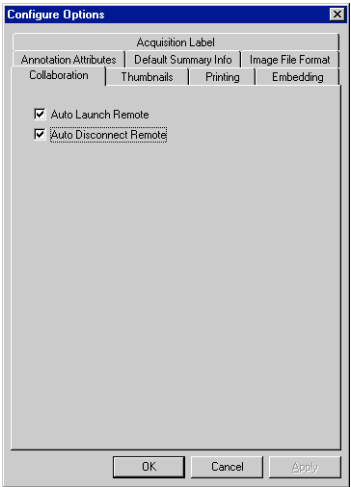


Figure 2-7: Collaboration Tab

**DEFAULT SUMMARY INFO** - The Default Summary Info dialog box allows you to add default information and comments to an acquired image file. Edit and save the default summary information before acquiring an image. Once saved, the summary information will be applied to each newly acquired image.

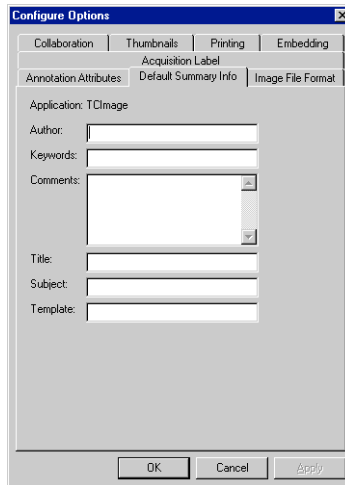


Figure 2-8: Default Summary Info Tab

**THUMBNAILS** - The Thumbnail tab contains options to select the file formats to display as thumbnails and to set up the thumbnail dimensions for the TeleConsult directory of image files on the disk (View > Thumbnails). The Thumbnail tab does not affect the Image thumbnails in the TeleConsult application for the Internet.

There are two check boxes at the bottom of the tab. Select the Open to New Window check box to display the selected thumbnails in a new TeleConsult Image window.

When an image is modified, by adding annotations or changing the contrast or brightness, A modified image causes the **FILE > SAVE AS** dialog box to be displayed when you try to save the image modified image. Select the **Don't Save Modified** to avoid the save modified prompt. .

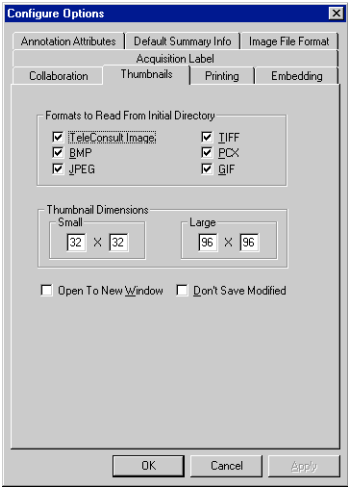


Figure 2-9: Thumbnail Options Tab

**PRINTING** - The Printing dialog box has options to scale the printed image or to print the image to a full page.

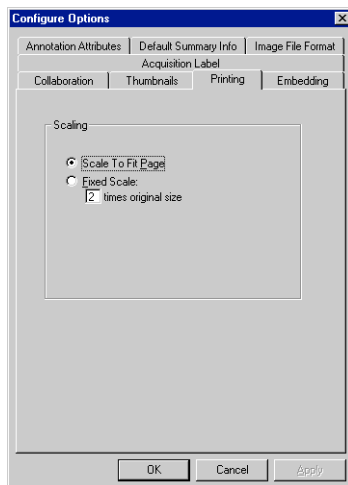


Figure 2-10: Printing Options Tab

## Remote Menu

### Collaborate

- For TeleConsult standalone applications  
This opens NetMeeting. You can place a call to collaborate with one member or to create a conference with more than two members.
- For TeleConsult web-based applications  
opens the Collaboration address book.

**End Collaboration** - (on both the slave and master side) Disconnect from the conference call (stop collaborating).

**Show Collaboration Status** - Display a dialog box that contains the collaboration document name, member name, and the document status (see the *Collaboration Status Window* section on page 1-47 for more details).

## Window Menu

The Window options apply only when more than one image is open.

- **NEXT** - Change to the next open TeleConsult Image window
- **CASCADE** - Display the open TeleConsult Image windows with each window offset on two sides from the window it overlaps.
- **TILE VERTICALLY** - Arrange the open windows side by side.



- **TILE HORIZONTALLY** - Arrange the open windows top to bottom.

**Note:** When using the menu option Window >Tile Vertical or Tile Horizontal to tile multiple images that are opened on your PC desktop, the images that are displayed on the bottom row of the desktop may be partially hidden by the task bar. To view the hidden portion of the images right mouse click on the task bar and select Tile Windows Vertically or Tile Windows Horizontally.

**NAME OF THE IMAGE FILE** - The names of all open files are displayed. When more than one file is open, clicking on an image file name causes that window to be brought to the front of the others.

## Help Menu

**TOPICS** - The help file. You can browse the help from a list of subjects or from the index.

**ABOUT** - The About section contains the application version information and a tabbed dialog box of system and license information.

**GLOBAL TELEMEDIX WEB** - Selecting this option causes the MS Internet Explorer to open and display the Global Teledix web site.

**REGISTER WITH GLOBAL TELEMEDIX** - Add new licenses from the **HELP > REGISTER WITH GLOBAL TELEMEDIX** option. The status of the current licenses and the machine ID number are listed.

**SEND A PROBLEM REPORT TO GLOBAL TELEMEDIX** - Selecting this option causes the MS Internet Explorer to open and displays a Bug Report Form. Please provide a detailed description of the question or problem and how to reproduce it, the exact wording of any displayed messages, and what steps you have taken to resolve the problem.

1. Enter your name and e-mail address in the corresponding text boxes.
2. Type a short summary of the problem in the Synopsis text box.
3. Type specific information about your problem in the Description text box; include as much detail as possible.
4. Choose a Severity (Non-Critical, Serious, Critical) from the drop-down list.
5. Choose the Class or type of problem (Software Bug, Documentation Bug, Change Request, or Support) from the drop-down list.
6. Follow the instructions to the right of the bottom text box. Placing the cursor in the text box and select **EDIT > PASTE** from the IE browser menu will include system information, product serial number (registration number), product name and version number in the form.

Figure 2-11: Problem Report Form

7. Click the Submit button to send your problem report to Global Teledix. One of our support engineers will respond to your report by e-mail.

**Problem Report URL**

You can access the Problem report from any PC that has access to the Internet. Using Internet Explorer type the URL:

<http://www.globaltelemedix.com/pubbugs.nsf/New+Bug?OpenForm>  
exactly as shown above in the Address field as shown in Figure 2-11.

**Shortcut Keys**

In addition to the menus, users can use the keyboard to invoke shortcuts to various features. Here is a list of the keyboard combinations that can be used and the corresponding menu item:

- Control-N: File/New
- Control-O: File/Open
- Control-P: File/Print
- Control-S: File/Save
- Control-C: Edit/Copy
- Control-V: Edit/Paste
- Control-X: Edit/Cut
- Shift-Delete: Edit/Cut

**TOOLBAR**

The toolbar offers a series of icons that provide quick access to various options. Choose View > Toolbar from the Main menu to display the toolbar. Figure 2-12 shows the icons and the associated functions.

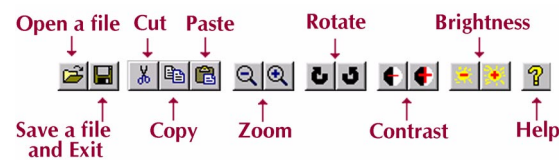


Figure 2-12: Toolbar Icon Legend

## OPENING IMAGE FILES

### From the TeleConsult Web Interface

Click on the image thumbnail (Figure 2-13). The TeleConsult Image application opens displaying the full size image (Figure 2-15).

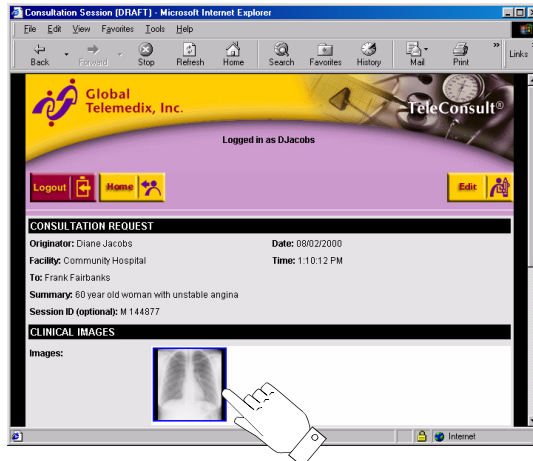


Figure 2-13: Image Thumbnail in Session Page

### Opening Image Files on Disk

1. Choose **FILE > OPEN** from the Main menu to open an existing image file. The names of all image files that have the extension tci are displayed (Figure 2-14).
2. Choose **ALL FILES** from the File of Types drop-down list. The drop-down list provides a catalog of the supported image formats. The available image formats are tci (TeleConsult Image format), tct (TeleConsult Image thumbnail), tiff, jpg, bmp and pcx. An arrow pointing downward, located to the right of the dialog box indicates that a drop-down list is available.

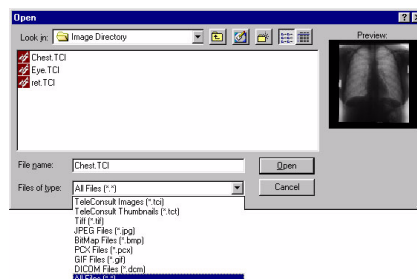


Figure 2-14: Open Image File Dialog Box

3. Select the name of the image file you want to access. The thumbnail of the image is displayed in the upper right-hand corner.
4. Click the Open button. The image is displayed in the TeleConsult Image window.

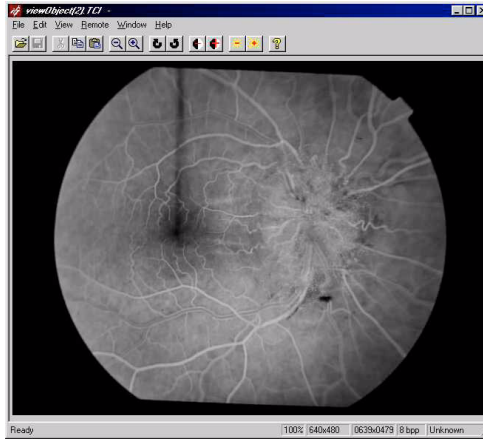


Figure 2-15: Opened Image File

## **ACQUIRING IMAGES FROM EQUIPMENT**

Using TeleConsult Image, you can acquire images from an external image-capture device such as a laser-film scanner or dermatology scope.

### **Image Acquisition**

1. Choose File > Acquire from the Main menu. The Video Source Settings dialog box (Figure 2-16) and the Video Capture Format dialog box (Figure 2-17) may be displayed the first time you acquire an image. Select the proper settings and click OK to save the changes.

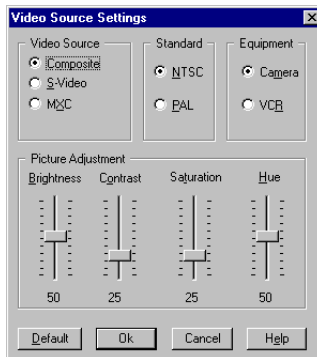


Figure 2-16: Video Source Settings Dialog Box

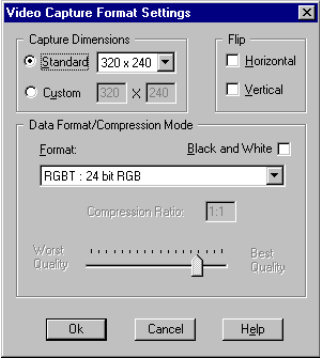


Figure 2-17: Video Capture Format Settings

2. The Image Acquisition Setup dialog box is displayed (Figure 4-18).

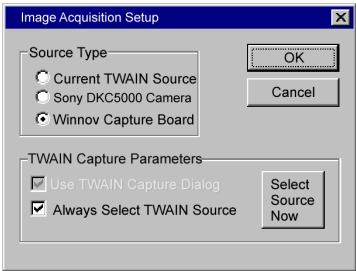


Figure 2-18: Image Acquisition Setup

3. Select the correct Source type and press OK.

4. Choose File > Acquire from the Main menu. The Acquire Image dialog box is displayed (Figure 2-19). The default device type is shown in the title bar.

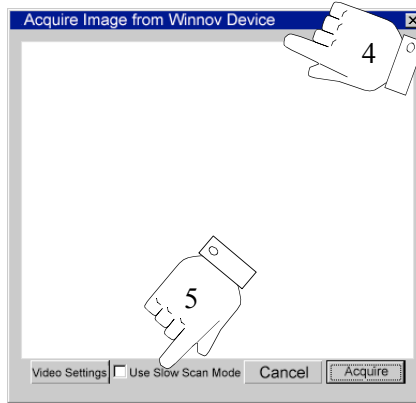


Figure 2-19: Acquire-Image Dialog Box

5. Select the Use Slow Scan Mode for a higher resolution file.

**Note:** The Slow Scan Mode option is hardware dependent. The option may not be available with all systems. When taking a picture with dimensions that are larger than 320x240, select slow scan to get better results. Slow scan takes several pictures and averages them together to make a more precise picture. For this reason, make sure that the subject of your picture is not moving.

6. Click the Acquire button. The image is acquired and displayed. A date and time stamp can be automatically placed on the file, refer to the View > Options > Acquisitions Label section on page 9.

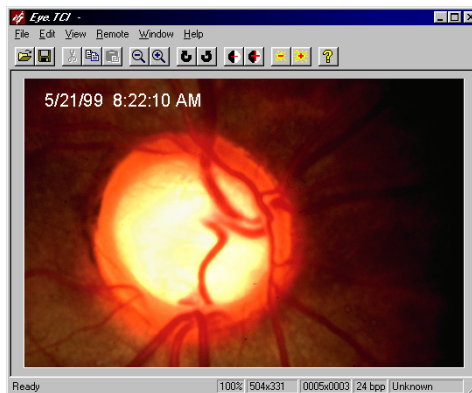


Figure 2-20: Example of Acquired Image

## ANNOTATIONS

Image annotation allows you to add text, highlight portions of an image, and draw on an image. The annotations are saved on a layer separate from the image. You have the option to view the annotations or shut them off.

### Displaying the Annotation Toolbar

1. Choose View from the Main menu.
2. Choose Annotations from the submenu. The Annotation Toolbar is displayed.

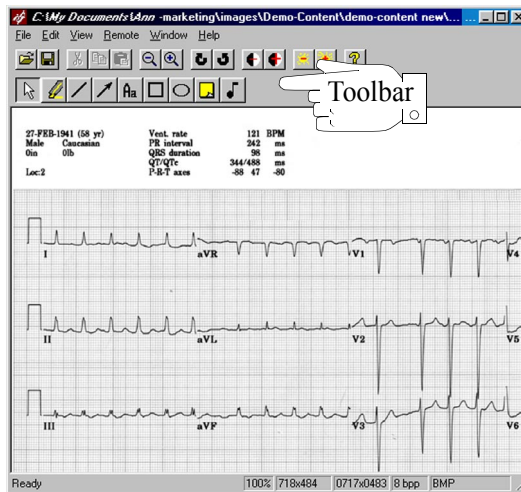


Figure 2-21: The Annotation Toolbar

### Adding Annotations

You can add annotations to an acquired image or when collaborating. Save the image to store the annotations on the separate annotation layer; the original image is never modified.



# Annotation Toolbar Icon Legend

The toolbar offers a series of icons that provide quick access to various preset options, refer to View > Options > Annotation Attributes section on page 2-10. The Toolbar icons and their associated functions are listed below.

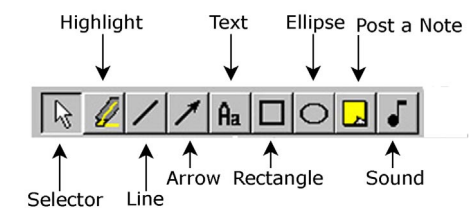


Figure 2-22: Annotation Toolbar Icon Legend

1. Click on any of the toolbar buttons. The cursor becomes a crosshair.
2. Click on the image and drag the annotation into place.

## Editing

Select the annotation you wish to delete and choose Edit > Cut, from the Main menu, or press the [Delete] key to remove. Click on the annotation to select and drag to move.

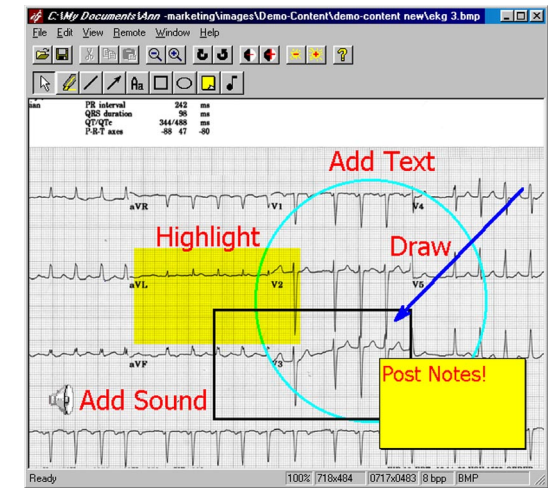


Figure 2-23: Examples of Annotation

## Clipboard

TeleConsult Image can place images and annotations into the clipboard and take images and annotations from the clipboard.

- An image may be copied to the clipboard by selecting the current image (Edit > Select All) and then copying it (Edit > Copy). An image may be copied into the clipboard by other programs and then pasted into TeleConsult Image. TeleConsult Image does not allow images to be cut.
- An annotation may be cut from the document.
- You can copy or cut annotations from one TeleConsult Image document and paste them into another.

## Saving Annotations

Selecting File > Save to Server and Exit saves the annotations with the image file. Annotations can be added and saved with the image file at any time, even if the session has been closed. The option to save the annotations is enabled or disabled by the Subscription administrator. Refer to the TeleConsult Subscription Administration Guide, part number 85-000085 for detailed information.

## SAVING AN IMAGE FILE

### From TeleConsult Internet Software

1. From the Main menu select Save to the Server and Exit. The Upload to the TeleConsult Web Server dialog box is displayed while the image is uploaded.
2. The TeleConsult Image thumbnail is displayed in the form. You may need to click the browser Refresh button.

### Saving a File to a Disk

1. Choose **FILE > SAVE** to save the open file with a tci extension.
2. Choose **FILE > SAVE AS** to rename and/or save the image in one of the supported formats: tci (TeleConsult Image format), tiff, jpg or bmp. The option of saving an image as a gif format requires additional licenses. Contact Global Telemedix for more information (refer to the *Where to Get Help* section on page xvii).

## **COLLABORATING WITH STILL IMAGES**

Collaboration begins by placing a conference call from TeleConsult Image application. Refer to the *Collaboration* section on page 1-42 for detailed information.

Collaboration allows TeleConsult users on different PCs, which may be in different locations, to work on TeleConsult Image documents together, at the same time. Any member of the conference can be in control of the annotation, pan, zoom, and rotation of images.

### **Collaboration Disabled Features**

Features that change the image are not available during collaboration. These features have to be disabled because TeleConsult does not copy images between members in a conference; it depends on changes being replicated before the conference begins.

The following TeleConsult Image features are disabled whenever a NetMeeting call is active:

- EDIT/PASTE for images only, available for annotations
- Edit/Crop
- Edit/Resize
- Edit/Sharpen
- Edit/Smooth
- Edit/Despeckle

## **CLOSING TELECONSULT IMAGE**

- Choose **FILE > EXIT** to close all open TeleConsult Images.
- To close just one image click on the [x] in the upper right corner.





# USING THE DICOM VIEWER (TeleConsult Stack)

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## **OVERVIEW**

TeleConsult Stack is an image viewer that acts as a DICOM Media Set Reader; it can read any DICOM format multi-framed images.

TeleConsult Stack is used in two very different ways: with a TeleConsult Web server or as a stand-alone application. With the TeleConsult web server, you never start TeleConsult Stack; it is launched from the TeleConsult web pages. The documents can be stored in two ways:

- Saved to a web server using TeleConsult Stack with TeleConsult Internet software
- Saved on a disk

## **Viewing Images**

Open and view DICOM studies with TeleConsult Stack; the supported file formats are tcs (TeleConsult Stack format), and dcm (DICOM).

## **Collaborating**

Using TeleConsult Stack, you can collaborate on DICOM images with users on different PCs, which may be in different locations, and review the documents together, in real time. Any member of the conference can be in control of the collaboration.

## **OPENING TELECONSULT STACK**

TeleConsult Stack is used with TeleConsult Internet Software and as a stand-alone application for documents that are stored in files on a disk.

### **From TeleConsult Web Interface**

Click on a DICOM thumbnail in the TeleConsult database, TeleConsult Stack opens and displays the file.

### **Opening DICOM Files on a Disk**

1. Select File > Open from the Main menu to open an existing file that is stored on a disk. The dialog box displays the names of all files that have the dcm (TeleConsult Stack extension).
2. Select the file name and click the Open button. TeleConsult Stack opens and displays the file.

---

## **MAIN MENU**

The Main menu provides the tools and options to configure your software.

The menus may change depending on:

- The location of the file: embedded in a web page or on a disk.
- If a document is open or not open.
- During collaboration.

Brief descriptions of the individual menu options are included for reference.

### **File Menu**

**New** - Creates a new, blank TeleConsult Stack window. **File > New** allows you to open multiple files at the same time.

**File > New** is not required when using TeleConsult Stack with TeleConsult Internet Software server. With TeleConsult Internet software, you can open several multi-frame images by clicking on the image thumbnails in succession.

**Open File** - Display the TeleConsult Stack document. The supported file formats are dcm (DICOM), DSR (Digital Storage & Retrieval - Agilent Technologies format) and tcs (TeleConsult Stack format).

**Open Media Set** - Open a DICOM or DSR file set. TeleConsult Stack recognizes the organization of DICOM and DSR files. You can browse through the directories and select the files.

Select a DICOM or DSR File Set; the hierarchically organized information is displayed. Expand the view for a patient, study or series to review the list of available images. Selecting a single image, displays a preview of the first frame of that image.

**Acquire from DICOM PACS** - Extract DICOM images from a third-party DICOM PACS for used in TeleConsult.

This menu works like the menu item File > Open DICOM Media Set, but instead of letting you select a DICOM file set, the dialog shows you the hierarchically organized DICOM information from the DICOM PACS. You can configure these setting in the View > Options > DICOM Communication tab.

**Close and Exit** - Closes all open TeleConsult Stack windows.

**Close** - Use File > Close when multiple TeleConsult Stack windows are open and you want to close only one. Select File > Exit to close all open documents.

**Save** - Store the open file to disk with the extension tcs (TeleConsult Stack).

**Save to Server and Exit** - Appears only for web-based files.

**Save As** - Rename the document

**Summary Info** - Display a dialog box containing two tabs, Summary and Statistics.

- The Summary tab contains fields to enter the Author's name, keywords, comments, a title for the document, the subject and the template used. The information is saved with the file. You can setup default information by selecting Options > Configure > Default Summary Info from the Main menu.
- The Statistics Tab contains the document record. The editing time, revision number, Author's name, and the date the file was last printed, are recorded in the dialog box.

**Print** - Send the current image frame to the printer.

**Print Preview** - Display the page as it will appear when printed.

**Print Setup** - Specify printer settings such as the number of copies, paper size and paper source.

**Exit** - Closes all open TeleConsult Stack documents.

## View Menu

**Play** - Run the sequence of multi-frame images.

**Stop** - Halt the sequence of images from playing and restart at the first frame.

**Auto Replay** - When the end of the file is reached during play, it will restart at the beginning.

**Single Step Forward** - View the next frame, one frame at a time.

**Single Step Backward** - View the previous frame, one frame at a time.

**Selection Start Frame** - Set a new start position to play a specific section of a multi-frame image.

**Selection End Frame** - Set a new end position to play a specific section of a multi-frame image.

**Reset Selection Start Frame** - Set a previously reset start position back to the original position

**Reset Selection End Frame** - Set a previously reset end position back to the original position

**Set Gray-Scale Contrast** - You can adjust the gray-scale contrast of DICOM images. These changes to the gray-scale adjustment will ONLY be visible if the DICOM image is viewed with TeleConsult Stack.

The gray-scale changes only affect the view of the image, not the underlying image data. The *view* is adjusted only for open document - there is no affect on other documents. The Set Gray-Scale option is only available if the DICOM image is gray-scale. If it is color, the option is grayed out.

User control over the viewing of gray-scale images is provided because most display hardware can only show 256 shades of gray. Since DICOM images can be 12-bit or 16-bit gray-scale, they cannot be displayed exactly. The approach described here relies on the fact that images do not always use the full dynamic range allowed. For example, although a 16-bit grayscale image has pixel values from 0 to 64K, an image might have nearly all pixels in the range 5K to 7K. Narrowing the range of values allows better display of gray-scale.

**Annotations** - Show or hide the annotation toolbar and the annotations for the image. TeleConsult Stack supports a limited set of annotations, which may be drawn while collaborating.

### Options

There are three available configuration options for the TeleConsult Stack application. Annotation Attributes and the display settings.

- **Annotations** - Display a dialog box of annotation options. Attributes include:
  - The line color, type and optional arrowhead.
  - The default font, color and size of the text used in a text box.
  - The foreground (FG), background (BG) color and the background mode (BM) = transparent, opaque or tinted.
  - Use the Sticky toolbar option to set the last tool used as the default tool. If the Sticky toolbar option is not set, the Select tool is used as the default tool.

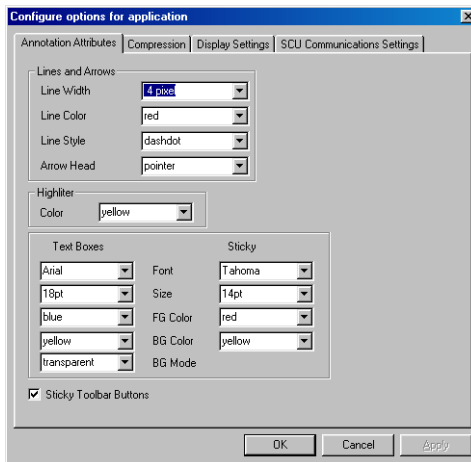


Figure 3-1: Annotation Attributes Tab



- Compression
  - Click the checkbox to allow or disallow lossless compression when saving image.

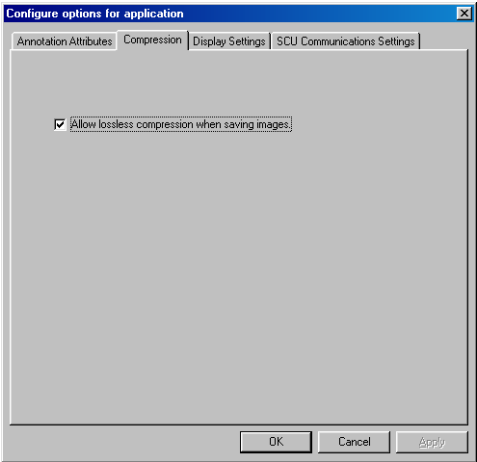


Figure 3-2: Allow Compression Dialog Box

- SCU Communications
  - Configures the options for acquiring files from the DICOM PACS. See the manager of the DICOM PACS for the correct information. Enter the SCU communication settings for the application in the dialog box. Specify the node (the IP address or the computer name) and a port number.

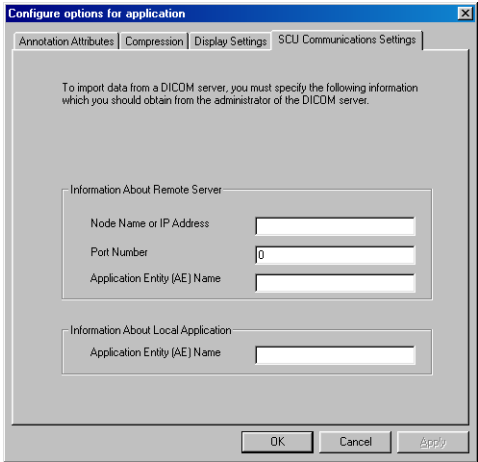


Figure 3-3: DICOM SMU Configuration Dialog Box

- Display Settings

- You can choose to decompress the image frames when opening files or you can select to decompress the frames in memory when playing to speed the frame play rate. These options require more memory usage.
- Select play the image sequence continually to restart the file at the beginning when the last frame is reached during play.
- Select play image sequence immediately to automatically play the image when opened.

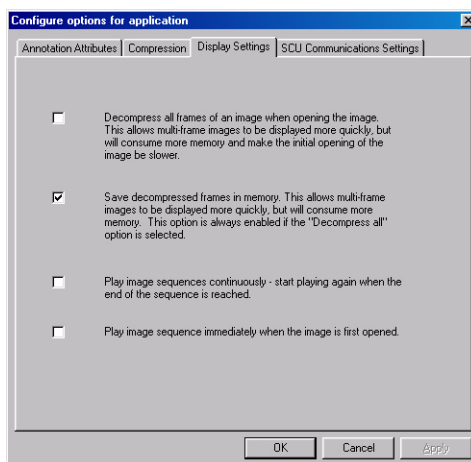


Figure 3-4: Display Settings Dialog Box

## Remote Menu

### Collaborate

#### TeleConsult standalone applications

This opens NetMeeting. You can place a call to collaborate with one member or to create a conference with more than two members.

#### TeleConsult web-based applications

Opens the TeleConsult Collaboration Address Book.

- **End Collaboration** - (on both the slave and master side) Disconnect from the conference call (stop collaborating).
- **Show Collaboration Status** - Display a dialog box that contains the collaboration document name, member name, and the document status.

---

## Window Menu

The Window options apply when more than one TeleConsult Stack window is open.

**Next** - Change to the next open window.

**Cascade** - Display the open TeleConsult Stack windows with each window offset on two sides from the window it overlaps.

**Tile Vertically** - Arrange the open windows side by side.

**Tile Horizontally** - Arrange the open windows top to bottom.

**Note:** When using the menu option Window >Tile Vertical or Tile Horizontal to tile multiple images that are opened on your PC desktop, the images that are displayed on the bottom row of the desktop may be partially hidden by the task bar. To view the hidden portion of the images right mouse click on the task bar and select Tile Windows Vertically or Tile Windows Horizontally.

**Names of Open Files** - The names of all open files are displayed. When more than one file is open, clicking on a document file name causes that window to be brought to the front of the others.

## Help Menu

**Topics** - Contains the on-line help file. You can browse the help from the Table of Contents or search using the index.

**About TCStack** - Contains the application version information and a tabbed dialog box of system and license information.

**About Image Control** - Displays the DICOM Objects version.

**Global Telemedix Web** - Selecting this option causes the MS Internet Explorer to open and display the Global Telemedix web site.

**Register with Global Telemedix** - Add new licenses, check the status of the current licenses and machine ID number.

**Send A Problem Report to Global Telemedix** - Selecting this option causes Internet Explorer to open and display a Problem Report form.

Figure 3-5: Problem Report Form

1. Please provide a detailed description of the question or problem. Include the steps required to reproduce the problem, the exact wording of displayed messages and the steps you have taken to correct it.
2. Enter your name and e-mail address in the corresponding text boxes.
3. Type a short summary of the problem in the Synopsis text box.
4. Type specific information about your problem in the Description text box; include as much detail as possible.
5. Choose a Severity (Non-Critical, Serious, Critical) from the drop-down list.
6. Choose a Class or type of problem (Software Bug, Documentation Bug, Change Request or Support) from the drop-down list.
7. Follow the instructions to the left of the bottom text box. Placing the mouse pointer in the text box and click, select Edit > Paste from the IE browser menu to include system information, product serial number (registration number), product name and version number in the form.
8. Click the Submit button to send your problem report to Global Telemedix. One of our support engineers will respond to your report by e-mail

**Problem Report URL**

You can access the Problem Report from any PC that has access to the Internet. Using Internet Explorer type the URL:

<http://www.globaltelemedix.com/pubbugs.nsf/New+Bug?OpenForm>  
exactly as shown above in the Address field as shown in Figure 3-5.

**OPENING A DICOM FILE****Opening files from the Web Interface**

Click on a DICOM thumbnail, the TeleConsult Stack opens and displays the file.

**Opening files on Disk**

1. Select File > Open from the Main menu to open a document that is stored on a disk. The Open dialog box is displayed with the names of all documents that have the extension dcm (DICOM) and tcs (TeleConsult Stack format).
2. Select the document file name and click the Open button.

**PLAYING MULTI-FRAME DICOM IMAGES**

You can play a DICOM series by using the View menu options or by using the command buttons.

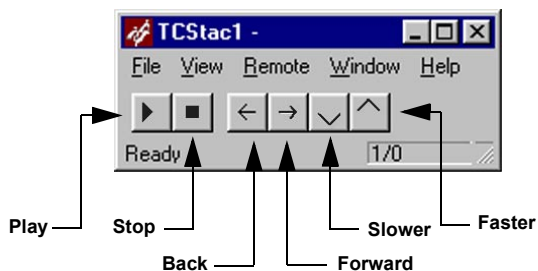


Figure 3-6: Command Menus

- Play - Run the sequence of multi-frame images.
- Stop - Halt the frames from playing.
- Back - Go back to the previous frame, each click moves one frame at a time.
- Forward - Search forward one frame at a time.
- Faster - Increase the playing rate. The default playing rate is defined by the DICOM Media set when the file is acquired.
- Slower - Decrease the playing rate
- AutoReplay - Restart the DICOM file when the end is reached during play. Select View > Auto Replay to set.

## **SAVING DICOM DOCUMENTS**

### **Saving to Disk**

- Choose File > Save to save the open file with a tcs extension (TeleConsult Stack).
- Choose File > Save As to rename the file.

**Note:** Move to a specific frame before saving the file to make the displayed frame the thumbnail frame. This is especially important if the first frame is black.

### **Saving to the TeleConsult Server**

From the Main menu, select Save to the Server and Exit. The Upload to TeleConsult Web Server dialog box is displayed while the document is uploaded.

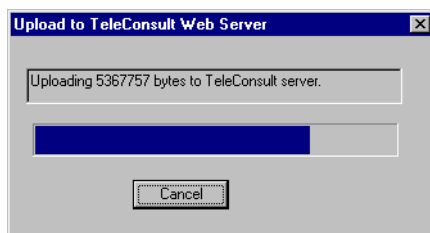


Figure 3-7: Upload to TeleConsult Web Server.

The TeleConsult Stack thumbnail is displayed in the form. You may need to click the browser Refresh button to view the thumbnail.

**Note:** Move to a specific frame before saving the file to make the displayed frame the thumbnail frame. This is especially important if the first frame is black.

**Note:** To add a DICOM document to the TeleConsult database the Patient ID in the DICOM document must match exactly.

## **CLOSING TELECONSULT STACK**

Choose File > Exit to close all open TeleConsult Stack documents.

To close just one DICOM image, click on the [x] in the upper right corner of the TeleConsult Stack window or Select File > Close.

## **COLLABORATION**

Collaboration allows TeleConsult users on different PCs, which may be in different locations, to work on TeleConsult documents together.

- TeleConsult supports multipoint collaboration (more than two conference members).
- Collaboration requires that both you and the far-end member have TeleConsult Stack.
- A document that is changed during collaboration can only be saved by the user who was in control (master) when the document was opened.
- Place the conference call from TeleConsult Stack to begin collaborating.
- The TeleConsult standalone product (flat file mode) uses the NetMeeting interface to place a call.
- For the web-based applications, you place the conference call from the TeleConsult application using the Address book.

### **Annotating**

Image annotation allows you to add text, highlight portions of an image and draw on an image. The annotations reside on a layer separate from the image. Only the conference master may draw annotations. When the collaboration master changes, the new master can draw annotations. The new annotations are added to the previously drawn annotations.

The collaboration master can hide the annotations and restore them to view. The annotations are hidden and displayed identically for all conference members.

### **Displaying the Annotation Toolbar**

Choose View > Annotations. The Annotation Toolbar is displayed.

### **Annotation Toolbar Icon Legend**

The toolbar offers a series of icons that provide quick access to various preset options. Tools that are shown grayed are not available for use with TeleConsult Stack.

Change the Annotation preferences from the Options menu; select View > Options > Configure > Annotation Attributes.

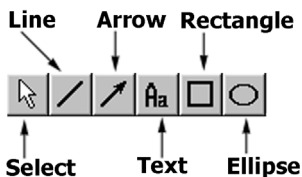


Figure 3-8: Annotation Toolbar Icon Legend

### Example

1. Click on any one of the toolbar buttons. The cursor becomes a crosshair.
2. Click on the image and drag the annotation into place.

### Editing

Select the annotation you wish to delete and press the [Delete] key or choose Edit > Cut, from the Main menu, to remove.

Click on the annotation to select and drag to move.

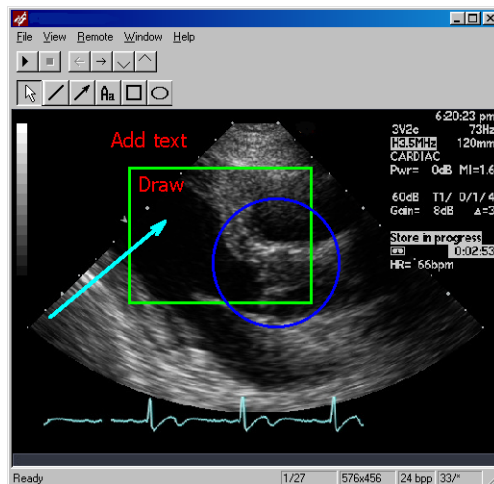


Figure 3-9: Annotating a DICOM Image

### Saving Annotations

Selecting File > Save to Server and Exit saves the annotations with the image file. Annotations can be added and saved with the image file at any time, even if the session has been closed. The option to save the annotations is enabled or disabled by the Subscription administrator. Refer to the TeleConsult Subscription Administration Guide, part number 85-000085 for detailed information.

## CLOSING TELECONSULT STACK

- Choose FILE > EXIT to close all open TeleConsult® Images.
- To close just one image click on the [x] in the upper right corner.





# USING THE VIDEO VIEWER (TeleConsult Movie)

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## **OVERVIEW**

TeleConsult® Movie plays mpg, avi and tcm (TeleConsult Movie extension) full-motion, digital, video files that contain both sound and picture elements. TeleConsult Movie is used in two very different ways: with a TeleConsult Web server or as a stand-alone application. With the TeleConsult web server, you never start the TeleConsult Movie application; it is launched from the TeleConsult web pages.

### **Acquiring Movies**

TeleConsult Movie captures video from any NTSC or PAL Video device with optional hardware and software. Contact Global Telemedix for more information.

The Movies can be stored in two ways:

1. Save the movies on a web server using TeleConsult Movie with the TeleConsult Web Interface software
2. Save the movies in files on a disk

### **Viewing Movies**

Open and view movies with TeleConsult Movie. The supported document file format is tcm (TeleConsult movie format), mpg and avi.

### **Collaborating**

Collaboration allows TeleConsult users on different PCs, which may be in different locations, to work on TeleConsult Movie documents together.

## **OPENING TELECONSULT MOVIE**

### **From the TeleConsult Web Interface**

Click on a movie thumbnail in the TeleConsult database, TeleConsult Movie opens and displays the movie.

### **Opening Movie Files on a Disk**

1. Select File > Open from the Main menu to open an existing movie file that is stored on a disk. The dialog box displays the names of all files that have the extension mpg, avi or tcm (TeleConsult Movies extension).
2. Select the movie file name and click the Open button. TeleConsult Movie opens and displays the movie.

---

## **MAIN MENU**

The Main menu provides the tools and options to configure your software.

The menus can change depending on:

- The location of the movie file: embedded in a web page or on a disk.
- If a movie is open or not open.
- During collaboration.

Brief descriptions of the individual menu options are included for reference.

### **File Menu**

**New** - Creates a new, blank TeleConsult Movie window. The New command allows you to open multiple documents at the same time or to create new documents.

File > New is not required when using TeleConsult Movie with a TeleConsult database. Double clicking on the movie icons in succession will open several movies; new movies are created with the Add Video button.

**Open** - Display a movie in the TeleConsult Movie window. The available formats are tcm (TeleConsult Movie format), avi, and mpg.

- Avi/Video is a standard in video format for Microsoft Windows.
- MPEG (Motion Picture Experts Group) movie files can be compressed much smaller than AVI format making them quicker to download.

**Close and Exit** - Closes all open TeleConsult Movie windows.

**Close** - Shut down one movie file when multiple TeleConsult Movie windows are open. Select File > Exit to close all open TeleConsult Movie documents.

**Save** - Store the open file with a tcm extension.

**Save to Server and Exit** - The Save to Server and Exit option appears only for TeleConsult Web-based movies. Use the Save command to save files on disk.

**Save As** - Rename and/or save the movie with a tcm extension.

**Summary Info** - Displays a dialog box containing two tabs Summary and Statistics.

- The Summary tab contains fields to enter the Authors name, keywords, comments, a title for the movie file, the subject of the movie and the template used. The information is saved with the file. You can setup default information by selecting Options > Configure > Default Summary Info.
- The Statistics Tab contains the movie record. The editing time, revision number, who saved the file, and the date the file was last printed, are recorded in the dialog box.

**Acquisition Setup** - Not implemented at this time.

**Acquire** - Obtain movies from an external capture device such as sonography equipment.

**Print** - Send the current frame to the printer

**Print Preview** - Display the frame as it will appear when printed. (This option is not supported at this time. The Print Preview will be supported in a future release of TeleConsult Movie).

**Print Setup** - Specify printer settings such as the number of copies, paper size and paper source.

**Exit** - Close the TeleConsult Movie application.

## View Menu

**Play** - Show the current TeleConsult Movie.

**Pause** - Stop the video and display the current frame.

**Stop** - Halt the movie and reset to the beginning of the TeleConsult Movie.

**Auto Replay** - When the end of the movie is reached during play, it will restart at the beginning.

**Single Step Forward [Right Arrow]**- View the next frame of a paused movie, one frame at a time.

**Single Step Backward [Left Arrow]**- View the previous frame of a paused movie, one frame at a time.

**Options - Document Info** - The dialog box allows you to add default summary information and comments to an acquired file. The Summary information will stay with each new movie that is acquired.

## Remote Menu

Collaborate

### TeleConsult standalone applications

This opens NetMeeting. You can place a call to collaborate with one member or to create a conference with more than two members.

### TeleConsult web-based applications

Opens the TeleConsult Collaboration Address Book.

**End Collaboration** - (on both the slave and master side) Disconnect from the conference call (stop collaborating).

**Show Collaboration Status** - Displays a dialog box that contains the collaboration document name, member name, and the document status. (See the *Collaboration Status Window* section on page 1-47 for more details)

## Window Menu

The Window options apply only when more than one TeleConsult Movie window is open.

**Next** - Change to the next open TeleConsult Movie window

**Cascade** - Display the open TeleConsult Movie windows with each window offset on two sides from the window it overlaps.

**Tile Vertically** - Arrange the open windows side by side.

**Tile Horizontally** - Arrange the open windows top to bottom.

**Note:** When using the menu option Window >Tile Vertical or Tile Horizontal to tile multiple images that are opened on your PC desktop, the images that are displayed on the bottom row of the desktop may be partially hidden by the task bar. To view the hidden portion of the images right mouse click on the task bar and select Tile Windows Vertically or Tile Windows Horizontally.

**Names of the Open Files** - The names of all open files are displayed. When more than one movie file is open, clicking on a movie file name causes that window to be brought to the front of the others.

## Help Menu

**Topics** - The help file. You can browse the help from a Table of Contents of subjects or search from the index.

**About TeleConsult Movie** - Contains the application version information and a tabbed dialog box of system and license information.

**About Active Movie** - Displays the media player version

**Global Telemedix Web** - Selecting this option causes the MS Internet Explorer to open and display the Global Telemedix web site.

**Register with Global Telemedix** - Add new licenses from the Help > Register with Global Telemedix option. The status of the current licenses and the machine ID number are listed.

**Send A Problem Report to Global Telemedix** - Selecting this option causes the MS Internet Explorer to open and display a Problem Report form.

Please provide a detailed description of the question or problem. Include the steps required to reproduce the problem, the exact wording of displayed messages and the steps you have taken to correct it.

Enter your name and e-mail address in the corresponding text boxes.

Type a short summary of the problem in the Synopsis text box.

Type specific information about your problem in the Description text box; include as much detail as possible.

Choose a Severity (Non-Critical, Serious, Critical) from the drop-down list.

Choose a Class or type of problem (Software Bug, Documentation Bug, Change Request or Support) from the drop-down list.

Follow the instructions to the left of the bottom text box. Placing the mouse pointer in the text box and click, select Edit > Paste from the IE browser menu to include system information, product serial number (registration number), product name and version number in the form.

Click the Submit button to send your problem report to Global Telemedix. One of our support engineers will respond to your report by e-mail.

Figure 4-1: Problem Report Form

## Problem Report from a URL

You can access the Problem Report from any PC that has access to the Internet.

Using Internet Explorer type the URL:

<http://www.globaltelemedix.com/pubbugs.nsf/New+Bug?OpenForm>  
exactly as shown above in the Address field as shown in Figure 4-1.

## PLAYING A MOVIE

You can play a movie by using the menu options or by clicking on the command buttons.

Select the following options from the View menu.

- **Auto Replay** - When the end of the movie is reached during play, it will restart at the beginning.
- **Play** - Start the video.
- **Stop** - Stop the movie from playing and reset to the beginning of the movie.
- **Pause** - Stop the video and display the current frame. Click Play to resume.
- **Seek bar** indicates the progress of the current video.

Use the mouse to drag the Seek bar indicator to step forward or backward along the video frames.

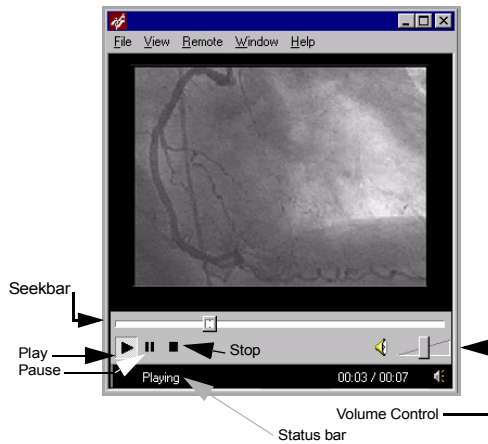


Figure 4-2: Command Buttons

## **ADDING A MOVIE TO A SESSION**

### **Video Format Configuration**

1. Configure the video format before acquiring the movie. To change the setup select File > Acquire.
2. When TeleConsult Capture window is displayed, right-click on the title bar. The dialog box is displayed.

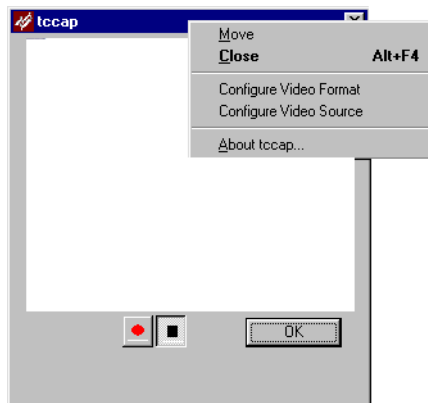


Figure 4-3: TeleConsult Movie Capture Window

3. Select either Configure Video Format or Configure Video Source.

4. Select the OK button to save changes.

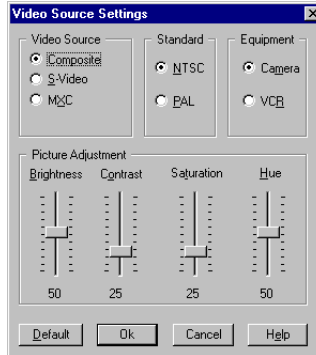


Figure 4-4: Video Source

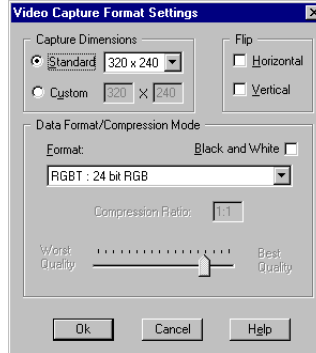


Figure 4-5: Video Capture Format dialog

## Video File Size

The memory required to acquire movies can vary depending on the type of Winnov hardware and various video formats. The memory use for a 15-second clip at 320 x 240 resolution can vary from 2 megabytes to 40 megabytes, depending on the compression format and the quality of the acquired image. An example of the memory needed to acquire movies using the Winnov hardware with various video formats is provided below as a reference.

- Capture Time: 15 seconds
- Frame rate 15 Frames Per Second
- Audio 16-bit, sample rate 11025, not stereo

**Note:** The WINX and WNV1 formats require a Winnov codec to play video.  
The memory sizes are in megabytes (M).

## 320 x 240

8-bit palletized RGB: 16.6M

16-bit RGB: 33.1M

24-bit RGB: 40.3M

WINX software compression with highest quality  
(16 to 1): 9.5M

WINX software compression with lowest quality  
(48 to 1): 2.0M

WNV1 hardware compression with highest quality  
(1 to 1): 9.8M

WNV1 hardware compression with lowest quality  
(12 to 1): 8.4M

YUY2 uncompressed YUV 4:2:2: 33.3M

YV12: uncompressed YUV 4:2:0: 24.4M

YVU9: compressed Indeo: 19.4M

## 640 x 480

8-bit palletized RGB: 26.5M

16-bit RGB: 43.0M

24-bit RGB: 50.8M

WINX software compression with highest quality  
(16 to 1): 12.7M

WINX software compression with lowest quality  
(48 to 1): 5.5M

WNV1 hardware compression with highest quality  
(1 to 1): 10.1M

WNV1 hardware compression with lowest quality  
(12 to 1): 8.4M

YUY2 uncompressed YUV 4:2:2: 47.2M



YV12: uncompressed YUV 4:2:0: 43.2M

YVU9: compressed Indeo: 39.6M



## **ACQUIRING A MOVIE**




Configure the video format (refer to the *Video Format Configuration* section on page 4-6) before acquiring the movie.

1. Select Acquire from the File menu; the capture window is displayed
2. Click  on to record.
3. Click on  to stop recording.
4. Click the OK button to end.

## **PLAY THE MOVIE**

### **Playing a Movie**

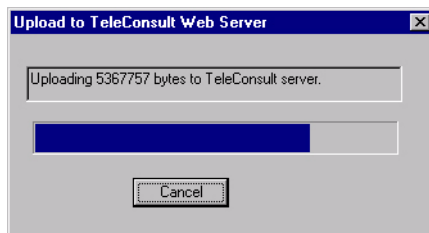
You can use the View menu options or the click on the command buttons to play a movie.

1. Double click on the TeleConsult Movie thumbnail that is embedded in the session page to open the movie file.
2. Select View > Auto Replay, so that when the end of the movie is reached during play, it will restart at the beginning.
3. Select View > Play or click  to start the video.
4. Select View > Stop or click  to stop the movie and reset to the beginning.
5. Select View > Pause or click  to stop the video and display the current frame. Click the Play button to resume.

## **SAVING A MOVIE FILE**

### **Saving to the TeleConsult Database**

From the Main menu select File > Save to Server and Exit. The Upload to the TeleConsult Web Server dialog box is displayed while the movie is uploaded.



### **Saving the file to Disk**

Choose File > Save to save the open file with a tcm extension.

Choose File > Save As to save the file with a new name.

---

## **COLLABORATION**

Collaboration begins by placing a conference call from TeleConsult Image application. Refer to the *Collaboration* section on page 1-42 for detailed information.

Collaboration allows TeleConsult users on different PCs, which may be in different locations, to work on TeleConsult documents together. Collaboration requires that both you and the far-end member have TeleConsult Movie.

Multipoint collaboration (more than two conference members) is supported.

A document that is changed during collaboration can only be saved by the user who was in control (master) when the document was opened.

The TeleConsult standalone product (flat file mode) uses the NetMeeting interface to place a call. For the web-based applications, you place the conference call from the TeleConsult application using the Address book. The TeleConsult Address Book is available for the TeleConsult web-based products: TeleConsult Desktop, TeleConsult Server and TeleConsult AdvancedServer.

## **CLOSING TELECONSULT MOVIE**

Choose File > Exit to close all TeleConsult Movies that are open.

Click on the [x] in the upper right corner of the TeleConsult Movie window or Select File > Close to close just one movie.



# USING TELECONSULT® STETHOSCOPE

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## **OVERVIEW**

With TeleConsult Stethoscope you can capture stethoscope clips and save them to a session. You can transmit the heart and lung sounds in real-time, over the Internet, to another conference member while you are examining the patient.

TeleConsult Stethoscope requires additional hardware. Contact Global Telemedix for more information (refer to the *Where to Get Help* section on page xvii)

### **Acquiring Stethoscope Clips**

TeleConsult Stethoscope acquires heart and lung sounds from the AMD-3400R&S PhoneSteth. Global Telemedix works closely with American Medical Development (AMD), as an authorized reseller, to include medical peripherals in our telemedicine solutions. The AMD-3400R&S PhoneSteth passes high quality auscultation sounds over low bit rate connections. It is designed for use in remote and/or simultaneous telemedic assessment of patients and medical education.

## **MAIN MENU**

The Main menu provides the tools and options to configure your software.

The menus can change depending on:

- The location of the file: a web page or on a disk.
- If a file is open or not open.
- Whether annotations are being viewed.
- During collaboration.

Items that are grayed are not available for use. A brief description of the individual menu options is included for reference.

### **File Menu**

**New** - Opens a new TeleConsult Stethoscope window. The New option is available for clips that are newly acquired or stored on the user's file system. File > New is not available when used with TeleConsult Web Interface software.

**Open** - Retrieve a stethoscope clip (tsp extension) to play.

**Close** - Shut the open TeleConsult Stethoscope window.

**Save** - Store the open file on the disk with the extension tsp (TeleConsult Stethoscope).

**Save to Server and Exit** - The Save to Server and Exit option appears only for the web-based TeleConsult application. The Save command is used to save stethoscope clips on disk.

**Save As** - Rename the stethoscope clip.

**Exit** - Close the open TeleConsult Stethoscope application window.

## Edit Menu

**Undo** - Reverse the last command.

## View Menu

**Toolbar** - The toolbar is always displayed.

**Status Bar** - The Status bar lists the status of a document and gives other information, such as the meaning of a command or description of a menu item.

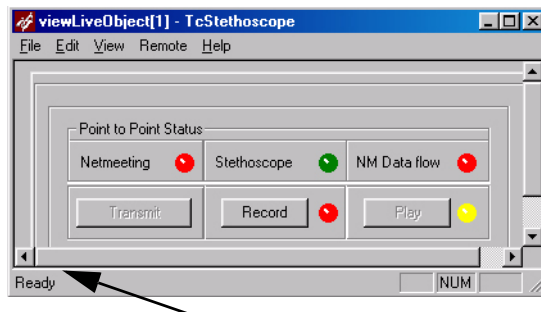


Figure 5-1: Status Bar

**Setup dgl** - Used to set up the application. Select the transmitter stethoscope, receiver stethoscope or both and include which Com ports are used.

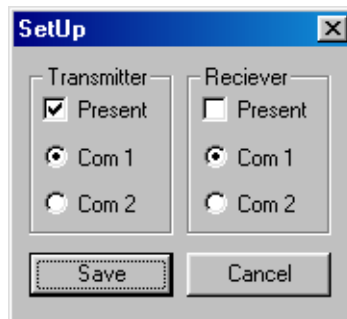


Figure 5-2: Setup dgl dialog box

## Remote Menu

### Collaborate

#### TeleConsult Standalone Applications

Selecting Remote > Collaborate opens NetMeeting. You can place a call to collaborate with one member or to create a conference with more than two members.

#### TeleConsult Web-based Applications

Opens the TeleConsult Collaboration Address Book.

**End Collaboration** - (on both the slave and master side) Disconnect from the conference call (stop collaborating).

**Show Collaboration Status** - Display a dialog box that contains the collaboration document name, member name, and the document status. See the *Collaboration Status Window* section on page 1-47 for more details.

## Help menu

**About** - The About section contains the application version information and a tabbed dialog box of system information.

## OPENING A STETHOSCOPE CLIP

### From the TeleConsult Web Interface

1. Click on a Stethoscope icon (multimedia object) in the TeleConsult page to open the TeleConsult Stethoscope application.



Figure 5-3: Multimedia Icon

2. Click the Play button to review the clip.

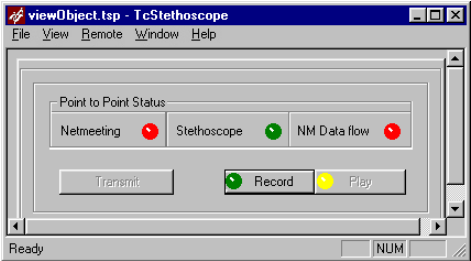


Figure 5-4: TeleConsult Stethoscope Application

## Opening Stethoscope Clips on Disk

1. Select File > Open from the Main menu to open a stethoscope clip that is stored on a disk.
2. Select the file name and click the Open button. TeleConsult Stethoscope application opens.
3. Click the Play button to review the clip.

## ACQUIRING STETHOSCOPE CLIPS

TeleConsult Stethoscope allows real time capture of heart, and lung sounds. TeleConsult Stethoscope requires additional hardware. Contact Global Telemedix for more information. For contact information, refer to the *Where to Get Help* section on page xvii.

### From TeleConsult Subscription

Click the Add Stethoscope button from the Add Multimedia page. The TeleConsult Stethoscope application opens (Figure 2-4: *TeleConsult Stethoscope Application*, located on page 5-4).

1. Place the stethoscope on the patient and press the Record button. The Record button changes to a Stop button.

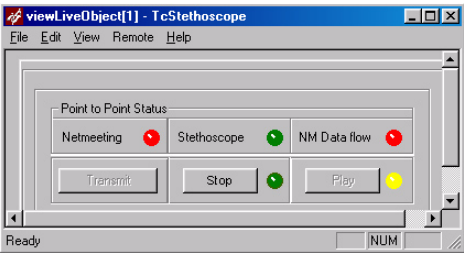


Figure 5-5: Recording a Stethoscope Clip

2. Click the Stop button when finished recording.

## **SAVING THE STETHOSCOPE CLIPS**

Select File > Exit and Save to Server. A stethoscope Multimedia object icon is displayed in the form indicating a stethoscope file is available. Click the browser Refresh button to view the icon.

## **CLOSING TELECONSULT STETHOSCOPE**

- Choose **FILE > EXIT** to close all open TeleConsult Images.
- To close just one image click on the [x] in the upper right corner.







# TROUBLESHOOTING

---

## **MINIMUM REQUIREMENTS**

A personal computer or laptop running Windows 95, 98 or Windows NT 4.0 (Service pack 6). Refer to the Minimum System specifications section.

### **Software**

- Internet Access (128K or better) through an Internet Service Provider
- Microsoft® Internet Explorer™ 5.01
- TeleConsult 3.1.1 Client Software
- Microsoft NetMeeting Version 3.0, build 3388 or greater
- Windows Media Player, Version 6.4 recommended

### **Minimum System Specifications**

- 400 MHz Pentium® II processor or greater
- A minimum of 128 megabytes of memory; 256 Megabytes of memory is recommended. Using other applications on your system may affect performance.
- Maintain at least 1G of working space on your system drive
- One CD-ROM drive
- 8 Megabytes of Video RAM
- VGA monitor
- 1024x768 (or greater) resolution
- 0.28mm (or lower, i.e. 0.26) dot pitch
- Refresh rates of 70Hz (or greater) at 1024x768 resolution
- Monitor must be set to true color/32-bit color. Refer to the *Monitor Resolution* section on page 6-2

<p>Note: You can install TeleConsult 3.1 Client on Windows 95, 98 or Windows NT 4.0 (service pack 6). Windows 2000 and Windows ME are not supported.</p>
--

## **ENHANCING PERFORMANCE**

### **Operating System**

Windows NT, Windows 98 and Windows 95 are the supported operating systems.

### **Windows NT**

If you are running Windows NT 4.0 make sure you have a minimum of Service pack 6 installed.

### **Video Driver**

Ensure that you have installed the latest video driver, contact your IS department if you have a problem.

### **Monitor Resolution**

Set your monitor to True color / 32 - bit color

1. Select Settings > Control Panel from the Windows Start menu.
2. Select the Display icon
3. Click the Settings tab from the Display properties dialog box
4. Select True Color (32-bit) from the Color drop-down menu.

### **Internet Explorer Cache Setup**

You must configure Microsoft® Internet Explorer™ (IE) to automatically check for new pages to ensure you get the most current information.

1. From the IE browser, select Tools > Internet Options as shown below (Figure 1-1). The Internet Options dialog box is displayed (Figure 1-2)



Figure 1-1: Configuring the IE browser

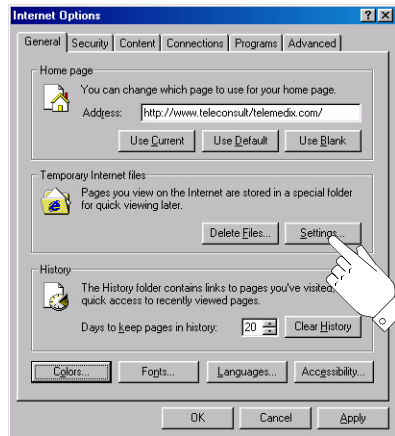


Figure 6-2: Internet Options - General tab

2. Click on the Settings button from the Temporary Internet files section. The Settings dialog box is displayed.

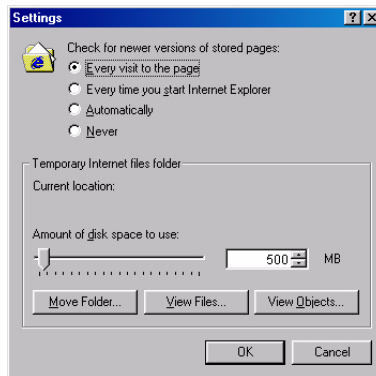


Figure 1-1: Internet Options - Settings Dialog

3. Set the *Amount of disk space to use* in the Temporary Internet Files Folder section to approximately 10% of the total space on your hard drive. Global Telemedix recommends between 500 and 2000MB of free disk space. This setting is relevant to *Subscribing*, or automatically downloading session clinical content on a scheduled basis. Refer to the *Subscribing* section on page 1-12.
4. Select *Every visit to the page* under the Check for newer versions of stored pages section, as shown above.

## Temporary Internet Folder

The Temporary Internet Files folder is located on your hard disk. The Session pages and files (such as your clinical images) are *cached* or stored temporarily in the Temporary Internet folder when you view them. Caching the images speeds up the display of images that were pushed to your client or that you have already seen, because Internet Explorer opens them from your hard disk instead of from the server over the Internet.

Increasing the disk space you set for this folder can increase how fast previously visited sessions and images are displayed, but decreases the amount of space available for other files on your computer. You can set the size of this folder, to control how much space it uses on your hard disk, depending on the quantity or image file size you are receiving.

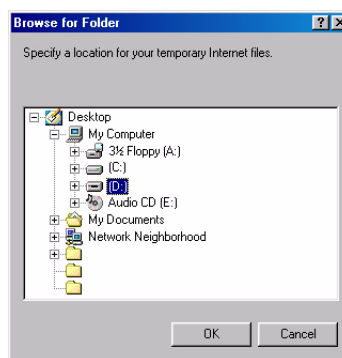
## Increasing Temporary Internet folder space

1. Click Internet Options on the Internet Explorer Tools menu.
2. On the General tab, click Settings.
3. To create more space to store pages temporarily, move the slider to the right.

## Moving the Temporary Internet folder

If you have limited space available on the drive where the Temporary Internet folder is located. You can move the Temporary Internet folder to another drive (if there is one available) if you have two drives (or partitions) on your PC.

1. Click Internet Options on the Internet Explorer Tools menu.
2. On the General tab, click Settings.
3. Click the Move Folder button.
4. Select the drive that you want the Temporary Internet folder to be located and click the ok button.





# GLOSSARY

---

## **GENERAL**

Archive	A collection of files stored for later retrieval
Digitizing	Conversion of analog into digital information.
Echocardiogram	A test that uses high-frequency sound waves to image the heart and surrounding tissues.
Frame	An individual television, film or video image.
Film Digitizer	A device that allows scanning of existing static images so that the images can be stored, manipulated, or transmitted in digital form.
Hub	A network or system signal distribution point where multiple circuits convene and are connected. Some type of switching or information transfer can then take place. This relieves congestion
Interface	Something that connect two separate entities. For example, a user interface is a part of a program that connects the computer with a human operator (user).
Image Compression	Computer images are extremely data intensive and require large amounts of memory for storage. As a result, the transmission of an image from one machine to another can be very time consuming. By using data compression techniques, it is possible to remove some of the redundant information contained in images, requiring less storage space and less time to transmit.
JPEG	(Joint Photographic Experts Group) A standardized image compression mechanism, JPEG is named after the Joint Photographic Experts Group, the original name of the committee that wrote the standard.
LAN	(Local Area Network.) LANs are now commonplace in most businesses, allowing users to send email and share resources such as files, printers, modems, etc. Currently, most larger companies are connection their LANs to the Internet, allowing users to connect to resources within or outside the LAN.
Merge Replication	Merge Replication Tracks changes in a source database and synchronizes between the publisher and the subscriber. TeleConsult uses Merge replication.

---

PACS	(Picture archiving and communications system) A system that acquires, transmits, stores, retrieves, and displays digital images and related patient information from a variety of imaging sources and communicates the information over a network.
Pixel	The smallest displayable area on a computer screen; the fundamental picture element of a digital image.
Publication	A subset of a database that is replicated to a subscriber (capture station).
Real time	Immediate response by a computer system. Real time can also refer to events simulated by a computer at the same speed that they would occur in real life.
Resolution	Spatial resolution is the ability to distinguish between adjacent structures. Contrast resolution is the ability to distinguish between shades of gray.
Stethoscope (Electronic)	An electronic stethoscope passes high quality auscultation sounds over low bit rates. They are designed for use in remote and/or simultaneous telemedic assessment of patients and medical education.
Thumbnail Image	A graphic or image purposely made smaller in size in order to display multiple images on the same Web page at the same time.
World Wide Web	The <i>Web</i> is a collection of online documents housed on Internet servers around the world. Web documents are written or coded in HTML. To access these documents, you have to use a Web browser, such as Netscape, Microsoft Explorer or Mosaic. When these browsers access (or hit) a page, the server uses the Hypertext Transfer Protocol (HTTP) to send the document to your computer.
ZIP	A compressed file that can contain one or many files as well as a directory structure. On the Internet large graphics and programs are usually compressed into ZIP files and then made available for download. After you download this file you need to use a decompression software program to UNZIP the file. Several popular tools exist for zipping: PKZIP(r) in the DOS operating system, WinZip(r) and NetZIP(r) in Windows.

---

**INTERNET**

	<p>A global network connecting millions of computers. As of 1999, the Internet has more than 200 million users worldwide, and that number is growing rapidly. More than 100 countries are linked into exchanges of data, news and opinions.</p>
ASP	<p>(Active Sever Pages) A specification for a dynamically created Web page with an .ASP extension. When a browser requests an ASP page, the Web server generates a page with HTML code and sends it back to the browser.</p>
Authentication	<p>Any process that ensures that users are who they say they are. When you type your name and password, you are authenticated and allowed access.</p>
AVI	<p>(Audio Video Interleave) A Windows platform audio/video (multimedia) file, commonly used on the Internet for small movies and videos. These files are usually pretty large; A 20 second movie clip in AVI format could be as much a 3MB in size.</p>
Bandwidth	<p>This refers to the difference (measured in Hz), between the highest and lowest frequencies of a transmission. Most people loosely refer to bandwidth as the amount of data that can be transferred over a network connection.</p>
Baud rate	<p>A unit used to measure the number of data bits a modem can transfer in one second (bps - bits per second). One baud is how many signals a modem can handle in one second. Information is measured in bits, and bits come in the signal. Higher baud modems can send and receive more signals in a second, and the faster speeds also cram more bits into a signal.</p>
Bookmark	<p>To mark a document for later retrieval. Nearly all Web browsers support a book-marking feature that lets you save the address (URL) of Web page so that you can easily revisit the page at a later time.</p>

---

Browser	A program used to view, download, upload, surf or otherwise access documents (pages) on the World Wide Web. Browsers read <i>marked up</i> or coded pages (usually HTML but not always) that reside on servers and interpret the coding into what we see rendered as a Web page. Netscape Navigator and Microsoft Internet Explorer are examples of Web browsers.
Cache	A cache temporarily stores the information on a page in your computer. If you request a page that is stored in a cache, Browsers can retrieve the page from the cache more quickly than retrieving the page again from its location out on the network.
Client	A client is computer system or process that requests a service of another computer system or process. The much talked about "client-server architecture" refers to a workstation requesting the contents of a file from a server.
Dedicated Line	A communications line that is used solely for computer connections. If you buy an additional phone line for your modem, that's a dedicated line. There are other types of dedicated lines (such as T3 and T1 that are used for larger network entities.)
Dialup	A widely used method of accessing the Internet. A dialup connection uses regular phone lines to connect one computer to another via modem.
Domain	A "logical" region of the Internet. People sometimes refer to them loosely as "sites." Generally, a domain corresponds to an IP address or an area on a host.



DNS	(Domain Name System) The DNS is static, hierarchical name service used with TCP/IP hosts, and is housed on a number of servers on the Internet. Basically, it maintains a database for figuring out and finding (or resolving) host names and IP addresses on the Internet. This allows users to specify remote computers by host names rather than numerical IP addresses. The advantage of the DNS is that you don't have to remember numerical IP addresses for all the Internet sites you want to access.
Download	To copy data (usually an entire file) from a main source to a peripheral device. The term is often used to describe the process of copying a file from an online service to one's own computer.
DSL	(Digital Subscriber Lines) DSL technologies use sophisticated modulation schemes to pack data onto copper wires. They are sometimes referred to as last-mile technologies because they are used only for connections from a telephone switching station to a home or office, not between switching stations.
Encryption	The basis of network security. Encryption encodes network packets to prevent anyone except the intended recipient from accessing the data.
Ethernet	A standard and probably the most popular connection type for Local Area Networks (LANs). In an Ethernet configuration, computers are connected by coaxial or twisted-pair cable where they contend for network access using a Carrier Sense Multiple Access with Collision Detection (CSMA/ CD) paradigm. Ethernet can transfer information at up to 10 Megabit-per-second (Mb/s).
FAQ	(Frequently Asked Questions) FAQs are widely available on the Internet and usually take the form of large, instructional text files. They are written on a wide variety of topics, and are usually the most up-to-date source for specialized information.

---

FTP	(File Transfer Protocol) The most widely used way of downloading and uploading (getting and putting) files across an Internet connection. The File Transfer Protocol is a standardized way to connect computers so that files can be shared between them easily. There is a set of commands in FTP for making and changing directories, transferring, copying, moving, and deleting files.
Firewall	Computer hardware and software that block unauthorized communications between an institution's computer network and external networks.
Gateway	A kind of "go-between" device or program that passes information between networks that normally couldn't communicate. What used to be called a gateway is now called a router.
Host	A computer that is attached to a network or the Internet. Hosts allow users on client machines to connect and share files or transfer information. Individual users communicate with hosts by using client application programs.
HTML	(Hypertext Markup Language) The standard way to mark text documents for publishing on the World Wide Web. HTML is marked-up using "tags" surrounded by brackets. To see what tagged HTML text looks like, select the View Source feature from the menus in the program you are using to view this document now, and you'll see a display of the HTML text used to create this page.
HTTP	(Hypertext Transfer Protocol) The protocol that tells the server what to send to the client, so the client can view Web pages, FTP sites, or other areas of the net.
ISDN	(Integrated Services Digital Network) A technology that combines voice and digital network services in a single medium. ISDN makes it possible for communications carriers to offer their customers' digital data services as well as voice connections through a single line.
IP	(Internet Protocol) An industry standard, connectionless, best-effort packet switching protocol used as the network layer in the TCP/IP Protocol Suite.

---

IP Address	(Internet Protocol Address) The 32-bit address defined by the Internet Protocol. Every resource on the Internet has a unique numerical IP address, represented in dotted decimal notation. IP addresses are the closest thing the Internet has to phone numbers. When you "call" that number (using any number of connection methods such as FTP, HTTP, Gopher, etc.) you get connected to the computer that "owns" that IP address.
ISP	(Internet Service Provider) An ISP is a company that maintains a network that is linked to the Internet via a dedicated communication line, usually a high-speed link known as a T1. An ISP offers use of its dedicated communication lines to companies or individuals who can't afford the high monthly cost for a direct connection. Using a modem, you can dial up to a service provider whose computers will connect you to the Internet, typically for a fee.
Intranet	A private network inside a company or organization that uses the same kinds of software that you would find on the public Internet, but that is only for internal use. As the Internet has become more popular many of the tools used on the Internet are being used in private networks, for example, many companies have Web servers that are available only to employees. Note that an "Intranet" may not actually be an Internet; it may simply be a network.
Link	Text and/or an image area on a Web page that a user can click on to "connect to" or reference another document. Most commonly, links are thought of as what connects two Web pages or Web sites. They can also however be referencing a different part of the same document, linking to a file which will download to your computer or triggering the launching of an external or helper application which will then process the clicked on file.
Network	Two or more computers that are connected. The most common types of networks are: LAN - local area network: The computers are near each other, like in the same office space, room or building.
Push Subscription	The subscriber asks for periodic updates of all changes at the publisher.
Server	A computer that provides resources, such as files or other information. Common Internet servers include file servers and name servers.

---

SMTP	(Simple Mail Transfer Protocol) A protocol used to transfer email. SMTP transfers mail from server to server, and the end user must use POP to transfer the messages to their machine.
SSL Encryption	(Secure Sockets Layer) A protocol for transmitting private documents over the Internet. SSL works by using a private key to encrypt data that's transferred over the SSL connection. Many web sites use the protocol to obtain confidential user information, such as credit card numbers. By convention, Web pages that require an SSL connection start with https: instead of http:.
URL	(Universal Resource Locator) More commonly referred to as the URL, the Universal Resource Locator refers to the entire address that is recognized "universally" as the address for an Internet resource. Each resource on the Internet has a unique URL. URLs begin with letters that identify the resource type, such as http, ftp, gopher, etc. These types are followed by a colon and two slashes.
Upload	To transmit data from a computer to a service, mainframe, or network.

**TELECONSULT**

	<p>TeleConsult provides physicians a way to correspond and collaborate with other health care providers in their community, securely over the Internet. TeleConsult provides a session-based text dialog along with ability to collaborate, in real time, on digital clinical image files. TeleConsult includes a suite of imaging software: TeleConsult Image, TeleConsult Movie, TeleConsult Stack and TeleConsult Stethoscope.</p>
Capture Station	<p>A TeleConsult capture station acquires and stores still images, video clips, audio clips, DICOM studies, and stethoscope clips into the TeleConsult multimedia database. The capture station user interacts with a local copy of the database; the applicable content is replicated to and from the server system. The user never interacts directly with the server system. The capture station provides full functionality even when offline, or not connected to the Internet, because the desktop maintains its own copy of a subset of the server database.</p>
Closed Session	<p>An originator terminated a session that has been sent to the recipients. All images and responses in the closed session are read only. The recipients are automatically notified when a session is closed.</p>
Draft Sessions	<p>Sessions that you saved-as-draft; you can complete these Sessions later. You can edit drafted sessions until they are saved as final, and sent to the recipients or the session is closed by the originator.</p>
Response	<p>Comments to a session.</p>

---

Sessions	The TeleConsult web page where care providers embed captured diagnostic clinical results (high resolution still images, digitized X-Rays, movies, files, ultrasound, stethoscope clips etc.) at the point of care and upload these images to a secure web site for remote review, consultation and real-time. The sessions are shared among selected members and viewed from their Internet browsers.
TeleConsult Image	Image software captures still images from external medical-imaging devices, stores the image files in multiple file formats, and permits image annotation and real-time image collaboration.
TeleConsult Movie	Plays mpg, avi and tcm (TeleConsult Movie extension) full-motion, digital, video files that contain both sound and picture elements.
TeleConsult Stack	An image viewer that acts as a DICOM Media Set Reader; it can read any DICOM format multi-framed images.
TeleConsult Stethoscope	With TeleConsult Stethoscope you can capture stethoscope clips and save them to a session. You can transmit the heart and lung sounds in real-time, over the Internet, to another conference member while you are examining the patient. TeleConsult Stethoscope requires optional hardware and software. Contact Global Telemedix for more information

**STANDARDS**

	<p>A protocol or procedure providing a method to connect systems or networks agreed upon by participating companies or networks, or established by a regulatory body or standards setting body such as the ITU (International Telecommunications Union). This regulatory body sets standards (protocol) for international interconnectivity of systems utilizing incompatible formats.</p>
DICOM	<p>The DICOM (Digital Imaging and Communications in Medicine) 3.0 is the industry standard for the transfer of medical information and radiographic images from one computer to another. Among the organizations supporting these standards are American College of Radiology, Mallinckrodt Institute of Radiology, the National Electrical Manufacturers Association, and Radiological Society of North America. DICOM also provides a means for users of imaging equipment to assess if equipment is capable of exchanging meaningful information.</p>
DICOM Network	<p>Provide the path to integration of an electronic network and PACS comprised of digital imaging modalities, image workstations, and image archive.</p>
H.323	<p>An international agreed upon specification that defines how PC's inter-operate to share audio and video streams over computer networks, including intranets and the public internet. The driving force behind H.323 is to provide for a common protocol so that communications software products offered by different vendors can work well together.</p>
HL7	<p>(Health Level-7 Data Communications Protocol) Defines standards for transmitting billing, hospital census, order entries, and other health-related information. It's a database interface standard for healthcare information systems. HL7 acknowledges the differences in needs at different sites. As a result, when two parties agree to implement HL7, they must write an addendum to the standard specifying how they will apply it to their interface. HL7 provides the greatest possible degree of standardization consistent with site variation in the use and management of data.</p>

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Standards: Compliance	Standards provide a procedure for formatting transmitted information that can be accepted on the receiving end of the transmission. Standard compliance implies that the equipment is capable of formatting information to comply with established international standards. Equipment or networks that are not standards compliant are limited to communications with like equipment or networks. This situation is a proprietary product.
T1	An industry standard that defines a transmission line with a bandwidth of 1.544 million bits per second (USA rate). T1 is a type of connection of a host to the Internet. The ISDN line is a digital transmission system. 193 bit frames are sent 8,000 times a second and received by a channel bank or T-1 multiplexer.
T3	A type of connection of a host to the Internet. A T3 transmits a DS-3 formatted digital signal at 466.56 megabits per second.
TCI/IP	(Transmission Control Protocol/Internet Protocol) TCP/IP is the standard communications protocol required for Internet computers. To communicate using TCP/IP, PCs need a set of software components called a TCP/IP stack.
Video Format	In television the specific arrangements of signals to arrange a video signal. There are many ways to format a video signal. For instance, NTSC, the television format in the United States consisting of 720 pixels per line, time 480 lines, transmitted as 30 frames per second.
WAN	(Wide Area Network) A network where the computers are at different geographic locations and are connected by telephone lines or radio waves.
Win 32	A 32-bit (the microprocessor is 32 bits) Microsoft windows driver interface.





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