

SONOS 7500/5500

Using Integrated Digital Interface



PHILIPS

Using Integrated Digital Interface (IDI)

Philips SONOS 7500
Philips SONOS 5500

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Publication number
M2424-30000-id-02

Edition 4
Published November, 2002
Printed in U.S.A.

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performance, or use of this ma-
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This product may contain re-
manufactured parts equivalent
to new in performance or have
had incidental use.

WARNING

Electrical Shock Hazard

Do not remove system covers.
To avoid electrical shock, use
only supplied power cords and
connect only to properly
grounded (3-hole) wall outlets.

Explosion Hazard

Do not operate the system in
the presence of flammable an-
esthetics.

Safety Information

Before you use the Philips ul-
trasound system for the first
time, be sure to read the *Safety
and Standards* guide.

Pay special attention to the
“Warnings” and “Cautions”.
The warnings explain the dan-
gers of electrical shock and ex-
plosion hazard, the safety of
ultrasound, applications,
guidelines for fetal use, and
guidelines for setting controls
that affect acoustic output and
accuracy of clinical measure-
ments.

The cautions explain potential
dangers to equipment.

**Warning Symbol used in the
Text:**

WARNING

**Caution Symbol used in the
Text:**

CAUTION

Symbols used on the System:



Instruction manual symbol: the
product will be marked with
this symbol when it is neces-
sary for the user to refer to a
user guide.



Dangerous voltage symbol: the
product is marked with this
symbol to indicate potential for
electrical shock.

Monitor Radiation


The monitor used in this sys-
tem complies with the FDA
regulations that were applica-
ble at the date of manufacture
(21 CFR Subchapter J).

Prescription Device

The United States Food and
Drug Administration requires
the following labeling state-
ment:

Caution - Federal Law restricts
this device to use by or on the
order of a physician.

Important

 marking is for
Council Directive
93/42/EEC.

This system complies with the
Medical Device Directive.

Authorized EU
Representative:

Philips Medizin Systeme
Boeblingen GmbH
Hewlett-Packard-Str. 2
71034 Boeblingen
Germany

Printing History

Edition	Date	Software Revision
Edition 1	April 1999	B.0
Edition 2	June 2000	B.1
Edition 3	June 2002	C.0
Edition 4	November 2002	D.0

Preface

This guide describes the Integrated Digital Interface (IDI) network option to the Philips SONOS 7500 or SONOS 5500 system.

Use this guide in conjunction with the following books:

- *System Basics*—Describes the basic operation of the Philips SONOS 7500 and SONOS 5500 systems.
- *Controls Reference*—Provides a detailed description of all system controls.
- *Safety and Standards Guide*—Provides information on safety issues.
- *Measurements and Calculations Reference*—Provides information on measurements and calculations that you can perform on your ultrasound system.
- *Transducer Reference*—Provides information on the operation, care, and cleaning of transducers.

Additionally, several specialty guides and multimedia products describe SONOS imaging applications and optional packages:

- *Using Contrast Imaging*
- *Using Stress Echocardiography*
- *Using 3-Dimensional and BiPlane Imaging*
- *Using Acoustic Quantification*
- *Using Acoustic Densitometry*
- *SONOS Live 3D Cardiac Echo: Features and Fundamentals* (a CD guide to Live-3D cardiac imaging)
- *LVO and Contrast CK: A Practical Approach* (a video guide to SONOS contrast echocardiography detection techniques)
- *Stress Audio CD* (a spoken guide to performing SONOS stress echocardiography studies)

Preface

Conventions Used in This Guide

The following conventions are used in this guide:

- Touch-panel and rotary control names appear in bold text. For example, **Acquire Loop**.
- Function keys appear in a box. For example, **Enter**.

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Using Integrated Digital Interface (IDI)

Integrated Digital Interface at a Glance

Studies listed based on current patient ID

Jones

Indicates that images were saved in a study format and the date of the study

The type of study is listed here

Name	Comment	Date	Description
Jones	Stress 3 Stage	Apr 04, 01	STUDY
Jones	CLR Standard	Jan 10, 01	STUDY

Select multiple items

Disk

End Study	Store All Loops	Copy to Optical	Disk Space
Init Disk	Rescue Study		
Rebuild Database	Delete File		List Files
System Generate			



Introduction

The Philips SONOS 7500 or SONOS 5500 equipped with the Integrated Digital Interface (IDI) enables the sending of digital images directly to a magnetic-optical disk, network storage server, or DICOM-compliant printer via a standard LAN. Images (loops, frames, analysis reports, and Acoustic Quantification reports) acquired on the Philips SONOS 7500 or SONOS 5500 are sent to any of the following devices:

- EnConcert network storage server (stored in DSR-TIFF format)
- Network storage server (sent using DICOM format)
- Magnetic optical disk (stored in DSR-TIFF format)
- DICOM-compliant printer

About This Guide

This guide is divided into four sections:

- IDI Overview
- IDI Controls
- How-To Instructions
- IDI Troubleshooting

Introduction

IDI Overview: Provides an overview discussion of the IDI. Included are discussions of the physical characteristics and an overview look at how the IDI operates within the Philips SONOS 7500 or SONOS 5500 ultrasound system.

IDI Controls: Lists and describes the controls that appear on an ultrasound system equipped with IDI.

How-To Instructions: This section describes tasks you are expected to be able to perform in order to use the IDI. This section gives you information on how to perform each task quickly and efficiently without having to deal with lots of details.

IDI Tips and Troubleshooting: Provides usage tips and solutions to performance symptoms.

IDI Overview

Product Description

The IDI is an intelligent interface that connects the SONOS system to a magnetic-optical disk, network storage server, or DICOM-compliant printer located on a local area network (LAN). The IDI is an option to the Philips SONOS 7500 or SONOS 5500 system.

The IDI receives digital image studies that have been stored on the SONOS hard disk. These stored studies can be sent, over a standard 10/100BaseT LAN, to the following devices:

- EnConcert network storage server
- DICOM network storage server and a DICOM printer (optional)
- SONOS system's optical disk

Physical Description

The IDI works on a personal computer (PC). It includes a hard disk that is shared between the PC and the ultrasound system. The IDI is connected to the ultrasound system via a SCSI cable and to the network via a network connector located on the back of the system. The hard disk is used as a storage buffer before transferring studies to the magnetic-optical disk, network storage server, or DICOM-compliant printer. The hard disk also provides short-term local storage for "portable" ultrasound studies (studies that are conducted while the ultrasound system is physically disconnected from the network). All IDI operations are performed using the function keys and touch panel controls on the ultrasound system.

Image Storage and Transfer

The SONOS system creates and stores an image, calibration data, and measurement and calculation data. The system can send data in DICOM format or DSR-TIFF format (to an EnConcert network). Image data sent to an EnConcert network includes calibration data and measurement data. Image data sent in DICOM format includes only calibration data. The same image data transfers in either case, though the image file format differs.

Storing digital studies to disk: You can choose between the SONOS system's optical disk or hard disk to store studies. However, image storage saves to the hard disk by default when the IDI option is present, to enable studies to be transferred to a network storage server. See [“Enabling the Optical Disk as the Storage Device” on page 30](#).

Retrieving patient information: You can choose a study that has been on either EnConcert or a DICOM Modality Worklist Server, depending on the system options. See [“Retrieving Patient Information \(EnConcert or DICOM Modality Worklist Server\)” on page 31](#).

Storing calibration data: Calibration data provided by the ultrasound system for an image is embedded in the image data that is transferred to either the EnConcert or DICOM network storage server.

Storing numeric measurement data: QuickCalcs and Analysis measurements performed on an image are stored on the hard disk. QuickCalcs measurements are stored with the images on the EnConcert network storage server. Analysis measurement data are stored—with their labels—with the images on the EnConcert network storage server. You can display these measurements or include them in an analysis report on an EnConcert network storage server. If your system is connected to a DICOM network storage server, measurement information is not included.

IDI Overview

Disk Manager: A Philips service representative sets the Disk Manager function based on customer preference during system installation.

- If **Disk Manager Auto** is selected, studies are automatically deleted once they are transferred to the network storage server.
- If **Disk Manager Off** is selected, these studies remain on the hard disk until they are manually deleted.
- If **Disk Manager Defer** is selected (default), studies are not deleted after transfer but remain on the hard drive. The system monitors hard drive storage capacity. When near-full capacity level of the hard drive is reached, the system automatically deletes the studies previously transferred to the network. You can retrieve studies that are still on the local hard disk and review them on the ultrasound system. You cannot retrieve a study once it has been deleted from the hard disk.

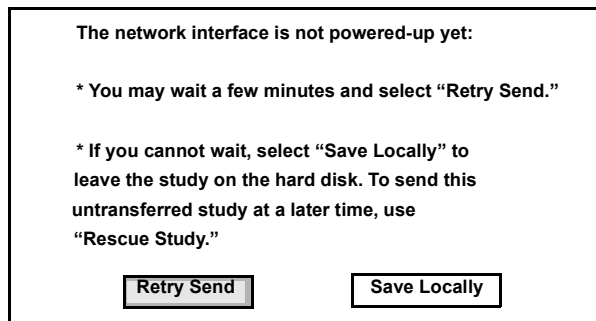
Operation

IDI Availability: IDI takes longer to power up than the ultrasound system, so some IDI functions may not be immediately available. The status message reads: “The Network Interface is powering up. This normally takes several minutes. Please wait and try again.”

- You receive the above status message if you attempt to perform any of the following functions during the power-up cycle:
 - Initialize a hard disk or an optical disk
 - Format a hard disk or an optical disk
 - Copy images from the hard disk to the optical disk using the **Copy to Optical** control
 - Rescue a study using the **Rescue Study** control

You can retry these operations until you no longer receive the error message and you are able to complete the storage operation.

- You receive the following status message if you attempt to end a study using the **End Study** control during the power-up cycle:

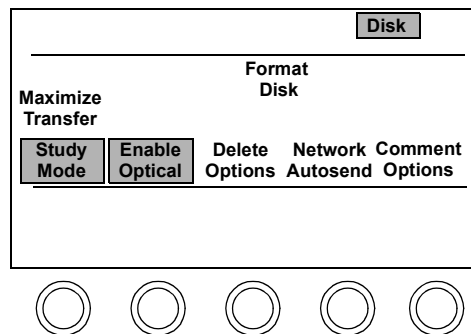


You should wait for the IDI to complete its bootup sequence and try again. You can start a study and acquire images during this time, but you cannot complete the study using the **End Study** control.

- You receive the message “The disk is not ready. Please try again later.” if the IDI PC is not working or if it is running a disk-check (Chkdsk) operation.

Digital Storage and Network Transfer

Device Selection: The **Enable Optical** control is part of the **Disk Setup** control set. By default, it is *not* highlighted when IDI is present—that is, the optical disk is *not* enabled. This configuration follows the assumption that users who have an ultrasound system with IDI will use the network storage server (rather than the optical disk) to store studies. However, if you touch **Enable Optical** to highlight it, you can choose between the system’s internal hard disk and the optical disk for storage or retrieval. Once you make a selection, all subsequent digital storage is automatically sent to that device until the study is ended or another study is started.



When you accept the next acquired loop, if **Enable Optical** is enabled, the Target Disk Selection window appears. It gives you the option of saving the loop to your hard disk or your optical disk.



Note that if **Enable Optical** is turned off in the middle of a study on the hard disk, all subsequent disk operations for that study operate on the hard disk. If **Enable Optical** is turned off during a study on the optical disk, that study is ended and future disk operations are performed on the hard disk. **Enable Optical** is a system wide setting—once you set it remains on until you disable it.

IDI Overview

Patient ID Information: Before you start your study, you enter patient information by pressing **Patient ID**. If your system is connected to a DICOM Modality Worklist server or an EnConcert network storage server, and the study is ordered, you are presented with a patient selection list. When you choose the patient from the selection list, the Patient Information screen appears with the data filled in. Otherwise a blank Patient Information screen appears and you can enter the patient data manually.

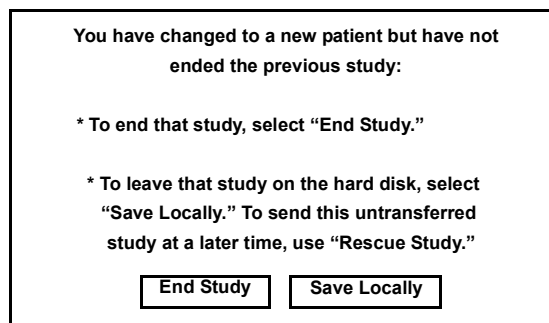
NOTE

After choosing a patient from the Patient Selection list, the Medical Record Number (MRN) field and the accession number on the Patient Information are grayed out to indicate that you cannot modify this information on the SONOS system.

End Study: The **End Study** Control is part of the **Disk** and **Stress** control sets. When you touch the **End Study** control, IDI:

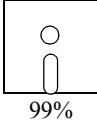



- Completes the transfer of the study from the IDI internal hard disk to the network storage server
- Writes analysis data to the disk (with DSR-TIFF format)
- Clears all Patient ID information including analysis data and annotation text
- Clears all loops from loop memory

You **must** touch **End Study** at the end of each study, even portable studies, or the study *does not* transfer properly. If you do not press **End Study**, you are presented with the following dialog box when attempting to start a new study by pressing the “New Patient” key. (Neither the **End Study** nor the **Save Locally** option causes analysis data to be lost.).



IDI Overview

When you touch **End Study**, all **Disk** controls are unavailable until the study has been stored to disk. Once the study has begun its transfer to the network storage server, an icon appears displaying the transfer status. What icon appears depends on the network settings and the network activity. The possible icons are shown in the following table.

Icon	Network Activity
	<p>When storing loops to disk, the icon indicates the percent progress of the transfer. When several loops are queued, the percentage indicates the storage progress. If a single frame is being transferred, the percent complete value is not displayed.</p>
	<p>With Network Autosend <i>on</i>, the icon indicates that the network is available.</p>
	<p>With Network Autosend <i>on</i>, the icon indicates that the network is unavailable.</p>
	<p>With Network Autosend <i>off</i>, the icon is blank.</p>

If the network is unavailable, for example, during a portable study, or the network is disconnected during a study, IDI simply queues studies for transfer to the network storage server or printer for a later time. In the background, the system periodically attempts to re-connect to the network storage server or printer. All studies are properly transferred once the network becomes available. If network activity is abruptly aborted (for example, by an On/Off/On power cycle), all studies are properly transferred when the network connection is re-established.

IDI Overview

When you indicate that a study is over by touching **End Study**, one of the following actions occur:

- If **Disk Manager Off** is selected, studies remain on the hard disk even after they are transferred to the network storage server. This configuration gives you the ability to retrieve the studies at any time and edit and review them at the ultrasound system. (See the *System Basics* guide for information on reviewing a study.) However, you must manage the internal hard disk space by routinely checking disk space and deleting studies.
- If **Disk Manager Auto** is selected, studies are automatically deleted once they are transferred to the network storage server. This configuration enables IDI to automatically manage the hard disk space. However, since the studies are deleted from the hard disk after they have been successfully transferred they are not available for retrieval and review at the ultrasound system. (The studies are available for retrieval until they are deleted.)
- If **Disk Manager Defer** (default) is selected, studies remain on the hard disk even after they are transferred to the network storage server. This configuration lets you retrieve, edit, and review the studies at any time on the ultrasound system. (See the *System Basics* guide for information on reviewing a study.) The system automatically manages the internal hard disk space by routinely checking disk space and deleting studies when the available disk space is too low.

Although a file has been automatically deleted from the hard disk, under certain conditions an entry may remain in the database. If you attempt to retrieve a file that has been deleted, the following message may appear:

“File does not exist. Press Disk. Select Rebuild Database. Choose the Reconcile Option.”

Reconciling the database gives you an accurate list of studies that are on the hard disk.

IDI Overview

When either **Disk Manager Auto** or **Disk Manager Defer** is enabled, the internal hard disk does not fill up unless:

- A large number of “portables” are performed before the LAN cable can be reattached
- A large number of studies are stored on the hard disk
- Studies with large amounts of data are stored on the hard disk

When **Disk Manager Off** is selected, you are responsible for ensuring that the hard disk does not fill up. If the disk does reach capacity, the optical disk can be used for storage.

Untransferred Studies: There are certain rare conditions under which a study can become “stranded” on the hard disk. Stranded means that the study has been saved to the hard disk, but the study has not been queued for transfer to the network storage server. In this case it must be transferred to the network storage server using the **Rescue Study** control.

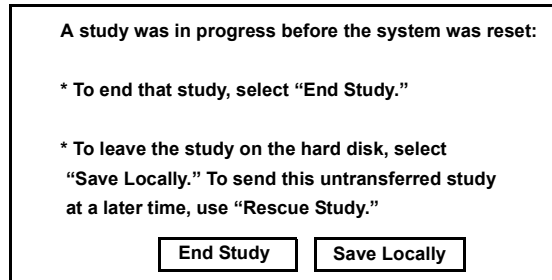
NOTE

After you touch **End Study**, the patient information is removed from the screen while the study transfers to the network DICOM or EnConcert server. This *is not* an indication the data transfer is complete. You *must* wait until End Study functionality returns to the touch screen *before* powering off the SONOS system. The study is then transferred to disk at the next power-up.

When the **End Study** touch control returns, the study has been sent to the hard disk drive. This has no correlation with the network transfer status. To monitor network transfers, open the **Status** box and wait for the **Network Done** message to indicate that transfer is complete.

IDI Overview

If the system was Reset/Power-On without ending a study that was in progress, the SONOS system displays a warning dialog box. When storing to the hard disk, the following warning message appears:



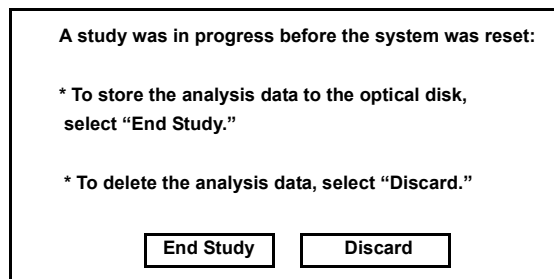
This message gives you the option to:

- **End Study**—This ends the study and queues it for transfer from the IDI hard disk to the network storage server.
- **Save Locally**—This leaves the study on the hard disk. You can transfer the hard disk study to the network storage server using the **Rescue Study** control at a later time.

NOTE

It is best to choose End Study when possible.

If the Reset/Power-On situation storing to the optical disk, the following warning dialog box message appears.



IDI Overview

This message gives you the option to:

Tip: Many disk controls can be preset. Be sure to save all your changes to a preset after you complete these steps.

- **End Study**—This ends the study and queues analysis and images to the optical disk.
- **Discard**—This applies only when writing to the optical disk rather than to the IDI hard disk. You would discard the analysis data if you did not need the analysis data for use with EnConcert labeled measurements.

Disk Retrieve and Disk Utilities: You can retrieve studies while they are still on the hard disk, but cannot retrieve them once they have been deleted from it. You can either select a study from a list of studies that match the current Patient ID, or you can retrieve another study by selecting **Change Patient**. If **Enable Optical** is highlighted, you can choose to retrieve studies from the optical or hard disk. If **Enable Optical** is not highlighted, Disk Retrieve and the other disk utilities operate on the hard disk.

Format Disk: The hard disk is pre-formatted. If you need to format an optical disk, you must power cycle the ultrasound system after the operation is complete. This is necessary before any further digital storage and retrieval operations can be attempted. If you do not power cycle the ultrasound system, the following message appears:

“A Format Disk has been done. The system must be powered off and powered back on before using Disk operations.”

This error message occurs even if the format operation fails. For example, the error message will appear if you attempt to format a write-protected optical disk.

Initialize Disk: Initializing a disk prepares the pre-formatted disk for storage and retrieval. The hard disk is already initialized. You must initialize each side of an optical disk before using it for the first time. If the disk is already formatted, initialization is preferable to formatting because initialization takes much less time.

When you initialize or format a disk, you are always prompted with a screen to select the target device, regardless of whether **Enable Optical** is on.

CAUTION

Do not format or initialize the hard disk unless a Philips service representative has requested you to do so. Formatting or initializing an optical or hard disk erases *all* information on the disk.

Disk Controls

Comment rotary	Lets you select a disk storage comment. In Disk Setup, the comment can be set to System Generate , Manual Entry , or an Exam-type . System Generate is the default.
Copy to Optical	Copies studies or images from the hard disk to an optical disk. These studies or images remain on the hard disk until you delete them manually. If you select Copy to Optical and no optical disk is in the drive, an error message appears.
Delete File	Lets you select and delete images or studies from the hard or optical disk.
Disk Space	Shows the amount of remaining space on the disk, in kilobytes (KB) and the approximate number of loops.
End Study	Closes the current study and stores all loops, frames, and analysis data to disk. Patient ID information is cleared. All loops are deleted and analysis data is erased. If the system has the IDI option, all files from the ended study are sent to the network. Also is displayed as part of the Stress controls.
Init Disk	Prepares a formatted disk for file storage and retrieval. Also erases all information on the hard disk or optical disk. The hard disk is pre-initialized.
List Files	Shows the names of studies stored on the disk.
Loop Display	If the Disk or Loop control is highlighted, Loop Display indicates that an image from the disk is displayed on the screen. Touch Loop Display or 2D to return to live imaging. This control displays on the right touch panel.

Tip: If your system has the Stress option and you select a stress study to retrieve, the Stress control is automatically activated. This control replaces the Loop control on the left touch panel.

Disk Controls

Rebuild Database Allows you to choose whether to reconcile or rebuild the database on the hard disk or optical disk.

The **Reconcile** option scans the database for the studies that are supposed to exist on the disk. If a study no longer exists on the disk, the study is removed from the database. The Reconcile option is quick, since the entire disk does not need to be scanned.

The **Rebuild** option scans the entire disk looking for studies and images, and creates a new database with references to each study and image found on the disk. The Rebuild option can be time consuming, since the entire disk must be scanned.

Rescue Study Sends untransferred studies on the hard disk to the network storage server.

Store All Loops Displays the **Store All Loops** screen, which gives you the option of storing all unstored loops to the current study, storing all loops to a new study, or storing all bookmarked loops to a new study for the current patient.

NOTE

If **Store All Loops** or **Bookmarked Loops** is selected, the Patient ID information is cleared after being stored with the current patient information. If **Unstored Loops** is selected, the Patient ID information remains. See the *System Basics* guide for more information on storing loops.

Disk Controls**Setup Controls**

Tip: Your hard disk comes preformatted.

Touch Disk and press **Setup** to adjust these controls. Press **Setup** again to return to live imaging.

Comment Options Lets you choose the option of either **Exam-Type**, **System Generate**, or **Manual Entry** comments, which is located in the top part of this dialog box. These comments display when you store a file. The table below explains the different commenting options. When you touch **Comment Options**, the following dialog box appears:

Tip: You can customize the comment list and save it to a Preset.

Comment Option	Description and Usage
Exam-Type List	Selects a comment from a customizable comment list. Can be used in conjunction with Comment Auto-Advance. Highlight View Exam Contents to view and edit the comment list.
System Generate	Generates a comment automatically for the acquired image. Comments are unique and include references to Exam Type, Preset, system Mode, and a unique counter (e.g., Vas Carotid PW01).
Manual Entry	Allows you to enter a comment for each acquired image if Auto Commenting is off. Also allows you to choose Auto Commenting on or off, which is located in the bottom part of this dialog box.

Tip: You can use the **Comment** rotary control to select a comment from your list, or you can use the keyboard to manually enter a comment.

Disk Controls

Comment Option	Description and Usage
Auto Commenting on	Disables the Digital Storage and Retrieval (DSR) comment box. The image is stored with the current comment automatically applied to the file. Select the comment using the Comment rotary control before storing the loop.
Auto Commenting off	Enables the DSR comment box, which appears on the screen when storing a loop. Displays the comment that will be saved when the image is stored to disk. You can edit the comment before the file is stored.
Comment Auto-Advance on	Used only in conjunction with Exam-Type commenting. On each subsequent loop/frame store, the comment is advanced to the next item on the exam-type list. If the Auto-Advance feature is off, the comment remains the same unless it is changed with the Comment rotary control.

Delete Options

Lets you choose:

- Whether to automatically delete an acquired loop from loop memory after it is stored to disk
- Whether to delete an acquired loop from the disk after it is manually deleted from loop memory

NOTE

Delete All Pages will only delete from loop memory, not from the disk.

If you do not delete the loop from loop memory, you can take advantage of reviewing and editing your studies at the ultrasound system. (See the *System Basics* guide for more information on reviewing a study.)

Disk Controls

Enable Optical Lets you select the optical disk as the target device when both a hard disk and optical disk are installed. All system data is stored to the optical disk. When **Enable Optical** is off, the hard disk is the target device for all disk operations except **Init** or **Format Disk**. This control is defaulted off (not highlighted). **Enable Optical** is a system-wide control—when you select it, it remains set until you change it.

Format Disk Formats the hard or optical disk for storage and retrieval. The hard disk is pre-formatted, and many manufacturers provide preformatted optical disks. Each side of an optical disk must be formatted separately. If you format an optical disk you must restart the SONOS system before any further storage or retrieval operations.

CAUTION

Do not format or initialize the **hard disk** unless a Philips service representative has requested you to do so. Formatting or initializing an optical or hard disk erases *all* information on the disk.

Maximize Transfer/Frames Works in conjunction with the Acquire: Max 120Hz/300Hz control in **2D** imaging setup. **Maximize Frames** acquire images up to 300 Hz. **Maximize Transfer** acquires images up to 120 Hz.

Study Mode Selects a subdirectory storage format (study format) for saving images to disk. Storing and retrieving images with **Study Mode** on facilitates study management. **Study Mode must be on** to transfer studies to the network storage server. This control is “on” (highlighted) by default. **Study Mode** is a control that is stored as a preset.

Network Autosend Available under the **Disk** controls when you press **Setup**. Sending a complete study to a network can take some time. When you enable Network Autosend, as soon as an image is stored to the local disk, IDI begins sending the image to the network server. When Network Autosend is not enabled, the IDI system does not start sending the study to the network server until you press **End Study**.

Loop Controls

The number of frames acquired in a loop varies, depending on how the loop was acquired (that is, beats versus time), the frame rate of the system, and how much memory is in the system.

Acquire	Captures a frame or the next series of frames onto a page in loop memory. You can also use the Acquire Loop touch control.
	If Auto Display is enabled, press Acquire to delete the loop and press Acquire again to capture a new loop. Press Enter to accept the loop.
Acquire Loop	Captures the next series of frames onto a page in loop memory. You can also use the Acquire key.
Acquire Frame	Captures the next frame into loop memory. You can also use the Acquire key.
Align	Synchronizes the start and end time of two or more acquired loops.
Beats	Sets the number of heart beats acquired per loop. Available only when Loop Type is set to Beats .
Bookmark Loop	Marks the selected loop for display when Show Bookmarks is touched. Touch Bookmark Loop again to remove bookmarking.
Bookmark Page	Marks the selected page for display when Show Bookmarks is touched. Touch Bookmark Page again to remove bookmarking.
Border	Suppresses AQ (Acoustic Quantification) borders on looping AQ images.
Cancel	Cancels loop store or retrieve operations.
Color Suppress	Removes color from looping color images.

Loop Controls

Colorize	Optimizes contrast resolution by activating the current colorization map and overlaying the grayscale image. To change the active map, turn the Colorize control.
Compare	Displays a real-time image beside one or more looping images. Available when Vsplit, Cropped or Reduced Formats are active.
Delete All Pages	Deletes all pages in loop memory.
Delete Page	Marks a page for deletion while in Display mode. Once you touch Delete Page, the control changes to Undelete Page. If you change your mind, touch Undelete Page. Touching Display or Loop Display after touching Delete Page deletes a loop from loop memory.
Disk Autostore	Automatically stores a loop or frame to the hard or optical disk after you acquire and accept it. Images are stored under the current Patient ID. (When Network Autosend is enabled, Disk Autostore is forced on. The Disk Autostore button is not available.
Disk Retrieve	Retrieves the selected study from the disk and displays it. If you want to display only selected images from a study, select List Contents and highlight the images you want to retrieve.
Disk Store	Stores the currently selected loop, frame, or analysis report to disk and keeps the current Patient ID information.
Display	Shows acquired loops and frames. Touch Display again to exit display mode.
Edit End	Changes the end point of a selected loop.
Edit Start	Changes the beginning point of a selected loop.

Loop Controls

Format

Lets you select the format for acquiring and displaying loops. Formats are:

- Full—Acquires in full screen format.
- Cropped —Acquires within a region of interest, the highest quad format resolution.
- Reduced—Acquires a quad format that lets you display the entire imaging sector.
- Vsplit—Acquires within a region of interest a side-by-side format. Can be used to compare two images side-by-side.

Note: If you turn the Format control to Full before you retrieve a study, the study is displayed in the previously stored format.

Freeze

While in live imaging:

- Press **Freeze** to enter Quick Review. Use the trackball for frame review.

To display frames in a looping format:

- Touch Replay. When in Replay mode, press **Freeze** and touch **Acquire Frame** to acquire a frame. Press **Acquire** or touch **Acquire Loop** to acquire a loop.

Frame Lock

Prevents video frames from being generated with different acoustic data on the even and odd fields. This touch control is active in CLR or Stress paused mode.

When active, loops are acquired at or below the video rate (30 Hz in the U.S.A., 25 Hz elsewhere), regardless of the acoustic frame rate. Eliminates jitter during slow motion playback. This control has no effect on acoustic cine acquisitions, which capture loops at the acoustic rate with no jitters.

Loop Display

Indicates that an acquired loop is on the screen. Touch Loop Display to return to live imaging. Appears on the right primary touch panel.

Loop Controls

Loop Type	Lets you determine the length of an acquired loop. Choices are: <ul style="list-style-type: none"> • Beats—By number of heart beats • Time—By seconds
Manual Entry	One of the selections available from the Comment rotary control. Lets you type or change the disk storage comment. In Disk Setup the comment can be set to System Generate, Manual Entry or an Exam-type.
Map	Changes the color flow map used for selected color loops. Maps represent conventions and flow characteristics assigned to the active BART (Blue Away, Red Toward) or RABT (Red Away, Blue Toward) map. Displays on the primary right touch panel when a color image is displayed.
Map Invert	Switches between the BART (Blue Away, Red Toward) and RABT (Red Away, Blue Toward) color map conventions for selected color loops. (Displays on the primary right touch panel when a color image is displayed.)
Memory Gauge	Turns the display of the memory gauge on and off. The memory gauge shows you how much loop memory has been used and how much is available.
Replay	Shows captured frames in a loop. Available after you press Freeze during live imaging.
Same Start	Makes two or more stored loops begin at the same time. Available under the Loop Display controls.
Select Loop	Outlines the selected loop on the screen, if there is more than one loop on the page. Enables bookmarking, editing, and storing of the selected loop.
Select Off	Removes the outlines from the displayed loops.
Select Page	Outlines one page of loops on the screen. Enables bookmarking, editing, and storing of the selected page.

Loop Controls

Select Region	Displays the markers that outline the area of the screen to be acquired as a loop. Available only when Vsplit and Cropped formats are active. Touch Select Region again to remove the markers.
Show Bookmarks	Displays only the bookmarked loops and frames. Touch Show Bookmarks again to see all of the acquired images.
Time	Sets the loop length in seconds. Available only when Loop Type is set to Time .
T-Set	A T-Set is a multiple frame triggered set of frames. The T-Set control adjusts the number of T-Sets. The T-set control is located in the Loop panel.
Zoom	Expands or contracts a frozen image during Loop Replay on the right touch panel.

How-To Instructions

How-to instructions are provided for all of the tasks you can perform while using the IDI. These tasks are reduced, as much as possible, to basic steps that are numbered and listed in the sequence they should be performed.

The following How-To task instructions are available in this section:

- **Configuration**

- [“Setting Up the Hard Disk” on page 26](#)
- [“Enabling the Optical Disk as the Storage Device” on page 30](#)

- **Retrieving and Adding Patient Information**

- [“Retrieving Patient Information \(EnConcert or DICOM Modality Worklist Server\)” on page 31](#)
- [“Entering a New Patient \(EnConcert or DICOM Modality Worklist Server\)” on page 34](#)
- [“Editing Existing Patient Information \(EnConcert or DICOM Modality Worklist Server\)” on page 36](#)
- [“Adding and Editing Patient Information Without EnConcert or DICOM” on page 39](#)

- **Storing Studies**

- [“Transferring Studies to the Network Server or Printer” on page 40](#)
- [“Transferring Studies from the Optical Disk to the Network” on page 44](#)

- **Retrieving Studies**

- [“Retrieving Studies from the Hard Disk” on page 42](#)

- **Utilities**

- [“Rescuing an Untransferred Study” on page 47](#)
- [“Reconciling the Hard Disk” on page 49](#)
- [“Rebuilding the Database” on page 51](#)
- [“Deleting Studies from the Hard Disk” on page 53](#)
- [“Copying Studies to the Optical Disk” on page 55](#)

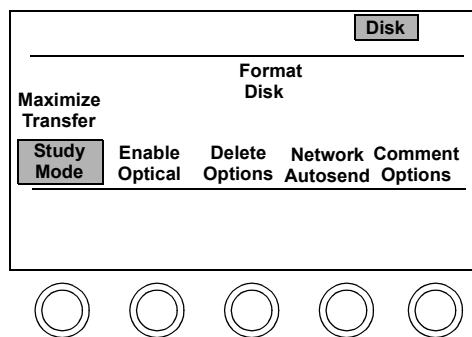
How-To Instructions**Setting Up the Hard Disk**

The system comes with several disk controls defaulted to the correct setting for optimal network transfer. These controls are:

- Study Mode
- Enable Optical
- Delete options
- Network Autosend
- Comment Options
- Maximize Transfer/Frames

To ensure that these controls are correct or to reset them, perform the following steps:

- 1 Press **Setup** and touch **Disk** on the left touch panel.



- 2 Check that **Study Mode** is on. **Study Mode** must be on to transfer studies to the network storage server.
- 3 Check that **Enable Optical** is off. **Enable Optical** must be off to automatically store studies to the hard disk for transfer to the network.

How-To Instructions

- 4 Touch **Delete Options** to choose the autodelete settings.

Loop Autodelete Settings

Delete loop from memory after successful store to disk? Yes No

Delete loop from disk when manually deleting from loop memory? Yes No

Okay Cancel

CAUTION

Delete options can be pre-configured depending on the selected preset. Always check setup to be sure that the Delete options are adjusted appropriately before you begin loop acquisition.

- 5 Use the trackball to select the Autodelete options and press **Enter**. The system defaults to **No** for both options. When you choose “Delete loop from memory after successful store to disk?” Loops that have been stored on the disk are not deleted from Loop (CLR) memory. You may review and edit your studies on the ultrasound system. When you choose “Delete loop from disk when manually deleted from loop memory?” the manually selected image is deleted from Loop memory, and the optical or hard disk simultaneously. (Touching **End Study** clears all loops from loop memory.)

NOTE

Delete all pages will only delete from loop memory, not from the disk.

- 6 Highlight **Okay** and press **Enter**.
- 7 To transfer a loop to the network as soon as you acquire and accept it, touch **Network Autosend**. Disk Autostore is forced on.

How-To Instructions**8 Touch Comment Options** to choose the auto comment settings.

- a. Use the trackball to select comment options from the comment options box.
 - If System Generate and Automatic Commenting are both on, the image is automatically stored to disk with the system generated comment. No DSR comment box appears and you can't edit the comment.
 - If Manual Entry and Automatic Commenting are both on, the DSR comment box does not appear.
 - If System Generate is on and Auto Commenting is off, the DSR comment box containing the system-generated comment appears at the screen's lower left corner. You can choose **Okay** to accept the comment; Press **Erase** and type your own comment; or turn the **Comment** rotary control on the left panel to select another comment.
 - If Manual Entry is on and Auto Commenting is off, the DSR comment box is blank. You can type in the comment or use the **Comment** rotary control to select a comment.

- b. Select **View Exam Comments** to display the Disk Storage Comments screen.

How-To Instructions

Tip: If you want to keep these changes, save them to a preset.

- c. To edit a comment:
 - 1) Move the arrow to the comment to edit and press **Enter**.
 - 2) Type in the desired comment, highlight Okay and press **Enter** to accept the new comment list.
 - 3) Press **←** on the keyboard to move to the next comment.
 - 4) Highlight the entire box and press **Erase** to clear all of the comments.
- 9 Ensure that **Maximize Transfer** is enabled. When you touch this control it toggles between **Maximize Transfer** and **Maximize Frames**. **Maximize Transfer** sets the maximum frame rate to 120 Hz. **Maximize Frames** sets the maximum frame rate to 300 Hz.
- 10 Press **Setup** to return to imaging.

Enabling the Optical Disk as the Storage Device

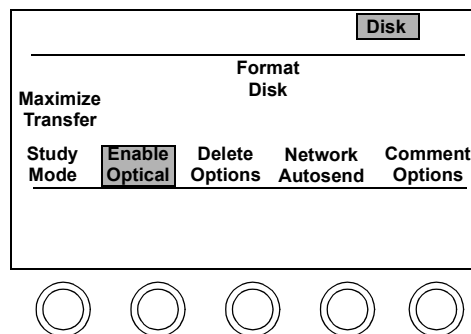
If your system has both a hard disk drive and an optical disk drive, image storage defaults to the hard disk. However, there may be occasions when you want to store or copy a study to the optical disk.

NOTE

SONOS does not save DICOM files to storage media.

All studies stored on the optical disk are in DSR-TIFF format and can be read by an EnConcert network storage server or a SONOS System. If your system is connected to a DICOM network storage server, see [“Transferring Studies from the Optical Disk to the Network” on page 44](#) for information on how to read the data on the optical disk.

- 1 Press **Setup**, touch **Disk**, and then touch **Enable Optical**. Press **Setup** to return to imaging.



- 2 After entering the patient ID data, store the first frame or loop. (See *System Basics*.) The **Target Disk Selection** screen appears.



- 3 Select **Optical Disk** and **Okay**, and then press **Enter**.

Retrieving Patient Information (EnConcert or DICOM Modality Worklist Server)

When Studies are ordered on EnConcert or on a DICOM Modality Worklist server, the patient database is updated on all systems with IDI that are currently connected to the network. For EnConcert, this happens as soon as a new study is ordered. For DICOM Modality Worklist servers, the patient database is updated at a particular polling interval, set at installation time. The patient name appears in the Patient Selection list.

If the patient database was downloaded from EnConcert or DICOM, the Patient Selection list appears. This list displays *even if your system is no longer connected to the network*.

If no study was ordered, add a new patient ID. To do so, follow the steps in the section “Setting up the Exam” in the Doing Exams chapter of *System Basics*.

NOTE

If your ultrasound system is not connected to either EnConcert or to DICOM Modality Worklist servers, see [“Adding and Editing Patient Information Without EnConcert or DICOM”](#) on page 39.

How-To Instructions

- 1 Press **Patient ID** to access patient information.

The Patient Selection screen appears.

PATIENT SELECTION			
Okay		Cancel	Manual Entry
		Refresh	
Name	MRN	DOB	Description
		NEXT	
Adams	John 10007	09/23/1922	2D ECHO
Cash	Beth 10011	09/23/1956	TEE
Edmonds	Mark 10227	09/23/1959	CAROTID
Franklyn	Sarah 24456	09/23/1978	STRESS
Gates	Ken 11002	09/23/1970	2D ECHO
Hammil	Margo 21997	09/23/1942	TEE
Modell	Joyce 00607	09/23/1950	CAROTID
Post	Zoe 30990	09/23/1988	STRESS
Seaton	Evan 14331	09/23/1990	TEE
Yoways	Ellen 33418	09/23/2000	STRESS
		NEXT	
Accession:	12032190		
MRN:	10007		
Name:	Adams, John		
Sex:	Male		
DOB:	09/23/1922		
Performed By:	Jones		
Physician:	Smith		
Indication:	UNKNOWN		
Location:	UNKNOWN		
Description:	2D ECHO		

How-To Instructions

- Use the trackball to move the arrow to the correct patient name and press **Enter** to highlight it. Move the arrow to **Okay** and press **Enter**.

The Patient Information screen appears with data filled in. If all data is entered correctly, go to Step 3.

If you need to make changes, type the information in the appropriate fields. You cannot modify the Medical Record Number (MRN) or the Accession number. If you modify information sent from EnConcert, check your EnConcert server to see what information is transferred to EnConcert. See the Philips *EnConcert User's Guide* for details.

Patient Information		Current Date mm/dd/yyyy	
New	Edit	Prior	Reset
Patient List			
Last Name:	<input type="text" value="Jones"/>		
First/Middle:	<input type="text" value="Jerry"/>	<input type="text"/>	
MRN:	<input type="text" value="100222"/>	DOB:	<input type="text" value="mm/dd/yyyy"/>
Accession:	<input type="text" value="5882038853224394"/>		Sex: <input checked="" type="radio"/> M <input type="radio"/> F
Misc:	<input type="text"/>		
Location:	<input type="text"/>		
Physician:	<input type="text"/>		
Performed by:	<input type="text"/>		
Height:	<input type="text" value="183.0"/> cm	<input type="text" value="72.0"/> inches	
Weight:	<input type="text" value="81.6"/> kg	<input type="text" value="180.0"/> lbs	
	<input type="checkbox"/> BSA via Weight only		
Indication:	<input type="text"/>		

- To return to live imaging, press **Enter** twice quickly, or press **Patient ID**.

NOTE

Current date shows the system setup date. This date is used to calculate the patient age for EnConcert and Analysis reports. If the date is incorrect, the patient age will be incorrect. You set the system date by pressing **Setup** and touching **System**. See the *System Basics* guide for details.

How-To Instructions**Entering a New Patient (EnConcert or DICOM Modality Worklist Server)**

- 1 To access patient information, press **Patient ID**.

If the patient database has been downloaded from EnConcert or the DICOM Modality Worklist server, the Patient Selection list appears with **Manual Entry** highlighted. This list displays even if your system is no longer connected to the network.

If no study has been ordered, the patient's name does not appear on the Patient Selection list.

- 2 To activate **Manual Entry**, press **Enter**.

PATIENT SELECTION			
Okay		Cancel	
Manual Entry		Refresh	
Name	MRN	DOB	Description
NEXT			
Adams	John 10007	09/23/1922	2D ECHO
Cash	Beth 10011	09/23/1956	TEE
Edmonds	Mark 10227	09/23/1959	CAROTID
Franklyn	Sarah 24456	09/23/1978	STRESS
Gates	Ken 11002	09/23/1970	2D ECHO
Hammil	Margo 21997	09/23/1942	TEE
Modell	Joyce 00607	09/23/1950	CAROTID
Post	Zoe 30990	09/23/1988	STRESS
Seaton	Evan 14331	09/23/1990	TEE
Yoways	Ellen 33418	09/23/2000	STRESS
NEXT			
Accession:	12032190		
MRN:	10007		
Name:	Adams, John		
Sex:	Male		
DOB:	09/23/1922		
Performed By:	Jones		
Physician:	Smith		
Indication:	UNKNOWN		
Location:	UNKNOWN		
Description:	2D ECHO		

The Patient Information screen appears with all of the patient data fields grayed out. **New** is highlighted.

How-To Instructions

- 3 To activate **New**, press **Enter**. Type in the new patient information. Check your EnConcert server to see what information is transferred to EnConcert. See the Philips *EnConcert User's Guide* for details.

Patient Information		Current Date mm/dd/yyyy	
New	Edit	Prior	Reset
		Patient List	
Last Name:	Jones		
First/Middle:	Jerry		
MRN:	100222	DOB:	mm/dd/yyyy
Accession:	5882038853224394		Sex: <input checked="" type="radio"/> M <input type="radio"/> F
Misc:			
Location:			
Physician:			
Performed by:			
Height:	183.0 cm	72.0	inches
Weight:	81.6 kg	180.0	lbs
	<input type="checkbox"/> BSA via Weight only		
Indication:			

- 4 To return to live imaging, press **Enter** twice quickly, or press **Patient ID**.

How-To Instructions**Editing Existing Patient Information (EnConcert or DICOM Modality Worklist Server)**

- 1 To access patient information, press **Patient ID**.

The Patient Selection screen appears with **Manual Entry** highlighted.

- 2 To activate **Manual Entry**, press **Enter**.

PATIENT SELECTION			
Okay		Cancel	
Manual Entry		Refresh	
Name	MRN	DOB	Description
NEXT			
Adams	John 10007	09/23/1922	2D ECHO
Cash	Beth 10011	09/23/1956	TEE
Edmonds	Mark 10227	09/23/1959	CAROTID
Franklyn	Sarah 24456	09/23/1978	STRESS
Gates	Ken 11002	09/23/1970	2D ECHO
Hammil	Margo 21997	09/23/1942	TEE
Modell	Joyce 00607	09/23/1950	CAROTID
Post	Zoe 30990	09/23/1988	STRESS
Seaton	Evan 14331	09/23/1990	TEE
Yoways	Ellen 33418	09/23/2000	STRESS
NEXT			
Accession:	12032190		
MRN:	10007		
Name:	Adams, John		
Sex:	Male		
DOB:	09/23/1922		
Performed By:	Jones		
Physician:	Smith		
Indication:	UNKNOWN		
Location:	UNKNOWN		
Description:	2D ECHO		

The Patient Information screen appears with all of the patient data fields grayed out and **New** is highlighted.

How-To Instructions

- 3 Use the trackball to move the arrow to **Edit** and press **Enter**. Make the necessary changes. You cannot modify the MRN or Accession fields if the patient was selected from the Patient Selection List. If you modify information, check your EnConcert Study List to see what information is transferred to EnConcert. See the Philips *EnConcert User's Guide* for details.

Patient Information		Current Date mm/dd/yyyy	
<input type="button" value="New"/>	<input type="button" value="Edit"/>	<input type="button" value="Prior"/>	<input type="button" value="Reset"/>
<input type="button" value="Patient List"/>			
Last Name:	<input type="text" value="Jones"/>		
First/Middle:	<input type="text" value="Jerry"/>	<input type="text"/>	
MRN:	<input type="text" value="100222"/>	DOB: mm/dd/yyyy	
Accession:	<input type="text" value="5882038853224394"/>	Sex: <input checked="" type="radio"/> M <input type="radio"/> F	
Misc:	<input type="text"/>		
Location:	<input type="text"/>		
Physician:	<input type="text"/>		
Performed by:	<input type="text"/>		
Height:	<input type="text" value="183.0"/> cm	<input type="text" value="72.0"/> inches	
Weight:	<input type="text" value="81.6"/> kg	<input type="text" value="180.0"/> lbs	
	<input type="checkbox"/> BSA via Weight only		
Indication:	<input type="text"/>		

- 4 To cancel your changes and restore the previous information, highlight **Reset** and press **Enter**.

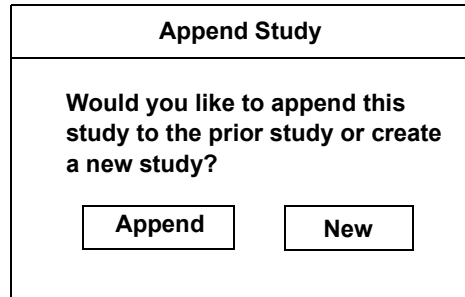
NOTE

The following step applies to DICOM only.

How-To Instructions

- 5 To display the previous patient's data or add the new images to the immediate prior study, highlight **Prior** and press **Enter**.

The Append Study dialog box appears.



- To restore the patient information of the prior study, choose **New**.
 - To copy the prior study to the current images, choose **Append**.
- 6 To return to live imaging, press **Enter** twice quickly, or press **Patient ID**.

NOTE

Current date shows the system setup date. This date is used to calculate the patient age for EnConcert and Analysis reports. If the date is incorrect, the patient age will be incorrect. You set the system date by pressing **Setup** and touching **System**. See the *System Basics* guide for details.

Adding and Editing Patient Information Without EnConcert or DICOM

If your ultrasound system is not connected to EnConcert or a DICOM Modality Worklist Server, there is no Patient Selection screen. When you press **Patient ID** the Patient Information screen appears, and you can add and edit patient information.

- 1 Press **Patient ID** to display the Patient Information screen.
- 2 To enter new patient data, highlight **New** and press **Enter**. Type in the new patient information.
- 3 To edit patient data, highlight **Edit** and press **Enter**. Type your changes.

Patient Information		Current Date mm/dd/yyyy	
New	Edit	Prior	Reset
Patient List			
Last Name:	Jones		
First/Middle:	Jerry		
MRN:	100222	DOB:	mm/dd/yyyy
Accession:	5882038853224394	Sex:	<input checked="" type="radio"/> M <input type="radio"/> F
Misc:			
Location:			
Physician:			
Performed by:			
Height:	183.0 cm	72.0 inches	
Weight:	81.6 kg	180.0 lbs	
	<input type="checkbox"/> BSA via Weight only		
Indication:			

- 4 To cancel your changes and restore the previous information, highlight **Reset** and press **Enter**.
- 5 To display the previous patient's data, highlight **Prior** and press **Enter**.
- 6 To return to live imaging, press **Enter** twice quickly, or press **Patient ID**.

Transferring Studies to the Network Server or Printer

NOTE

The system must be physically connected (via LAN cable) to the network and the network storage server or printer must be running in order to store or print studies. Portable studies are automatically transferred once the system is physically connected to the network.

- **Before the exam:** Make sure **Study Mode** is on and **Enable Optical** is off under Disk Setup. Enable **Network Autosend**. When **Network Autosend** is enabled, **Disk Autostore** is forced on. The **Disk Autostore** button is not available.
- **After the exam:** Touch **Disk** then touch **End Study** to initiate file transfer to the network. This must be done even during portable exams (when the SONOS system is not connected to the network). **End Study** writes the analysis data to the disk (if storing to DSR-TIFF format), clears loop, analysis memory, and Patient information, so you are ready to start your next study. **End Study** is also part of the **Stress** control set.

NOTE

After you touch **End Study**, the patient information is removed from the screen while the study transfers to the network DICOM or EnConcert server. This *is not* an indication the data transfer is complete. You *must* wait until End Study functionality returns to the touch screen *before* powering off the SONOS system. The study is then transferred to disk at the next power-up.

When the **End Study** touch control returns, the study has been sent to the hard disk drive. This has no correlation with the network transfer status. To monitor network transfers, open the **Status** box and wait for the **Network Done** message to indicate that transfer is complete.

After you touch **End Study**, a network icon appears and the studies are transferred to the network. You can continue imaging during the study transfer process. The following indications are displayed:

- A count down of files (images within the study) until the study transfer is complete.
- NETWORK: DONE displays when the study has been successfully transferred.
- The NETWORK: UNAVAIL icon may display at any time, such as when connection to the network becomes unavailable. All studies will be transferred when the network becomes available.

Wait until **End Study** is no longer highlighted before you power off the system.

How-To Instructions

The following controls enable you to set up your SONOS ultrasound system to store studies in a variety of ways. See the *System Basics* guide for more information.

- **Disk Autostore**—Available under the **Loop** controls. Automatically stores a loop or frame to the hard or optical disk after you acquire and accept it. Images are stored under the current Patient ID.
- **Disk Store**—Available under the **Loop** controls after you acquire a loop. Stores the currently selected loop or frame to the hard or optical disk. Images are stored under the current Patient ID.
- **Store All Loops**—Available under the **Disk** controls. Displays the Store All Loops screen, which gives you the option of storing all unstored loops to the current study, storing all loops to a new study, or storing all bookmarked loops to a new study for the current patient.

NOTE

If **Store All Loops** or **Bookmarked Loops** is selected, the Patient ID information is cleared after being stored with the current patient information. If **Unstored Loops** is selected, the Patient ID information remains. See the *System Basics* guide for more information on storing loops.

- **Network Autosend**—Available under the **Disk** controls when you press **Setup**. Sending a complete study to a network can take some time. When you enable Network Autosend, as soon as an image is stored to the local disk, IDI begins sending the image to the network server. When Network Autosend is not enabled, the IDI system does not start sending the study to the network server until you touch **End Study**.

How-To Instructions**Retrieving Studies from the Hard Disk**

If **Disk Manager Off** is selected, you can retrieve all of the studies that are on the hard disk, whether or not they have been transferred to the network storage server. If **Disk Manager Auto** is selected, you can only retrieve the studies that have not been transferred to the network storage server. If **Disk Manager Defer** (default) is selected, you can retrieve all recent studies from the hard disk even after the studies are transferred to the network. The system monitors the hard drive storage capacity, and automatically deletes the studies previously transferred after reaching hard disk capacity requirements.

Once a file is either automatically or manually deleted from the hard disk, it cannot be retrieved.

To retrieve studies from the hard disk, proceed as follows:

- 1 To see a list of studies matching the current patient's ID, touch **Disk Retrieve** in Loop control. The system displays a list of studies that match the current Patient ID information.
- 2 To see a list of Patient IDs on the hard disk, select **Change Patient**. Then, select **Display All** from the **Change Patient** screen.

Highlight study or file to retrieve.
Press List Contents to view study contents.

Name	Comment	Date	Description
Jones	Stress 3 Stage	Jan 14,98	STUDY
Jones	CLR Standard	Jan 15,99	STUDY
Jones	Stress 2 Stage	Jan 18,99	STUDY

Select Multiple Items

How-To Instructions

- Use the trackball to position the arrow over the study you want to retrieve and press **Enter**. Highlight **Okay** and press **Enter**. You can also choose the study to retrieve by pressing **Enter** twice quickly. All of the images in the selected study are loaded into loop memory for review. You can start reviewing the images using the **Page** control before all of the images have been loaded into loop memory.

If the patient name is found but the study was already deleted, a message appears telling you that the file does not exist, and to select the **Disk** and **Rebuild Database** options to reconcile the hard disk. See [“Reconciling the Hard Disk” on page 49](#).

Tip: If you select a Stress study, the system automatically activates the Stress option, and the Stress control replaces the Loop control.

- To see a list of all of the images in the study, highlight **List Contents** and press **Enter**. You can then select the specific image you want to see.

Highlight study or file to retrieve.

Name	Comment	Date	Description
Car Adlt 2d		Jan 14,99	FULL BW
Car Adlt PW		Jan 14,99	FRAME BW
Car Adlt AQ		Jan 14,99	FRAME AQ

Select Multiple Items

NOTE

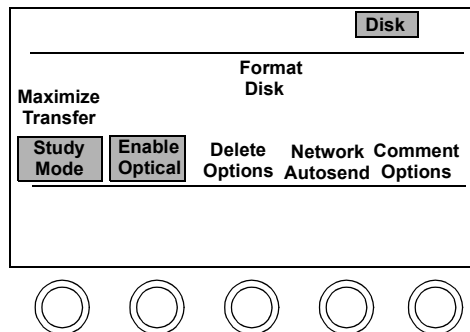
Select Multiple Items works only when you choose **List Contents**, or when the images on the disk were stored with **Study Mode** off. You cannot select multiple studies to retrieve.

- To return to live imaging, touch **Loop Display** or **2D** on the right touch panel.

How-To Instructions**Transferring Studies from the Optical Disk to the Network**

The following procedure can be used to transfer studies to the network storage server from the optical disk using the ultrasound system's hard disk. If your network storage server has a MOD import drive and can read DSR-TIFF images (such as an EnConcert server), you may be able to input the images directly from the optical disk to the network storage server.

- 1 Touch **Disk** and press **Setup**.
- 2 Make sure that **Enable Optical** is on and press **Setup**.



- 3 Insert an optical disk.
- 4 Touch **Loop** and **Disk Retrieve** and select the optical disk from the Target Disk selection screen.



How-To Instructions

- 5 Highlight the study you want to retrieve, move the arrow to **Okay** and press **Enter**. If the study is not listed, select **Change Patient**.

The selected study is loaded into loop memory for review.

Files for name = Jones
 Highlight study or file to retrieve.
 Press List Contents to view study contents.

Name	Comment	Date	Description
Jones	Stress 3 Stage	Jan 14,98	STUDY
Jones	CLR Standard	Jan 15,99	STUDY
Jones	Stress 2 Stage	Jan 18,99	STUDY

Select Multiple Items

NOTE

Select Multiple Items works only when you choose **List Contents**, or when the images on the disk were stored with **Study Mode** off. You cannot select multiple studies to retrieve.

- 6 Touch **Disk** and **Store All Loops**. The following message box appears.

Store All Loops

To current study: To new study:

- 7 Highlight **All Loops** and press **Enter**.

The Target Disk Selection screen appears.

How-To Instructions

- 8 Select **Hard Disk** from the Target Disk selection screen. A new study is created for the current patient on the hard disk drive.



- 9 Touch **End Study** to transfer the study to the network, clear loop memory, and return to live imaging.

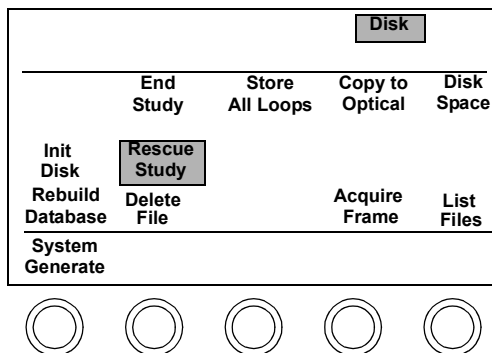
Rescuing an Untransferred Study

Use the steps in this section to send studies left on the hard disk to the network storage server or printer. You can use this procedure to transfer studies that were saved locally to a network storage server or printer.

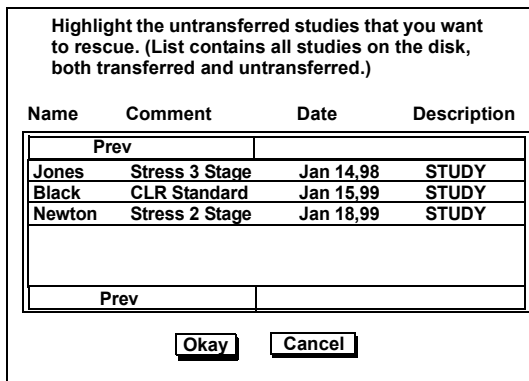
NOTE

If your system is set to either **Disk Manager Off**, or **Disk Manager Defer**, you must check the EnConcert Search For Study screen to see which studies have not been transferred. See the Philips *Enconcert User's Guide* for details.

- 1 Touch **Disk** and **Rescue Study**.



- 2 Highlight the studies to rescue and press **Enter**.



- 3 Select **Okay** and press **Enter**.

How-To Instructions

- 4 Select **Okay** from the confirmation screen to send the selected untransferred studies to the network. Select **Cancel** if you do not want to send the studies at this time.

A status box appears indicating the studies are transferring. A network status icon appears in the screen's lower left corner indicating how many files are transferring. When the network status icon displays "Done," the studies are successfully transferred to the network.

Reconciling the Hard Disk

Reconciling your hard disk lets you get an accurate list of studies that are on the hard disk. You can delete any studies that are stored on the network from the hard disk to prevent the SONOS system database file from filling up.

If you set **Disk Manager Auto**, the list of files on your hard drive includes any untransferred studies, plus any studies saved locally.

If you set **Disk Manager Defer**, the list includes any untransferred studies, other recently transferred studies, and studies saved locally.

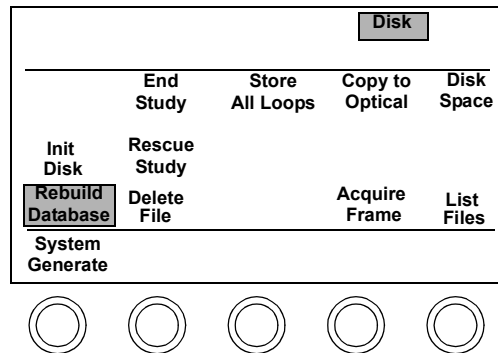
If your system is configured to **Disk Manager Off**, all of the studies remain on the hard disk until you manually delete them.

CAUTION

Do not reconcile the hard disk while the Network icon indicates that files are being transferred to the network storage server.

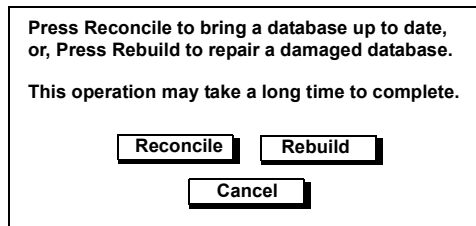
To reconcile the hard disk database:

- 1 Touch **Disk** on the left touch panel.
- 2 Touch **Rebuild Database**.



How-To Instructions

- 3 From the screen displayed, select **Reconcile**.



A disk icon appears at the top of the screen while the reconcile process is in progress. The reconcile process is done when the disk icon disappears.

- 4 When reconcile is complete, touch **Disk** and **List Files**. Depending on how your hard disk was configured, you will do one of the following:
 - **Disk Manager Auto**—A screen appears. If there are no studies remaining on the hard disk, a message displays telling you there are no files found. This indicates that all of the studies have been transferred to the network. If you find that there are studies that were not transferred, you can move them to the network using the Rescue Study control. See [“Rescuing an Untransferred Study” on page 47](#).
 - **Disk Manager Off**—Since studies remain on the hard disk until you manually delete them, a screen displays listing all of the studies that are on the hard disk. You must check the network storage server to see which studies have been successfully transferred and can be deleted from the hard disk.
 - **Disk Manager Defer** (default)—Since studies remain on the hard disk until disk capacity is reached and they are automatically deleted, a screen displays listing all the studies that are on the hard disk. Even though the studies may have already been successfully transferred over the network to the server, they are also listed. You must check the network storage server to see which studies have been successfully transferred and can be deleted from the hard disk. (See [“Rescuing an Untransferred Study” on page 47](#).)

NOTE

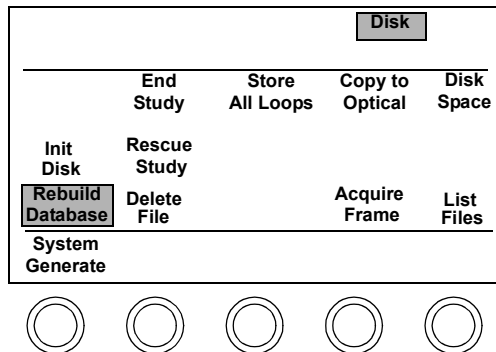
The Disk Manager settings are available for the CE to configure when your IDI is installed.

Rebuilding the Database

You might have to rebuild the database if you have problems reading a file or if power is lost while images are being stored to the disk.

To rebuild the hard disk database:

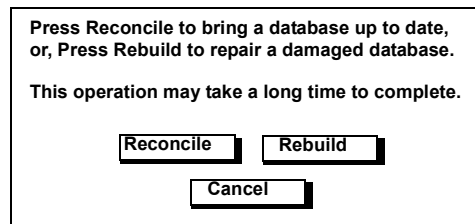
- 1 Touch **Disk** on the left touch panel.
- 2 Touch **Rebuild Database**.



- 3 If the Target Disk Selection screen appears, select **Hard Disk** and select **Okay**.



- 4 From the screen displayed, select **Rebuild**.



A disk icon appears at the top of the screen while the rebuild process is in progress. The rebuild process is done when the disk icon disappears.

NOTE

Reconcile the Database or Rebuild the Database?

The Reconcile option scans the database for the studies that are supposed to exist on the disk. If a study no longer exists on the disk, the study is removed from the database. The Reconcile option is quick, since the entire disk does not need to be scanned.

The Rebuild option scans the entire disk looking for studies and images, and creates a new database with references to each study and image found on the disk. The Rebuild option can be time consuming, since the entire disk must be scanned.

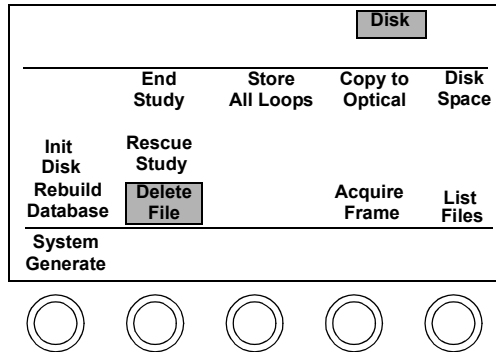
Deleting Studies from the Hard Disk

If **Disk Manager Off** is selected, you must maintain your hard disk by routinely deleting studies from the hard disk. If you want to delete all of the studies on your hard disk, use the **Init Disk** control. Initializing a disk erases *all* information on the disk, so make sure the studies have been transferred to the network storage server. You are prompted with the Target Selection screen and a warning message before the initialization process begins.

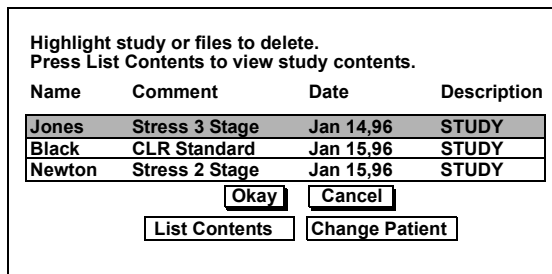
To delete studies from the hard disk or to delete images from within a study:

1 Touch **Disk**.

2 Touch **Delete File**.



3 Move the arrow to each study you want to delete. Press **Enter** to highlight each study.



How-To Instructions

4 If you want to delete images from within a study, highlight the study and select **List Contents**. Highlight the images you want to delete.

5 Highlight **Okay** and press **Enter**.

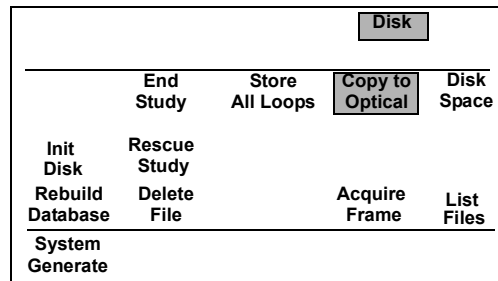
A screen appears asking you to confirm the deletion.

6 Highlight **Okay** and press **Enter**.

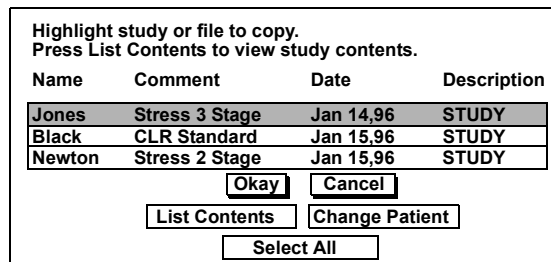
Copying Studies to the Optical Disk

To copy studies to the optical disk from the hard disk:

- 1 Insert an initialized optical disk into the optical disk drive.
- 2 Touch **Disk**.
- 3 Touch **Copy to Optical**.



- 4 Move the arrow to the studies you want to copy. Press **Enter** to highlight each selection. Choose **Select All** if you want to copy all of the studies.



- 5 To copy images from within a study, highlight the study and select **List Contents**. Highlight the images you want to copy.
- 6 Highlight **Okay** and press **Enter**.

A screen appears asking you to confirm the copy.
- 7 Highlight **Okay** and press **Enter**.

NOTE

The quickest way to store a study to the optical disk before starting another study is to choose the optical disk as the storage target. Storing to optical disk is faster than storing to the hard disk followed by a **Copy to Optical** operation. Images on the optical disk are stored in DSR-TIFF format.

If you need to transfer this study to the network server, see [“Transferring Studies from the Optical Disk to the Network”](#) on page 44.

Integrated Digital Interface Tips and Troubleshooting

Tips for Digital Storage

- Edit loops before storing, as clinically appropriate. Shorter loops:
 - Reduce the time required to save the image to IDI, thereby optimizing efficiency and reducing study time
 - Reduce the network transfer time so the study is available for review sooner
 - Save disk space in the permanent image archives, and on the IDI hard disk
- V-split and Cropped (CQuad) loop formats create smaller files.
- Black and white images use less memory.

See the *System Basics* guide for information on acquiring and editing loops.

IDI Troubleshooting

Symptoms	Suggestions
Studies take a long time to transfer to the network.	<p>The network may be busy with other transfers. The transfer will occur as soon as the network becomes available.</p> <p>You may be attempting to transfer many studies to the network. The more studies you attempt to transfer at one time, the longer the process will take.</p> <p>The network connection may be breaking repeatedly. See the network administrator.</p>
The message "The disk is not ready. Please try again later." is displayed.	The IDI PC is not working or is running a Chkdsk operation. Try to access the disk later.
The message "Network Interface is powering up. This normally takes several minutes. Please wait and try again" is displayed.	<p>The IDI has not yet completed its start-up sequence.</p> <p>Wait until the IDI has completed its start-up sequence, this takes several minutes.</p> <p>If the problem is not resolved, contact your system administrator or Philips service representative.</p>
UNAVAIL appears on the network icon.	<p>It is normal to see this icon when you are performing a portable study and are therefore disconnected from the network.</p> <p>Wait for the network to become available.</p> <p>Check to make sure the LAN cable is plugged in. Plug the cable in.</p> <p>Check to make sure the LAN cable is not damaged.</p> <p>Verify that the network storage server is operational and is configured correctly for IDI.</p> <p>If the problem is not resolved, contact your system administrator or Philips service representative.</p>

Symptoms	Suggestions
The message "Network Interface Error. Reset recommended" is displayed.	<p>There is a communication error between the ultrasound system and the IDI.</p> <p>Reset the system.</p> <p>If the problem is not resolved, contact your system administrator or Philips service representative.</p>
The message "Network Interface Error during study creation. Study has been saved on the hard disk, but will not transfer over the network" is displayed.	<p>Your study will not be transferred to the network storage server. The study will remain on the hard disk. Proceed with "Rescuing an Untransferred Study" on page 47.</p> <p>If the problem is not resolved, contact your system administrator or Philips service representative.</p>
The message "Another user on the network is accessing the hard disk. Study has been saved on the hard disk, but will not transfer over the network" is displayed.	<p>The IDI hard drive is being accessed by a network user. Your study will not be transferred at this time. Proceed with "Rescuing an Untransferred Study" on page 47.</p> <p>If the problem is not resolved, contact your system administrator.</p>
The message "Network Interface error during copy to optical. File(s) did not copy" is displayed.	<p>There is a communication error between the IDI and the optical disk.</p> <p>Check the drive/disk compatibility.</p> <p>Make sure the optical disk is not write protected.</p> <p>Check disk space available on the optical disk.</p> <p>If the problem is not solved, contact your system administrator or Philips service representative.</p>

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