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eNTEGRA P&R Nuclear Imaging System System Service Manual

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GE Medical Systems

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CERTIFIED ELECTRICAL CONTRACTOR STATEMENT

All electrical installations that are preliminary to positioning of the equipment at the site prepared for the equipment shall be performed by licensed electrical contractors. In addition, electrical feeds into the Power Distribution Unit shall be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibration and testing shall be performed by qualified Medical personnel. The products involved (and the accompanying electrical installations) are highly sophisticated, and special engineering competence is required. In performing all electrical work on these products, GE will use its own specially trained field engineer. All of Vendor's electrical work on these products will comply with the requirements of the applicable electrical codes.

The purchase of equipment shall only utilize qualified personnel (i.e., Vendor's field engineers, personnel of third-party service companies with equivalent training, or licensed electricians) to perform electrical servicing on the equipment.

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All packages should be closely examined at time of delivery. If damage is apparent write "Damage in Shipment" on ALL copies of the freight or express bill BEFORE delivery is accepted or "signed for" by a Vendor's representative or hospital receiving agent. Whether noted or concealed, damage MUST be reported to the carrier immediately upon discovery, or in any event, within 14 days after receipt, and the contents and containers held for inspection by the carrier. A transportation company will not pay a claim for damage if an inspection is not requested within this 14 day period.

Call Vendor's representative immediately after damage is found. At this time be ready to supply name of carrier, delivery date, consignee name, freight or express bill number, item damaged and extend of damage.

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客户维修员需要非英文的维修手册，必须自行负责翻译.在详细阅读和理解本手册之前，不得对设备进行维修.
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WARNING

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FAILURE TO HEED THIS WARNING MAY RESULT IN INJURY TO THE SERVICE PROVIDER, OPERATOR OR PATIENT FROM ELECTRIC SHOCK, MECHANICAL OR OTHER HAZARDS.

AVERTISSEMENT

CE MANUEL DE MAINTENANCE N´EST DISPONIBLE QU´EN ANGLAIS.
SI LE TECHNICIEN DU CLIENT A BESOIN DE CE MANUEL DANS UNE AUTRE LANGUE QUE L´ANGLAIS, C´EST AU CLIENT QU´IL INCOMBE DE LE FAIRE TRADUIRE.
NE PAS TENTER D´INTERVENTION SUR LES EQUIPEMENTS TANT QUE LE MANUEL SERVICE N´A PAS ETE CONSULTE ET COMPRIS.
LE NON-RESPECT DE CET AVERTISSEMENT PEUT ENTRAÎNER CHEZ LE TECHNICIEN, L´OPERATEUR OU LE PATIENT DES BLESSURES DUES A DES DANGERS ELECTRIQUES, MECANIQUES OU AUTRES.

WARNUNG

DIESES KUNDENDIENST-HANDBUCH EXISTIERT NUR IN ENGLISCHER SPRACHE.
FALLS EIN FREMDER KUNDENDIENST EINE ANDERE SPRACHE BENÖTIGT, IST ES AUFGABE DES KUNDEN FÜR EINE ENTSPRECHENDE ÜBERSETZUNG ZU SORGEN.
VERSUCHEN SIE NICHT, DAS GERÄT ZU REPARIEREN, BEVOR DIESES KUNDENDIENST-HANDBUCH NICHT ZU RATE GEZOGEN UND VERSTANDEN WURDE.
WIRD DIESE WARNUNG NICHT BEACHTET, SO KANN ES ZU VERLETZUNGEN DES KUNDENDIENSTTECHNIKERS, DES BEDIENERS ODER DES PATIENTEN DURCH ELEKTRISCHE SCHLÄGE, MECHANISCHE ODER SONSTIGE GEFAHREN KOMMEN.

ATENÇÃO

ESTE MANUAL DE SERVIÇO SÓ ÉDISPONÍVEL EM INGLÊS. CASO O PROVEDOR DE SERVIÇOS DO USUÁRIO NECESSITE DE UMA TRADUÇÃO, ESTA É DE RESPONSABILIDADE DO CLIENTE.
NÃO TENTE UTILIZAR O EQUIPAMENTO ANTES DE CONSULTAR E COMPREENDER O MANUAL DE SERVIÇO.
A NÃO OBSERVÂNCIA DESTE PODE ACARRETAR LESÕES AO PROVEDOR DE SERVIÇOS, OPERADOR OU PACIENTE CAUSADAS POR CHOQUE ELÉTRICO, MECÂNICO OU DE OUTRA NATUREZA.

AVVERTENZA

IL PRESENTE MANUALE DI MANUTENZIONE È DISPONIBILE SOLO IN LINGUA INGLESE.
SPETTA ALL´UTENTE PROCURARSI UNA VERSIONE TRADOTTA NEL CASO IN CUI L´ADDETTO ALLA MANUTENZIONE DOVESSE RICHIEDERLA.
NON TENTARE DI METTERE IN FUNZIONE L´APPARECCHIATURA PRIMA DI AVER CONSULTATO IL MANUALE DI MANUTENZIONE ED AVERNE COMPRESO PIENAMENTE IL CONTENUTO.
LA MANCATA OSSERVANZA DI QUESTA AVVERTENZA PUÒ PROVOCARE LESIONI AL PERSONALE DI MANUTENZIONE, ALL´OPERATORE O AL PAZIENTE, DERIVANTI DA SCOSSE ELETTRICHE, URTI O RISCHI DI ALTRA NATURA.

AVISO

IESTE MANUAL DE SERVICIO SÓLO EXISTE EN INGLÉS.
SI ALGÚN PROVEEDOR DE SERVICIOS AJENO A GEMS SOLICITA UN IDIOMA QUE NO SEA EL INGLÉS, ES RESPONSABILIDAD DEL CLIENTE OFRECER UN SERVICIO DE TRADUCCIÓN.
NO SE DEBERÁ DAR SERVICIO TÉCNICO AL EQUIPO, SIN HABER CONSULTADO Y COMPRENDIDO ESTE MANUAL DE SERVICIO.
LA NO OBSERVANCIA DEL PRESENTE AVISO PUEDE DAR LUGAR A QUE EL PROVEEDOR DE SERVICIOS, EL
OPERADOR O EL PACIENTE SUFRAN LESIONES PROVOCADAS POR CAUSAS ELÉCTRICAS, MECÁNICAS O DE OTRA NATURALEZA.

LIST OF REVISIONS

ECO	REV	DATE	DESCRIPTION	PAGES	APPR.
EO-00343	A	Mar. 2000	Draft for Beta Site	All	
EO-00433	0	May 2000	First release	All	
EO-00483	1	July 2000	Adapted for New Computer – Dell OptiPlex GX200.	Chapter 6, Addition of Appendix C - Software Installation on Dell 610.	
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	3	Nov. 2000	• Attaching the Activator to enable the eNTEGRA application and the applicable clinical licences. • Correcting the procedure for checking system configuration, used after system upgrade. • Changing size of C: drive for 4 GB Hard Disks of HP Kayak PCs. • Installing the Network on HP Kayak.	• 6-21, B-17, C-16 • 7-2 • B-3 • B-5	Y. Ben-Zeev
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Notes

TABLE OF CONTENTS

SECTION PAGE

Chapter 1 - Safety Guidelines and Regulatory

The safety precautions and regulatory information included in this chapter are provided in the following sub-sections:

1.1 General Safety Guidelines

1. The system has been designed and manufactured to ensure maximum safety of operation. The equipment should be serviced in strict compliance with the safety precautions, warnings and operating instructions contained in this Service Manual.

2. The product should be installed, maintained and serviced only by qualified service personnel according to procedures laid down in this manual. The owner should make certain that only properly trained, fully qualified service engineers are authorized to service the equipment.

3. There are no user–serviceable parts inside system components, such as workstation cabinet or monitor. Any servicing or adjustments required must be carried out by a competent and suitably qualified service person.

4. The system has been designed to meet all the safety requirements applicable to medical equipment. However, anyone attempting to operate the system must be fully aware of potential safety hazards.

5. The system in whole or in part should not be modified in any way without prior written approval by ELGEMS Ltd.

6. No changes, additions or removal of any system accessories are permitted without prior written approval of vendor’s local service manager.

7. Only GE approved optional accessories should be connected. Any other equipment may cause damage. Installation of any option or peripheral must be completed by a GE service representative.

8. Do not leave the system with problems that may affect the safety of its operation. In case you have doubts concerning the system's safe operation, call the service office for further instructions and notify the customer that the system is not to be used until the problem is resolved.

9. The service engineer must be well acquainted with the Safety and Regulation Chapter of the Operator’s Guide.

10. Safe servicing requires that the field engineer has a thorough knowledge of all equipment controls and safety devices.

11. Care must be taken when handling liquids around the system in the course of maintenance procedures.

12. Smoking should be prohibited around the equipment.

13. The system should be cleaned regularity to prevent the accumulation of dust, and the working area should be well ventilated.

14. The maximum allowable ambient temperature is 27^{o}C. The ideal environment for the system is 24^{o}C and 40% - 60% relative humidity.

15. Inform the customer about GE’s maintenance procedure and schedule the next Planned Maintenance.

1.2 Hazards

1.2.1 General Hazards

1. Some repair/replacement procedures require the removal of protective covers, exposing parts at high temperatures or with pinch points. Read the safety/warning labels and follow the instructions in this Service Manual to prevent burns or injuries.

1.2.2 Electrical Hazards

1. Do not remove, or open system covers or plugs, while the unit is powered *ON*. Some internal circuits operate at high voltage, capable of causing severe electric shock and/or serious injury.

2. You must be watchful for any short circuits in the system - this is especially important if any fuse is blown, or there are circuit breakers that won't reset.

CAUTION

Conductive fluids that seep into the active circuit components of the system may cause short circuits, resulting in electrical fires.

1.3 Electrical Precautions

1. Verify with hospital engineering department that the designated power line is stable. If any doubt, connect a line recorder for 24 hours at least.

2. Whenever handling electrostatic devices or circuit boards, use a grounding strap and wrist band. This grounding strap and wrist band must be tested for continuity before use and then connected to the main grounding point of the equipment being installed.

3. Floors with epoxy glue generate static discharges.
Advise hospital and use special spray to avoid discharge.

1.4 Installation Safety Measures

1. Read the installation instructions prior to installation.
2. Make sure that the installation area is clean prior to installation.
3. Whenever handling electrostatic devices or circuit boards, use a grounding strap and wrist band. This grounding strap and wrist band must be tested for continuity before use and then connected to the main grounding point of the equipment being installed.
4. Throughout the entire installation you must be careful to correctly replace and service all fuse and cable guards. Similarly, you must correctly fit all cable covers before installation is completed.

1.5 Safety Definitions

Warnings and Cautions are used throughout this manual. The identified hazards are classified as follows:

WARNING

Warnings are used to identify conditions or actions for which a specific hazard is known to exist, which may cause severe personal injury, death or substantial property damage if the instructions are ignored.

CAUTION

Cautions are used to identify conditions or actions for which a potential hazard may exist, which will or can cause minor personal injury, or property damage if the instructions are ignored.

1.6 IEC Symbols

The system may have labels with one or more of the following symbols. These symbols indicate the IEC standards to which the system conforms.

Table 1-1. IEC Symbols

Symbol	IEC Standard
	Alternating Current
	Protective Earthing Point
	ON / Power
	OFF / Power OFF
	Input Power
	Output Power
	Functional Earth Ground
	Warning, Caution - consult accompanying documents
	Electrical Shock Hazard

1.7 Regulatory Information

1.7.1 Standard Compliance

The equipment complies with the following standards:

- IEC 601–1 Medical Electrical Equipment General Requirements for Safety
- EN60601–1–2 Medical Electrical Equipment Electro–Magnetic Compatibility Requirements and Tests

  This equipment generates and can radiate radio frequency energy. The equipment may cause radio frequency interference to other medical and non-medical devices and to radio communications. To provide reasonable protection against such interference, the system complies with the emission limits for a Group 1, Class A Medical Devices as stated in EN 60601-1-2. However, there is no guarantee that interference will not occur in a particular installation.

  If the equipment is found to cause interference (which may be determined by turning the equipment on and off), the user (or qualified service personnel) should attempt to correct the problem by one or more of the following measures:

  - Re-orient or relocate the affected devices(s);
  - Increase the separation between the equipment and the affected device;
  - Power the equipment from a source different from that of the affected device;

    and/or

  - Consult the point of purchase or service representative for further suggestions

  To comply with the regulations on electromagnetic interference for a Group 1, Class A Medical Device, all interconnect cables to peripheral devices must be shielded and properly grounded. Use of cables not properly shielded and grounded may result in the equipment causing radio frequency interference in violation of the local regulations.

  The manufacturer is not responsible for any interference caused by using other than recommended interconnect cables or by unauthorized change or modifications to this equipment.

  Due to installation in less favorable environment, this equipment may be exposed to electromagnetic and electrostatic interference. To ensure a high level of reliability when exposed to such interference, this equipment complies with the immunity requirements as stated in EN60601-1-2. for immunity Class 1. The operating conditions are

classified on the basis of performance criteria as defined in IEC 801-2.

Do not use devices which intentionally transmit RF signals (cellular phones, transceivers, or radio-controlled products) in the vicinity of this equipment as it may cause performance outside the published specifications. Keep the power to these types of devices turned off when near this equipment.

The medical staff in charge of this equipment is required to instruct technicians, patients, and other people who may be around this equipment to fully comply with the above requirement.

Unauthorized change or modifications of the equipment could void the user's authority to operate the equipment.

1.7.2 CE Conformity

This product conforms with the requirements of council directive 93/42/EEC concerning Class IIA medical devices, and therefore bears the CE mark of conformity.

The name and address of the CE representative appears on the back of the front page of this manual.

1.7.3 USA Regulations

- The system was cleared for sale in the USA by the FDA.
- Caution: Federal US law restricts this device for sale by or on the order of a physician.
- In the USA, this system should only be used with FDA approved radiopharmaceuticals.

Chapter 2 - Introduction

In this chapter you will find the following information:

2.1 How to Use this Manual

This Class A Service documentation set provides:

- eNTEGRA P&R specific service information.
- Direction to appropriate service documentation included with the eNTEGRA PC Workstation.

The beginning of each section in this manual contains a steering guide which lists the topics covered and where to look for the information. Some of the information is found within this manual and other information is found in documentation supplied by manufacturers of the eNTEGRA System components.

2.1.1 Other Documentation

Each system includes the following manuals:

- PC User's Guide, containing information on installing and troubleshooting the PC. Locate this manual and keep it with this manual.
- Microsoft Windows NT Workstation Basics and Installation. Locate this manual and keep it with this manual.
- Monitor's User Guide.
- Modem User's Guide.

2.1.2 Where to Look

Table 2-1. Where to Look

Topic	Source
Workstation Operation	• PC User's Guide • Microsoft Windows NT Workstation *Basics and Installation Version 4.0*
eNTEGRA Operation	• eNTEGRA Operator's Manual Direction No. 22666250-100 • This Manual, Chapter 4, Functional Checks
Site Preparation / pre-Installation Check List	• Site Preparation Manual, Direction No. 2264704-100
Installing the System	• PC User's Guide • This Manual, Chapter 3, Installation
System Configuration	• This Manual, Section 3.8
Network Configuration	• This Manual, Section 3.9
Configuring the Hardcopy Devices	• This Manual, Section 3.10
Software Load from Cold	• This Manual, Section 6.2
Software Load from Worm	• This Manual, Section 6.3
Installing the Clinical Application Licences	• This Manual, Section 6.4

2.2 The eNTEGRA System

The eNTEGRA platform is a Pentium based PC. Table 2-2 lists the components that make up the eNTEGRA P&R system.

Table 2-2. eNTEGRA System Components

Description	Comments
19" or 21" High Resolution Color Monitor	
PC Processor Unit	Contains Pentium CPU, Hard Disk, Floppy Drive, CD-ROM Drive and optional Archive Optical Disk.
Keyboard	101 Key IBM PS/2 compatible.
3 Button Mouse	IBM PS/2 compatible.
Isolation Transformer	115 V/ 115 V & 220 V/115 V versions.
Modem	Country Specific
DASM/LCAM	Optional 952 Lasercam Digital Interface.

2.2.1 Catalog Product Structure

The basic eNTEGRA system is delivered in several configurations with respect to the regulatory kit (one of two available) and an optional localization kit, which includes a matching keyboard and Operator's Manual.

In all delivery options, Windows NT Ver 4.0 and eNTEGRA R1.0 (or current version) are pre-loaded.

Table 2-3 summarizes the available basic system configurations by Catalog number.

Table 2-4 summarizes the available hardware and software options by Catalog number.

Table 2-3. Basic eNTEGRA System – Catalog Numbers

Description	Catalog Number	Contents
Basic System	H3400ZA	Pentium Based PC workstation Windows NT ver. 4.0 Operating System eNTEGRA R1.0 Application Software Documentation Kit including Operator's Manual, CD with on-line help for all available applications, Release Notes and Service Manual, all in English.
Monitor – either of:	H3300TB	19" High Resolution Color Monitor
	H3000TA	21" High Resolution Color Monitor
Regulatory Options		
American Regulatory Kit	H3400LB	3Com Modem Isolation Transformer – USA version
CE Regulatory Kit (for Europe)	H3400LC	Modem Supplied locally 10 Isolation Transformer
Spanish Localization Kit	H3400ZB	Spanish Keyboard, Spanish Accessories CD, Windows NT Spanish, Spanish Manual Package*. Pre–requisites – CE Regulatory Kit.
Swedish Localization Kit	H3400ZC	Swedish Keyboard, Swedish Accessories CD, Window NT Swedish, Swedish Manual Package*. Pre–requisites – CE Regulatory Kit.
Italian Localization Kit	H3400ZD	Italian Keyboard, Italian Accessories CD, Window NT Italian, Italian Manual Package*. Pre–requisites – CE Regulatory Kit.
German Localization Kit	H3400ZE	German Keyboard, German Accessories CD, Window NT German, German Manual Package*. Pre–requisites – CE Regulatory Kit.
Portuguese Localization Kit	H3400ZF	Portuguese Keyboard, Portuguese Accessories CD, Window NT Portuguese, Portuguese Manual Package*. Pre–requisites – CE Regulatory Kit.
French Localization Kit	H3400ZG	French Keyboard, French Accessories CD, Window NT French, French Manual Package*. Pre–requisites – CE Regulatory Kit.

* Each Manual Package includes:

- Operator Manual - Hardcopy
- CIS - Hardcopy
- eNTEGRA On-line Help CD

Table 2-4. eNTEGRA Options – Catalog Numbers

Type	Catalog #	Description / Contents
Accessories	H2508LK	SONY, 5,25: re-writable multi functional optical disk drive. **Note**: does not support reading data archived using the PIONEER DE-UH7101 drive.
	H2508LG	Digital Laser Camera Interface (DASM/ LCAM). Provides host control and digital 3M 952 interface to supported lasercameras. Separate stand alone unit.
	H2600NJ	128 MB Memory Upgrade
Software	H2600LE	ECToolbox – new CEqual processing with 5 databases, EGS and 3-D PerfSPECTive (2nd/3rd licence - H2600NC, 4th Licence - H2600NE).
	H2600LC	ECToolbox Light – New CEqual with two databases: 1 day MIBI and 2 Day MIBI. (2nd/3rd licence - H2600ND, 4th Licence - H2600NF).
	H2600RK	Functional Anatomical Mapping – Fusion
	H2600LB	QuantEM – Emory Renal Quantification (with syringe holder and gates adapter - H2600MB).
	H2600LK	QGS – Quantitative Gated SPECT analysis (Cedar Sinai package).
	H2600WB	QPS – Quantitative Perfusion SPECT (Cedar Sinai package).
	H2600LM	3–D Volume Rendering and Surface Shading
	H2600LP	Aladdin Advanced Software
	H2600LR	Iterative Reconstruction, including MLEM, OSEM and COSEM IR algorithms for SPECT and CoDe.
	H2600WC	OSI Connectivity, used to connect StarCam and APEX SP systems to the eNTEGRA
	H2600LT	CT/MR Display – DICOM Import of CT/MR Images via LAN
	H2600LS	Transfer of Interfile and DICOM Part 10 files via WAN/LAN

Chapter 3 - Installation

This chapter provides detailed instructions for installing the eNTEGRA system.

The instructions are provided in the following break down:

3.1 Overview

3.1.1 How to Use This Chapter

The installation procedure is diagramed in a flow chart (Figure 3-1) so that specific tasks are completed in the correct order and in an efficient manner. The manual itself closely follows the flow chart.

In addition, the manual includes instructions for installing hardware options as upgrade.

3.1.2 Estimated Cycle Time

The installation process should take 1 person approximately 2 hours to complete.

3.1.3 General Requirements

3.1.3.1 Special Tools and Fixtures

None.

3.1.3.2 Seismic Anchoring

Systems to be installed in areas of the world subject to earthquakes may require seismic anchoring. The Service Representative should check with local authorities in the country/region of installation.

3.1.3.3 Pre–Installation Check List Completed

Before commencing with the installation, ensure that the site preparation check list (found in the *Site Preparation Manual 2264704-100) is completed*.

Note The network backbone and node drops should be installed prior to starting the eNTEGRA P&R installation.

3.1.3.4 Compatible Options

The available options for eNTEGRA are listed in Table 3-1.

Table 3-1. Options

Description	Section
DASM–LCAM	Section 3.6
General Hardcopy Info	Section 3.10

3.1.3.5 Recording Installation Time

The standard installation code is 03. Anything not part of a standard installation shall be booked against one of the numbers in Table 3-2. It would not be uncommon on a NORMAL installation to find time booked to one or more of these codes.

Table 3-2. Non-installation Time Codes

Code	Description
04	Site preparation or inspection.
06	Non standard installation
10	Failures during installation.
84	Service incurred because of loss or damage in shipment and filing claims.
87	Service training — on site, field office, Education Center
91	Costs incurred when modifying products to make them compliant with local country regulatory standards.
94	Sales activity. Service work performed on behalf of sales, includes equipment demonstrations and sales assistance.
98	F.M.I. work.

Note Network installation time should be covered by a K1000 catalog number or 06 Money. It should not be charged directly to the eNTEGRA installation.

3.1.4 Installation Flow Chart

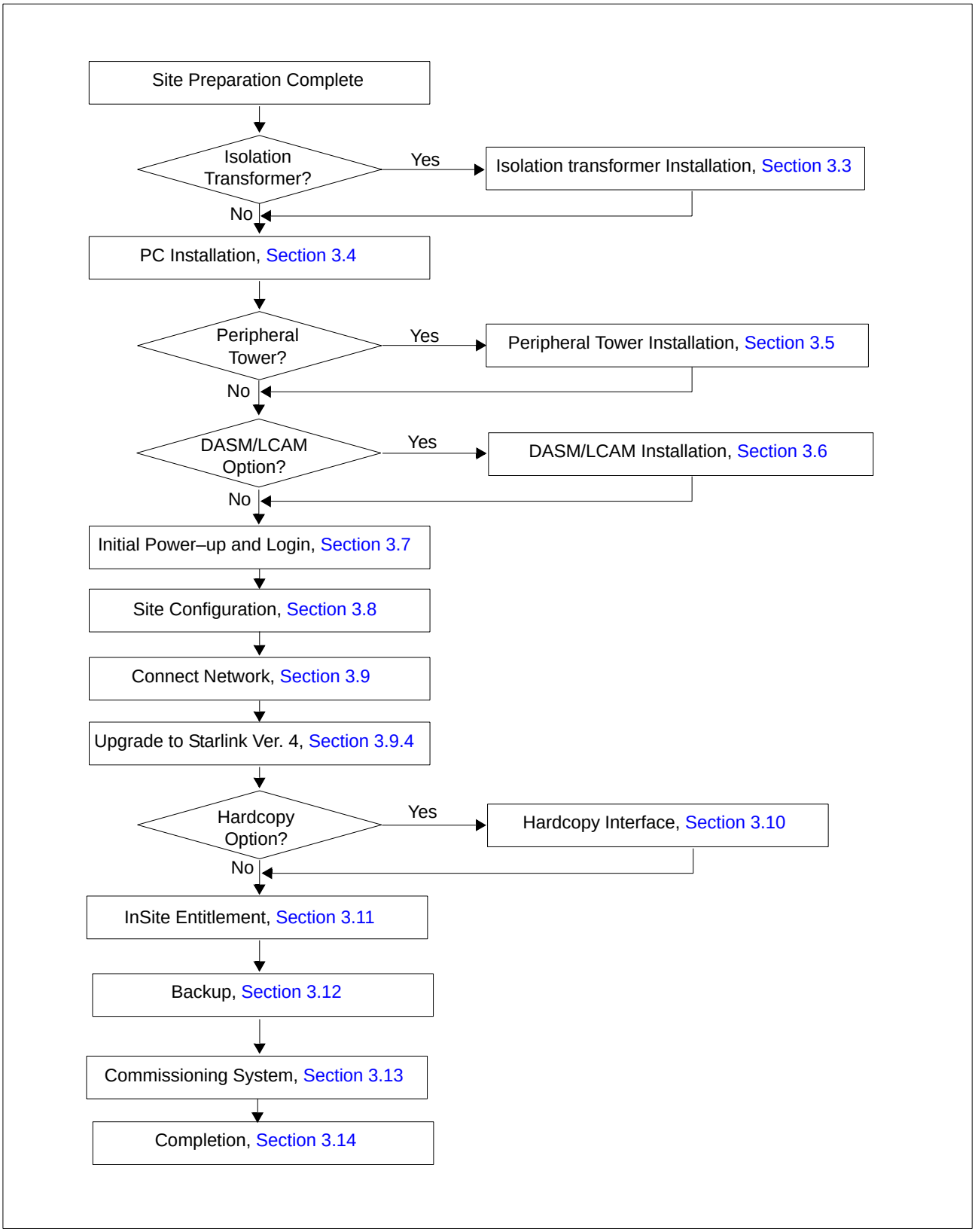

Figure 3-1: Installation Flow Chart

3.2 Unpacking

3.2.1 Packing List

Use Table 3-3 to verify that you have received all items.

Table 3-3. Packing List

Contents		Documents
General Documents, Software, Licenses and Activator		eNTEGRA Operator Manual eNTEGRA Service Manual Release Notes (CIS)
Monitor	Monitor Video Cable Power Cable	Color Monitor Users Guide
Processor Unit	Personal Computer Accessories Kit: Keyboard Mouse Power Cables	PC User's Manual
Local Kit (country dependent)	Isolation Transformer Power Cables	OEM Documentation
	Modem (for USA only)	OEM Documentation
	Keyboard (European Options only)	Operator's Guide in relevant language, and Installation Instructions
DASM/LCAM (Option)		DASM/LCAM Users Guide

WARNING

Do not discard any packing material until installation is complete.

3.2.2 Damage in Transit

At the time of delivery examine all packages for external damage. If damage to any package is apparent, notify your installation specialist before continuing.

3.2.3 Product Locator Cards

Remove all Product Locator cards, marked INSTALLATION, from each package and put in a safe place until installation is complete. Details on completing and mailing these cards are given in Section 3.14.3.

3.3 Isolation Transformer Installation

If an isolation transformer will not be installed, proceed to the Section 3.4.

Note

An isolation transformer is required if the eNTEGRA P&R is located in the patient scanner area and for CE compliant installations.

Table 3-4. Isolation Transformer Installation

Steps	Time (Min.)	Reference
Ensure Pre–install Complete	10	Pre–Installation Check List in the Pre-Installation Manual.
Unpack & Install Isolation Transformer	15	Section 3.3.1
Connect Isolation Transformer to Line Supply	In above.	Figure 5-1
Total	**30**	

3.3.1 Mounting Procedure

The isolation transformer can either be mounted on a wall or positioned on the floor next to the eNTEGRA P&R

1. Unpack isolation transformer and position near the workstation location.
2. If the transformer will be mounted on the wall, secure using four 11mm x 76 mm ($^{7}/_{16}$" x 3") anchor screws.

Note

The wall mount must support the weight of the isolation transformer (17.2 kg, 38 lbs).

3.4 PC Installation

3.4.1 Installation Overview

Table 3-5 outlines the steps for installing the eNTEGRA PC hardware. Refer to the PC User's Guide for details.

Table 3-5. Installation Overview

Steps	Time (Min.)	Reference
Unpack PC components.	5	PC User's Guide
Unpack and Position Processor Unit per customer's specifications.	In above.	Refer to Site Plan diagram
Unpack Monitor, Keyboard, and Mouse	5	
Position Monitor, Keyboard, and Mouse per customer's specifications.	In above.	Refer to Site Plan diagram
Connect PC cables	5	PC *User's Guide.* Figure 5-1
Connect appropriate Network Transceiver and/ or Drop Cable.	5	Section 3.4.2 Figure 5-1
Plug–in the Activator	In above	Section 3.4.3
Total	**20**	

Note

A desk is ***not*** provided as part of the standard system. Arrangements should have been made during site preparation.

3.4.2 Network Connection

The eNTEGRA P&R PC includes a 10/100 Base–T IEEE 802.3 Ethernet card. This card provides a RJ45 interface to connect into either a 100 Base–T or 10 Base–T IEEE802.3 HUB via a category 5 unshielded twisted pair (CAT 5) cable.

The HUB and CAT 5 drop cable should have been installed as part of the site preparation process. To interface the PC to the HUB:

- Connect one end of the category 5 UTP cable to the RJ45 plug on the PC's Ethernet card.
- Connect the other end to either the
  - Open port on the HUB.
  - RJ45 connection provided by LAN installer. This connection should be tied back to the HUB.

Figure 3-2 provides an example of the LAN connections.

To connect to another IEEE802.3 topology (10Base2 or 10Base 5), the HUB will need to be interfaced to the current network bus via the HUB's AUI port and a topology specific transceiver. This should have been completed during the site preparation work.

- A 10Base2 or ThinNet LAN consists of a 50 ohm RG58 coax cable backbone.
- A 10Base5 or ThickNet LAN uses thick 50 ohm coax cable as the backbone. The node transceivers are connected to the backbone via a vampire tap or a end point connector.

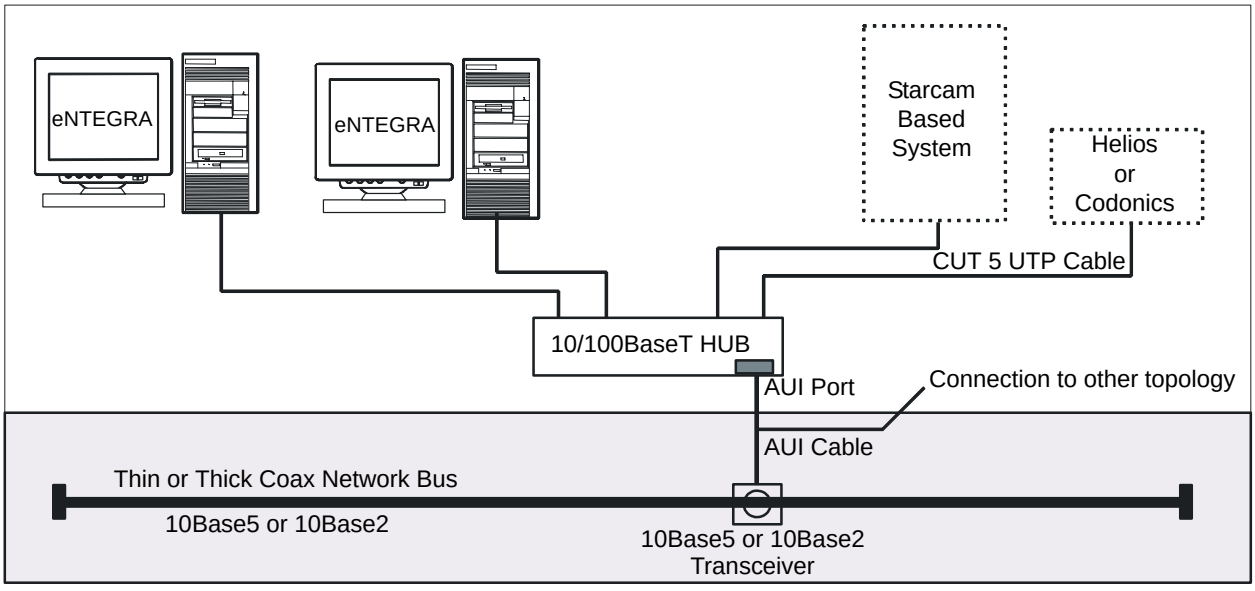

Figure 3-2: eNTEGRA LAN Connection Examples

3.4.3 Plug–in the Activator

Plug the keyed activator into the parallel port on the rear panel of the computer. In case of a local connected printer, you plug the printer into the activator.

3.5 Connect Peripheral Tower

3.5.1 Introduction

In the case of an upgrade from the HP715/100 platform there may be a peripheral tower containing the Archive Optical Disk and/or the DASM/ LCAM Digital Lasercam Interface that needs to be interfaced to the system.

If there is no peripheral tower with the system, proceed to the Section 3.6.

3.5.2 Installation Procedure

Table 3-6. Peripheral Tower Option Installation Procedure

Steps	Time (Min.)	Reference
Unpack and Position Peripherals Tower per customer's specifications.	5	
Open the tower and configure the DASM/ LCAM as follows: • SCSI ID = 4 • D Host Comm = RS422	5	Refer to the *DASM/LCAM User Manual.*
Connect SCSI cable between the PC and the peripheral tower. Install the SCSI terminator on the tower.	10	Figure 5-1 *and the PC User's Guide*
Connect power cord to Isolation Transformer	In above	Figure 5-1
Total	**20**	

3.6 DASM/LCAM Option

Note If the DASM/LCAM option is included, refer to Section 3.10 for complete details on interfacing/configuring the DASM/LCAM with the various compatible Lasercameras.

3.6.1 Introduction

The DASM/LCAM is a self–contained unit that provides a digital interface to a 3M 952 compatible Lasercamera.

- The unit is connected to the PC via the SCSI bus.
- The Lasercamera interface is via a 25 pin RS422 serial communication (Host) line and a 37 pin digital (Image) line.

If there is no DASM/LCAM option included, proceed to Section 3.7.

Important The DASM/LCAM can not be used if a MFHD or MF96 is also being used due to SCSI bus conflicts.

3.6.2 Installation Procedure

Table 3-7. DASM-VDB Option Installation Procedure

Steps	Time (Min.)	Reference
Unpack and Position DASM/LCAM	5	
Configure the DASM/LCAM as follows: • SCSI ID = 4 • Host Comm = RS422	5	Refer to the DASM/ LCAM Users Manual.
Connect SCSI cable between the PC and DASM/LCAM. Install the SCSI terminator on the DASM/LCAM	10	*DASM/LCAM Users Manual and the PC User's Guide*
Connect power cord to Isolation Transformer	In above	Figure 5-1
Total	**20**	

Note Refer to Section 3.8 for details on configuring the eNTEGRA system to use the Lasercamera connected to the DASM/LCAM for filming.

Refer to Section 3.10 for complete details on interfacing/configuring the DASM/ LCAM with the various compatible Lasercameras.

3.7 Initial System Power-up

3.7.1 Procedure

Table 3-8. Initial System Power-up Procedure

Steps	Time (Min.)	Reference
Apply power to all peripherals and to the system.	4	
Log into the system	1	Section 3.7.2
Verify no errors occur during boot-up and that eNTEGRA application starts.	5	Section 8.2.2
Total	**10**	

3.7.2 Logging Into the System

1. Turn ON the Computer.
2. When the **Windows NT** screen is displayed, press the <**Alt**>+<**Ctrl**>+<**Del**> keys, concurrently, as prompted in the **Begin Logon** prompt.
3. In the **Logon Information** dialog, enter:

   User name:**entegra**

   Password: **entegra**

   Click the [**OK**] button.
   The **eNTEGRA StartUp** window with the version number will be displayed. When the eNTEGRA application has been loaded, the Main screen is displayed, as shown in Figure 3-3.
   When activated, the eNTEGRA application:
   - Verifies that the eNTEGRA software and licenses were properly loaded in manufacturing.
   - Initializes the system drivers for any SCSI peripherals (DASM/ LCAM, MFHD/MF96 or Archive EOD) added during the installation process.
   - Verifies that all peripherals are alive and not hanging the SCSI bus.
4. Once the eNTEGRA application starts, verify that all licensed options are present (such as ECToolbox™, QuantEM™, Aladdin™, PerfSPECTive™, IR, QGSPECT, etc.).

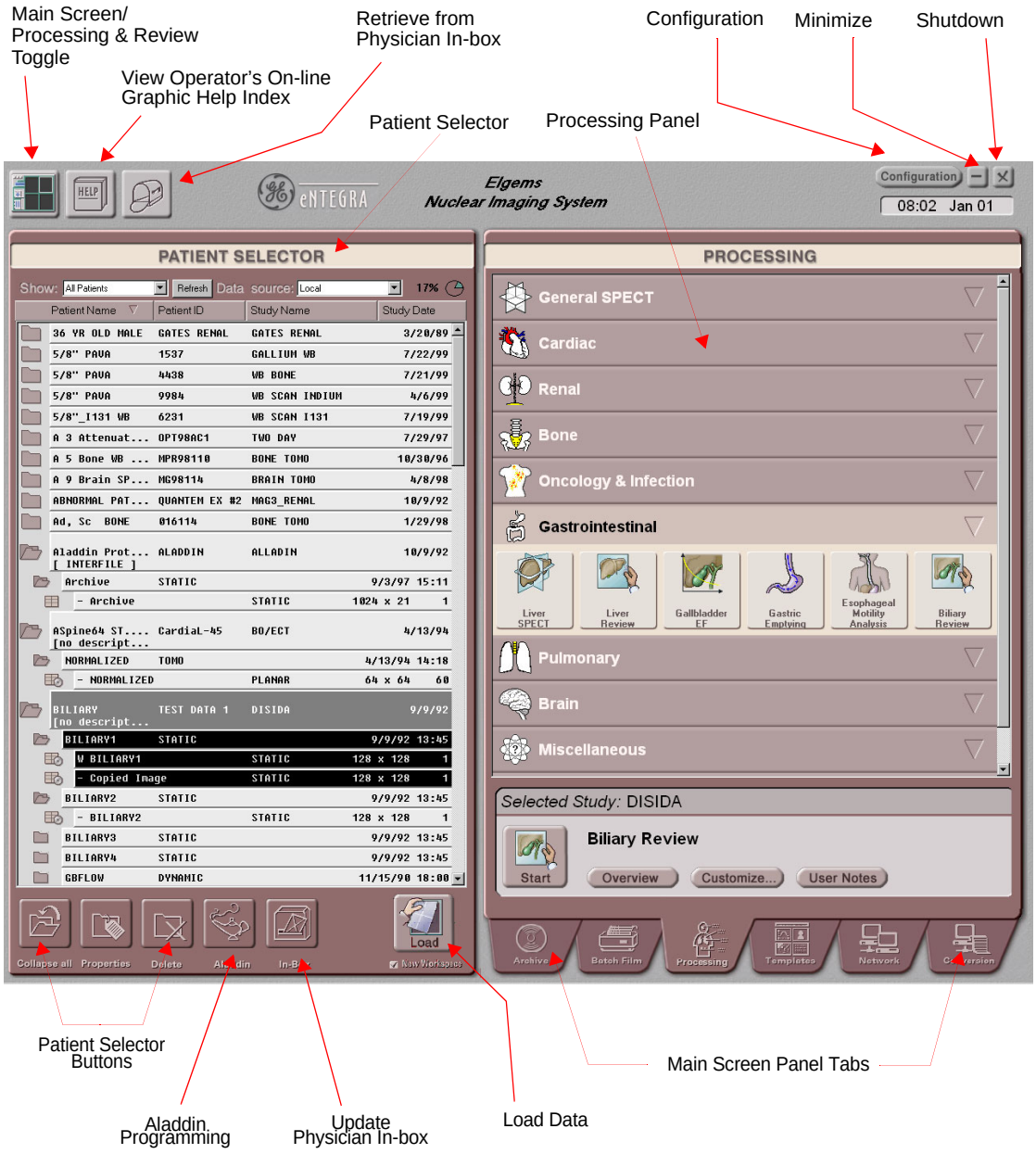

Figure 3-3: eNTEGRA Main Screen

3.8 Site Configuration

3.8.1 Introduction

The eNTEGRA system comes pre–loaded with the WINDOWS NT operating system, eNTEGRA Application software and all licenses. The following local parameters will need to be configured for the site:

- Institute ID
- Local IP Address
- Regional Settings
- Site Name
- Starlink Configuration Table
- DICOM Configuration
- Remote Database Option
- Remote Connectivity Option
- Hardcopy Server and Devices
- Archive Server
- GE CARES/MUST ID
- Modem IP Addresses (at least two)

This section details how to configure these parameters.

Important

StarLink on the NT Platform requires the OSI Software Option. StarLink will not work without this option. To verify if this option has been loaded on the system:
- Click on the [**Start**] icon on the Tasks Bar, and select: **Settings** → **Control Panel**.
- Double click the **Network** icon.
- Go to the **Protocols** tab and check if **IMPART ISO 8073 Transport** is installed.

3.8.2 Required Information

Before starting this procedure, you must have the System Assignment information collected during site preparation available. This includes:

- Hospital ID that will appear on the eNTEGRA screen (up to 2 lines)
- IP Address of the local eNTEGRA system.
- How customer wants Site Name listed on eNTEGRA.
- Ethernet Addresses of all systems on the Starlink LAN (Starcams, M–Link system and Starlink agent systems).
- Ethernet Addresses of all SP systems on the ApexNet.
- Host names and IP Addresses of any remote DICOM stations.
- Host name and IP Addresses of any remote eNTEGRA systems for remote database.
- Host name and IP Addresses of any network hardcopy device (Helios, Codonics, etc.).
- Host name, IP address and phone number for any system to be connected via modem.

3.8.3 Procedure Overview

Table 3-9. Configuration And Licensing Overview

Steps	Time (Min.)	Reference
Before changing the configuration of an existing system, back up the old configuration	1	Section 3.12
Changing Institution ID	1	Section 3.8.4.1
Changing the Default Computer name	1	Section 3.8.4.2
Updating the Regional Settings	1	Section 3.8.4.3
Changing Default Host Name	1	Section 3.8.4.4
StarLink and APexNet Configuration	1	Section 3.8.4.5
DICOM Configuration	1	Section 3.8.4.6
Interfile Configuration	1	Section 3.8.4.7
Remote Access Configuration	1	Section 3.8.4.8
Modem Configuration	1	Section 3.8.4.9
Remote Database	1	Section 3.8.4.10
Hardcopy Configuration	25	Section 3.8.4.11
Backup (of new configuration)	1	Section 3.12
Total	**39/40**	

3.8.4 System Configuration Procedure

3.8.4.1 Changing Institution ID

1. Open the eNTEGRA Application.
2. Click the [**Configuration**] button on the upper left corner of the **Main** screen, then click [**Advanced Configuration...**].
3. Click the **General** tab.
4. Overtype the default Institution ID according to the Site Assignment Matrix.
5. Click [**OK**] to close the **eNTEGRA Configuration** window.
6. Click [**Apply**] to exit **User Preferences** window.
7. Shutdown the eNTEGRA application and restart it.
   Verify that the institution ID was updated successfully.

3.8.4.2 Change Default Computer Name

1. Click on the **minimize** button on the upper left corner of the **Main** Screen to view the system's Desktop.
2. Right click the **Network Neighborhood** icon located on the Desktop, and select the **Properties** entry.
3. In the **Identification** tab, click the [**Change**] button.
4. Overwrite the default computer name by the new host name and click the [**OK**] button.

Note

1. The name is limited to 17 characters; A – Z, a – z, 0 – 9 and "_"
2. Server licenses depend on the computer name.

3.8.4.3 Updating the Regional Settings

1. Click left on the [**Start**] icon on the Task Bar, and select: **Setting** → **Control Panel**.
2. On the **Control Panel** window, double click on the **Regional Settings** icon.
3. In the **Regional Settings** tab, select the relevant language and country.
4. In the **Date** tab, select the **Short Date Style** to be used (the options shown are those that are relevant to the selected language/country combination).
5. Click the [**OK**] button and close the **Control Panel** window.

Note

These settings affect the date shown in the **Patient Selector** and also the date formats which are accepted by the patient selector filter mechanism.

3.8.4.4 Updating/Setting the IP Address

1. Click on the [**–]** (minimize) button on the **Main** Screen Header to view the system's Desktop.
2. Right click the **Network Neighborhood** icon located on the Desktop, and select the **Properties** entry.
3. In the **Protocol** tab, highlight **TCP/IP Protocol**, and click the [**Properties...**] button.
4. Change the IP address to address assigned in the pre–installation checklist. If relevant, update also the Subnet Mask and Default Gateway.
5. Click the [**OK**] button
6. Click the [**OK**] button again.

Important

You must enter in a valid and unique IP Address. Using the default address will cause network problems. The system also needs a valid IP Address for DICOM, Remote Database, network printing and InSite to work correctly.

3.8.4.5 StarLink and ApexNet Configuration

(applicable only if the OSI option is installed)

1. Click the [**Configuration**] button on the upper left corner of the **Main** screen, then click [**Advanced Configuration...**].
2. Click the **OSI** tab.
3. Click [**Add**].
4. Type in the Remote Station ***Name***.
5. Select the type from the drop–down list (**Starcam**, **SP**, or **GENIE+eNTEGRA**).
6. Type in the ***Ethernet address*** of the remote station.
7. Click [**OK**] three times to close the **eNTEGRA Configuration** window.
8. Click [**Apply**] to exit **User Preferences** window.
9. For the changes to take affect, shutdown and reactivate the eNTEGRA application.

3.8.4.6 DICOM Configuration

1. Click the [**eNTEGRA**] icon on the Task Bar.
2. Click the [**Configuration**] button on the upper left corner of the **Main** screen, then click [**Advanced Configuration...**].
3. Click the **Dicom** tab.
4. For each remote station with which the system is to communicate via DICOM (refer to Table 3-12 for DICOM configuration parameters):
   a. Click the [**Add**] button.
   b. Type in the Host name, Application Entity and IP address of the Remote station.
   c. Verify that the appropriate flags are checked to enable the corresponding operations.
   d. Click the [**OK**] button.
5. When all remote DICOM stations have been added, click the [**OK**] button to close the **eNTEGRA Configuration** window.

Note

DICOM printers are not configured during this step. The DICOM print Application Entity (AE) is separate from the DICOM image transfer AE. DICOM printing is configured during the hardcopy configuration.

6. Click [**Apply**] to exit **User Preferences** window.

Table 3-10. DICOM Configuration Parameters

System Type	Station Name	IP Address	Application Entity	Port #	Flags (Service Class)
eNTEGRA	Limitations: • Less than 12 characters • Only letters (a-z, A-Z), Numbers (0-9) or underscores (_) are allowed.	Per system's TCP/IP configuration	Host name in upper case letters	104	Send, Query, Fetch
Genie P&R			Host name in upper case letters	2030	Send, Query, Fetch
XPert			As defined by the local system administrator. Case Sensitive	104	Send, Query, Fetch
Genie Acq			Host name in upper case letters	2030	Query, Fetch
Millennium VG			As defined by the local system administrator. Case Sensitive	104	Query, Fetch
Other Systems			Refer to the system's DICOM Conformance statement.		

3.8.4.7 Interfile Configuration

1. Click the [**Configuration**] button on the upper left corner of the **Main** screen, then click [**Advanced Configuration...**].
2. Click the **Interfile** tab.
3. For each remote Interfile station:
   a. Click the [**Add**] button.
   b. Type in the Remote station's ***Hostname*** and click [**OK**].
   c. Enter the ***IP Address*** of the remote Interfile station and click [**OK**].
4. When all remote Interfile stations have been added, click the [**OK**] button to close the **eNTEGRA Configuration** window.
5. Click [**Apply**] to exit the **User Preferences** window.

3.8.4.8 Remote Access Configuration

1. Click right on the **Network Neighborhood** icon residing on the desktop and select the **Properties** entry in the opened menu.
2. In the opened **Network** dialog, click on the **Services** tab.
3. Highlight the **Remote Access Service** entry.
4. Click the [**Properties**] button to open the **Remote Access Setup** dialog.
5. Click the [**Configure...**] button.
6. In the opened **Configure Port Usage** dialog, click the radio button next to **Dial out and Receive calls**, then click [**OK**].
7. In the **Remote Access Setup** dialog, click [**Network...**].
8. In the **Network Configuration** dialog verify that:
   a. Under **Dial out Protocols**: **TCP/IP** is checked
   b. Under **Service Settings**: **TCP/IP** is checked.
   c. Under the **Encryption Settings**, click the radio button next to **Allow any authentication including clear text**.
9. In the **Network Configuration** dialog, click [**Configure...**].
10. In the **Ras Server TCP/IP Configuration** dialog click the radio buttons next to **This computer only** and **Use static address pool**.
11. Type in the modem begin and end IP addresses.
12. Check the checkbox next to **Allow remote clients to request a predetermined IP address**.
13. Click [**OK**] to return to the **Network Configuration** dialog
14. Click [**OK**] to return to the **Remote Access Setup** dialog.
15. Click [**Continue**] to return to the **Network** dialog, then click [**Close**].
16. Wait for the **Network Settings Change** window, and click [**Yes**] to restart the computer.

3.8.4.9 Modem Configuration

Configure the modem to enable dialing to other stations through the Dial-Up Networking facility.

1. Click left on the [**Start**] icon on the Task Bar, and select: **Programs** → **Accessories** → **Dial-Up Networking**.
2. In the opened **Location Information** dialog:
   a. Select your country/region from the drop-down list.
   b. Type in your area code.
   c. Type in the number required to access an outside line, if any.
   d. Click the radio button next to the local phone system (Tone dialing or Pulse dialing).
   e. Click [**Close**].
3. If the system notifies you that the phone book is empty, click [**OK**] to add an entry to the phone book and proceed to step 3, below.

   Otherwise, skip to Step 10.

4. In the opened **New Phonebook Wizard** dialog, type in the name of the server used to connect to the remote network, and click [**Next**].
5. In the opened **Server** dialog click [**Next**].
6. In the opened **Phone Number** dialog, type in the phone number of the remote dial-up server.
7. If there are alternate numbers to be dialed in case that the primary number can not be reached:
   a. Click [**Alternates...**].
   A dialog is opened.
   b. For each alternate number, type-in an alternate number and click [**Add**].
   This number is added to the phone numbers list.

Note You can add, replace or delete alternate phone numbers, as well as sort the list,

   c. When all the alternate numbers have been added, click [**OK**].
8. Click [**Next**] until you return to the **Dial-Up Networking** dialog.
9. For ***each*** entry to be added to the phonebook, click the [**New**] button in the **Dial-Up Networking** dialog and repeat steps 4 through 8.
10. In the **Dial-Up Networking** dialog, while the first dial-up server is highlighted, click the [**More**] button.

11. In the opened pull-down list select the **Edit entry and modem properties...** entry.
12. In the opened **Edit Phonebook Entry** dialog, select the **Server** tab to bring forward the **Ras Server** properties.
13. Pull-down the **Dial-up server type** list and select the **PPP, Windows NT, Windows 95 Plus, Internet** entry.
14. In the opened **Network protocols** list, check **TCP/IP**.
15. Click the [**TCP/IP Settings**] button.
16. In the opened **PPP TCP/IP Settings** dialog:
    a. Click the radio button next to **Server assigned IP address**.
    b. Click the radio button next to **Server assigned name server addresses**.
    c. Uncheck the checkbox next to **Use IP header compression**.
    d. Check the checkbox next to **Use default gateway on remote network**
    e. Click [**OK**] to return to the **Server** tab dialog.
17. Click the **Security** tab.
18. Click the radio button next to **Accept any authentication including clear text**, then click [**OK**] to return to the main **Dial-Up Networking** dialog
19. Repeat steps 10 through 18 for each dial-up server in the **Phonebook entry to dial** list.
20. When all the dial-up servers have been defined, click [**Close**] to close the **Dial-Up Networking** dialog.

3.8.4.10 Remote Database

1. Click the [**eNTEGRA**] icon on the Task Bar.
2. Click the [**Configuration**] button on the upper left corner of the **Main** screen, then click [**Advanced Configuration...**].
3. Click the **Database** tab.
4. Click on the Down Arrow next to the **Default database server** field, and select the Computer Name of the remote server to whose database you want to connect, if any.
5. If you want to connect to a data base that is not included in the data base options list, click the [**Add**] button, type in the name of the remote server, and its IP address, and click [**OK**].
6. Click the [**OK**] button to close the **eNTEGRA Configuration** window.
7. Click [**Apply**] to exit the **User Preferences** window.

3.8.4.11 Hardcopy Configuration

1. Click the [**Configuration**] button on the upper left corner of the **Main** screen, then click [**Advanced Configuration...**].
2. Click the **Printers** tab.
3. Click the [**Add**] button.
4. In the **Add/Edit Printer Device** window (refer Table 3-11 to for supported hardcopy devices):
   a. Type in the alias name of the hardcopy device.
   b. Select the type of the hardcopy device from the drop–down list.
   c. Click [**Setup...**].
   d. Type in or select the required information for the specific hardcopy device.
   e. Click [**OK**] to close the ***Printer*** **Setup** window.
5. To define an additional Hardcopy Device, repeat steps 3 & 4.
6. When all the hardcopy devices have been defined, Select the default Printer from the Drop–down list.
7. Click [**OK**] to close the **eNTEGRA Configuration** window.
8. Click [**Apply**] to exit the **User Preferences** window.

Table 3-11. Valid Device Type Settings

Hardcopy Device	Interface	Device Type	Additional Configuration Details
Imation (3M) Lasercamera (952, 959, 969 or DryView)	DASM/LCAM	3M	Section 3.10.2
Kodak Lasercamera (XLP100, 1120, 2180)	DASM/LCAM	3M	Section 3.10.3
DuPont Lasercamera	DASM/LCAM	dupont_3m	Section 3.10.4
Fuji Lasercamera	DASM/LCAM	3M	Section 3.10.5
Konica Lasercamera	DASM/LCAM	3M	Section 3.10.6
Codonics Color Printer	Network	np1600m	Section 3.10.8
Helios Lasercamera	Network	helios	Section 3.10.7
PostScript compatible printer	Network/ Printer Port	postscript	Section 3.10.9
DICOM Printers	Network	DCMI8300, DCMI8700, DCMA2KCL, DCMA2KBW, DCMcod	Section 3.10.10

Note

The only DICOM printers that have been validated are the Imation 8300 (DCM8300), Imation 8700 (DCMI8700), AGFA Drystar (DCMA2KCL and DCMA2KBW) and the Codonics 1660 (DCMcod).

Important

A maximum of 4 devices can be configured on the hardcopy server.

3.9 Remote LAN Configuration

3.9.1 Introduction

The eNTEGRA system utilizes two network protocols for communication to remote systems.m

- OSI network protocol used by:
  - Starlink protocol which is used for communication with Starcam systems, M–Link systems and Starlink agent systems.
  - SP based systems residing on the ApexNet LAN.
- TCP/IP network protocol used for:
  - DICOM communication with other eNTEGRA P&R systems, GENIE ACQ systems, Millennium VG systems and other remote DICOM systems.
  - Remote Database and Remote Connectivity.

For remote Starlink systems, the eNTEGRA system's Ethernet Address and system name must be added to the Starlink configuration of each system. In addition, the Starlink software on each Starcam system must be upgraded to Starlink Version 4. See below for details.

For remote SP systems, the eNTEGRA system's Ethernet Address and system name must be added to each system.

For remote DICOM systems, the eNTEGRA system's hostname, IP Address, DICOM AE Title and DICOM port number must be configured.

Note

The default DICOM AE title is the hostname in uppercase. The DICOM port number for eNTEGRA is **104**.

3.9.2 Procedure Overview

Table 3-12. Communication Configuration

Steps	Time (Min.)	Reference
Configure all GENIE ACQ and Millennium VG Systems for DICOM Communication to eNTEGRA P&R	5/System	• Acquisition System Service Manual • Use the following parameters: AE Title = hostname in uppercase Port No. = 104
Get eNTEGRA P&R's Ethernet Address	5 minutes	Section 3.9.3
Upgrade all Polestar and Polestar-i systems on network to Starlink V4	15/system	Section 3.9.4 • eNTEGRA Ethernet (LAN) address
Upgrade all Build Standard 1 & 2 system on network to Starlink V4	30/system	Section 3.9.5 • eNTEGRA Ethernet (LAN) address
Upgrade all Build Standard 0 systems on network to Starlink V3	15/system	Section 3.9.6
Configure the SP based systems for communication with the eNTEGRA system	5/system	• Getting Ethernet Addresses and names of SP based systems – Section 3.9.7 • SP system's documentation • eNTEGRA Ethernet (LAN) address • eNTEGRA computer name
Configure all remote DICOM systems	10/system	• Remote DICOM system's documentation • Use the following parameters: AE Title = eNTEGRA hostname in uppercase Port No. = 104
Total	**80/system**	

3.9.3 eNTEGRA Ethernet Address

1. Click on the **minimize** button on the **Main** Screen Header to view the system's Desktop.
2. Click left on the [**Start**] icon on the Tasks Bar, and select **Programs** → **Impart 32** → **Command Line Manager**.
3. Type **D** <**Enter**> for full display.
4. Under the **DTE** column you will find the Ethernet address of the local eNTEGRA system (a 12 characters number).
   Record the Physical (Ethernet) address displayed in the site log book.
5. Type **q** <**Enter**> to quit.

3.9.4 Starlink Version 4 Upgrade for Polestar and Polestar-i Systems.

1. Shut down the Polestar system by entering **shutdown** <**Sendform**>.
2. Reboot the system by pressing the **RESET** button.
3. When prompted, press <**Esc>** to Enter Monitor.
4. At the Monitor prompt enter **B** <**Enter**> to boot the system into RMX.
5. Enter **super** <**Enter**> at the login prompt.
6. Enter **passme** <**Enter**> at the password prompt.
7. Insert the Starlink V4 floppy.
8. At the RMX prompt enter **LOADSUPP** <**Enter**>.

   The system responds with:

   With the Startup floppy in the drive type
   L to LOAD followed by RETURN
   E to Exit followed by RETURN....

9. Enter **L** <**Enter**>.

   The system responds with:

   Not the correct Startup Floppy.
   Insert any floppy and enter.
   L to LOAD followed by RETURN
   E to Exit followed by RETURN....

10. Enter **L** <**Enter**>.

    The system responds with:

    SL4 Starlink Supplement V1
    O.K.

11. Remove Starlink V4 floppy.
12. Enter **sh** <**Enter**> to shut system down.
13. Reboot the system to Starcam by pressing the RESET button.
14. Enter **ZSCF 7** <**Sendform**> to list software present.
15. Verify that the Starlink option is present and that the version is at 4.0.
16. Add the eNTEGRA workstation to the Starlink Configuration file via the **NAST** command
    Refer to Section 3.9.3 to get the eNTEGRA's Ethernet (LAN) address.)

3.9.5 Starlink Version 3 Upgrade for Starcam Build Standard 0

1. Shut down the Starcam system by entering **shutdown** <**Sendform**>.
2. Reboot the system by pressing the following keys together:
   <**Ctrl**> RIGHT <**Shift**> <**Q**>.
3. When prompted, press <**Esc>** to Enter Monitor.
4. At the Monitor prompt enter **B** <**Enter**> to reboot system into RMX.
5. At the **RMX** prompt enter **LOADOPT** <**Enter**>.
6. Insert STARTUP floppy
7. Enter **L** <**Enter**>.
8. When prompted, remove **STARTUP** floppy and insert **Starlink V3 Key** floppy.
9. Enter **L** <**Enter**>.
10. Enter **C** <**Enter**>.
11. Remove Key floppy and enter **E** <**Enter**> to exit back to RMX.
12. Insert CV system floppy.
13. Enter **AF :AFD0:** <**Enter**>.
14. Enter **s r'?'load.csd** <**Enter**> to update the Starlink files.
15. Enter **shutdown** <**Enter**> to shut system down.
16. Reboot the system to Starcam by pressing the following keys together:
    <**Ctrl**> RIGHT <**Shift**> <**Q**>.
17. Enter **ZSCF 7** <**Sendform**> to list software present.
18. Verify that the Starlink option is present and that the version is **3.05**.
19. Add the eNTEGRA workstation to the Starlink Configuration file via the **NAST** command.
    Refer to Section 3.9.3 to get the eNTEGRA's Ethernet (LAN) address.

3.9.6 Starlink Version 4 Upgrade for Starcam Build Standard 1 & 2

1. Refer to the documentation shipped with the H2508JA catalog to upgrade Starlink software to **Version 4**.
2. Add the eNTEGRA workstation to the Starlink Configuration file via the **NAST** command.
   Refer to Section 3.9.3 to get the eNTEGRA's Ethernet (LAN) address.

3.9.7 Getting the Ethernet Address and names of SP Based Systems

To get the Ethernet addresses, types and names of all the SP based systems residing on the ApexNet, type in the Command Line of a remote SP based system **ETCONFIG** and press <**Enter**>. This results with the following display:

```
LOCAL COMMUNICATION ADDRESS: 00AA000XXXXX
LOCAL WRITE PROTECT (Y/N) : N
STATION ID      TYPE    COMMUNICATION ADDRESS      STATION
LABEL

N 0             A       00AA0004460B               SP1
N 1             A       00AA00044802               HELIX
N 2             A       00AA00034BBC               CardiaL
```

Where:

- The LOCAL COMMUNICATION ADDRESS is the *unique* Ethernet Address of the system (stored in the system's Ethernet Controller Board), which consists of a fixed prefix (00AA000) and five variable hexadecimal digits (indicated by XXXXX).
- TYPE A refers to an APEX SP system
  TYPE G refers to an APEX 400 system.
- The STATION LABEL is the station's name.

3.10 Hardcopy Options

3.10.1 Overview

The eNTEGRA P&R Hardcopy server provides a high resolution, digital, multiformatted (n on 1) image for use on Formatters, Lasercameras and Color Printers via the:

- SCSI-2 port
- Network port

Note eNTEGRA will only support one SCSI-2 print device.

Table 3-13 summarizes the hardcopy devices that are compatible with eNTEGRA P&R, the type of interface used and the sections that contain the installation/configuration information for each device.

Table 3-13. Hardcopy Device Interface Matrix

Hardcopy Type	Device Name	eNTEGRA P&R Interface	Reference
Laser Cameras	Imation (3M) P831, M952, 959XL, 969HQ and DryView.	SCSI-2 via DASM/LCAM	Section 3.10.2
	Kodak XLP100, 1120 and 2180	SCSI-2 via DASM/LCAM	Section 3.10.3
	Dupont Linx Image Q	SCSI-2 via DASM/LCAM	Section 3.10.4
	Fuji	SCSI-2 via DASM/LCAM	Section 3.10.5
	Konica (Li10A & Li20)	SCSI-2 via DASM/LCAM	Section 3.10.6
	Polaroid Helios	Network (TCP/IP)	Section 3.10.7
Color Printers	Codonics NP1600M	Network (TCP/IP)	Section 3.10.8
PostScript® Printers	PostScript® Compatible Printer	Network (TCP/IP) or Parallel Port	Section 3.10.9
DICOM	DICOM Compatible Printers	Network (TCP/IP)	Section 3.10.10

Note All hardcopy devices interfaced via the SCSI port or network must be configured in eNTEGRA using the **Config** utility.

3.10.2 Imation (3M) Lasercameras Configuration

3.10.2.1 Overview

This section provides details on how to connect the Imation (3M) family of Lasercameras to the eNTEGRA system using the 952 interface and how to configure both the eNTEGRA and Lasercamera to produce good quality films. This includes the 952, 959, 969 and DryView Lasercameras.

The eNTEGRA hardcopy server sends commands and high resolution digital image data to DASM/LCAM over the SCSI-2 bus using the Analogic DASM SCSI command set. The DASM/LCAM converts these commands into 952 commands and a digital image.

Note Due to image quality issues the DASM/VDB interface is no longer being offered.

The 952 commands (host control) are sent from the DASM/LCAM's 25–pin (female) RS422 port to a UKEIB (Universal Keyboard External Interface Box) and then to the Lasercamera's input module. The UKEIB converts the RS422 signals to a Fiber Optic signal, which is then sent to the Lasercamera's input module. Since the RS422 keypad interface on the UKEIB is a 37–pin male connector, a 25–pin male to 37–pin female cable is required (46-296980G1 can be used).

The DASM/LCAM sends the high resolution digital image data over a 37–pin, 8-bit parallel RS485 interface to a DEIB (Digital External Interface Box) and then to the Lasercamera's input module. The DEIB converts the RS485 signals to a Fiber Optic signal which is then sent to the Lasercamera's input module.

Section 3.10.2.2 provides the basic procedure for interfacing/configuring the Imation Lasercameras to eNTEGRA.

Section 3.10.2.3 provides details for finding the SCSI Device Number of the DASM/LCAM.

Section 3.10.2.4 provides details on interfacing the Imation lasercameras to the eNTEGRA.

Section 3.10.2.5 provides details on configuring the eNTEGRA and the Lasercamera for optimal image quality.

3.10.2.2 Basic Procedure

This section provides the basic procedure to interface and configure an Imation Lasercamera with eNTEGRA.

1. Verify that the DASM/LCAM is connected/configured properly, and the Lasercamera has been added to the eNTEGRA configuration via the **Configuration** utility (refer to Section 3.6 & Section 3.8.4.11 for details).
   The selected **Type** in the **Printers** tab of the **eNTEGRA Configuration** window should be **3M**.
   The SCSI Device Number of the DASM/LCAM can be identified as per Section 3.10.2.3.
2. Install and connect the host and image data runs between the Lasercamera's input module and the DASM/LCAM. Refer to Section 3.10.2.4.
3. Configure the Lasercamera's input module, the UKEIB and the DEIB for communication with the DASM/LCAM. Refer to Section 3.10.2.4.
4. Power up the systems in the following order to assure proper synchronization: Lasercamera, UKEIB and DEIB, DASM/LCAM and then the eNTEGRA.
5. Log into eNTEGRA, select the **Formatter Static** image from the **Default Patient Calibration** study, and click the **New** icon (located on the Patient Selector Control Bar). Click the **Camera** tool in the **Display** Screen. Click the Down Arrow in the **Film** dialog, select the **Imation** lasercamera and click [**Submit**].
6. If:
   a. No image is printed, refer to Section 8.2 for details on troubleshooting.
   a. An image is printed, analyze the image and determine if additional adjustments are required.
7. If:
   a. Adjustments will be made via the **HCdefaults.win32** file on the eNTEGRA system, then edit the specific parameters and powerdown the eNTEGRA application. Refer to Section 3.10.2.5.
   b. Adjustments will be made via the Lasercamera's input module, then verify that the **HCdefaults.win32** file on the eNTEGRA has the Density and Contrast parameter set to **D** before editing the input module's parameters. Refer to Section 3.10.2.5.

Note After the **HCdefaults.win32** file is edited, the eNTEGRA must be completely restored (including servers) in order for the changes to take effect.

8. Repeat steps 5 through 7 until optimal film quality is achieved.

3.10.2.3 Finding the SCSI Device Number of the DASM/LCAM

1. Click [**Start**] on the Task Bar and select **Run...** to open the **Run** Window.
2. In the **Open** input filed type **regedit** and click [**OK**].
3. In the **Registry Editor** window, select the following directory:
   HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\Scsi
4. Scan the **Identifier** in each **Scsi Port *X*** directory (where ***X*** is the Port Number) as follows:
   a. Select the directory **Scsi Bus 0\target Id *Y*\Logical Unit Id 0** (where ***Y*** is the Target ID Number).
   b. Check whether the **Identifier** is **ANALOG-LCAM-3M**.
5. The **Scsi Port** with **Indentifier = ANALOG-LCAM-3M** is the Port Number of the DASM/LCAM to be selected as the **Physical Drive** in the **3M Printer Setup** window. See Section 3.8.4.11.

3.10.2.4 Lasercamera Connection

This section provides details on how to interface the Imation Lasercameras to the eNTEGRA system via the DASM/LCAM.

a. Interface Wiring

Figure 3-4 and Table 3-14 detail the interface between the eNTEGRA and the Imation Lasercameras using the DASM/LCAM.

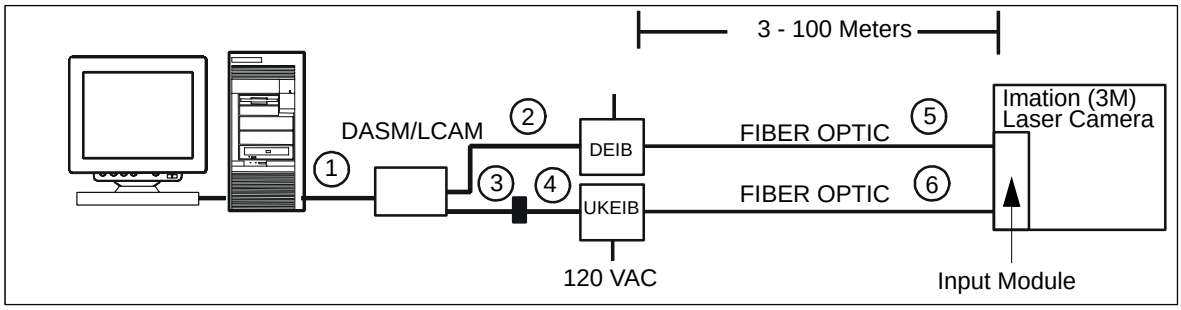

Figure 3-4: eNTEGRA to Imation Lasercamera Interconnection via the DASM/LCAM

Table 3-14. DASM/LCAM to Imation Lasercamera Cable

Cable	Description	Part #/Source	Length	Reference
1	Peripheral Tower SCSI Cable.	46-325201P5	1 m	Section 5.1.3.
2	37–pin LCAM Image Data Cable - RS485	Imation	3–10 m	Reference 3M Service Manual
3	25–pin Male to 37 Pin Female RS422 Stub Cable	46-296980G1	30 cm	
4	3M Keypad Cable - 37 Pin RS422	Imation	3–10 m	
5	Fiber Optic Line (Tx/ Rx) - Image Data	Imation	30–100 m	
6	Fiber Optic Line (Tx/ Rx) - Host Communication	Imation	30–100 m	

Note

The Input Modules available on the DryView Lasercameras provide direct 37–pin interface connections for both host and image data.

The 952 Lasercameras with MMU use two 37–pin interface connections for both host and image data.

Refer to Chapter 5, Section 5.1.3.1 for pinout details on the DASM/LCAM.

b. Interface Configuration

The Imation Lasercamera must be configured to communicate with the eNTEGRA. Table 3-15 summarizes the configuration parameters required for the components in the DASM/LCAM to Imation Lasercamera interface chain.

Note Refer to the Imation/3M Service Manual or Service Representative for details

Table 3-15. DASM/LCAM–Imation Lasercamera Interface Configuration

Device	Parameter	Setting
Input Module (**Jumper**)	Fiber Optic Clock Rate (Jumper)	10MHz (E2-E3)
Input Module (**Communication Parameters**)	Baud Rate	1200
	Stop Bits	1
	Data Bits	8
	Parity	Even
	Parity Enable	Enable
	Character Pacing	0
	End Of Message	CR
	Protocol	ACK/NACK
	Memory Full Resp	BSY
	Command Set	959
	Image Size	New
	Alarm Mode	New
	P1-P6	0

Table 3-15. DASM/LCAM–Imation Lasercamera Interface Configuration (Continued)

Device	Parameter	Setting
Input Module (**System Parameters**)	EIB Type	Digital
	Parameter Set	Set 0
	OEM	GE
	Modality	Nuclear
	Dual Switch	Off
	Memory Width	9
	Pixel Width	8
	Requeue Number	3
	Media Destination	OM0/OM1
	Enlarge Format	Yes
Input Module (**Digital EIB Parameters**)	Parity Enable	Enable
	Test Pattern	No
	Header Mode	Header
	Prescale	On
	Timeout	20
	Request Hold	200
	Request Inactive	255
	Retransmit Setup	255
	Pixels/Line	1024
	Image Lines	1024
	Pixel Width	8
	Parity	Even
	Port	Port 0
UKEIB	RS232/RS422 Select (Jumper)	RS422
DEIB	Fiber Optic Clock Rate (Jumper)	10 MHz

3.10.2.5 Image Quality Configuration

The 952 command set provides control over a number of image quality parameters for the Imation Lasercameras. These parameters are set by either the eNTEGRA hardcopy server via the **HCdefaults.win32** file or set at the Lasercamera's input module. Table 3-16 provides a summary of these parameters.

Note The **HCdefaults.win32** setting will over ride the input modules setting.

Table 3-16. Imation Lasercamera Image Quality Parameters

Parameter	Description	Name in *HCdefaults.win32*	*Remarks*
Contrast Table	Specifies a contrast table to use to produce the image. The range of the contrast table settings are 1 to 30. Table 1 to 15 represent positive tables (white on black) and 16 to 30 negative tables (black on white). In *HCdefaults.win32* a setting of D causes the Lasercamera to use the setting on the input module.	Prn3m.952.*fmt*.*n*.contrasts	Each format and each zone has a separate contrast line.
Density	Specifies the film density level. The range is from 1 to 16. In *HCdefaults.win32* a setting of D causes the Lasercamera to use the setting on the input module.	Prn3m.952.density	
Boarder	Specifies the boarder level. 0 is dark and 255 is clear.	Prn3m.952.bdr	
Stage Time Out	Specifies the delay between staging and exercising an image.	Prn3m.stage.timeout	

In most cases the contrast and density will be set using the input module. Refer to the Imation/3M Service Manual or Service Representative for details. If the needs to be updated refer to the **HCdefaults.win32** section below.

Note The stage time out needs to be set to 20 for the main interface.

a. HCdefaults.win32

The **HCdefaults.win32** file is a text file that contains the default print device parameters for all hardcopy devices supported by the eNTEGRA hardcopy server. It is located in the **D:\Einstein\einstein_project\resources** directory. Typically the **HCdefaults.win32** file contains a section for each print device's parameters. The parameters for the 952 compatible Lasercameras start with Prn3m.952, are shown in Figure 3-5, Figure 3-6, Figure 3-7, Figure 3-8, Figure 3-9 and Figure 3-10, below.

```
! protocol “952”
Prn3m.952.bdr:                   0            Edit to change Border
Prn3m.952.interface:             Lcam
Prn3m.952.cmd.timeout:           60
Prn3m.952.stage.timeout:         60           Edit for MMU Interface
Prn3m.952.expose.timeout:        15
Prn3m.952.density:               1            Edit to change Density

Prn3m.952.Hcp.code_path:         /usr/lib/HCP_RPC.out
Prn3m.952.Hcp.unit:              0
Prn3m.952.Hcp.parity_enable: on
Prn3m.952.Hcp.even_parity:  on
Prn3m.952.Hcp.local_loop:   off
Prn3m.952.Hcp.auto_lf:      off
Prn3m.952.Hcp.data_rate:    1200
Prn3m.952.Hcp.stop_bits:    0
Prn3m.952.Hcp.data_bits:    8
Prn3m.952.Hcp.line_term:    CR
Prn3m.952.Hcp.data_interface: digital
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
! protocol “952” with the “Lcam” interface
!
Prn3m.952.Lcam.devname:                 /dev/rdsk/c201d4s0
Prn3m.952.Lcam.debug_file:       debug.out
Prn3m.952.Lcam.parity_enable:    on
Prn3m.952.Lcam.even_parity:      on
! with MMU
Prn3m.952.Lcam.data_rate:        1200
! no MMU
!Prn3m.952.Lcam.data_rate:       9600
Prn3m.952.Lcam.stop_bits:        1
Prn3m.952.Lcam.data_bits:        8
Prn3m.952.Lcam.local_loop:       off
Prn3m.952.Lcam.auto_lf:          off
Prn3m.952.Lcam.line_term:        CR
! Digital data interface
Prn3m.952.Lcam.data_interface:   digital
! Analog video interface (in ISG)
!Prn3m.952.Lcam.data_interface:  analogue
!
Prn3m.952.formats:               1,2,3,4,6,9,12,16,20

!format 1
Prn3m.952.1.desc:                1 on 1 (1 frame on 1 zone)
Prn3m.952.1.zones:               1
Prn3m.952.1.1.frames:            1
Prn3m.952.1.1.width:             1024
Prn3m.952.1.1.height:            1024
Prn3m.952.1.1.contrasts:         D            Edit to chane Contrast (1x1)
Prn3m.952.1.1.lines:             4800
Prn3m.952.1.1.bdr.lines:         32
Prn3m.952.1.1.hmag:              0
Prn3m.952.1.1.vmag:              0
Prn3m.952.1.1.hmode:             15
Prn3m.952.1.1.vmode:             15

! format 2
Prn3m.952.2.desc:                2 on 1 (2 frames on 1 zone)
Prn3m.952.2.zones:      1
Prn3m.952.2.1.frames:       2
Prn3m.952.2.1.width:        1024
Prn3m.952.2.1.height:       1024
Prn3m.952.2.1.contrasts:    D,D               Edit to change Contrast (2x1)
Prn3m.952.2.1.lines:        4800
Prn3m.952.2.1.bdr.lines:    32
Prn3m.952.2.1.hmag:              0
Prn3m.952.2.1.vmag:              0
Prn3m.952.2.1.hmode:        15
Prn3m.952.2.1.vmode:        15
```

Figure 3-5: HCdefaults.win32 - 952 Lasercamera Section (Part 1)

```
format 3
Prn3m.952.3.desc:2 on 1 (2 frames in 2 zones)
Prn3m.952.3.zones:          2
! zone 1
Prn3m.952.3.1.frames:       1
Prn3m.952.3.1.width:        1024
Prn3m.952.3.1.height:       1024
Prn3m.952.3.1.contrasts:    D        <-- Edit to change contrast (2x1)
Prn3m.952.3.1.lines:        2400
Prn3m.952.3.1.bdr.lines:    32
Prn3m.952.3.1.hmag:         0
Prn3m.952.3.1.vmag:         0
Prn3m.952.3.1.hmode:        15
Prn3m.952.3.1.vmode:        15
! zone 2
Prn3m.952.3.2.frames:       1
Prn3m.952.3.2.width:        1024
Prn3m.952.3.2.height:       1024
Prn3m.952.3.2.contrasts:    D        <-- Edit to change Contrast (2x1)
Prn3m.952.3.2.lines:        2400
Prn3m.952.3.2.bdr.lines:    32
Prn3m.952.3.2.hmag:         0
Prn3m.952.3.2.vmag:         0
Prn3m.952.3.2.hmode:        15
Prn3m.952.3.2.vmode:        15

! format 4
Prn3m.952.4.desc:           4 on 1 (2 frames on each of 2 zones)
Prn3m.952.4.zones:          2
! zone 1
Prn3m.952.4.1.frames:       2
Prn3m.952.4.1.width:        1024
Prn3m.952.4.1.height:       1024
Prn3m.952.4.1.contrasts:    D,D      <-- Edit to change Contrast (4x1)
Prn3m.952.4.1.lines:        2400
Prn3m.952.4.1.bdr.lines:    32
Prn3m.952.4.1.hmag:         0
Prn3m.952.4.1.vmag:         0
Prn3m.952.4.1.hmode:        15
Prn3m.952.4.1.vmode:        15
! zone 2
Prn3m.952.4.2.frames:       2
Prn3m.952.4.2.width:        1024
Prn3m.952.4.2.height:       1024
Prn3m.952.4.2.contrasts:    D,D      <-- Edit to change Contrast (4x1)
Prn3m.952.4.2.lines:        2400
Prn3m.952.4.2.bdr.lines:    32
Prn3m.952.4.2.hmag:0
Prn3m.952.4.2.vmag:0
Prn3m.952.4.2.hmode:        15
Prn3m.952.4.2.vmode:        15

!format 6
Prn3m.952.6.desc:           6 on 1 ( 2frames on each of 3 zones)
Prn3m.952.6.zones:          3
! zone 1
Prn3m.952.6.1.frames:       2
Prn3m.952.6.1.width:        1024
Prn3m.952.6.1.height:       1024
Prn3m.952.6.1.contrasts:    D,D      <-- Edit to change Contrast (6x1)
Prn3m.952.6.1.lines:        1600
Prn3m.952.6.1.bdr.lines:    32
Prn3m.952.6.1.hmag:         0
Prn3m.952.6.1.vmag:         0
Prn3m.952.6.1.hmode:        15
Prn3m.952.6.1.vmode:        15
```

Figure 3-6: HCdefaults.win32 - 952 Lasercamera Section (Part 2)

```
! zone 2
Prn3m.952.6.2.frames:       2
Prn3m.952.6.2.width:        1024
Prn3m.952.6.2.height:       1024
Prn3m.952.6.2.contrasts:    D,D     <-- Edit to change Contrast (6x1)
Prn3m.952.6.2.lines:        1600
Prn3m.952.6.2.bdr.lines:    32
Prn3m.952.6.2.hmag:     0
Prn3m.952.6.2.vmag:     0
Prn3m.952.6.2.hmode:        15
Prn3m.952.6.2.vmode:        15
!zone 3
Prn3m.952.6.3.frames:       2
Prn3m.952.6.3.width:        1024
Prn3m.952.6.3.height:       1024
Prn3m.952.6.3.contrasts:    D,D     <-- Edit to change Contrast (6x1)
Prn3m.952.6.3.lines:        1600
Prn3m.952.6.3.bdr.lines:    32
Prn3m.952.6.3.hmag:          0
Prn3m.952.6.3.vmag:          0
Prn3m.952.6.3.hmode:        15
Prn3m.952.6.3.vmode:        15

!format 9
Prn3m.952.9.desc:9 on 1 ( 3 frames on each of 3 zones)
Prn3m.952.9.zones:3
! zone 1
Prn3m.952.9.1.frames:       3
Prn3m.952.9.1.width:        1024
Prn3m.952.9.1.height:       1024
Prn3m.952.9.1.contrasts:    D,D,D   <-- Edit to change Contrast (9x1)
Prn3m.952.9.1.lines:        1600
Prn3m.952.9.1.bdr.lines:    32
Prn3m.952.9.1.hmag:          0
Prn3m.952.9.1.vmag:          0
Prn3m.952.9.1.hmode:        15
Prn3m.952.9.1.vmode:        15
! zone 2
Prn3m.952.9.2.frames:       3
Prn3m.952.9.2.width:        1024
Prn3m.952.9.2.height:       1024
Prn3m.952.9.2.contrasts:    D,D,D   <-- Edit to change Contrast (9x1)
Prn3m.952.9.2.lines:        1600
Prn3m.952.9.2.bdr.lines:    32
Prn3m.952.9.2.hmag:0
Prn3m.952.9.2.vmag:0
Prn3m.952.9.2.hmode:        15
Prn3m.952.9.2.vmode:        15
!zone 3
Prn3m.952.9.3.frames:       3
Prn3m.952.9.3.width:        1024
Prn3m.952.9.3.height:       1024
Prn3m.952.9.3.contrasts:    D,D,D   <-- Edit to change Contrast (9x1)
Prn3m.952.9.3.lines:        1600
Prn3m.952.9.3.bdr.lines:    32
Prn3m.952.9.3.hmag:0
Prn3m.952.9.3.vmag:0
Prn3m.952.9.3.hmode:        15
Prn3m.952.9.3.vmode:        15
```

Figure 3-7: HCdefaults.win32 - 952 Lasercamera Section (Part 3)

```
!format 12
Prn3m.952.12.desc:          12 on 1 ( 3 frames on each of 4 zones)
Prn3m.952.12.zones:4
! zone 1
Prn3m.952.12.1.frames:      3
Prn3m.952.12.1.width:       1024
Prn3m.952.12.1.height:      1024
Prn3m.952.12.1.contrasts:   D,D,D   <-- Edit to change Contrast (12x‘1)
Prn3m.952.12.1.lines:       1200
Prn3m.952.12.1.bdr.lines:   32
Prn3m.952.12.1.hmag:        0
Prn3m.952.12.1.vmag:        0
Prn3m.952.12.1.hmode:       15
Prn3m.952.12.1.vmode:       15
! zone 2
Prn3m.952.12.2.frames:      3
Prn3m.952.12.2.width:       1024
Prn3m.952.12.2.height:1024
Prn3m.952.12.2.contrasts:   D,D,D   <-- Edit to change Contrast (12x‘1)
Prn3m.952.12.2.lines:       1200
Prn3m.952.12.2.bdr.lines:   32
Prn3m.952.12.2.hmag:        0
Prn3m.952.12.2.vmag:        0
Prn3m.952.12.2.hmode:       15
Prn3m.952.12.2.vmode:       15
!zone 3
Prn3m.952.12.3.frames:      3
Prn3m.952.12.3.width:       1024
Prn3m.952.12.3.height:      1024
Prn3m.952.12.3.contrasts:   D,D,D   Edit to change Contrast (12x‘1)
Prn3m.952.12.3.lines:       1200
Prn3m.952.12.3.bdr.lines:   32
Prn3m.952.12.3.hmag:        0
Prn3m.952.12.3.vmag:        0
Prn3m.952.12.3.hmode:       15
Prn3m.952.12.3.vmode:       15
!zone 4
Prn3m.952.12.4.frames:      3
Prn3m.952.12.4.width:       1024
Prn3m.952.12.4.height:      1024
Prn3m.952.12.4.contrasts:   D,D,D   <-- Edit to change Contrast (12x1)
Prn3m.952.12.4.lines:       1200
Prn3m.952.12.4.bdr.lines:   32
Prn3m.952.12.4.hmag:        0
Prn3m.952.12.4.vmag:        0
Prn3m.952.12.4.hmode:       15
Prn3m.952.12.4.vmode:       15

!format 16
Prn3m.952.16.desc:          16 on 1 ( 4 frames on each of 4 zones)
Prn3m.952.16.zones:         4
! zone 1
Prn3m.952.16.1.frames:      4
Prn3m.952.16.1.width:       1024
Prn3m.952.16.1.height:      1024
Prn3m.952.16.1.contrasts:   D,D,D,D <-- Edit to change Contrast (16x1)
Prn3m.952.16.1.lines:       1200
Prn3m.952.16.1.bdr.lines:   32
Prn3m.952.16.1.hmag:        0
Prn3m.952.16.1.vmag:        0
Prn3m.952.16.1.hmode:       15
Prn3m.952.16.1.vmode:       15
```

Figure 3-8: HCdefaults.win32 - 952 Lasercamera Section (Part 4)

```
zone 2
Prn3m.952.16.2.frames:       4
Prn3m.952.16.2.width:        1024
Prn3m.952.16.2.height:       1024
Prn3m.952.16.2.contrasts:    D,D,D,D   <-- Edit to change Contrast (16x1)
Prn3m.952.16.2.lines:        1200
Prn3m.952.16.2.bdr.lines:    32
Prn3m.952.16.2.hmag:         0
Prn3m.952.16.2.vmag:         0
Prn3m.952.16.2.hmode:        15
Prn3m.952.16.2.vmode:        15
!zone 3
Prn3m.952.16.3.frames:       4
Prn3m.952.16.3.width:        1024
Prn3m.952.16.3.height:       1024
Prn3m.952.16.3.contrasts:    D,D,D,D   <-- Edit to change Contrast (16x1)
Prn3m.952.16.3.lines:        1200
Prn3m.952.16.3.bdr.lines:    32
Prn3m.952.16.3.hmag:         0
Prn3m.952.16.3.vmag:         0
Prn3m.952.16.3.hmode:        15
Prn3m.952.16.3.vmode:        15
!zone 4
Prn3m.952.16.4.frames:       4
Prn3m.952.16.4.width:        1024
Prn3m.952.16.4.height:       1024
Prn3m.952.16.4.contrasts:    D,D,D,D   <-- Edit to change Contrast (16x1)
Prn3m.952.16.4.lines:        1200
Prn3m.952.16.4.bdr.lines:    32
Prn3m.952.16.4.hmag:         0
Prn3m.952.16.4.vmag:         0
Prn3m.952.16.4.hmode:        15
Prn3m.952.16.4.vmode:        15

!format 20
Prn3m.952.20.desc:           20 on 1 ( 4 frames on each of 5 zones)
Prn3m.952.20.zones:          5
! zone 1
Prn3m.952.20.1.frames:       4
Prn3m.952.20.1.width:        1024
Prn3m.952.20.1.height:       1024
Prn3m.952.20.1.contrasts:    D,D,D,D   <-- Edit to change Contrast (20x1)
Prn3m.952.20.1.lines:        960
Prn3m.952.20.1.bdr.lines:    32
Prn3m.952.20.1.hmag:         0
Prn3m.952.20.1.vmag:         0
Prn3m.952.20.1.hmode:        15
Prn3m.952.20.1.vmode:        15
! zone 2
Prn3m.952.20.2.frames:       4
Prn3m.952.20.2.width:        1024
Prn3m.952.20.2.height:       1024
Prn3m.952.20.2.contrasts:    D,D,D,D   <-- Edit to change Contrast (20x1)
Prn3m.952.20.2.lines:        960
Prn3m.952.20.2.bdr.lines:    32
Prn3m.952.20.2.hmag:         0
Prn3m.952.20.2.vmag:         0
Prn3m.952.20.2.hmode:        15
Prn3m.952.20.2.vmode:        15
!zone 3
Prn3m.952.20.3.frames:       4
Prn3m.952.20.3.width:        1024
Prn3m.952.20.3.height:       1024
Prn3m.952.20.3.contrasts:    D,D,D,D   <-- Edit to change Contrast (20x1)
Prn3m.952.20.3.lines:        960
Prn3m.952.20.3.bdr.lines:    32
Prn3m.952.20.3.hmag:         0
Prn3m.952.20.3.vmag:         0
Prn3m.952.20.3.hmode:        15
Prn3m.952.20.3.vmode:        15
```

Figure 3-9: HCdefaults.win32 - 952 Lasercamera Section (Part 5)

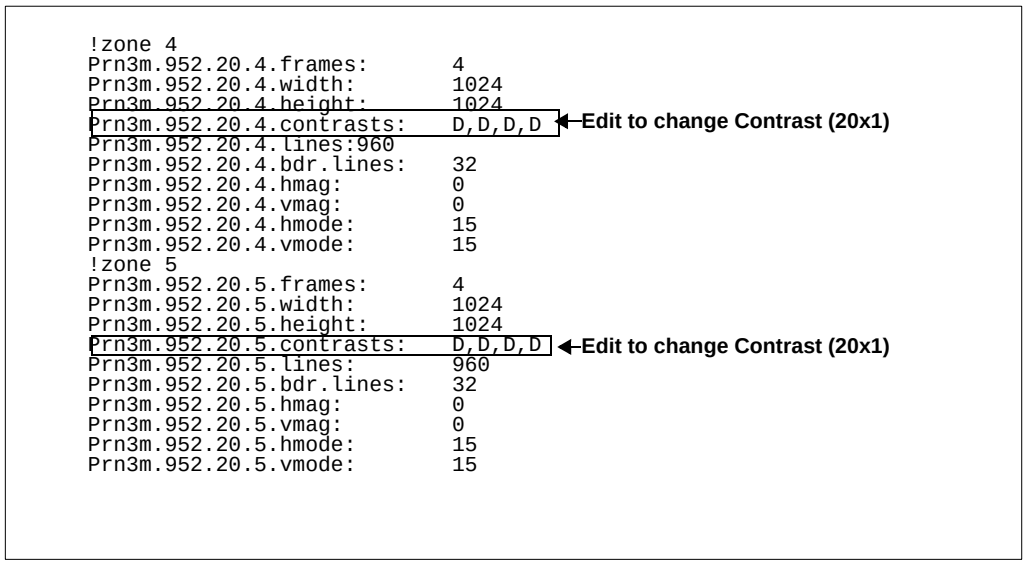

Figure 3-10: HCdefaults.win32 - 952 Lasercamera Section (Part 6)

3.10.3 Kodak Laser Cameras Configuration

3.10.3.1 Overview

This section provides details on how to connect the Kodak family of Lasercameras to the eNTEGRA system using the 952 interface, and how to configure both the eNTEGRA and Lasercamera to produce good quality films. This includes the XLP100, 1120, 2180 Lasercameras.

The eNTEGRA hardcopy server sends commands and high resolution digital image data to DASM/LCAM over the SCSI-2 bus using the Analogic DASM SCSI command set. The DASM/LCAM converts these commands into the 952 commands and a digital image.

Note Due to image quality issues the DASM/VDB interface is no longer being offered.

The 952 commands (host control) are sent from the DASM/LCAM's 25–pin (female) RS422 port to the 15–pin RS422 host communication port (port 1) on the Lasercamera's input module. A MOD42 cable will be required to convert from the 25–pin connection on the DASM unit to the 15–pin connector on the input module.

The DASM/LCAM sends the high resolution digital image data over a 37–pin, 8-bit parallel RS485 interface to the Lasercamera's input module.

Section 3.10.3.2 provides the basic procedure for interfacing/configuring the Kodak Lasercameras to eNTEGRA.

Section 3.10.3.3 provides details on interfacing the Kodak lasercameras to the eNTEGRA.

Section 3.10.3.4 provides details on configuring the eNTEGRA and the Lasercamera for optimal image quality.

3.10.3.2 Basic Procedure

This section provides the basic procedure to interface and configure a Kodak Lasercamera with eNTEGRA.

1. Verify that the DASM/LCAM is connected/configured properly and the Lasercamera has been added to the eNTEGRA **Config** utility (refer to Section 3.6 and Section 3.8 for details).

   The **Device Type** should be set to **ISG3m** in the **Printers** tab of the **Config** utility.

2. Install and connect the host and image data runs between the Lasercamera's input module and the DASM/LCAM. This is typically done by the Kodak service engineer. Refer to Section 3.10.3.3.
3. Have the Kodak service engineer configure the Lasercamera's input module for communication with the DASM/LCAM. Refer to Section 3.10.3.3.
4. Edit the **HCdefaults.win32** to add the Kodak model type and edit the contrast settings. Refer to Section 3.10.3.3.
5. Power up the systems in the following order to assure proper synchronization: Lasercamera, DASM/LCAM and then the eNTEGRA.
6. Log into eNTEGRA, select the **Formatter Static** image from the **Default Patient Calibration** study, and click the **New** icon (located on the Patient Selector Control Bar). Click the **Camera** tool in the **Display** Screen. Click the Down Arrow in the **Film** dialog, select the **Kodak** Lasercamera and click [**Submit**].
7. If
   a. No image is printed, refer to Section 8.2.5 for details on troubleshooting.
   b. An image is printed, analyze the image and determine if additional adjustments are required.
8. If
   a. The boarder needs to be changed, the **HCdefaults.win32** file will need to be edited on the eNTEGRA and the servers to be restarted. Refer to Section 3.10.3.4.
   b. Any other image quality adjustments need to be made, the Kodak service engineer will need to edit the parameters on the input module. Refer to Section 3.10.3.4.
9. Repeat steps 6 through 8 until optimal film quality is achieved.

3.10.3.3 Lasercamera Connection

This section provides details on how to interface the Kodak Lasercameras to the eNTEGRA system via the DASM/LCAM.

a. Interface Wiring

Figure 3-11 and Table 3-17 detail the interface between the eNTEGRA and the Kodak Lasercameras using the DASM/LCAM.

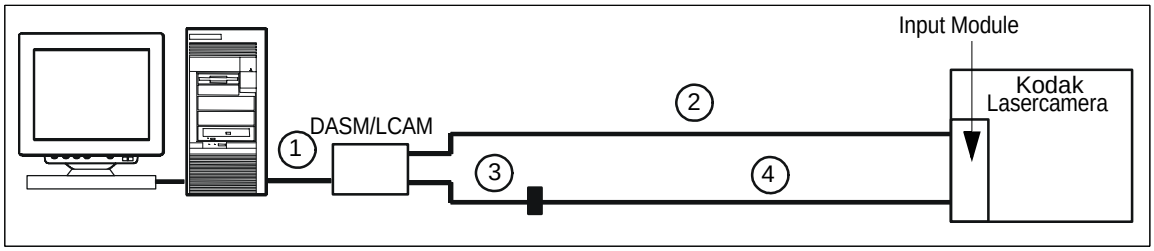

Figure 3-11: eNTEGRA to Kodak Lasercamera Interconnection via the DASM/LCAM

Table 3-17. DASM/LCAM to Kodak Lasercamera Cable Summary

Cable Run	Description	Part #/Source	Length	Reference
1	Peripheral Tower SCSI Cable.	46-325201P5	1m	Section 5.1.3
2	37 Pin LCAM Image Data Cable - RS485	Kodak	45m	Kodak Service Engineer
3	MOD42 Cable. 25 to 15 pin converter.	Kodak	<1m	
4	15 Pin Host Communication Cable - RS422	Kodak	45m	

Note Refer to Section 5.1.3.1 for pinout details on the DASM/LCAM.

b. Interface Configuration

The Kodak Lasercamera's input module must be configured to communicate with the eNTEGRA.

Table 3-18 summarizes the configuration parameters that need to be set on Kodak Lasercamera for the DASM/LCAM interface.

The Kodak Service Engineer will be responsible for setting these parameters on the Lasercamera.

Table 3-18. DASM/LCAM to Kodak Lasercamera Interface Configuration (Part 1)

Interface	Parameter	Setting
Host Communication	Baud Rate	1200
	Stop Bits	1
	Data Bits	8
	Parity	Even
	Parity Enable	Enable
	Character Pacing	0
	End Of Message	CR
	Protocol	ACK/NACK
	Host Protocol Type	952
Image	Image Size	1024x1024
	Parity Enable	Enable
	Parity	even
	Pixel Width	8
	Horizontal Pixel Aspect	1
	Vertical Pixel Aspect	1

c. HCdefaults.win32 Configuration

The **HCdefaults.win32** file must be edited in order for the eNTEGRA hardcopy server to properly work with a Kodak Lasercamera. The following changes need to be made:

- The **ISG3m.version** parameter must be changed from 3M to **KODAK**.
- The Kodak model must be defined via the **ISG3m.model** parameter.
- The contrast parameter, **Prn3m.952.fmt.n.contrast** must be changed from D to **20** for a negative image polarity (black on white) for each frame definition. Use a value of **5** for positive image polarity (white on black).

Note

Kodak's implementation of the 952 protocol uses the **Prn3m.952.fmt.n.contrast** parameter only to set the image polarity. Values from **1-15** and **D** produce a positive image polarity (white on black). Values from 1**6-30** produce a negative image polarity (black on white). The film contrast will need to be set on the Lasercamera's input module.

The following procedure details how to edit the **HCdefaults.win32** file for Kodak Lasercameras using the **notepad** editor.

1. Move to the **Main** screen and click the minimize button.
2. Double click the **eNTEGRA Prompt** icon on the desktop and type:

   CD config <Enter>

3. Type the following to backup the **HCdefaults.win32** file:

   copy HCdefaults.win32 HCdefaults.win32.org <Enter>

4. Type the following to open the **HCdefaults.win32** file using the **notepad** editor:

   notepad HCdefaults.win32 <Enter>

5. Type the following **notepad** command to go to the line containing the **ISG3m.version** parameter:

   <Ctrl>+<F> ISG3m.version <Enter>

   The cursor will be placed on the '**I**' of the following line:
   ISG3m.version: 3M

6. Press the › key until the cursor is over the '**3m**' then overtype by **KODAK** and press <**Enter**>.
7. Type the following line to enter the model type (valid model types are ***KODAK_100XLP***, ***KODAK_1120***, or ***KODAK_2180***):
   ISG3m.model: KODAK_*<100XLP or 1120 or 2180>*

8. Type the following **notepad** command to go to the first line containing the **Prn3m.952.fmt.n.contrast** parameter:

   <Ctrl>+<F> Prn3m.952.fmt.n.contrast <Enter>

   The cursor will be placed on the 'p' of the following line:
   Prn3m.952.1.1.contrasts:D

9. Press the › key until the cursor is over the '**D**' then overtype it by **20**.
10. Press **<F3>** to go to the next line containing the **Prn3m.952.fmt.n.contrast** parameter:
11. Repeat steps 9 and 10 until the contrast setting for each frame in each format definition is changed. There are a total of 25 frame definitions.

Note

Refer to Figure 3-5, Figure 3-6, Figure 3-7, Figure 3-8, Figure 3-9 and Figure 3-10 in Section 3.10.2.5 for a listing of this section of the HCdefaults.win32 file.

12. Save the changes and quit the **notepad** editor by selecting:

    File → Save
    File → Exit

13. Type the following to copy the modified **HCdefaults.win32** file in the **\config** directory:

    copy HCdefaults.win32 HCdefaults.win32.bak <Enter>

14. Go back to the eNTEGRA **Main** Screen, click the [**X**] button, and in the **System Shutdown** dialog, click the [**Full**] button.
15. Restart the eNTEGRA.

3.10.3.4 Image Quality Configuration

Kodak's implementation of the 952 protocol differs from that of the standard 3M Lasercamera. This result in the following differences in image quality configuration:

- The **Prn3m.952.fmt.n.contrast** parameter in **HCdefaults.win32** is only used to set the image polarity. Values from 1-15 and D produce a positive image polarity (white on black). Values from 16-30 produce a negative image polarity (black on white).

Note Refer to the HCdefaults.win32 Configuration in Section 3.10.2.5 for details on setting the Prn3m.952.fmt.n.contrast parameter.

- The film contrast is set on the Lasercamera's input module.
- The **Prn3m.952.density** parameter in **HCdefaults.win32** is ignored. The film density is set on the Lasercamera's input module.

Note To set contrast and density values on the Kodak, a Wyse terminal is required.

Table 3-19 provides a summary of the key parameters to adjust for film quality.

Table 3-19. Kodak Lasercamera Image Quality Parameters

Parameter	Description	Where Set	Reference
Contrast	Specifies a contrast table to use to produce the image.	Lasercamera's input module via a Wyse terminal.	Kodak Service Engineer.
Density	Specifies the density setting for the film.		
Curve	Defines the Gamma correction curve.		
Boarder	Specifies the boarder level. 0 is dark and 255 is clear.	Prn3m.952.bdr parameter in the HCdefaults.win32 file.	0 - Black Boarder 255 - Clear Boarder See Section 3.10.3.3 for info on editing the **HCdefaults.win32** file.

3.10.4 DuPont Lasercameras Configuration

3.10.4.1 Overview

This section provides details on how to connect the DuPont (Sterling) Lasercameras to the eNTEGRA system and how to configure both the eNTEGRA and Lasercamera to produce good quality films.

The eNTEGRA hardcopy server sends commands and high resolution digital image data to the DASM/LCAM over the SCSI-2 bus using the Analogic DASM SCSI command set. The DASM/LCAM converts these commands into the 952 commands and a digital image.

Note The DuPont has only been validated using the DASM/LCAM interface.

The 952 commands (host control) are sent from the DASM/LCAM's 25–pin (female) RS422 port to the 37–pin RS422 host communication port on the DuPont Linx Q interface which is referred to as the SID. Since the RS422 interface on the SID is a 37–pin male connector, a 25–pin male to 37–pin female cable is required. (46-296980G1 can be used.)

The DASM/LCAM also sends the high resolution digital image data over a 3– pin, 8–bit parallel RS485 interface to DuPont SID.

Section 3.10.4.2 provides the basic procedure for interfacing/configuring the DuPont Lasercameras to eNTEGRA.

Section 3.10.4.3 provides details on interfacing the DuPont lasercameras to the eNTEGRA.

Section 3.10.4.4 provides details on configuring the eNTEGRA and the Lasercamera for optimal image quality.

3.10.4.2 Basic Procedure

This section provides the basic procedure to interface and configure a DuPont Lasercamera with eNTEGRA.

1. Verify that the DASM/LCAM is connected/configured properly and the Lasercamera has been added to the eNTEGRA **Config** utility (refer to Section 3.6 and Section 3.8 for details).

   The **Device Type** should be set to **ISGdupont_3m**.

2. Install and connect the host and image data runs between the SID and the DASM/LCAM. This should be done by the Sterling service engineer. Refer to Section 3.10.4.3.

3. Configure the SID for communication with the DASM/LCAM. This should be done by the Sterling service engineer. Refer to Section 3.10.4.3.

4. Power up the systems in the following order to assure proper synchronization; SID, DASM/LCAM and then the eNTEGRA.

5. Log into eNTEGRA, select the **Formatter Static** image from the **Default Patient Calibration** study, and click the **New** icon (located on the Patient Selector Control Bar). Click the **Camera** tool in the **Display** Screen. Click the Down Arrow in the **Film** dialog, select the **DuPont** Lasercamera and click [**Submit**].

6. If:

   a. No image is printed, refer to Section 8.2.5 for details on troubleshooting.

   b. An image is printed, analyze the image and determine if additional adjustments are required.

7. Any adjustments for image quality will be made via the SID by the Sterling Service Engineer. Refer to Section 3.10.4.4.

8. Repeat steps 5 through 7 until optimal film quality is achieved.

3.10.4.3 Lasercamera Connection

This section provides details on how to interface the DuPont Lasercamera to the eNTEGRA system via the DASM/LCAM.

a. Interface Wiring

Figure 3-12 and Table 3-20 detail the interface between the eNTEGRA and the DuPont Lasercameras using the DASM/LCAM.

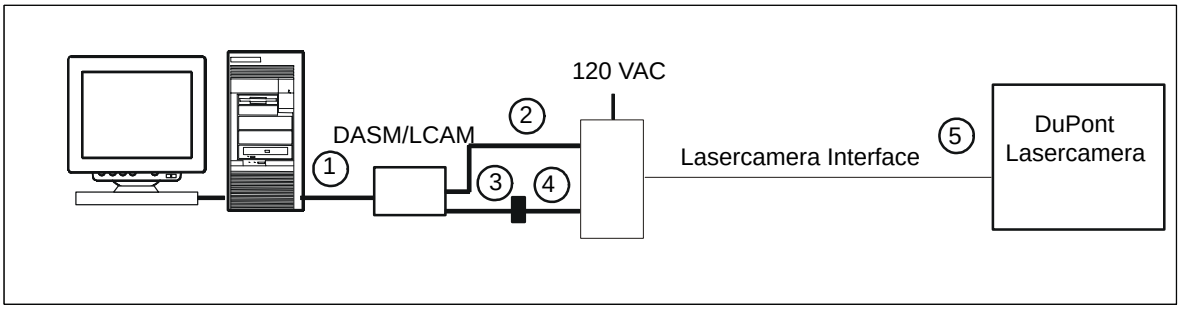

Figure 3-12: eNTEGRA to Dupont Lasercamera Interconnection via the DASM/LCAM

Table 3-20. DASM/LCAM to DuPont Lasercamera Cable Summary

Cable Run	Description	Part #/Source	Length	Reference
1	Peripheral Tower SCSI Cable.	46-325201P5	1 m	Section 5.1.3.
2	37 Pin LCAM Image Data Cable - RS485	Sterling		Sterling Service Engineer
3	25 Pin Male to 37 Pin Female RS422 Stub Cable	46-296980G1	30 cm	GEMS or Sterling
4	37 Pin RS422 Host Communication Cable	Sterling		Sterling Service Engineer
5	Lasercamera Interface (Network or Serial)			

Note Refer to Section 5.1.3.1 for pinout details on the DASM/LCAM.

b. Interface Configuration

The SID must be configured to communicate with the eNTEGRA.

Table 3-21 summarizes the configuration parameters that need to be set on the SID for the DASM/LCAM interface.

The Sterling Service Engineer will be responsible for configuring and interfacing the SID.

Table 3-21. DASM/LCAM to DuPont Lasercamera Interface Configuration

Interface	Parameter	Setting
Host Communications	Baud Rate	1200
	Stop Bits	1
	Data Bits	8
	Parity	Even
	Parity Enable	Enable
	Character Pacing	0
	End Of Message	CR
	Protocol	ACK/NACK
	Host Protocol Type	952
Image	Image Size	1024x1024
	Pixel Width	8
	Parity	Even
	Parity Enable	Enable

3.10.4.4 Image Quality Configuration

The 952 protocol image quality parameters defined in **HCdefaults.win32** file are ignored by the DuPont SID. All image quality adjustment should be performed by the Sterling Service Engineer.

3.10.5 Fuji Laser Cameras Configuration

3.10.5.1 Overview

This section provides details on how to connect the Fuji Lasercameras to the eNTEGRA system and how to configure both the eNTEGRA and Lasercamera to produce good quality films.

The eNTEGRA hardcopy server sends commands and high resolution digital image data to the DASM/LCAM or DASM/VDB over the SCSI-2 bus using the Analogic DASM SCSI command set. The DASM/LCAM converts these commands into the 952 commands and a digital image.

Note Due to image quality issues the DASM/VDB interface is no longer being offered.

The 952 commands (host control) are sent from the DASM/LCAM's 25–pin (female) RS422 port to the 37–pin RS422 host communication port on the Fuji Multiformatter interface. The Multiformatter interface then converts the 952 commands into a Fuji compatible command set and sends it to the Lasercamera. Since the RS422 interface on the Multiformatter interface is a 37–pin male connector, a 25–pin male to 37–pin female cable is required (46-296980G1 can be used).

The DASM/LCAM sends the high resolution digital image data over a 37–pin, 8–bit parallel RS485 interface to the Fuji Multiformatter interface. The Multiformatter interface then converts the digital image into a Fuji compatible image format and sends it to the Lasercamera.

Section 3.10.5.2 provides the basic procedure for interfacing/configuring the Fuji Multiformatter to eNTEGRA.

Section 3.10.5.3 provides details on interfacing the Fuji Multiformatter to the eNTEGRA.

Section 3.10.5.5 provides details on configuring the eNTEGRA and the Lasercamera for optimal image quality.

3.10.5.2 Basic Procedure

This section provides the basic procedure to interface and configure a DuPont Lasercamera with eNTEGRA.

1. Verify that the DASM/LCAM is connected/configured properly and the Lasercamera has been added to the eNTEGRA **Config** utility (refer to Section 3.6, and Section 3.8 for details).

   The **Device Type** should be set to **ISG3m** in the **Printers** tab in the **Config** utility.

2. Install and connect the host and image data runs between the Fuji Multiformatter and the DASM/LCAM. This should be done by the Fuji Service Engineer. Refer to Section 3.10.5.3.

3. Configure the Fuji Multiformatter for communication with the DASM/LCAM. This should be done by the Fuji Service Engineer. Refer to Section 3.10.5.3.

4. Power up the systems in the following order to assure proper synchronization; Lasercamera, Multiformatter DASM/LCAM and then the eNTEGRA.

5. Log into eNTEGRA, select the **Formatter Static** image from the **Default Patient Calibration** study, and click the **New** icon (located on the Patient Selector Control Bar). Click the **Camera** tool in the **Display** Screen. Click the Down Arrow in the **Film** dialog, select the **Fuji** Lasercamera and click [**Submit**].

6. If:

   a. No image is printed, refer to Section 8.2.5 for details on troubleshooting.

   b. An image is printed, analyze the image and determine if additional adjustments are required.

7. Any adjustments for image quality will be made on the Multiformatter by the Fuji Service Engineer. Refer to Section 3.10.5.5.

8. Repeat steps 5 through 7 until optimal film quality is achieved.

3.10.5.3 Lasercamera Connection

This section provides details on how to interface the Fuji Lasercamera to the eNTEGRA system via the DASM/LCAM.

a. Interface Wiring

Figure 3-13 and Table 3-22 detail the interface between the eNTEGRA and the Fuji Lasercameras using the DASM/LCAM.

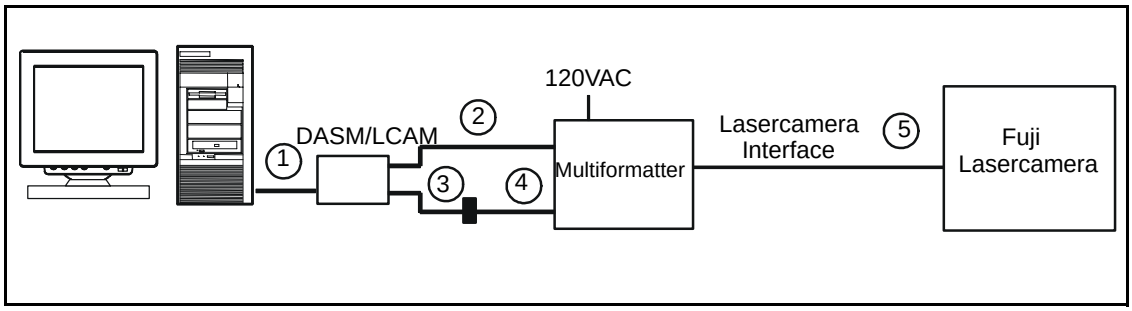

Figure 3-13: eNTEGRA to Fuji Lasercamera Interconnection via the DASM/LCAM

Table 3-22. DASM/LCAM to Fuji Lasercamera Cable Summary

Cable Run	Description	Part # / Source	Length	Reference
1	SCSI 1 to SCSI 2 Cable	46-269566P104	1 m	
2	37 Pin LCAM Image Data Cable - RS485	Fuji		Fuji Service Engineer
3	25 Pin Male to 37 Pin Female RS422 Stub Cable	46-296980G1	30 cm	GEMS or Fuji
4	37 Pin RS422 Host Communication Cable	Fuji	Fuji Service Engineer	
5	Lasercamera Interface			

Note Refer to Section 5.1.3.1 for pin out details on the DASM/LCAM.

3.10.5.4 Interface Configuration

The Fuji Multiformatter must be configured to communicate with the eNTEGRA.

Table 3-23 summarizes the configuration parameters that need to be set on the Fuji Multiformatter for the DASM/LCAM interface.

The Fuji Service Engineer will be responsible for configuring and interfacing the Multiformatter.

Table 3-23. DASM/LCAM to Fuji Multiformatter Interface Configuration

Interface	Parameter	Setting
Host Communications	Baud Rate	1200
	Stop Bits	1
	Data Bits	8
	Parity	Even
	Parity Enable	Enable
	Character Pacing	0
	End Of Message	CR
	Protocol	ACK/NACK
	Host Protocol Type	952
Image	Image Size	1024x1024
	Pixel Width	8
	Parity	Even
	Parity Enable	Enable

3.10.5.5 Image Quality Configuration

The 952 protocol image quality parameters defined in **HCdefaults.win32** file are ignored by the Fuji Multiformatter. All image quality adjustment should be performed by the Fuji Service Engineer.

3.10.6 Konica Lasercameras Configuration

3.10.6.1 Overview

This section provides details on how to connect the Konica Lasercameras to the eNTEGRA system and how to configure both the eNTEGRA and Lasercamera to produce good quality films.

The eNTEGRA hardcopy server sends commands and high resolution digital image data to the DASM/LCAM over the SCSI-2 bus using the Analogic DASM SCSI command set. The DASM/LCAM converts these commands into the 952 commands and a digital image.

The 952 commands (host control) are sent from the DASM/LCAM's 25–pin (female) RS422 port to the RS422 host communication port on the Konica Lasercamera's input module. Konica's Service Engineer will need to provide any hardware required to interface the 25–pin RS422 line into their input module.

The DASM/LCAM also sends the high resolution digital image data over a 37–pin, 8–bit parallel RS485 interface to the input module.

Section 3.10.6.2 provides the basic procedure for interfacing/configuring the Konica Lasercameras to eNTEGRA.

Section 3.10.6.3 provides details on interfacing the Konica Lasercameras to the eNTEGRA.

Section 3.10.6.4 provides details on configuring the eNTEGRA and the Lasercamera for optimal image quality.

3.10.6.2 Basic Procedure

This section provides the basic procedure to interface and configure a Konica Lasercamera with eNTEGRA.

1. Verify that the DASM/LCAM is connected/configured properly, the SCSI Device Driver has been initialized, the permission for the SCSI Device Driver are set properly and the Lasercamera has been added to the eNTEGRA configuration (refer to Section 3.6 and Section 3.8 for details).

   The Device Type should have been set to **ISG3m** in the **Printers** tab in the **Config** utility.

2. Install and connect the host and image data runs between the Konica's input module and the DASM/LCAM. This should be done by the Konica service engineer. Refer to Section 3.10.6.3.

3. Configure Konica's input module for communication with the DASM/LCAM. This should be done by the Konica service engineer. Refer to Section 3.10.6.3.

4. Power up the systems in the following order to assure proper synchronization; Konica Lasercamera, DASM/LCAM and then the eNTEGRA.

5. Log into eNTEGRA, select the **Formatter Static** image from the **Default Patient Calibration** study, and click the **New** icon (located on the Patient Selector Control Bar). Click the **Camera** tool in the **Display** Screen. Click the Down Arrow in the **Film** dialog, select the **Konica** Lasercamera and click [**Submit**].

6. If

   a. No image is printed, refer to Section 8.2 for details on troubleshooting.

   b. An image is printed, analyze the image and determine if additional adjustments are required.

7. Any adjustments for image quality will be made via the input module by the Konica Service Engineer. Refer to Section 3.10.6.4.

8. Repeat steps 5 through 7 until optimal film quality is achieved.

3.10.6.3 Lasercamera Connection

This section provides details on how to interface the Konica Lasercamera to the eNTEGRA system via the DASM/LCAM.

a. Interface Wiring

Figure 3-14 and Table 3-24 detail the interface between the eNTEGRA and the Konica Lasercameras using the DASM/LCAM.

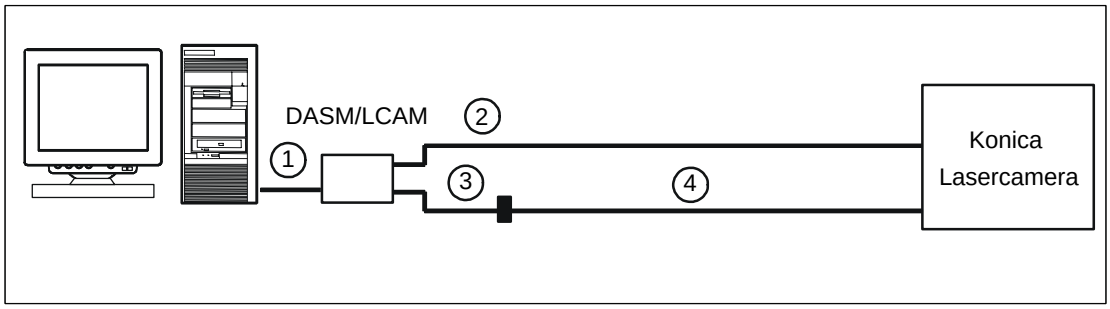

Figure 3-14: eNTEGRA to Konica Lasercamera Interconnection via the DASM/LCAM

Table 3-24. DASM/LCAM to Konica Lasercamera Cable Summary

Cable Run	Description	Part #/ Source	Length	Reference
1	Peripheral Tower SCSI Cable.	46-325201P5	1 m	Section 5.1.3
2	37 Pin LCAM Image Data Cable - RS485	Konica	3–10 m	Konica Service Engineer
3	25 Pin Male to 37 Pin Female RS422 Stub Cable	Konica		
4	37 Pin RS422 Host Communication cable	Konica		

Note Refer to Section 5.1.3.1 for pinout details on the DASM/LCAM.

b. Interface Configuration

The Konica Lasercamera's input module must be configured to communicate with the eNTEGRA.

Table 3-25 summarizes the configuration parameters that need to be set on the input module for the DASM/LCAM interface.

The Konica Service Engineer will be responsible for configuring and interfacing Lasercamera.

Table 3-25. DASM/LCAM to Konica Lasercamera Interface Configuration

Interface	Parameter	Setting
Host Communications	Baud Rate	1200
	Stop Bits	1
	Data Bits	8
	Parity	Even
	Parity Enable	Enable
	Character Pacing	0
	End Of Message	CR
	Protocol	ACK/NACK
	Host Protocol Type	952
Image	Image Size	1024x1024
	Pixel Width	8
	Parity	Even
	Parity Enable	Enable

3.10.6.4 Image Quality Configuration

The 952 protocol image quality parameters defined in **HCdefaults.win32** file are ignored by the Konica Lasercamera. All image quality adjustment should be performed by the Konica Service Engineer.

3.10.7 Polaroid Helios Lasercamera Installation/Configuration

3.10.7.1 Overview

This section provides details on how to connect the Polaroid (Sterling) Helios Lasercameras to the eNTEGRA system and how to configure both the eNTEGRA and Lasercamera to produce good quality films.

The eNTEGRA hardcopy server sends commands and high resolution digital image data to the Helios via the Nuclear Local Area Network (LAN) using the **lp** command over the TCP/IP network protocol.

Note

The Helios Lasercamera requires at a minimum the Primary Ethernet Module. In addition, if more the one device will print to the Helios via the network interface, the Multiple Ethernet Image Manager software will need to be activated. Contact your Helios representative for details.

Section 3.10.7.2 provides the basic procedure for interfacing/configuring the Helios Lasercameras to eNTEGRA.

Section 3.10.7.3 provides details on interfacing the Helios Lasercameras to the eNTEGRA.

Section 3.10.7.4 provides details on configuring the eNTEGRA and the Lasercamera for optimal image quality.

3.10.7.2 Basic Procedure

This section provides the basic procedure to interface and configure the Helios Lasercamera with eNTEGRA.

1. Obtain an IP Address for the Helios.
2. Verify that the Helios was configured correctly on the eNTEGRA. Refer to Section 3.6 for details.

   The **Device Type** should be set to **helios**. The IP Address of the Helios will also need to be entered.
3. Install and connect the Helios to the Nuclear LAN. This should be done by the Sterling Service Engineer. Refer to Section 3.10.7.3.
4. Configure the Helios for communication with the eNTEGRA. This includes assigning the Helios's IP Address, Subnetmask (optional) and adding the eNTEGRA's IP Address to the Helios. This should be done by the Sterling Service Engineer. Refer to Section 3.10.7.3.
5. Power up the Helios.
6. Log into eNTEGRA, select the **Formatter Static** image from the **Default Patient Calibration** study, and click the **New** icon (located on the Patient Selector Control Bar). Click the **Camera** tool in the **Display** Screen. Click the Down Arrow in the **Film** dialog, select the **Helios** Lasercamera and click [**Submit**].
7. If
   a. No image is printed, refer to Section 8.2.5 for details on troubleshooting.
   b. An image is printed, analyze the image and determine if additional adjustments are required.
8. Any adjustments for image quality will be made via the **HCdefaults.win32** file. Refer to Section 3.10.7.4.
9. Repeat steps 6 and 7 until optimal film quality is achieved.

3.10.7.3 Lasercamera Connection

This section provides details on how to interface the Helios Lasercamera to the eNTEGRA system via the LAN.

a. Interface Wiring

Figure 3-15 and Table 3-26 detail the interface between the eNTEGRA and the Helios.

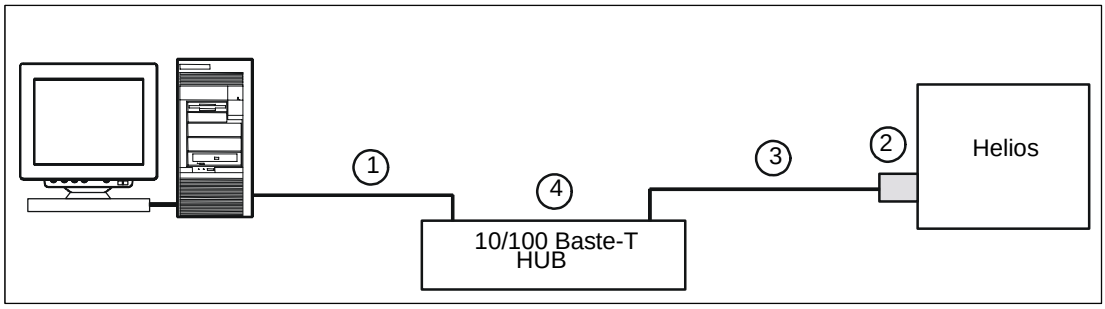

Figure 3-15: eNTEGRA to Helios Interconnection

Table 3-26. Helios Network Interface Cable Summary

Cable Run	Description	Part #/ Source	Reference
1	eNTEGRA CAT 5 cable	GEMS	Section 5.1.4
2	10 Base–T Transceiver for the Helios	Sterling	Helios (Sterling) Service Engineer
3	Helios CAT 5 Cable		
4	10 Base–T Hub	GEMS	

b. Interface Configuration

The Helios must be configured to communicate with the eNTEGRA.

Table 3-27 summarizes the configuration parameters that need to be set on the Helios. The Helios (Sterling) Service Engineer will be responsible for configuring and interfacing Lasercamera. Details can also be found in the Helios Service Manual.

Table 3-27. Helios Lasercamera Interface Configuration Summary

Parameter	Setting
IP Address for Helios	IP Address assigned to Helios
Netmask (Optional)	Subnet Mask assigned to LAN
Host IP Address	eNTEGRA's IP Address

3.10.7.4 Image Quality Configuration

The image quality parameters for the Helios are set via the **HCdefaults.win32** file on eNTEGRA. The **HCdefaults.win32** file is a text file that contains the default print device parameters for all hardcopy devices supported by the eNTEGRA hardcopy server. It is located in the **D:\einstein\einstein_project\resources** directory. Typically the **HCdefaults.win32** file contains a section for each print device's parameters.

Figure 3-16 lists the Helios settings in the **HCdefaults.win32** file. Table 3-28 provides a summary of the parameters that can be adjusted.

Note

Refer to the Helios Service Manual for details on the effect of each parameter on image quality.

The basic procedure for editing the **HCdefaults.win32** file along with an example can be found in Section 3.10.2.5.

Table 3-28. Helios Print Device Parameters

Parameter	Description	Default Setting
PrnHelios.curve	This parameter defines the gamma curve the Helios uses to produce the image. Range is 0 to 40.	17
PrnHelios.brightness	This parameter adjusts brightness of the image on the film. Range is -16 to 16.	1
PrnHelios.contrast	This parameter adjusts contrast of the image on the film. Range is -16 to 16.	1
PrnHelios.dmin	This parameter sets the lower density value.	0.02
PrnHelios.dmax	This parameter sets the upper density value.	2.01
PrnHelios.margin	These two parameter set the boarder. Choices are "clear" or "black".	clear
PrnHelios.seperator		clear
PrnHelios.exposure	This parameter sets the polarity of the image printed on the film. Choices are "negative" or "positive".	negative

CAUTION

Only edit the parameter listed in Table 3-28. Changing other parameters in HCdefaults.win32 may cause errors in the hardcopy server.

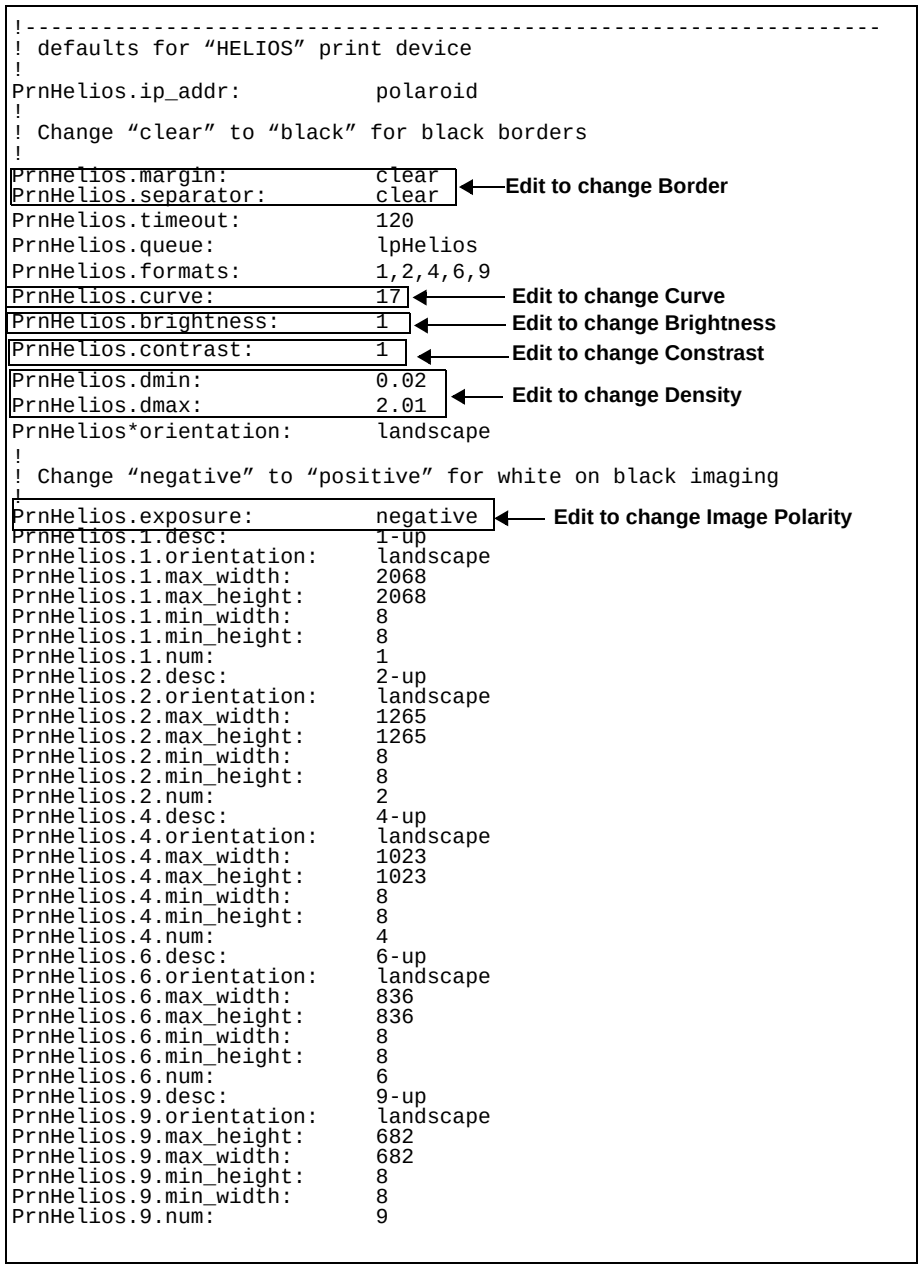

Figure 3-16: HCdefaults.win32 – Helios Settings

3.10.8 Codonics NP1600M Color Printer Installation/Configuration

3.10.8.1 Overview

This section provides details on how to connect the Codonics Color printer to the eNTEGRA system and how to configure both the eNTEGRA and the Codonics to produce good quality films.

The eNTEGRA hardcopy server sends commands and high resolution digital image data to the Codonics via the Nuclear Local Area Network (LAN) using the **IP** command over the TCP/IP network protocol.

The Codonics Printer requires the following items to communicate with eNTEGRA:

- **ISG_1** license - 10 character license key (supplied by the vendor).
- **snmpd** software patch - 3.5" floppy.
- **lpd** software patch - 3.5" floppy.

Note These items should be provided with the Codonics software. If not, contact Codonics.

Section 3.10.8.2 provides the basic procedure for interfacing/configuring the Codonics Printer to eNTEGRA.

Section 3.10.8.3 provides details on interfacing the Codonics to the eNTEGRA.

Section 3.10.8.5 provides details on configuring the eNTEGRA and the Codonics for optimal image quality.

3.10.8.2 Basic Procedure

This section provides the basic procedure to interface and configure the Codonics Printer with eNTEGRA.

1. Obtain an IP Address for the Codonics.
2. Verify that the Codonics was configured correctly on the eNTEGRA via the **Config** utility. Refer to Section 3.8 for details.

   The **Device Type** should be set to **ISGnp1600m**. The IP Address of the Codonics will also need to be entered.
3. Install Codonics printer per the Codonics Users Manual instructions and connect it to the Nuclear LAN. Refer to Section 3.10.8.3.
4. Configure the Codonics for communication with the eNTEGRA. This includes assigning the Codonics's IP Address and Subnetmask to the printer. Refer to the Codonics Users Manual and Section 3.10.8.3.
5. Upgrade the Codonics as per Section 3.10.8.4.
6. Log into eNTEGRA, select the **Formatter Static** image from the **Default Patient Calibration** study, and click the **New** icon (located on the Patient Selector Control Bar). Click the **Camera** tool in the **Display** Screen. Click the Down Arrow in the **Film** dialog, select the **Codonics** Lasercamera and click [**Submit**].
7. If
   a. No image is printed, refer to Section 8.2 for details on troubleshooting.
   b. An image is printed, analyze the image and determine if additional adjustments are required.
8. Create a text file that contains the Codonics image parameters on the eNTEGRA, then send it to the Codonics. Refer to the Codonics Users Manual and Section 3.10.8.5.
9. Repeat steps 5 through 7 until optimal film quality is achieved.

3.10.8.3 Printer Interface

This section provides details on how to interface the Codonics Printer to the eNTEGRA system via the LAN.

a. Interface Wiring

Figure 3-17 and Table 3-29 detail the interface between the eNTEGRA and the Codonics.

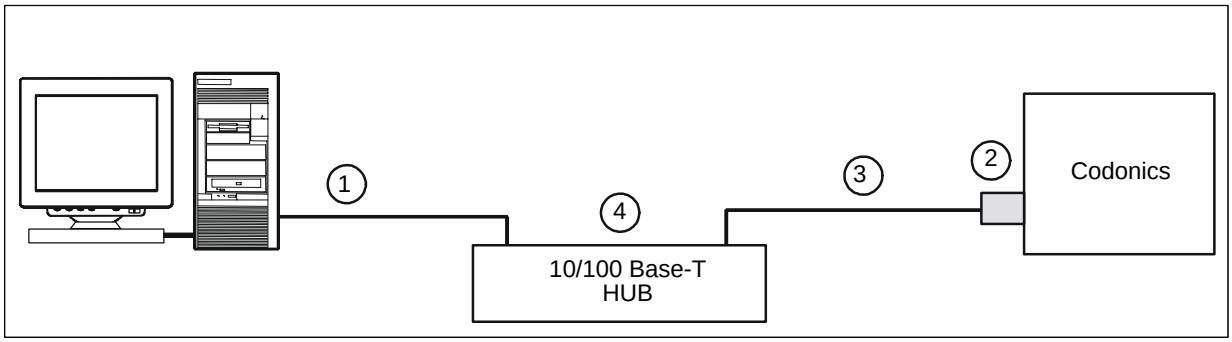

Figure 3-17: eNTEGRA to Codonics Interconnection

Table 3-29. Codonics Network Interface Cable

Cable Run	Description	Part #/Source	Reference
1	eNTEGRA CAT 5 Cable	GEMS	Section 5.1.3
2	10 Base–T Transceiver for Codonics	Codonics or GEMS	Codonics Users Manual
3	Codonics CAT 5 Cable		
4	10 Base–T HUB	GEMS	

b. Interface Configuration

The Codonics must be configured to communicate with the eNTEGRA. Refer to the Codonics Users Manual for details on setting these parameters. Table 3-30 summarizes the configuration parameters that need to be set on the Codonics.

Table 3-30. Codonics Interface Configuration

Parameter	Setting
IP Address for Codonics	IP Address assigned to Codonics
Netmask (Optional)	Subnet Mask assigned to LAN

3.10.8.4 Codonics Upgrade

To enable proper communication with the eNTEGRA, the Codonics must be upgraded as follows:

1. Ensure that no one is suing the printer.
1. Make sure no-one is using the printer
2. Open a command line window (**Start → Programs → Command Prompt**).
3. Type **E:** <**Enter**>, where E: stands for your CD Drive.
4. Type **cd \Drivers\Printers\codonics\Patch1.6** <**Enter**>.
5. Type **ftp *codonics_IP_Address*** <**Enter**>
6. When prompted, enter:
   User Name: ***your first name***
   Password: **300**
7. Type **bin** <**Enter**>. The system responds: 200 Type set to I
8. Type **hash** <**Enter**>. The system responds: Hash mark printing On.
9. Type **put snmp2-v1.0B1.tar.gz** <**Enter**>. The system responds:

```
200 PORT command successful.
150 Opening BINARY mode data connection for snmp2-v1.0B1.tar.gz.
##################################
226- Installing update
x ., 0 bytes, 0 tape blocks
x ./Install.NP1600, 240 bytes, 1 tape blocks
x ./Reboot.NP1600, 40 bytes, 1 tape blocks
x ./Title.NP1600, 40 bytes, 1 tape blocks
x ./Undo.NP1600, 247 bytes, 1 tape blocks
x ./Verify.NP1600, 11 bytes, 1 tape blocks
x ./snmp2.tar, 642560 bytes, 1255 tape blocks
```

10. The printer reboots.

3.10.8.5 Image Quality Configuration

The image quality parameters for the Codonics are set via a User Preference file that is associated with the eNTEGRA hostname. The User Preference file is a text file that contains the parameter name and the setting. This file can be created directly on the Codonics or on the eNTEGRA and then sent to the Codonics via the **ftp** command.

Table 3-31 provides a summary of the key parameters that can be adjusted. Refer to the Codonics Users Manual for details on the effect of each parameter on image quality.

The procedure for creating the User Preference file on the eNTEGRA and sending it to the Codonics is detailed below. Additional information is also provided in the *Setting User Preferences* chapter of the *Codonics Users Manual*.

Table 3-31. Codonics Image Quality Parameters Print Device Parameters

Parameter	Description	Default Setting
GAMMA	This parameter allows the user to adjust the lightness/ darkness level of the images. The amount of correction is specified by a single value ranging from 0.0 to 10.0.	1.0
MCM	MCM stands for Medical Color Matching. It is a set of look up tables that adjust the printed output colors to more accurately match the output of the CRT monitor. LUTs assigned to GEMS are 8, 10, 12 and 14.	N/A

a. Creating the Codonics User Preference File

The User Preference file can be created using the **Notepad** editor on the eNTEGRA. This file is then sent to the Codonics using the **ftp** command. The following procedure details this process using the **Notepad** editor and **ftp**.

1. Click on the minimize icon on the eNTEGRA **Main** screen.
2. Click **Start** on the Task bar, select **Run**, type cmd and click [**OK**].
3. In the opened Command Line window, type:

   notepad codon.set <Enter>

4. Type the following string and data to enter the GAMMA and MCM values:

   GAMMA 1.5<Enter>

   MCM 12 <Enter>

5. Save the changes and quit the **notepad** editor by selecting:

   File → Save
   File → Exit

6. Type the following command string to open an *ftp* session:

   ftp codonics <Enter>

   The system responds with:
   Name (codonics:username):

7. Type in the eNTEGRA's hostname for the *Name* (for example *eNTEGRA)*:

   entegra <Enter>

   The system responds with:
   Name (codonics:username): entegra
   331 Use printer #{0-2, 8, 9, 10, 11-99, 100-104 for password.
   Password:

8. Type in 0 for the password. The password will not be echoed.

   0 <Enter>

   The system responds with:
   230 User entegra logged in on System Device
   ftp>

9. At the *ftp>* prompt type the following to set file transfer to binary:

   bin <Enter>

   The system responds with:
   200 Type set to I.
   ftp>

10. Type the following to transfer the *codon.set* file to the Codonics:

    put codon.set <Enter>

    The system should respond with a message indicating the file was transferred.

11. Type the following to quit the ftp session:

    quit <Enter>

12. Open the eNTEGRA icon and send an image to the Codonics.

13. Analyze the image. If further adjustments are required, change the GAMMA and MCM values in the *codon.set* file on eNTEGRA and resent it to the Codonics. Repeat as necessary.

3.10.9 PostScript™ Compatible Printer Installation/Configuration

3.10.9.1 Overview

This section provides general information on interfacing a PostScript™ compatible printer to the eNTEGRA system.

The eNTEGRA application utilizes the Window NT system services to send printouts to any supported printer device. Although any windows compatible printer will work, the best results are achieved using a PostScript compatible printer.

The eNTEGRA system interfaces the PostScript printer either through its parallel port or the network port, using TCP/IP network protocol.

Section 3.10.9.2 provides the basic procedure for installing a Windows PostScript printer to be interfaced to eNTEGRA.

Section 3.10.9.3 provides details on the physical interface between the PostScript printer and the eNTEGRA.

3.10.9.2 Basic Procedure

The procedure below provides guidelines and an example of installation sequence for a windows PostScript compatible printer. There may be some variations in the instructions depending on the printer manufacturer. For additional information and troubleshooting, refer to the manufacturer's printer documentation.

1. Connect the printer to eNTEGRA (refer to Section 3.10.9.3):
   a. If the parallel port interface will be used, connect the printer parallel port cable to the eNTEGRA parallel port.
   b. If the network interface will be used, connect the printer to the local network (refer to the printer documentation). An IP Address will also be need for the printer.
2. Install the printer software according to the interface use, as follows:
   - Section 3.10.9.2.1 - Software Installation for a Printer Interfaced via the Parallel Port on page 3-78.
   - Section 3.10.9.2.2 - Software Installation for a Printer Interfaced via the Network Port on page 3-78.

3.10.9.2.1 Software Installation for a Printer Interfaced via the Parallel Port

1. Power down the eNTEGRA.
2. Click on [**Start**] in the Task Bar, select **Setting** → **Printers**.
3. In the opened **Printers** window, double click on **Add Printer**.
4. Click on [**Next**].
5. Check the box next to **LPT1** and click on [**Next**].
6. Insert the printer manufacturer CD into the CD drive and click [**Have Disk**].
7. Click on [**Browse**], select the appropriate installation file on the CD and click on [**Open**].
8. Click [**OK**].
9. Select the printer model and click on [**Next**] three times
10. Check the radio button next to **No** to avoid printout of test page, and click on [**Finish**] to start the driver installation.

3.10.9.2.2 Software Installation for a Printer Interfaced via the Network Port

1. Power down the eNTEGRA.
2. Click on [**Start**] in the Task Bar, select **Setting** → **Printers**.
3. In the opened **Printers** window, double click on **Add Printer**.
4. Click on [**Next**].
5. Check the box next to **LPT1** and click on [**Next**] (the port will be changed later).
6. Insert the printer manufacturer CD into the CD drive and click [**Have Disk**].
7. Click on [**Browse**], select the appropriate installation file on the CD and click on [**Open**].
8. Click [**OK**].
9. Select the printer model and click on [**Next**] three times
10. Check the radio button next to **No** to avoid printing of test page, and click on [**Finish**] to start the driver installation.
11. When driver installation has been completed, click on [**Start**] in the Task Bar, select **Setting** → **Control Panel**.
12. Double click on [**Network**] and go to the **Service** tab.

13. Check that **Microsoft TCP/IP Printing** service is present.
    If so, skip to Step 22.
    Otherwise, proceed to Step 14.
14. Insert the **Window NT** CD into the CD drive.
15. Click on [**Start**] in the Task Bar, and select **Setting** → **Control Panel**.
16. Double click on [**Network**] and go to the **Service** tab.
17. Click [**Add**].
18. Select **Microsoft TCP/IP Printing** and click [**OK**].
19. Set the path as **E:\i386** and click [**Continue**] to begin installation (E: stands for the CD drive).
20. Click [**Close**].
21. Click [**Yes**] to restart the system.
22. Click on [**Start**] in the Task Bar, and select **Setting** → **Printers**.
23. Highlight the ***PostScript*** printer, press the right mouse button and select the **Properties** entry.
24. Click on the **Ports** tab.
25. Click [**Add Port**].
26. Highlight **LPR Port** and click on [**New Port**].
27. Type the printer ***IP address*** (recorded in the pre–installation checklist) as the **Server Address**.
28. Type **PS** as the **Printer Name** and click [**OK**].
29. Click [**Close**].
30. Click [**OK**].

3.10.9.3 Physical Interface

This section provides details on how to physically interface the PostScript Printer to the eNTEGRA system either via the LAN or parallel port.

a. LAN Interface

Figure 3-18 and Table 3-32 detail the interface between the eNTEGRA and the PostScript® printer via the LAN.

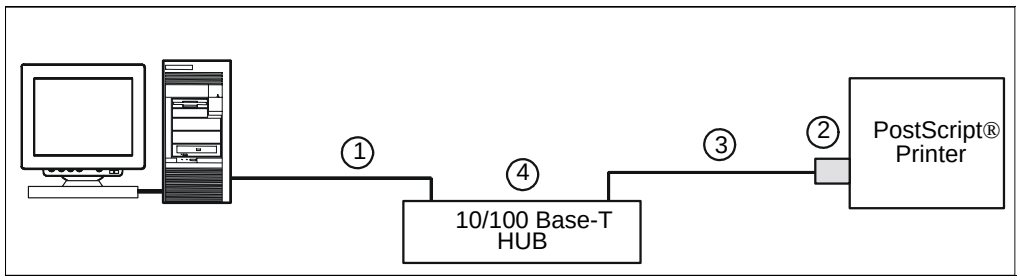

Figure 3-18: eNTEGRA to PostScript Printer LAN Interface

Table 3-32. PostScript® Printer Network Interface Cable

Cable Run	Description	Part #/Source	Reference
1	eNTEGRA CAT 5 Cable	GEMS	Section 5.1.3
2	10 Base–T Transceiver for the Printer	Customer or GEMS	
3	Printer CAT 5 Cable		
4	10 Base–T Hub	GEMS	

b. Parallel Port Interface

Figure 3-19 and Table 3-33 details the interface between the eNTEGRA and the PostScript® printer via the eNTEGRA's parallel port.

Note Refer to PC User's Guide for information on the location of the eNTEGRA's parallel port.

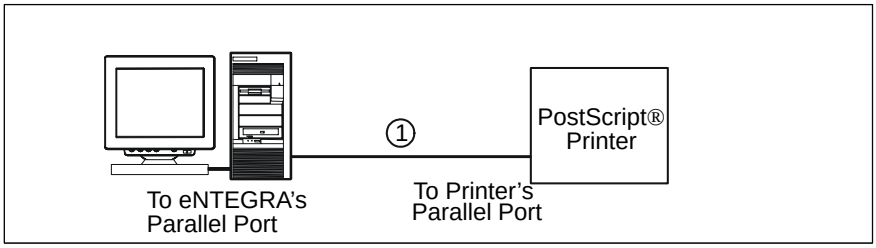

Figure 3-19: eNTEGRA to Postscript® Printer Parallel Port Interface

Table 3-33. PostScript® Printer Parallel Port Interface Cable Summary

Cable Run	Description	Part #/Source	Reference
1	DB25 to Printer's Parallel Port	Customer	Printer's Documentation

3.10.10 DICOM Print

3.10.10.1 Overview

This section provides details on how to connect and configure the various DICOM printers that eNTEGRA P&R supports.

The eNTEGRA P&R hardcopy server now supports printing to a DICOM Printer (DICOM Print Management SCP) via the local network using the TCP/IP network protocol. The hardcopy server represents a single Application Entity (AE) that is separate from the one used for image transfer. It provides standard conformance to the following DICOM 3.0 SOP Classes as a SCU:

- Basic Grayscale Print Management SOP Class.
- Basic ColorPrint Management SOP Class.

DICOM printers are configured in the **Printers** tab of the **eNTEGRA Configuration** window and the **HCdefaults.win32** file in the **D:\einstein\einstein_project\resources** directory. The following DICOM printers are validated:

- Imation 8300 (DCMI8300)
- Imation 8700 Print Server (DCMI8700)
- AGFA Drystar 2000 - Colour and Black and White (DCMA2KCL & DCMA2KBW)
- Codonics 1660m (DCMcod)

Other DICOM printers may be compatible with eNTEGRA but will need to be manually configured. Refer to section Section 3.10.10.5 for details.

Section 3.10.10.2 provides the basic procedure for interfacing/configuring the printers to eNTEGRA.

Section 3.10.10.3 provides details on the physical interface between the DICOM printers and the eNTEGRA.

Section 3.10.10.4 provides details on configuring the eNTEGRA and the DICOM printer.

3.10.10.2 Basic Procedure

This section provides the basic procedure to interface and configure DICOM Printers with eNTEGRA.

1. If necessary, connect the printer to the Nuclear LAN. Refer to Section 3.10.10.3.
2. Obtain the following information for the DICOM printer:
   a. AE Title (***HOSTNAME* in upper case)**
   b. TCP/IP Port # (=104).
   c. IP Address
3. Verify that the printer was configured correctly on the eNTEGRA via the **eNTEGRA Configuration** window (Section 3.8.4.11), as follows:
   a. The selected **Type** in the **Add\Edit Printer Device** window is **Dicom**.
   b. The correct **Sub Type** was selected in the **Dicom Printer Setup** window (either of **Imation 8300**, **Imation 8700**, **Agfa 2000 color**, **Agfa 2000 B&W** or **Codonics**).
4. Log into eNTEGRA, select the **Formatter Static** image from the **Default Patient Calibration** study, and click the **Load** icon (located on the Patient Selector Control Bar). Click the **Camera** tool in the **Display** Screen. Click the Down Arrow in the **Film** dialog, select the **Dicom** printer and click [**Submit**].
5. If
   a. No image is printed, refer to Section 8.2.6 for details on troubleshooting.
   b. An image is printed, analyze the image and determine if additional adjustments are required.
6. Any adjustments for image quality will be made via the **HCdefaults.win32** file. Refer to Section 3.10.10.4.
7. Repeat steps 5 through 7 until optimal film quality is achieved.

3.10.10.3 Printer Interface

This section provides details on how to interface the DICOM Printers to the eNTEGRA system via the LAN.

Figure 3-20 and Table 3-34 detail the interface between the eNTEGRA and the DICOM Printer.

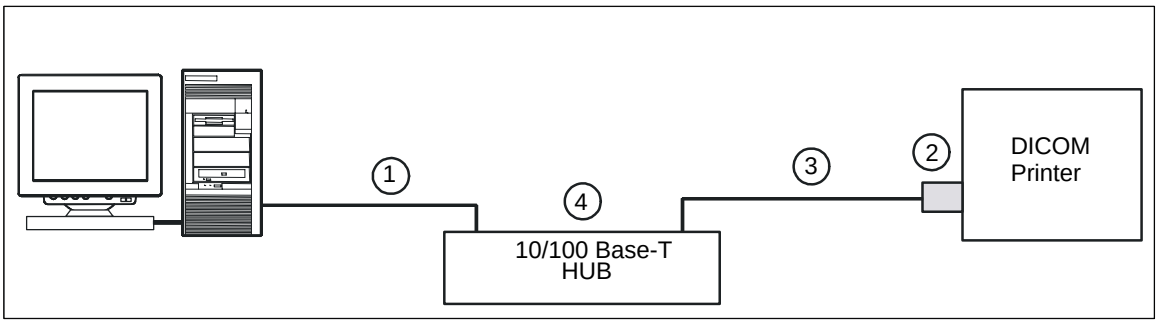

Figure 3-20: eNTEGRA to DICOM Printer Interconnection

Table 3-34. DICOM Printer Network Interface Cables

Cable Run	Description	Part #/Source	Reference
1	eNTEGRA CAT 5 Cable	GEMS	Section 5.1.3
2	10 Base–T Transceiver fro printer.	Printer Vendor or GEMS	Printer User's Manual
3	Printer's CAT 5 Cable		
4	10 Base–T Hub	GEMS	

3.10.10.4 Configuration

The Basic Grayscale and Color Management SOP Classes provide a number of configurable parameters for image quality. These parameters are either set by the printer or sent by the eNTEGRA. The parameters sent by the eNTEGRA are configured in the **HCdefaults.win32** file and can be edited using the **Notepad**. In addition to the image quality parameters, the **HCdefaults.win32** file also contains the settings for the printers **AE Title** and **Port #**.

Table 3-35 defines the main DICOM parameters that can be edited in the **HCdefaults.win32** file. Table 3-36 lists the default setting for each of the validated printers.

Table 3-35. DICOM Print Parameter Definition

DICOM Parameter	eNTEGRA P&R Hardcopy Server Parameter	Definition
IP Address	ip_address	Host name assigned to printer's IP address on the Hosts Tab of the Config utility.
AE Title	scp_ae_title	DICOM SCP AE Title -The printer's AE Title
Port #	port	The printer's TCP listening port #.
Medium Type	medium	Hardcopy Medium - PAPER, CLEAR FILM, BLUE FILM
Film Destination	destination	Destination of Film - MAGAZINE, PROCESSOR
Film Orientation	<fmt_num>.orientation	LANDSCAPE, PORTRAIT
Film Size ID	<fmt_num>.size_id	8INX10IN, 14INX17IN, 10INX14IN, 24CMX24CM, 24CMX30CM
Mag Type	<fmt_num>.magnification	Magnification Type - REPLICATE, BILINEAR, CUBIC, NONE
Max Density	<fmt_num>.max_density	Max density - Defined in printer documentation.
Min Density	<fmt_num>.min_density	Min density - Defined in printer documentation.
Border Density	<fmt_num>.boarder_density	Density of Boarder - Defined in printer documentation.
Polarity	<fmt_num>.polarity	NORMAL, REVERSE
Photometric Interpretation	<fmt_num>.photmetric_in...	RGB - Color, MONOCHROME1 - Black on White (0 pix=white), MONOCHROME2 - White on Black (0 pix=black)

Table 3-36. DICOM Print Parameters Default Settings

DICOM Parameter	Default Settings				
	Imation 8300 (DCMI8300)	**Imation 8700 (DCMI8700)**	**Codonics (DCMcod)**	**AGFA - Color (DCMA2KCl)**	**AGFA - B&W (DCMA2KBW)**
IP Address (See Note)	imation	imat8700	codicom	agfa2k	agfa2k
AE Title	3M_8300	3M_PrintServer	PRINT_SCP	Drystar	Drystar
Port #	104	1024	104	104	104
Medium Type	CURRENT	CURRENT	PAPER	CLEAR	CLEAR
Film Destination	PROCESSOR	CURRENT	PROCESSOR	PROCESSOR	PROCESSOR
Film Orientation	LANDSCAPE	PORTRAIT	LANDSCAPE	LANDSCAPE	LANDSCAPE
Film Size ID	8INX10IN	14INX17IN	8INX10IN	8INX10IN	8INX10IN
Mag Type	CUBIC	CUBIC	BILINEAR	CUBIC	CUBIC
Max Density	300	300	64000	Default	Default
Min Density	0	0	0	Default	Default
Border Density	BLACK	BLACK	WHITE	200	200
Empty Image Dens	BLACK	BLACK	WHITE	200	200
Polarity	REVERSE	NORMAL	NORMAL	NORMAL	NORMAL
Photometric Interp	MONOCHROME1	MONOCHROME1	RGB	RGB	MONOCHROME1

Note

The IP Address is associated with the host name listed in Table 3-35. The host name and IP Address are added to the Hosts Tab of the Config Utility.

If any parameter needs to be edited use the following steps:

1. Move to the **Main** screen and click the minimize button on the top–right corner of the screen.
2. To enter the **Config** directory, double click the eNTEGRA Command Prompt on the desktop and type:

   CD Config

3. Type the following to backup the **HCdefaults.win32** file:

   copy HCdefaults.win32 HCdefaults.win32.org <Enter>

4. Type the following to open the **HCdefaults.win32** file using the **notepad** editor:

   notepad HCdefaults.win32 <Enter>

5. Type the following to go to the line containing the *xxxxx* parameter:

   <Ctrl>+<F> xxxxx <Enter>

   The cursor will be set on the first character of the desired line. e.g.,

   ISGmfhd.white_set: 0

6. Press the › key until the cursor is over the first character to be changed. overtype this character.
7. Save the changes and quit the **notepad** editor by selecting:

   File → Save
   File → Exit

8. Type the following to copy the modified **HCdefaults.win32** file in the **\config** directory:

   copy HCdefaults.win32 HCdefaults.win32.bak <Enter>

9. Go back to the eNTEGRA **Main** Screen, click the [**X**] button, and in the **System Shutdown** dialog, click the [**Full**] button.
10. Restart the eNTEGRA.

Note

The AE Title for these printers will most likely need to be changed to match what the printer's local service engineer has set.

To find a specific printers parameters, search on the DCM field for that printer. For example, to find the parameters for the Imation8300, search for DCMI8300.

3.10.10.5 Adding a New Printer

To add a printer that is not currently defined:

1. Add the new printer under the **Printers** tab in the **Config** utility, as follows:
   a. For the **Printer Name** enter a descriptive name for the printer (no Spaces).
   b. For the **Device Type**, enter one of the defined DICOM device types. Refer to Table 3-37 for which device type to use.

Table 3-37. Default Hardcopy Server Device Type for DICOM Printing

Printer Type	eNTEGRA P&R Hardcopy Server Device Type
Monochrome Printer - 8x10 Film	DCMI8300
Monochrome Printer - 14x17 Film	DCMI8700
Color Printer - 8x10 Media	DCMA2KCl

   c. Enter the IP Address of the printer.
2. Open the **HCdefaults.win32** file using the **Notepad** editor as explained in Section 3.10.10.4, above. Go to the parameter for the device type defined in the step 1.
3. Set the DICOM parameters per the printer's DICOM conformance statement. At a minimum the **AE Title** and **Port #** must match the printer's SCP definition. The max and min height/width may also need to be changed based on the printer's conformance statement.
4. Save the changes and quit the **notepad** editor by selecting:

   File → Save
   File → Exit

5. Go back to the eNTEGRA **Main** Screen, click the [**X**] button, and in the **System Shutdown** dialog, click the [**Full**] button.
6. Restart the eNTEGRA.

3.11 InSite Entitlement

1. Double click the **iLinq Shell** icon residing on the desktop.
2. In the opened window, type **configlink –p –v** <**Enter**>. If the following error message is displayed, ignore it:
   C:/insite/.insiteINFO' does not exist or is empty
3. In the opened window, type **iipadmin config** <**Enter**>

Note: should a message window titled **NT Type?** appear, click [**OK**] to continue.

4. In the opened **InSite Interactive Platform Configuration** window click **[ACCEPT]** 3 times.
5. Click on the **ProDiags** tab (all other tabs will automatically come forward after necessary confirmation) and set the parameters as follows:
   a. On the **ProDiags** tab, click **[DEFAULT]**. The system will advance to the **Device Connection** Tab automatically.
   b. On the **Device Connection** tab, select the options applicable to the installed modem from the following pull-down lists:
      - **Dial Out Prefix:** what the customer will have to dial to place a call.
      - **Modem Type:** select the currently installed modem from the list.
      - **CPU Serial Port Name:** select the Port the modem is installed on.
      - **Dialling Mode:** normally Tone.
      - **Country:** the default country is US (Canada). For any other country, select from the list.
      - **CPU Serial Port Speed:** select 57600.

      Click **[APPLY]**.

Note: ignore the status bar message: **No response from modem. Please check hardware installtion**.

   c. If the **Modem Readme** window appears, proceed according to your modem type, as follows:
      - For **U.S. Robotics** modem, verify that the DIP switch settings match the display and click **[OK]**.
      - For **Motorola**, follow the displayed instructions and click [**OK**].
   d. In the **Modem Properties** window that appears, click **[Close]**.
   e. In the **Install Modem** window click **[OK]**.
6. On the **InSite Checkout** tab:
   a. Type in the **InSite IP address –** the Modem IP address as defined by the OLC for the local system.
   b. Type in the **Router IP address –** the SIR IP address which belongs to the same subnet as the local system. This is obtained from the network administrator or the OLC.
   c. Click **[CHECKOUT NOW]**.

d. In the **Reboot Needed** window, click **[OK]**.

e. Click [**Exit**] at the bottom right of the **InSite Interactive Platform Configuration** window.

f. In the **Exit Confirmation** window, click **[OK]**.

7. Type **exit** <**Enter**> in the opened **iLinq Shell** window.
8. ***Only*** for systems with Multitech MT5634ZBA modem, turn OFF the modem, wait 5 seconds and then turn it ON.
9. Reboot the System for the changes to take affect.
10. Call the OLC to verify InSite functionality.

3.12 Backup

1. Click the [**Configuration**] button at the left upper corner of the **Main** screen.
2. In the opened **User Preferences** window, click [**Advanced Configuration**].
3. Click the **Archive** tab.
4. Click the [**Backup...**] button.
5. In the **Backup destination** dialog, click [**Backup**].
6. When prompted, insert a formatted diskette labeled **eNTEGRA Configuration Backup** into the floppy drive and click [**OK**].

3.13 Commissioning

Table 3-38. System Commissioning Procedure

Steps	Time (Min.)	Reference
Check the Grounding on the Isolation Transformer	10	
Perform the functional checks	35	Chapter 4 Review Customer Information Letter for current Release Notes.
Total	**45**	

3.14 Completion

Table 3-39. Completion Overview

Steps	Time (Min.)	Reference
Mount Rating Plate(s)	5	Section 3.14.1
Clean Area	5	Section 3.14.2.
Complete Product Locators	5	Section 3.14.3
Total	**15**	

3.14.1 Rating Plates

3.14.1.1 Description

Each eNTEGRA workstation is delivered with all software and licenses loaded onto the workstation. Since software can change independent of any hardware modification, the software is serialized with its own rating plate and tracked by the Product Locator. This process allows for software only field modifications and preserves traceability of software revisions and options at each site.

3.14.1.2 Procedure for Units with an Isolation Transformer

For units with an Isolation Transformer, attach the rating plate for the eNTEGRA Base Application Software Set Software Option to the side of the isolation transformer. See Locating Rating Plate, Figure 3-21.

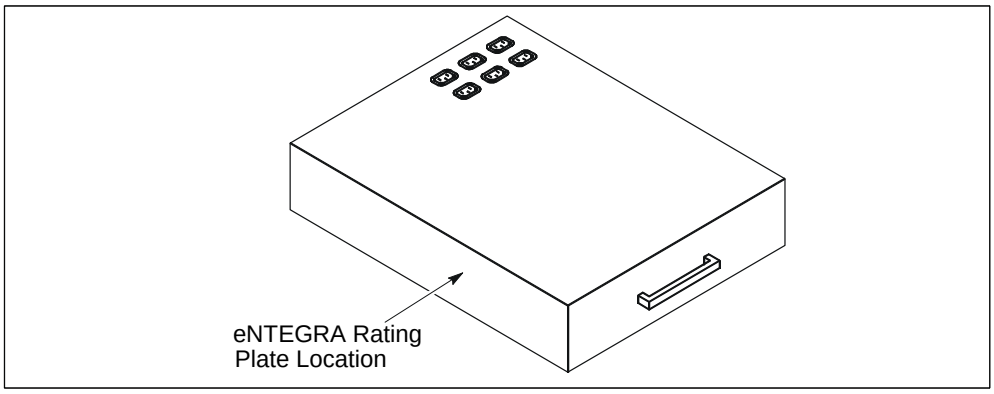

Figure 3-21: Locating Rating Plate

3.14.1.3 Procedure for Units Without an Isolation Transformer

For units without an Isolation transformer, attach the rating plate for the Basic eNTEGRA Application Software Set to the eNTEGRA CD-ROM software jewel case.

3.14.2 Cabling

Tidy up all cables paying particular attention to the rear of the Workstation, particularly the rear interconnection panel.

External cabling should also receive attention and be neatly finished, using cable ties as necessary.

3.14.3 Completing the Paperwork

Complete all Product Locator Cards supplied with the system and options.

Please complete the Installation Audit Form supplied with the unit.

Return together with Installation Card to:

Locator File W-523
General Electric Medical Systems
P O Box 414
Milwaukee, Wisconsin 53201 USA

Important

If all the Product Locator cards are not returned, then the system will not be configured correctly in the Product Locator database. This will result in the manual distribution of any software upgrades.

Chapter 4 - Functional Checks

To verify that the Einstein system is working properly perform the following checks:

4.1 Checking the Color Maps

1. Click on the down arrow next to **Sort** in the control bar of the **Patient Selector** and click the **Study Name** entry.
2. Select a **WB Bone** study.
3. Click on the **Load** icon below the **Patient Selector** page.
4. Drop down the **View** menu and select the **Screen Format** entry.
5. Select a format for displaying 2 whole bodies with 3 static images.
6. On the **Color Maps** panel, click the [**...**] button.
7. In the opened window, select the **INVERSE** entry to replace map No. 5, and click [**OK**].
8. Apply a different color map to each image.
9. On the **Color Maps** panel, turn OFF the Color Bar.
10. Click the down arrow on the **Color Maps** panel and select the **All** entry.
11. Click the [**...**] button on the **Color Maps** panel, select the **Hot Iron** entry and click [**OK**].
12. Select an image and apply the **Hot Iron** map.
13. Click the down arrow on the **Color Maps** panel and select the **Current** entry.
14. Apply the **Default** map (GE Colors) to each image
15. Drop down the **File** menu and select the **Exit Card** entry.

4.2 Processing Validation

4.2.1 Checking the Availability of Licensed Options

1. For each licensed option recorded in the pre-installation check list except ECToolbox, select an appropriate dataset(s) from the patient database, then verify that the relevant protocol icon is available in the **Processing** tab.
2. For the ECToolbox application, select rest and stress datasets, one of which must be gated, click on the **ECToolbox** icon within the **Cardiac** Category, then click the [**Start ECToolbox**] button.
3. Click the [**Both Rest and Stress Data**] button on the **Recon** tab.
4. If necessary, adjust the **Windowing** tool for better view of the heart in the Rest planar image displayed. If necessary, move the central marker to display the left ventricle in the Rest Live Image. Set the reconstruction limits on the Rest Planar Image displayed.
5. Click [**Proceed**] on the control area.
   The VLA, HLA and SA obliques for the rest data are created.
6. When the Stress Planar Image appears in the upper left corner of the screen, set the reconstruction limits for the stress data as described in step 4 above for the rest data. Then click [**Proceed**] on the control area.
7. When the VLA, HLA and SA obliques for the stress data are created., click the [**Back**] button on the control area.
8. Click the [**Stress Gated Data Only**] or [**Rest Gated Data Only**], whichever applies to the input data.
9. When the control area displays the prompt **Proceed with Current Gated Recon Filters?**, click [**Proceed**].
10. When the VLA, HLA and SA obliques are created for the eight gates, click on the **Process** Tab.
11. Click the **Process** tab and verify the available licenses, as follows:

    For the complete ECToolbox license:
    a. Verify that both [**CEqual Quantification**] and [**Functional Analysis**] buttons are enabled.
    b. Click the [**CEqual Quantification**] button.
    c. Click [**Proceed**].
    d. In the **Normal Database** window opened, click the gender corresponding to the input data, then click [**OK**].
    e. Verify that [**Generate 3–D**] is enabled.

    For CEqual Light licence - verify that the [**CEqual Quantification**] button is enabled.
12. Drop down the **File** menu and select the **Quit** entry to quit the protocol.

4.2.2 Running an Application

For systems with ECToolbox or Cequal Light license, the application has been run above.

Only for systems that do ***not*** have an ECToolbox or CEqual Light license, run the Cardiac SPECT application, as follows:

1. Select a gated rest or stress planar dataset form the patient database.
2. Click the **Cardiac SPECT** icon residing in the **Cardiac Category** on the Processing tab.
3. Click the [**Start Cardiac SPECT**] button.
4. Click the available button on the **Recon** tab, [**Rest Data Only**] or [**Stress Data Only**], whichever matches your selected input data.
5. If necessary, adjust the **Windowing** tool for better view of the heart in the Rest/Stress Planar Image displayed.
   If necessary, move the central marker to display the left ventricle in the Rest/Stress Live Image.
   Set the reconstruction limits on the Planar Image displayed.
6. Click [**Proceed**] on the control area.
7. When the VLA, HAL and SA obliques have been created, click the [**Back**] button on the control area.
8. Click the [**Stress Gated Data Only**] or [**Rest Gated Data Only**], whichever applies to the input data.
9. When the control area displays the prompt **Proceed with Current Gated Recon Filters?**, click [**Proceed**].
10. When the VLA, HLA and SA obliques are created for the eight gates, click on the **Process** Tab.
11. When the VLA, HLA and SA obliques are created for the eight gates, click on the **Review** Tab.
12. Click on the [**Review Obliques**] on the **Review** tab.

    The three–planes Rest/Stress obliques are displayed and the **Beating Slices** screen is created in the background.

    A progress slider displayed on the control area advanced as the generation of the Beating Slices screen progresses. When the Beating Slices screen has been generated, the progress slider is replaced by a Beating on Click check box.

13. Drop down the **File** menu and select the **Quit** entry to quit the protocol.

4.3 Review Template Test

1. Select a study.
2. Click on the **Load** icon below the **Patient Selector** page.

   The screen switches to the **Processing & Review** screen.

3. On the green **Processing** card, drop-down the **View** menu and select the **Screen Format** entry.
4. Click the black square icon in the `Screen Format` and on the [**1x1**] button in the **Multiple Image Format**.
   Verify that a single image now fills the screen.
5. Click **LINEAR** on the **Color Maps** tool.
6. Drop down the **File** menu and select the **Save Review Template** entry.
7. Type-in **Test** for **Template name** and click [**OK**].
8. Drop down the **File** menu and select the **Exit Card** entry.
9. Click on the **Review Template** tab in the bottom right part of the screen.
10. Verify that **Test** appears in the opened **Review** panel, and is highlighted in blue.
11. Click [**Start Review Template**] and verify that the display is restored as saved above (a single image fills the screen with linear color table).
12. Drop down the **File** menu and select the **Exit Card** entry.

    The screen returns to the **Patient Selector**.

13. Click the [**Delete Template**] button in the bottom right corner of the **Review** panel.

4.4 Checking the Default Hardcopy Device

1. Select a **WB Bone** study.
2. Click on the **Load** icon below the **Patient Selector** page.
3. Click the Printer icon (the 2nd left most icon in the upper left corner of the screen).
4. Click the [**Submit**] button.
5. Check the printout and verify that the processing screen was printed correctly.

4.5 Accessing the Optical Drive Archive

1. Click the **Archive** tab.
2. Click the [**Directory**] button on the **EOD** tab (Sony or Pioneer, whichever apples).

   The list of the optical drive studies is displayed.

3. Select a study from the ***local*** **Patient Selector** page and click on the [**Archive**] button on the EOD tab.
4. Verify that the selected study was copied from the local archive to the EOD archive.

4.6 Accessing a Remote Database

To be able to access a remote database for processing and review:

1. Click on the [**Configuration**] button in the upper left corner of the **Main** screen.
2. In the opened **User Preferences** window, click [**Advanced Configuration...**] to open the **eNTEGRA Configuration** window.
3. Form the **Data Base** tab, select an on-line remote station and click [**OK**].
4. At system message **You need to restart eNTEGRA for changes to take effects**, click [**OK**].
5. Click [**Apply**] in the **User Preferences** window.
6. Click [**X**] icon (the upper left most button on the **Main** screen).
7. Click [**Partial**] to exit the eNTEGRA application.
8. Restart the application by double clicking the **eNTEGRA** icon on the Desktop.
9. When eNTEGRA is reloaded, select the remote station from the **Data Source** drop-down list on the **Patient Selector** and verify that the remote station's **Patient Selector** page is opened.

4.7 Checking DICOM Transfer

1. Click the **Network** tab.
2. Click on the **Search/Fetch** tab.
3. Click on [**Search/Fetch**] **Template** button.
4. In the opened **Search Template** window, check the **Dicom** radio button.
5. Check the desired remote **DICOM** station.
6. Click the [**Search**] button.

   The local data base of the remote station is displayed.
7. Highlight a study, record its patient name, type and patient ID. Then click the [**Fetch**] button.
8. Verify that the study was copied successfully to your local archive.
9. Highlight this study on the local archive and click the [**Delete**] button.
10. In the **Patient Data Delete** dialog, click [**Delete Selection**] to confirm.

4.8 Checking the OSI Connectivity

1. Click on the **Network** Tab from the Einstein **Main** screen.
2. Click on the **Search Fetch** tab.
3. Click on the [**Search/Fetch Template...**] button.
4. In the **Search Template**, check the relevant Search/Fetch type and the remote station name.
5. Click the [**Search**] button.
   Verify that the remote station's studies are displayed in the **Search/ Fetch** tab.

4.9 Modem Connectivity Check

1. Double click on **My Computer** icon on the desktop.
2. Double click the **Dial-up Networking** icon.
3. Click [**Dial**].
4. In the **Connect to *Server_Name*** dialog, type in the user name and password for accessing this remote server, and click [**OK**]
5. The **Dialing *remote_number*** message appears.
6. When the connection is established a pop up notifying Verifying user name and password appears.
7. If the connection is successful, a **Telephone** icon appears at the right corner of the Task Bar.
8. To end the connection, double click the **Telephone** icon, and in the opened dialog click [**Hangup**].

4.10 InSite Operation Check

1. Double click the **iLinq Shell** icon on the desktop.
2. At the system prompt, type **insite_brouser** <**Enter**>.
3. If the **Netscape Navigator** window appears, click [**No**].

   The InSite home page application will be displayed, provided that licenses were downloaded during checkout. This screen is the launching point for InSite Applications for customers.
4. In the **Main Screen (HOME)**, click [**Contact GE**].
   The **Contact GE** screen is displayed.
5. Type in the problem encountered at the appropriate type-in fields and click [**SUBMIT**].

   If all the connections are OK and the On Line Center (OLC) recognizes the licenses (sometimes a delay in license processing occurs for in-house systems), within 4 minutes a successful screen will be displayed. Otherwise an error screen will be seen.

   In either case, a Customer Message will be seen as a new message on the Main Screen Application.

Chapter 5 - System Description

The eNTEGRA system is described according to the following breakdown:

5.1 Hardware Description

5.1.1 System Block Diagram

The eNTEGRA Processing & Review Station is based on a high performance PC, a Sony 21" Color Monitor and Accessories such as a Modem and an Erasable Optical Disk (EOD).

The eNTEGRA system supports the DASM and LCAM Digital Lasercam Interfaces and the black/white Formatters MFHD and MF96.

Note Only one SCSI hardcopy device (either black/white formatter or a digital lasercam interface) can be attached to the Isolation Transformer.

Figure 5-1 shows the system's block diagram.

Table 5-7 lists the hardware components.

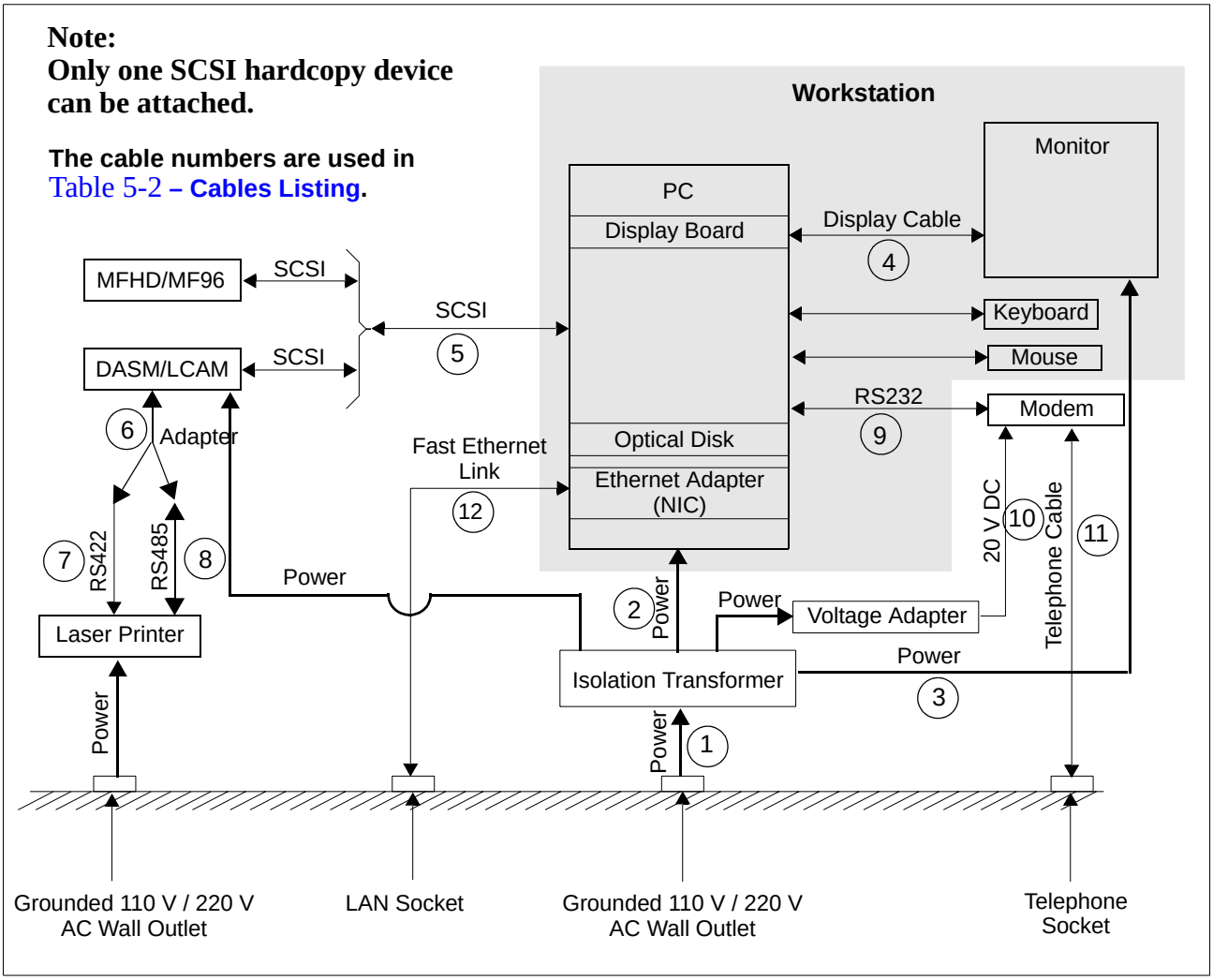

Figure 5-1: System Block Diagram

5.1.2 Hardware Components

Table 5-1. Hardware Components

Unit	Component	Specification
PC Tower	Motherboard	Pentium III™ Processor
		512 Mb RAM
		512 Kb Cache
		Ultra 2 SCSI Controller
		SCSI-III to SCSI-II Adapter Cable
		Enhanced IDE Controller
		Soundblaster 16 Audio Interface
		25 Pin Parallel Port
		Two 9–pin serial ports
		Five 32–bit PCI expansion slots
		NVIDIA TNT2, 16 MB on-board Video
		3Com 905C on-board LAN Controller
	Hard Drive	18 Gb Ultra 2 SCSI drive
	Flexible Disk	1.44 Mb IDE Floppy drive
	CD–ROM	x48 IDE CDROM
	EOD (optional)	Sony 4.1 GB
Monitor		Type: 19" Color Monitor
		Resolution: 1280 x 1024
User Interface	Keyboard	101 Key PS/2
	Mouse	3-button PS/2
Modem	3Com Currier V.Everything	For North America only
	Motorola Codex	For Europe
Isolation Transformer		As per the local Regulatory Kit.
DASM/LCAM		Adaptor for old Laser hardcopy devices (Kodak, DuPont, Fuji, and Konica laser cameras).

5.1.3 Cabling and Linking

The cables used with the eNTEGRA system are listed in Table 5-2. The numbers in the table refer to the cable numbers in Figure 5-1.

Table 5-2. Cables Listing

# In Figure 5-1	Description	Vendor Part No.	GEMS part No.	FRU Code	Length
1	Isolator Transformer Power Cable	Supplied with the isolation Transformer		1	1.8 m (5.8 ft)
2	Computer Power Cable	Supplied with the Computer		1	1.8 m (5.8 ft)
3	Monitor Power Cable	Supplied with the Monitor		1	1.8 m (5.8 ft
4	VGA Video Cable	Supplied with the Monitor		1	1 m (3.3 ft)
5	Peripheral SCSI Cable (SCSI-1 to SCSI-2)	Supplied with DASM/LCAM or Supplied with MFHD		2	1 m (3.3 ft) 1.5 m (4.9 ft)
6	DASM/LCAM Adapter Cable terminated by 25-pin and 37-pin Connectors (Stub Cable)	N/A	46-296980G1	1	0.3 M (1ft)
7	DASM/ LCAMCommunication Cable RS-422 (25 pin)	Supplied with the Laserprinter. Refer to the Laserprinter's service manual		N/A	N/A
8	DASM/LCAM Image Data Cable	Supplied with the Laserprinter. Refer to the Laserprinter's service manual		N/A	N/A
9	Modem Cable RS-323	Supplied by with the Modem.		N/A	2.8 m (9.2 ft)
10	Modem Power Cable	Supplied by with the Modem.		N/A	3 m (9.6 ft)
11	Modem Phone Cable	Customer Supplied		N/A	N/A
12	Category 5 UTP Cable		2215028-4	1	2 m (6.6 ft)

5.1.3.1 DASM/LCAM Connectors Pin Out

This section provides the pin outs for the connectors and cables used to interface the eNTEGRA to a laser printer through the DASM/LCAM.

The pin outs of the 25–pin Connector on the DASM/LCAM Communication Cable RS-422 are listed in Table 5-3.

The pin outs of the 37–pin Connector on the DASM/LCAM Image Data Cable RS485 are listed in Table 5-4.

The pin assignments of the 25-pin to 37-pin Communication Stub Cable are listed in Table 5-5.

Table 5-3. Pin Outs of the DASM/LCAM Communication RS-422 Cable 25–pin Connector

Pin #	Signal
1	Case Ground
2 – 7	No connection
7	Signal Ground
8	RX (+) – Serial Input to DASM (+ diff)
9	TX (+) – Serial output from DASM (+ diff)
10 – 20	No connection
21	RX (-) – Serial Input to DASM (- diff)
22	TX (-) – Serial output from DASM (- diff)
23 – 25	No connection

Table 5-4. Pin Outs of the DASM/LCAM Image Data RS485 Cable 37–pin Connector

Pin #	Signal	Pin #	Signal
1 – 2	No connection	20 – 21	No connection
3	DGREP (+) – Transmit	22	DGREP (-) – Retransmit
4	DGDAREQ (+) – Data Request	23	DGDAREQ (-) – Data Request
5	DGMODESEL (+) – Mode Select	24	DGMODESEL (-) – Mode Select
6	DGCLK (+) – Strobe / Clock	25	DGCLK (-) – Strobe / Clock
7	DGPAR (+) – Parity	26	DGPAR (-) – Parity
8	DATA7 (+)	27	DATA7 (-)
9	DATA6 (+)	28	DATA6 (-)
10	DATA5 (+)	29	DATA5 (-)
11	DATA4 (+)	30	DATA4 (-)
12	DATA3 (+)	31	DATA3 (-)
13	DATA2 (+)	32	DATA2 (-)
14	DATA1 (+)	33	DATA1 (-)
15	DATA0 (+)	34	DATA0 (-)
16 – 19	No connection	35 – 37	No connection

Table 5-5. Pin Assignment of the 25-pin to 37-pin Communication Stub Cable

25–Pin Connector Pin #	37–Pin Connector Pin #	Signal
1 – 6	1, 4 – 6	No connection
7	7	Signal Ground
8	20	RX (+) – Serial input to DASM (+ diff)
9	21	TX (+) – Serial output from DASM (+ diff)
10 – 12	8 – 12	No connection
13	13	Signal Ground
14 – 20	14 – 19	No connection
21	2	RX (-) – Serial input to DASM (- diff)
22	3	TX (-) – Serial output from DASM (- diff)
23 – 25	22 – 37	No connection

5.1.3.2 SCSI Address Assignment

Table 5-6 lists the assigned SCSI Addresses for the eNTEGRA Workstation.

Table 5-6. SCSI IDs

SCSI Bus	Device	SCSI ID
Ultra 2–Wide	Internal Hard Drive (System)	0
Ultra–Narrow (SCSI Adapter)	Optical Disk	1
	DASM/LCAM or MFHD or MF96	4

5.1.4 Sony EOD

5.1.4.1 Jumpers Setting

Before installing the Sony EOD, verify the following jumper settings (see the Jumpers Block located on the EOD rear panel, each Jumper consists of two pins - Figure 5-2).

- **SCSI ID (1 - 3) -** from the three jumper pairs used to set the SCSI ID, the left most pair should be jumpered, while the two other pairs should be empty.

- **Termination (11) -** Jumpered if the EOD is the last device on the SCSI chain

  Empty if the EOD is *not* the last device on the SCSI chain

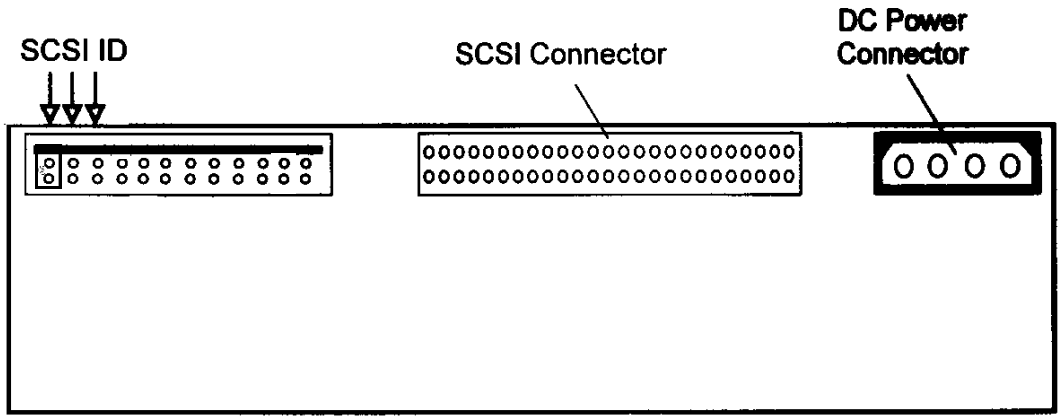

Figure 5-2: Sony EOD - Rear Panel

5.1.4.2 DIP Switch Setting

Before installing the Sony EOD, ensure that all DIP Switch settings are OFF.

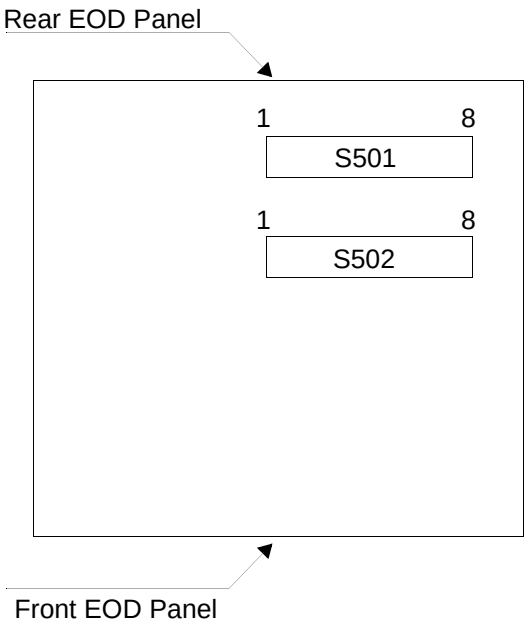

Figure 5-3: Sony EOD DIP Switches

5.1.5 DASM/LCAM

The DASM/LCAM is an intelligent device that interfaces a 3M laser camera to a SCSI bus. The stand alone DASM/LCAM unit attaches to the workstation SCSI bus and emulates a SCSI disk drive in both function and form. The LCAM takes high-level commands sent from the workstation over the SCSI bus and interfaces them to the laser camera RS-485 digital image serial interface and RS-422 serial communication interface. In addition, the LCAM includes a 12-bit in and 8-bit out Look Up Table, Byte Swap Function, and text and outline annotation capabilities. Refer to Figure 5-1.

Important

The DASM/LCAM can only be used with Laser Cameras that support the Imation 952 digital interface protocol.

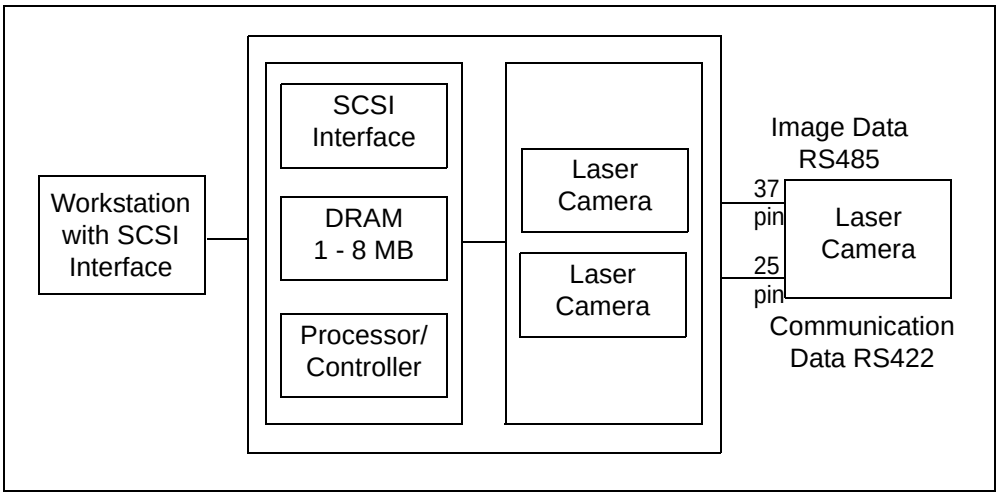

Figure 5-4: LCAM Block Diagram

The LCAM contains 1 Mbyte of on-board Data Memory (standard) which appears to the workstation as a SCSI disk drive responding the SCSI Common Command Set. Data Memory is used for image storage as well as for host command and status handshaking. The workstation application makes command, status, and image transfers by accessing LCAM Data Memory through the SCSI bus.

5.2 Software Description

Software Description includes the following

5.2.1 Software Structure

Figure 5-5 provides a visual view of how the eNTEGRA software is structured.

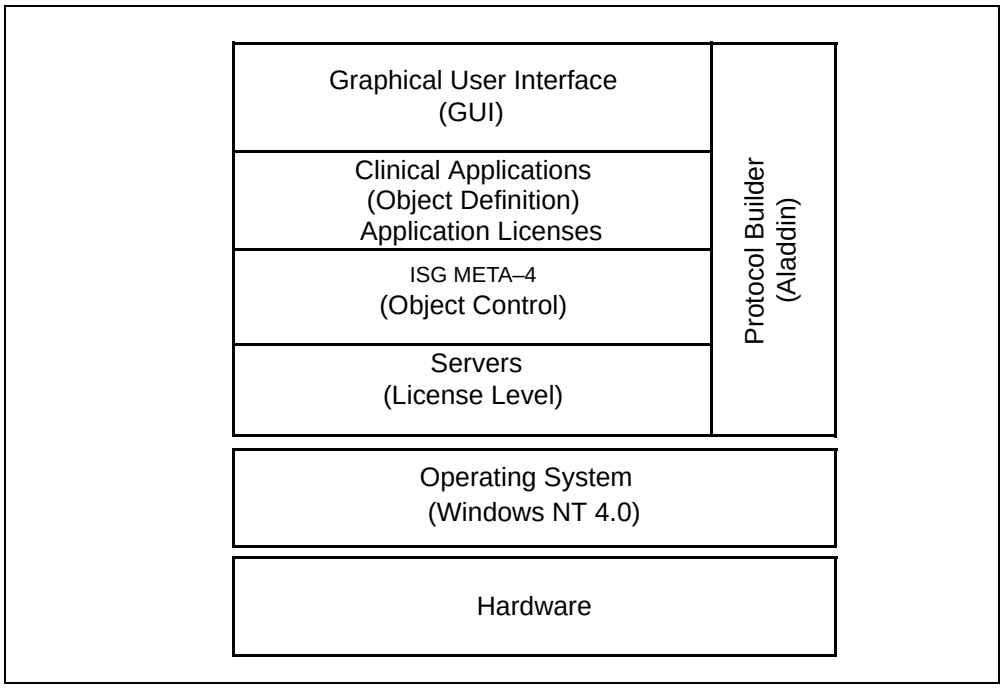

Figure 5-5: Software Structure

The eNTEGRA application includes nine servers that provide its functionality:

- Presentation Server (Preserver), assigned to Port 2020, which manages the graphical user interface.
- Database Server (DbServer), assigned to port 8100, which controls the access to the patient database.
- Hardcopy Server (HcServer), assigned to port 4040, which controls the hardcopy functions.
- Reconstruction Server (Recserve), assigned to port 5050, provides the required mathematical processing capabilities.
- Communication Server (cpipcserver), assigned to port 3090, which controls the access to the network for remote database, hardcopy and file transfer.
- DICOM Server (DicomServer) assigned to port 104, which provides connectivity to DICOM systems via the Network Server.
- Archive Server (ArServer), assigned to port 4848, which maintains the local archive.

- Archive Log Server (ArchiveLog), assigned to port 8099, which manages the Archive Log Index on the disk.
- Optical Disk Server (Gemod), assigned to port 7070, which manages the Optical Disk.

Table 5-7 lists the software contents.

Table 5-7. Software Contents

Function		Specification
Operating System		Microsoft NT 4.0
Application		eNTEGRA Processing & Review
Networking	DICOM Stations, Remote Database, Network Printing	TCP/IP over Ethernet (IEE802.3)
	Starcam Systems	OSI package
	SP Systems	

5.2.2 License Keys

There are two main software license keys for the basic eNTEGRA system. These are referred to as the Node Locked Licenses:

- iap.base - Main server license.
- pr.3d - Reconstruction server license.

These license keys control access to the proprietary servers in the eNTEGRA software. The license keys restrict the use of the eNTEGRA software to a specific workstation. This is done by using the license in conjunction with an activator plugged into the parallel port.

In addition to the Node Locked licenses, there are nine option license keys assigned per Activator ID:

- CEqual™ or CEqual™ Light
- ECToolbox™ or ECToolbox™ Upgrade
- QGS™ (Quantitative Gated SPECT)
- QPS™ (Quantitative Perfusion SPECT)
- Tl201 Database Upgrade
- QuantEM™
- Aladdin™ Compose and Edit
- PefrSPECTive™ (3D Volume Rendering)
- Remote Connectivity
- CT/MR DICOM Storage
- Interactive Reconstruction

5.2.3 Database

The eNTEGRA system uses a custom database. Currently there are no simple tools available to access the database outside the eNTEGRA application.

The database resides in the **D:\Database** directory and has a capacity of 2.3 GB.

The eNTEGRA application accesses the database via the database server.

5.2.3.1 Database Structure

- Patient
- Study
- Series
- Data Set
- Multiframe Image
- Curves
- ROI
- Templates

5.2.4 System Accounts

Table 5-8 lists the accounts and associated passwords defined on the system.

Table 5-8. Default Passwords

Account	Definition	Password
administrator	eNTEGRA Super User account. Used for maintaining the system.	Customer defined
eNTEGRA	The eNTEGRA P&R user account.	default: eNTEGRA
insite	Insite account. Used by OLC to remotely log in to system.	TBD

5.2.5 eNTEGRA Supported Networks

There are two separate network protocols provided:

- TCP/IP - a standard network protocol suite included with the NT workstation used for:
  - DICOM communication
  - eNTEGRA Remote Database
  - Interfile file transfers
  - Insite remote connectivity
  - Network printing.

- Starlink - a customized network protocol suite based on the OSI model. It allows the eNTEGRA system to communicate over the Starlink network. This is now a purchased option for the system.

  Compatibility

  StarLink is only compatible with Starcam systems running Starlink Version 4. This is a new version of Starlink that was developed specifically to interface Starcam system to eNTEGRA. The following systems are compatible:

  - Starcam/Star 2000, 3000, 3200, 4000, 3200i, and 4000i.
  - Camstar 2000, 3200, 3200i, and 4000i.
  - Maxxus/Optima (4000i)
  - Starcam/Star II - Build Standard 1 and 2 only.
  - M-link Version 2.0 from MedImage.
  - GE Starlink Agent from Evergreen Technologies.

  StarLink provides the following communication actions over the Starlink network:

  - Search, fetch and send patient data from Starcam based systems running Starlink Version 4.
  - Receive patient data sent from Starcam based systems running Starlink Version 4.
  - Send patient data to a Starcam based systems running Starlink Version 4.

  The following are the know compatibility issues and limitations of StarLink for the eNTEGRA system:

  - Due to hardware limitations Starlink Version 4 is not compatible with Build Standard 0 Starcam systems or Starport systems. Therefore these system will not be directly compatible with either the eNTEGRA system or Starcam systems upgraded to Starlink Version 4. A Starport Gateway was developed to address this problem.
  - P-Link systems can not send data directly to eNTEGRA. P-Link data must first be sent to a Starcam system and then to the eNTEGRA.

5.2.6 DICOM

The eNTEGRA system contains a DICOM server. To describe the functionality of the DICOM server the following terms will be used:

- *Application Entity (AE):* This is a networking term used to define a program that provides a specific application. In DICOM, this is the server or servers that provide the DICOM services. The server name is referred to as the *AE Title*.
- *Service Object Pair (SOP) Class:* This defines the functionality of the AE. The SOP Class is a combination of a Information Object (i.e. Nuclear Image) and a DICOM Message Service Element (DIMSE). For example the Nuclear Storage SOP Class combines the Nuclear Image Object and the C-Store DIMSE. This SOP Class allows the DICOM server to send or receive a Nuclear image depending on it service role.
- Service Class User (SCU): This is the client role definition for the AE. If a system supports the Nuclear Storage SOP Class in the SCU role, it can send a Nuclear Image to a remote system.
- *Service Class Provider (SCP):* This is the server role definition for the AE. If a system supports the Nuclear Storage SOP Class in the SCP role, it can receive a Nuclear Image sent from a remote system.

The *Service Object Pair (SOP) Classes* which the eNTEGRA P & R's DICOM *Application Entity (AE)* supports for both the SCU and SCP role are listed in Table 5-9.

Table 5-9. SOP Classes Supported for the SCU and SCP Role

AE ROLE	SUPPORTED SOP CLASS	FUNCTIONALITY
SCU	Nuclear Storage SOP Class	Images from the database can be sent to a system that supports the *Nuclear Storage SOP Class* in the SCP role.
	Secondary Capture Storage SOP Class	Images created by the screen save tool can be sent to a systems that supports the *Secondary Capture Storage SOP Class* in the SCP role.
	Patient/Study Root Query SOP Class	Allows eNTEGRA to query the database of a remote systems that supports the Patient/Study Root Query SOP Class in the SCP role.
	Patient/Study Root Fetch SOP Class	Allows eNTEGRA to Fetch images from a remote systems that supports the Patient/Study Root Fetch SOP Class in the SCP role. The only images types eNTEGRA can fetch are ones that are defined by in it's SCP role. These include Nuclear, Ct, MR and Secondary Capture.

Table 5-9. SOP Classes Supported for the SCU and SCP Role (Continued)

AE ROLE	SUPPORTED SOP CLASS	FUNCTIONALITY
SCP	Nuclear Storage SOP Class	Nuclear images can be received and stored in the database from a system that supports the *Nuclear Storage SOP Class* in the SCU role.
	Secondary Capture Storage SOP Class	Secondary Capture images can be received and stored in the database from a system that supports the *Secondary Capture Storage SOP Class* in the SCU role.
	CT Storage SOP Class	CT images can be received and stored in the database from a system that supports the *CT Storage SOP Class* in the SCU role.
	MR Storage SOP Class	MR images can be received and stored in the database from a system that supports the *MR Storage SOP Class* in the SCU role.
	Patient/Study Root Query SOP Class	Allows remote systems that supports the Patient/Study Root Query SOP Class in the SCU role to query the database.
	Patient/Study Root Fetch SOP Class	Allows remote systems that supports the Patient/Study Root Fetch SOP Class in the SCU role and the *Nuclear Storage SOP Class* or *Secondary Capture Storage SOP Class* in the SCP role to retrieve image data from the database.

Note

DICOM is now the preferred communication protocol between the cameras GENIE Acquisition and Millennium VG and the eNTEGRA P&R system.

Note

Processing and review of data on remote eNTEGRA/Genie P&R systems is carried out directly in the remote data base.
On the other hand, transfer of data between eNTEGRA P&R systems or between eNTEGRA and GENIE P&R systems is carried out via DICOM.

In order for the eNTEGRA P&R to send data via DICOM, the AE parameters for that system must be configured on the sending eNTEGRA P&R. Table 5-10 provides a list and description of the required AE parameters.

Table 5-10. AE Parameters

AE PARAMETER	DESCRIPTION
System Name	This is the name that identifies the system at the user level (aui). Typically the host name is used but a more descriptive name can be used. The system name can contain a maximum of 12 characters using only a-z, A-Z, 0-9, or "_".
AE Title	This defines the system at the DICOM server level. Check the system's DICOM Conformance statement for this parameter.
IP Address	This is the IP Address of the remote system.
Port #	This is the TCP listening port of the system. It is used by the DICOM server to establish the TCP connection. Check the system's DICOM Conformance statement for this parameter.

To enable the local eNTEGRA system to query and fetch from a remote system via DICOM, the above AE parameters for the local system must be configured on the remote system.

DICOM configuration on the local eNTEGRA P&R activated using the [**Config**] button on the Patient Selector.

Table 5-11 lists the settings of these AE parameters for GENIE Acquisition, Millennium VG and eNTEGRA P&R.

Table 5-11. DICOM AE Parameters for eNTEGRA, Millennium VG, Genie P&R and Genie Acq.

DICOM Field	eNTEGRA P&R	Millennium VG	Genie Acquisition	Genie P&R
Station Name	Host name or descriptive name contain max 12 characters using only a-z, A-Z, 0-9, or "_".	Host name containing max 10 characters without spaces between them. The first character must be an a - z letter.	Host name or descriptive name contain max 12 characters using only a-z, A-Z, 0-9, or "_".	Host name or descriptive name contain max 12 characters using only a-z, A-Z, 0-9, or "_".
AE Title	Host name in upper case. (ENTEGRA)	As assigned by the network administrator Case Sensitive	Host name in upper case. (GENIEACQ)	Host name in upper case. (GENIE)
IP Address	System's assigned IP Address	System's assigned IP Address	System's assigned IP Address	System's assigned IP Address
Port #	104	104	2030	2030

Chapter 6 - Software Installation

6.1 Overview

This chapter provides detailed instructions for installing the basic software of the eNTEGRA system as well as its available options. The instructions contained herein are provided in three sections as follows:

- Software Load From Cold For Dell OptiPlex GX200 on page 6-2 – includes instructions for installing the basic eNTEGRA software on the **Dell OptiPlex GX200** computer.

  All data currently on the system will be lost, including the eNTEGRA database and all configuration parameters.

  For installing the software on the HP Kayak, refer to Appendix B.

  For installing the software on the Dell 610, refer to Appendix C.

- Software Load from Warm on page 6-26 – provides instructions for re–installing the eNTEGRA application. It preserves the installed database and all the configuration parameters. It is mainly used for software upgrade purposes.

- Installing eNTEGRA Software Options and Licenses on page 6-27 – provides instructions for installing various eNTEGRA options, as well as licences for eNTEGRA applications.

6.2 Software Load From Cold For Dell OptiPlex GX200

6.2.1 Overview

This chapter provides detailed instructions for installing the basic software of the eNTEGRA system on the Dell OptiPlex GX200 computer, referred to as software load from cold.

Software load from cold is used when the hard disk is corrupted or replaced, and the entire package must be installed from scratch.

CAUTION

Load from cold is a destructive procedure and all the data on the disk will be lost.

Verify that all patient data is backed up.

Back up the Archive Log Index directory (**C:\ArcLog**) before starting the software load from cold procedure.

6.2.1.1 Time Required

The time required to complete the installation of the basic software is 1.5 hours (about 90 minutes).

6.2.1.2 Procedure Overview

The load from cold procedure consists of the following steps, to be performed in the given order:

The load from cold procedure consists of the following steps, to be performed in the given order:

1. Disconnecting Existing Optical Disk Drives (if Applicable) on page 6-4
2. Setting the System BIOS on page 6-4
3. Installing the Windows NT Operating System on page 6-5, including disk partitioning and formatting Drive C:
4. Installing Windows NT Networking on page 6-7
5. Installing Service Pack 6a on page 6-10
6. Installing the Display Driver on page 6-11
7. Adjusting the Display Properties on page 6-12
8. Installing the Sound Driver on page 6-13
9. Setting System Options on page 6-13
10. Installing Internet Explorer 5 on page 6-15
11. Installing RAS, Modem and TCP/IP Printing on page 6-16
12. Installing the FTP Service on page 6-18
13. Formatting Drive D: as NTFS on page 6-19
14. Installing the eNTEGRA Application and Its Accessory Components on page 6-20
15. InSite Installation on page 6-21
16. Installing eNTEGRA Software Options and Licenses on page 6-27
17. Configuring the system, as per Section 3.8 on page 3-14.
18. Configuring the Network, as per Section 3.9 on page 3-28.
19. Configuring the Hardcopy Devices, as per Section 3.10 on page 3-33.
20. Performing the Functional Checks detailed in Chapter 4.

6.2.2 Disconnecting Existing Optical Disk Drives (if Applicable)

1. Shutdown eNTEGRA and the computer, if needed.
2. Remove the computer cover, referring to your PC Guide.
3. Disconnect the DC power cable and the SCSI flat cable from the optical drive.
4. Reassemble the computer cover.

6.2.3 Setting the System BIOS

1. Turn ON the computer.
2. When the Dell screen appears, press <**F2**> as prompted on the upper right corner of the screen.
3. Scroll to the **Boot Sequence** entry and press <**Enter**>.
4. Use the down arrow key to highlight **IDE CD-ROM Device** and then move it to the first line in the dialog, using the <**–**> /<**+**> key on the numeric keypad.
5. Press <**Esc**> to close the dialog.
6. Verify:

   Primary Drive 0 – OFF
   Primary Drive 1 – OFF
   Secondary Device 0 – ON
   Secondary Device 1 – OFF

7. Press <**Esc**>.
8. Select **Save Changes and Exit** and press <**Enter**>.
9. Proceed to Installing the Windows NT Operating System on page 6-5.

6.2.4 Installing the Windows NT Operating System

1. Turn ON the system and immediately insert the **NT Installation CD.**
2. When the words **Windows NT Setup** appear at the top of the screen, press <**F6**> ***repeatedly*** until the full **Windows NT Setup** screen appears and the white line at the bottom of the screen shows the option **S=Specify Additional Device**.
3. Press <**S**>. The **SCSI Adapter** list appears with **Other** selected.
4. Press <**Enter**> and insert the diskette labeled **SCSI Driver 294xU2 for NT 4.0** into the floppy drive.
5. Press <**Enter**> again. The list of SCSI Adaptec AHA adapters appear with the last item selected (**Adaptec-294xU2/295xU2/395xU2/AIC-789x PCI SCSI Controller**).
6. Press <**Enter**> once again. The system loads the driver and it is added to the list of mass storage devices whose support is to be loaded.
7. Press <**Enter**> to initiate file loading.
8. When the 'Welcome to Setup' screen appears, press <**Enter**> to continue.
9. When prompted, press <**Enter**> twice to continue.
10. In the opened **licence Agreement page**, scroll down to the bottom using the <**PgDw**> key, and press <**F8**>.
11. If the disk ***does not*** have NT installed, a message is displayed; press <**Enter**>.

    Otherwise (the disk already ***has*** NT installed) a message is displayed.
    a. Press <**N**> = New, to reinstall NT.
    b. Press <**Enter**>
    c. Press <**D**> = Delete to delete the current partition.
    d. Press <**Enter**>
    e. Press <**L**> = Delete.
    f. If there is an additional partition, press the <↓> key to highlight it and repeat the procedure to delete this partition (press **D** then press <**Enter**> and press **L**).
12. Upon the message **Create the following partitions in the (whole disk) unpartitioned space**:

    If any partitions exist, delete them as follows:
    a. Select the partition and press <**D**>, <**Enter**>, <**L**>.
    b. If there is an additional partition, press the <↓> key to highlight it and repeat the procedure to delete this partition (press **D** then press <**Enter**> and press **L**).

    Otherwise:
    a. Press <**C**> to create a new partition.
    b. Delete the number displayed by pressing <**Backspace**>.
    c. Type **3000** and press <**Enter**>.
    d. While the 1st partition is highlighted, press <**Enter**> to install Windows NT on drive C:

13. Install Windows NT as follows:
    a. In the opened dialog, use the <↓> key to highlight the line **Format using NTFS** and press <**Enter**>.

       Drive C: will be formatted. It may take several minutes.
    b. When prompted, press <**Enter**> twice to start copying the NT files.
    c. Upon system prompt, remove the Windows NT CD and the floppy.
    d. When prompted, press <**Enter**> to reboot.
14. After reboot, the installation continues followed by another automatic reboot.
15. When prompted, insert the **NT installation CD** into the CD drive and click [**OK**].
16. Proceed to Installing Windows NT Networking on page 6-7.

6.2.5 Installing Windows NT Networking

1. In the **Windows NT Setup** window, click [**Next**] to continue.
2. In the opened **Setup Options** window, select **Typical** and click [**Next**].
3. In the opened **Name and Organization** window, type–in your ***site_name*** and ***organization_name*** and click [**Next**].
4. In the **Registration** window, type–in your ***product_ID*** (recorded on the provided manual) and click [**Next**].
5. When prompted, type–in your ***computer name***, as defined in the pre–installation checklist, and click [**Next**].
6. When prompted, type–in your ***password***, as defined in the pre–installation checklist (the following description will use the password **elgems**).
7. Retype the password and click [**Next**].
8. When prompted, select **no, do not create an emergency repair disk**, and click [**Next**].
9. In the opened **Windows NT Components** dialog, select "**Install the most common components**" and click [**Next**].
10. Upon the message "**Installing Windows NT networking**", click [**Next**].
11. Check "**Do not connect this computer to a network at this time**" and click [**Next**].
12. Click [**Finish**] to finish setup.
13. In the opened **Date/Time Properties** window:
    a. Set the appropriate date and time in the **Date & Time** page.
    b. Click the **Time Zone** tab, click on the down arrow to display the **Time Zone** list, select the appropriate Time Zone and click [**OK**].
    c. Click [**Close**].
14. If the system finds the video adapter, click [**OK**], then click [**Cancel**] for Video card driver installation, which will be installed later.

Note

As long as the display driver is not installed, an **Invalid Display Settings** error message will be displayed after each reboot. Click [**OK**] and ignore the message.

15. When asked to restart the computer, ***remove*** the Windows NT CD and press the [**Restart**] button.
16. When prompted, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:
    User Name: **Administrator**
    Password: **elgems**
17. Click <**OK**>.
18. In the Welcome screen that is opened, click [**Close**].
19. Insert the eNTEGRA Application CD into the CD-ROM drive.

20. Double click: **My computer** → **(D:)** drive (CD-ROM Drive) → **Drivers** → **DELLGX200_DRIVERS.exe**.
21. When the system prompts **Extracting completed**, click [**OK**]
22. Click with the ***right*** mouse button on the **Network Neighborhood** icon on the desktop.
23. Click on the **Properties** entry.
24. Click [**Yes**] to confirm that networking is to be installed.
25. Click [**Next**]
26. Click on [**Select From List...**].
27. In the **Select Network Adapter** window, click on [**Have Disk...**]
28. Type–in the path **C:\Drivers\3Com**.
29. Click [**OK**] twice.
30. Click [**Next**] 4 times.
31. Remove the eNTEGRA CD and insert the Windows NT CD.
32. wait for the **Windows NT CD** to open and close it.
33. In the Windows NT Setup window, type in the path: **D:** and click [**Continue**].
34. Upon the message "**If there is a DHCP..**." click [**NO**].
35. In the opened **Microsoft TCP/IP Properties** window, click the **IP Address** tab, and:
    a. Type–in your ***IP address*** (as defined in the pre–installation checklist).
    b. If relevant, type–in your ***Subnet Mask***.
    c. If relevant, type–in your ***Default Gateway*** address (as defined in the pre–installation checklist)
36. If relevant, click the **DNS** tab, and type–in the ***DNS IP*** address (defined in the pre–installation checklist)
37. If relevant, click the **WINS** tab, type–in the Windows Server primary and secondary IP addresses (defined in the pre–installation checklist)
38. Click [**OK**] at the bottom of the page.
39. Upon system prompts, click [**Next**], [**Next**], [**Next**] and [**Finish**].
40. When queried to shutdown, ***remove*** the Windows NT CD from the drive and click [**Yes**].
41. When prompted, press <**Alt**> + <**Ctrl**> + <**Del**> and login as follows:
    User Name: **Administrator**
    Password: **elgems**
42. Click [**OK**].

43. **Define the users** as follows:
    a. Click the [**Start**] button on the Task Bar at the bottom of the screen and select **Programs** → **Administrative Tools** → **User Manager**.
    b. In the **User Manager** window, click on **User** in the Menu Bar and select the **New User** entry.
    c. Uncheck "**User Must Change Password at Next Logon**".
    d. Click the checkbox next to "**Password Never Expires**".
    e. Click the [**Groups**] button.
    f. In the **Group Memberships** window, click **Administrators** (if not already highlighted) and then click the [**<Add**] button. The Administrators entry moves from the **Not member of** list to the **Member of** list.
    g. Click [**OK**].
    h. In the **New User** window enter:

Username:	**entegra**
Password:	**entegra**
Confirm Password:	**entegra**

    i. Click [**OK**] again.
    j. Close the User Manager window.
44. Click the [**Start**] button on the Task Bar at the bottom of the screen and select **Shutdown the system**.
45. In the **Shut Down** window, select "**Close all programs and log as a different user?**", then click [**Yes**].
46. When prompted, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:

Username:	**entegra**
Password:	**entegra**

47. Click [**OK**].
48. In the opened **Welcome** window click [**Close**].
49. Proceed to Installing Service Pack 6a on page 6-10.

6.2.6 Installing Service Pack 6a

This installation depends on the language being used.

1. For **English** version: Insert the eNTEGRA Application CD into the CD Drive and double click the **My Computer** icon located on the desktop.

   For **other languages**: Insert the eNTEGRA Accessories Software CD into the CD Drive and double click the **My Computer** icon located on the desktop.

2. Double click the **(D:)** drive (CD–ROM Drive).
3. Double click the **SP6** directory.
4. For the **English** version, skip to step 5, below.
   For **other languages**, double click the applicable language directory.
5. Double click **SP6ai386.exe**.
6. Check the **Accept License Agreement** box, if requested.
7. Uncheck "**Backup files necessary to uninstall service pack..."**.
8. Click [**Install**].
9. When prompted, click on [**Restart**] to reboot the system and logon as before.
10. Proceed to Installing the Display Driver on page 6-11.

6.2.7 Installing the Display Driver

1. When prompted, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:
   Username: **entegra**
   Password: **entegra**
2. Click [**OK**].
3. In the opened **Welcome** window, click on the checkbox for "Show this Welcome..." to deselect it and click [**Close**].
4. Double click the **My Computer** icon on the Desktop.
5. Double-click **Control Panel**.
6. Double click **Display**.
7. In the opened **Display Properties** window, click the **Settings** tab.
8. Click the [**Display Type**] button.
9. Click the [**Change...**] button.
10. In the **Change Display** dialog, click on the [**Have Disk...**] button.
11. Type in the **Copy Manufacturer's files from:** input field:

    C:\drivers\nvidia and click [**OK**].
12. From the opened nvidia drivers list, select **NVIDIA RIVA TNT2 Model 64** and click [**OK**].
13. In the confirmation window, click [**Yes**] and [**OK**].
14. Close the **Display Types** window by clicking [**Close**].
15. Close the **Display Properties** window by clicking [**OK**].
16. Click [**OK**] to reboot the computer.
17. Proceed to Adjusting the Display Properties on page 6-12.

6.2.8 Adjusting the Display Properties

1. When the system comes up, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:

   Username: **entegra**
   Password: **entegra**

2. Click [**OK**].
3. If the **Invalid Display Settings** window is opened, click [**OK**].
4. The **Display Properties** window is opened to the **Settings** tab.
5. Click the down arrow under the **Color Palette**, and select **True Color**.
6. Move the slider in the **Desktop Area** to display a resolution of **1280 by 1024 pixels**.
7. Click the down arrow under **Font Size** and select **Small Fonts**.
8. Click the down arrow under **Refresh frequency** and select **85 Hertz**.
9. Click the [**Test**] button.
10. Click [**OK**] to display the test screen.
11. In the testing Mode window, click [**Yes**] if you have seen the bitmap properly.
12. In the **Display Properties** window, click the [**OK**] button.
13. Proceed to Installing the Sound Driver on page 6-13.

6.2.9 Installing the Sound Driver

1. If necessary, insert the eNTEGRA CD-ROM to the CD-ROM drive.
2. Double click the **My Computer** icon on the Desktop.
3. Double-click **Control Panel**.
4. Double click **Multimedia** and click the **Devices** tab.
5. Click, [**Add**], select **Unlisted or Updated Driver** and click [**OK**].
6. Type in the path **C:\Drivers\Audio** for the driver installation files and click [**OK**].
7. A dialogue box "**Add Unlisted or Updated Drivers**" appears. Click [**OK**].
8. If the "**Driver Exists**" window appears, click on the [**New**] button.
9. Click [**OK**] in the "**About Soundmax Integrated Digital Audio**" Window.
10. Click [**OK**] to close the **Multimedia Properties** window.
11. Proceed to Setting System Options on page 6-13.

6.2.10 Setting System Options

Set the following operating system configurations in the given order:

1. Setting the Date Format on page 6-13
2. Setting the Application Event Viewer Loggings on page 6-14
3. Setting the Task Bar Properties on page 6-14
4. Setting the View Options on page 6-14
5. When done, proceed to Installing Internet Explorer 5 on page 6-15.

6.2.10.1 Setting the Date Format

1. Click left on the [**Start**] icon on the Tasks Bar, and select: **Setting** → **Control Panel**.
2. On the **Control Panel** window, double click on the **Regional Settings** icon.
3. Click on the **Date** tab.
4. Click the down arrow at the **Short data style** field, select the format: **M/d/yyyy** and click [**OK**].

6.2.10.2 Setting the Application Event Viewer Loggings

1. Click left on the [**Start**] icon on the Tasks Bar, and select: **Programs** › **Administrative Tools (common)** › **Event Viewer**.
2. Click the **Log** option in the Menu Bar, and select the **Application** entry.
3. Click the **Log** option in the Menu Bar, and select the **Log settings...** entry.
4. In the **Event Log Settings** window, check the **Overwrite Events as Needed** field Logs.
5. Click [**OK**].
6. Close the **Event Viewer** window.

6.2.10.3 Setting the Task Bar Properties

1. Click **right** on an empty place of the Task Bar and select the **Properties** entry.
2. In the opened **Task Bar Properties** window, ***uncheck*** the **Always on top** option.
3. Click [**OK**] to close the **Task Bar Properties** window.

6.2.10.4 Setting the View Options

1. Double click **My Computer** icon.
2. In the opened **My Computer** window, click the **View** option in the Menu Bar and select the **Options** entry.
3. In the **Options** window, click the **Folder** tab.
4. Click the radio button next to **Browse folder by using a single window that changes as you open each folder**, then click the [**Apply**] button.
5. Click the **View** tab in the **Options** window.
6. Click the radio button next to **Show all files** option.
7. Uncheck the option **Hide file extensions for known file types**, click [**OK**] to close the **Options** window.
8. Close **My Computer** window.

6.2.11 Installing Internet Explorer 5

1. For the **English** version, skip to Step 2, below.
   For **other languages**, replace the eNTEGRA application CD with the eNTEGRA Accessories Software CD.
2. Double click on **My Computer** icon located on the desktop.
3. Double click the **D:** drive (CD–ROM Drive).
4. For the **English** version, skip to Step 5, below.
   For **other languages**, double click the applicable language.
5. Double click the **IE5** directory.
6. Double click **install.bat**.
7. When installation has been completed, the system will reboot.
8. Proceed to Installing RAS, Modem and TCP/IP Printing on page 6-16.

6.2.12 Installing RAS, Modem and TCP/IP Printing

1. When the system comes up, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:
   Username: **entegra**
   Password: **entegra**
2. Click [**OK**] and wait for the Windows desktop.
3. Insert the Windows NT Workstation CD-ROM and close the opened **Windows CD** window.
4. Click right on the **Network Neighborhood** icon on the desktop and select the **Properties** entry.
5. In the opened **Network** window, select the **Services** tab to display the currently installed services.
6. In the **Services** tab click [**Add**], select **Microsoft TCP/IP Printing** .
7. Click [**OK**], type **D:\i386** <**Enter**>, where D: is your CD-ROM drive and click [**Continue**].
8. In the **Services** tab click [**Add**], select the **Remote Access Service** entry and click [**OK**].
9. If needed, change the path displayed to **D:\i386** where **D** is your CD-ROM drive, and click [**Continue**].
10. The **Remote Access Service** files will be copied.
11. When the following message appears: **There are no RAS....**, click [**Yes**] to invoke **Modem Installer**.
12. In the opened **Install New Modem** dialog, check the **Don't detect my modem...** and click [**Next**].
13. Proceed according to the installed modem, as follows:
    a. Installing a US Robotics Modem
       1) In the **Install New Modem** dialog, select **U.S. Robotics, Inc** from the **Manufacturers** column.
       2) Select your modem from the **Models** list (Courier V.Everything External, Courier V.34 Data Fax Modem, etc…).
       3) Click on **[Next]** and proceed to Step 14.

    b. Installing a Motorola modem
       1) In the **Install New Modem** dialog, select **Motorola (Ger)** from the **Manufacturers** column.
       2) Select your modem from the **Models** list (Motorola Codex 3265FAST, etc…).
       3) Click on **[Next]** and proceed to Step 14.

    c. Installing the Multitech Modem
       1) Insert the eNTEGRA application CD into the CD-ROM drive.
       2) In the **Install New Modem** dialog, click on [**Have Disk...**].

3) Type **G:\Drivers\Multitech** (Where G: is the CD-ROM drive) and Click [**OK**].
4) Select **MultiTech Systems MT5634ZBA** and click [**Next**].

14. Select the port your modem is connected to: **COM1** if your modem is connected to Com1/Serial A or **COM2** if your modem is connected to Com2/Serial B.
15. Click on **[Next]**. The system will now install your selected modem.
16. Click **[Finish]** in the **Install New Modem** window.
17. Click [**OK**].
18. Click [**Comfigure**].
19. Select **Dial out and receive calls** and click [**OK**].
20. Click [**Comtinue**] in the **Remote Access Setup**.
21. Click [**OK**] twice.
22. Click [**Close**].
23. Click [**Yes**] to restart the system.
24. Remove the Windows NT CD from the drive.
25. Proceed to Installing the FTP Service on page 6-18.

6.2.13 Installing the FTP Service

1. Insert the Windows NT CD into the CD drive.
2. Right click the **Network Neighborhood** icon on the desktop, and select **Properties** to display the **Network** dialog.
3. Click the **Service** tab and click the [**Add**] button.
4. From the opened **Select Network Service** list, select **Microsoft Peer Web Server** and click [**OK**].
5. In the **Installed from:** input field, enter **D:\i386** (where D: is your CD drive), and click [**OK**].
6. On the opened **Microsoft Peer Web Services Setup** dialog, click [**OK**].
7. In the opened **Options** list, deselect all options except **FTP Service** and **Internet Service Manager**, then click [**OK**].
8. Click [**Yes**] to create the prompted directory.
9. In the **FTP Publishing Directories** input field type **C:\Insite** and click [**OK**]. If required, acknowledge by clicking [**Yes**] to create the Insite directory.
10. When the installation has been complete successfully, click [**OK**].
11. Click [**Close**] in the Network dialog.
12. Click [**Start**] on the task bar and select **Programs** → **Microsoft Peer Web Services** → **Internet Service Manager**.
13. Double click the ***Computer Name*** entry to open the **FTP Service properties for entegra** dialog.
14. On the Service tab, *uncheck* **Allow only anonymous connections**, and confirm by clicking [**Yes**].
15. Click the **Directories** tab, select the displayed entry, click [**Edit Properties...**], check (click) the **Write** property, then click [**OK**].
16. Click [**Add**], enter **C:** in the **Directory** field, enter **/C** in the **Alias** field, click the **Write** checkbox located at the bottom of the screen, and click [**OK**].
17. Click [**Add**], enter **D:** in the **Directory** field, enter **/D** in the **Alias** field, click the **Write** checkbox located at the bottom of the screen, and click [**OK**].
18. Click [**OK**] and close the **Microsoft Internet Service Manager** dialog.
19. Proceed to Formatting Drive D: as NTFS on page 6-19.

6.2.14 Formatting Drive D: as NTFS

1. Double click on the [**Start**] button in the Task Bar, and select: **Programs** → **Administrative Tools (common)** → **Disk Administrator**.
2. Click [**OK**].
3. In the **Disk Administrator** dialog, click *right* on the letter assigned to the CD-ROM, and select **Assign Driver Letter...**
4. From the **Assign drive letter** drop-down list, select **E:** and click [**OK**].
5. In the confirm window, click [**Yes**].
6. In the **Disk Administrator** dialog, click right on **Free Space**., and in the pop-up window click [**Create**].
7. When asked, click [**Yes**], [**OK**] and [**Yes**].
8. In the **Disk Administrator** dialog, select **Exit** from the **Partition** drop-down menu.
9. When asked, click [**Yes**] to save the partition, then click [**OK**] twice.
10. Double click on **My Computer** icon located on the desktop.
11. Right click on **D:** drive icon.
12. Select the **Format...** entry.
13. Click the down arrow in the **File System** field and select **NTFS** entry.
14. Click the [**Start**] button.
15. The following warning will be displayed:

    WARNING: formatting will erase all data on this disk. Select OK to format the disk, Cancel to abort.

    Click **OK**.
    The disk will be formatted.

16. Upon system prompt **Format Complete**, click [**OK**].
17. Click [**Close**].
18. Proceed to Installing the eNTEGRA Application and Its Accessory Components on page 6-20.

6.2.15 Installing the eNTEGRA Application and Its Accessory Components

1. Insert the eNTEGRA CD-ROM to the CD-ROM drive.
2. Double click on **My computer** icon located on the desktop.
3. Double click the **(E:)** drive (CD–ROM Drive).
4. Double click **Install.vbs**.
5. Click on [**OK**].
6. When prompted, insert the licences diskette into the floppy drive, and click [**OK**].
7. Click [**Yes**] and wait for the installation of the HASP Device Driver Setup program to complete.
8. On the **Warning** window displayed, click [**Yes**] to continue with the setup program.
9. In the **HASP Device Driver** status dialog, click [**Next**].
10. In the **Setup Option** window, click [**Typical**].
11. In the **Confirm Your Selection** window, click [**Next**].
12. When the message **The HASP Device Driver has been successfully installed** appears, click [**OK**], [**Finish**].
13. In the **Acrobat** installation, click [**Next**], [**Next**].
14. Select [**No**] when asked to reboot.
15. From the eNTEGRA CD, double click **eNTEGRA_LFC.vbs**.
16. In the **QGS** installation, click [**Next**], [**Finish**].
17. In the **Demo Database** installation, click [**Next**], [**Next**], [**Next**] and then [**Finish**].
18. In the **eNTEGRA Application** installation, click [**Next**], [**Next**], [**Next**].
19. When asked, click the radio button next to the applicable language, then click [**Next**], [**Next**].
20. If requested, replace the eNTEGRA Application CD with the eNTEGRA On-line Help CD.
    Otherwise, skip to step 22, below.
21. Click [**Next**], [**Next**] and then [**Finish**].
22. If the system includes an optical drive, reconnect it as per Adding an Optical Drive on page 7-1.
23. Proceed to InSite Installation on page 6-21.

6.2.16 InSite Installation

InSite installation consists of the following steps to be performed in theh given irder:

Note

Currently InSite does not work on systems with Windows NT Operating Systems in Portuguese.

6.2.16.1 Installation of the Command Line Telnet

1. Insert the eNTEGRA Software Disk CD-ROM into the CD-ROM drive.
2. Double click on the **My Computer** icon on the Desktop.
3. Double-click on the **CD-ROM** icon.
4. Double click on the **Options** folder.
5. Double click on the **cmdtelnet** folder.
6. Double click on the **Setup.exe** icon.
7. Click **[Next]** in the **Welcome** window.
8. Click **[Yes]** in the **License Agreement** window.
9. Click **[Next]** in the **Readme Information** window.
10. Click **[Browse]** in the **Choose Destination Directory** window.
11. Select the **C:\insite** directory as follows:
    a. Double click on the **C:** folder.
    b. Double click on the **Insite** folder (this should update the top field to read C:\insite\).
12. Click [**OK**].
13. Click **[Next]** in the **Choose Destination Directory** window.
14. Click **[Next]** in the **Select Program Folder** window.
15. Click **[Next]** in the **Start Copying Files** window.
16. Uncheck **[View Readme]** and click **[Finish]** in the **Setup Complete** window.

6.2.16.2 Configuring ATAMAN Telnet to include eNTEGRA as user

1. Double click on **My Computer** (minify eNTEGRA application if necessary).
2. Double click on **Control Panel**.
3. Double click on **Ataman TCP R.L. Services**.
4. Select the **Users** tab in the opened **Ataman TCP Remote Login Services** window.
5. Click **[Add User…]**.
6. To create an eNTEGRA user for telnet purposes:
   a. In the **User Name** field type: **entegra**
   b. In the **NT User Name** field type: **entegra**
   c. In the **NT User Domain** field type: **.** (only put a period)
7. Click **[OK]**.
8. Click **[OK]** in the **Ataman TCP Remote Login Services** window.
9. Close the **Control Panel**.

6.2.16.3 Verifying InSite user accounts and passwords

1. Click left on the [**Start**] icon on the Tasks Bar, and select **Programs** → **Administrative Tools (common)** → **User Manager**.
2. In the opened **User Manager** window, double click on the **[insite]** entry.
3. In the opened **User Properties**:
   a. Click the checkbox next to **Password Never Expires**.
   b. If necessary, uncheck the box next to **User Must Change Password at Next Logon**.
4. Verify that all other boxes are unchecked then click **[OK]**.
5. In the opened **User Manager** window, double click on the **Pinsite** entry.
6. In the opened **User Properties**:
   a. Click the checkbox next to **Password Never Expires**.
   b. If necessary, uncheck the box next to **User Must Change Password at Next Logon**.
7. Verify that all other boxes are unchecked then click **[OK]**.
8. Close the **User Manager** window.

6.2.16.4 Re-installation of Service Pack 6a

This installation depends on the language being used.

1. For **English** version: Insert the eNTEGRA Application CD into the CD Drive and double click the **My Computer** icon located on the desktop.

   For **other languages**: Insert the eNTEGRA Accessories Software CD into the CD Drive and double click the **My Computer** icon located on the desktop.

2. Double click the **(D:)** drive (CD–ROM Drive).
3. Double click the **SP6** directory.
4. For the **English** version, skip to step 5, below.
   For **other languages**, double click the applicable language directory.
5. Double click **SP6ai386.exe**.

Note: if an **Incorrect Service Pack version** message appears, browse to **C:\WINTN\system32**, rename Schannel.dll to **Schannel.dl2**, and double click **SP6ai386.exe** again.

6. Check the **Accept License Agreement** box, if requested.
7. Uncheck "**Backup files necessary to uninstall service pack...”**.
8. Click [**Install**].
9. When prompted, click on [**Restart**] to reboot the system and logon as before.

6.2.16.5 Installation of VNC Server

1. Click left on the [**Start**] icon on the Tasks Bar, and select: **Programs** → **Command Prompt**.
2. In the opened **Command Prompt** window:
   a. Type **cd\insite\vnc** <**Enter**>.
   b. Type **gzip –d vnc*** <**Enter**>.
   c. Type **tar –xvf vnc*** <**Enter**>. This will extract some files.
   d. Type **exit** <**Enter**> to close the **Command Prompt** window.
3. Double click on **My Computer**.
4. Double click on the **(C:)** icon.
5. Double click on the **insite** folder.
6. Double click on the **vnc** folder.
7. Double click on the **vnc_x86_win32** folder.
8. Double click on the **winvnc** folder.
9. Double click on the **Setup.exe** icon.
10. Click **[OK]** in the opened **WARNING…** window.
11. Click **[Next]** in the opened **Welcome** window.
12. Click **[Yes]** in the opened **Software License Agreement** window.
13. Click **[Next]** in the opened **Choose Destination Location** window.
14. Click **[Next]** in the opened **Select Program Folder** window.
15. When the **Setup Complete** window appears:

    If prompted to restart the computer, select '**No, I will restart my computer later**'.

    Then or otherwise, click **[Finish]**.
16. Click the **[Start]** button on the Task Bar at the bottom of the screen and select the **Run...** entry.
17. Type **winvnc** <**Enter**> in the command line.
18. If the **WinVNC: Current User Properties** window appears, type **insite** in the **password** field then click **[OK]**.

Note: when typing **insite**, be sure that the <**Caps Lock**> button is OFF.

19. Click on **Start** → **Find** → **Files or Folders...** and type in the named field **winvnc.exe**
20. Click on [**Find Now**].
21. Click *right* on the **winvnc.exe** icon and select **Create Shortcut**.
22. Click [**Yes**] to create a shortcut on the desktop.

6.3 Software Load from Warm

6.3.1 Overview

Software load from warm is mainly used for software upgrade.

6.3.1.1 Time Required

Since upgrade of the eNTEGRA application does not affect the database, and the various settings (system settings, the network settings and the printer settings), it requires 5 minutes only.

6.3.1.2 Procedure

Software upgrade consists of the following steps, to be performed in the given order:

1. Full Shut Down of the eNTEGRA Application on page 6-26
2. Software Upgrade on page 6-26.

6.3.2 Full Shut Down of the eNTEGRA Application

1. From the **Main** eNTEGRA screen, click the [**X**] (shutdown) button in the upper right corner of the screen.
2. In the opened dialog, click the [**Full**] button.
3. Wait until the eNTEGRA application and its servers are closed.

6.3.3 Software Upgrade

1. Double click on **My Computer** icon located on the desktop.
2. Double click the **(E:)** drive (CD–ROM Drive).
3. Double click on the **eNTEGRA** directory.
4. Double click **setup.exe**.
5. Click [**Next**].
6. When prompted to define the database location, type **D:\DataBase** and click [**Next**].
7. Click [**Finish**].

6.4 Installing eNTEGRA Software Options and Licenses

This section explains how to install additional software options and the required licences, as follows:

- Installing the licenses – Section 6.4.1 on page 6-27.
- Installing OSI Software, required for communication with StarCam and SPX systems – Section 6.4.2 on page 6-29.

6.4.1 Installing the Licences

Application licences are generated per each unique activator ID.

eNTEGRA Release 1.0 includes individual licence for each licensed option.

To install licences:

1. Insert the **Licences** diskette (supplied with the system) into the floppy drive and attach the Activator onto the parallel port on the back panel of the computer.
2. Double click **My Computer** icon on the Desktop.
3. Double click **3½ Floppy (A:)**.
4. Select all the files by pressing <**Ctrl**> + <**A**> simultaneously.
5. Drop down the **Edit** menu and select the **Copy** entry.
6. Double click on **My Computer** icon on the desktop.
7. Browse to **D:\Einstein\Licences**.
8. Drop–down the **Edit** menu and select the **Paste** entry.

Table 6-1 lists the software options available on eNTEGRA Release 1.0X along with the license file names.

Table 6-1. eNTEGRA P&R Options

Option	license File Name
Basic System	ar.base, db.base, dc.base, hc.base, iap.base, pr.base, rec.base, pr.3d.
CEqual™	cequal
CEqual Light	cequalite
ECToolbox™	cequal, perfspect3degs, tetrofosmin
ECToolbox Upgrade	perfspect3degs, tetrofosmin
Functional Anatomical Mapping – Fusion	fam
Tl201 database upgrade	TL201
QuantEM™	quantem
Quantitative Gated SPECT™	qgspect
Aladdin Compose and Edit™	qcard
3D Volume Rendering – PerfSPECTive™	render3d
CT/MR DICOM Storage	ctmrdicomscp
Remote Connectivity	remoteconn
Iterative Reconstruction	rec.ir
Quantitative Perfusion SPECT	qps
OSI (required for connection to SP and StarCam systems)	osi

6.4.2 Installing the OSI Option

6.4.2.1 Overview

The OSI option is required for any NT based eNTEGRA P&R system that needs to communicate with other systems that do not support TCP/IP. These systems include Starcam systems running Starlink V4 protocol and SPX systems residing on the ApexNet.

The Starlink protocol and the SPX systems use the OSI network stack as it's transport software. The standard eNTEGRA Operating System loaded on the eNTEGRA P&R PC platform does not contain this OSI network software. A separate OSI software package must be loaded in addition to Windows NT.

Installing the OSI shareware package requires the following steps:

1. Installing the IMPART ISO 8073 Network Driver – Section 6.4.2.2.
2. Installing the Boldon James ADI program – Chapter 6.4.2.3.
3. Installing patch for ADI – Chapter 6.4.2.4.
4. Configuring the Remote OSI Stations on the eNTEGRA system – refer to Section 3.8.4.5.
5. Configuring the Starlink and OSI accessed systems on the local eNTEGRA system – Section 3.8.4.5.
6. Configuring the eNTEGRA on the Remote Starlink/SP systems – Section 6.4.2.5.

6.4.2.2 Installing the IMPART ISO 8073 Network Driver

The following instructions relate to installation from the CD-ROM where the files are in the directory **\OSI\IsoTspNT**.

1. Log into your system as before with the username **entegra**.
2. Close down the eNTEGRA application and double-click the Stop Servers icon to shutdown all servers.
3. Click on the [**Start**] icon on the Tasks Bar, and select: **Settings** → **Control Panel**.
4. Double click the **Network** icon.
5. Go to the **Protocols** tab and click [**Add**].
6. Click the [**Have Disk**] button.
7. In the **Insert Disk** window, type-in the path for the installation files on the CD-ROM **E:\OSI\IsoTspNt** where **E:** is the CD-ROM drive. Click [**OK**].
8. When the product name (IMPART ISO 8073 Transport) is displayed in the **Select OEM Option** window, click [**OK**].
9. The licences agreement will be displayed. Click [**Yes**] to confirm.
10. A dialog box will be displayed requesting the directory in which to install the Transport files. Click **OK** to confirm the default directory.
11. In the next dialog, click [**Yes**] to confirm the creation of the specified directory.
12. In the **Bolden James Installation** window, click [**OK**].
13. Wait for the installation to complete. Upon the message **IMPART ISO 8073 Transport installed successfully** click [**OK**].
14. In the open **Network** window, click [**Close**].
15. After the network settings have been updated, you will need to reboot for the changes to become affective.

6.4.2.3 Installing the Boldon James ADI Program

1. Close down the eNTEGRA application and double-click the Stop Servers icon to shutdown all servers.
2. Double click **My Computer** icon on the Desktop.
3. Double click the CD drive letter **(E:)**.
4. Navigate to **E:\OSI\Impart5\disk1**.
5. Run the **Setup.exe** installation program located in Click [**Yes**] in the **Licence Agreement** dialog.
6. In the **License File Location** window, click [**Continue**] to use the default license.
7. Click [**Continue**] to use the default path.
8. In the **Select Components to Install** dialog, verify that ONLY the **ADI** component is checked and click [**OK**].
9. In the **Type of Addressing** window, click [**OK**] to use the default **ICAD** format.
10. In **IMPART 32 Installation Complete**, click [**OK]**.
11. Click [**No**] to avoid rebooting the system.
12. Close all windows

6.4.2.4 Installing a Patch for ADI

1. Move to the patch installation directory **E:\OSI\BJ_Patch**.
2. Run **BJ_Patch.bat**.
3. Reboot the system (If necessary, shut down the eNTEGRA application and stop the servers).

6.4.2.5 Configuring the eNTEGRA on Remote OSI Stations

Refer to Section 3.9.

After the eNTEGRA system has been configured on all the remote OSI stations, log into eNTEGRA and verify communication with the StarLink and SP based systems.

Chapter 7 - System Upgrade

This chapter provides instruction for hardware upgrades, as follows:

For upgrading eNTEGRA software version, please refer to Section 6.3 - Software Load from Warm on page 6-26.

For adding clinical application licences, please refer to the procedure described in 6.4.1 - Installing the Licences on page 6-27.

7.1 Adding an Optical Drive

7.1.1 Installing Archive Optical Disk in PC Tower

1. Power down the PC.
2. Remove the PC cover. Refer to the PC User's Guide.
3. Set SCSI ID of the Optical Disk to 1. Refer to the OEM documentation sent with the drive.

Note

Use proper ESD procedures when handling the Optical Drive and working in the PC Tower.

4. Insert the Optical Disk into the empty slot in the PC Tower and fasten in place using the screws from the slot cover. Refer to the PC User's Guide.
5. Connect the internal power cable and Narrow SCSI cable to the connectors on the back of the drive. All connectors are keyed to ensure that they are inserted correctly.
6. Reassemble the PC Tower and reconnect all cables.

7.1.2 System Configuration and Test

1. Power ON the computer.

   The Green LED on the drive should illuminate during it's power-up test.

   Verify that the optical disk is identified during the Boot–up sequence.
2. Open the eNTEGRA application.
3. Click on the [**Configuration**] button.
4. In the opened **User Preferences** window, click [**Advanded Configuration**].
5. In th opened **eNTEGRA Configuration** window, click the **Archive** tab.
6. In the **Archive** tab, check **Enable Archive Functionality** and **SONY/ Pioneer MOD Drive**, and click [**OK**].
7. Click [**Shutdown...**].
8. In the opened **System Shutdown** window click [**Powerdown**].
9. Restart the eNTEGRA application.
10. Verify peripheral operation. Refer to Chapter 4.

Chapter 8 - Troubleshooting and Repair

8.1 Philosophy

The general repair philosophy for the eNTEGRA workstation and its Field Replaceable Unit (FRU) is to repair at a UNIT level for both hardware and software. The product has been configured and structured to conform to standard FRU policies and to utilize as many common parts as possible. A troubleshooting guide, embedded InSite, and internal diagnostics allow fault isolation to the FRU level.

In the Workstation, no internal components are exchanged with all repairs being performed by the OEM vendor.

Training is structured to support this philosophy and develop a basic working knowledge of the Windows NT environment as required for software and Network troubleshooting.

This chapter is divided in to two main areas.

- Troubleshooting – Section 8.2
- Replacement Procedures – Section 8.3

8.2 Troubleshooting

This section provides instructions for:

8.2.1 Operating System Installation Problems

Note

Refer to “Microsoft Windows NT Workstation” booklet provided with the system.

8.2.2 eNTEGRA Installation Problems

Symptom	Possible Cause	Corrective Action
During system start-up, the EOD is assigned drive D: instead of drive E:	A new archive device was added to the system.	1. Disconnect the EOD. 2. Click [**Start**] in the task bar and select **Programs** → **Administrative Tools** → **Disk Administrator**. 3. Assign **F:** as the CD-ROM drive as follows: a. Click ***right*** on the CD-ROM Drive and select **Assign Drive Letter**. b. Click the down arrow next to the **Assign Drive Letter** radio button, select **F:** and click [**OK**]. 4. Assign the Archive to drive **E:** as described above, then re-assign it to drive **D:**. 5. Reconnect the EOD to the SCSI Narrow slot.
After first time installation of eNTEGRA, the application doesn’t start, and the following error message is displayed: “Error while initializing eNTEGRA, check servers”	Missing or wrong system license.	1. Open the file **einstein.error.log** located in **D:\Einstein\Einstein_Project/exe** using Notepad. 2. Scroll to the end of the file and check for the message: No node locking license: 4! Meaning that the basic eNTEGRA license is incorrect or missing. 1. If the above message appears, reinstall the **iap.base** license as per Section 6.4.1 on page 6-27.

8.2.3 Post Installation Problems

Symptom	Possible Cause	Corrective Action
During Load From Warm (LFW) the following message appears: “An error occurred during the move of data process: 115”	One or more of the eNTEGRA Servers are still active.	Close all eNTEGRA Servers by clicking the **Stop Servers** icon on the desktop and restart LFW.
eNTEGRA environment does not open successfully.	Files on hard disk are corrupted.	Reload eNTEGRA application (perform LFW).

8.2.4 Communication Problems

Table 8-1. Communication Problems

Symptom	Possible Cause	Corrective Action
After configuring the network settings, the eNTEGRA application will not re–open.	Wrong settings in the eNTEGRA **Config**. utility.	1. Double click the **eNTEGRA Prompt** icon on the desktop. 2. Type **Econf** <**Enter**>. The Econf will open. Review it and correct the network settings.
No communication with configured stations.	Remote station failure or OFF.	1. Double click the **eNTEGRA Prompt** icon on the desktop. 2. Type **ping *Hostname*** <**Enter**>, where ***Hostname*** refers to the hostname of the remote station. 3. If the remote station does not replay, it is not available.
While trying to export to Interfile or DICOM Part 10, the following message appears: “Can’t find RAS.dll”	RAS Installation was skipped.	Install the RAS as per Section 6.2.12 on page 6-16.

8.2.5 Printing Problems

Table 8-2. Printing Problems

Symptom	Possible Cause	Corrective Action
TCP/IP printers printing problems.	Wrong Configuration on local system	1. Open **Config** from the eNTEGRA **Main** screen. 2. Check the printer settings in the **Printer** tab, and correct if necessary.
	Printer disconnected	1. Double click the **eNTEGRA Prompt** icon on the desktop. 2. Type **ping *Hostname*** <**Enter**>, where ***Hostname*** refers to the hostname of the remote station. 3. If the remote station does not replay, it is not available.
Codonics printing problems (in addition to TCP/IP problems)	Wrong configuration on the Codonics	Connect to Codonics using telnet and check the printer status, as per Section 8.2.6. If not, contact Codonics service.
	Missing Codonics software patches	1. Connect to Codonics using telnet, as per Section 8.2.6 steps 1 – 4. The telnet session will display any communication between the eNTEGRA and the Codonics. 2. At the UNIX prompt, type **more /etc /updates** <**Enter**>. 3. Verify that the '**lpd**' and '**snnpd**' patches are loaded. If not, contact Codonics service.

8.2.6 Codonics Status Check

1. Click on the [**–**] (minimize) button on the **Main** Screen Header to view the system's Desktop.
2. Click the [**Start**] button on the Task Bar at the bottom of the screen and select **Programs** → **Command Prompt**.
3. Type: **telnet codonics** <**Enter**>

   The telnet session will display any communication between the eNTEGRA and the Codonics.

   The system responds with:

   ```
   Connected to codonics.
   Escape character is '^]'.
   UNIX(r) System V Release 4.0 (np1600)
   login:
   ```

4. Type: **root** <**Enter**>

   The system responds with:

   ```
   Last login: Wed Apr 2 12:11:25 from 3.28.127.70
   Sun Microsystems Inc.   SunOS 5.3       Generic September 1993
   #
   ```

5. To to look at the configuration parameters, type at the UNIX prompt:
   stat *eNTEGRA hostname*

   The system responds with the following information:

   ```
   Status: Ready                                          Date: 16-Apr-1997 09:04

    Media: A-Size Paper                                   Printer ID: 8033-d354
    Ribbon: CMY                                           E-net Addr: 08:00:20:1f:65:55

          Mem Config: 16MB RAM
    Queue:          0 jobs in image queue                 Hard Drive: 270MB Quantum
          0 jobs in image queue                           SW Version: 1.3.2

   Caption:        none
    Keys:          POSTSCRIPT   Key=00QIEKQZFO    Permanent
          ISG_1    Key=40QRC3BRIUPermanent

   Defaults:       Printer (root)              User (eNTEGRA)
                   --------------------------  ------------------------------------------
                   TCR          0              TCR          NOT SET
                   Gamma        1.00           Gamma        1.5
                   Antialias    None           Antialias    NOT SET
                   Rotate       Auto           Rotate       NOT SET
                   Scale        Bilinear       Scale        NOT SET
                   MCM          1              MCM          12
   ```

6. Verify that:
   a. The ***I*SG_1** key is listed under keys.
   b. The Defaults for User (eNTEGRA) are set to the values configured during installation (Section 3.10.8.5).
7. To quit the telnet session type: **exit** <**Enter**>.

The telnet session will display any communication between the eNTEGRA and the Codonics. It can also be used to look at the configuration parameters using the *stat* utility or verify which patches have been loaded.

For complete details on using the telnet session for troubleshooting, refer to the Codonics Users Manual.

8.2.6.1 Checking Status

The *stat* utility provides basic configuration information for the Codonics. This includes the printers software revision, license keys activated and default printer settings. To use:

1. Open a telnet session.
2. At the UNIX prompt type:

8.2.7 Releasing the System When it Gets Stuck

When the system is stuck:

1. Press <**Alt**> + <**Ctrl**> + <**Del**> to display the Windows NT Security window.
2. Click the [**Task Manager**] button.
3. Using the **Down Arrow** key, move the cursor to highlight the **eNTEGRA.exe** file and click the [**End Task**] button.
4. Restart **eNTEGRA**.

8.2.8 Restoring Pervious Configuration

When problems are encountered following any system configuration change, restore the previous configuration, as follows:

1. Click the [**Config**] button on the **Patient Selector** Control Panel.
2. Click the **Archive** tab.
3. Click the [**Restore...**] button.
4. In the **Restore from** dialog, click [**Restore**].
5. When prompted, insert the backup diskette labeled **eNTEGRA Configuration Backup** into the floppy drive and click [**OK**].

8.2.9 Creating Problem Reports

In case of unsolved problems, create a problem report as described below and send it to your service office.

1. Double click on the **Problem Report** icon residing on the desktop.
2. In the opened Notepad window titled **ProbReport.txt - Notepad**, type in a description of the problem encountered, including the operations that preceded the problem, the expected results of these operations and the actual results.
3. Pull down the **File** menu and select the **Save** entry.
   The program creates a compressed file called **ProbReport.tar.z** located in **D:\Einstein**.
4. Pull down the **File** menu and select the **Exit** entry.
5. Mail the **ProbReport.tar.z** file to your service office.

ProbReport.tar.z consists of the following files:

- Your problem report (**ProbReport.txt**)
- The error log **einstein.error.log** located in:
  D:\Einstein\Einstein_Project/exe
- All the files residing under
  D:\Einstein\Einstein_User\Resources
- All the files residing under
  D:\Einstein\Einstein_Project\Resources\Config\Connectivity

8.3 Replacement Procedures

8.3.1 Hard Drive Swapping

8.3.1.1 Overview

The PC Tower FRU includes a hard drive. If the hard drive in the defective PC is not defective it can be swapped with the drive in the replacement unit. This eliminates having to do a load from cold on the system or reassigning the Host ID.

8.3.1.2 Tools Required

The following tools are required to perform the upgrade:

- Field ESD Kit
- A #2 Phillips Screw Driver

8.3.1.3 Time Required

This repair takes approximately 30 minutes to complete.

8.3.1.4 Procedure

1. Power down the GENIE.
2. Remove hard drive from defective PC. Refer to *How to Install Accessories* section of the PC *User's Guide*.
3. Install the hard drive from the defective PC into the replacement PC.
4. Install hard drive from the replacement PC into the defective PC.
5. Power up the system and verify proper operations.

8.3.2 Hard Drive Replacement

8.3.2.1 Overview

A load from cold will need to be performed on the system once the drive is replaced.

8.3.2.2 Tools Required

The following tools are required to perform the upgrade:

- Field ESD Kit
- A #2 Phillips Screw Driver

8.3.2.3 Time Required

This repair takes approximately 2.5 hours to complete.

8.3.2.4 Procedure

1. Power down the GENIE.
2. Remove the defective hard drive from PC. Refer to *How to Install Accessories* section of the PC *User's Guide*.
3. Install the replacement hard drive in to the PC. Refer to *How to Install Accessories* section of the PC *User's Guide*.
4. Power up the processor unit and perform Software Load from Warm described on page 6-26.
5. Verify proper operations.
6. Return the defective processor unit in the replacement unit's packaging.

Chapter 9 - Renewal Parts

The renewal parts are classified in three groups:

9.1 Hardware

Table 9-1 and provides a list of the eNTEGRA hardware FRUs. To identify the components, please refer to Figure 5-1 on page 5-2.

Table 9-1. Hardware FRU List

Description	ELGEMS Part Number	GEMS Part Number	FRU code	Notes
Dell OptiPlex GX200 (replacing the Dell Precision 610 and the Kayak XU Pentium III)	DTP000119		1	
3Com Ethernet Card (3C905B-TX)	CP001133906		1	Applicable only for Dell Precision and HP Kayak computers. Can be replaced by 3C905C-TX CP001100024
SCSI–III to SCIS–II Adapter Cable	CBL000875		2	
SCSI Flat Cable	CBL000939		2	
Sony Monitor 21”	OPT000300	H3300TA	1	
MAG Monitor 19”	OPT000301	H3300TB		
Sony Optical Disk Drive (4.1 GB)	OPT000193	H2508LK	2	
Isolation Transformer Non CE Version		2118082	1	
Isolation Transformer CE Version		2118082-2	1	
DASM/LCAM (self contained)	OPT000076		1	
US Robotics MODEM *Check with local OLC for country specific models.*		2135816-2	1	
Power Cable		2119862	1	
Modem Cable, RS232.		2123524	2	
Monitor Cable VGA - BNC		2210828	1	
CAT 5 UTP Cable (5m)		2215028-4	1	
French Keyboard	CP00024725F		1	
Spanish Keyboard	CP00024725E		1	

Table 9-1. Hardware FRU List (Continued)

Description	ELGEMS Part Number	GEMS Part Number	FRU code	Notes
Portuguese Keyboard	CP000247259		1	
German Keyboard	CP00024725D		1	
Italian Keyboard	CP00024725Z		1	
Swedish Keyboard	CP00024725S		1	

9.2 Software

Table 9-2 list the eNTEGRA software FRUs.

Table 9-2. Software Parts List

Description	ELGEMS Part Number	GEMS Part Number	FRU code
eNTEGRA P&R Software Release 1.5X + English On-line Documentation CD	LSW000195		1
Windows NT package – English	OPT000338	H2600NT	1
eNTEGRA Accessories SW CD for Spanish, Portuguese and French	LSW000154		2
eNTEGRA Accessories SW CD for German, Italian and Swedish	LSW000155		2

9.3 Documentation

Table 9-3. eNTEGRA Documentation – English PN OPT000396

Description	ELGEMS Part Number	GEMS Part Number
eNTEGRA Operator's Manual	MAN000388	2266250-100
eNTEGRA Service Manual (this manual)	MAN000377	2263784-100
eNTEGRA Site Preparation Manual	MAN000381	2264704-100
eNTEGRA CIS	MAN000529	2291227-100

* The English on-line help files are provided on the eNTEGRA application SW CD.

Table 9-4. eNTEGRA Documentation – French PN OPT000391

Description	ELGEMS Part Number	GEMS Part Number
eNTEGRA Operator's Manual	MAN000501	2266250-101
eNTEGRA CIS	MAN000509	2267854-101
eNTEGRA On-line Help CD	MAN000507	

Table 9-5. eNTEGRA Documentation – Spanish PN OPT000392

Description	ELGEMS Part Number	GEMS Part Number
eNTEGRA Operator's Manual	MAN000502	2266250-106
eNTEGRA CIS	MAN000510	2267854-106
eNTEGRA On-line Help CD	MAN000507	

Table 9-6. eNTEGRA Documentation – Portuguese PN OPT000395

Description	ELGEMS Part Number	GEMS Part Number
eNTEGRA Operator's Manual	MAN000505	2266250-127
eNTEGRA CIS	MAN000513	2267854-127
eNTEGRA On-line Help CD	MAN000507	

Table 9-7. eNTEGRA Documentation – German PN OPT000393

Description	ELGEMS Part Number	GEMS Part Number
eNTEGRA Operator's Manual	MAN000503	2266250-108
eNTEGRA CIS	MAN000511	2267854-108
eNTEGRA On-line Help CD	MAN000508	

Table 9-8. eNTEGRA Documentation – Italian PN OPT000396

Description	ELGEMS Part Number	GEMS Part Number
eNTEGRA Operator's Manual	MAN000504	2266250-111
eNTEGRA CIS	MAN000512	2267854-111
eNTEGRA On-line Help CD	MAN000508	

Table 9-9. eNTEGRA Documentation – Swedish PN OPT000394

Description	ELGEMS Part Number	GEMS Part Number
eNTEGRA Operator's Manual	MAN000506	2266250-142
eNTEGRA CIS	MAN000514	2267854-142
eNTEGRA On-line Help CD	MAN000508	

Table 9-10. Vendor Supplied Manuals

Description
PC User Manual
Monitor User Guide
Modem User Manual

Appendix A - Upgrading to eNTEGRA

A.1 Upgrading From XPert Systems

CAUTION

Leave the XPert Activator plugged into the computer. Its ID was included in the FDO, and the eNTEGRA software used for this upgrade matches this specific activator ID. Removing or replacing the activator will disable the upgrade.

1. Before beginning the upgrade procedure, ensure that all the studies from the local database were transferred to a remote station or an archiving device.
2. Prepare User Backup diskette(s), as follows:
   a. Double click on **XPert Tools** icon in the desktop.
   b. Double click on User BackUp icon and follow the screen instructions.

Note — You will be prompted for blank diskettes to save user data.

3. Review and record/update the information from the following XPert utilities in the System Information tables (refer to chapter 2 of XPert/ XPertView Software Installation).
   - LAN Station List
   - WAN Station List
   - Printer Selection and Setup
   - TCP/IP Configuration
4. Perform **Low Level Format**, as per Section A.3, below.
5. Install eNTEGRA software, starting from “Software Load From Cold For Dell OptiPlex GX200” on page 6-2
6. Configure the eNTEGRA Environment based on the data you collected in step 3, starting from “Site Configuration” on page 3-14

Important — Keep the User Backup diskette for reference.

A.2 Upgrading From GENIE P&R

1. Before beginning the upgrade you must ensure that all the studies from the local database were transferred to a remote station or an archiving device.
2. If you have **Review Templates** which you want to transfer to eNTEGRA, back them up to the optical disk, as follows:
   a. Click the **Archive** tab.
   b. In the **Archive** panel, click the [**Job Options**] button.
   c. In the opened **Archive/Retrieve** dialog:
      i. Check the **Archive system data** checkbox.
      ii. Click [**OK**].
   d. Archive any study to the optical cartridge, as follows:
      i. Select any study.
      ii. Click the [**Archive**] button on the **Archive** panel.
      iii. In the opened warning, click [**Yes**].

   All the system Review Templates will be stored under patient "**CORRECTIONS DIRECTORY**".
3. If you have any **User Protocols** which you want to transfer to eNTEGRA, back them up to the optical disk, as follows:
   a. Activate the **Aladdin Archive** application from within the **Housekeeping** category.
   b. From the **Aladdin Archive Processing** screen, click on the required database listed in the **Select a Database** panel on the left. The name of the currently-selected database is displayed.
   c. Click on the [**Save a Script**] button.
   d. For ***each*** user protocol to be transferred to eNTEGRA:
      i. Select the required protocol listed under **Save a Protocol** in the **Protocol Archive** dialog box.
      ii. Click on the [**OK**] button.
      The message **Saving...** appears in the upper left corner of the tab card.
      When save is completed, the message **Save Completed** appears in the upper left corner of the tab card.
      The database where the protocol was saved and the protocol name(s) are listed on the processing screen.
      Each protocol saved is shown as a dataset within the **Aladdin Protocols** study.
      If the protocol was already archived, a message box is opened indicating that an extension will be added to avoid confusion and providing the new name (for example, LungHeart_0).

e. Archive the **Aladdin Protocols** study to the optical cartridge, as follows:
   i. Select the **Aladdin Protocols** study.
   ii. Click the **Archive** tab.
   iii. In the **Archive** panel, click the [**Job Options**] button.
   iv. In the opened **Archive/Retrieve** dialog:
      a. Click **Archive Current Dataset Selection**.
      b. Click [**OK**].
   v. Click the [**Archive**] button on the **Archive** panel.
   vi. In the opened warning, click [**Yes**].

4. Perform **Low Level Format**, as per Section A.3, below.
5. Install the eNTEGRA software from scratch, starting from "Software Load From Cold For Dell OptiPlex GX200" on page 6-2, or Appendix B - Software Installation on HP Kayak, or Appendix C -Software Installation on Dell Precision 610, which ever applies to your PC.
6. Configure the eNTEGRA, starting from "Site Configuration" on page 3-14
7. After eNTEGRA installation and configuration have been completed, import GENIE Review Templates (stored on the optical cartridge) into eNTEGRA, as follows:
   a. Verify that the optical cartridge to which you archived the **Review Templates** and/or **User Protocols** is inserted in the optical drive.
   b. Click the **Archive** tab.
   c. Click the **Device** tab corresponding to the Optical Drive.
   d. Click the [**Attach**] button.
   e. Click the [**Directory**] button.
   f. Select the patient "**CORRECTIONS DIRECTORY**" from the archived patients list.
   g. For ***each*** system to which the Review Templates are to be restored:
      i. Select the relevant database.
      ii. Click on the [**Retrieve**] button.
8. Retrieve the User Protocols from the optical cartridge as follows:
   a. Select the database you to which you want to restore the User Protocols.
   b. Locate the **Aladdin Protocols** study within the optical directory and select it.
   c. Click the [**Retrieve**] button to copy the **Aladdin Protocols** study to the selected database.
   d. Activate the **Aladdin Archive** application from within the **Housekeeping** category.

e. For ***each*** user protocol to be restored:
   i. Click on the [**Load a Script**] button.
   ii. From the opened list, select the database to which the user protocols will be restored.
   iii. From the opened list, select the protocol you wish to load.
   iv. Click on the [**OK**] button.

   The message **Loading...** appears in the upper left corner of the tab card.
   The message **Load Completed** appears in the upper left corner of the tab card.
   The database from which the protocol was loaded (for example, 'local') and the protocol name (for example, 'CARDREVIEW') are listed on the processing screen.
   The protocol name is added to the **Protocol Open** list within the Aladdin Card.
   If a protocol of the same name already exists, an appropriate warning appears.

f. When all the User Protocols have been restored, install ***each*** user protocol under the relevant category as follows:
   i. Click the **Aladdin** icon located below the **Patient Selector**.
   ii. Pull down the **File** menu on the **Aladdin** card and open the relevant user protocol.
   iii. Pull down the **File** menu on the **Aladdin** card and select the **Install** entry.
   iv. In the opened **Install** dialog, select the protocol name and the relevant category, make sure that **Publish** is set to **YES**, then click [**OK**].

Important Keep the GENIE backup optical cartridge for reference.

A.3 Low-level Format

1. Power up the system.
2. During the boot up sequence press <**F6**> to enter the **SCSISelect** utility.
3. Move the highlight to **SCSI Disk Utilities** and press <**Enter**>.
4. Highlight **SCSI ID #0: SEAGATE** and press <**Enter**>.
5. Highlight **Format Disk** and press <**Enter**>.
6. Move the highlight to **Yes** and press <**Enter**> to begin low-level format.
7. Move the highlight to **Yes** and press <**Enter**> to confirm low-level format.

Appendix B - Software Installation on HP Kayak

B.1 Overview

This appendix provides detailed instructions for installing the basic software of the eNTEGRA system on the HP Kayak computer, referred to as software load from cold.

For software load from warm and for installing the eNTEGRA software options and licences, refer to the related sections in Chapter 6.

Software load from cold is used when the hard disk is corrupted or replaced, and the entire package must be installed from scratch.

CAUTION

Load from cold is a destructive procedure and all the data on the disk will be lost.

Verify that all patient data is backed up.

Back up the Archive Log Index directory (**C:\ArcLog**) before starting the software load from cold procedure.

B.1.1 Time Required

The time required to complete the installation of the basic software is 1.5 hours (about 90 minutes).

B.1.2 Procedure Overview

The load from cold procedure consists of the following steps, to be performed in the given order:

1. Installing the Windows NT Operating System on page B-3, including disk partitioning and formatting Drive C:
2. Installing Windows NT Networking on page B-4
3. Installing Service Pack 6a on page B-7
4. Installing the Display Driver & Adjusting the Display on page B-8
5. Installing the Sound Driver on page B-9
6. Installing the HP Multimedia Keyboard Utility on page B-9
7. Installing Service Pack 6a on page B-10
8. Setting System Options on page B-10
9. Installing Internet Explorer 5 on page B-13
10. Installing RAS, Modem, and TCP/IP for Printing on page B-14
11. Installing the FTP Service on page B-15
12. Formatting Drive D: as NTFS on page B-16
13. Installing the eNTEGRA Application and Its Accessory Components on page B-17
14. Configuring the system, as per Section 3.8 on page 3-14.
15. Configuring the Network, as per Section 3.9 on page 3-28.
16. Configuring the Hardcopy Devices, as per Section 3.10 on page 3-33.
17. Performing the Functional Checks detailed in Section Chapter 4 -.

B.2 Installing the Windows NT Operating System

1. Turn ON the system and immediately insert the **NT Installation CD.**
2. When the HP Kayak opening screen appears, press <**F8**> for **Boot Order**.
3. From the opened **Boot Menu**, select **ATAPI CD–ROM Drive** and press <**Enter**>.

   The setup program is loaded.

4. When prompted, press <**Enter**> to continue.
5. When prompted, press <**Enter**> to continue.
6. In the opened **licence Agreement page**, scroll down to the bottom using the <**PgDw**> key, and press <**F8**>.
7. If the displayed list matches your computer, press <**Enter**>.
8. Upon the message **Create the following partitions in the (whole disk) unpartitioned space**:
   a. Press <**C**>, delete the number displayed.
   b. If Hard Disk size is ≥ 9GB, type **3000** for drive C: and press <**Enter**>.
   Otherwise (for 4 GB Hard Disks), type **1700** for drive C: and press <**Enter**>.
   c. Press the <↓> key.
   d. Press <**C**> and accept the defaults by pressing <**Enter**>.
   e. While the 1st partition is highlighted, press <**Enter**> to install Windows NT on drive C:
9. Install Windows NT as follows:
   a. In the opened dialog, use the <↓> key to highlight the line **Format using NTFS** and press <**Enter**>.

      Drive C: will be formatted. It may take several minutes.
   b. When prompted, press <**Enter**> twice to start copying the NT files.
   c. Upon system prompt, remove the Windows NT CD.
   d. When prompted, press <**Enter**> to reboot.
10. After reboot, the installation continues followed by another automatic reboot.
11. When prompted, insert the **NT installation CD** into the CD drive and click [**OK**].
12. Proceed to Installing Windows NT Networking on page B-4.

B.3 Installing Windows NT Networking

1. In the **Windows NT Setup** window, click [**Next**] to continue.
2. In the opened **Setup Options** window, select **Typical** and click [**Next**].
3. In the opened **Name and Organization** window, type–in your ***site_name*** and ***organization_name*** and click [**Next**].
4. In the **Registration** window, type–in your ***product_ID*** (recorded on the provided manual) and click [**Next**].
5. When prompted, type–in your ***computer name***, as defined in the pre–installation checklist, and click [**Next**].
6. When prompted, type–in your ***password***, as defined in the pre–installation checklist (the following description will use the password **elgems**).
7. Retype the password and click [**Next**].
8. When prompted, select **no, do not create an emerging repair disk**, and click [**Next**].
9. In the opened **Windows NT Components** dialog, select "**Install the most common components**" and click [**Next**].
10. Upon the message "**Installing Windows NT networking**", click [**Next**].
11. Check "**Do not connect this computer to a network at this time**" and click [**Next**].
12. In the opened **Date/Time Properties** window:
    a. Set the appropriate date and time in the **Date & Time** page.
    b. Click the **Time Zone** tab, click on the down arrow to display the **Time Zone** list, select the appropriate Time Zone and click [**OK**].
    c. Click [**Close**].
13. If the system finds the video adapter, click [**OK**], then click [**Cancel**] for Video card driver installation, which will be installed later.

Note

As long as the display driver is not installed, an **Invalid Display Settings** error message will be displayed after each reboot. Click [**OK**] and ignore the message.

14. When asked to restart the computer, remove the windows NT CD and press the [**Restart**] button.
15. When prompted, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:
    User Name: **Administrator**
    Password: **elgems** (the password entered at Step 6 above)
16. **For systems with 3Com adapters only**:
    a. Insert the eNTEGRA Application CD into the CD-ROM drive.
    b. Select **Start** → **Programs** → **Windows NT Explorer**

c. Browse to **D:\Drivers** and double click on **Driver.exe**

For **AMD PCnet** network adapter, insert the Windows NT CD into the CD-ROM drive.

17. Click with the **right** mouse button on the **Network Neighborhood** icon on the desktop.
18. Click on the **Properties** entry.
19. Click [**Yes**] to confirm that networking is to be installed.
20. Click [**Next**]
21. In the **Network** window, click on **Adapters** tab.
22. Click [**Add**]:
    - For **AMD PCnet** network adapter, highlight the **AMD PCNET Family Ethernet Adapter** and click [**OK**].
    - For **3Com 905B** network adapter, click on [**Have disk**], type–in the path **C:\Drivers\3Com** and click [**OK**] twice.
23. In the **Network** window, click on **Protocols** tab.
24. Click [**Add**] and highlight **TCP/IP Protocol** and click [**OK**].
25. Upon the message "**If there is a DHCP..**." click [**NO**].
26. In the opened **Microsoft TCP/IP Properties** window, click the **IP Address** tab, and:
    a. Type–in your ***IP address*** (as defined in the pre–installation checklist).
    b. If relevant, type–in your ***Subnet Mask***.
    c. If relevant, type–in your ***Default Gateway*** address (as defined in the pre–installation checklist)
27. If relevant, click the **DNS** tab, and type–in the ***DNS IP*** address (defined in the pre–installation checklist)
28. If relevant, click the **WINS** tab, type–in the Windows Server primary and secondary IP addresses (defined in the pre–installation checklist), and click [**OK**] at the bottom of the page.
29. Upon system prompts, click [**Next**], [**Next**], [**Finish**].
30. **Define the users** as follows:
    a. When prompted, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:
       User Name: **Administrator**
       Password: **elgems** (the password entered at Step 6 above)
    b. In the opened **Welcome** window, click [**Close**].
    c. In the **Display Properties** dialog, click [**Cancel**].
    d. Click the [**Start**] button on the Task Bar at the bottom of the screen and select **Programs** → **Administrative Tools** → **User Manager**.

e. In the **User Manager** window, click on **User** in the Menu Bar and select the **New User** entry.
f. Uncheck "**User Must Change Password at Next Logon**".
g. Click the checkbox next to "**Password Never Expires**".
h. Click the [**Groups**] button.
i. In the **Group Memberships** window, move the Administrators from the **Not member list** to the **Member list** by clicking **Administrators** (if not already highlighted) and then clicking the [**<Add**] button.
j. Click [**OK**]. The program reverts to the **User Manager** window.
k. Enter:

Username:	**entegra**
Password:	**entegra**
Confirm Password:	**entegra**

l. Click [**OK**] again.
m. Close the User Manager window.

31. Click the [**Start**] button on the Task Bar at the bottom of the screen and select **Shutdown the system**.
32. In the **Shut Down** window, click "**Close all programs and log as a different user?**", then click [**Yes**].
33. When prompted, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:

Username:	**entegra**
Password:	**entegra**

34. Proceed to Installing Service Pack 6a on page B-7.

B.4 Installing Service Pack 6a

This installation depends on the language being used.

1. For **English** version: Insert the eNTEGRA Application CD into the CD Drive and double click the **My Computer** icon located on the desktop.

   For **other languages**: Insert the eNTEGRA Accessories Software CD into the CD Drive and double click the **My Computer** icon located on the desktop.

2. Double click the **(D:)** drive (CD–ROM Drive).
3. Double click the **SP6** directory.
4. For the **English** version, skip to step 5, below.
   For **other languages**, double click the applicable language directory.
5. Double click **SP6ai386.exe**.
6. Check the **Accept License Agreement** box, if requested.
7. Uncheck "**Backup files necessary to uninstall service pack..."**.
8. Click [**Install**].
9. When prompted, click on [**Restart**] to reboot the system and logon as before.
10. Proceed to Installing the Display Driver & Adjusting the Display on page B-8.

B.5 Installing the Display Driver & Adjusting the Display

The display card for the HP Kayak Xeon is Millennium G200. To install the Millennium G200 driver and adjust the display:

1. Ensure that the eNTEGRA CD is inserted into the CD drive.
2. Click the ***Right*** mouse button on an empty place on the desktop.
3. In the opened menu, select the **Properties** entry.
4. In the **Display Properties** window, click the **Settings** tab.
5. Click the [**Display Type...**] button.
6. Click [**Change...**] button.
7. Click on the [**Have Disk**] button.
8. Type–in the path: **D:\drivers\Matrox** and click [**OK**].
9. Select **Matrox Graphics Millennium g200**.
10. Click [**OK**], [**YES**], [**OK**].
11. Close the **Display Type** window.
12. Close the **Display Properties** window.
13. Click [**YES**] to restart the computer.
14. When prompted, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:
    Username: **entegra**
    Password: **entegra**
15. Click the with the ***Right*** mouse button on an empty place on the desktop.
16. In the opened menu, select the **Properties** entry.
17. In the **Display Properties** window, click the **Settings** tab.
18. Click the down arrow under the **Color Palette**, and select **True Color**.
19. Move the slider in the **Desktop Area** to display a resolution of **1280 by 1024 pixels**.
20. Click the down arrow under **Font Size** and select **Small Fonts**.
21. Click the down arrow under **Refresh frequency** and select **75 Hertz**.
22. Click the [**Test**] button.
23. Click [**OK**] to display the test screen.
24. In the testing Mode window, click [**Yes**] if you have seen the bitmap properly.
25. In the **Display Properties** window, click the [**OK**].
26. Proceed to Installing the Sound Driver on page B-9.

B.6 Installing the Sound Driver

1. If necessary, insert the eNTEGRA CD-ROM to the CD-ROM drive.
2. Double click the **My Computer** icon on the Desktop.
3. Double-click **Control Panel**.
4. Double click **Multimedia** and click the **Devices** tab.
5. Click, [**Add**], select **Unlisted or Updated Driver** and click [**OK**].
6. Type in the path to the driver installation files **D:\Utils\Audio** and click [**OK**], where **D:** refers to the CD-ROM drive.
7. When the **Analog Devices SoundComm Driver** dialog appears, click [**OK**].
8. If the "**Driver Exists**" window appears, click on the [**New**] button.
9. Click [**OK**] in the "**Configure Analog Devices SoundComm**" Window.
10. Click [**No**] to avoid computer restart, and continue to Installing the HP Multimedia Keyboard Utility on page B-9.

B.7 Installing the HP Multimedia Keyboard Utility

1. If necessary, insert the eNTEGRA CD-ROM to the CD-ROM drive.
2. Using Windows Explorer, locate the directory **D:\utils\Keyboard** where **D:** refers to the CD-ROM drive.
3. Double click on the **Setup** icon to initiate the installation (**setup.exe**).
4. Follow the instructions displayed on the screen.
5. Click on [**Finish**] to restart your computer and proceed to Installing Service Pack 6a on page B-10.

B.8 Installing Service Pack 6a

This installation depends on the language being used.

1. For **English** version: Insert the eNTEGRA Application CD into the CD Drive and double click the **My Computer** icon located on the desktop.

   For **other languages**: Insert the eNTEGRA Accessories Software CD into the CD Drive and double click the **My Computer** icon located on the desktop.

2. Double click the **(D:)** drive (CD–ROM Drive).
3. For the **English** version, skip to step 4, below.
   For **other languages**, double click the applicable language.
4. Double click the **SP6** directory.
5. Double click **SP6ai386.exe**.
6. Check the **Accept License Agreement** box, if requested.
7. Uncheck "**Backup files necessary to uninstall service pack...**".
8. Click [**Install**].
9. When prompted, click on [**Restart**] to reboot the system and logon as before.
10. Proceed to Setting System Options on page B-10.

B.9 Setting System Options

Set the following operating system configurations in the given order:

1. Setting the Date Format on page B-11
2. Setting the Application Event Viewer Loggings on page B-11
3. Setting the Task Bar Properties on page B-11
4. Setting the Virtual Memory on page B-12
5. Setting the View Options on page B-12
6. When done, proceed to Installing Internet Explorer 5 on page B-13.

B.9.1 Setting the Date Format

1. Click left on the [**Start**] icon on the Tasks Bar, and select: **Setting** → **Control Panel**.
2. On the **Control Panel** window, double click on the **Regional Settings** icon.
3. Click on the **Date** tab.
4. Click the down arrow at the **Short data style** field, select the format: **MM/dd/yyyy** and click [**OK**].

B.9.2 Setting the Application Event Viewer Loggings

1. Click left on the [**Start**] icon on the Tasks Bar, and select: **Programs** → **Administrative Tools (common)** → **Event Viewer**.
2. Click the **Log** option in the Menu Bar, and select the **Application** entry.
3. Click the **Log** option in the Menu Bar, and select the **Log settings...** entry.
4. In the **Event Log Settings** window, check the **Overwrite Events as Needed** field Logs.
5. Click [**OK**].
6. Close the **Event Viewer** window.

B.9.3 Setting the Task Bar Properties

1. Click **right** on an empty place of the Task Bar, and select the **Properties** entry.
2. In the opened **Task Bar Properties** window, ***uncheck*** the **Always on top** option.
3. Click [**OK**] to close the **Task Bar Properties** window.

B.9.4 Setting the Virtual Memory

1. Click right on **My Computer** icon and select the **Properties** entry.
2. Click on the **Performance** tab.
3. Click the [**Change**] button.
4. With Drive C: highlighted, change the **Initial Size (MB)** to **540**.
5. Change the **Maximum Size (MB)** to **560**.
6. Click the [**Set**] button.
7. Click [**OK**] and close the **Virtual Memory** window.
8. Close the **System Properties** window.
9. When prompted, click [**Restart**] to reboot the system.

B.9.5 Setting the View Options

1. When the system reboots and prompts, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:

   Username: **entegra**
   Password: **entegra**

2. Double click **My Computer** icon.
3. In the opened **My Computer** window, click the **View** option in the Menu Bar and select the **Options** entry.
4. In the **Options** window, click the **Folder** tab.
5. Click the radio button next to **Browse folder by using a single window that changes as you open each folder**, then click the [**Apply**] button.
6. Click the **View** tab in the **Options** window.
7. Click the radio button next to **Show all files** option.
8. Uncheck the option **Hide file extensions for known file types**, click [**Apply**] and close the **Options** window.
9. Close **My Computer** window.

B.10 Installing Internet Explorer 5

1. For the **English** version, skip to Step 2, below.
   For **other languages**, replace the eNTEGRA application CD with the eNTEGRA Accessories Software CD.
2. Double click on **My Computer** icon located on the desktop.
3. Double click the **D:** drive (CD–ROM Drive).
4. For the **English** version, skip to Step 5, below.
   For **other languages**, double click the applicable language.
5. Double click the **IE5** directory.
6. Double click **install.bat**.
7. When installation has been completed, the system will reboot.
8. Proceed to Installing RAS, Modem, and TCP/IP for Printing on page B-14.

B.11 Installing RAS, Modem, and TCP/IP for Printing

Installation of the Remote Access Service (RAS) is required for DICOM Part 10.

1. When the system comes up, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:

   Username: **entegra**
   Password: **entegra**

2. Click [**OK**].
3. Insert the Windows NT Workstation CD-ROM and close the opened **Windows CD** window.
4. Click right on the **Network Neighborhood** icon on the desktop and select the **Properties** entry.
5. In the opened **Network** window, select the **Services** tab to display the currently installed services.
6. In the **Services** tab click [**Add**], select **Microsoft TCP/IP Printing** .
7. Click [**OK**], type **D:\i386** <**Enter**>, where D: is your CD-ROM drive and click [**Continue**].
8. In the **Services** tab click [**Add**], select the **Remote Access Service** entry and click [**OK**].
9. If needed, change the path displayed to **D:\i386** where **D** is your CD-ROM drive, and click [**Continue**].
10. The Remote Access Service files will be copied.
11. When the following message appears: **There are no RAS....**, click [**Yes**] to invoke **Modem Installer**.
12. In the opened **Install New Modem** dialog, check the **Don't detect my modem...** and click [**Next**].
13. For systems with a modem installed, select the modem manufacturer and model from the scrollable list and click [**Have Disk**].
    For systems with ***no*** modem installed, select **Standard type**, click [**Next**], select **COM2** and click [**Next**], [**OK**], [**Continue**].
14. If required, insert the manufacturer's installation diskette into the floppy drive, browse to the appropriate directory using the [**Browse**] button, then click [**OK**].

    The modem drivers are copied to the hard disk.
15. Click the [**Properties**] button and enter the modem properties.
16. Remove the Windows NT CD from the drive.
17. Close the **Network Properties** window and click [**Yes**] to restart the system.
18. Proceed to Installing the FTP Service on page B-15.

B.12 Installing the FTP Service

1. Insert the Windows NT CD into the CD drive.
2. Right click the **Network Neighborhood** icon on the desktop, and select **Properties** to display the **Network** dialog.
3. Click the **Service** tab and click the [**Add**] button.
4. From the opened **Select Network Service** list, select **Microsoft Peer Web Server** and click [**OK**].
5. In the **Installed from:** input field, enter **D:\i386** (where D: is your CD drive), and click [**OK**].
6. On the opened **Microsoft Peer Web Services Setup** dialog, click [**OK**].
7. In the opened **Options** list, deselect all options except **FTP Service** and **Internet Service Manager**, then click [**OK**].
8. Click [**Yes**] to create the prompted directory.
9. In the **FTP Publishing Directories** input field type **C:\Insite** and click [**OK**]. If required, acknowledge by clicking [**Yes**] to create the Insite directory.
10. When the installation has been complete successfully, click [**OK**].
11. Click [**Close**] in the Network dialog.
12. Click [**Start**] on the task bar and select **Programs** → **Microsoft Peer Web Services** → **Internet Service Manager**.
13. Double click the ***Computer Name*** entry to open the **FTP Service properties for entegra** dialog.
14. On the Service tab, *uncheck* **Allow only anonymous connections**, and confirm by clicking [**Yes**].
15. Click the **Directories** tab, select the displayed entry, click [**Edit Properties...**], check (click) the **Write** property, then click [**OK**].
16. Click [**Add**], enter **C:** in the **Directory** field, enter **/C** in the **Alias** field, click the **Write** checkbox located at the bottom of the screen, and click [**OK**].
17. Click [**Add**], enter **D:** in the **Directory** field, enter **/D** in the **Alias** field, click the **Write** checkbox located at the bottom of the screen, and click [**OK**].
18. Click [**OK**] and close the **Microsoft Internet Service Manager** dialog.
19. Proceed to Formatting Drive D: as NTFS on page B-16.

B.13 Formatting Drive D: as NTFS

1. Click on the [**Start**] button in the Task Bar, and select: **Programs** → **Administrative Tools (common)** → **Disk Administrator**.
2. Click [**OK**].
3. In the **Disk Administrator** dialog, click *right* on the letter assigned to the CD-ROM, and select **Assign Driver Letter...**
4. From the **Assign drive letter** drop-down list, select **E:** and click [**OK**].
5. In the confirm window, click [**Yes**].
6. In the **Disk Administrator** dialog, click right on **Free Space**., and in the pop-up window click [**Create**].
7. When asked, click [**Yes**], [**OK**] and [**Yes**].
8. In the **Disk Administrator** dialog, select **Exit** from the **Partition** drop-down menu.
9. When asked, click [**Yes**] to save the partition, then click [**OK**] twice.
10. Double click on **My Computer** icon located on the desktop.
11. Right click on **D:** drive icon.
12. Select the **Format...** entry.
13. Click the down arrow in the **File System** field and select **NTFS** entry.
14. Click the [**Start**] button.
15. The following warning will be displayed:

    WARNING: formatting will erase all data on this disk.
    Select OK to format the disk, Cancel to abort.

    Click **OK**.
    The disk will be formatted.

16. Upon system prompt **Format Complete**, click [**OK**].
17. Click [**Close**].
18. Proceed to Installing the eNTEGRA Application and Its Accessory Components on page B-17.

B.14 Installing the eNTEGRA Application and Its Accessory Components

1. Insert the eNTEGRA CD-ROM to the CD-ROM drive.
2. Double click on **My computer** icon located on the desktop.
3. Double click the **(E:)** drive (CD–ROM Drive).
4. Double click **Install.vbs**.
5. Click on [**OK**].
6. When prompted, insert the licences diskette into the floppy drive, attach the Activator onto the parallel port on the back panel of the computer and click [**OK**].
7. Click [**Yes**] and wait for the installation of the HASP Device Driver Setup program to complete.
8. On the **Warning** window displayed, click [**Yes**] to continue with the setup program.
9. In the **HASP Device Driver** status dialog, click [**Next**].
10. In the **Setup Option** window, click [**Typical**].
11. In the **Confirm Your Selection** window, click [**Next**].
12. When the message **The HASP Device Driver has been successfully installed** appears, click [**OK**], [**Finish**].
13. In the **Acrobat** installation, click [**Next**], [**Next**].
14. Select [**No**] when asked to reboot.
15. From the eNTEGRA CD, double click **eNTEGRA_LFC.vbs**.
16. In the **QGS** installation, click [**Next**], [**Finish**].
17. In the **Demo Database** installation, click [**Next**], [**Next**], [**Next**] and then [**Finish**].
18. In the **eNTEGRA Application** installation, click [**Next**], [**Next**], [**Next**].
19. When asked, click the radio button next to the applicable language, then click [**Next**], [**Next**].
20. If requested, replace the eNTEGRA Application CD with the eNTEGRA On-line Help CD.
    Otherwise, skip to step 22, below.
21. Click [**Next**], [**Next**] and then [**Finish**].

Appendix C - Software Installation on Dell Precision 610

C.1 Overview

This appendix provides detailed instructions for installing the basic software of the eNTEGRA system on the Dell precision 610 computer, referred to as software load from cold.

For software load from warm and for installing the eNTEGRA software options and licences, refer to the related sections in Chapter 6.

Software load from cold is used when the hard disk is corrupted or replaced, and the entire package must be installed from scratch.

CAUTION

Load from cold is a destructive procedure and all the data on the disk will be lost.

Verify that all patient data is backed up.

Back up the Archive Log Index directory (**C:\ArcLog**) before starting the software load from cold procedure.

C.1.1 Time Required

The time required to complete the installation of the basic software is 1.5 hours (about 90 minutes).

C.1.2 Procedure Overview

The load from cold procedure consists of the following steps, to be performed in the given order:

1. Installing the Windows NT Operating System on page C-3, including disk partitioning and formatting Drive C:
2. Installing Windows NT Networking on page C-5
3. Installing Service Pack 6a on page C-8
4. Installing the Display Driver on page C-8
5. Adjusting the Display Properties on page C-9
6. Installing the Sound Driver on page C-10
7. Setting System Options on page C-10
8. Installing Internet Explorer 5 on page C-12
9. Installing RAS, Modem, and TCP/IP for Printing on page C-13
10. Installing the FTP Service on page C-14
11. Formatting Drive D: as NTFS on page C-15
12. Installing the eNTEGRA Application and Its Accessory Components on page C-16
13. Configuring the system, as per Section 3.8 on page 3-14.
14. Configuring the Network, as per Section 3.9 on page 3-28.
15. Configuring the Hardcopy Devices, as per Section 3.10 on page 3-33.
16. Performing the Functional Checks detailed in Section Chapter 4 -.

C.2 Installing the Windows NT Operating System

1. Turn ON the system and immediately insert the **NT Installation CD.**
2. When the words **Windows NT Setup** appear at the top of the screen, press <**F6**> ***repeatedly*** until the full **Windows NT Setup** screen appears and the white line at the bottom of the screen shows the option **S=Specify Additional Device**.
3. Press <**S**>. The **SCSI Adapter** list appears with **Other** selected.
4. Press <**Enter**> and insert the diskette labeled **SCSI Driver 2940U2 for NT 4.0** into the floppy drive.
5. Press <**Enter**> again. The list of SCSI Adaptec AHA adapters appear with the last item selected (*Adaptec AHA-294xU2/295xU2/AIC-789x PCI SCSI Controller*).
6. Press <**Enter**> once again. The system loads the driver and it is added to the list of mass storage devices whose support is to be loaded.
7. Press <**Enter**> to initiate file loading.
8. When the 'Welcome to Setup' screen appears, press <**Enter**> to continue.
9. When prompted, press <**Enter**> twice to continue.
10. In the opened **licence Agreement page**, scroll down to the bottom using the <**PgDw**> key, and press <**F8**>.
11. If the disk ***does not*** have NT installed, a message is displayed, press <**Enter**>.

Otherwise (the disk already ***has*** NT installed) a message is displayed.

   a. Press <**N**> = New, to reinstall NT.
   b. Press <**Enter**>
   c. Press <**D**> = Delete to delete the current partition.
   d. Press <**Enter**>
   e. Press <**L**> = Delete.
   f. If there is an additional partition, press the <↓> key to highlight it and repeat the procedure to delete this partition (press **D** then press <**Enter**> and press **L**).

12. Upon the message **Create the following partitions in the (whole disk) unpartitioned space**:
   a. Press <**C**> to create a new partition
   b. Delete the number displayed by pressing <Backspace>.
   c. Type **3000** and press <**Enter**>.
   d. Press the <↓> key.
   e. press <**C**> and accept the defaults by pressing <**Enter**>**.**
   f. While the 1st partition is highlighted, press <**Enter**> to install Windows NT on drive C:

13. Install Windows NT as follows:
    a. In the opened dialog, use the <↓> key to highlight the line **Format using NTFS** and press <**Enter**>.

       Drive C: will be formatted. This may take several minutes.
    b. When prompted, press <**Enter**> twice to start copying the NT files.
    c. Upon system prompt, remove the Windows NT CD and the floppy.
    d. When prompted, press <**Enter**> to reboot.
14. After reboot, the installation continues followed by another automatic reboot.
15. When prompted, insert the **NT installation CD** into the CD drive and click [**OK**].
16. Proceed to Installing Windows NT Networking on page C-5.

C.3 Installing Windows NT Networking

1. In the **Windows NT Setup** window, click [**Next**] to continue.
2. In the opened **Setup Options** window, select **Typical** and click [**Next**].
3. In the opened **Name and Organization** window, type–in your ***site_name*** and ***organization_name*** and click [**Next**].
4. In the **Registration** window, type–in your ***product_ID*** (recorded on the provided manual) and click [**Next**].
5. When prompted, type–in your ***computer name***, as defined in the pre–installation checklist, and click [**Next**].
6. When prompted, type–in your ***password***, as defined in the pre–installation checklist (the following description will use the password **elgems**).
7. Retype the password and click [**Next**].
8. When prompted, select **no, do not create an emergency repair disk**, and click [**Next**].
9. In the opened **Windows NT Components** dialog, select "**Install the most common components**" and click [**Next**].
10. Upon the message "**Installing Windows NT networking**", click [**Next**].
11. Check "**Do not connect this computer to a network at this time**" and click [**Next**].
12. Click [**Finish**] to finish setup.
13. In the opened **Date/Time Properties** window:
    a. Set the appropriate date and time in the **Date & Time** page.
    b. Click the **Time Zone** tab, click on the down arrow to display the **Time Zone** list, select the appropriate Time Zone and click [**OK**].
    c. Click [**Close**].
14. If the system finds the video adapter, click [**OK**], then click [**Cancel**] for Video card driver installation, which will be installed later, as described in the next section – Procedure Overview on page C-8.

Note

As long as the display driver is not installed, an **Invalid Display Settings** error message will be displayed after each reboot. Click [**OK**] and ignore the message.

15. When asked to restart the computer, remove the Windows NT CD and press the [**Restart**] button.
16. When prompted, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:

    User Name: **Administrator**
    Password: **elgems**

17. Click <**OK**>.
18. In the Welcome screen that is opened, click [**Close**].

19. Insert the eNTEGRA Application CD into the CD-ROM drive.
20. Double click: **My computer** → **(D:)** drive (CD-ROM Drive) → **Drivers** → **Drivers.exe**.
21. Click [**OK**]
22. Click ***right*** on the **Network Neighborhood** icon on the desktop.
23. Click on the **Properties** entry.
24. Click [**Yes**] to confirm that networking is to be installed.
25. Click [**Next**]
26. Click on [**Select From List...**].
27. In the **Select Network Adapter** window, click on [**Have Disk...**]
28. Type–in the path **C:\Drivers\3Com**
29. Click [**OK**] twice.
30. Click [**Next**] 4 times.
31. Remove the eNTEGRA CD and insert the Windows NT CD.
32. Wait for the **Windows NT CD** window to open and close it.
33. In the Windows NT Setup window, type in the path: **E:** and click [**Continue**].
34. Upon the message "**If there is a DHCP..**." click [**NO**].
35. In the opened **Microsoft TCP/IP Properties** window, click the **IP Address** tab, and:
    a. Type–in your ***IP address*** (as defined in the pre–installation checklist).
    b. If relevant, type–in your ***Subnet Mask***.
    c. If relevant, type–in your ***Default Gateway*** address (as defined in the pre–installation checklist)
36. If relevant, click the **DNS** tab, and type–in the ***DNS IP*** address (defined in the pre–installation checklist)
37. If relevant, click the **WINS** tab, type–in the Windows Server primary and secondary IP addresses (defined in the pre–installation checklist)
38. Click [**OK**] at the bottom of the page.
39. Upon system prompts, click [**Next**], [**Next**], [**Next**] and [**Finish**].
40. When queried whether to shutdown, remove Windows NT CD from the drive and click [**Yes**].
41. When prompted, press <**Alt**> + <**Ctrl**> + <**Del**> and login as follows:
    User Name: **Administrator**
    Password: **elgems**
42. Click [**OK**].

43. **Define the users** as follows:
    a. Click the [**Start**] button on the Task Bar at the bottom of the screen and select **Programs** → **Administrative Tools** → **User Manager**.
    b. In the **User Manager** window, click on **User** in the Menu Bar and select the **New User** entry.
    c. Uncheck "**User Must Change Password at Next Logon**".
    d. Click the checkbox next to "**Password Never Expires**".
    e. Click the [**Groups**] button.
    f. In the **Group Memberships** window, click **Administrators** (if not already highlighted) and then click the [**<Add**] button. The Administrators entry moves from the **Not member of** list to the **Member of** list.
    g. Click [**OK**].
    h. In the **New User** window enter:

Username:	**entegra**
Password:	**entegra**
Confirm Password:	**entegra**

    i. Click [**OK**] again.
    j. Close the User Manager window.

44. Click the [**Start**] button on the Task Bar at the bottom of the screen and select **Shutdown the system**.
45. In the **Shut Down** window, select "**Close all programs and log as a different user?**", then click [**Yes**].
46. When prompted, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:

Username:	**entegra**
Password:	**entegra**

47. Click [**OK**].
48. Close the **Welcome** window.
49. Proceed to Installing Service Pack 6a on page C-8.

C.4 Installing Service Pack 6a

This installation depends on the language being used.

1. For **English** version: Insert the eNTEGRA Application CD into the CD Drive and double click the **My Computer** icon located on the desktop.

   For **other languages**: Insert the eNTEGRA Accessories Software CD into the CD Drive and double click the **My Computer** icon located on the desktop.

2. Double click the **(D:)** drive (CD–ROM Drive).
3. Double click the **SP6** directory.
4. For the **English** version, skip to step 5, below.
   For **other languages**, double click the applicable language directory.
5. Double click **SP6ai386.exe**.
6. Check the **Accept License Agreement** box, if requested.
7. Uncheck "**Backup files necessary to uninstall service pack...**".
8. Click [**Install**].
9. When prompted, click on [**Restart**] to reboot the system and logon as before.
10. Proceed to Installing the Display Driver on page C-8.

C.5 Installing the Display Driver

1. When prompted, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:

   Username: **entegra**
   Password: **entegra**

2. Click [**OK**].
3. In the opened **Welcome** window, click on the checkbox for "Show this Welcome..." to deselect it and click [**Close**].
4. In the opened Welcome window uncheck "Show this welcome..." if it is shown, and click [**Close**].
5. Insert the eNTEGRA CD into the CD drive.
6. Double click: **My computer** → **(D:)** → **Drivers** → **G400** → **Setup.exe**.
7. In the Setup window select the installation language, and click [**Next**], then [**Typical**], then [**Next**] again and then [**Finish**].
8. Proceed to Adjusting the Display Properties on page C-9.

C.6 Adjusting the Display Properties

1. When the system comes up, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:

   Username: **entegra**
   Password: **entegra**

2. Click [**OK**].
3. If the **Invalid Display Settings** window is opened, click [**OK**].
4. The **Display Properties** window is opened to the **Settings** tab.
5. Click the down arrow under the **Color Palette**, and select **True Color**.
6. Move the slider in the **Desktop Area** to display a resolution of **1280 by 1024 pixels**.
7. Click the down arrow under **Font Size** and select **Small Fonts**.
8. Click the down arrow under **Refresh frequency** and select **75 Hertz**.
9. Click the [**Test**] button.
10. Click [**OK**] to display the test screen.
11. In the testing Mode window, click [**Yes**] if you have seen the bitmap properly.
12. In the **Display Properties** window, click [**OK**].
13. Proceed to Installing the Sound Driver on page C-10.

C.7 Installing the Sound Driver

1. If necessary, insert the eNTEGRA CD-ROM to the CD-ROM drive.
2. Double click the **My Computer** icon on the Desktop.
3. Double-click **Control Panel**.
4. Double click **Multimedia** and click the **Devices** tab.
5. Click, [**Add**], select **Unlisted or Updated Driver** and click [**OK**].
6. Type in the path **D:\Drivers\Dell_Audio** for the driver installation files and click [**OK**]

   where **D:** refers to the CD-ROM drive.
7. A dialogue box "**Add Unlisted or Updated Drivers**" appears. Click [**OK**].
8. If the "**Driver Exists**" window appears, click on the [**New**] button.
9. Click [**OK**] in the "**CrystalWare(TM) Audio Driver**" Window.
10. Click [**Don't Restart Now**].
11. Close the multimedia properties dialogs.
12. Close the **Control Panel** window and proceed to Procedure Overview on page C-10.

C.8 Setting System Options

Set the following operating system configurations in the given order:

1. Setting the Date Format on page C-11
2. Setting the Application Event Viewer Loggings on page C-11
3. Setting the Task Bar Properties on page C-11
4. Setting the Virtual Memory on page C-11
5. Setting the View Options on page C-12
6. When done, proceed to Installing Internet Explorer 5 on page C-12.

C.8.1 Setting the Date Format

1. Click left on the [**Start**] icon on the Tasks Bar, and select: **Setting** → **Control Panel**.
2. On the **Control Panel** window, double click on the **Regional Settings** icon.
3. Click on the **Date** tab.
4. Click the down arrow at the **Short data style** field, select the format: **M/d/yyyy** and click [**OK**].

C.8.2 Setting the Application Event Viewer Loggings

1. Click left on the [**Start**] icon on the Tasks Bar, and select: **Programs** → **Administrative Tools (common)** → **Event Viewer**.
2. Click the **Log** option in the Menu Bar, and select the **Application** entry.
3. Close the **Event Viewer** window.

C.8.3 Setting the Task Bar Properties

1. Click **right** on an empty place of the Task Bar and select the **Properties** entry.
2. In the opened **Task Bar Properties** window, ***uncheck*** the **Always on top** option.
3. Click [**OK**] to close the **Task Bar Properties** window.

C.8.4 Setting the Virtual Memory

1. Click right on **My Computer** icon and select the **Properties** entry.
2. Click on the **Performance** tab.
3. Click the [**Change**] button.
4. With Drive C: highlighted, change the **Initial Size (MB)** to **540**.
5. Change the **Maximum Size (MB)** to **560**.
6. Click the [**Set**] button.
7. Click [**OK**] and close the **Virtual Memory** window.
8. Close the **System Properties** window.
9. When prompted, click [**Don't Restart**].

C.8.5 Setting the View Options

1. Double click **My Computer** icon.
2. In the opened **My Computer** window, click the **View** option in the Menu Bar and select the **Options** entry.
3. In the **Options** window, click the **Folder** tab.
4. Click the radio button next to **Browse folder by using a single window that changes as you open each folder**, then click the [**Apply**] button.
5. Click the **View** tab in the **Options** window.
6. Click the radio button next to **Show all files** option.
7. Uncheck the option **Hide file extensions for known file types**, click [**OK**] to close the **Options** window.
8. Close **My Computer** window.

C.9 Installing Internet Explorer 5

1. For the **English** version, skip to Step 2, below.
   For **other languages**, replace the eNTEGRA application CD with the eNTEGRA Accessories Software CD.
2. Double click on **My Computer** icon located on the desktop.
3. Double click the **D:** drive (CD–ROM Drive).
4. For the **English** version, skip to Step 5, below.
   For **other languages**, double click the applicable language.
5. Double click the **IE5** directory.
6. Double click **install.bat**.
7. When installation has been completed, the system will reboot.
8. Proceed to Setting the View Options on page C-13.

C.10 Installing RAS, Modem, and TCP/IP for Printing

Installation of the Remote Access Service (RAS) is required for DICOM Part 10.

1. When the system comes up, press <**Alt**> + <**Ctrl**> + <**Del**> and login into the system with:

   Username: **entegra**
   Password: **entegra**

2. Click [**OK**].
3. Insert the Windows NT Workstation CD-ROM and close the opened **Windows CD** window.
4. Click right on the **Network Neighborhood** icon on the desktop and select the **Properties** entry.
5. In the opened **Network** window, select the **Services** tab to display the currently installed services.
6. In the **Services** tab click [**Add**], select **Microsoft TCP/IP Printing** .
7. Click [**OK**], type **D:\i386** <**Enter**>, where D: is your CD-ROM drive and click [**Continue**].
8. In the **Services** tab click [**Add**], select the **Remote Access Service** entry and click [**OK**].
9. If needed, change the path displayed to **D:\i386** where **D** is your CD-ROM drive, and click [**Continue**].
10. The Remote Access Service files will be copied.
11. When the following message appears: **There are no RAS....**, click [**Yes**] to invoke **Modem Installer**.
12. In the opened **Install New Modem** dialog, check the **Don't detect my modem...** and click [**Next**].
13. For systems with a modem installed, select the modem manufacturer and model from the scrollable list and click [**Have Disk**].
    For systems with ***no*** modem installed, select **Standard type**, click [**Next**], select **COM2** and click [**Next**], [**OK**], [**Continue**].
14. If required, insert the manufacturer's installation diskette into the floppy drive, browse to the appropriate directory using the [**Browse**] button, then click [**OK**].

    The modem drivers are copied to the hard disk.
15. Click the [**Properties**] button and enter the modem properties.
16. Remove the Windows NT CD from the drive.
17. Close the **Network Properties** window and click [**Yes**] to restart the system.
18. Proceed to Installing the FTP Service on page C-14.

C.11 Installing the FTP Service

1. Insert the Windows NT CD into the CD drive.
2. Right click the **Network Neighborhood** icon on the desktop, and select **Properties** to display the **Network** dialog.
3. Click the **Service** tab and click the [**Add**] button.
4. From the opened **Select Network Service** list, select **Microsoft Peer Web Server** and click [**OK**].
5. In the **Installed from:** input field, enter **D:\i386** (where D: is your CD drive), and click [**OK**].
6. On the opened **Microsoft Peer Web Services Setup** dialog, click [**OK**].
7. In the opened **Options** list, deselect all options except **FTP Service** and **Internet Service Manager**, then click [**OK**].
8. Click [**Yes**] to create the prompted directory.
9. In the **FTP Publishing Directories** input field type **C:\Insite** and click [**OK**]. If required, acknowledge by clicking [**Yes**] to create the Insite directory.
10. When the installation has been complete successfully, click [**OK**].
11. Click [**Close**] in the Network dialog.
12. Click [**Start**] on the task bar and select **Programs** → **Microsoft Peer Web Services** → **Internet Service Manager**.
13. Double click the ***Computer Name*** entry to open the **FTP Service properties for entegra** dialog.
14. On the Service tab, *uncheck* **Allow only anonymous connections**, and confirm by clicking [**Yes**].
15. Click the **Directories** tab, select the displayed entry, click [**Edit Properties...**], check (click) the **Write** property, then click [**OK**].
16. Click [**Add**], enter **C:** in the **Directory** field, enter **/C** in the **Alias** field, click the **Write** checkbox located at the bottom of the screen, and click [**OK**].
17. Click [**Add**], enter **D:** in the **Directory** field, enter **/D** in the **Alias** field, click the **Write** checkbox located at the bottom of the screen, and click [**OK**].
18. Click [**OK**] and close the **Microsoft Internet Service Manager** dialog.
19. Proceed to Formatting Drive D: as NTFS on page C-15.

C.12 Formatting Drive D: as NTFS

1. Double click on the [**Start**] button in the Task Bar, and select: **Programs** → **Administrative Tools (common)** → **Disk Administrator**.
2. Click [**OK**].
3. In the **Disk Administrator** dialog, click *right* on the letter assigned to the CD-ROM, and select **Assign Driver Letter...**
4. From the **Assign drive letter** drop-down list, select **E:** and click [**OK**].
5. In the confirm window, click [**Yes**].
6. In the **Disk Administrator** dialog, click right on **Free Space**., and in the pop-up window click [**Create**].
7. When asked, click [**Yes**], [**OK**] and [**Yes**].
8. In the **Disk Administrator** dialog, select **Exit** from the **Partition** drop-down menu.
9. When asked, click [**Yes**] to save the partition, then click [**OK**] twice.
10. Double click on **My Computer** icon located on the desktop.
11. Right click on **D:** drive icon.
12. Select the **Format...** entry.
13. Click the down arrow in the **File System** field and select **NTFS** entry.
14. Click the [**Start**] button.
15. The following warning will be displayed:

    WARNING: formatting will erase all data on this disk.
    Select OK to format the disk, Cancel to abort.

    Click **OK**.
    The disk will be formatted.

16. Upon system prompt **Format Complete**, click [**OK**].
17. Click [**Close**].
18. Proceed to Installing the eNTEGRA Application and Its Accessory Components on page C-16.

C.13 Installing the eNTEGRA Application and Its Accessory Components

1. Insert the eNTEGRA CD-ROM to the CD-ROM drive.
2. Double click on **My computer** icon located on the desktop.
3. Double click the **(E:)** drive (CD–ROM Drive).
4. Double click **Install.vbs**.
5. Click on [**OK**].
6. When prompted, insert the licences diskette into the floppy drive, attach the Activator onto the parallel port on the back panel of the computer and click [**OK**].
7. Click [**Yes**] and wait for the installation of the HASP Device Driver Setup program to complete.
8. On the **Warning** window displayed, click [**Yes**] to continue with the setup program.
9. In the **HASP Device Driver** status dialog, click [**Next**].
10. In the **Setup Option** window, click [**Typical**].
11. In the **Confirm Your Selection** window, click [**Next**].
12. When the message **The HASP Device Driver has been successfully installed** appears, click [**OK**], [**Finish**].
13. In the **Acrobat** installation, click [**Next**], [**Next**].
14. Select [**No**] when asked to reboot.
15. From the eNTEGRA CD, double click **eNTEGRA_LFC.vbs**.
16. In the **QGS** installation, click [**Next**], [**Finish**].
17. In the **Demo Database** installation, click [**Next**], [**Next**], [**Next**] and then [**Finish**].
18. In the **eNTEGRA Application** installation, click [**Next**], [**Next**], [**Next**].
19. When asked, click the radio button next to the applicable language, then click [**Next**], [**Next**].
20. If requested, replace the eNTEGRA Application CD with the eNTEGRA On-line Help CD.
    Otherwise, skip to step 22, below.
21. Click [**Next**], [**Next**] and then [**Finish**].