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# IntelliVue Information Center System

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## Installation and Service Manual

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Part Number M3150-94230  
Printed in the U.S.A. August 2003  
Edition 1

**PHILIPS**

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3000 Minuteman Road  
Andover, MA 01810-1085  
(978) 687-1501

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The documentation printing date and part number indicate its current edition. The printing date changes when a new edition is printed. (Minor corrections and updates that are incorporated at reprint do not cause the date to change.) The document part number changes when extensive technical changes are incorporated.

First Edition ..... August 2003  
M3150B IntelliVue Information Center Local Database  
M3155B IntelliVue Information Center Network Database  
M3151B IntelliVue Information Center Client  
M3170 Patient Link  
M3169A IntelliVue Small Database Server  
M3154B IntelliVue Database Server  
Release E.01.xx

### Software Release History

### Software Release History

Release VUF	Part Number	SSN Prefix	Date	Hardware	Description
E.01.xx	453563488021 453563488031		08/03	Vectra VL400 P3715W Vectra VL400 P5068W Vectra VL420 A8183S M3167A- Evo D510 NetServer P2478U NetServer P2478W M3168B- ML370 ML370 G3	Release of Information Center software Version E.01.xx
E.00.27	M3290-11013 453563494791		8/03	Kayak D5765T Kayak D6723T Kayak D6731T VL400 P3715W VL400 P5068W VL420 A8183S Evo D510	Release of Information Center software Version E.00.27
E.00.25	M3290-11012			Kayak D5765T Kayak D6723T Kayak D6731T Vectra VL400 P3715W Vectra VL400 P5068W Vectra VL420 A8183S M3167A- Evo D510 M31 - Evo D NetServer D5000A NetServer P2478U NetServer P2478W M3168B- ML370 M - ML	Release of Information Center software Version E.00.25
E.00.23	M3290-11010		01/03	Kayak D5765T Kayak D6723T Kayak D6731T Vectra VL400 P3715W Vectra VL400 P5068W Vectra VL420 A8183S M3167A- Evo D510 NetServer D5000A NetServer P2478U NetServer P2478W M3168B- ML370	Release of Information Center software Version E.00.xx

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## About this Document

This document contains Service and Installation information for the M3154 IntelliVue Database Server, M3169 IntelliVue Small Database Server, M3150 IntelliVue Information Center Local Database, M3155 IntelliVue Information Center Network Database, M3170 Patient Link, and the M3151 IntelliVue Information Center Client, (hereinafter called the Database Server, Information Center, or Information Center Client or called by their respective model number). Refer to the product's Application Software Release History with the Supported PC Hardware list.

## Text Conventions

The following conventions for Notes, Cautions, and Warnings are used in this manual.

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**Note** A **Note** calls attention to an important point in the text.

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**Caution** A **Caution** calls attention to a condition or possible situation that could damage or destroy the product or the user's work.

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**Warning** A **Warning** calls attention to a condition or possible situation that could cause injury to the user and/or patient.

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## Explanation of Symbols

Symbols on products and packaging mean the following:



Defibrillator-proof type CF equipment



Caution: Consult accompanying documents.



Signal (ECG) Input



Signal (ECG) Output



Data input/output



Alternating Current



Direct Current



Protective earth



Equipotential grounding post



Temperature



Humidity



Altitude or atmospheric pressure



Contains parts to be recycled



Contains parts that may not be put into normal waste disposal but must be recycled or dealt with as chemical waste



Fragile, handle with care



Keep dry



Consult instructions for use



Date of manufacture



Serial number



Catalog number



Batch code

## **IntelliVue Information Center Service Kit**

The **Information Center Service Kit** contains documentation that supports the IntelliVue Information Center system. The Service Kit has two principal parts -- **Quick Reference Guides and a Documentation CDROM.**

### **Printed Documentation**

**Quick Reference Service Guides** provide a handy, quick reference of key information.

### **Documentation CD-ROM**

**Service and User Documentation CD ROM** contains:

- Database Server Quick Reference Guide
- Information Center Quick Reference Guide
- Clinical Network Quick Reference Guide
- Information Center System Installation and Service Manual
- HL7 Programmer's Guide
- Information Center Instructions for Use
- Information Center Installation Notes
- Application Notes
- 3rd party service documentation (e.g. PC Workstation, Server, Printer, etc)

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# Table of Contents

---

<b>Notice</b> .....	<b>1-2</b>
Proprietary Information .....	1-2
Warranty .....	1-2
Copyright .....	1-2
Acknowledgements .....	1-2
Printing History .....	1-2
Software Release History .....	1-2
<b>About this Document</b> .....	<b>1-4</b>
Text Conventions .....	1-5
Explanation of Symbols .....	1-5
IntelliVue Information Center Service Kit .....	1-7
Printed Documentation .....	1-7
Documentation CD-ROM .....	1-7
Philips Software License Terms .....	1-7
ATTENTION: .....	1-7
<b>Introducing the IntelliVue Information Center System</b> .....	<b>1-1</b>
<b>Overview</b> .....	<b>1-1</b>
<b>Information Center System</b> .....	<b>1-2</b>
M3150 Information Center Local Database .....	1-2
Independent Operation .....	1-2
Standard Components .....	1-2
Optional Components .....	1-3
M3155 Information Center Network Database .....	1-4
Standard Components .....	1-4
Optional Components .....	1-4
M3151 Information Center Client .....	1-5
Standard Components .....	1-5
Optional Components .....	1-5
M3170 Patient Link .....	1-6
Standard Components .....	1-6
M3154 Database Server .....	1-7
Large Network Database System .....	1-8
M3169 Small Database Server .....	1-8
<b>Topologies</b> .....	<b>1-10</b>
<b>Philips CareNet</b> .....	<b>1-13</b>
Network Cabling .....	1-13
<b>Patient Monitors</b> .....	<b>1-14</b>
<b>Features</b> .....	<b>1-17</b>
Main Screen .....	1-17

# Table of Contents

---

Patient Window .....	1-18
All Controls Window .....	1-19
Patient Management .....	1-19
Alarm Management and Setup .....	1-19
Patient Data Review .....	1-19
Configuration and Support .....	1-19
Patient Data Storage .....	1-20
Patient Data Review .....	1-20
Alert Data Export .....	1-21
Data Reliability .....	1-22
Remote Access .....	1-22
Information Center Web Access .....	1-22
Service .....	1-24
Configuration .....	1-25
System Configuration .....	1-25
Patient Monitoring Configuration .....	1-26
Configuration Archiving and Restoration .....	1-26
On-Line Help .....	1-26
<b>Clinical Applications .....</b>	<b>1-29</b>
Patient Monitoring .....	1-29
Typical Plug-in Modules .....	1-29
Waves and Parameters .....	1-30
Telemetry Monitoring .....	1-31
Alarm Annunciation .....	1-32
Priorities .....	1-32
Annunciation .....	1-32
Arrhythmia Monitoring .....	1-33
Basic Arrhythmia .....	1-34
Enhanced Arrhythmia .....	1-34
ST Segment Monitoring .....	1-35
EASI 12-Lead ECG Review and Report .....	1-35
Patient Data Review .....	1-35
Alarm Review .....	1-35
Trend Review .....	1-36
Event Review .....	1-37
<b>Upgrades .....</b>	<b>1-38</b>
Memory Requirements .....	1-38
Hard Disk Requirements .....	1-38
BIOS Requirements .....	1-40
<b>Components and Options .....</b>	<b>1-42</b>
Basic Systems .....	1-42
Purchased Options .....	1-43
2 Channel Recorder Options .....	1-44
4 Channel Recorder Options .....	1-44

# Table of Contents

---

Display Options .....	1-44
Upgrade Options .....	1-45
Printer Options .....	1-47
Mounting Options .....	1-47
Clinical Network Active Components .....	1-48
Cabling Installation Materials .....	1-48
Cable Options .....	1-49
SDN Installation Materials .....	1-50
Language Options .....	1-50
<b>Hardware Description .....</b>	<b>2-1</b>
<b>Overview .....</b>	<b>2-1</b>
<b>System Components .....</b>	<b>2-2</b>
PC Workstations .....	2-2
M3154 Database Server .....	2-3
Mouse/Trackball .....	2-3
Keyboard .....	2-3
Display .....	2-4
Computer Memory .....	2-4
Hard Drive .....	2-4
Monitoring LAN .....	2-4
Hospital LAN Card .....	2-4
SDN/Recorder Interface Card .....	2-4
Audio Card and Speaker .....	2-4
CD ROM Drive .....	2-4
Floppy Disk Drive .....	2-4
Video Card .....	2-4
Modem .....	2-5
RAID 5 .....	2-5
Panel Descriptions .....	2-6
Displays .....	2-9
CRT Displays .....	2-9
Flat Panel Display .....	2-10
Touch Flat Panel Display .....	2-10
Dual Display Option .....	2-11
Remote Slave Displays .....	2-11
Video Splitters .....	2-11
Keyboard-Video-Mouse Switch .....	2-12
Philips Recorder Systems .....	2-13
Recorder Module .....	2-14
Recorder Rack .....	2-16
60 VDC Power Supply .....	2-17
Speaker .....	2-18
Philips 4-Channel Recorder (Optional) .....	2-18

# Table of Contents

---

Printer . . . . .	2-22
Printer Hub . . . . .	2-23
Uninterruptible Power Supply . . . . .	2-24
Dip Switches . . . . .	2-25
Operation . . . . .	2-26
Power Distribution Module . . . . .	2-27
<b>Mounting . . . . .</b>	<b>2-29</b>
Display Mounts . . . . .	2-29
Keyboard Mounts . . . . .	2-29
Computer System Mounts . . . . .	2-30
Processing Unit Mount . . . . .	2-30
UPS Mount . . . . .	2-31
<b>CareNet . . . . .</b>	<b>2-33</b>
Serial Distribution Network . . . . .	2-34
System Description . . . . .	2-34
Components . . . . .	2-34
Star Topology . . . . .	2-34
System Communications Controller . . . . .	2-36
SDN Interface Card . . . . .	2-36
Branch Cables . . . . .	2-36
SDC . . . . .	2-37
XSDC . . . . .	2-37
UTP . . . . .	2-37
LDC . . . . .	2-37
Wall Box Kits . . . . .	2-38
<b>Cables . . . . .</b>	<b>2-39</b>
Cable Descriptions . . . . .	2-39
Cable Pin Connections . . . . .	2-42
Recorder Rack/Power Supply Cable . . . . .	2-43
SDN Wall Box and Signal Cable . . . . .	2-44
<b>Computer Cards . . . . .</b>	<b>2-46</b>
Dual Video Graphics Card . . . . .	2-46
Audio Sound Card . . . . .	2-47
<b>Specifications . . . . .</b>	<b>2-48</b>
Physical . . . . .	2-48
Environmental . . . . .	2-49
Electrical . . . . .	2-50
Customer Supplied Displays . . . . .	2-51
Flat Panel Specifications . . . . .	2-52
External Modem . . . . .	2-53
<b>Regulatory . . . . .</b>	<b>2-56</b>

# Table of Contents

---

Philips Software .....	2-56
Philips Hardware .....	2-56
<b>Software Description .....</b>	<b>3-1</b>
<b>Overview .....</b>	<b>3-1</b>
<b>PC Workstation Platform .....</b>	<b>3-2</b>
Peripheral Devices .....	3-3
<b>Windows Operating System .....</b>	<b>3-4</b>
Operating System .....	3-4
Application Programming Interfaces .....	3-4
File System .....	3-5
Registry .....	3-5
<b>IntelliVue Information Center Application Software .....</b>	<b>3-8</b>
Modes of Operation .....	3-9
Monitoring Mode .....	3-9
Non-monitoring Mode .....	3-9
Architectural Design .....	3-10
Applications .....	3-10
Services .....	3-10
Error Handling .....	3-10
Block Diagram .....	3-10
Applications .....	3-12
Applications Library .....	3-13
Real Time Applications .....	3-13
Control Applications .....	3-13
Review Applications .....	3-15
Support Applications .....	3-15
Management Functions .....	3-16
Application Manager (SDProcess) .....	3-16
Sound Manager .....	3-16
Human Interface Manager .....	3-16
Services .....	3-16
Physio Data Server (PDSService) .....	3-17
Patient Database Services (PDSStore) .....	3-17
Measurement Services .....	3-18
Alarm Services .....	3-19
SDN Data Acquisition Service .....	3-19
Recorder Management Services (RecMgr) .....	3-19
Documentation Status Services (DocStatusService) .....	3-19
Recorder Documentation Services .....	3-20
Printer Documentation Services .....	3-21
<b>Site Planning and Preparation .....</b>	<b>4-1</b>

# Table of Contents

---

<b>Overview</b> .....	<b>4-1</b>
<b>Site Planning</b> .....	<b>4-2</b>
Considerations .....	4-2
Responsibilities .....	4-2
Customer .....	4-2
Philips Factory .....	4-3
Philips Service Provider .....	4-3
Location .....	4-4
Wiring Closets .....	4-4
Switches .....	4-4
Server .....	4-4
UPSs .....	4-4
Other .....	4-5
<b>Network Design</b> .....	<b>4-6</b>
Clinical Requirements .....	4-6
Number of Units and Beds .....	4-6
Patient Monitoring Level .....	4-6
Patient Monitor Type .....	4-7
Central Monitor Type .....	4-7
Central Monitoring Locations .....	4-7
Patient Data Review Locations .....	4-7
Type of Patient Data Access .....	4-7
Future Capability .....	4-7
Philips Hardware Capability .....	4-7
Patient Monitors .....	4-8
CareNet .....	4-8
Central Monitoring Stations .....	4-9
Review Station .....	4-9
Documentation Station .....	4-9
Database Server .....	4-9
Small Database Server .....	4-9
Printers .....	4-10
Information Center (Local Database) .....	4-10
Equipment Capability .....	4-10
Designing the System .....	4-11
Design Worksheets .....	4-11
Drawing the Design .....	4-11
Design Examples .....	4-11
Small ICU .....	4-11
Large ICU .....	4-13
Medium Stepdown Unit with Telemetry Monitoring .....	4-14
Large Stepdown Unit with Telemetry Monitoring .....	4-14
Very Large Stepdown Unit with Telemetry Monitoring .....	4-16
Telemetry Monitoring Without a SCC .....	4-17
Database Server Systems .....	4-18
Connecting Devices .....	4-18

# Table of Contents

---

Drawing the Design .....	4-18
Guidelines .....	4-19
Directed Messages .....	4-19
Broadcast and Multicast Messages .....	4-19
<b>Site Preparation .....</b>	<b>4-20</b>
Equipment Location .....	4-20
Typical Installations .....	4-21
Space and Weight Requirements .....	4-21
Environmental Requirements .....	4-22
Electrical Requirements .....	4-23
Network Connection .....	4-23
Network Card and TCP/IP Settings .....	4-23
Windows 2000 .....	4-24
Windows XP .....	4-25
Equipment Cabling .....	4-27
Safety .....	4-27
Medical Device Standards .....	4-27
Philips Device Requirements .....	4-27
Patient Environment .....	4-27
<b>Hardware Installation .....</b>	<b>5-1</b>
<b>Overview .....</b>	<b>5-1</b>
Cable Plant Installation .....	5-1
Installation Materials .....	5-1
Noise Immunity .....	5-1
UTP Cable Plant Installation .....	5-2
RJ-45 Connections .....	5-3
Fiber Optic Cable Plant Installation .....	5-3
Unpacking and Inspection .....	5-3
Unpacking Components .....	5-4
Checking Inventory .....	5-4
System Serial Number .....	5-4
Service Documentation .....	5-4
Inspection .....	5-5
Packaging Inspection .....	5-5
Mechanical Inspection .....	5-5
Electrical Inspection .....	5-5
Claims for Damage .....	5-5
Re-packaging for Shipment .....	5-5
<b>Locating System Components .....</b>	<b>5-6</b>
Components on the Work Surface .....	5-6
Typical Installations .....	5-6
Display Swivel Mount .....	5-6
Keyboard Mounting Options .....	5-7

# Table of Contents

---

Component Mounting . . . . .	5-8
Display Ceiling and Wall Mounts . . . . .	5-8
Wall Brackets . . . . .	5-8
Ceiling and Wall Mounts for Displays . . . . .	5-9
Wall Mounts for Processing Unit and UPS . . . . .	5-9
Wall Mount for Power Distribution Module . . . . .	5-9
Information Center Installation . . . . .	5-11
D510 Power Switch Cover . . . . .	5-12
Securing PC Cables . . . . .	5-12
M3169 Small Database Server Installation . . . . .	5-14
M3154 Database Server Installation . . . . .	5-15
Server to Hospital Intranet . . . . .	5-15
Printer Installation . . . . .	5-16
<b>Interconnecting the System . . . . .</b>	<b>5-19</b>
IntelliVue Information Center . . . . .	5-19
D510 System . . . . .	5-20
VL420 System . . . . .	5-21
VL400 System . . . . .	5-22
Database Server . . . . .	5-22
ML370 G3 . . . . .	5-23
ML370 G2 . . . . .	5-23
LC2000 . . . . .	5-24
Touch Display . . . . .	5-24
Cable Connections . . . . .	5-24
Touch Display Stylus and Holder Mount . . . . .	5-25
Touch Display Calibration . . . . .	5-26
Display Controls . . . . .	5-27
Remote Slave Display Wiring . . . . .	5-28
Printer Hub . . . . .	5-29
Keyboard-Video-Mouse Switch . . . . .	5-30
Server to Hospital Intranet . . . . .	5-31
<b>Providing Electrical Power . . . . .</b>	<b>5-32</b>
<b>Network Names and IP Addresses . . . . .</b>	<b>5-33</b>
IP Address . . . . .	5-33
Subnet Mask . . . . .	5-34
Default Gateway . . . . .	5-34
MAC Address . . . . .	5-34
Host Name . . . . .	5-34
Device Name . . . . .	5-35
Setting Host Names and IP Addresses . . . . .	5-36
Information Centers, Clients, Patient Link, and Small Database Server . . . . .	5-36
M3154 Database Server . . . . .	5-39
Procedure for Printers . . . . .	5-43



# Table of Contents

---

Testing Network Connectivity .....	5-43
<b>Optional Second Network Interface Card Settings .....</b>	<b>5-45</b>
<b>Software Installation &amp; Configuration .....</b>	<b>6-1</b>
<b>Introduction .....</b>	<b>6-1</b>
<b>Large Networks .....</b>	<b>6-2</b>
Time Synchronization .....	6-3
<b>Software Reinitialization .....</b>	<b>6-5</b>
<b>Configuration .....</b>	<b>6-9</b>
Config Wizard .....	6-9
Restore From Archive .....	6-12
Description .....	6-12
Procedure .....	6-13
Backup Logs .....	6-15
Procedure .....	6-15
Purchased Options and Support Information .....	6-16
Description .....	6-16
Procedure .....	6-19
General Configuration .....	6-20
Description .....	6-20
Procedure .....	6-23
Network Configuration .....	6-24
Description .....	6-24
Adding Network Devices .....	6-28
Procedure .....	6-30
Display Setup .....	6-33
Description .....	6-33
Procedure .....	6-34
Equipment Setup .....	6-35
Description .....	6-35
Procedure .....	6-43
Setup LBN Procedure .....	6-44
Setup Monitor Label Procedure .....	6-45
Setup Switch Procedure .....	6-45
Bed Config .....	6-46
Description .....	6-46
Procedure .....	6-51
Report Settings .....	6-52
Description .....	6-52
Report and Recording Destination .....	6-54
Time & Date Setup .....	6-56
Description .....	6-56

# Table of Contents

---

Procedure .....	6-57
Setup Complete .....	6-58
Activating the Database Server .....	6-58
Activating the Network/Server System .....	6-59
<b>Maintenance, Troubleshooting, and Repair .....</b>	<b>7-1</b>
<b>Overview .....</b>	<b>7-1</b>
<b>Maintenance .....</b>	<b>7-2</b>
Surface Cleaning .....	7-2
Disable Touchscreen for cleaning process .....	7-2
Cleaning Agents .....	7-3
Routine Maintenance .....	7-3
Workstations and Server .....	7-3
UPS .....	7-3
Display Sweep Speed .....	7-4
Philips 2-Channel Recorder .....	7-4
Philips 4-Channel Recorder .....	7-5
Maintenance and Handling .....	7-5
Paper Loading .....	7-5
Clearing Paper Jams .....	7-6
<b>Troubleshooting .....</b>	<b>7-7</b>
Troubleshooting Symptoms .....	7-9
Alert Data Export .....	7-9
Patient Data Transfer/Web Access .....	7-9
HL7 Export .....	7-10
Web Based Applications .....	7-12
12-Lead Export/Holter Export .....	7-12
Troubleshooting Strategy .....	7-14
SDN Connectivity .....	7-15
Server Connectivity .....	7-16
System Troubleshooting .....	7-17
User Troubleshooting .....	7-20
Error and Status Messages .....	7-20
Status Log .....	7-22
Support Information .....	7-22
Service Personnel Troubleshooting .....	7-23
Support Logs .....	7-23
Diagnostics .....	7-23
Configurations .....	7-23
Other Services .....	7-24
Shutdown .....	7-25
Maintenance .....	7-25
Support Logs .....	7-26
Event Log .....	7-26

# Table of Contents

---

Application Events . . . . .	7-27
System Error Log Files . . . . .	7-34
System Info Log Files . . . . .	7-34
Export Log Files . . . . .	7-35
Exception Error Log Files . . . . .	7-35
Backup Error Logs . . . . .	7-36
System Events . . . . .	7-37
Service Log . . . . .	7-40
Edit Service Log . . . . .	7-40
View Service Log . . . . .	7-41
Archiving the Service Log . . . . .	7-42
Status Log . . . . .	7-43
Quick Unit Status . . . . .	7-43
All Data Categories . . . . .	7-45
Network Statistics . . . . .	7-47
Switches . . . . .	7-47
Access Points . . . . .	7-55
Telemetry Services . . . . .	7-57
Revision . . . . .	7-58
Configuration . . . . .	7-58
Transmitters . . . . .	7-58
ST Parameters . . . . .	7-58
Error Log . . . . .	7-58
NBP Alarm . . . . .	7-58
Diagnostics . . . . .	7-60
Software Tools . . . . .	7-60
!SDN/Recorder Diagnostics . . . . .	7-60
Recording/Printing Diagnostics . . . . .	7-62
NT Diagnostics . . . . .	7-63
Performance Monitor . . . . .	7-63
!Windows Explorer . . . . .	7-63
!MSDOS Command Prompt . . . . .	7-63
Backup Error Logs . . . . .	7-63
Redirect HL7 . . . . .	7-63
Service Portal Support . . . . .	7-64
Raid Utilities . . . . .	7-67
Configuration . . . . .	7-75
!Config Wizard . . . . .	7-75
Read Only Config Wizard . . . . .	7-75
Archive . . . . .	7-75
Set Time/Date . . . . .	7-75
Report Configuration . . . . .	7-75
Report/Recording Destination . . . . .	7-75
Add/Remove Database Servers . . . . .	7-75
Patient Data Transfer - Bandwidth Utilization . . . . .	7-75
Change Units Password . . . . .	7-76
Print Configuration . . . . .	7-76
Other Services . . . . .	7-77

# Table of Contents

---

Control Panel . . . . .	7-77
!Services . . . . .	7-78
Remote Access Admin. . . . .	7-78
Internet Service Manager . . . . .	7-80
User Manager . . . . .	7-80
Software Versions . . . . .	7-80
Shutdown . . . . .	7-81
Shutdown - Normal . . . . .	7-81
Desktop Tools . . . . .	7-82
Maintenance. . . . .	7-83
Restart IIS Admin Service . . . . .	7-83
Restart DBServ . . . . .	7-83
Synchronize Large Network Server List . . . . .	7-83
!Reset Database Log . . . . .	7-83
!Upgrade NLS Catalogs. . . . .	7-84
<b>HL7 Tools . . . . .</b>	<b>7-87</b>
Client.exe tool. . . . .	7-87
QrycInt.exe Tool . . . . .	7-88
<b>ST/AR Configuration Reporting Tools . . . . .</b>	<b>7-89</b>
First Character Codes . . . . .	7-89
Second Character Codes . . . . .	7-90
Third and Fourth Character Codes . . . . .	7-91
Fifth Character Codes . . . . .	7-93
Sixth Character Codes. . . . .	7-93
Seventh Character Code . . . . .	7-95
<b>Manual IIS Settings . . . . .</b>	<b>7-96</b>
<b>LED Diagnostics . . . . .</b>	<b>7-108</b>
SDN LED Diagnostics . . . . .	7-108
LAN Card LED Diagnostics . . . . .	7-110
<b>Repair. . . . .</b>	<b>7-111</b>
Philips Hardware . . . . .	7-111
UPS . . . . .	7-111
UPS Configuration . . . . .	7-113
SDN Interface Card . . . . .	7-115
Philips Recorder. . . . .	7-116
SDN Interface Card . . . . .	7-116
Philips Software . . . . .	7-118
Rebooting the System . . . . .	7-118
Reinstalling Software . . . . .	7-118
<b>ML370 G3 Database Server ILO Configuration . . . . .</b>	<b>7-118</b>
<b>Updating BIOS . . . . .</b>	<b>7-119</b>
M3154 Database Server . . . . .	7-119
ML370 G3 . . . . .	7-119

# Table of Contents

---

ML370 G2 .....	7-120
LC 2000 .....	7-121
PCs .....	7-121
<b>System Setup .....</b>	<b>7-122</b>
M3154 Database Server .....	7-122
ML370 G3 Database Server .....	7-122
ML370 G2 Database Server .....	7-124
HP P2478W or P2878U LC2000: .....	7-126
HP D5000A Net Server LH3: .....	7-127
Compaq D510 PCs .....	7-128
HP Vectra VL420 .....	7-130
HP Vectra VL400 .....	7-132
HP D6723T Kayak XA (Series 05xx) or D6731T Kayak XA (Series 05) ...	7-134
HP D5765T Kayak XA-s .....	7-135
HP D4692N Kayak XU .....	7-136
HP D4367N Vectra XU .....	7-137
Restoring Printer Configurations .....	7-137
Adding Printers to the Network .....	7-140
Restoring RAID Configurations .....	7-140
Recreating FIST Bootable Floppy Disk .....	7-144
Recreating Information Center BIOS Disk .....	7-145
Creating Server BIOS Bootable Floppy Disk .....	7-146
Replaceable Parts .....	7-146
<b>Software Re-Installation Procedure .....</b>	<b>7-147</b>
Field Installation Support Tool .....	7-147
Operating System Installation .....	7-147
Installation Worksheet .....	7-147
OS Installation Procedure .....	7-147
OS Activation .....	7-151
Application Software .....	7-153
<b>Testing Product Assurance .....</b>	<b>8-1</b>
<b>Testing Product Assurance .....</b>	<b>8-1</b>
Visual Tests .....	8-1
System Components .....	8-1
Cables .....	8-1
Connectors .....	8-1
Power On Test .....	8-2
Turning on the Equipment .....	8-2
Observing Software Boot Up .....	8-2
Performance Test .....	8-3
Database Storage Test .....	8-4
Power Failure Response Test .....	8-5
Setting Display Sweep Speed .....	8-5

# Table of Contents

---

For CRT Displays: . . . . .	8-5
For Flat Panel Displays . . . . .	8-7
Verifying Sweep Speed Accuracy . . . . .	8-7
Modem Test . . . . .	8-8
Test and Inspection Procedures. . . . .	8-11
Information Centers and Clients . . . . .	8-12
M3170 Patient Link . . . . .	8-13
. . . . .	8-15
M3169 Small Database Server . . . . .	8-15
M3154 Database Server . . . . .	8-15
Clinical Network . . . . .	8-17
<b>Worksheets . . . . .</b>	<b>A-1</b>
<b>Design and Configuration Overview . . . . .</b>	<b>A-1</b>
Device Installation . . . . .	A-1
Network Configuration . . . . .	A-11
Equipment Setup . . . . .	A-11
Patient Data Transfer/Web Access . . . . .	A-13
Web Access Requirements and Specifications . . . . .	A-13
Passive Infrastructure Installation . . . . .	A-14
TCP/IP Network Card Configuration . . . . .	A-15
Security Configuration . . . . .	A-15
Web Operation from Network PCs Verification . . . . .	A-16
Web Users Notification . . . . .	A-16
<b>Web Installation on the Database Server . . . . .</b>	<b>B-1</b>
<b>Overview . . . . .</b>	<b>B-1</b>
<b>Procedure . . . . .</b>	<b>B-2</b>
Installing the Web NIC Card. . . . .	B-2
Entering the NIC IP Address . . . . .	B-4
Web User Access Config Tool . . . . .	B-6
Clinician Management . . . . .	B-7
Add Clinicians . . . . .	B-7
Remove/View Clinician List . . . . .	B-8
Change Clinician Password. . . . .	B-8
Viewing Clinician Assignments . . . . .	B-8
View Audit Data . . . . .	B-9
Export Audit Data. . . . .	B-9
Test and Inspection . . . . .	B-9
<b>External Modem Installation . . . . .</b>	<b>C-1</b>
<b>Overview . . . . .</b>	<b>C-1</b>

# Table of Contents

---

External Modem .....	C-1
RAS Software .....	C-1
<b>Procedure .....</b>	<b>C-2</b>
Installing and Configuring an External Serial Modem .....	C-2
Reconfiguring RAS on Windows 2000 Server .....	C-2
Testing RAS .....	C-3
Test and Inspection Procedures .....	C-3
<b>Dial-In Procedure for Remote Access to Information Center Systems</b> .....	<b>D-1</b>
<b>Overview .....</b>	<b>D-1</b>
Accessed Server Requirements .....	D-1
Accessing PC Requirements .....	D-1
<b>Dial Out Procedure .....</b>	<b>D-2</b>
Making the Remote Access Connection .....	D-2
Entering Name and Phone # on the Accessing PC .....	D-2
Mapping a Drive to the Remote PC .....	D-3
Connecting to Other Networked Devices Connected to the DBS .....	D-4
<b>Using RAS .....</b>	<b>D-5</b>
Accessing the Remote Log Files .....	D-5
Accessing the Remote Event View System or Application Files .....	D-6
Disconnecting the Drives .....	D-6
Disconnecting RAS .....	D-6
Test and Inspection Procedures .....	D-7
<b>Data Export - Installation on the Database Server .....</b>	<b>E-1</b>
<b>Overview .....</b>	<b>E-1</b>
<b>Procedure .....</b>	<b>E-2</b>
Installing the 2nd NIC Card .....	E-2
Entering the NIC IP Address .....	E-3
Configure Host Name .....	E-5
Test and Inspection .....	E-7
<b>Enable the Receiving System to Receive Exported Data for Data Analysis .....</b>	<b>E-9</b>
Windows NT .....	E-9
Windows 2000 .....	E-10
Windows XP .....	E-13
Windows 98 and ME .....	E-15
<b>Demo Mode Installation Procedure .....</b>	<b>F-1</b>
<b>Overview .....</b>	<b>F-1</b>

# Table of Contents

---

Installing Windows Operating System .....	F-1
<b>IntelliVue Information Center Demo Mode Software Installation .....</b>	<b>F-2</b>



# Introducing the IntelliVue Information Center System

## Overview

The IntelliVue Information Center system running the M3290A Information Center Release E.01 application software represents a significant advance in patient monitoring through the integration of a wide range of functionality into a single, standard PC or Server running a Microsoft® Windows™ Operating System. The Information Center combines the features of a central monitor -- multipatient waveform and parameter display, alarm annunciation, multilead arrhythmia monitoring, and ST analysis -- with the patient data review of a clinical review station to meet the diverse needs of today's clinical environment.

The Information Center also represents advances in monitoring convenience, flexibility, and ease-of-use. Display formats, monitoring controls, alarm response, and patient data presentation are easily configured to suit user preferences and optimize user performance. Information System functionality can also be purchased in a variety of ways to tailor the system to specific clinical needs and applications.

A Database Server can be connected to the IntelliVue Clinical Network for storing patient data obtained from patient monitors connected to Information Centers. Patient data are transmitted through the Network to the Database Server for storage, analysis, and review. The M3154 Database Server can store data for up to 128 patients, which can be viewed by all M3155 Information Centers on the Network and by 8 additional Network connected M3151 Information Center Clients. The M3169 Small Database Server can store data for up to 48 patients, which can be viewed by up to 3 M3155 Information Centers on the Network and by 3 additional Network connected M3151 Information Center Clients. Real-time patient monitoring data can also be overviewed by all Information Centers and Clients on the Network. A web access option permits viewing stored and viewable recording patient data from browser equipped PCs via the hospital's intranet.

**Chapter 1** overviews the system in the following sections.

Patient Monitors	page 1-14
Features	page 1-17
Components and Options	page 1-42



**Figure 1-1 Typical Dual Display Information Center System**

---

## Information Center System

The Information Center system consists of medical software executing on a standard workstation running a Windows Operating System.

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### Warning

**Components, topologies, and configurations specified by Philips have been optimized and test to meet a variety of patient monitoring standards. Hardware and software products not supplied by Philips as part of an Information Center system are not approved or supported by Philips for use with Information Center and Clinical Network/Database Server systems.**

---

### M3150 Information Center Local Database

#### Independent Operation

The Information Center can operate as independent (stand-alone) central monitors. When operating independently, patient data are stored in the Information Center PC. **Stored** patient monitoring data can only be reviewed on the Information Center on which it was obtained. **Real-time** patient monitoring data, however, can be viewed by any Information Center connected to the same CareNet switch, but not Information Centers on other CareNet switches.

#### Standard Components

Each M3150 Information Center includes the following **standard components**:

- Compaq D510 processing unit with:
  - hard disk drive
  - floppy disk drive
  - CD ROM drive
  - Windows XP Operating System software
  - Information Center application software
  - audio card
  - SDN interface card
  - 10BT/100TX Ethernet Network adapter card
- Keyboard
- Mouse
- External Speaker
- Uninterruptible Power Supply (UPS)

The current workstation for the Information Center is the Compaq D510 PC shown in Figure 1-2.

---

#### Note

The specific workstation, display, UPS, and printer shipped with each system may vary with date of purchase as newer models are substituted when they become available. Displays are

ordered to match customer requirements. Throughout this Manual, only general descriptions of devices subject to change will be provided. For more detailed information, see the device manuals.

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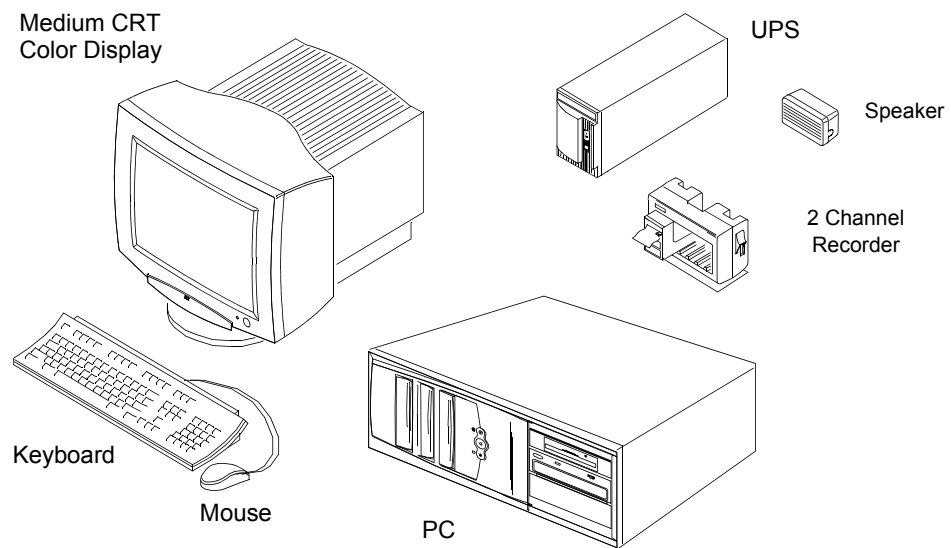
**Note** Displays are sold separately. Philips will not install displays not supplied by Philips and cannot guarantee their compliance with the EMC Directive.

---

**Optional Components**

The following **optional components** are also available - refer to the option list at the end of this section:

- Video Card for second display (Information Centers and Clients only)
- Video splitters (2-way and 6-way) for remote, slave displays
- Displays - CRT ( medium & large) and Flat Panel (large)
- 2-Channel Recorder System
- 4-Channel Recorder
- LaserJet printer
- Printer Hub for connecting up to 4 (Local Database) Information Centers to a single printer
- Trackball
- Mounting hardware for PCs, displays, and UPS
- Interconnecting cables of various lengths



**Figure 1-2 Basic Information Center Workstation**

## **M3155 Information Center Network Database**

The M3155 Information Center connects to the Database Server. Patient data are stored in the connected Database Server (either the M3154 or M3169). Patient monitoring data can only be reviewed by any other M3155 Information Center on the network that is connected to the same Database Server.

### **Standard Components**

Each M3155 Information Center includes the following **standard components**:

- Compaq D510 processing unit with:
  - hard disk drive
  - floppy disk drive
  - CD ROM drive
  - Windows XP Operating System software
  - Information Center application software
  - audio card
  - SDN interface card
  - 10BT/100TX Ethernet Network adapter card
- Keyboard
- Mouse
- External Speaker
- Uninterruptible Power Supply (UPS)

The current workstation for the Information Center is the Compaq D510 PC shown in Figure 1-2.

---

### **Note**

The specific workstation, display, UPS, and printer shipped with each system may vary with date of purchase as newer models are substituted when they become available. Displays are ordered to match customer requirements. Throughout this Manual, only general descriptions of devices subject to change will be provided. For more detailed information, see the device manuals.

---

### **Note**

Displays are sold separately. Philips will not install displays not supplied by Philips and cannot guarantee their compliance with the EMC Directive.

---

### **Optional Components**

The following **optional components** are also available - refer to the option list at the end of this section:

- Video Card for second display (Information Centers and Clients only)
- Video splitters (2-way and 6-way) for remote, slave displays
- Displays - CRT (medium & large) and Flat Panel (large)
- 2-Channel Recorder System
- 4-Channel Recorder
- HP LaserJet printer
- Trackball
- Mounting hardware for PCs, displays, and UPS
- Interconnecting cables of various lengths

## M3151 Information Center Client

### Standard Components

Each Information Center Client includes the following **standard components**:

- Compaq D510 processing unit with:
  - hard disk drive
  - floppy disk drive
  - CD ROM drive
  - Windows XP Operating System software
  - Information Center application software
  - audio card
  - SDN interface card
- Keyboard
- Mouse
- External Speaker
- Uninterruptible Power Supply (UPS)

The current workstation for the Information Center Client is the Compaq D510 PC shown in Figure 1-3.

---

### Note

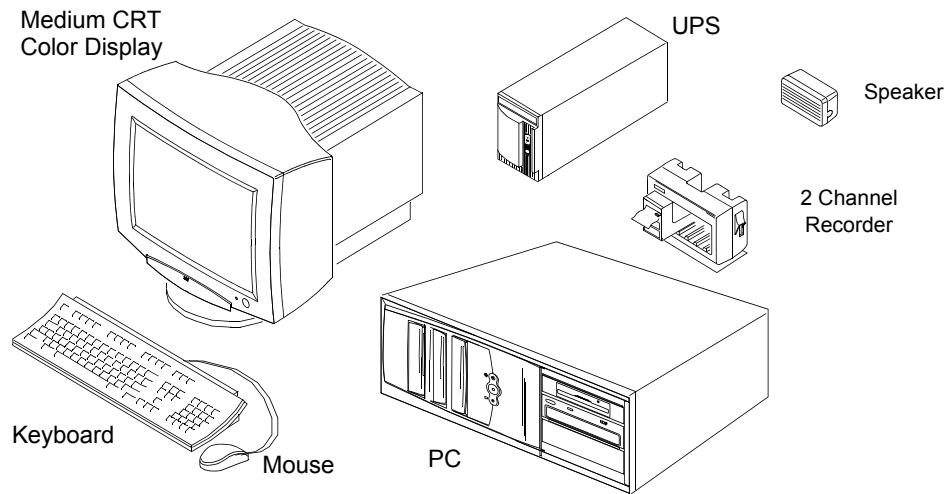
Displays are sold separately. Philips will not install displays not supplied by Philips and cannot guarantee their compliance with the EMC Directive.

---

### Optional Components

The following **optional components** are also available - refer to the option list at the end of this section:

- Video Card for second display
- Video splitters (2-way and 6-way) for remote, slave displays
- Displays - CRT ( medium & large) and Flat Panel (large)
- 2-Channel Recorder System
- 4-Channel Recorder
- HP LaserJet printer
- Trackball
- Mounting hardware for PCs, displays, and UPS
- Interconnecting cables of various lengths



**Figure 1-3 Basic Information Center Client Workstation**

## **M3170 Patient Link**

The M3170 Patient Link operates as a M3150 Information Center local database without a display. The M3170 Patient Link provides a central location for bedside recordings and reports initiated from SDN hardwired bedsides, M2/3/4 bedsides and IntelliVue Patient Monitors. In addition, the Patient Link provides support for bed to bed overview and alarm reflection for M3/4 bedsides and IntelliVue Patient Monitors. **Patient Link cannot be used with Telemetry bedsides.** Patient names are not included on the recording annotation

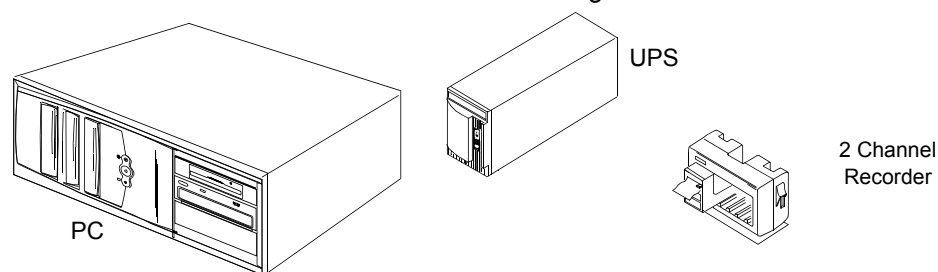
M3170 Patient Link does not have a clinical user interface (i.e. there is no display connected). It does not generate alert sounds and relies on the bedside monitor for visual and auditory alarm notification. All Clinical User Settings and Patient Settings are set to the factory defaults and cannot be changed. The only configuration changes that can be applied are those in the Config Wizard.

### **Standard Components**

Each M3170 Patient Link includes the following **standard components**:

- Compaq D510 processing unit with:
  - hard disk drive
  - floppy disk drive
  - CD ROM drive
  - keyboard and mouse (required for installation and support only)
  - Windows XP Operating System software
  - Information Center application software
  - SDN interface card
  - 10BT/100TX Ethernet Network adapter card
- 2-Channel Recorder System
- Uninterruptible Power Supply (UPS)

The current workstation for Patient Link is shown in Figure 1-2.



**Figure 1-4 Basic Patient Link Workstation**

### **M3154 Database Server**

The **M3154 Database Server** is a Server that provides database storage of patient monitoring data for all devices on the Network. Information Center application software provides for storage of up to 96 hours of patient monitoring data (full disclosure waveforms, physiologic parameters, alarms, multi-lead arrhythmia, ST segments, and EASI 12-lead presentations) from 128 patients. Patient monitoring data, including events and trends, can be reviewed by any M3155 Information Center or M3151 Client on the Network.

The **Information Center Web Access** option permits viewing of all patient data stored on the Server (waves, alarms, events, ST segments, trends, and viewable recording strip data) by PCs on the hospital's HIS intranet. Up to 100 simultaneous users can access stored patient data using standard web browsers -- Internet Explorer (Release 5.0 or greater) and Netscape (Release 4.7 or greater).

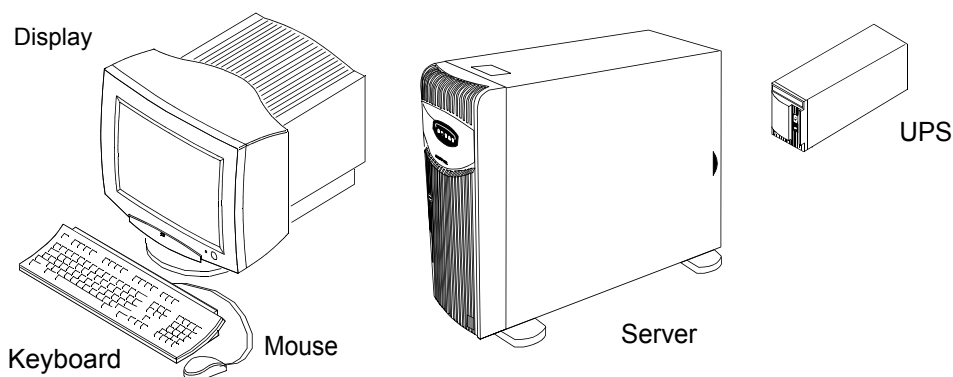
**Standard components** for the M3154 Database Server are shown in Figure 1-5 and include the following:

- Server with:
  - hard disk drive
  - floppy disk drive
  - CD ROM and disk drives
  - modem (US/Canada only)
  - 10BT/100TX Ethernet Network adapter card (for Clinical Network access)
  - 10BT/100TX Ethernet Network adapter card (for connection to Hospital LAN)
- keyboard
- mouse
- UPS
- Microsoft Windows 2000 Operating System
- Information Center application software with database storage of the following data for up to 128 patients:
  - 24 hours of full disclosure waveforms (4 waveforms per patient) and physiologic parameters
  - 150, 30 second alarm records and saved strips, 4 waves per record
  - 24 hours of trends with 1 minute of resolution
  - 24 hours of ST segments
  - 24 hours of events with 1 hour strip function

**Options** for the M3154 Database Server are:

- 48, 72, or 96 hours of patient data storage per patient

- Clinical Network connectivity for 2, 4, 6, or 8 Information Centers
- Web access to stored patient data from browser equipped PCs on the hospital LAN
- Export of derived 12-Lead information for EASI 12-Lead IntelliVue Patient Monitor data in XML format
- HL7 formatted messages containing Information Center collected data can be output to an external HL7 compliant receiver
- Alert Data Export
- Interface to Philips/Zymed Holter for Windows



**Figure 1-5 M3154 Database Server**

### Large Network Database System

Up to ten **M3154 Database Servers** can be interconnected on the hospital LAN. This connectivity provides Information Centers with the ability to transfer patient data to a clinical unit outside of its Database Server. The clinical operator selects a destination clinical unit when discharging. Retrospective data, near real-time waves, parameters, and alarms for patients across care units that are on separate database servers can also be reviewed. If a M2385 Application Server is present, web-based applications can be displayed on the Information Centers.

### M3169 Small Database Server

The **M3169 Database Server** is a Server that provides database storage of patient monitoring data for all devices on the Network. Information Center application software provides for storage of 48 hours of patient monitoring data (full disclosure waveforms, physiologic parameters, alarms, multi-lead arrhythmia, ST segments, and EASI 12-lead presentations) from 48 patients. Patient monitoring data, including events and trends, can be reviewed by up to 3 M3155 Information Centers and 3 Clients on the Network.

**Standard components** for the M3169 Database Server are shown in Figure 1-6 and include the following:

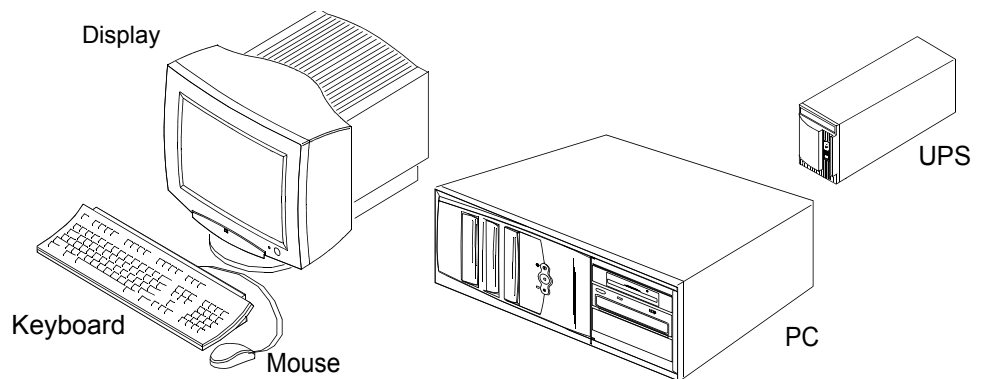
- PC with:
  - hard disk drive
  - floppy disk drive
  - CD ROM and disk drives
  - 10BT/100TX Ethernet Network adapter card
- keyboard
- mouse
- UPS



- Microsoft Windows XP Operating System
- Information Center application software with database storage of the following data for up to 48 patients:
  - 24 hours of full disclosure waveforms (4 waveforms per patient) and physiologic parameters
  - 150, 30 second alarm records and saved strips, 4 waves per record
  - 24 hours of trends with 1 minute of resolution
  - 24 hours of ST segments
  - 24 hours of events with 1 hour strip function

**Options** for the Small Database Server are:

- 48 hours of patient data storage per patient
- Clinical Network connectivity for 1, 2, or 3 Information Centers



**Figure 1-6 M3169 Database Server**

## Topologies

**Table 1-1** presents the applications available supported in each system configuration and **Figure 1-7** and **Figure 1-8** show these topologies. Note that these figures do not show the full system capabilities.

**Table 1-1. Topologies**

	EASI	Alert Data Export	HL7	12-Lead <sup>1</sup>	Holter Export	Review Apps	Web Access	Pt Data Xfer <sup>6</sup>	Bed-Bed Overview	Browser
<b>M3150 Information Center System (Local Database)</b>										
Information Center Local Database	Yes	Yes	Yes	Yes <sup>2</sup>	No	Yes <sup>3</sup>	No	No	No	No
IntelliVue Patient Monitor	No	No	No	Yes	No	No	No	No	Yes	No
SDN Patient Monitor	No	No	No	No	No	No	No	No	Yes	No
<b>M3150 Information Center Local Database System with M2385 Application Server</b>										
Information Center Local Database	Yes	Yes	Yes	Yes <sup>2</sup>	No	Yes <sup>3</sup>	No	No	No	Yes <sup>4</sup>
IntelliVue Patient Monitor	No	No	No	Yes	No	No	No	No	Yes	Yes <sup>4</sup>
SDN Patient Monitor	No	No	No	No	No	No	No	No	Yes	No
<b>M3155 Information Center System (Networked with M3169 Small Database Server)</b>										
Information Center Networked	Yes	Yes	Yes	Yes	Yes	Yes <sup>3</sup>	No	No	No	Yes <sup>4</sup>
Information Center Client	Yes	No	n/a	Yes	Yes	Yes <sup>3</sup>	No	No	No	Yes <sup>4</sup>
M3169 Database Server	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No
IntelliVue Patient Monitor	Yes	No	No	Yes	No	Yes <sup>4</sup>	No	No	Yes	Yes
SDN Patient Monitor	Yes	No	No	No	No	No	No	No	Yes	No
<b>M3155 Information Center System (Networked with M3154 Database Server)</b>										
Information Center Networked	Yes	Yes	Yes	Yes	Yes	Yes <sup>3</sup>	Yes <sup>4</sup>	Yes <sup>5</sup>	No	Yes <sup>4</sup>
Information Center Client	Yes	Yes	No	Yes	Yes	Yes <sup>3</sup>	Yes <sup>4</sup>	Yes <sup>5</sup>	No	Yes <sup>4</sup>
M3154 Database Server	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes <sup>5</sup>	No	No
IntelliVue Patient Monitor	Yes	No	No	Yes	No	Yes <sup>4</sup>	Yes <sup>4</sup>	No	Yes	Yes <sup>4</sup>
SDN Patient Monitor	Yes	No	No	No	No	No	No	No	Yes	No

<sup>1</sup> Any of the following functionality: Capture, Interpretation, Display via Review Applications, or Export

<sup>2</sup> Export to floppy disk only

- <sup>3</sup> Native only
- <sup>4</sup> Served by the Application Server
- <sup>5</sup> Single or multiple M3154 Database Servers
- <sup>6</sup> Across multiple M3154 Database Servers

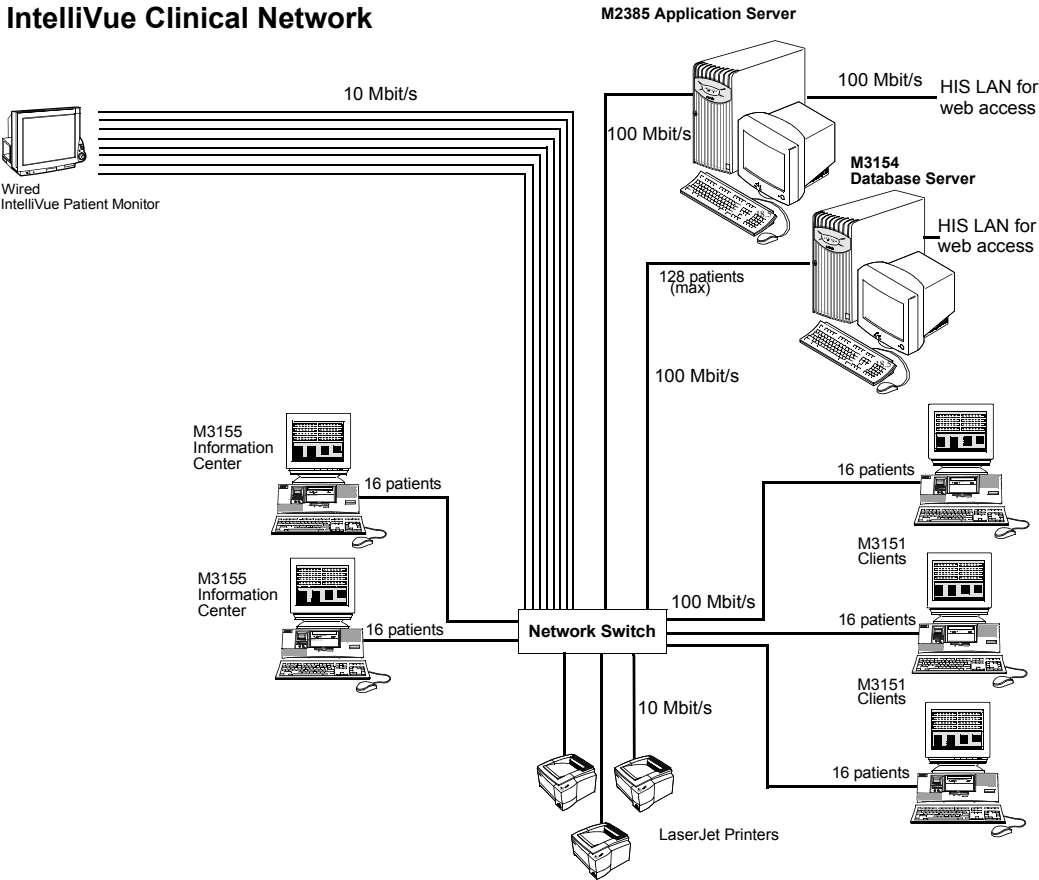


Figure 1-7 Typical Basic System Topology

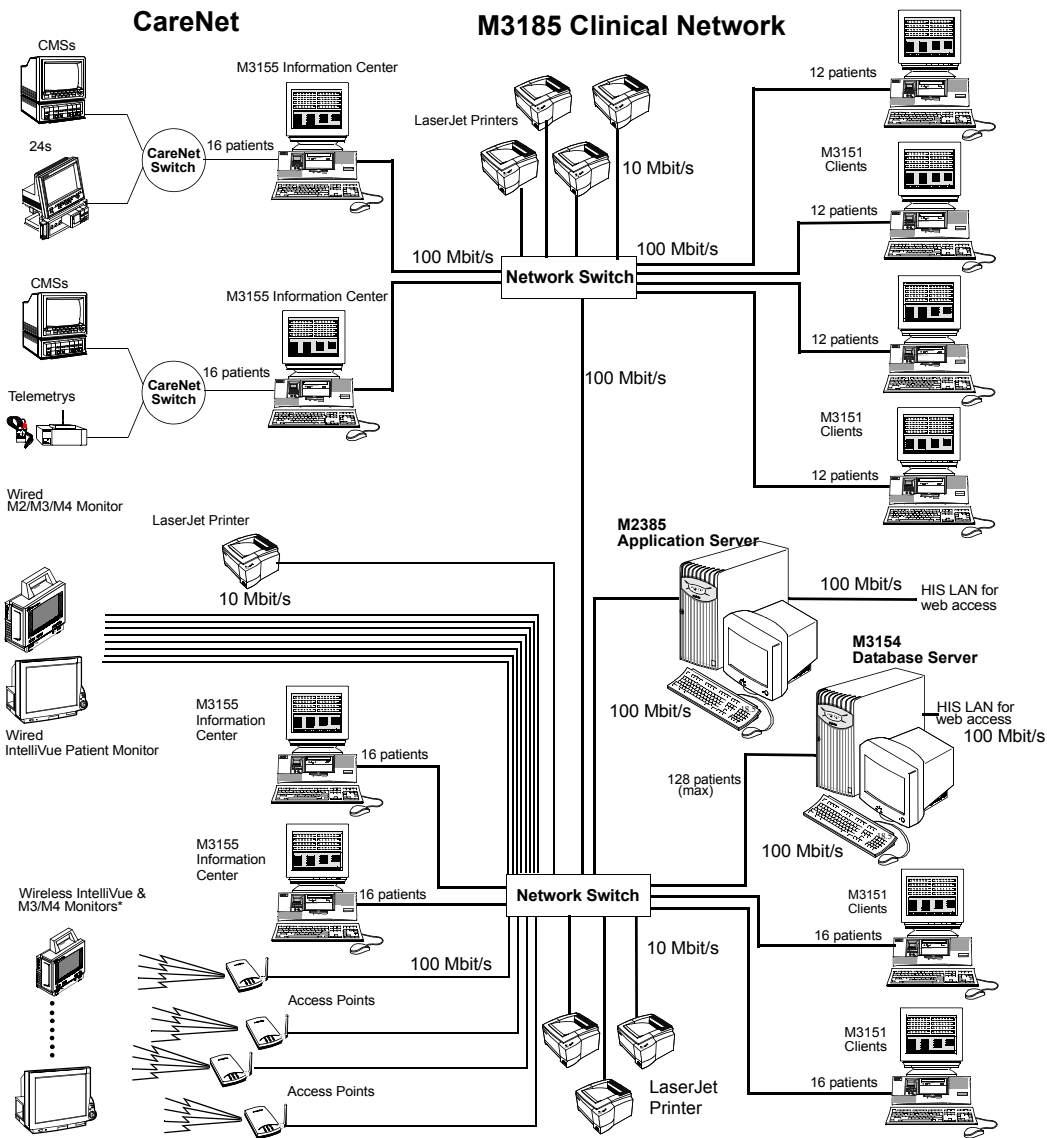


Figure 1-8 Typical Complex System Topology

## Philips CareNet

Information Centers are designed to operate on Philips CareNet network, consisting of the Serial Distribution Network (SDN) and the Philips System Communications Controller (PCC/SCC) or the CareNet Controller. See Figure 1-9.

The **Philips CareNet** is a local area communications network designed to share patient physiological waves, parameters, and other data among bedside monitors, recorders, printers, and other computer systems.

The **PCC/SCC** is the active device of the SDN, providing communications links to instruments connected to the SDN and controlling data flow, timing, synchronization, and distribution throughout the network. The Information Center processing unit contains an SDN interface card for communication with the SCC and its SDN networked instruments.

### Network Cabling

Network cabling between the SCC and wall boxes for system instrument connections (bedside monitors, central stations, etc.) can be Philips' proprietary, shielded, System Distribution Cable (SDC) or standard LAN, Category 5, Unshielded Twisted Pair (UTP) cable.

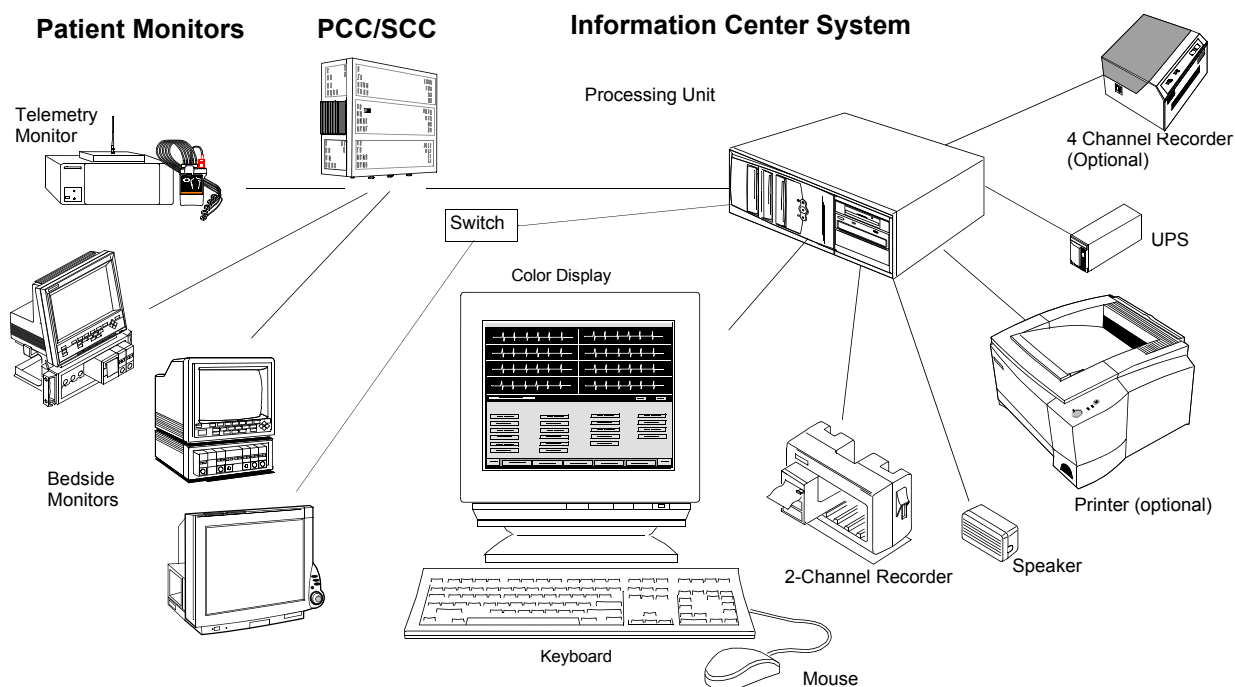
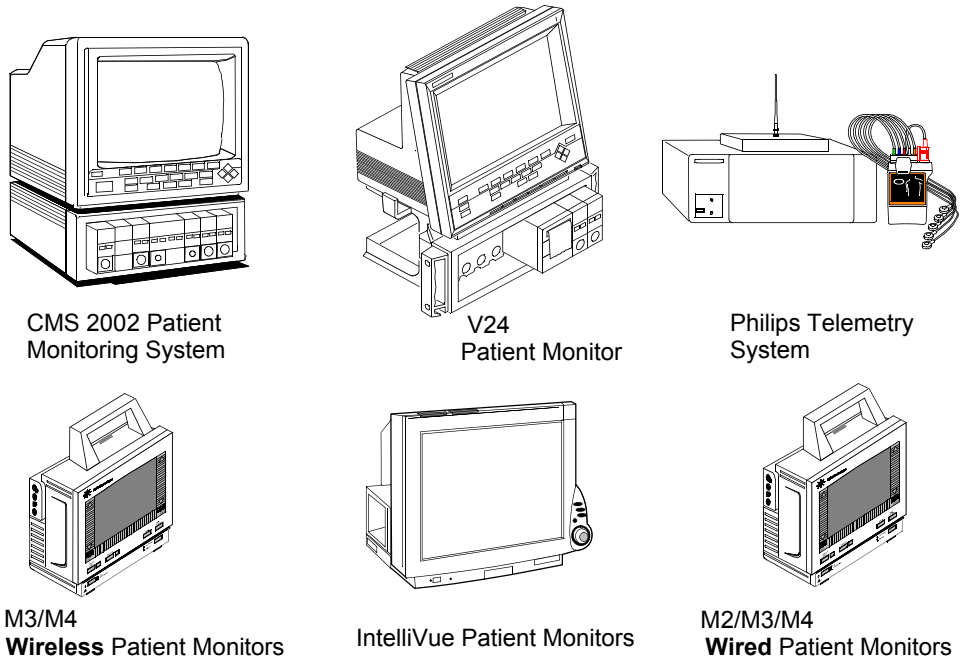


Figure 1-9 Typical Information Center Monitoring System Network

## Patient Monitors

The Information Center is designed to be compatible with recent Philips medical systems - bedside monitors, telemetry mainframes, central stations, and other computer systems compatible with Philips' Serial Distribution Network. It can both send data to and receive data from SDN compatible instruments, recorders, and printers.



**Figure 1-10 Information Center Compatible Bedside and Telemetry Monitors**

**Table 1-2. Patient Monitors Compatible with Software Rel. E.01 and EASI**

Product Name	Product Number	Software Release Req'd for Rel. E.01	Software Release Req'd for EASI
IntelliVue Patient Monitor	M8005A/M8007A/ M8010A	A.10 and later	A.10 and later
Component Monitoring System	M1175/76/86A	C and later	C and later
Philips 24 Patient Monitor	M1205A	all	C and later
Compact Configured Monitor	78352A/C, 78353B, 78354A/C 78833B, 78834A/C	all	Not supported
Digital UHF Telemetry	M1403A/J	E.0	E.0
Philips Telemetry System	M2600A	E.0 and later	E.0 and later

**Table 1-2. Patient Monitors Compatible with Software Rel. E.01 and EASI**

Product Name	Product Number	Software Release Req'd for Rel. E.01	Software Release Req'd for EASI
TeleMon		A.0 and later	
Philips M2/M3/M4 Wired Monitor	M3046A	D.0 and later	E.0
M3/M4 Wireless Patient Monitor	M3046A #J20		
M2/M3/M4 Measurement Server	M3000A	C.04 and later	

**Note** M2350/60A CCMs (release B.03.13) that monitor telemetry with release 2.x cannot connect to the same Serial Communications Controller (SCC) as Information Center systems (release C.0 and later).

**Table 1-3. Information Center Compatible Software**

Product Name	Software Release Req'd for Rel. E.01
TraceMaster	A.04 and later
Holter	2.6 and later
Application Server	A.01 and later
Emergin Wireless Office Alarm Messenger	5.0 or greater

The following Philips equipment is ***not*** compatible with Information Center systems.

**Table 1-4. Information Center Non-Compatible Equipment**

Product Name	Product Number	Software Release
Monitor Terminal	78534A/B/C	all
Comprehensive Monitor Terminal	78532A/B	all
Compact Configured Monitor	78352B, 78353A, 78354B	all
Digital UHF Telemetry	M1403A	all Releases prior to E.01
SDN Arrhythmia System	78720A/B	all
Central Monitor	78560	all
Patient Information Center	78501/502/504/508/509	all
Clinical Event Review	M1251A	all
<b>Note:</b> All Information Centers and Database Servers must be upgraded to the same Software Release		

**Table 1-5. Information Center Non-Compatible PC/Server Models**

PC Model Number	Software Release Rel. D.0	Software Release Rel D.01	Software Release Rel E	Software Release Rel E.01
D4796N Kayak XA	Not supported	Not supported	Not supported	Not supported
D4354N Vectra XU	Not supported	Not supported	Not supported	Not supported
D4367N Vectra XU	Supported	Not supported	Not supported	Not supported
D4692N Kayak XU	Supported	Not supported	Not supported	Not supported

Patient Monitors

<b>PC Model Number</b>	<b>Software Release Rel. D.0</b>	<b>Software Release Rel D.01</b>	<b>Software Release Rel E</b>	<b>Software Release Rel E.01</b>
D5765T Kayak XA-s	Supported	Supported	Supported	Not Supported
D6723T Kayak XA	Supported	Supported	Supported	Not Supported
D6731T Kayak XA	Supported	Supported	Supported	Not Supported
LH3 NetServer	Supported	Supported	Supported	Not Supported



## Features

The Information Center is the central monitoring station that provides multipatient display of real time patient waveforms and physiologic parameters, annunciation of alarms and a wide variety of patient data storage and review functions, including full disclosure waves and parameters, alarms, ST segments, events, trends, and EASI 12-lead presentations. Patient monitoring features of the Information Center central monitor are described in detail in the **Information Center Instructions for Use** and discussed briefly below.

### Main Screen

The **Main Screen** of the Information Center is the primary patient monitoring screen. It can display up to 16 patients and 3 waves per patient with a maximum of 24 waves per screen ( 32 waveforms for one display, dual display recommended). The arrangement of Patient Sectors can be designed to suit user preferences with up to 2 columns and 8 rows, and the patient's name can be displayed in a variety of formats.

Patient data can also be color coded for easy identification. Colors for waves and parameters can be individually selected using color pallets available in display configuration windows. Patient Sectors in alarm are also highlighted in color for immediate recognition of alarm conditions and their severity. The date and time and messages of Recorder and Printer status also appear at the top of the Main Screen.



Figure 1-11 Main Screen

## Patient Window

Additional data for each patient can be obtained in a more detailed **Patient Window**. Positioning the mouse cursor in a patient sector causes a **Patient Window** button to appear. Clicking on the **Patient Window** button brings up the **Patient Window** for that patient. The **Patient Window** can display up to 4 waves and 12 parameters for a single patient.

For an Information Center with a single display, the Main Screen resizes to make room for the **Patient Window**. For systems with a second display, the Main Screen remains in the first display and the **Patient Window** appears in the second display or the Main Screen can also utilize both displays. The **Patient Window** in a 2-display system can display up to 7 waves for a single patient.

In dual display systems, both displays can have patient sectors when Main Screen is active. For example, for a 16-patient central, the Main Screen of each display would include 8 sectors. This feature is available for 8, 12, and 16-patient centrals. When an application window is open, all the sectors move to one display, and the second display has the full-screen application window. To remove the application window, click the **Main Screen** button

Buttons for accessing additional information and changing monitoring parameters are also provided at the bottom of the **Patient Window**.

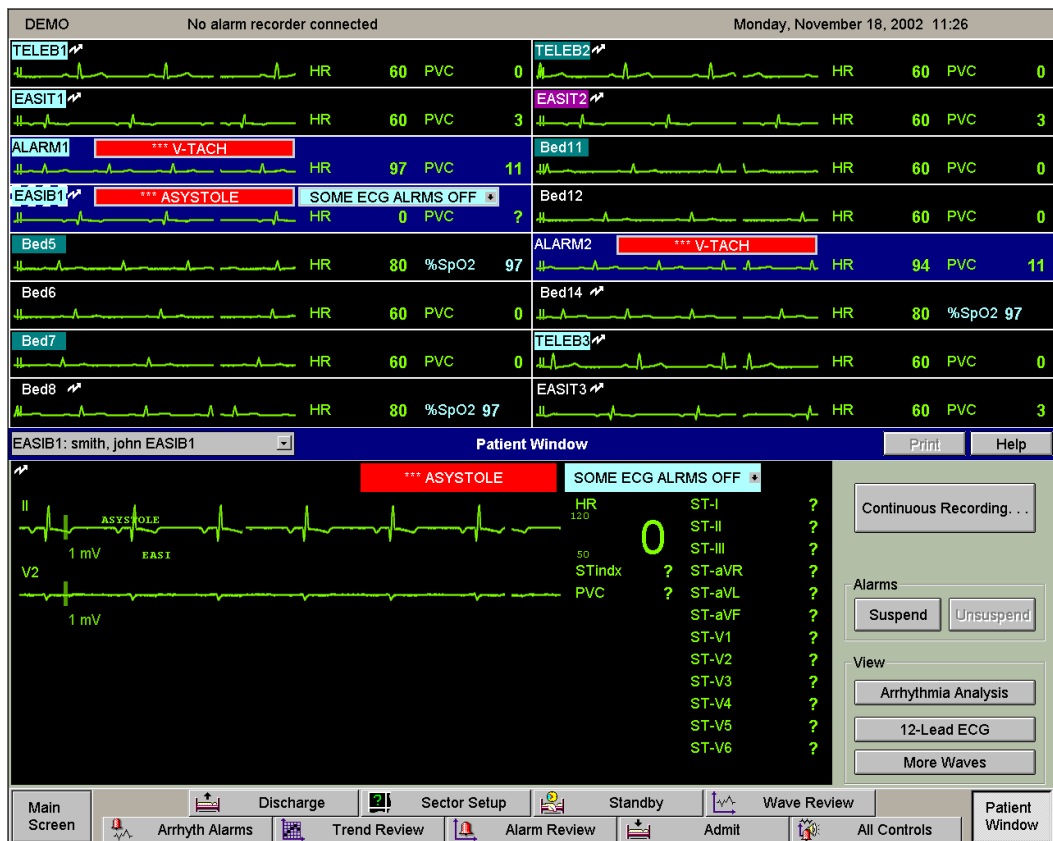


Figure 1-12 Main Screen with Patient Window

## All Controls Window

The main control window for an Information Center is titled **All Controls**. It is obtained by clicking on the All Controls button in the Patient Window. The All Controls window provides control buttons for four major categories of Information Center applications:

- Patient Management
- Alarm Management and Setup
- Patient Data Review
- Configuration and Support

The first three categories -- **Patient Management**, **Alarm Management and Setup**, and **Patient Data Review** -- are intended for clinical users. Their purpose and operation are described in detail in the **IntelliVue Information Center Instructions for Use**. Their general functions are the following:

### Patient Management

The **Patient Management** menu provides buttons for managing the Patient Sectors. These include buttons for patient admission, discharge, and bed transfer, buttons for selecting which waves and parameters to display and store in the patient's data file, and a standby button with a selection of standby messages to display.

### Alarm Management and Setup

The **Alarm Management and Setup** menu provides buttons for setting up the arrhythmia and ST Segment configurations (alarms and waves) for each patient, setting the volume of the alarm tones, and selecting telemetry monitor frequencies.

### Patient Data Review

The **Patient Data Review** menu provides buttons to access stored patient data for review of trends, alarms, events, full disclosure waves, and ST Segments.

---

### Note

Not all features may have been purchased. Not all features are available in local mode.

---

## Configuration and Support

The Configuration and Support menu has applications for clinical users, nurse managers, and service personnel. Some of these applications are password protected to prevent accidental system or network changes by unauthorized users that might disrupt monitoring.

**Support Info** is available to all clinical users, nurse managers, and service personnel and is not password protected. Clicking on the Support Info button brings up the Purchased Options and Support Information window, which is Read Only. This window contains a variety of useful information about the Information Center or Client that may be needed when a problem occurs. Users can access this window to find out who to contact and basic facts about this device that may be requested by service personnel.

**Status Log** is available to all clinical users and is not password protected. Status Log accesses a Status Log window that provides information on the operational status of all devices connected to the network. It can be used for quick identification and reporting of device problems.

**Unit Settings** is password protected for use by nurse managers. Unit Settings accesses unit wide configuration controls. These are for persons responsible for setting unit wide configurations for monitoring patients. Access to the Unit Settings window requires a User Password to proceed.

---

**Caution**

The default **Unit Settings Password** is **philips**. This can be changed to a user-specified password via the service menu. See “Change Units Password” on page 7-76. It should only be used by persons responsible for setting unit wide configurations for monitoring patients.

---

**Patient Data Storage**

The M3154 Database Server can store up to **96 hours of patient data** for up to **128 active patients**, e.g. 8 Information Centers with 16 patients each. The M3169 Small Database Server can store up to **48 hours of patient data** for up to **48 active patients**, e.g. 3 Information Centers with 16 patients each. Patient data are kept on the Server until the patient is discharged. The Server can also store data for up to 32 (4 per Information Center) discharged or transfer patients per Information Center for possible readmission after they have been discharged. Hence the Server can store up to 96 hours of patient data (depending on which Database Server) for an additional **32 transfer patients**.

The 96 hours of stored patient data include:

- full disclosure waves, 4 waveforms per patient
- physiologic parameters
- One hundred and fifty 30 second alarm records and saved strips, 4 waves per record
- trends with 1 minute of resolution
- ST segments
- events with 1 hour strip function

**Patient Data Review**

Stored data for all patients on the Server are available for review by any Information Center and Client on the Network. Full Control, Read Only, or No Access to patient data stored on the Server is controlled at the Information Center supplying the data. All stored data - full disclosure waves, alarms events, ST segments, and trends - for each patient can be reviewed. Features of Patient Data Review applications are the following:

**Wave Review:**

- continuous full disclosure of up to 4 configurable waves per patient
- 1 minute to 60 minutes wave duration per screen:
  - single display - 1 wave for up to 30 minutes duration
  - dual display - 4 waves for up to 60 minutes duration
- timeline, trend, and event navigators for fast searches and greater context
- strip reports

**Alarm Review:**

- 30 s compressed waveforms of alarm or saved strip events
- up to 4 waveforms per event
- simultaneous display of alarm events:
  - single display - 5 alarm strips
  - dual display - 10 alarm strips
- search by alarm severity
- interval measurement
- relabel alarm name

**Event Review:**

- 10 configurable groups, up to 5 alarm criteria per group
- strip displayed for verification of event criteria
- total occurrences of alarms calculated and displayed in 1, 4, 8, 12, and 24 hour time scales

**ST Review:**

- ECG complexes stored at 1 minute resolution for connected patients
- 50 mm/s presentation for increased resolution
- EASI 12-lead presentations
- superimposition of up to 4 sets of complexes with ST values
- trend, event and ST topology navigators for fast searches and greater context

**Trend Review:**

- tabular display of physiological parameters
- graphical presentation at 1 min. resolution using bivariate trend plots
- 10 configurable groups with 5 bivariate trend plots, 10 parameters per group
- exact parameters displayed for cursor time location
- simultaneous display of trend plots:
  - single display - 2 trend plots
  - dual display - 5 trend plots
- trends displayed in 1, 4, 8, 12, and 24 hour time scales

**EASI 12 Lead Review:**

- retrospective review of 12 derived leads
- 2.5 s to 10 s snippets
- 3 x 4, 6 x 2, and 12 x 1 (row by column) display and reports (12 x 1 not available on single display)
- EASI leads from M3-E patient monitors are not available

---

**Note** Detailed descriptions of patient data review are given in the **Information Center Instructions for Use**.

---

**Alert Data Export**

An alerting system is available (in North America only) for secondary notification of patient alarms. Information Center systems with the Alert Data Export option acquires patient alarm data from the bedside or the telemetry monitoring system and **automatically** relays it in textual format (via a LAN connection) to a receiving device. No waveform data is sent. The receiving device is configured via the Config Wizard. See “Network Configuration” on page 6-24.

---

**Note** Since all alarm data is automatically sent to the receiving device no user intervention is required at the Information Center. For information on using the receiving device see the documentation that comes with the device.

---

**Warning**

**Alert Data Export is a secondary alarm notification system. It is not intended for primary notification of alarms, physiological, or demographic data. Receipt by the**

**external software device of alarms is not confirmed and delivery to the end device is not guaranteed. Clinicians using Alert Data Export must remain within monitoring distance of the primary alarm notification device.**

**The primary alarm notification device is either the bedside monitor (if present) or the Information Center.**

---

All alarms (red, yellow, and INOPs) for all beds being monitored by the Information Center are automatically exported in textual format to the receiving device. Alarms are sent in the order in which they occur. So, if a yellow alarm occurred for one bed immediately followed by a red alarm for another bed the yellow alarm is sent first followed by the red. The format of the alarm text sent is bed label:: alarm level (high, medium, low priority) and alarm text (for example Bed4::\*\*\* Asystole). If the Information Center is configured to have alarm reminders, the format of the alarm reminders sent is, bed label:reminder label:alarm level (high, medium, low priority) and alarm text, (for example, Bed4:REM:\*\*\* Asystole).

If connection between the Information Center and Alert Data Export receiving device is lost for any reason no alarms are sent and the message “Alarm paging not available” displays in the Information Center system message area.

**Data Reliability** The M3154 Database Server utilizes RAID (Redundant Array of Independent Disks) technology to assure fault tolerant data collection and storage in the event of disk failure. Data are written to multiple disks simultaneously to provide data storage redundancy. If the Server or Network fails for any reason, Information Centers revert to local database operation so that patient monitoring data collection are maintained. The M3169 Database Server does not use RAID.

**Remote Access** Error Logs, showing all events that occur in each device on the Network when it starts and as it operates and giving device operational status, can be accessed during patient monitoring via a modem in the Server. This permits efficient troubleshooting and problem identification without disruption to patient care.

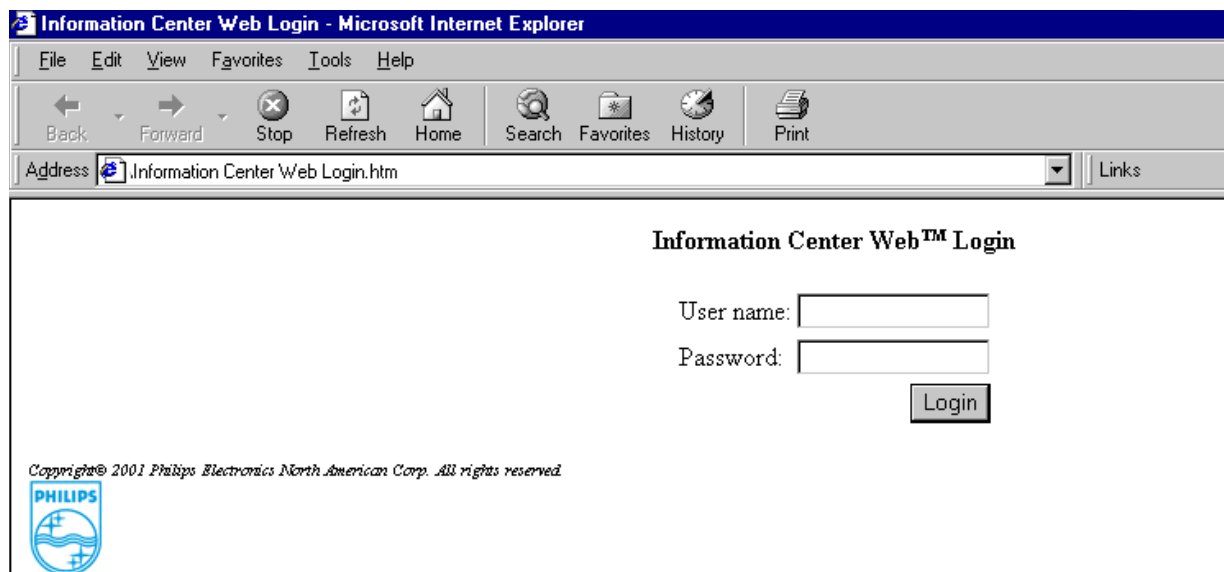
**Information Center Web Access** The Information Center Web provides remote, read-only access to physiologic patient data that is resident on an M3154 Database Server. Patient Data Review applications on the M3154 Database Server can be accessed via the hospital’s HIS intranet using standard web browsers, such as Internet Explorer and Netscape. In a Large network system, up to 100 simultaneous users can view stored waves, alarms, events, ST segments, trends, and viewable recording strip data for each patient in the M3154 Database Server. Data are accessed by a configurable log-on procedure using the **hostname** of the Database Server or the **IP Address** of the Web LAN card in the Server as the URL to access the **Information Center WEB™ Login** window shown in Figure 1-13.

Web access is not available on the M3169 Small Database Server.

---

**Note** The URL can also be the **Host** name of the Server if the hospital LAN’s DNS (Dynamic Name Server) is properly configured. However, if there are multiple Servers on the Network, each Server’s **Host** name must be unique.

---



**Figure 1-13 Login Window for Information Center Web**

A user selected **Password** is then required to access the **Select Patient** window for selecting a patient's stored data. See **Figure 1-14**. Selecting a patient from the **Patient List** and clicking on the type of data desired displays the stored data for that patient.

---

**Note** Part of the Web configuration procedure permits specifying which PCs on the hospital's intranet can and cannot access the Server and review patient data

---

**Note** All Philips Patient Monitoring products that operate in a LAN environment undergo industry-standard virus checking as part of the product manufacturing process. If installed as specified, the Information Center will not introduce a virus onto the hospital LAN. In order to allow the level of access desired by users while ensuring viruses do not affect the operation of the Information Center product, it is imperative that hospitals are vigilant in maintaining a virus-free intranet. This is the responsibility of the hospital, not Philips Medical Systems.

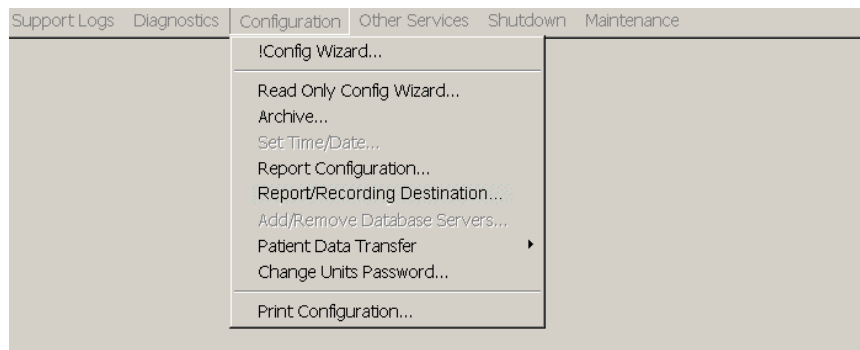
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Multilead ECG Patient Window 12 Lead Review Lead Alarm Review Trend Review Event Review Wave Review ST Review	Patient List			
To view another patient context, select <a href="#">Patient List</a>  To search for a patient, select <a href="#">Find Admitted Patient</a>  To end this	Current User:			
	Current Patient: <b>No patient selected</b>			
	Patients On Server: HPANGFJ			
Bed	First Name	Last Name	MRN	
UNIT_4				
<a href="#">Bed41</a>	No patient admitted			
<a href="#">Bed42</a>	No patient admitted			
<a href="#">Bed45</a>	No patient admitted			
<a href="#">Bed46</a>	No patient admitted			
<a href="#">Bed48</a>	tony	N/A	N/A	
<a href="#">Bed49</a>	No patient admitted			
UNIT_5				
<a href="#">Bed51</a>	No patient admitted			
<a href="#">Bed52</a>	sally	N/A	N/A	

**Figure 1-14 Web Patient Data Selection window**

**Service** A keyboard, mouse are provided with the Server for a variety of **Service** functions (a display is ordered separately) -- system configuration, network maintenance, and troubleshooting. When the Server initializes, an **ENTER PASSWORD** window appears with an **Enter Service Password:** field. Entering the Service Password and clicking OK displays the **Service** window shown in Figure 1-15.

**Notes** The **Service Password** is **m3150**. It is to be used by service personnel who are properly trained and assigned to servicing Philips systems. It is the same **Service Password** as for Information Centers and Clients. All **Service** tools are in **English only**.



**Figure 1-15 Service Window showing the Configuration Menu**

Depending on the operating system, the service applications, when opened, may display over the Main Screen. If this happens, the mouse can be used move the window. Another operating system behavior is to “hide” the application window when it is inactive. If an application is open, but not shown in the screen, press Alt + Tab simultaneously to select the application and bring it to the front.



The **Service Menu** contains the following applications:

- Support Logs that provide information on the operational history and condition of Philips devices and networks.
- Diagnostics tools to help diagnose and troubleshoot Philips system problems for both Philips and Window applications.
- Configuration applications for configuring the network and devices connected to it.
- Other Services that provide Windows configuration tools and remote access capability
- Shutdown for the controlled shutdown of Philips application software and access to the Windows Main Menu.
- Maintenance applications for troubleshooting the network and the connected devices.

Each heading has a menu of application options, as shown in Figure 1-15 for **Configuration**. Clicking on the heading name displays the menu. Items with an arrow (➤) to the right have sub menus.

---

**Note** The **Read Only Config Wizard** application in the **Configuration** menu permits viewing of network and device settings while **all devices are in monitoring mode**, but **settings cannot be changed**.

---

**Configuration** Configuration of the Information Center system hardware and software (including the Network and many of the Network device parameters) is accomplished through a variety of configuration windows. Configuration is facilitated by a **Config Wizard**, which automatically sequences through the configuration windows in the required order. The **Config Wizard** is automatically initiated during installation of software, but it can also be accessed directly from the **Configuration** menu. See Figure 1-15.

---

**Warning** When the **!Config Wizard** runs on the Database Server, all Information Centers and Clients on the Network will reboot and go into local database mode and no patient data will be stored by the Server.

---



---

**Warning** Service Menu items with an exclamation point (!) preceding them only run when the Information Center or Client is in **non-monitoring mode**, during which no patient monitoring can occur.

---

The following types of configurations - system, unit wide, and patient specific - and software aids are described below.

**System Configuration** Configuration applications for system components and applications are accessed from the **Configuration** menu of the **Service** function of Information Center software. Most of these configurations are made during initial software installation using the **Config Wizard** applications.

Help screens are available for each application to assist in the configuration process. The **Config Wizard** is also available from the **Configuration** menu for reconfiguration of specific parameters after initial software installation. Certain configuration applications are *only* available from the **Config Wizard**.

**Patient Monitoring Configuration**

Configuration of patient monitoring applications is also of two types, unit wide default settings and patient specific settings. Unit wide default settings provide clinical configuration settings as default values on a unit wide basis for all patients. These can be overridden by clinical staff, however, to tailor monitoring applications to the needs of a specific patient.

- **Unit Wide Default Settings** - Unit wide default settings are made in the Unit Settings function of the Configuration and Support menu of the All Controls window. This window provides for setting unit wide default values for alarms, patient data review, output devices (recorder, display, sound volume), and telemetry frequencies. As noted earlier, unit wide configuration controls are protected by a Unit Settings Password. Descriptions of unit wide configurations and patient specific configurations are described in the Information Center Instructions for Use.
- **Patient Specific Configurations** - Unit wide default settings and some system configurations can be changed by the clinician to meet the needs of a specific patient using the patient monitoring applications accessed from the All Controls window. Changes in alarm settings, trend groups, stored waves, patient sector displays, equipment assignment, etc. can be made in these applications.

---

**Note**

All patient specific settings return to unit wide default settings when a patient is discharged.

---

**Configuration Archiving and Restoration**

Configuration settings for system and patient monitoring applications can be archived to a floppy disk so they are available to reconfigure the system quickly if they are lost or after software upgrades. These archiving and restoration features are available from the **Configuration** menu in the **Service** function.

**On-Line Help**

To assist users in understanding and using Philips applications, extensive on-line **Help** features are provided. These **Help** screens give detailed descriptions of each application, including how to use its functionality, make configuration settings, and troubleshoot problems. Three types of Help information are available.

**Clinical User Help** is accessed from the **Help** button in the upper right corner of each clinical application. Clicking on the **Help** button brings up a clinical user **Help** window that describes

the application. In many cases there are additional descriptions of words or concepts available by clicking on text in green and underlined. See the **Discharge List** in Figure 1-16.

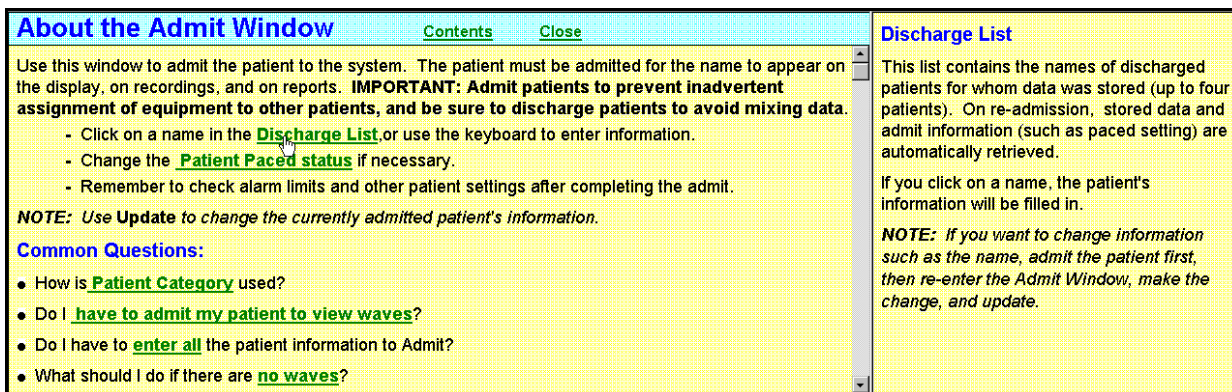


Figure 1-16 Typical Clinical User Help Window

**Service Help** is also available for **Service** applications and provides application descriptions and configuration procedures. As with clinical user help, a **Help** button is provided in the upper right corner of the application window. Help information from this button is for Philips applications only. See Figure 1-17.

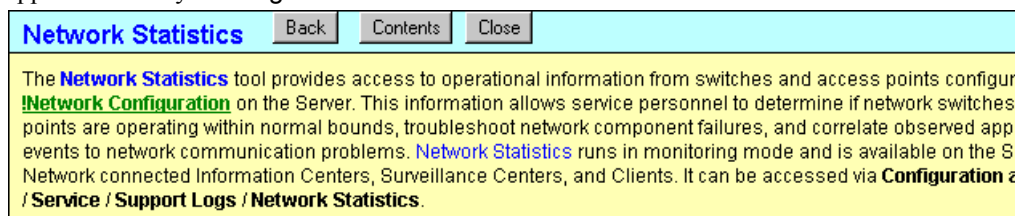


Figure 1-17 Typical Service Application Help Window

**Windows Help** is provided as a standard part of Windows software for applications that are not part of Philips software. These **Help** screens are accessed from the **Help** button in the menu bar in the upper left of the window. See Figure 1-18.

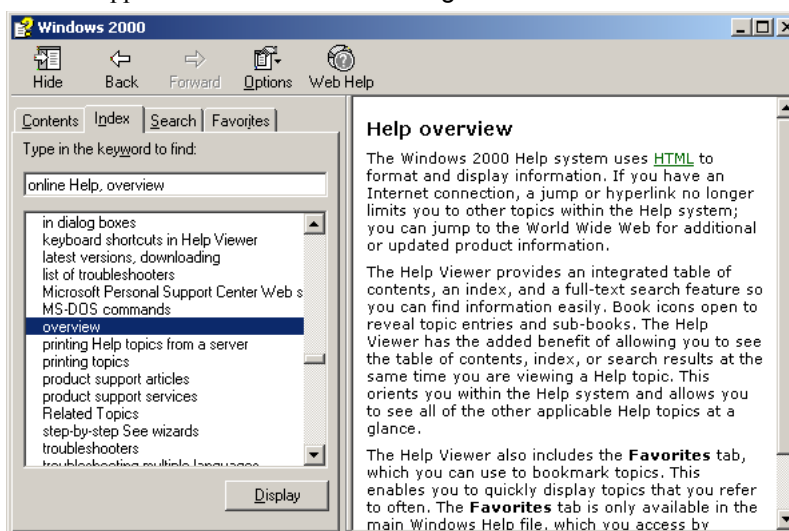


Figure 1-18 Typical Windows Help Window

## Features

These comprehensive on-line Help features provide quick and readily accessible information for understanding and properly using the Information Center's extensive patient monitoring capability when and where it is needed.

## Clinical Applications

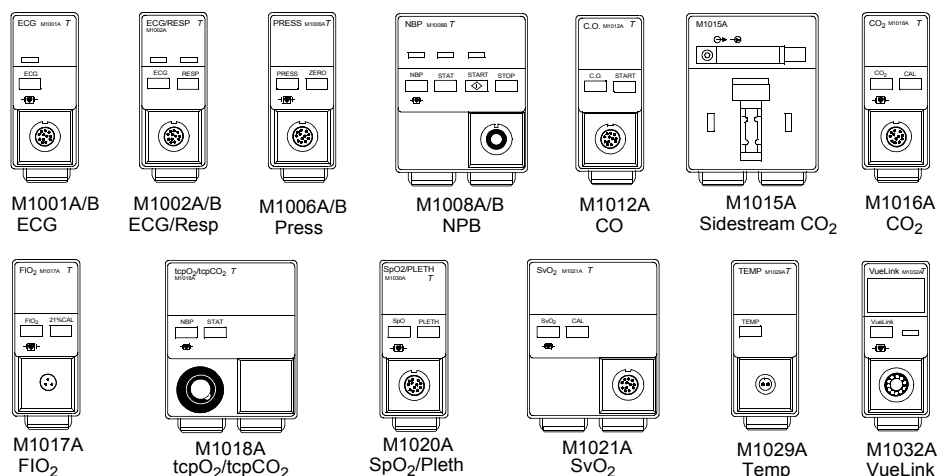
The Information Center is a patient monitoring central station that provides a wide variety of clinical monitoring applications. The primary application is the central display of physiological waveforms and parameters from patients connected to networked bedside and telemetry monitors. Information Center applications derived from these measured data include alarm annunciation, arrhythmia analysis, ST segment analysis (for telemetry monitors), and extensive patient data history review capability.

### Patient Monitoring

Information Center application software provides the display of physiologic waves and parameters for up to 16 patients from bedside and telemetry monitors connected to an Information Center via the CareNet.

#### Typical Plug-in Modules

The Information Center can display the outputs of the variety of Plug-in modules that can be used with Philips' bedside monitoring systems some sample modules are shown below - refer to the Information Center Instructions for Use and to **Table 1-6**.



**Figure 1-19 Typical Plug-in Modules (not inclusive) Used in Philips Bedside Monitoring Systems**

#### Note

VueLink modules provide SDN interfaces with external monitoring devices. There are three VueLink module options, each interfacing with a specific device group:

- Stand-alone parameter devices
- Ventilators
- Gas analyzers

Several external devices are supported within each device group.

**Table 1-6. Typical Philips Plug-in Modules**

Philips Model Number	Module Name	Abbrev.
M1001A/B	Electrocardiogram	ECG
M1002A/B	Electrocardiogram/Respiration	ECG/Resp
M1006A/B	Pressure	P
M1008A/B	Noninvasive Blood Pressure	NPB
M1012A	Cardiac Output	CO
M1015A	Sidestream Carbon Dioxide	CO <sub>2</sub>
M1016A	Carbon Dioxide	CO <sub>2</sub>
M1017A	Fractional Inspired Oxygen	FIO <sub>2</sub>
M1018A	Transcutaneous Partial Pressure of Oxygen and Carbon Dioxide	tcpO <sub>2</sub> /tcpCO <sub>2</sub>
M1020A	Oxygen Saturation/Plethysmography	SpO <sub>2</sub> /Pleth
M1021A	Mixed Venous Oxygen Saturation	SvO <sub>2</sub>
M1029A	Temperature	T
M1032A	VueLink	

**Waves and Parameters** The physiological monitoring capability of the Information Center system is given in the following table. The Philips **Module** column indicates the Plug-In Module source of the data

**Table 1-7. Information Center Patient Monitoring Capability**

Philips Module	Waves	Parameters
ECG	ECG Electrocardiogram	HR Heart Rate
		PVC Premature Ventricular Contraction
		ST ST segment values for up to 6 leads
ECG/Resp	RESP Respiration	RESP Respiration Rate
P	ABP Arterial Blood Pressure	ABP SYS Arterial Blood Pressure - Systolic
		ABP DIAS Arterial Blood Pressure - Diastolic
		ABP MEAN Arterial Blood Pressure - Mean
	ART Arterial Pressure	ART SYS Arterial Pressure - Systolic
		ART DIAS Arterial Pressure - Diastolic
		ART MEAN Arterial Pressure - Mean

**Table 1-7. Information Center Patient Monitoring Capability**

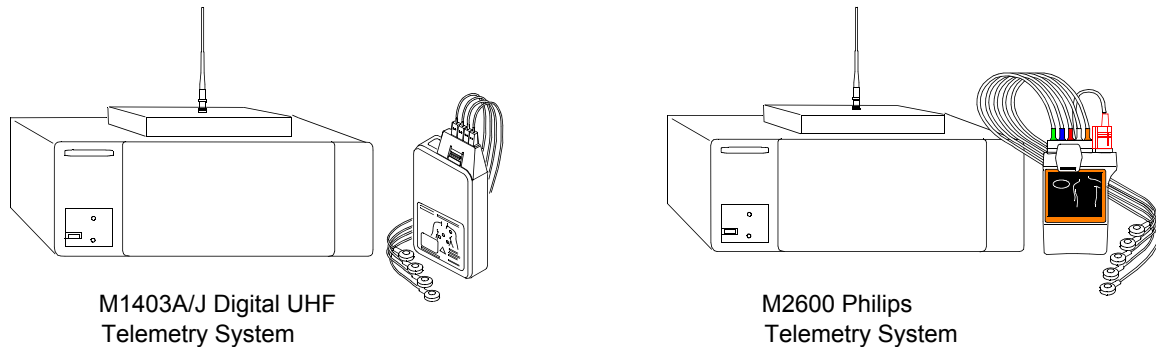
<b>Philips Module</b>	<b>Waves</b>	<b>Parameters</b>
P (cont'd)	PAP      Pulmonary Arterial Pressure	PAP SYS      Pulmonary Arterial Pressure - Systolic
		PAP DIAS      Pulmonary Arterial Pressure - Diastolic
		PAP MEAN      Pulmonary Arterial Pressure - Mean
	AO      Aortic Pressure	AO SYS      Aortic Pressure - Systolic
		AO DIAS      Aortic Pressure - Diastolic
		AO MEAN      Aortic Pressure - Mean
	LAP      Left Atrial Pressure	LAP      Left Atrial Pressure
	RAP      Right Atrial Pressure	RAP      Right Atrial Pressure
	CVP      Central Venous Pressure	CVP      Central Venous Pressure
	ICP      Intercranial Pressure	ICP      Intercranial Pressure
CPP      Cerebral Profusion Pressure		
NBP		NBP SYS      Non-invasive Blood Pressure - Systolic
		NBP DIAS      Non-invasive Blood Pressure - Diastolic
		NBP MEAN      Non-invasive Blood Pressure - Mean
CO		CO      Cardiac Output
		Tblood      Blood Temperature
CO <sub>2</sub>	CO <sub>2</sub> Carbon Dioxide	AWRR      Airway Respiration Rate
		ETCO <sub>2</sub> End tidal Carbon Dioxide
		IMCO <sub>2</sub> Inspired Minimum Carbon Dioxide
FIO <sub>2</sub>		FIO <sub>2</sub> Fractional Inspired oxygen
tcpO <sub>2</sub> / tcpCO <sub>2</sub>		tcp O <sub>2</sub> Transcutaneous partial press. - O <sub>2</sub>
		tcp CO <sub>2</sub> Transcutaneous partial press.- CO <sub>2</sub>
SpO <sub>2</sub> / Pleth	SpO <sub>2</sub> Arterial oxygen saturation	SpO <sub>2</sub> Arterial oxygen saturation
	PLETH      Plethysmogram	PULSE      Pulse Rate
SvO <sub>2</sub>		SvO <sub>2</sub> Mixed venous oxygen saturation
T		T      Temperature
		T1-T2      Temperature difference

**Telemetry Monitoring** The Information Center also displays patient data from Philips Digital Telemetry systems -- M1403A/J Digital UHF Telemetry system (software release E.00 and later) and M2600A Philips Telemetry system. See Figure 1-20.

**Note** The Information Center can monitor up to 16 patients from two Philips telemetry mainframes without a SCC. See **Chapter 2, System Communications Controller**.

The M1403A/J Telemetry system provides ECG monitoring of 2 ECG waves with the ability to view up to 7 leads. M2600A Philips Telemetry provides ECG monitoring of 3 ECG waves of up to 7 leads. The M2600A also provides SpO<sub>2</sub> measurements. ST Segment analysis is

available as an option for both systems, but it is not required when used with the Information Center because the Philips system provides ST Segment analysis of telemetry data as a standard feature.



**Figure 1-20 Telemetry Systems for Information Center Monitoring**

## Alarm Annunciation

Information Center software also provides extensive alarm annunciation capability and flexibility. Alarm events are detected by comparing physiological data against preconfigured limit values. Alarms detected by Information Center software include:

- Arrhythmia alarms (for data from both bedside and telemetry monitors)
- ST Segment alarms (for data from telemetry monitors only)

---

## Note

The Information Center displays alarm events that it detects as well as those generated by networked monitors. However, the Information Center only controls alarm limits and on/off status for alarms that it detects.

---

**Priorities** Information Center software prioritizes alarms into 3 levels of severity:

- **Red** \*\*\* life threatening (e.g. Asystole)
- **Yellow** \*\* alarm limit exceeded (e.g. high heart rate)
- **Cyan** inoperative (INOP) condition (e.g. patient leads off)

**Annunciation** Alarms are announced by the following indicators:

- **Patient Sector turns blue** (Red and Yellow alarms only)
- **Alarm Tone** sounds that indicates the alarm severity (no sound for soft INOPs)
- **Alarm message** is displayed in Patient Sector and Patient Window of the same color as the alarm.
  - For rate alarms, the message indicates:
    - parameter in alarm
    - maximum or minimum value of that parameter
    - alarm limit that was violated (e.g. HR 134>120)
  - For event alarms, the message indicates the event that caused the alarm (e.g. Asystole)



- **ECG recording** is generated for preset periods preceding and following the alarm event (Red and Yellow alarms only)

Figure 1-11 shows a typical Main Screen with patients in alarm. Note that Patient Sector CCU2 has the alarm message \*\*\*TACHY 160>140. Patient Sectors in alarm are backlighted in blue for easy identification, and the alarm message window is backlighted in the color of the alarm severity. For example, the CCU2 message shows a red alarm (\*\*\*) message.

Table 1-8 summarizes the various alarms that can occur, including the corresponding alarm sound, alarm message location, ECG recording generation, and alarm meaning. Alarm messages are described in the **IntelliVue Information Center Instructions for Use**.

**Table 1-8. Information Center Alarm Priorities**

Alarm	Sound	Message	Recording	Meaning
Red (***)	<i>Traditional/CareNet sound:</i> continuous, high-pitch rapid tone <i>IEC/ISO sound:</i> repeated bursts of five rapid high-pitch beeps	On Display with ***	Yes	Life threatening, e.g. AYSTOLE
Yellow (**)	<i>Traditional/CareNet sound:</i> continuous, medium-pitch tone <i>IEC/ISO sound:</i> repeated bursts of three rapid low-pitch beeps	On Display with **	Yes	non-arrhythmia alarm limit violation (except for HR, which is an Arrhythmia alarm)
Yellow (**) Arrhythmia	<i>Traditional/CareNet sound:</i> noncontinuous, medium pitch tone (~10s) <i>IEC/ISO sound:</i> two rapid low-pitch beeps	On Display with **	Yes	Arrhythmia yellow alarm detected
Yellow (**) Nurse Call on Telemetry	<i>Traditional/CareNet sound:</i> noncontinuous, medium pitch tone (~8s) <i>IEC/ISO sound:</i> two rapid low-pitch beeps	On Display with **	Yes	Nurse Call button on telemetry transmitter depressed and system configured to alarm
Hard INOP (*)	<i>Traditional/CareNet sound:</i> continuous, slow low-pitch tone <i>IEC/ISO sound:</i> repeated bursts of two slow low-pitch beeps	On Display with no *	No	Inoperative condition that prevents monitoring, e.g. LEADS OFF, or has direct effect on the patient, e.g. NBP CUFF OVERPRESS
Soft INOP (*)	none	On Display with no *	No	Inoperative condition that prevents signal processing, e.g., NOISY ECG. Monitoring continues during this INOP condition.

## Arrhythmia Monitoring

In addition to patient monitoring, the Information Center system provides arrhythmia monitoring for both bedside and telemetry monitored patients. The multi-lead arrhythmia monitoring algorithm is designed for adult, pediatric, and neonatal patient ECG waveforms

for heart rate and ventricular arrhythmia. Multi-lead arrhythmia monitoring is performed on the user-selected primary ECG lead and the secondary ECG lead.

The following arrhythmia monitoring functionality is provided for both standard models of the Information Center system. For both models, beat annotation and rhythm and ectopic status messages are provided in the **Patient Window**.

**Basic Arrhythmia** **Basic Arrhythmia** functionality includes the basic cardiotech functions of heart rate, PVC rate, beat-to-beat heart rate, and the detection of the following 10 alarms:

- Asystole
- Ventricular fibrillation
- Ventricular tachycardia
- Extreme bradycardia
- Extreme tachycardia
- Pacer not capturing
- Pacer not pacing
- PVC/min
- High heart rate
- Low heart rate

**Enhanced Arrhythmia** **Enhanced Arrhythmia** adds the following 11 alarms to the Basic Arrhythmia functionality.

- Irregular heart rate
- Nonsustained V-Tach
- Supraventricular Tach
- Ventricular Rhythm
- Run PVCs
- Pair PVCs
- R-on-T PVC
- Multiform PVCs
- Pause
- Ventricular bigeminy
- Ventricular trigeminy

Details of the arrhythmia alarms and user interfaces are provided in the **IntelliVue Information Center Instructions for Use**. Details of the arrhythmia algorithm are described in the **Arrhythmia Monitoring Application Note** provided in the Documentation CD-ROM shipped with your system.

## ST Segment Monitoring

The Information Center system also provides ST segment analysis for adult patients monitored via telemetry only. ST segments can be analyzed for up to six leads of ECG monitoring, depending on the type of telemetry monitor and patient cable used, and for both non-paced and atrially paced patients (but not ventricularly paced patients).

# Cable Wires	Philips Telemetry	Digital UHF Telemetry
3	1 lead	1 lead
4		up to 6 leads
5	up to 6 leads	2 leads

---

### Note

ST segment analysis for patients monitored by bedside monitors is performed at the bedside monitor and is not available on the Information Center.

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Details of displayed ST data, ST alarms, and user interfaces are provided in the **IntelliVue Information Center Instructions for Use**. Details of the ST Segment algorithm are described in the **ST Segment Monitoring Application Note** provided on the Documentation CDROM.

## EASI 12-Lead ECG Review and Report

If the bedside or telemetry system has the EASI 12-Lead capability (a method of deriving 12 ECG Leads using 5 electrodes), the clinician can view all available leads from the Patient Window - see table below. In addition, the clinician can request a 12-Lead report. Details of EASI 12-Lead ECG monitoring are provided in the Information Instruction for Use.

## Patient Data Review

The Information Center system has extensive patient data review capability. **Patient Data Review** windows display patient physiological parameters and alarm events that have been collected over time from bedside and telemetry monitors. Review windows can be designed in a variety of formats to facilitate clinician evaluations of patient status and decisions of diagnosis, prognosis, medication, and patient transfer and discharge.

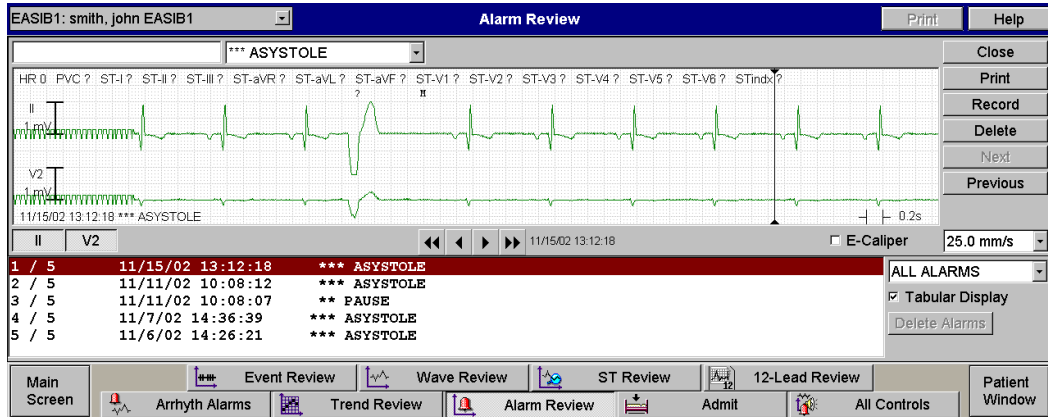
The following review applications are accessible from the **Patient Data Review** buttons in the **All Controls** window.

### Alarm Review

**Alarm Review** shows the alarm events that have been automatically stored during patient monitoring and alarm strips that were saved for each alarm. A typical **Alarm Review** record for a single display is shown in **Figure 1-21**. Stored alarms are those that were configured in **Alarm Management and Setup** and have been stored in the alarm history database during patient monitoring. Up to 50, 30-second alarms can be stored in the standard system and up to 150, 30-second alarms as a purchased option. Each stored alarm includes the date and time, alarm text, and a 30-second compressed waveform. Systems with a single display can display 5 alarm strips, and systems with dual display, 10 alarm strips.

Saved strips are those that are manually saved from **Wave Review**, **Event Review**, or **Alarm Review** windows. These strips are labeled “**Saved**” and can be viewed along with stored alarms. Up to 10 strips can be saved in the standard system and up to 30 for the 150, 30-

second alarm option for the Information Center. Each saved strip contains up to 4, 8-second, uncompressed waveforms and includes the date and time.



**Figure 1-21 Typical Alarm Review Window**

**Trend Review** **Trend Review** displays graphs or tables of patient physiological parameters that have been automatically stored during patient monitoring. A typical **Trend Review** window for a single display is shown in **Figure 1-22**. All parameters stored can be trended. Trends are organized into pre-configured trend groups. Each group can contain up to 10 trends presented two at a time in trend charts with up to 5 bivariate trend plots of 10 parameters per group. One trend uses the left axis and the other the right axis. Data include the parameter name, measurement units, trend plot, scales, and values.

Several different trend presentations are provided, depending on the parameter.

- **Periodic Parameters:** Single-value, periodic, continuously monitored parameters, such as heart rate, are displayed as a single line plot. Triple-value, periodic parameters, such as invasive blood pressure, are shown as 3, single line plots of the same color.
- **Aperiodic Parameters:** Aperiodic, non-continuous parameter presentations depend on the number of values to be shown.
- **Multiple Parameters:** Multiple parameters, such as ST, are presented as separate curves, each of a different color.
- **Discrete Events:** Discrete events, such as VPB count, are histograms.

The time scale of trend plots can be 1, 4, 8, 12, or 24 hours and the vertical scale is changeable. Information Center systems with a single display can display 2 trend plots and

systems with dual display, 5 trend plots. Trend storage of 24 hours is standard with 48, 72, or 96 hours available as options.

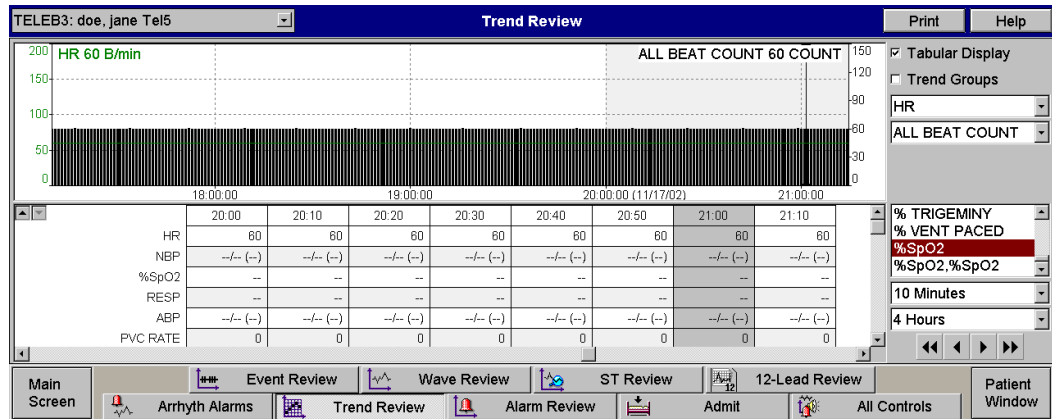


Figure 1-22 Typical Trend Review Window

**Event Review** **Event Review** provides an overview of the frequency and duration of specific events, such as VTach, along with a strip of the waveform during the event. A typical Event Review window is shown in Figure 1-23. Up to 10 event groups can be configured with up to 5 alarm criteria per group. Each event includes the name of the event, its duration, the name and value of the parameter that exceeded its limit, and the time and date. Event bars show the duration of the event and are color coded to represent its severity as follows:

- Red 3-star event \*\*\* most severe
- Yellow 2-star event \*\* medium severe
- Cyan 1-star event not severe

The waveform strip is automatically displayed on the screen for the event bar selected and is updated when the event cursor is repositioned. The total number of occurrences of alarms are calculated and displayed in 1, 4, 12, and 24 hour time scales. Event storage is 24 hours standard with 48, 72 or 96 hours available as options. The waveform strip is 1 hour standard.

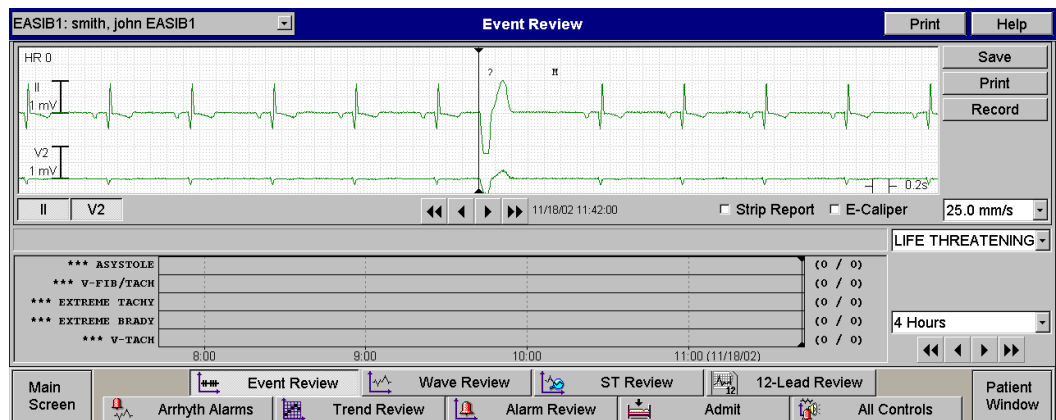


Figure 1-23 Typical Event Review Window

## Upgrades

The Information Center software can be upgraded from earlier releases. “Upgrade Options” on page 1-45 lists the upgrades. This section lists the requirements for software upgrades to release E.01.

### Memory Requirements

The following memory upgrades are required when upgrading from an earlier release to release E.01.

**Table 1-9. M3150/3155 Memory Requirements**

Model	Memory Requirement	Memory Upgrade
Vectra VL400	384 MB	M3150BU #C49; P1538-63010
Vectra VL420	384 MB	M3150BU #C55; P1537-63010

**Table 1-10. M3151 Memory Requirements**

Model	Memory Requirement	Memory Upgrade
Vectra VL400	192 MB	M3150BU #C48; P1536-63010
Vectra VL420	192 MB	no upgrade required

**Table 1-11. M3154 Memory Requirements**

Model	Memory Requirement	Memory Upgrade
LC2000 Netserver	384 MB	M3150BU #C52; D8265-63001

### Hard Disk Requirements

The following hard disk upgrades are required when upgrading from an earlier release to release E.01.

**Table 1-12. M3150 Hard Disk Requirements - VL400/420/D510**

EASI	Full Disclosure	Req'd Disk Space (GB)	Supported	Upgrade
Yes	24	11	Yes	No Upgrade Needed
Yes	48	14	Yes	No Upgrade Needed
Yes	72	17	Yes	No Upgrade Needed
Yes	96	20	Yes	No Upgrade Needed
	24	9	Yes	No Upgrade Needed
	48	11	Yes	No Upgrade Needed

**Table 1-12. M3150 Hard Disk Requirements - VL400/420/D510**

EASI	Full Disclosure	Req'd Disk Space (GB)	Supported	Upgrade
	72	12	Yes	No Upgrade Needed
	96	13	Yes	No Upgrade Needed

**Table 1-13. M3169 Hard Disk Requirements - D510**

EASI	Full Disclosure	Req'd Disk Space (GB)	Supported	Upgrade Req'd
Yes	24	17	Yes	No Upgrade Needed
Yes	48	27	Yes	No Upgrade Needed
	24	12	Yes	No Upgrade Needed
	48	17	Yes	No Upgrade Needed

**Table 1-14. M3154 Hard Disk Requirements - LC2000/ML370 (A02 & A04)**

EASI	# IICs	Full Disclosure	Req'd Disk Space (GB)	Supported	Drive Configuration Req'd (GB)
Yes	2-4	24	21	Yes	3x18 or 3x18/36 <sup>a</sup>
Yes	2-4	48	34	Yes	3x18 or 3x18/36
Yes	2-4	72	47	Yes	4x18 or 4x18/36
Yes	2-4	96	60	Yes	5x18 or 5x18/36
	2-4	24	15	Yes	3x18 or 3x18/36
	2-4	48	20	Yes	3x18 or 3x18/36
	2-4	72	26	Yes	4x18 or 4x18/36
	2-4	96	32	Yes	4x18 or 4x18/36

a. 18/36 is a combination of both 18 and 36GB drives in the same hot swap card cage formatted as 18GB drives.

**Table 1-15. M3154 Hard Disk Requirements - LC2000/ML370 (A06)**

EASI	# IICs	Full Disclosure	Req'd Disk Space (GB)	Supported	Drive Configuration (GB)
Yes	6	24	28	Yes	3x18 or 3x18/36
Yes	6	48	47	Yes	4x18 or 4x18/36

**Table 1-15. M3154 Hard Disk Requirements - LC2000/ML370 (A06)**

EASI	# IICs	Full Disclosure	Req'd Disk Space (GB)	Supported	Drive Configuration (GB)
Yes	6	72	66	Yes	5x18 or 5x18/36
Yes	6	96	85	Yes	6x18 or 6x18/36 or 4x36 <sup>a</sup>
	6	24	18	Yes	3x18 or 3x18/36
	6	48	26	Yes	3x18 or 3x18/36
	6	72	35	Yes	3x18 or 3x18/36
	6	96	43	Yes	4x18 or 4x18/36

a. if four 36 GB drives are used, all 36 GB drives must be removed and the RAID configuration must be re-initialized as 36 GB drives and OS and application software must be reinstalled.

**Table 1-16. M3154 Hard Disk Requirements - LC2000-ML370 (A08)**

EASI	# IICs	Full Disclosure	Req'd Disk Space (GB)	Supported	Drive Configuration (GB)
Yes	8	24	35	Yes	3x18 or 3x18/36
Yes	8	48	60	Yes	5x18 or 5x18/36 <sup>a</sup>
Yes	8	72	85	Yes	6x18 or 6x18/36 or 4x36 <sup>b</sup>
Yes	8	96	110	Yes	5x36 (no 18GB drives supported)
	8	24	21	Yes	3x18 or 3x18/36
	8	48	32	Yes	3x18 or 3x18/36
	8	72	43	Yes	4x18 or 4x18/36
	8	96	55	Yes	4x18 or 4x18/36

a. Existing D.0/D.01/E.0 Database server systems with A08 and C07 options required four 18GB drives. Release E.01 requires **five** 18GB drives with these same options.

b. If four 36GB drives are used, all 18GB drives must be removed and the RAID configuration must be re-initialized and the OS and application software reinstalled.

**BIOS Requirements** Release E.01 requires specific BIOS **versions** for the VL420 and VL400 PCs. These are listed below. To upgrade the BIOS, refer to the instructions in “Updating BIOS” on page 7-119. If



the BIOS floppy disk is lost or has failed, a new one can be made. Refer to “Recreating Information Center BIOS Disk” on page 7-145.

**Table 1-17. Release E.01 BIOS Version Requirements - VL420/VL400**

<b>Platform</b>	<b>BIOS Version</b>
VL420	JA.01.04US
VL400	IP.01.08US

## Components and Options

Database Server systems can include 2 models of Information Center -- M3150 Information Center and M3151 Information Center Client -- in addition to the Database Server, and a selection of M3185 Clinical Network components (switches, repeaters, media translators, and cabling).

Components are offered as **Basic Systems**, which include the workstations and minimum software capability required for Patient Care Network operation, and a variety of **Options** to tailor the system to specific hospital requirements.

### Basic Systems

**Basic hardware components and software capability** of Information Centers, Clients, and the Database Server are given in the following table:

**Table 1-18. Basic Hardware and Software for Information Center Systems**

Hardware Description	M3150/M3155	M3151	M3170	M3154	M3169
Processing Unit	Workstation	Workstation	Workstation	Server	Workstation
with: Floppy disk and CD ROM drives	Yes	Yes	Yes	Yes	Yes
Hard drive memory	20 GB	20 GB	20 GB	3 @ 18.2 Gbyte each	40 GB
RAM	384 MB	192 MB	384 MB	384 MB	384 MB
Audio card	Yes	Yes	Yes	No	No
SDN Interface card	Yes	Yes	Yes	No	No
10/100 Mb/s Ethernet Interface Card	Yes	Yes	Yes	Yes	Yes
Modem (US Canada Only)	No	No	No	Yes	No
Keyboard and mouse	Yes	Yes	Yes	Yes	Yes
Uninterruptible Power Supply (UPS)	650 VA	650 VA	650 VA	1000 VA	650 VA
Philips Recorder and Rack with 60V power supply	Yes	Yes	Yes	No	No
Speaker (external)	Yes	Yes	No	No	No
Isolation Transformer (Japan only)	Yes	No	Yes	No	No
<b>Software Description</b>					
Windows Operating System software	Workstation	Workstation	Workstation	Server	Server
Philips applications software including:	Yes	Yes	Yes	Yes	Yes
Patient Monitoring for # patients up to:	4, 6, 8, 12, 16	n/a	4, 6, 8, 12, 16	n/a	n/a
Patient Data Storage for # patients up to:	4, 6, 8, 12, 16	n/a	n/a	128	48
Patient Data Review for # patients up to:	4, 6, 8, 12, 16	4, 6, 8, 12, 16	n/a	128	48
Display of up to 4 waveforms per patient	Yes	Yes	Yes	n/a	n/a
Multi-lead arrhythmia analysis with 22 alarms	Yes	n/a	Yes	n/a	n/a
ST Segment analysis	Yes	n/a	Yes	n/a	n/a



**Table 1-19. Purchased Options for Philips Systems**

Option	Description	M3150/ M3155	M3151	M3170	M3154	M3169
316	12-Lead Analysis/Export for 16 beds	Yes	No	No	n/a	n/a
C20	Network Connectivity with Database Server	Yes	n/a	No	n/a	n/a
C22	Large Network/Web Server	No	No	No	Yes	No
C23	Export data to Holter	Yes	No	No	Yes	No

**2 Channel Recorder Options**

The following recording options are available. Ordered under Product # 862083.

**Table 1-20. M1116B Purchased Option for Recorder**

Option	Description	M3150	M3155	M3151	M3170
A01	One Recorder	Yes	Yes	Yes	Yes
A02	Two Recorders	Yes	Yes	Yes	Yes
A03	Three Recorders	Yes	Yes	Yes	Yes

**4 Channel Recorder Options**

The following 4 Channel Recorder is available (in limited geographies) for Philips systems to provide additional recording capability. Ordered under Product # M3160A.

**Table 1-21. 4 Channel Recorder**

Product	Description	M3150/ M3155	M3151	M3170
M3160A	4 Channel Recorder	Yes	Yes	Yes
PSE11268	4 Channel Recorder paper, package of 24 rolls	Yes	Yes	Yes

**Display Options**

The following displays are available for Philips systems to provide display capability. Order the model number indicated.

**Note**

Displays are sold separately. Philips will not install displays not supplied by Philips and cannot guarantee their compliance with ANSI/AAMI EC-13 or the EMC Directive.

**Table 1-22. Display Models for Information Center Systems**

Product	Description	M3150/ M3155	M3151	M3154	M3169
M3161	Medium Display	Yes	Yes	Yes	Yes
M3162	Large Display	Yes	Yes	Yes	Yes
862100	Medium Flat Panel Display	Yes	Yes	No	No
862428	Medium Touch Flat Panel Display	Yes	Yes	No	No
862103	Large Flat Panel Display	Yes	Yes	No	No

**Upgrade Options**

The following options are available to upgrade Information Center systems to higher functionality after they have been purchased. **Upgrade options** are ordered under Product# **M3150BU**.

**Note**

A Customer Engineer must install upgrade options after they have been purchased and configure Information Centers to upgrade functionality.

**Table 1-23. Upgrade Options for Information Center Systems**

Option	Description	M3150/ M3155	M3151	M3170	M3154	M3169
<b>C01</b>	Dual Display Capability	Yes	Yes	No	No	No
<b>C03</b>	Storage of 150, 30 s alarm records and saved strips	without Database Server only	Set on Database Server	Yes	No	No
<b>C04</b>	24 hour storage of Full Disclosure waves			Yes	No	No
<b>C05</b>	48 hour storage of Full Disclosure waves			Yes	No	No
<b>C12</b>	Add 24 Hour EASI Full Disclosure	Yes	No	No	No	No
<b>C13</b>	Upgrade of 24 hour to 48 hour storage of EASI Full Disclosure (without Database Server only)	Yes	n/a	Yes	No	No
<b>C14</b>	Add HL7 Export	Yes	No	Yes	n/a	n/a
<b>C17</b>	Add 12-Lead Analysis/Export	Yes	No	n/a	n/a	n/a
<b>304</b>	12-Lead Analysis/Export for 4 beds	Yes	No	No	n/a	n/a
<b>306</b>	12-Lead Analysis/Export for 6 beds	Yes	No	No	n/a	n/a
<b>308</b>	12-Lead Analysis/Export for 8 beds	Yes	No	No	n/a	n/a
<b>312</b>	12-Lead Analysis/Export for 12 beds	Yes	No	No	n/a	n/a
<b>316</b>	12-Lead Analysis/Export for 16 beds	Yes	No	No	n/a	n/a
<b>98980313 4801</b>	E.00 Software Upgrade	Yes	Yes	n/a	Yes	Yes
<b>98980313 4811</b>	E.01 Software Upgrade M3150/51/55/69/70	Yes	Yes	n/a	n/a	Yes
<b>98980313 4821</b>	E.01 Software Upgrade M3154	n/a	n/a	n/a	Yes	n/a
<b>C22</b>	Add Large Network/Web Server	No	n/a	No	Yes	No
<b>C23</b>	Add capability to Holter System for data export (Database system only)	No	No	No	Yes	Yes
<b>C25</b>	Add 2 M3155 Information Center connectivity to M3154 Database Server	Yes	No	No	Yes	No
<b>C35</b>	Add 36 GBit Disk Drive for LC 2000 Database Server	n/a	n/a	n/a	Yes	n/a
<b>C42</b>	Monitoring capability for 2 additional patients	Yes	Yes	No	n/a	n/a
<b>C44</b>	Monitoring capability for 4 additional patients	Yes	Yes	No	n/a	n/a
<b>C45</b>	Add 256MB memory to Vectra VL400	Yes	Yes	n/a	n/a	n/a
<b>C48</b>	Add 64 Mb memory to Vectra VL400 PCs (required for 12-16 patients with Server and 16 patients without Server)	Yes	Yes	n/a	n/a	n/a
<b>C49</b>	Add 256 Mb memory to Vectra VL400/420 PCs	Yes	Yes	n/a	n/a	n/a
<b>C52</b>	Add 128 Mb memory to LC2000 Database Server	n/a	n/a	n/a	Yes	n/a

**Table 1-23. Upgrade Options for Information Center Systems**

Option	Description	M3150/ M3155	M3151	M3170	M3154	M3169
C55	Add 128MB memory to Vectra VL420	Yes	Yes	n/a	n/a	n/a
C56	Add 36 Gbit Disk Drive to ML370 Database Server	n/a	n/a	n/a	Yes	n/a
862096	2-Way Video Splitter for 1 remote display	Yes	Yes	n/a	No	No
862097	6-Way Video Splitter for 5 remote displays	Yes	Yes	n/a	No	No
862098	Keyboard-Video-Mouse Switch	Yes	Yes	n/a	No	No
862099	650VA Uninterruptible Power Supply (UPS)	Yes	Yes	Yes	n/a	n/a
98980313 1451	Upgrade 24 hour to 48 hour CER to M3150B	Yes	No	No	No	No
98980313 1461	Upgrade 24 hour to 48 hour CER to M3154B	No	No	No	Yes	No
98980313 1471	Upgrade 24 hour to 48 hour CER to M3169	No	No	No	No	Yes
98980313 1481	Upgrade 24 hour to 72 hour CER to M3150B	Yes	No	No	No	No
98980313 1491	Upgrade 24 hour to 72 hour CER to M3154B	No	No	No	Yes	No
98980313 1501	Upgrade 24 hour to 96 hour CER to M3150B	Yes	No	No	No	No
98980313 1511	Add 96 hour CER to M3154B	No	No	No	Yes	No
98980313 1521	Add EASI Full Disclosure to M3150B	Yes	No	No	No	No
98980313 1531	Add EASI Full Disclosure to M3154B	No	No	No	Yes	No
98980313 1541	Add EASI Full Disclosure to M3169	No	No	No	No	Yes
98980313 1551	Add Alert Data Export	Yes	No	No	Yes	Yes
98980313 1561	Add 1 M3155 Connectivity to M3169	No	No	No	No	Yes
98980313 1571	Add 2 Patient capability to M3170 Patient Link	No	No	Yes	No	No
98980313 1581	Upgrade 48 hour to 72 hour CER to M3150B	Yes	No	No	No	No
98980313 1591	Upgrade 48 hour to 72 hour CER to M3154B	No	No	No	Yes	No
98980313 1601	Upgrade 48 hour to 96 hour CER to M3150B	Yes	No	No	No	No
98980313 1611	Upgrade 72 hour to 96 hour CER to M3154B	No	No	No	Yes	No
98980313 1211	M3168BU Server Upgrade	No	No	No	Yes	No

**Table 1-23. Upgrade Options for Information Center Systems**

Option	Description	M3150/ M3155	M3151	M3170	M3154	M3169
98980313 1301	M3167BU PC Upgrade	Yes	Yes	Yes	No	Yes
98980313 1311	Trackball	Yes	Yes	No	No	No

## Printer Options

**Printer options** available for Information Center systems provide printing capability. They are ordered under Product # **M3159A**.

**Table 1-24. M3159 Printer Options for Information Center Systems**

Option	Description	M3150/ M3155	M3151
<b>A01</b>	LaserJet Printer	Yes	Yes
<b>A02</b>	LaserJet Printer with connectivity to the Network. Includes JetDirect Card.	Yes	Yes
<b>H21</b>	Printer Hub for connecting 4 Information Centers to one LaserJet Printer. Cables ordered separately	Yes	No

## Mounting Options

The following **mounting options** are available for Information Centers and Clients to provide flexibility in mounting components to walls and ceilings.

The following options are ordered under Product # **M1180A**.

**Table 1-25. M1180A Mounting Options for Information Center Systems**

Option	Description	M3150	M3151
<b>A08</b>	Wall Mount for medium CRT display	Yes	Yes
<b>A09</b>	Ceiling Mount for medium CRT display	Yes	Yes
<b>A19</b>	Wall Mount for large CRT display	Yes	Yes
<b>A20</b>	Ceiling Mount for large CRT display	Yes	Yes
<b>A33</b>	Wall Mount for Isolation Transformer - medium CRT display Japan	Yes	No

The following options are ordered under Product # **M3180A**.

**Table 1-26. M3180A Mounting Options for Information Center Systems**

Option	Description	M3150	M3151
<b>A05</b>	Swivel Mount (270°) for medium & large CRT displays	Yes	Yes
<b>A08</b>	Under Table Drawer for keyboard	Yes	Yes
<b>A09</b>	Table Top Garage for keyboard	Yes	Yes
<b>A10</b>	Wall Mount for Power Distribution Module (Japan)	Yes	Yes
<b>A11</b>	Wall Mount for UPS	Yes	Yes
<b>A13</b>	Wall Mount for large flat panel display	Yes	Yes
<b>A15</b>	Wall Mount for VL400PC	Yes	Yes
<b>A16</b>	17" Display adapter plate	Yes	Yes
<b>A17</b>	21" Display adapter plate	Yes	Yes
<b>A18</b>	Wall Mount for D510 desktop workstation	Yes	Yes

**Clinical Network Active Components**

Clinical Network active components are ordered under Product # **M3185A**

**Table 1-27. Active Components for M3185 Clinical Network**

Option	Description
C01	Core Switch
C02	Edge Switch
C03	Extension Switch
C05	10 Mbit/s UTP repeater
C07	100-FX SC Transceiver (Fiber Port) for the Core and Edge Switches
C10	10 Mbit/s media translator pair
C11	100 Mbit/s media translator
C21	Wireless Access Point
C36	Harmony Access Point Controller
C37	Harmony Access Point
C38	Harmony Remote Power Supply
C39	Harmony Access Point over LAN Module
C41	Bedside Wireless Adapter

**Cabling Installation Materials**

Cabling installation materials are ordered under Product # **M3199AI**.

**Table 1-28. M3199AI Passive Components for M3185 Clinical Network**

Option	Description
<b>UTP Cable</b>	
P01	305 m (1000 ft.) Unshielded Twisted Pair (UTP) plenum cable (Cat. 5, Orange)
<b>Patch Cables</b>	
J10	0.9 m (3 ft.) UTP Patch Cable
J11	2 m (7 ft.) UTP Patch Cable
J12	3.7 m (12 ft.) UTP Patch Cable
J20	3.7 m (12 ft.) UTP Crossover Cable
J21	0.9 m (3 ft.) UTP Crossover Cable
J30	3.0 m (9.8 ft.) Fiber Optic Patch Cable - ST/ST
J31	3.0 m (9.8 ft.) Fiber Optic Patch Cable - SC/SC
J32	3.0 m (9.8 ft.) Fiber Optic Patch Cable - ST/SC
<b>Access Point Antenna Extensions</b>	
A20	0.9 m (3 ft.) Access Point antenna extension
A21	3.0 m (10 ft.) Access Point antenna extension
<b>Patch Panel Kits</b>	
A01	24-Port Patch Panel Kit
A05	Patch Panel Wall Mount Kit
<b>Wall Mount Kits</b>	
A10	Dual Port, single gang, RJ-45 UTP Wall Box Kit (US only)
A11	Dual Port, single gang, RJ-45 UTP Surface Mount Kit
A12	Quad Port, dual gang, RJ-45 UTP Wall Box Kit (US only)
A13	Quad Port, dual gang, RJ-45 UTP Surface Mount Kit



## Cable Options

**Cable options** are available for interconnecting components. Philips devices come with standard length cables, but other lengths are available.

Cable options for Philips systems are ordered under Product # **M3181A**.

**Table 1-29. M3181A Cable Options for Philips Systems**

Option	Description	Length (m)	Length (ft)
A01	LaserJet 6P printer cable (standard) - IEEE 1284	3.0	9.8
A02	LaserJet 6P printer cable (option) - IEEE 1284	10	32.8
A03	Workstation to Printer Spooler cable - IEEE 1284	3	9.8
A04	Workstation to Printer Spooler cable - IEEE 1284	10	32.8
A05	Workstation to Keyboard/Mouse switch data cable	1.8	6.0
A06	Parallel Printer cable for LaserJet Printer - IEEE 1284	3	9.8
A10	Extended distance cable kit (includes cables for display, mouse, keyboard, and recorder rack)	approx. 6.0	approx. 19.7
A11	15-Pin Mini D-Sub Male to 5 BNC coax adapter cable	1.0	3.3
A12	15-Pin Mini D-Sub Male to 5 BNC coax adapter cable	5.0	16.4
A13	Video extension cable	5.0	16.4
A14	Keyboard/Mouse extension cable	4.0	13.1
A15	UPS cable to Workstation (option) or Server (standard)	1.0	3.3
A16	UPS cable to Workstation (standard) or Server (option)	2.0	6.6
A17	5 BNC to 5 BNC video coax adapter cable	3.0	9.8
A30	SDN cable from wall box to M3150 Workstation (std.)	2.0	6.6
A31	SDN cable from wall box to M3150 Workstation (opt.)	4.0	13.1
A33	Recorder/Rack power supply cable to M3150/51 Workstation (std)		
	Recorder/Rack cable	3.0	9.8
A34	Recorder/Rack power supply cable to M3150/51 Workstation (option)		
	Recorder/Rack cable	6.0	19.7
A35	Recorder/Rack power supply cable to M3150/51 Workstation (option)		
	Power Supply cable	1.0	3.3
A35	LDC cable kit to M3150 workstation	15.0	50
A36	SDN 9-pin D from SDN Card to standard CAT 5 UTP faceplate (RJ-45 cable)	2.0	6.6
A37	SDN 9-pin D from SDN Card to standard CAT 5 UTP faceplate (RJ-45 cable)	4.0	13.1

Cable options for the Remote Slave Display are ordered under Product # **78599AI**.

**Table 1-30. 78599AI Cable Options for Remote Slave Display**

Option	Description	Length
P35	75-Ohm Video Plenum Coax Cable	Order to Length
J89	Connector Kit for Plenum Cable (10 BNC Connectors)	
C62	75-Ohm Video Non-Plenum Coax Cable	152 m (500 ft.) roll
C63	75-Ohm Video Non-Plenum Coax Cable	305 m (1000 ft.) roll
J87	Connector Kit for Non-Plenum Cable (5 BNC Connectors)	

**SDN  
Installation  
Materials**

The following materials are available for installing a Serial Distribution Network connection for the Information Center system using Ethernet Category 5, Unshielded Twisted Pair (UTP) cable. SDN options using UTP cable are ordered under Product Number **M3199AI**.

**Table 1-31. M3199AI SDN Options using UTP Cable**

Option	Description	Length (m)	Length (ft)
A01	24 port patch panel kit		
A05	Patch panel wall mount kit		
A10	Dual port UTP wall box kit		
A11	Dual port UTP surface mount kit		
A12	Quad port UTP wall box kit		
A13	Quad port UTP surface mount kit		
J09	UTP patch cable	0.3	1.0
J10	UTP patch cable	0.91	3.0
J11	UTP patch cable	2.1	7.0
J12	UTP patch cable	3.7	12.0
P01	UTP plenum cable	304	1,000

**Note**

Part Numbers for components and options are provided in the Information Center **Replaceable Parts List**.

**Language  
Options**

Philips system software and workstation and server keyboards are available in the following languages. The desired language for both software and keyboard should be specified at time of purchase.

- English
- French
- Dutch
- German
- Italian
- Spanish
- Portuguese
- Swedish
- Norwegian
- Finnish
- Danish
- Greek
- Polish
- Russian
- Czech
- Japanese
- Simplified Chinese
- Traditional Chinese

**Note**

Alarm/inop messages for M3/M4/IntelliVue Patient Monitors and User Help text for non-western character sets - Greek, Polish, Russian, Czech, Japanese, Chinese - are displayed, recorded, and printed in **English only**. Service applications and Help text are in **English only**.

# Hardware Description

## Overview

The IntelliVue Information Center system consists of proprietary M3290A Information Center Release E.01 software executing on Workstations and Servers running Windows Operating System software. To fully understand, utilize, and maintain these systems, support personnel should be familiar with Workstation and Server functionality and Windows Operating Systems. Only brief descriptions of these subjects are given in this manual.

Resources for learning about Windows Workstations and Servers are available from a variety of sources. However, hardware and software are rapidly evolving and new documentation and training programs change frequently. Support personnel assigned to service Server systems are encouraged to keep abreast of training and documentation and maintain the skills and understanding necessary for effective service.

**Chapter 2** overviews Database Server hardware in the following sections.

System Components .....	page 2-2
Mounting .....	page 2-29
Specifications .....	page 2-48
Regulatory .....	page 2-56

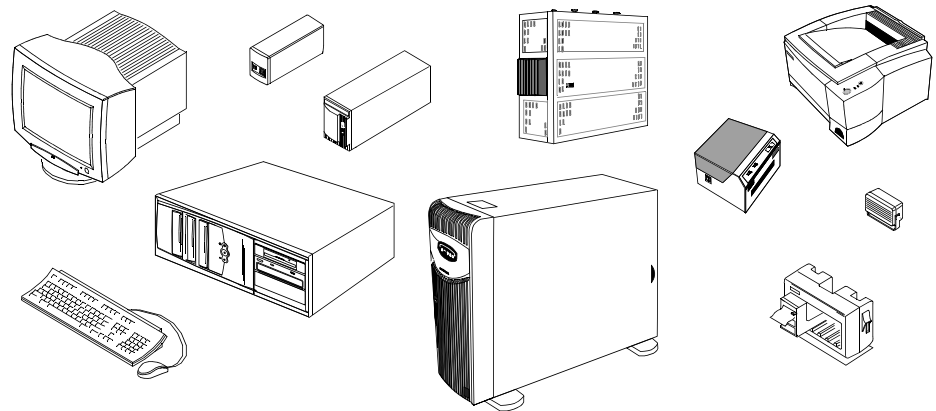


Figure 2-1 Information Center System Hardware

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## System Components

Hardware components of IntelliVue Information Center systems are primarily industry standard equipment tailored to IntelliVue Information Center applications. Exceptions are the SDN interface card and Philips Recorder system (2-channel and optional 4-channel recorders), which are Philips units designed specifically for medical data presentations.

Hardware components can change frequently as newer models with improved cost and performance specifications become available. Therefore, this section provides only general descriptions of Philips hardware and illustrates typical units supplied at the date of the manual's printing. Documentation on specific units shipped with individual orders is provided with the unit. Additional documentation on PC workstations and LaserJet printers is provided in the **IntelliVue Information Center Service Documentation CD-ROM**.

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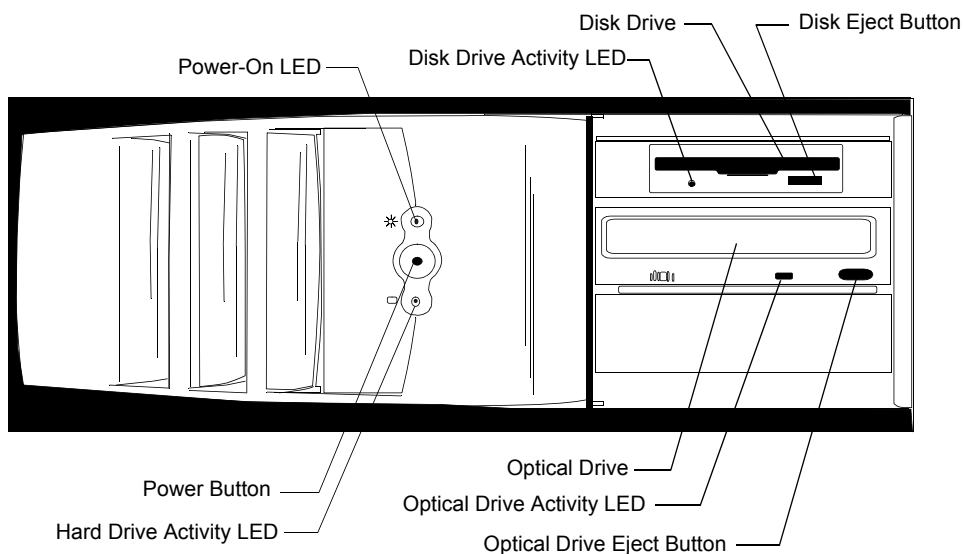
### Warning

**Hardware and software products (including PCs, Servers, and network infrastructure) not supplied by Philips as part of an Information Center system are not approved or supported by Philips for use with Information Center and Clinical Network/Database Server systems.**

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### PC Workstations

IntelliVue Information Center software is designed to operate on PC workstations specifically tailored for Philips applications. The Information Center currently utilizes the **D510 PC Workstation** shown in Figure 2-2, where the principal features of the front panel are identified.



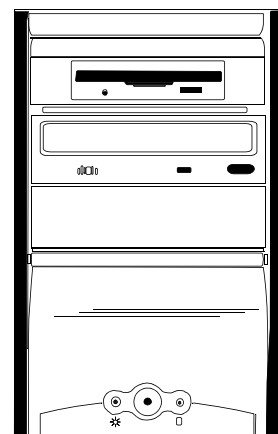
**Figure 2-2 D510 PC Workstation Front Panel**

**Note**

The D510 PC is shipped as a Desktop unit but it can be reconfigured as a Minitower.

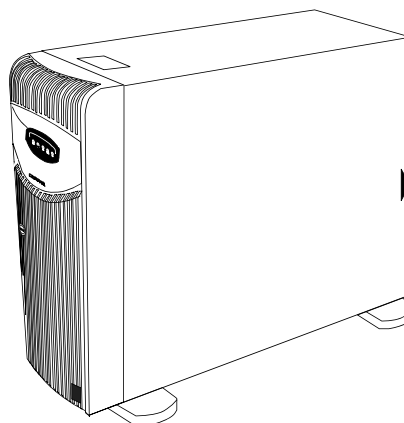
For procedures for reconfiguring it as a Minitower, refer to the Information Center documentation CDROM, **Hardware Reference Guide, Convertible Minitower Models**.

When reconfiguring it as a Minitower, the **Disk Drive and Optical Drive must be rotated to be horizontal**, as shown opposite.



### **M3154 Database Server**

M3154 Database Server software is designed to operate on Servers specifically tailored for Philips applications. The M3154 Database Server uses the **ML370** shown in Figure 2-3.



**Figure 2-3 ML370 Server**

Following is a brief description of the features and components of the IntelliVue Information Center system:

**Mouse/Trackball** Point and click capability for activating buttons and other control features on Philips screens is achieved with a standard computer interface mouse or trackball. The mouse is provided as standard equipment, but a trackball can be ordered as a purchased or upgrade option. See **Components and Options**.

**Keyboard** The keyboard is a standard computer interface keyboard and is used to enter patient and other information into the database via Philips software application windows. Language keyboards are provided for each of the language options supported by Philips software. See **Language Options**.

## System Components

<b>Display</b>	Displays are ordered separately.
<b>Computer Memory</b>	192 to 384 Mbytes of RAM are required to run Philips Information Center software applications.
<b>Hard Drive</b>	The M3154 Database Server has 3 hard drives, each with a capacity of at least 18.2 Gbytes, which is sufficient for monitoring data for 96 patients from 4 Information Centers. Additional disk drives are required for added capabilities (when more than 4 Information Centers and more than 96 patients are desired - see “Purchased Options” on page 1-43).
<b>Monitoring LAN</b>	A 10BaseT/100BaseTX Ethernet network adapter is provided for connection of the IntelliVue Information Center to an Ethernet LAN or for connecting a Printer via a Printer Hub (e.g. Printer Hub permits up to 4 Local Database Information Centers to use a single HP LaserJet printer). It also allows the Information Center or Database Server connection to a Clinical Network switch. The Network connection is via UTP Category 5 cable with a speed of 100 Mbit/s.
<b>Hospital LAN Card</b>	A second 10BaseT/100BaseTX Ethernet network adapter card (2nd NIC) is provided for systems that require a second NIC card for connection to the Hospital LAN (e.g. Large Network/Web Access, HL7 Interface). This card interconnects the device to the hospital’s internet. The Network connection also uses UTP Category 5 cable and has a speed of 100 Mbit/s.
<b>SDN/Recorder Interface Card</b>	The processing unit also includes an SDN/Recorder Interface Card to provide the interface between signals on the SDN and the computer’s central processing unit and for communication to and from the Philips 2-Channel Recorder.
<b>Audio Card and Speaker</b>	The processing unit has an audio card for powering an external speaker to annunciate audio alarms. The external speaker should be located where it can be heard by clinicians.
<b>CD ROM Drive</b>	The Server processing unit includes a standard Compact Disk (CD) drive for installing Windows Operating System and Philips application software.
<b>Floppy Disk Drive</b>	The Server processing unit also includes a standard floppy disk drive that accepts standard 3 1/2” diskettes. It is intended for software installation and archiving clinical and system configuration settings and Service Log information.
<b>Video Card</b>	For dual display installations, another video card may be required. This is installed in the factory if the dual display option is a purchased option, but must be installed by a Philips customer engineer if an upgrade option. The <b>Dual Display Upgrade Installation Note</b> provided with the option describes the installation procedure. Installation of a dual display card in a single display system is not allowed.

**Modem** A modem is provided for linking the Server to an external telephone line. This permits access to the Database Server for system troubleshooting by service personnel distant from the installation. An analog modem is standard for **M3154 US and Canadian installations only**. In other countries, the customer is responsible for selection, purchase, installation, configuration, and maintenance of an external modem. Customer supplied external modems are also supported on PCs. For recommended external analog modem specifications see **Specifications** on page 2-53.

**RAID 5** The M3154 Database Server utilizes RAID (Redundant Array of Independent Disks) technology to assure fault tolerant data collection and storage in the event of disk failure. Data are written to multiple disks simultaneously to provide data storage redundancy. The M3169 Small Database server does not use RAID.

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**Note** For IntelliVue Information Centers with one display, only one Video connector is present and the Main Screen Display is plugged into this Main Display connector. For IntelliVue Information Centers with two displays, a Video Card is used for both the Main Display and the Second display. Refer to Figure 2-4

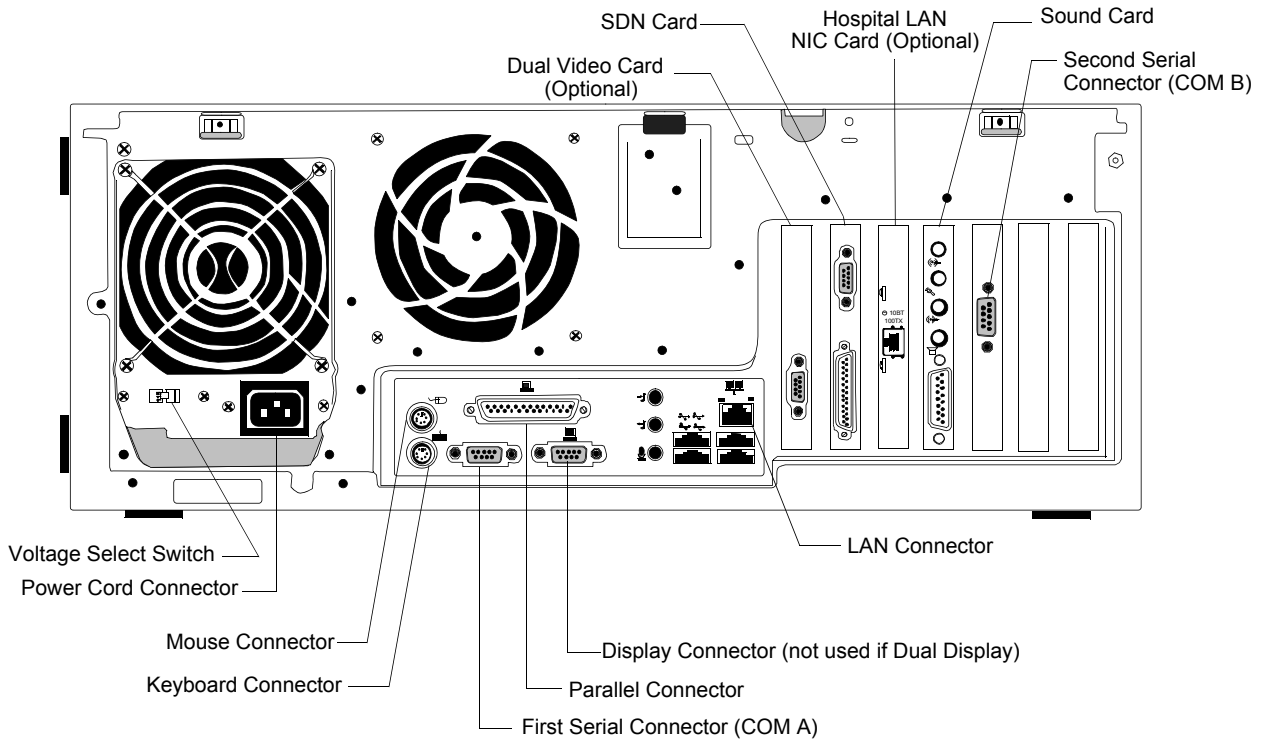
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**Warning** All cards must be in the slots shown for proper IntelliVue Information Center operation.

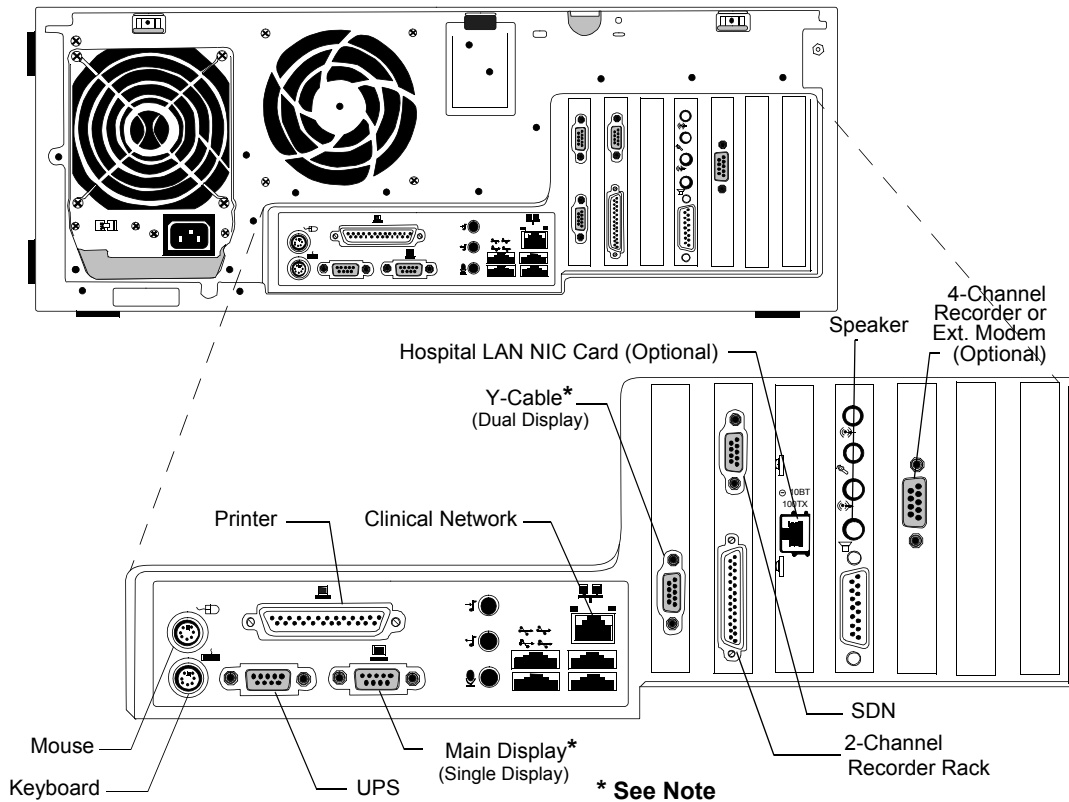
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### Panel Descriptions



**Figure 2-4 D510 PC Workstation Rear Panel**



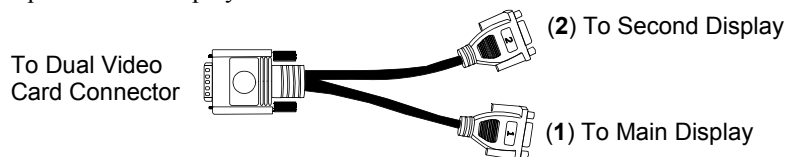


**Figure 2-5 Plug Connections for D510 Information Center Systems**

**Note**

For **Single Display** systems, the Main Display is plugged into the 9-pin Main Display connector on the rear of the PC.

For **Dual Display** systems, a Dual Video Card and Y-Cable are required. The Y-Cable plugs into the 9-pin Display connector on the Dual Video Card. The Main Display then plugs into the Y-Cable connector labeled **1** and the Second Display plugs into the Y-Cable connector labeled **2**. The rear panel Main Display connector is not used.



**Warning**

Cables with plugs not firmly attached by screw connections must be secured to prevent accidental unplugging. Make certain that the speaker cable cannot accidentally be pulled out because it annunciates alarms. Use the Strain Relief Kit (M3150-60019) provided and secure the speaker cable to another cable that is secured with a screw connection. When securing all cables, be sure to provide strain relief loops and cinch cable ties securely. See Figure 2-45 on page 2-47.

System Components

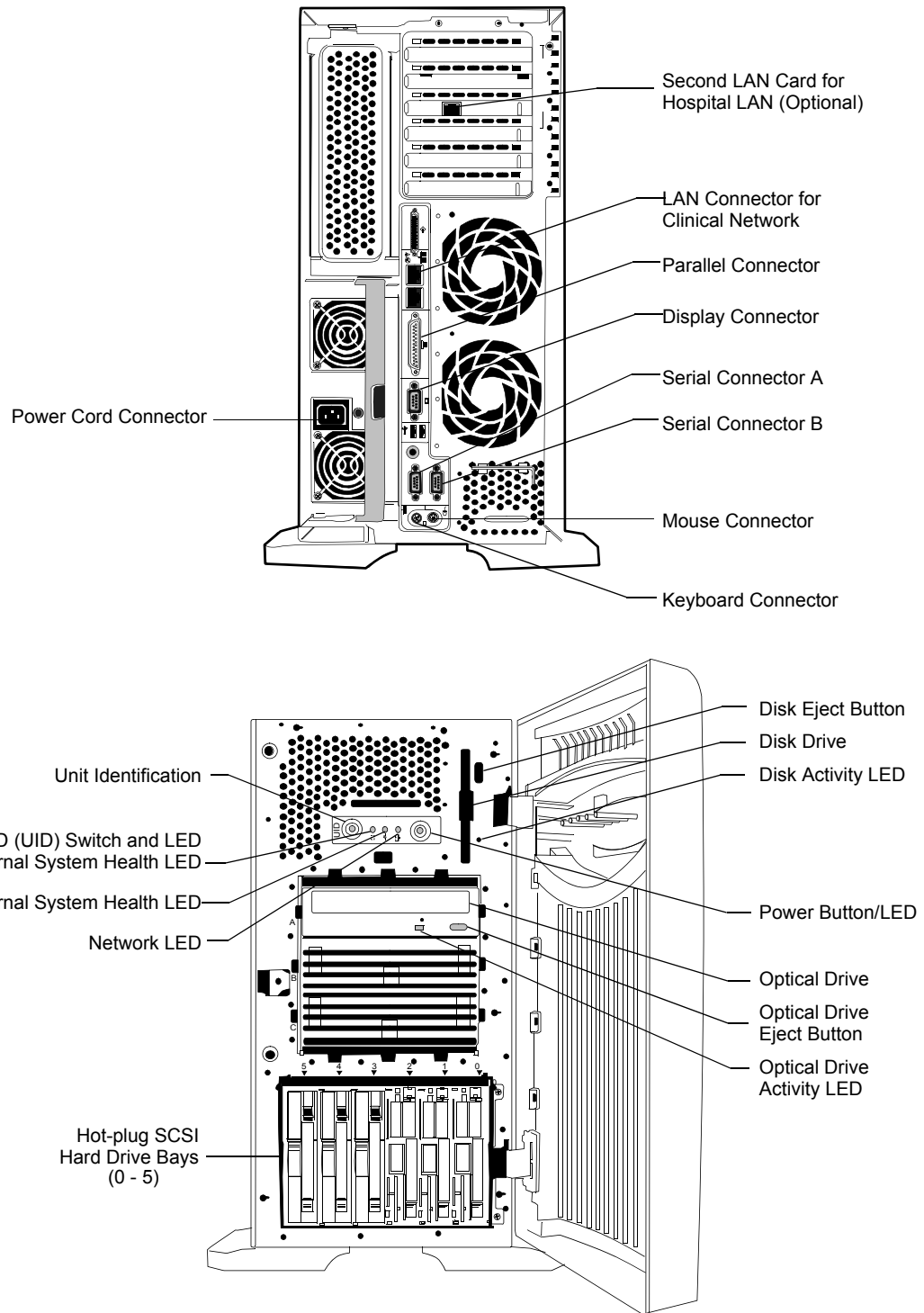


Figure 2-6 ML370 G3 Server Front and Rear Panels

## Displays

There are two different size CRT displays and a flat panel display available for viewing patient data and control screens for each Information Center model. Displays are ordered separately by model numbers.

Each model can also accommodate remote slave displays for viewing information at distant locations. The Information Center can also accommodate a second display to provide additional viewing area. Following are brief descriptions of these displays and options.

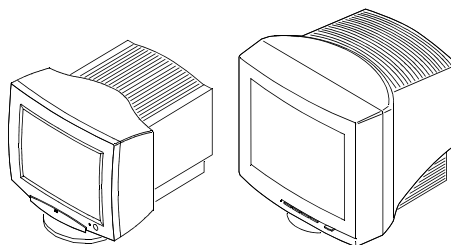
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### Note

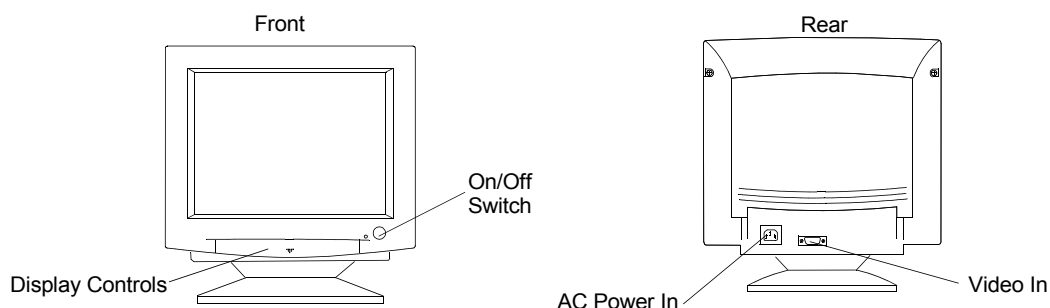
More detailed descriptions of the features, specifications, installation, controls, maintenance, and troubleshooting of the display(s) are found in their **Installation Guide**.

---

**CRT Displays** Each of the CRT color display sizes has a screen resolution of 1280 x 1024. Typical models are shown in Figure 2-7 along with the actual viewing image for each size. Typical front and rear panel views are shown in Figure 2-8.

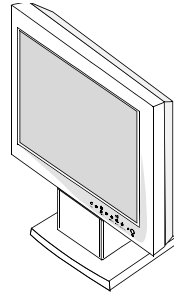


**Figure 2-7 Typical Medium and Large Color CRT Displays**

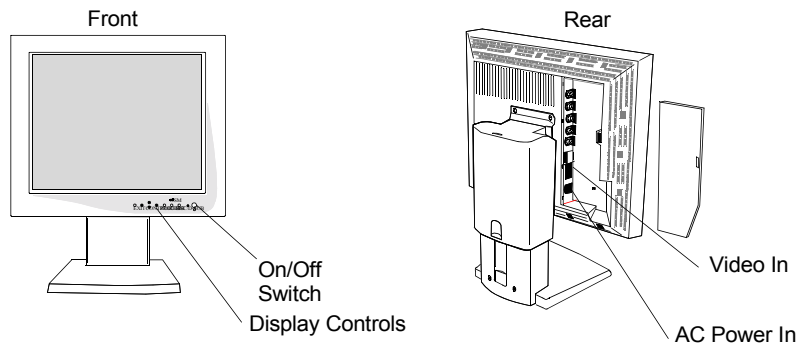


**Figure 2-8 Typical CRT Display Front and Rear Panel Controls**

**Flat Panel Display** A large **color flat panel display** is also available as a purchased product. It has a screen resolution of 1280 x 1024. The flat panel display is shown in Figure 2-9. Front and rear panel views are shown in Figure 2-10.



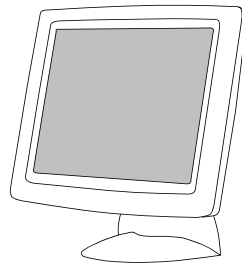
**Figure 2-9 Large Color Flat Panel Display**



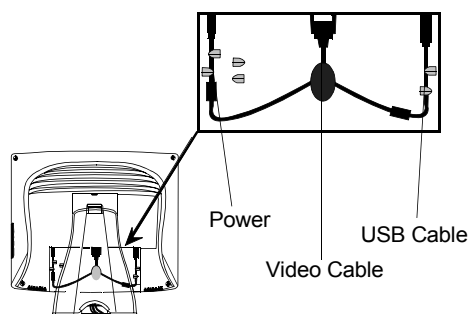
**Figure 2-10 Typical Flat Panel Display Front and Rear Panel Controls**

For customers wanting to supply their own displays the displays must be in compliance with the criteria and specifications listed in “*Customer Supplied Displays*” on 2-51.

**Touch Flat Panel Display** A **touch color flat panel display** is also available as a purchased product. The touch flat panel display is shown in Figure 2-11. Rear panel connections are shown in Figure 2-12.



**Figure 2-11 Typical Touch Flat Panel Display**



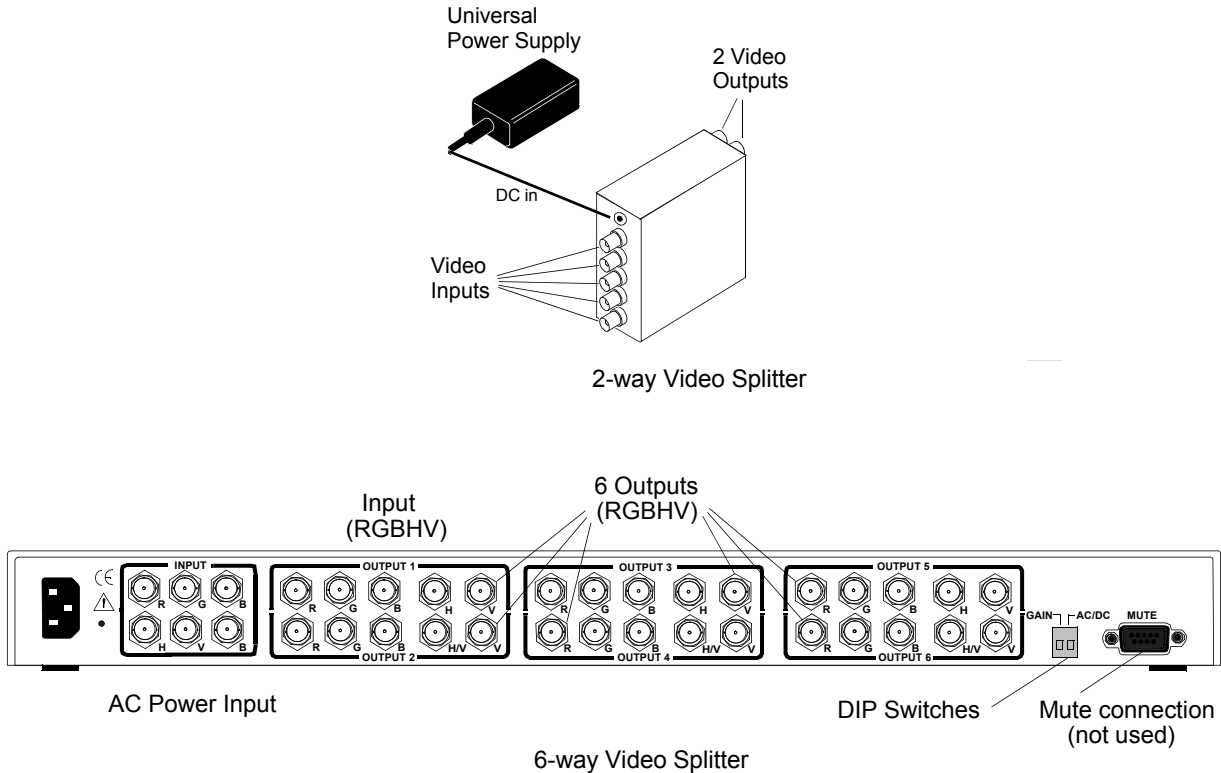
**Figure 2-12 Typical Touch Display Panel Connections**

**Dual Display Option** A **Dual Display** option (available for Information Centers and Clients) provides for additional viewing area. With two displays, the **Patient Sectors** of the **Main Screen** appear on the first display, and patient data review applications and control screens, e.g. **Patient Window**, **All Controls** menu, etc., appear on the second display. A typical dual display Information Center is shown in Figure 1-1. The second display must be ordered separately.

**Remote Slave Displays** The **Remote Slave Display** option is available for both Information Center models and permits the display of Information Center information at remote locations. Remote display cable lengths up to 90 m (300 ft.) are supported. The Remote Display is a slave display that simply displays the window showing on the Philips display it is paired with. Up to 6 Remote Slave Displays can be connected to an Information Center system using the proper Video Splitter setup (one 2-way and 6-way) Although no Information Center controls are available with the remote display, this option can assist clinical users in monitoring patients at other locations.

**Video Splitters** The Remote Slave Display option requires a **Video Splitter**. Both 2-way and 6-way Video Splitters are available. See Figure 2-13. Remote displays must be ordered separately. A universal DC power supply is provided for the 2-way Video Splitter. The 6-way Video

Splitter uses AC line power. The video output of the processing unit connects to the 5 BNC Video Splitter inputs and the displays connect to the 5 BNC Video Splitter outputs.



**Figure 2-13 Video Splitters for Remote Slave Displays**

**Keyboard-Video-Mouse Switch**

A **Keyboard-Video-Mouse (KVM) Switch** provides for control of up to 4 Information Centers with a single keyboard and mouse. This permits managing 64 patients with one set of controls. It also permits a single display to serve as the 2nd display for all Information Centers. Opening a **Patient Window**, **Patient Data Review**, or **Service** application causes that application to appear on the single, 2nd display.

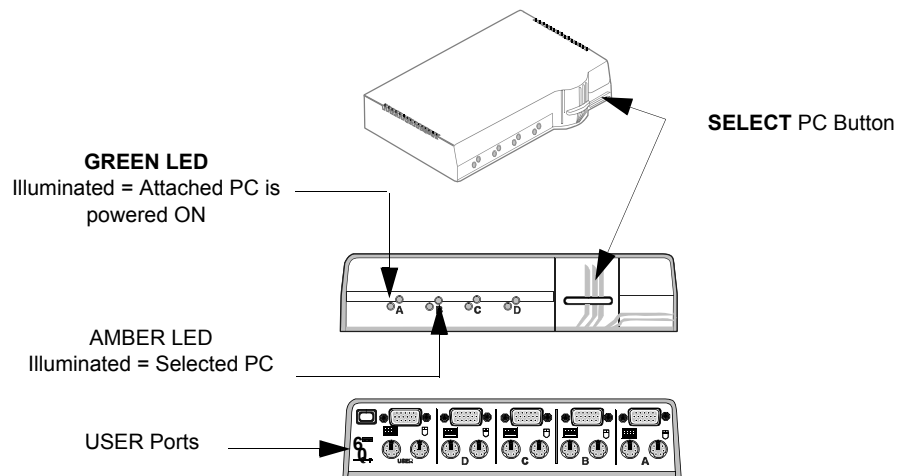
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**Note** Touch displays cannot be used as the 2nd display connected to a KVM switch.

---

The KVM Switch is shown in Figure 2-14. Front panel SELECT button selects which Information Center the keyboard and mouse will control, and LEDs indicate selected PC and which PCs have power turned on. Rear panel **USER PORT**s connect to the single keyboard, mouse, and 2nd display, and other ports connect to corresponding ports on the rear of Information Center workstations. The KVM Switch can be used with only a keyboard, only a keyboard and mouse, or a keyboard, mouse, and 2nd display (can not be used with dual

resting display option) Complete installation instructions are detailed in the K/V/M Switch Installation Note supplied with the K/V/M Switch.



**Figure 2-14 Keyboard-Video-Mouse Switch**

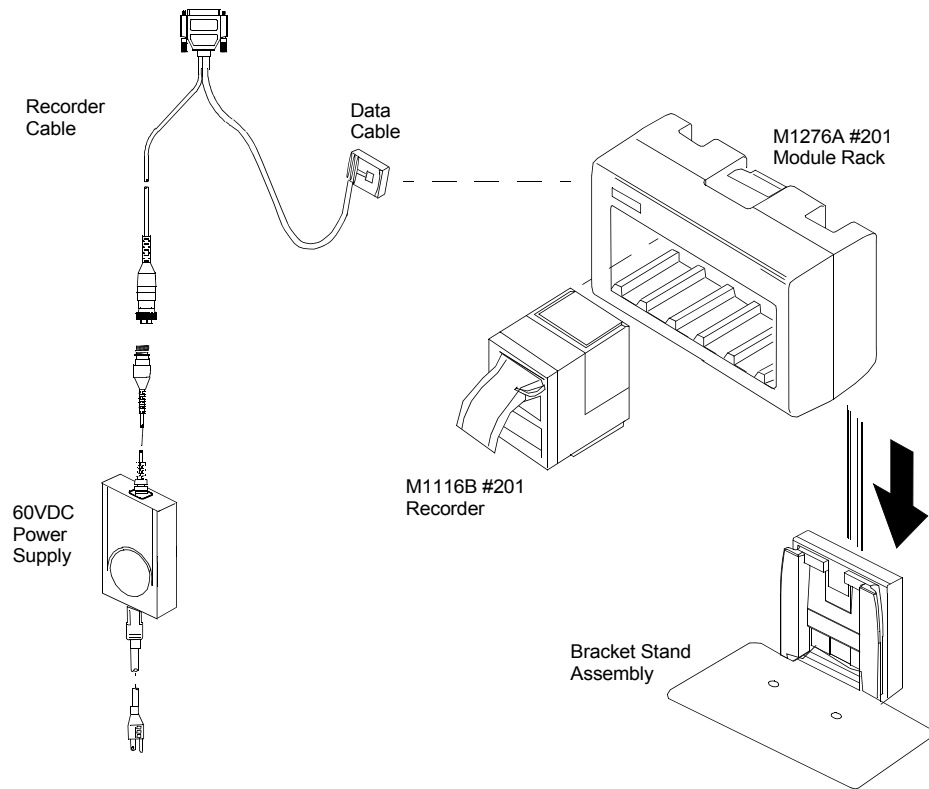
## Philips Recorder Systems

The IntelliVue Information Center Release software supports both 2-channel and optional 4-channel recordings (not in all geographies) from both SDN bedsides and from IntelliVue Information Centers. Refer to the appropriate Recorder description.

The **Philips 2-Channel Recorder System** consists of the following components:

- **M1116B #201 Thermal Array Recorder Module**, a double-width module
- **M1276A #201 Recorder Rack**, which can house up to 3 Philips Recorders
- **Bracket Stand Assembly**, which provides a stable support for the Recorder Module and Rack on a flat surface
- **M3180-60040 60VDC Power Supply**, which provides Recorder power

- **Recorder Cable**, which connects the signal from the processing unit and the 60VDC power to the Module Rack.



**Figure 2-15 Philips 2-Channel Recorder System**

**Recorder Module**

The **M1116B #201 Thermal Array Recorder Module** is a thermal array recorder that provides high resolution, high quality waveforms. The grid and waveforms are printed simultaneously to assure accurate registration. It has recording capability for up to three waveforms with multiple lines of annotation and provides the following annotations for each recording:

- Patient name (as in the Admit window)
- Patient Medical Record number (as in the Admit window)
- Bed label
- Date and time of the first waveform printed
- Alarm/INOP message of the highest priority, most recent event
- Patient parameters available at the time of recording
- Recorder speed

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**Note** Refer to the **IntelliVue Information Center Instructions for Use** for detailed operating procedures.

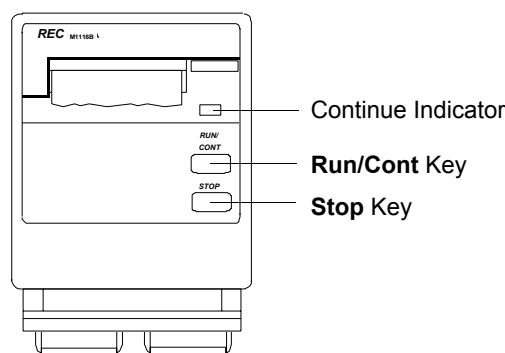
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**Features**



The front panel of the Philips M1116B Recorder Module is shown in Figure 2-16. The front panel indicator and controls do the following:

- 1 - Continue Indicator** - An LED that blinks twice when the module is first plugged in, indicating that the recorder self-test has completed successfully. It remains lighted during continuous recordings.
- 2 - RUN/CONT Key** - Pressing this key makes a current recording continuous (if permitted).
- 3 - STOP key** - Pressing this key stops the current recording.



**Figure 2-16 M1116B Recorder Module Front Panel Controls**

The Philips 2-Channel Recorder has the following recorder **speeds**. Recorder speed **accuracy** is  $\pm 2\%$ .

50 mm/s	300 cm/min.
25 mm/s	150 cm/min.
6.25 mm/s	37.5 cm/min.

The Recorder print head has the following characteristics:

- **Width:** 50 mm (2 in)
- **Resolution:** 8 dots/mm (200 dots/in.)

It can produce one 40 mm waveform or two 20 mm waveforms.

### Types of Recordings

The Philips Recorder can generate recordings automatically when alarm events occur or manually when requested. The following types of recordings can be generated from either an IntelliVue Information Center system or a bedside monitor:

- Real-time
- Delayed
- Stored

---

**Note** Only delayed recordings can be generated from a telemetry transmitter, provided that it is properly configured and turned on. Pressing the **Patient Button** on the telemetry transmitter initiates the recording.

---

Characteristics of these recording types are as follows:

**Real-time Recordings** are recordings of waveforms that begin at the time they are requested. The recording is continuous and must be stopped manually.

**Delayed Recordings** are recordings of waveforms that include a period before the recording is initiated. For a real-time waveform being displayed on the monitor, the recording can be set to start from an earlier time. It will then run for a set time, but it can be made continuous using the **Run/Cont** key on the Recorder Module. Factory defaults are 10 seconds of pre-initiation waveform and 2 seconds of real-time waveform. These time periods and the recording speed can also be configured on a unit wide basis in the **Recording** option of the **Output Unit Settings** menu of the **Unit Settings (Password)** window.

Delayed recordings are automatically initiated for an alarm event and can be manually initiated on request by the user. Waveforms for red alarms are automatically recorded. The system can also be configured to automatically record for yellow alarms for a unit (Release A.1 and later) or an individual patient.

**Stored Recordings** are recordings of waveforms that have been stored in patient **Alarm Review** files. They can be recorded from the **Alarm Review** application, and recording time and speed can be configured for the unit. Stored Recordings cannot be made continuous, but can be stopped before completion using the **STOP** key on the Recorder Module.

#### **Recorder Status Messages**

The following status messages will appear in the status message line at the top left of the **Main Screen** if the Recorder cannot print, where XXX indicates the position of the Recorder Module in the rack -- **Left, Center, Right**.

- XXX recorder Out of paper
- XXX recorder Door is open
- XXX recorder Hardware fault
- No recorder connected (e.g. no power to recorder, cable disconnected)
- Recorder Rack Power Supply Fault No Recorder

**Recorder Rack** The **M1276A #201 Recorder Rack** is designed specifically for the Information Center system. It holds up to three model M1116B Philips Recorders, but cannot be daisy chained for additional Recorder capability.

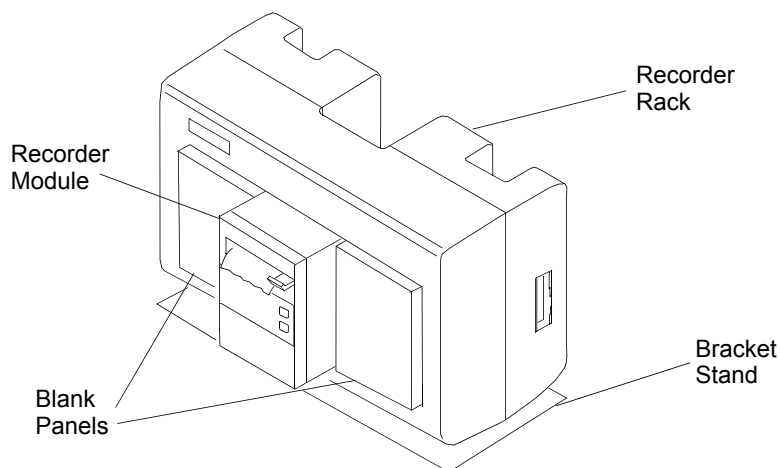
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**Caution** **DO NOT use any other Philips parameter modules in the same rack as an M1116B Recorder. An M1116A Recorder in the same rack can damage the M1116B Recorder.**

---

The Recorder Rack receives its +60VDC input power from a separate 60VDC Power Supply. Data signals are supplied via the same cable from the processing unit for synchronization and data print outs. See **Figure 2-15**.

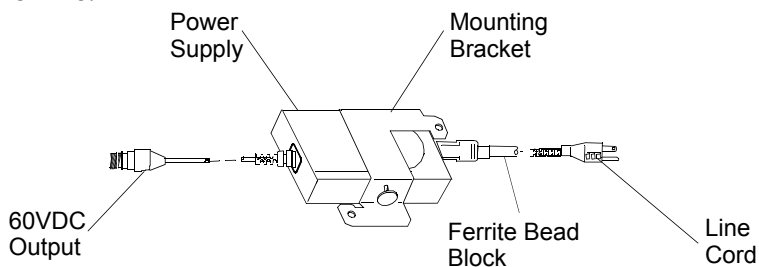
The Recorder Rack also includes a Bracket Stand Assembly for providing a stable base for the Recorder Rack assembly on a flat surface and two blank Rack panels for use when only one Philips Recorder is used. See Figure 2-17.



**Figure 2-17 Recorder Rack with Philips Recorder and Blank Panels**

**60 VDC Power Supply** The **M3180-60040 60VDC Power Supply** is a regulated DC power supply that provides the 60VDC power to the Recorder Rack. Power is supplied via a special Recorder Cable that also connects the signal from the processing unit. See Figure 2-15.

A mounting bracket is also provided with the Power Supply for mounting it to a surface in an out-of-the-way location. Installation of a Ferrite Bead Block onto the 230V power cord is used to suppress potential conductive emissions coming from the 2-channel recorder's power supply. See Figure 2-18.



**Figure 2-18 60VDC Recorder Rack Power Supply**

The operation of the M1276A #201 Recorder Rack and M3180-60040 60VDC Power Supply are described in the **Philips M1276A #201 Parameter Module Rack Service and Installation Guide**. The following table lists the components of the Philips Recorder System.

**Table 2-1. Philips Recorder System Components**

Philips Part Number	Description
M1116B #201	Recorder Module(s)
M1276-60002	Recorder Rack Assembly

**Table 2-1. Philips Recorder System Components**

Philips Part Number	Description
M2300-40011	Rack Blank Panels (2)
M3180-60400	Bracket Stand Assembly
M3180-60040	60VDC Power Supply
M3180-60170	Recorder Cable 1m to PC/3m to rack standard
M3180-60150	Recorder Cable 1m to PC/6m to rack optional

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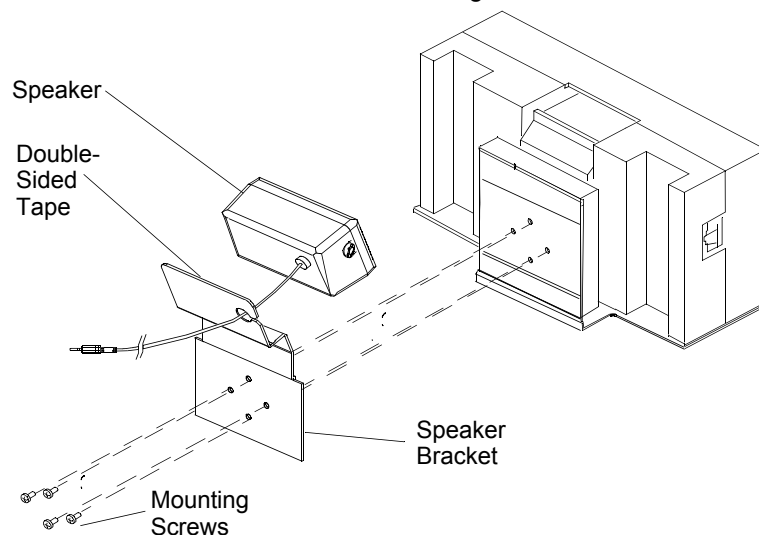
**Note** The complete list of replaceable parts is given in the Service Documentation CD-ROM - **Replaceable Parts List Product Family**.

---

## Speaker

An external **Speaker** is provided with the Information Center system to assure that alarm tones can be clearly heard at the central monitoring station. There may also be a speaker internal to the processing unit, but it may be located distant from the central station so that an external speaker is also required.

The speaker can be attached to the speaker bracket with double-sided tape and the bracket screwed to the rear of the Recorder Rack as shown in Figure 2-19.



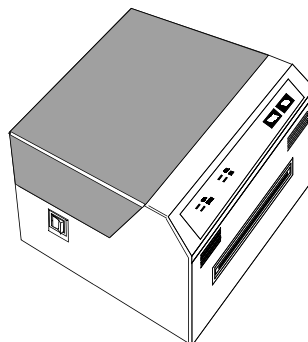
**Figure 2-19 Mounting of External Speaker**

**Philips 4-Channel Recorder (Optional)** The Information Center also supports an optional 4-channel Recorder, Model M3160 (not available in all geographies) on M3150 Information Centers, M3170 Patient Link, and on Database Systems. Recordings are obtainable from both SDN bedsides (not for M2/M3/M4/IntelliVue patient monitors) and from IntelliVue Information Centers.

The M3160 4-channel recorder includes a 24 Vdc power supply and cable, a serial interface cable, and a box of 24 rolls of paper. Refer to the table below for items included with the M3160 4-Channel Recorder.

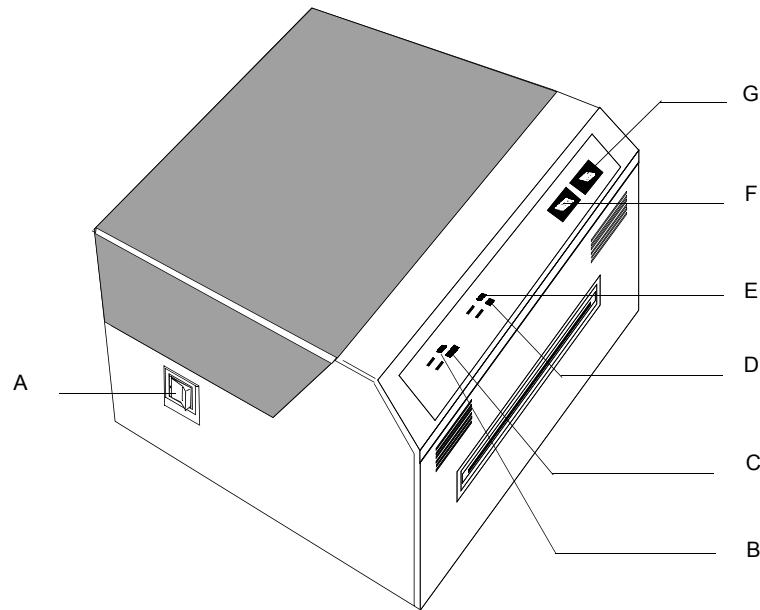
Qty	Part Number	Description
1	M3160A	4-Channel Recorder with 24Vdc Power Supply and Cable
1	CAB-CTG 09452	Serial Interface Cable (7.6m, 25ft.)
1	PSE11268	24 Rolls included - order additional paper separately via part number PSE11268 = 24 rolls of 112 mm W x 68 m L thermal paper. Paper changing instructions are described in the Maintenance Section of this manual.

The M3160A 4-Channel Recorder shown below is a fixed-head thermal line printer that can produce up to 4 waveform tracings on a 112 mm wide paper strip. Annotation and grid markings are included on the tracings. The resolution is 8 dots/mm. Various wave and grid formats can be selected via the appropriate application. The M3160 recorder is only supported in Information Center systems in limited geographies. When upgrading existing system PCs BIOS changes may be required for the 4-channel recorder to connect properly to the Serial B Port. See **Troubleshooting and Repair** section of this manual for details.



**Figure 2-20 M3160 4-Channel Recorder**

**Controls and Indicators** for the model 4-channel recorder are shown below. Complete user instructions for use with the Information Center(s) are described in detail in the Information Center Instructions for Use.



**Figure 2-21 Philips 4-Channel Recorder Controls and Indicators**

<b>A. Power ON/OFF Switch</b>	
<b>B. Power ON Indicator</b>	Illuminates when power is on
<b>C. Paper Empty Indicator</b>	Illuminates when the paper has not been properly set or when there is no paper.
<b>D. On Line Indicator</b>	Illuminates when the recorder is ready to accept data. The light flickers on and off during normal operation.
<b>E. Error Indicator</b>	Illuminates to indicate that an error occurred during data transmission or there is a problem with the printer.
<b>F. Stop Button</b>	Press this button to stop the current recording.
<b>G. Feed Button</b>	Pressing this button causes the printer to eject paper for as long as the button is depressed.

4-Channel Operational Overview - Complete user instructions for use with the Information Center(s) are described in detail in the Information Center Instructions for Use. In addition, paper loading is described inside the recorder cover, in the Maintenance section.

4-Channel recordings are obtainable from both SDN bedsides and from Information Centers.

4-Channel recorders are physically tied to one Information Center in a standalone system configuration, or may be shared across a maximum of four Information Centers within a single Database Server context.

4-Channel recordings are routed to the 4-channel recorder. The recording destination is set either by the Configuration Wizard control or by the Recording Setup application (under Unit Settings), separately, for the 4-channel recorder and for the 2-channel recorder. Refer to the Recorder Destination Screen in the Configuration Wizard section of this manual. The default setting for this control is the local machine if a 4-channel recorder is installed. Otherwise, it is set to none, which disables any control that requests a 4-channel recording. When an Information Center is fully configured the User can select any Information Center with a 4-channel recorder as a destination.

The M3160 4-Channel Recorder has the following selectable recorder **speeds**. Recorder speed **accuracy** is  $\pm 2\%$ .

50	mm/s	300	cm/min.
25	mm/s	150	cm/min.
12.5	mm/s	75	cm/min.

The Recorder print head has the following characteristics:

**Width:** 104 mm printable width  
**Resolution:** 8 dots/mm x 8 lines/mm

#### System Behaviors with the 4-Channel Recorder:

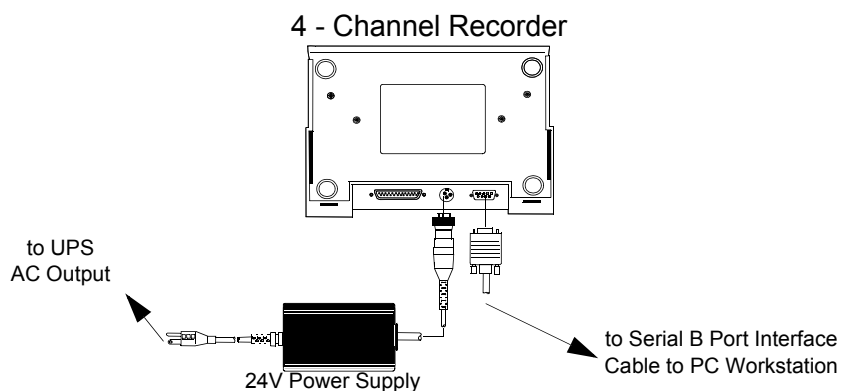
**Error Messages** - the Information Center resting display status line will display messages that indicate any error conditions with the recorder (e.g., **4-Channel Recorder Not Ready** which indicates out-of-paper, or no power, or not connected, or internal failure).

**Queuing** - if the user requests a 4-channel recording and the recorder is already busy, then the recording will be held in queue until the recorder becomes available.

**Gain Change** - whenever the gain is changed for a waveform in an on-going 4-channel recording, the wave label is annotated on the recording strip.

**Remote Access Service** - RAS is no longer supported when the 4-channel recorder is used on Information Centers unless accessed via a database server MODEM.

**BIOS Settings** - Changes may be required to the BIOS settings when a 4-channel recorder is added. Refer to "Updating BIOS" on page 7-119.



**Figure 2-22 Philips 4-Channel Recorder Rear Panel Connections**

**Printer**

An **HP LaserJet Printer** with connectivity to the Network (Option M3159A #A02) is available for printing patient and configuration data. The Printer is connected to a Switch port via a 10 Mbit/s, UTP cable. The Network connection is made via a JetDirect, 10BaseT Ethernet card, which is included with Option M3159A #A02. It is installed in the rear right side of the Printer. See Figure 2-23, where the RJ-45 port and AC power connector are also shown.

Device	Maximum # of Printers
M3150 Information Center (local database); M3170 Patient Link	2
M3154 Database Server system (connection to M3155 Information Centers)	8
Large Network M3154 Database System	80
M3169 Small Database Server System	4

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**Warning**      **Do not use any other printers or printer drivers.**

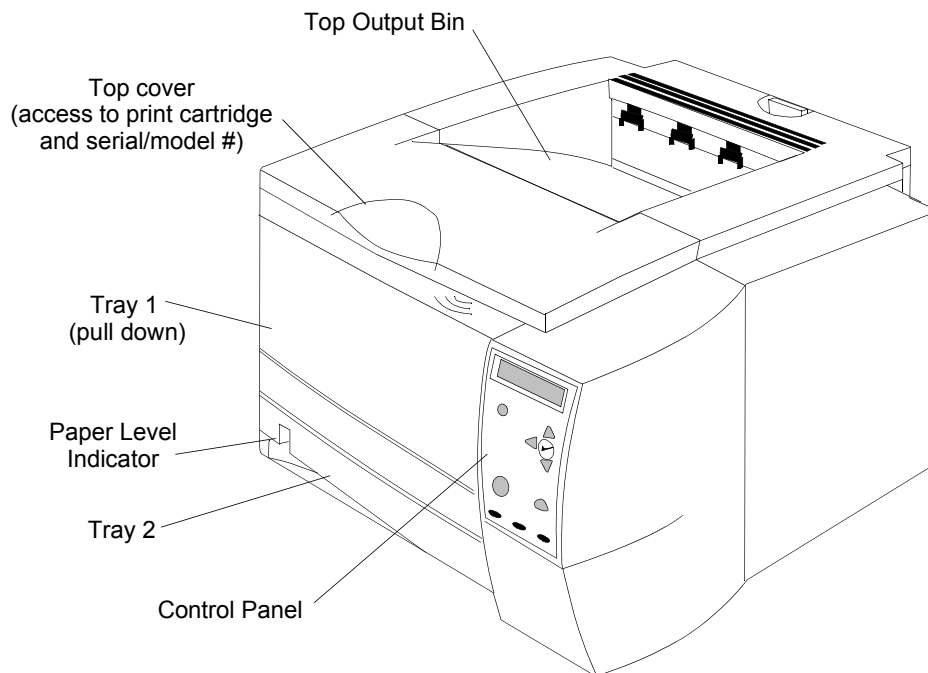
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**Note**      For additional information on Printer performance, see the Printer’s documentation manual and the **HP LaserJet Quick Reference Service Guide**.

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**Figure 2-23 HP LaserJet Printer**

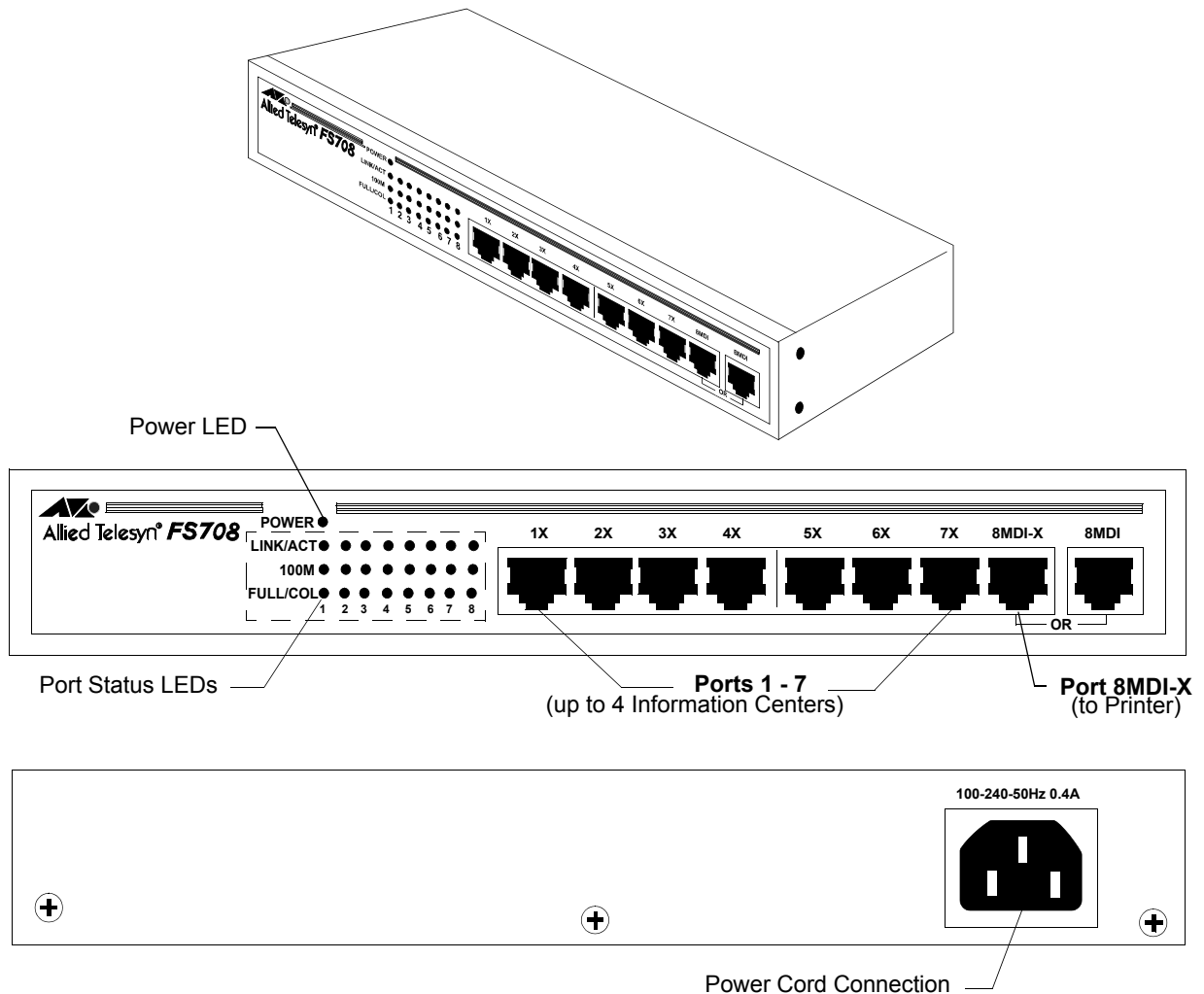


## Printer Hub

A **Printer Hub** (Option **M3159A #H21**) can be used to connect up to 4 Information Centers to a single, HP LaserJet Printer. The Printer Hub is connected to the 10BaseT/100BaseTX Ethernet connection on the rear of each PC. Up to 4 Information Centers can be connected to a Printer Hub. This connection is 10 Mbps. The connection must be changed using the procedure given in “Device Name” on page 5-35.

Philips CareNet monitors (Component Monitoring System (CMS), 24 Monitors, and Telemetry Monitors) are the only bedsides supported on the Printer Hub. Patient monitors that connect directly to the Clinical Network (wired/wireless M2/M3/M4/IntelliVue Patient Monitors) are not supported on the Printer Hub.

The Printer Hub is shown in Figure 2-24 along with its front and rear panels.



**Figure 2-24 Printer Hub**

**Uninterruptible Power Supply** An Uninterruptible Power Supply (UPS) is provided with each Information Center and Database Server. It provides up to 90 seconds of battery power to maintain system operation and eliminate time consuming software rebooting during short power transitions (e.g. power generation tests).

**Caution** The Philips 9 pin UPS communication cable (gray) must be used when connecting the devices to the UPS. Do not use the black COM cable that ships with the UPS.

**Warning** UPSs are shipped without their internal battery wire connected. Before use, the battery wire must be connected.

Only Voltage Outputs labeled **BATTERY BACKUP** should be used for UPS protection.

The UPS for the Information Centers, Clients, Patient Link and M3169 Database Server is rated at 650 VA and comes in three versions -- 100-127 VAC (50/60 Hz), 100 VAC (50/60Hz), and 220-240 VAC (50/60 Hz). The versions look similar and are shown in Figure 2-25 along with typical UPS front and rear panels.

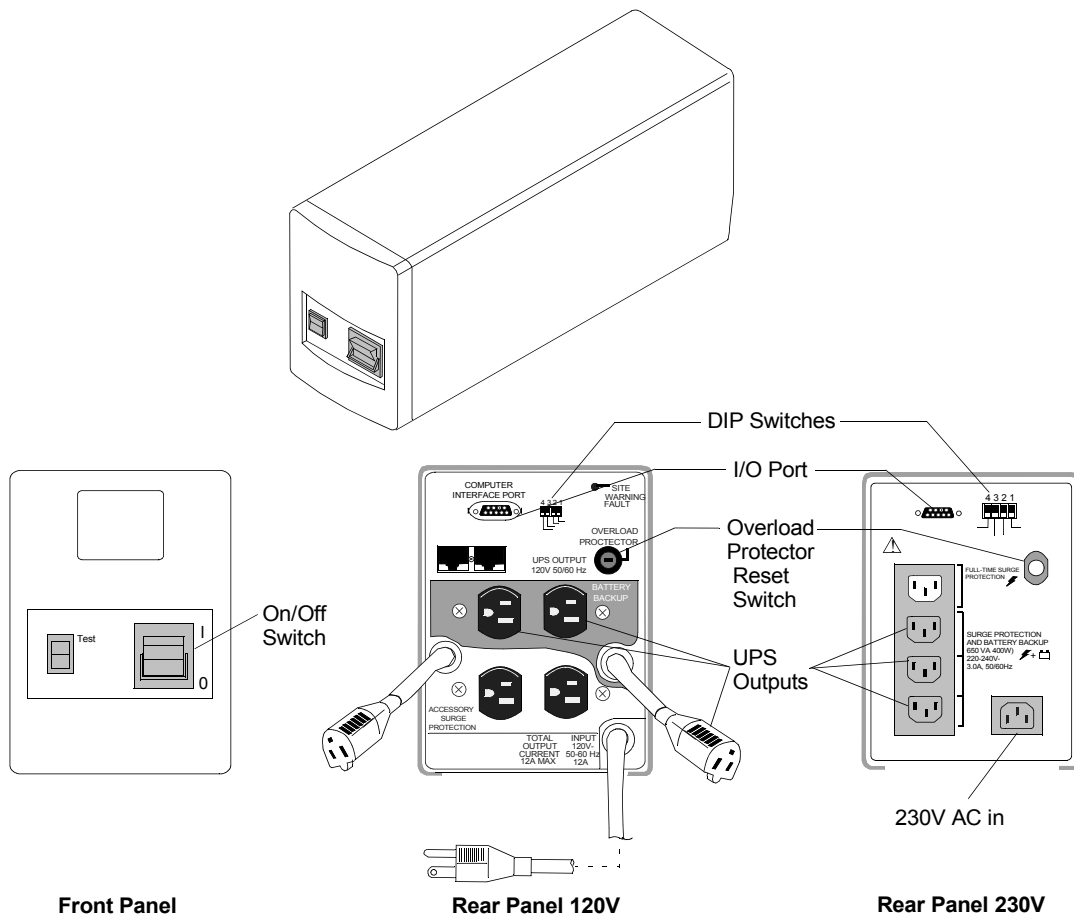
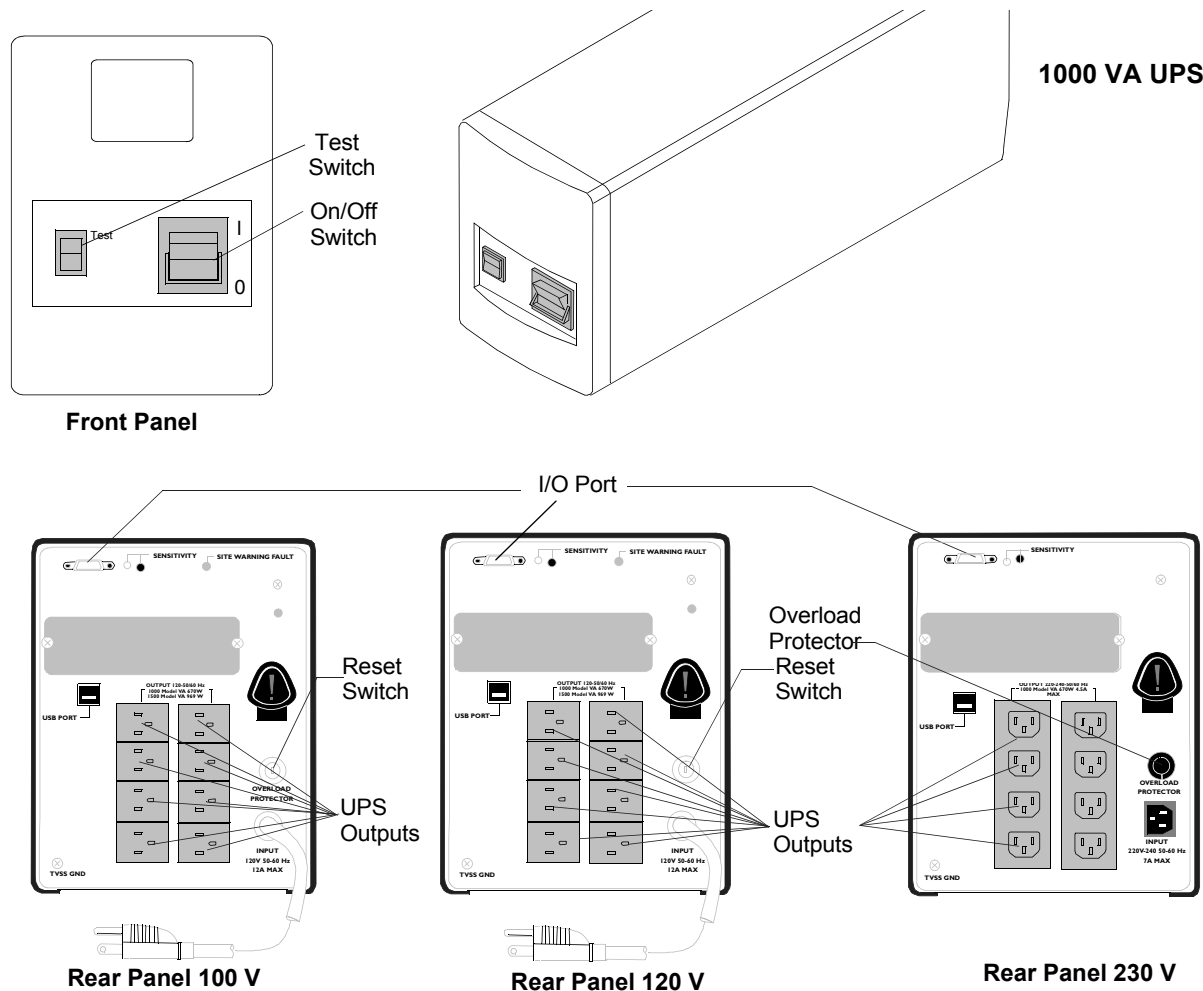


Figure 2-25 650V UPS

The **UPS for the M3154 Database Server** is **1000 VA** and comes in 3 versions -- 100 VAC (50-60Hz), 120 VAC (50-60 Hz), and 230 VAC (50-60 Hz). It is shown in Figure 2-26 along with typical front and rear panels.

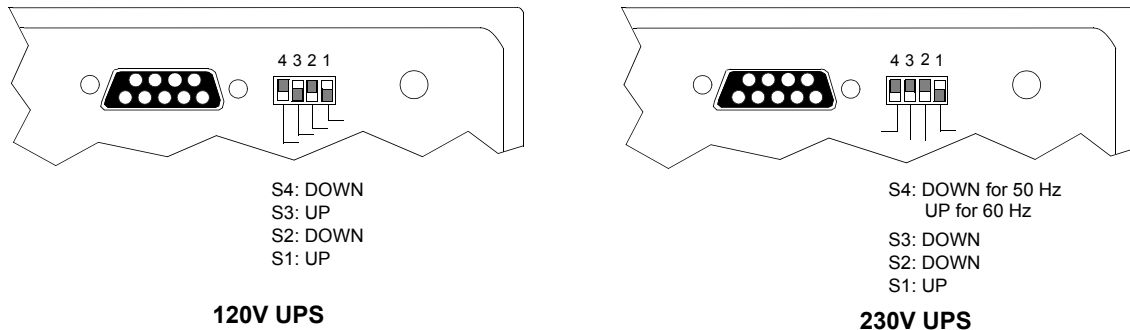


**Figure 2-26 1000 VA UPS for M3154 Database Server**

**Dip Switches** UPSs have rear panel DIP switches that must be set in specific positions for the UPS to operate properly. Dip switch settings for 120V and 230V models are shown in Figure 2-27.

**Note**

The switch settings of Figure 2-27 **must be made** during installation since they are shipped with all switches on OFF (down).



**Figure 2-27 Rear Panel DIP Switch Settings for 120V and 230V UPSs**

**Operation** The operation of a UPS after power failure is as follows.

Seconds after power failure	Action
<b>0</b>	Line power fails and UPS goes to battery power. Philips systems continue to run, but displays will be blank (no power). If line power returns during this 90-120 second period, normal operation is restored automatically.
<b>90-120</b>	The Operating System begins a system shutdown and Philips application software ends.
<b>120-150</b>	The UPS shuts off power to the device. The UPS then typically beeps every 5 seconds until power is restored or the UPS is turned off.  When line power is restored, the UPS automatically supplies power to the device.  If line power is restored between 90 and 120-150 seconds after power failure, the following English language message may appear.  It is now safe to turn off your computer.  Clicking on <b>RESTART</b> initiates a software boot cycle, after which normal Information Center operation resumes.

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**Warning** After 150 seconds, Information Centers, Clients, and the Server must be manually restarted following proper restart procedure.

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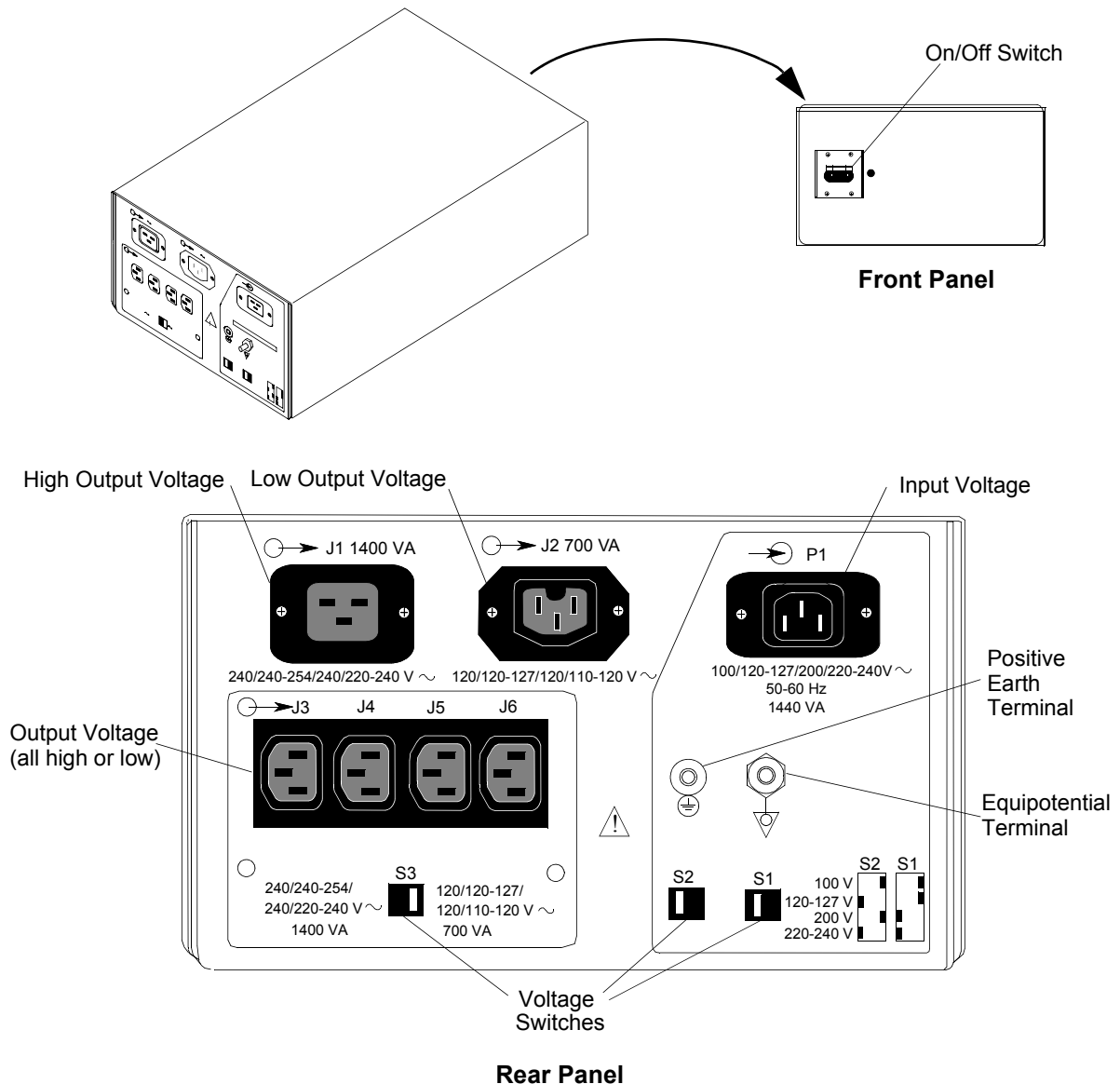
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**Note** Power failure and restoration messages also appear in the **Event Log**.

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## Power Distribution Module

A **Power Distribution Module (M3166A)** is provided with all Japanese orders to comply with Japanese regulatory requirements. It is designed to accept selectable input voltages from 100V to 240V (at 50-60 Hz) and produce selectable low output voltages of 100-127 V and selectable high output voltages of 200-254V. Its input rating is 1440 VA and its output rating is 1400VA. AC output voltages are electrically isolated from AC input voltages. The Power Distribution Module is shown in Figure 2-28 along with its front and rear panels. The front panel contains the On/Off switch











**Figure 2-28 Power Distribution Module**

The front panel controls and outputs are the following:

- **J1:** high output voltage receptacle
- **J2:** low output voltage receptacle

- **J3-J6**: additional output receptacles that are either high or low voltage depending on the position of switch **S3**
- **S3**: sets voltage output of J3-J6 high if set to 240/240-254/240/220-240 V~  
sets voltage output of J3-J6 low if set to 120/120-127/120/110-120 V~
- **S1** and **S2**: should be set to match the input voltage on receptacle **P1** according to the following table.

**Table 2-2. Input and Output Voltages for S1 & S2 Switch Settings**

if P1 Input Voltage	set S2	set S1	then <sup>1</sup> J1 & J3-J6 Output Voltage High	or <sup>2</sup> J2 & J3-J6 Output Voltage Low
100 V			240 V	120 V
120 - 127 V			240 - 254 V	120 - 127 V
200 V			240 V	120 V
220 - 240 V			220 - 240 V	110 - 120 V

<sup>1</sup> if S3 set to 240/240-254/240/220-240 V<sub>AC</sub>

<sup>2</sup> if S3 set to 120/120-127/240/110/120 V<sub>AC</sub>

---

**Note**

The Input Voltage (P1) for Japanese installations is typically 100V.

---

A more detailed description of the Power Distribution Model is provided in the **Power Distribution Module Installation Note** which is contained on the Documentation CD-ROM.

## Mounting

A variety of hardware is available for mounting Information Center components for convenience of use and efficiency of the work area.

### Display Mounts

**Display mounts** are available to permit easy viewing of video screens in a variety of locations and directions. For **medium displays**, a surface **swivel mount** is available for rotating the display screen over a 270° angular range. See Figure 2-29.

**Wall and ceiling mounts** may also be available for mounting remote slave displays at locations where they can be conveniently seen by the clinician.

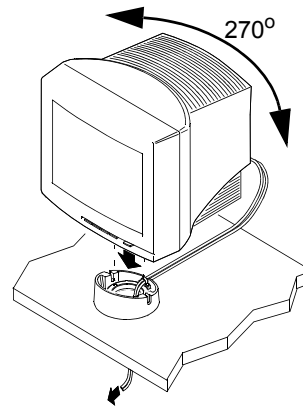


Figure 2-29 Display Swivel Mount

### Keyboard Mounts

Two options are available for the computer keyboard -- a **table top garage** (M3180A #A09) and an **under table drawer** (M3180A #A08). These permit putting the keyboard out of the way when not being used, thereby providing additional work surface area. Installation procedures for these units are described in installation notes that come with the units. See Figure 2-30

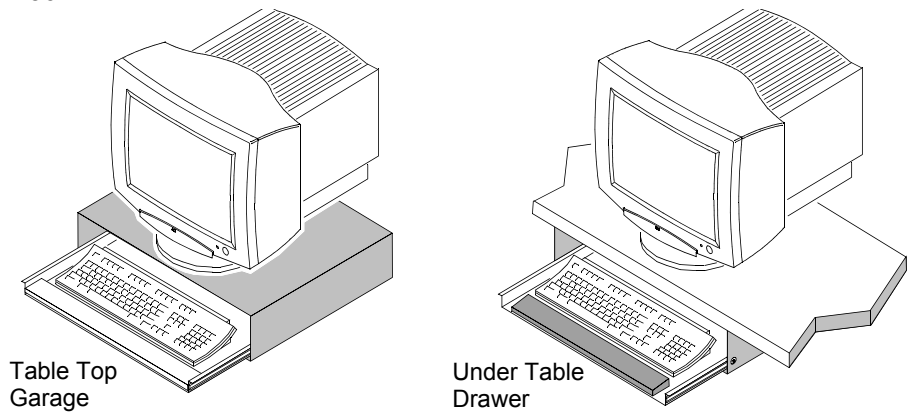
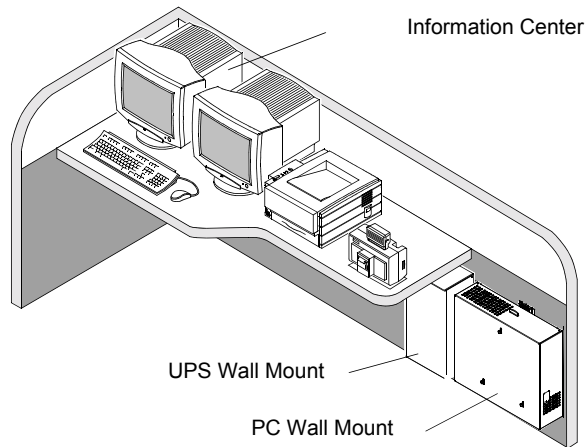


Figure 2-30 Computer Keyboard Mount Options

### Computer System Mounts

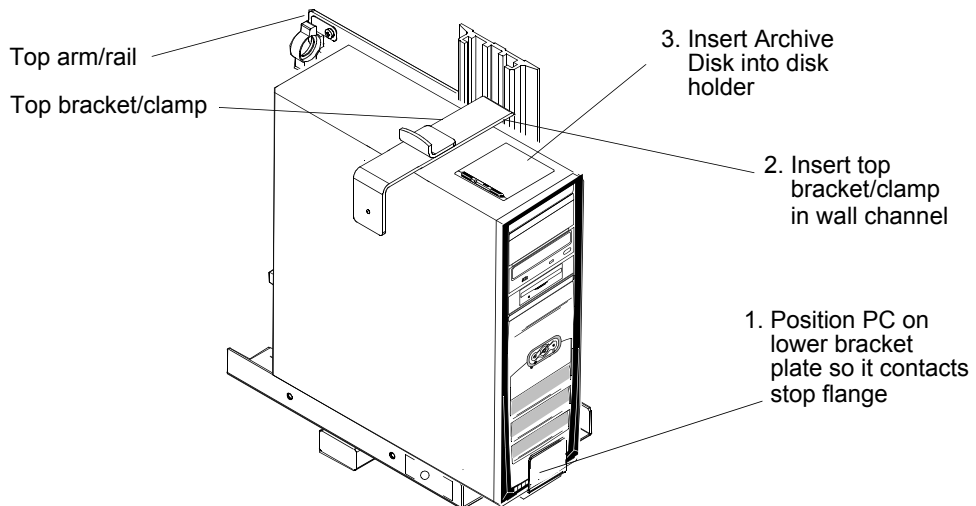
When using Information Center systems in a clinical environment, only some of the components need to be available to the user - display, keyboard, mouse, speaker, recorder, printer. The other components - processing unit, UPS, power supplies, video splitter - can be placed in an out-of-the-way location to minimize clutter in the central monitoring area.

While these components can be placed on the floor or on shelves, hardware is also available for mounting them compactly to a vertical surface where they take up little space and are protected from accidental movement. Figure 2-31 shows a typical dual display Information Center installation with wall mounts.



**Figure 2-31 Clinical Installation with Wall Mount Hardware**

**Processing Unit Mount** Hardware for mounting the processing unit on a vertical surface is shown in Figure 2-32



**Figure 2-32 Processing Unit Mounting Hardware**

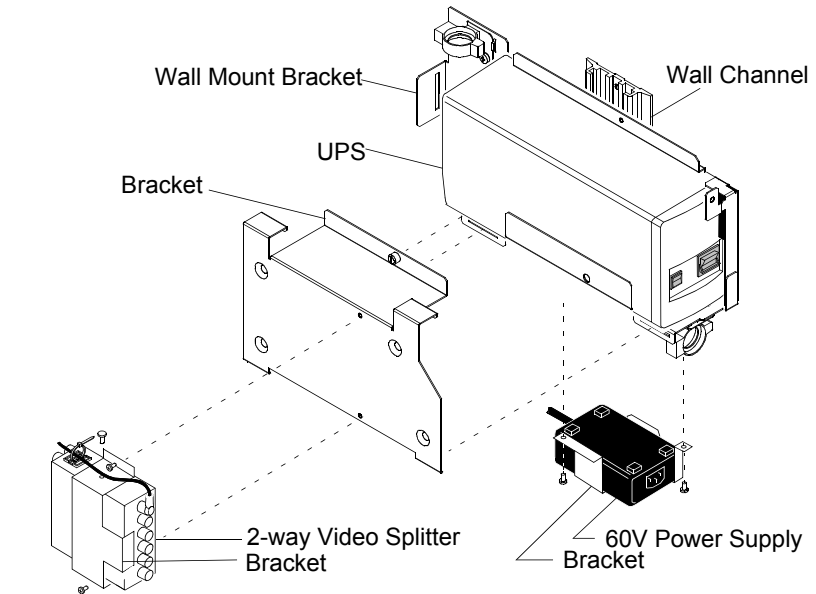
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**Note** If mounting the processing unit, the disk drive orientation may need to change. See the Note on page 2-3.

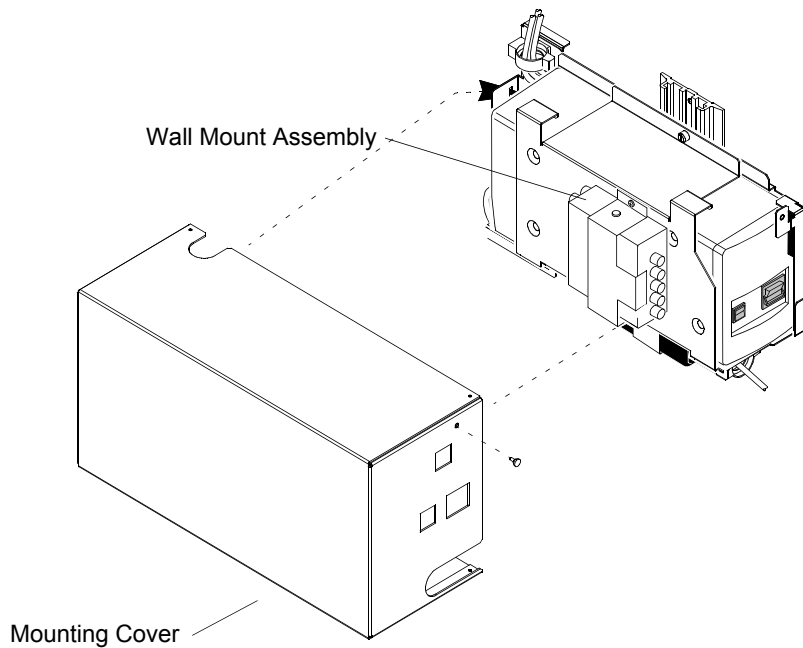
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**UPS Mount** Wall mount hardware for the UPS, 60V Recorder Power Supply, and 2-way Video Splitter is shown in Figure 2-33.



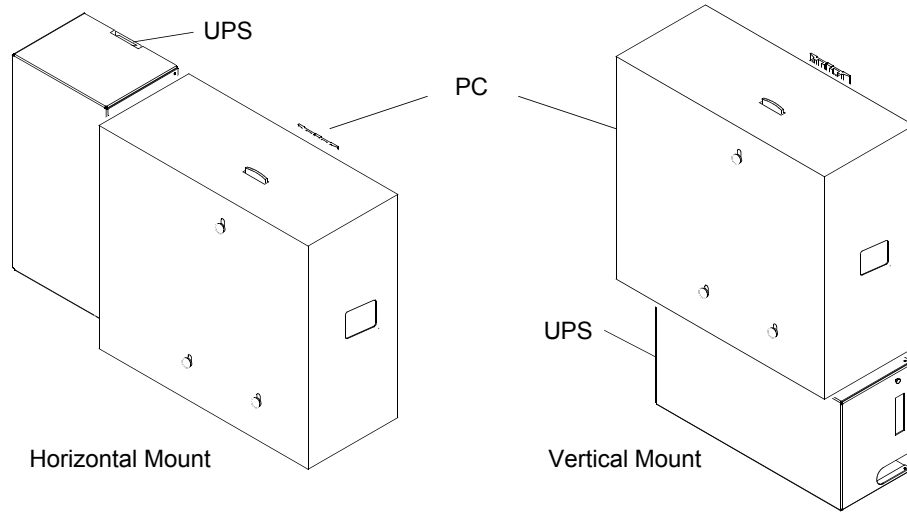
**Wall Mount Assembly Detail**



**Wall Mount Assembly with Cover**

**Figure 2-33 UPS, 60V Power Supply, 2-Way Video Splitter Mounting Hardware**

The processing unit and UPS system mounts can be combined for a single wall mount installation as shown in Figure 2-34. Note that the installation can be mounted either vertically or horizontally, depending on the space available.



**Figure 2-34 Combined Wall Mount Options**

A table of optional mounting hardware is given in **Chapter 1, Mounting Options**. Detailed installation notes are provided with each mounting hardware option that describe its assembly and installation, and also copies are contained on the Information Center Service Documentation CD-ROM supplied with your Service Kit.

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## CareNet

The Information Center is designed to display data from bedside and telemetry monitors connected to Philips CareNet, which consists of the Serial Distribution Network (SDN) and 78581 System Communications Controller (SCC), or the new CareNet Controller depending upon which version of controller you have. The controller manages communication between the Information Center and devices connected to the SDN. The design, theory of operation, and other information on the SDN and SCC are described in detail in the **Serial Distribution Network (SDN) 78581 System Communications Controller (SCC) Service Manual**, and in the new CareNet Controller Installation and Service Guide. Only an overview summary of the SDN/SCC is provided here.

## **Serial Distribution Network**

The **Serial Distribution Network (SDN)** is a local area communication network designed to share patient information -- waveforms, parameters, alarms -- among devices connected to the network -- patient monitors, central stations, displays, recorders, printers, and other computer systems.

**System Description** The SDN is a digital communications network that allows high speed, real-time transmission of digitized patient data among these instruments. The communication protocol, data formatting, and hardware are designed to be flexible, accommodating a variety of communication needs in the patient monitoring environment.

The SDN functions automatically without user interaction and without direct patient connections. Once installed, it is reconfigurable by the user with no hardware modification. Its star topology ensures minimum impact of single-point failures.

**Components** The SDN consists of the following components:

- 78581 System Communications Controller (SCC), or CareNet controller
- SDN interface circuitry (SDN Card) located within each instrument connected to the SDN
- branch System Distribution Cables (SDC)
- equipment Local Distribution Cables (LDC)
- wall box hardware, connectors and receptacles

These components are described in the following section.

**Star Topology** The SDN uses a star topology that comprises up to 32 individual branches (0-31) emanating from the center of the star - the SCC. Only one SCC can be used per SDN and multiple SDNs may not be interconnected. One SDN can accommodate up to 24 bedside instruments (one patient per branch), 6 central station systems, 6 digital telemetry mainframes, 6 careports, 1 arrhythmia monitoring system, and 1 other computer system. The SDN Star topology is shown in Figure 2-35.

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**Note** For Information Center application software to operate properly, one Information Center must be connected to Branch 0 of the SDN.

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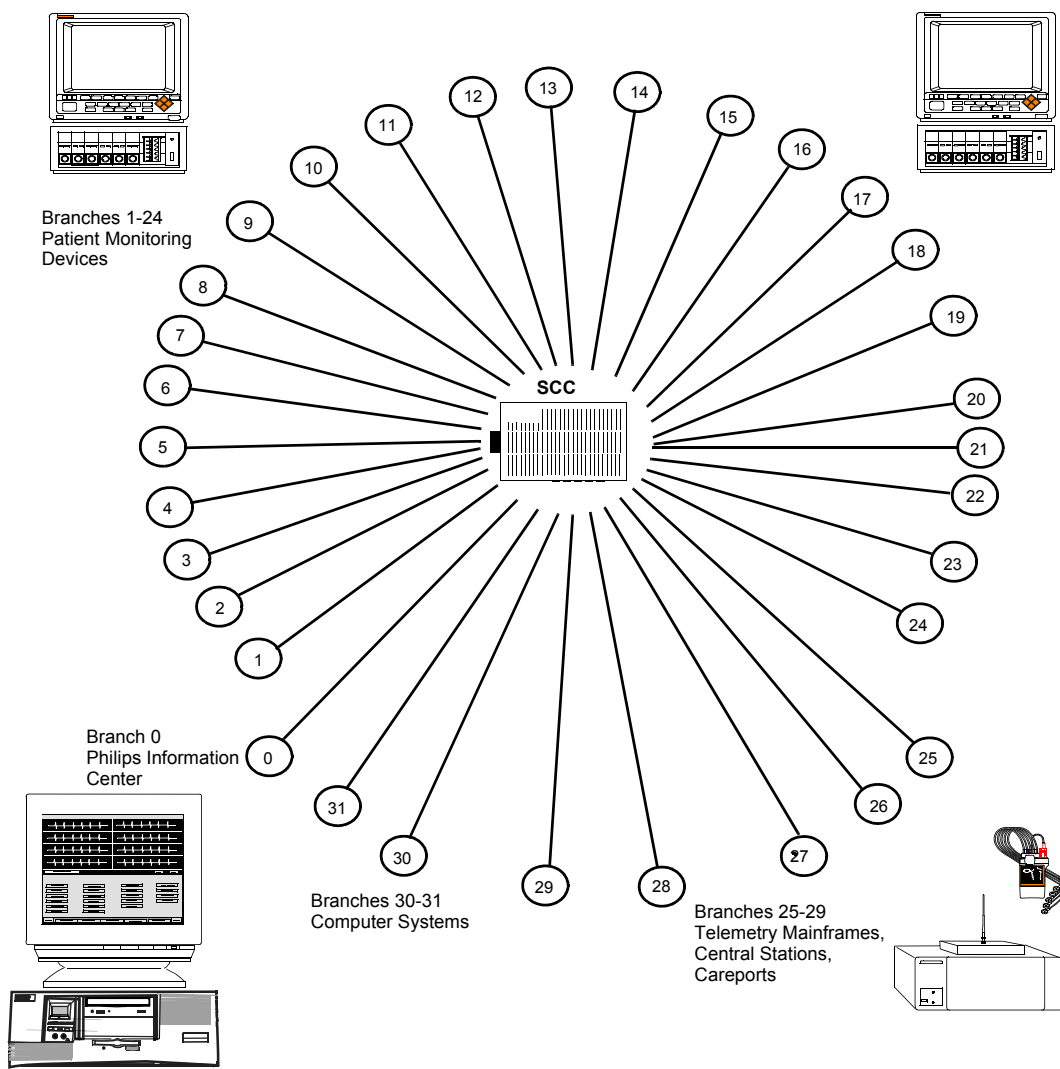
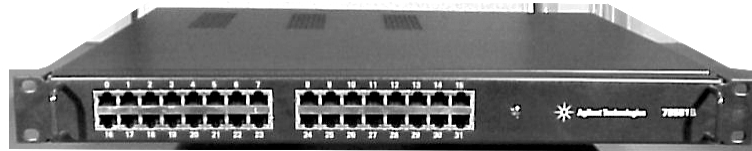


Figure 2-35 SDN Topology

**System Communications Controller**

The **System Communications Controller (SCC)** is the active device of the SDN. Its functions are to provide the communication link among instruments connected to the SDN, establish SDN polling cycles, and control data flow, timing, synchronization, and distribution throughout the system. The SCC is shown in Figure 2-36.



**Figure 2-36 Serial Communications Controller**

The SCC performs basic SDN fault detection to insure reliability of SDN system communication as well as self-diagnostic routines for SCC fault detection, troubleshooting, and servicing.

**Warning**

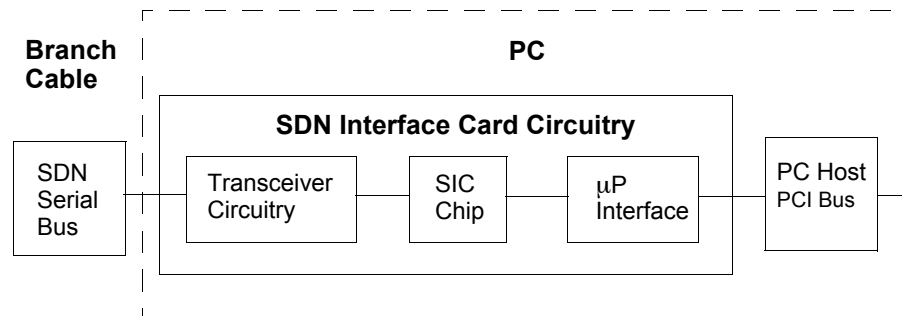
**For the Information Center system to comply with IEC 60601-1-1, a second Protective Earth (PE) must be provided for the SDN. This is normally accomplished by providing a second PE to the SCC. This is described in Chapter 4, Safety.**

**Note**

The Information Center can also monitor up to two telemetry mainframes without the need for an SCC. In this application, the telemetry mainframe output is connected directly to the Information Center’s SDN Interface Card input. Priority wire connections are required for this application. See Figure 2-37.

**SDN Interface Card**

The **SDN Interface Card** is the intelligent interface between the SDN and the PC host. It receives and sends messages to and from other instruments over the SDN. A block diagram of SDN Interface Card circuitry is shown in Figure 2-37.



**Figure 2-37 SDN Interface Card Block Diagram**

**Branch Cables**

SDN branch cables are installed to connect the SCC to wall boxes where SDN instruments are connected. Branch cables can be of two general types -- shielded, Serial Distribution Cables

(SDC) or Unshielded Twisted Pair (UTP) cables. For both cable types, there are limitations on the length of cable runs to ensure reliable communication.

**SDC Serial Distribution Cables** (SDC) are proprietary, 2-conductor, twisted pair, shielded cables that are 0.34 in (0.9 cm) in diameter. The wires and shield have the following colors and assignments.

Pink      + positive  
Blue      - negative

Shield     $\perp$  drain ground (GND)

SDC branch cables are limited to a maximum length per branch of **152 m (500 ft.)**.

**XSDC** For longer cable runs, Philips shielded, **Extended System Distribution Cable** (XSDC) can be used. It has heavier gauge conductor wires with a cable diameter of 1.1 cm (0.44 in). XSDC wire colors and assignments are the same as for SDC. XSDC branch cables are limited to a maximum length per branch of **304 m (1000 ft.)**. Only two XSDC cable runs are allowed per SCC.

**UTP** SDN branch cables can also be LAN Ethernet, category 5, **Unshielded Twisted Pair** (UTP) cable. UTP cable consists of 4 twisted pairs of unshielded conductors in which one pair (BLUE/white and WHITE/blue) carries the SDN signal and the other pairs are connected to ground. UTP cable is compatible with either the 568A or 568B wiring standards for RJ 45 jacks. UTP branch cables are limited to a maximum length per branch of **90 m (295 ft.)**.

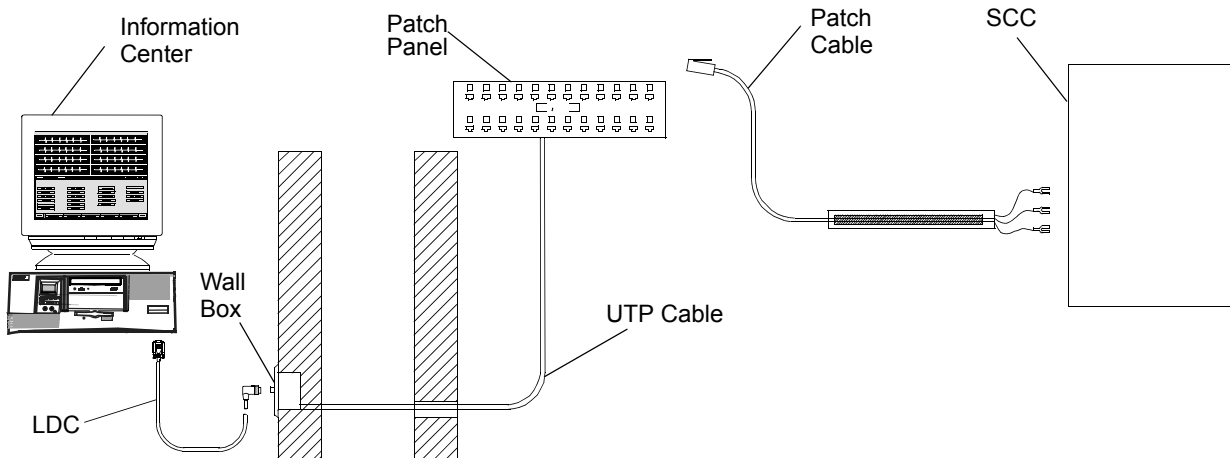
SDC, XSDC, and UTP cables are available from Philips. Specifications for these branch cables are summarized in the following table.

**Table 2-1. Branch Cables for Philips Systems**

Cable Type	+ Signal Color	- Signal Color	Shield Color	Maximum Length	
				Meters	Feet
SDC	Pink	Blue	Green	152	500
XSDC	Pink	Blue	Green	304	1000
UTP	BLUE/white	WHITE/blue	All other	90	295

**LDC Local Distribution Cables** (LDC) for connecting the processing unit to SDN wall boxes are Philips proprietary computer cables with a 9-pin connection to the processing unit and an Philips 5-pin barrel connector to an Philips SDN wall box. A 15 m (50 ft.) LDC cable kit (M3181A #A35) is also available. Cables and wall boxes are described in the following sections.

A typical SDN installation for an Information Center using UTP cable is shown in Figure 2-38. SDN on UTP installation materials for Philips installations are given in **SDN Installation Materials, Table 1-31..**

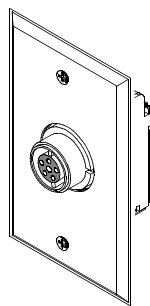


**Figure 2-38 Typical SDN for an Information Center System Using UTP**

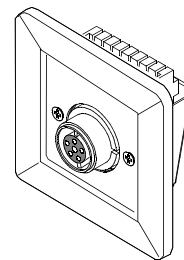
**Wall Box Kits**

Wall box kits for connecting Philips LDC to SDN/UTP wiring are available from Philips. These are special Philips wall box kits designed to fit into standard U.S. electrical wall boxes [NEMA, single or dual gang with conduit knockouts, minimum depth = 4.0 cm (1.6 in.)] and typical European wall boxes [minimum depth = 4.0 cm (1.6 in.)]. SDN/UTP Wall Box Kits for both U.S. and European installations are shown in Figure 2-39. Wall box kits for SDN installations using SDC and XSDC are also available from Philips.

Detailed descriptions of proper installation of wall box kits are provided in the Installation Note **Installing SDN Using UTP Cable** and are included with the wall box kit. Ordering information for wall box kits is provided in **SDN Installation Materials**.



**U.S. Wall Box Kit**



**European Wall Box Kit**

**Figure 2-39 SDN UTP Wall boxes for Philips Connections**



## Cables

Equipment cables for Philips devices are of two general types, those that provide power and those that carry communication signals. This section provides descriptions and drawings of each cable. Detailed wiring diagrams for each Information Center model are provided in **Chapter 5, Installation**.

### Cable Descriptions

Figure 2-40 shows equipment cables that are provided for Information Center systems. The following table gives descriptions of each cable and a key to the figures.

**Table 2-3. Equipment Cables for Information Center Systems**

Key #	Description	Option	Length (m)	Length (ft)
1	Display power cable - (all displays)			
2	Display signal cable - (all displays)			
3	Female/Female VGA cable adapter			
4	15 Pin Mini D-Sub Male to 5 BNC coax adapter cable	<b>A11</b>	1.0	3.3
	15 Pin Mini D-Sub Male to 5 BNC coax adapter cable	<b>A12</b>	5.0	16.4
5	Video Splitter (2-way)			
6	Video Splitter Power Supply (2-way)			
7	5 BNC/5 BNC coax adapter cable	<b>A17</b>	3.0	9.8
8	5 Male BNC connectors (for Plenum coax cable)	<b>J89</b>		
	5 Male BNC connectors (for Non-plenum coax cable)	<b>J87</b>		
9	BNC Plenum coax cable	<b>P35</b>	90 max.	300 max.
	BNC Non-plenum coax cable	<b>C62/C63</b>	90 max.	300 max.
10	Mouse or Trackball cable			
11	Keyboard cable			
	Keyboard/Mouse extension cable	<b>A14</b>	4.0	13.1
	Extended distance cable kit (includes cables for display, mouse, keyboard, and recorder rack)	<b>A10</b>	approx. 6.0	approx. 19.7
12	UPS signal cable to M3150 PC (option)	<b>A15</b>	1.0	3.3
	UPS signal cable to M3150 PC (standard)	<b>A16</b>	2.0	6.6
13	PC power cable			
14	LaserJet 6P printer signal cable (standard)	<b>A01</b>	3.0	9.8
15	LaserJet printer power cable			
16	SDN cable: wall box - PC (standard)	<b>A30</b>	2.0	6.6
	SDN cable: wall box - PC (option)	<b>A31</b>	4.0	13.1
17	Analog telephone line - PC cable			
18	Speaker cable		6.0	19.7
19	Recorder 60V Power Supply power cable			
20	Recorder 60V Power Supply		0.5	1.5
21	Recorder Rack power/signal cable	<b>A33</b>	1.0/3.0	3.3/9.8
	Recorder Rack power/signal cable	<b>A34</b>	1.0/6.0	3.3/19.7

**Table 2-3. Equipment Cables for Information Center Systems**

<b>Key #</b>	<b>Description</b>	<b>Option</b>	<b>Length (m)</b>	<b>Length (ft)</b>
<b>22</b>	Printer Spooler - PC cable (options)	<b>A03</b>	3.0	9.8
		<b>A04</b>	10	32.8
<b>23</b>	4-Channel Recorder 24V Power Supply power cable			
<b>24</b>	4-Channel Recorder signal cable		7.6	25
<b>25</b>	SDN 9-pin D from SDN Card to standard CAT 5 UTP faceplate (RJ-45 connector)	<b>A36</b>	2.0	6.6
<b>25</b>	SDN 9-pin D from SDN Card to standard CAT 5 UTP faceplate (RJ-45 connector)	<b>A37</b>	4.0	13.1
<b>26</b>	USB Connector to Display signal cable			

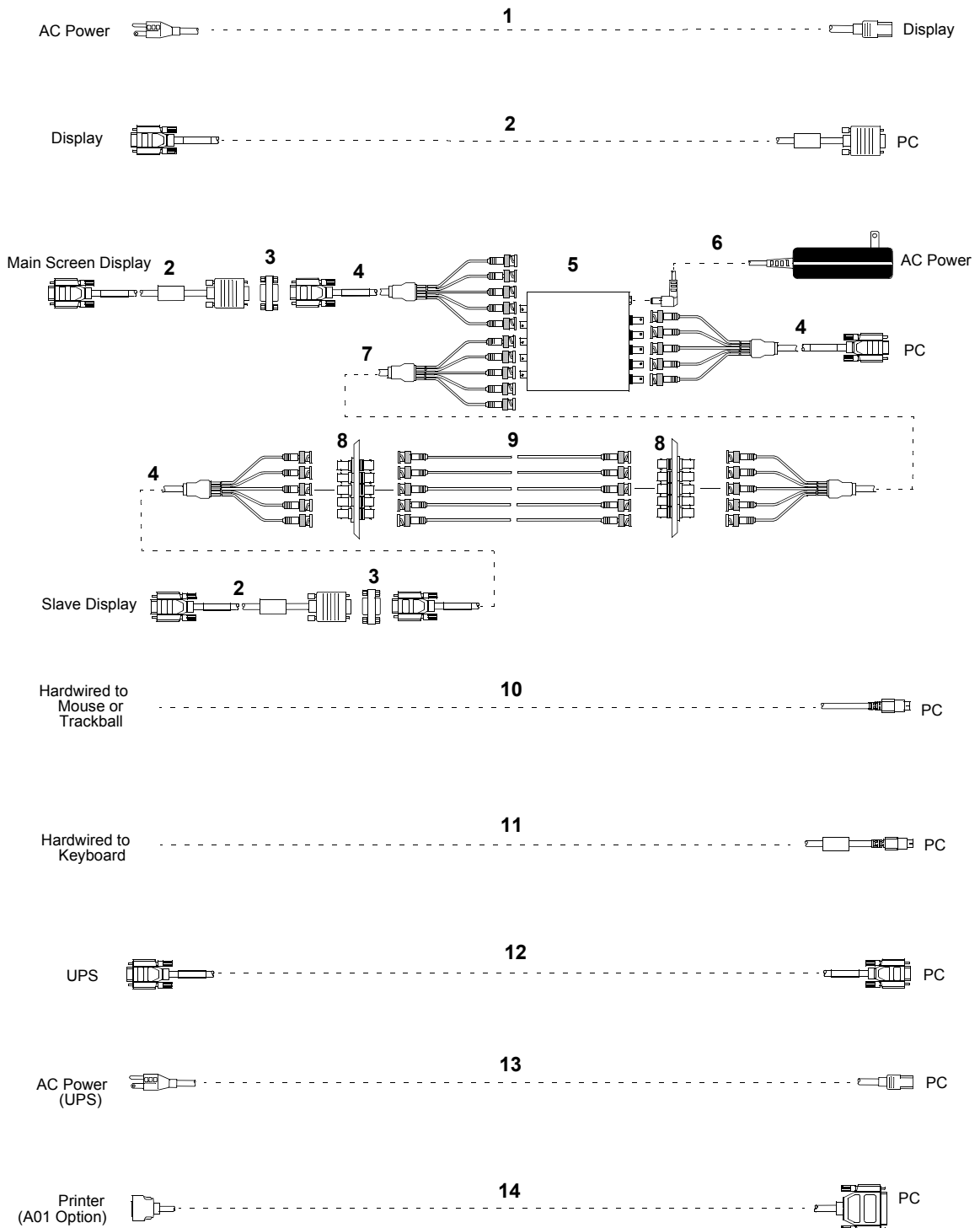
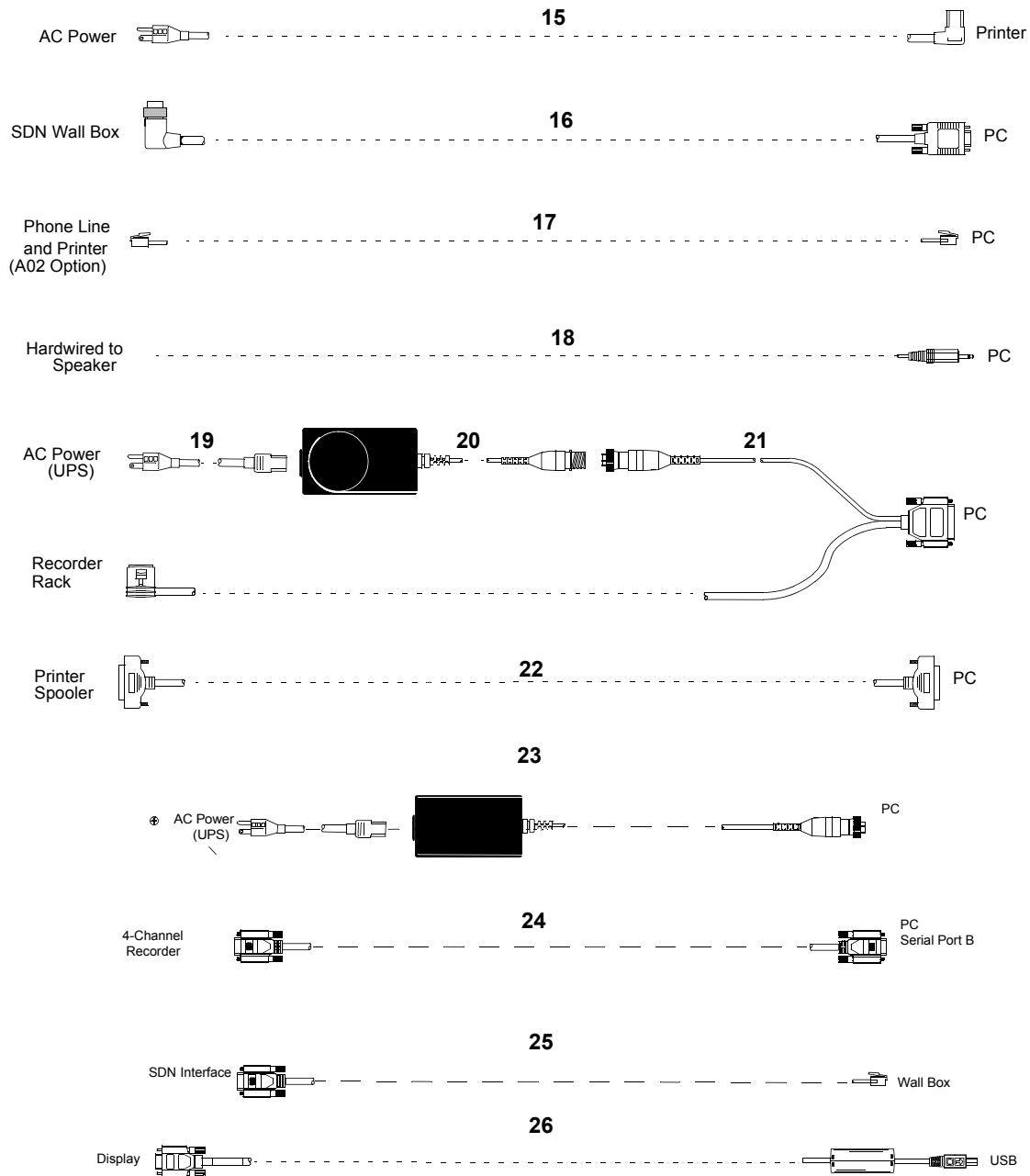


Figure 2-40 Equipment Cables for Information Center Systems

## Cables

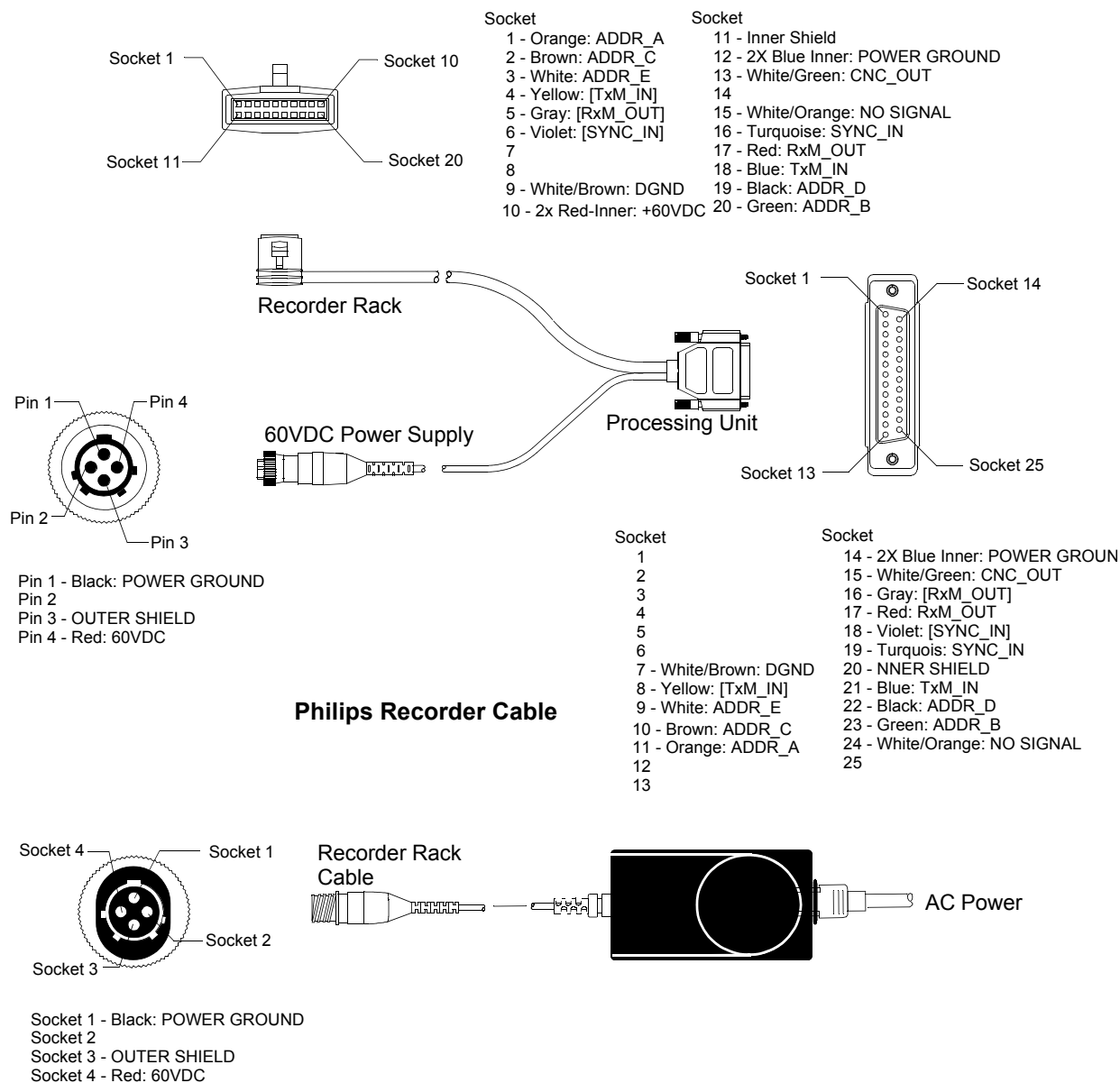


**Figure 2-41 Equipment Cables for IntelliVue Information Center Systems**

### Cable Pin Connections

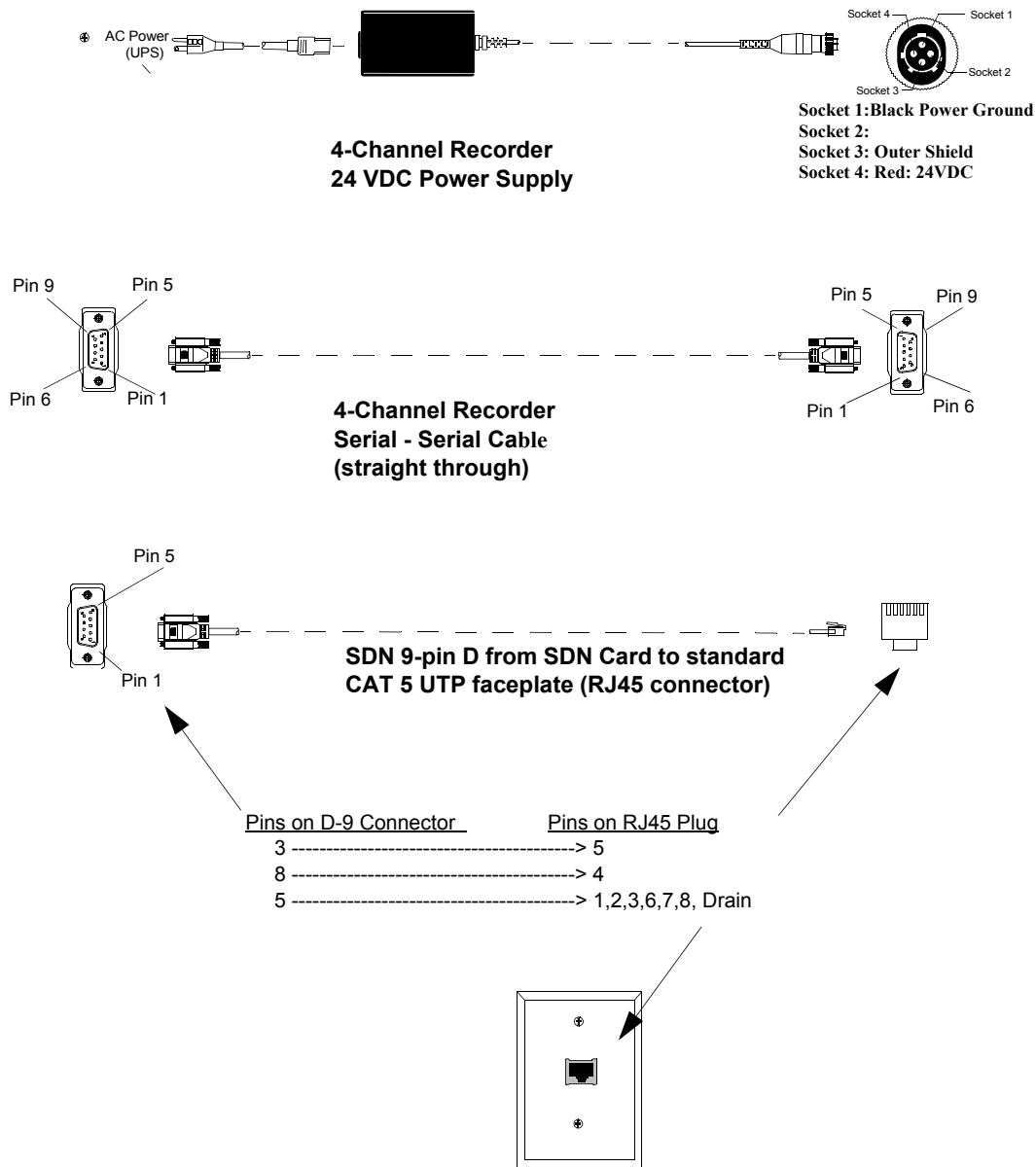
Pin connections for cables connecting Information Center medical components -- Philips Recorder and SDN -- are given below. For pin connections for other products and cables, consult their documentation manual.

**Recorder Rack/ Power Supply Cable** Pin connections for cables interconnecting the Philips Recorder and 60VDC Recorder Power Supply are given in Figure 2-42.



**Philips 2-Channel Recorder 60VDC Power Supply**

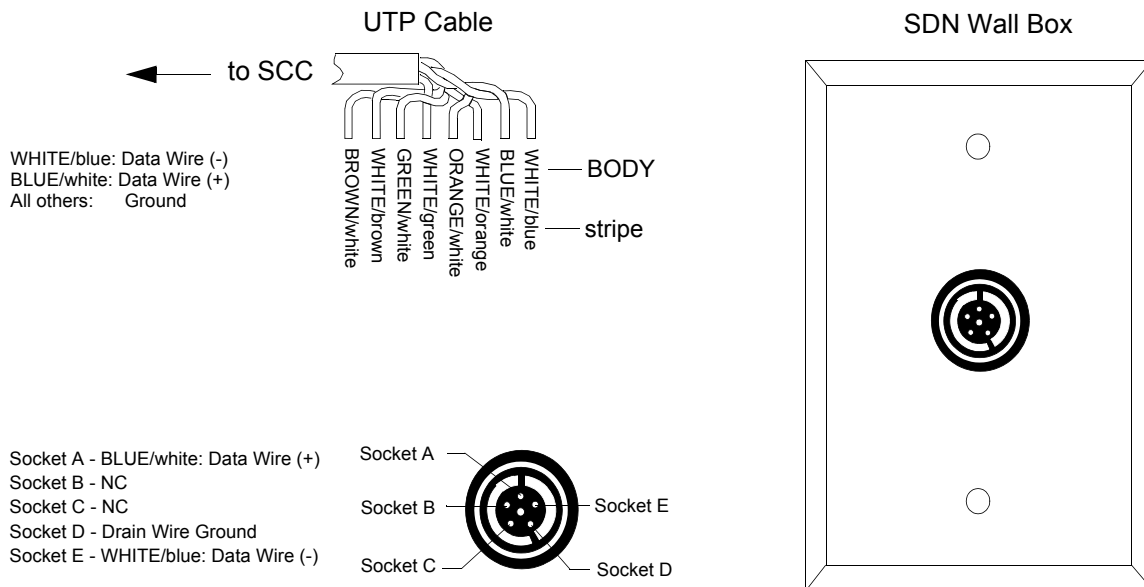
**Figure 2-42 Pin Connections for Philips 2 Channel Recorders**



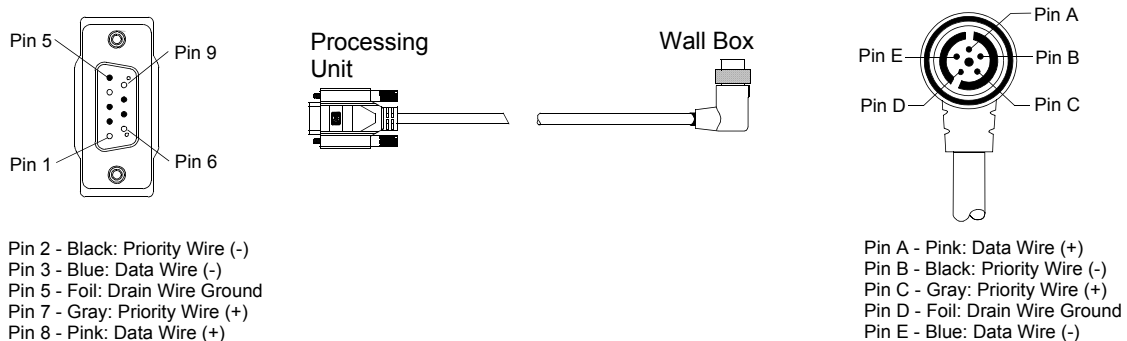
**Figure 2-43 Pin Connections**

**SDN Wall Box and Signal Cable** Pin connections for the SDN wall box and signal cable are given in Figure 2-44. UTP cable from the SCC to the wall box consist of 4 pairs of unshielded, twisted wires. Pair 1 -- WHITE-blue and BLUE-white -- carries the SDN signal from the SCC and is connected to

connections A (+) and E (-) of the SDN wall box socket. The other UTP cable pairs are connected to ground.



### Pin Connections to the SDN Wall Box



### Pin Connections to the SDN Signal Cable

Figure 2-44 Pin Connections for SDN Wall Box and Cable

## Computer Cards

Within a typical Information Center processing unit there are four PC cards that tailor the system to Information Center applications. These are a **Dual Video Graphics Card** (for M3150 systems), the **PC System Board (mother board)**, an Audio **Sound Card**, and an **SDN Card**. See figures below for placement in the PC workstation.

### Dual Video Graphics Card

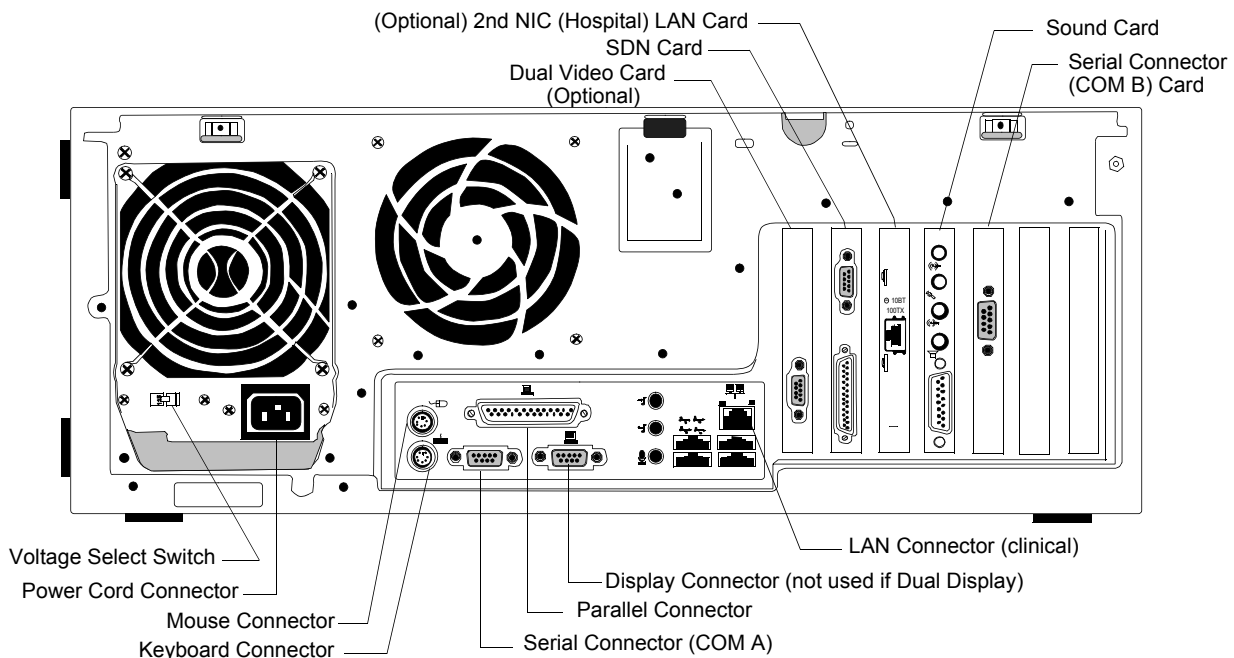
The **Dual Display Video Graphics Card** permits the Information Center to double its display area. In this optional configuration, the **Main Screen** appears on the primary display and the **Patient Window** and control screens appear on the second display.

When this option is purchased as part of an initial Information Center installation, the Dual Video Graphics Card has been pre-installed and the Information Center software preconfigured for operation. When purchased as an upgrade option, the Dual Display upgrade kit includes an **Installation Note** that describes installation and configuration.

#### Note

When installing a upgrade of the system, installation of a dual display card in a single display system is not allowed.

Installation of the Dual Video Graphics card into the processing unit is described in the **PCs Familiarization Guide** provided in the Information Center Service Documentation CD-ROM. See the figures below for video card placement in the D510 PC.

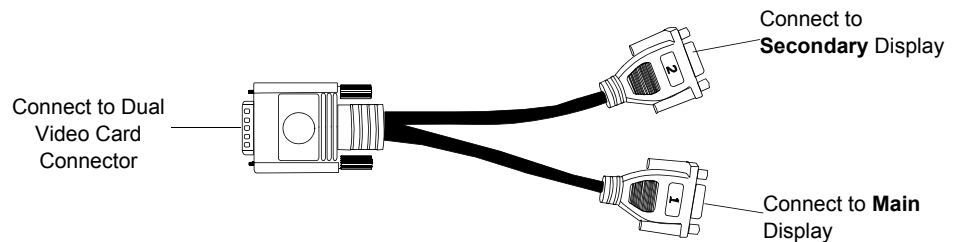




**Note**

**Single Display systems** - the Main Display is plugged into the 9-pin Display Connector on the rear of the PC.

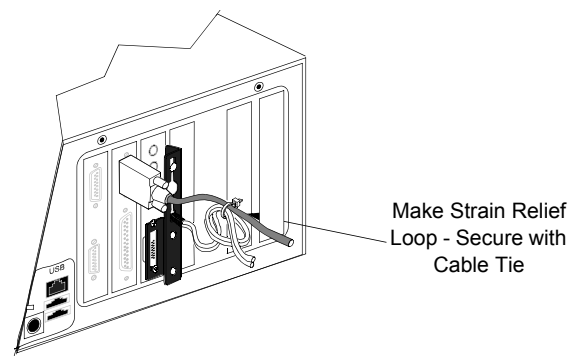
**Dual Display systems** - a Dual Video Card is required. The provided Y-Cable plugs into the 9-pin Display connector on the Dual Video Card. The Main Display must be plugged into the connector labeled "1" on the Y-cable, and the Second Display must be plugged into the connector labeled "2". The rear panel Display Connector is not used.

**Audio Sound Card**

The **Audio Sound Card** provides speaker capability to Information Centers and Clients processing units. It is a qualified, standard component and is pre-installed.

**Warning**

All cards must be in the slots shown for proper Information Center operation. Make certain that the speaker cable cannot accidentally be pulled out because it annunciates alarms. Use the Strain Relief Mechanism provided and, also, secure the cable to another secured cable using strain relief loops and cinch cable ties. Reference Strain Relief Kit # M3150-60019. See illustration below.



**Figure 2-45 Speaker Cable - Strain Relief Loop**

**Warning**

Cables with plugs not firmly attached by screw connections must be secured to prevent accidental unplugging. When securing cables, be sure to provide strain relief loops and cinch cable ties tightly.

## Specifications

This section gives physical, environmental, electrical, and safety specifications for the Information Center system components. Also provided are requirements for displays connected to Information Center systems and an external modem for the Database Server.

### Caution

**The following specifications are for units shipped at the time of this manual's publication. Units shipped with later systems may vary, with newer models substituted as they become available.**

### Physical

The following table gives the current specifications of the maximum dimensions and weights of each component in the Information Center System.

**Table 2-4. Physical Specifications of Information Center System Components**

Philips Component	Product Part #	Height cm (in.)	Width cm (in.)	Depth cm (in.)	Weight kg. (lbs.)
Server (M3154)	M3168A	46.88 (18.46)	22.07 (8.69)	71.12 (28.00)	23.04 (50.8)
PC	M3167B	16.7 (6.6)	44.8 (17.65)	16.8 (6.6)	9.1 (20)
Medium CRT Display WW (not Europe)	M3161	41.5 (16.3)	44.2 (17.4)	43.5 (17.1)	19 (42)
Medium CRT Display - Europe	M3161	41.5 (16.3)	44.2 (17.4)	43.5 (17.1)	19 (42)
Large CRT Display	M3162	49.1 (19.3)	49.8 (19.6)	48.6 (19.1)	32 (71)
Large Flat Panel Display	862103	45.5 (17.9)	45.0 (17.7)	24.5 (9.6)	13.6 (29.9)
Medium Touch Flat Panel Display	862428	42.9 (16.9)	43.4 (17.1)	24.4 (9.62)	(25)
2-way Video Splitter	862096	4.4 (1.75)	11.8 (4.63)	12.1 (4.75)	0.45 (1)
6-Way Video Splitter	862097	10.8 (4.27)	21.3 (8.4)	15.9 (6.25)	3.6 (8)
Keyboard	C4735A	4.6 (1.8)	46.0 (18.1)	18.9 (7.5)	1.1 (2.4)
	C3758A	5.1 (2.0)	46.4 (18.3)	17.8 (7.0)	1.1 (2.4)
Keyboard-Video-Mouse Switch	862098	4.8 (1.9)	20.6 (8.1)	12.7 (5.0)	.77 (1.7)
Philips 2-Channel Recorder/Rack	M1276A #201/ M1116B	14.9 (5.9)	26.0 (10.2)	15.0 (5.9)	1.6 (3.5)
2-Channel Recorder/Rack Power Supply	M3180-60040	40.3 (15.9)	7.75 (3.05)	12.9 (5.08)	0.34 (0.75)
4-Channel Recorder Power Supply	M3160A	24.9(9.8)	14.0(5.5)	19.0(7.5)	2.5 (5.5)
LaserJet Printer	2300L	26.0 (10.2)	41.3 (16.2)	45 (17.7)	14.3 (31.6)
Printer Hub	AT-FS708	3.6 (1.44)	24.92 (9.82)	11.63 (4.58)	.89 (1.95)
UPS (650 VA, 120 V))	0950-2832	16.8 (6.6)	11.9 (4.7)	36.1 (14.2)	11.4 (25.0)
UPS (650 VA, 230 V)	0950-3406				
Power Distribution Module	M3166-60000	16.0 (6.3)	25.9 (10.2)	51.0 (20.1)	20 (44)
UPS for Database Server (1000 VA, 120V)	M3882-60001	21.6 (8.5)	17.0 (6.7)	43.9 (17.3)	19.1 (42)
UPS for Database Server (Japan) (1000 VA, 100V)	M3884-60001				19.1 (42)
UPS for Database Server (1000 VA, 230V)	M3883-60001				18.9 (41.5)

**Environmental** The following table gives information on the environmental operating requirements for the current system components. Data for both the Philips system as a whole and for individual components are provided.

**Table 2-5. Environmental Requirements for Information Center System Components**

	Product Part #	Temperature	Relative Humidity (Non-condensing)	
<b>Philips System</b>		59 - 86 °F 15 - 30 °C	20 - 80% @ 30°C (86 °F)	
<b>Philips Components</b>				
Server (M3154)	M3168A	5 - 35°C (41 - 95°F)	5 - 95%	
PC	M3167B	10 - 35°C (50 - 95°F)	10 - 90%	
Medium CRT Display	M3161	32 - 104 °F 0 - 40 °C	8 - 85%	
Medium CRT Display - Europe	M3161	32 - 104 °F 0 - 40 °C	8 - 85%	
Large CRT Display	M3162	32 - 104 °F 0 - 40 °C	10 - 80%	
Large Flat Panel Display	862103			
Medium Touch Flat Panel Display	862428	50 - 104 °F 10 - 40 °C	0 - 80%	
Video Splitter	2-way 6-way	862096 862097	41 - 104 °F 5 - 40 °C	15 - 80%
LaserJet Printer	2300L	59 - 89 °F 15 - 32.5 °C	10 - 80%	
Printer Hub	AT-FS708	32 - 104 °F 0 - 40 °C	5 - 95%	
Philips 2-Channel Recorder/Rack	M1276A #201/ M1116B	41 - 104 °F 5 - 40 °C	15 - 80%	
2-Channel Recorder/Rack Power Supply	M3180-60040	41 - 104 °F 5 - 40 °C	15 - 80%	
4-Channel Recorder/Power Supply	M3160A	41 - 104 °F 5 - 40 °C	20 - 80%	
UPS (650 VA, 120V)	862099	41 - 104 °F 5 - 40 °C	15 - 80%	
UPS (650 VA, 230V)	0950-3406			
UPS for Database Server (1000 VA, 120V)	M3882-60001	32 - 104 °F 0 - 40 °C	0 - 95%	
UPS for Database Server (Japan) (1000 VA, 100V)	M3884-60001	32 - 104 °F 0 - 40 °C	0 - 95%	

Specifications

**Table 2-5. Environmental Requirements for Information Center System Components**

	<b>Product Part #</b>	<b>Temperature</b>	<b>Relative Humidity (Non-condensing)</b>
UPS for Database Server (1000 VA, 230V)	M3883-60001	32 - 104 °F 0 - 40 °C	0 - 95%
Power Distribution Module	M3166-60000	23 - 140 °F 5 - 60 °C	0 - 95% @ 40 °C

**Electrical**

The following table gives electrical specifications for current system components. These include the input voltage requirements, whether the unit must be manually switched for that voltage, the acceptable frequency range of the input voltage, and the maximum electrical power required that is dissipated to the environment during operation.

**Table 2-6. Electrical Specifications of Database Server Components**

<b>Philips Component</b>	<b>Product Part #</b>	<b>Input Voltage (VAC)</b>	<b>Manual Switching Required?</b>	<b>Input Frequency (Hz)</b>	<b>Dissipated Power (max) (Watts)</b>
Server (M3154)	M3168A	90 - 264	No	47 - 63	550
PC workstation	M3167B	100 - 127 200 - 240	Yes	50 - 60	220
Medium CRT Display	M3161	100 - 240	No	50 - 60	
Medium CRT Display - Europe	M3161	200 - 240	No	50 - 60	
Large CRT Display	M3162	100 - 240	No	50 - 60	
Medium Flat Panel Display	862100	81 - 264	No	48 - 62	
Medium Touch Flat Panel Display	862428	100 - 240	No	50 - 60	
2-way Video Splitter	862096	100 - 250	No	50 - 60	2
6-Way Video Splitter	862097	100 - 240	No	50/60	20
Philips 2-Channel Recorder/Rack	M1276A #201/ M116B	60 VDC	n/a	n/a	26
2-Channel Recorder/Rack Power Supply	M3180-60040	100 - 240	No	50 - 60	72
Philips 4-Channel Recorder/ 24VDC Power Supply	M3160A	100 - 120 220 - 240	No	50 - 60	70
LaserJet Printer	2300L	100 - 127 220 - 240	n/a	50 - 60	394 (printing)
Printer Hub	AT-FS708	100 - 240		50/60	
UPS (650 VA, 120V)	862099	100 - 127	Yes	50/60	38
UPS (650 VA, 230V)	0950-3406	220 - 240	Yes	50/60	38
UPS for Database Server (1000 VA 120V)	M3882-60001	82 - 144	n/a	50 - 60	
UPS for Database Server (Japan) (1000 VA 100V)	M3884-60001	82 - 144	n/a	50 - 60	

**Table 2-6. Electrical Specifications of Database Server Components**

Philips Component	Product Part #	Input Voltage (VAC)	Manual Switching Required?	Input Frequency (Hz)	Dissipated Power (max) (Watts)
UPS for Database Server (1000 VA, 230V)	M3883-60001	160 - 286	n/a	50 - 60	
Power Distribution Module	M3166-60000	100, 120 -127, 200, 200 - 240	Yes	50 - 60	

Conversion factors for power dissipation are the following:

$$\begin{aligned} \text{BTU/hr} &= \text{Watts} \times 3.413 \\ \text{Kcal/hr} &= \text{Watts} \times 0.8598 \end{aligned}$$

Conversion factor for air conditioning requirements for power dissipation is:

$$\begin{aligned} \text{air conditioning} & \quad \text{power dissipation} \\ 1 \text{ ton} &= 8900 \text{ BTU/hr} = 3024 \text{ Kcal/hr} \end{aligned}$$

### Customer Supplied Displays

The following table gives recommended requirements for displays and video cables connected to Information Centers and Clients.

---

#### Note

For displays and video cables not supplied by Philips as part of an Information Center system:

- The support user is responsible for all aspects of their selection, purchase, installation, repair, and disposal
  - Philips cannot assure their system compatibility
  - Philips cannot assure compliance with the ECG aspect ratio and 25 mm/s  $\pm 10\%$  sweep speed specification of Information Center software, which complies with the ANSI/AAMI EC-13 Standard for Cardiac Monitors, Heart-Rate Meters, and Alarms.
- 

**Table 2-7. Recommended Display Specifications for Information Center Displays**

Specification	Value
Screen Resolution	1280 x 1024
Vertical Refresh Rate	60 Hz

**Table 2-7. Recommended Display Specifications for Information Center Displays**

Specification	Value
Viewable width of 1280 dots	<p><i>Note</i>—This value is the <b>Visible Display Width</b> that is entered in the Config Wizard Device Setup and Support Information Screen. The valid range is 267 to 1188 mm.</p> <p>Some typical values include:</p> <ul style="list-style-type: none"> <li>• M3161 (medium) CRT Display: 308 mm</li> <li>• M3162 (large) CRT Display: 381 mm</li> <li>• 862100 Medium Flat Panel Display: 338 mm</li> <li>• 862428 Medium Touch Flat Panel Display: 338 mm</li> <li>• 862103 Large Flat Panel Display: 359</li> </ul>
Red, Green, & Blue Video Inputs	~ 0.7 V <sub>p-p</sub>
Vertical & Horizontal Multi-Sync Inputs	5 V <sub>TTL</sub>
Video Cable Connector	HD 15 Male
Color Depth	24-bit (or greater) True Color

---

**Note** The ECG aspect ratio and 25 mm/s ± 10% specifications are likely to be met with a high quality display and video cable that satisfies the specifications recommended in **Table 2-7**.

---

Some displays have visible and/or protruding menu keys that can interfere with the operation of the Application software. Verify when installing customer supplied displays that these buttons are protected from the possibility of interference.

**Flat Panel Specifications** A small number of missing pixels is normal for flat panel (LCD) displays and is not an indication that the display is not meeting specifications and needs to be replaced. The following specifications for the M3163-60001 flat panel display are listed here:

**Monitor Backlight (Brightness)**

- Working Conditions
  - Ambient temperature: 25 +/- 5 degrees C
  - Brightness control (Vvr4): 0V
- Definition of defect
  - Brightness falls under 50% of the minimum brightness value of the flat panel display (Minimum brightness 210 cd/m2)
  - The lamp does not turn on
  - The lamp starts flashing

**Inspection Specifications for Pixel Drop Out**

- Area to be inspected
  - Inside display dot area (345.6 x 276.48 mm) - display dot area is the “active area”
  - One pixel consists of 3 dots (red, green and blue)
- Bright pixels definition
  - Bright pixels are classified as follows (based on luminance samples)

$L > 0, 75L_x + 0, 25L_n$  (according to ISO 13406-2:2001)

- $L$  is the measured luminance of the pixel
- $L_x$  is the average pixel response to a maximum luminance command (e.g. white)
- $L_n$  is the average pixel response to a minimum luminance command (e.g. black)

- Number of bright pixels standard
  - Bright pixels 15 or less
  - Number of two bright pixels connections 4 or less

**Note**

Display should be all black when bright spots are counted. Distance between defects is 5 mm or more. Distance to the third defect should be 20 mm or more.

- Dark pixels definition
  - Dark pixels are classified as follows (based on luminance samples)  
 $L < 0, 75L_n + 0, 25L_x$  (according to ISO 13406-2:2001)
    - $L$  is the measured luminance of the pixel
    - $L_x$  is the average pixel response to a maximum luminance command (e.g. white)
    - $L_n$  is the average pixel response to a minimum luminance command (e.g. black)
- Number of dark pixels standard
  - Number of defects 16 or less
  - Number of two dark pixels connections 5 or less

**Note**

Display should be all white when dark spots are counted. Distance between defects is 5 mm or more. Distance to the third defect should be 20 mm or more.

**External Modem**

The following table gives requirements for an external modem for the M3150 Information Center PC Workstation and the M3154 Database Server.

**Note**

For external modems not supplied by Philips as part of a Philips system:

- The support user is responsible for all aspects of modem selection, purchase, installation, repair, and disposal
- Philips cannot assure their system compatibility or compliance with safety, EMC, telecommunications, installation, or other requirements.
- The external modem should be connected to the UPS.
- Connect the modem cable to the server on Serial Port B, and power on the modem before powering on the Database Server. Leave the modem powered on and connected to the PC or Database Server.

---

**Caution**            **To minimize potential problems, the modem phone line cable should be disconnected when not in use.**

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**Note**                    The Windows Catalogs are replacing the Hardware Compatibility List (HCL).

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**Step 1.** Go to the Windows Catalogs URL: [www.microsoft.com/whdc/hcl/default.msp](http://www.microsoft.com/whdc/hcl/default.msp).

**Step 2.** Click on the appropriate link:

- Windows XP devices: **Windows Catalog** link.
- Windows 2000 Server devices: **Windows Server Catalog** link.

**Step 3.** Navigate to the find external analog modems.

**Step 4.** Select from the products with the strongest compatibility rating(s) (i.e. has all of the Windows Logo requirements and there is a driver available for download.)

**Table 2-8. Requirements for an External Modem**

Specification	Value	Comments
	Exact model has a Logo or Compatible listing for use with Windows 2000 Server or XP Professional	Follow the modem manufacturer's installation procedures for Windows 2000 Server or XP Professional
International Telecommunications Union (ITU) standardization	e.g. V.34, V.90	
Physical	Serial B	<b>Enable in BIOS Setup</b>
Logical	COM 2	OS's modem preference
Interrupt Request	IRQ 3	Default IRQ. <b>Set to Available in BIOS Setup</b>
Base I/O Address	2F8	Default hex address
Serial port FIFO enabled	Yes	Default setting
Port Speed	115200	Typical value
Data bits	8	Default value
Parity	None	Default setting
Stop bits	1	Default value
Use error control	Yes, Compress data	
Use flow control	Yes, Hardware (RTS/CTS)	
Modulation type	Standard	
Record a log file	No	
<b>External modem-cable connector</b>		
Type	Female, 9-pin, D-Sub, RS-232C	
Pin 1	DCD (Data Carrier Detect)	



**Table 2-8. Requirements for an External Modem**

<b>Specification</b>	<b>Value</b>	<b>Comments</b>
Pin 2	RX (Receive Data)	
Pin 3	TX (Transmit Data)	
Pin 4	DTR (Data Terminal Ready)	
Pin 5	GND (Signal Ground)	
Pin 6	DSR (Data Set Ready)	
Pin 7	RTS (Request To Send)	
Pin 8	CTS (Clear To Send)	
Pin 9	RI (Ring Indicator)	
Shell	Shield	

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## Regulatory

### Philips Software

The M3290A Information Center Release E.01 software complies with applicable portions of ANSI/AAMI EC-13 and with requirements of the Council Directive 93/42/EEC of 14 June 1993 concerning medical devices. It carries CE-marking to the European Medical Device Directive.



**Rx ONLY**

### Philips Hardware

The PC workstation, Server, Philips 2-Channel Recorder, HP LaserJet printer, UPS, and displays comply with IEC 60950, CISPR 22 Level A, and EN 50082-1. They carry CE-marking to the European Low Voltage and EMC Directives, except for the Philips 2-Channel Recorder, which carries CE-marking to Council Directive 93/42/EEC of 14 June 1993.

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### Warning

**Information Center system components are not suitable for installation in the Patient Care Vicinity (Patient Environment) -- any area within 1.5 meters (4.9 ft.) horizontally and 2.5 m (8.2 ft.) vertically above the floor from any patient care location in which medical diagnosis, monitoring, or treatment of the patient is carried out.**

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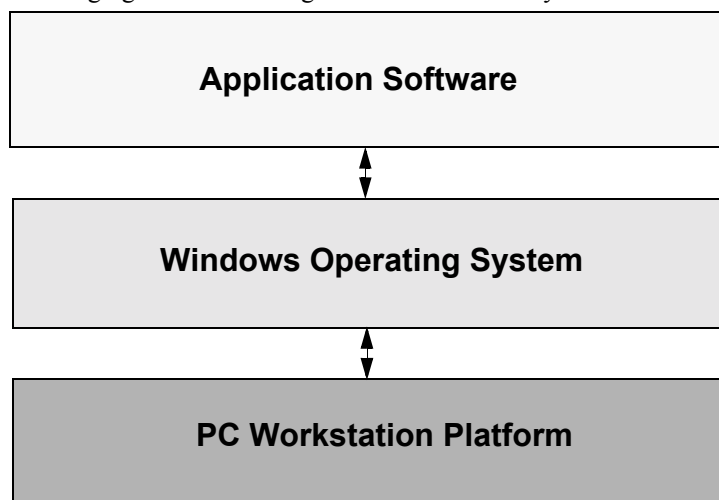
# Software Description

## Overview

The Information Center medical application software is the heart of the Information Center. It operates on an PC workstation and uses a Windows Operating System software to provide the full range of central monitoring functionality.

**Chapter 3** describes the system application software in the following sections.

- **PC Workstation Platform** - gives a brief description of the PC Workstation and peripheral hardware required for proper software operation.
- **Windows Operating System** - describes the Windows Operating System software required by the Information Center system. Because this is a standard product for which extensive documentation is available, only a brief overview is given.
- **IntelliVue Information Center Application Software** - describes the Information Center applications software, including its features and architecture.
- **Services** - describes embedded management services (EMS) tools available to service personnel for managing and maintaining Information Center systems.



**Figure 3-1 Major Components of the Information Center System**

**Table 3-1. Software CDROM Identification**

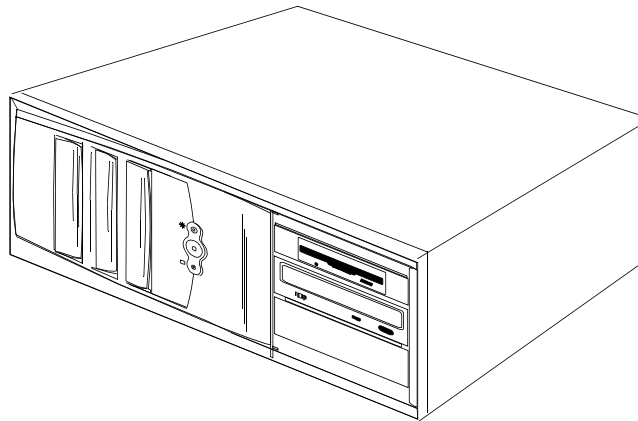
Disk Label	Description
<b>A</b>	Operating System Software for PC Based devices: Information Centers, Clients, Patient Link, Small Database Server
<b>B</b>	Application Software for PC Based devices: Information Centers, Clients, Patient Link, Small Database Server
<b>C</b>	Operating System Software for M3154 Database Server
<b>D</b>	Application Software for M3154 Database Server

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## PC Workstation Platform

The PC workstation provides the hardware platform for the Information Center system. It works in cooperation with a variety of peripheral devices to provide Information Center functionality.

The Information Centers is a PC configured for proper operation of application software.



**Figure 3-2 PC Workstation Processing Unit**

Software performance specifications for the processing unit are the following:

- Intel Pentium 4, 1.8 GHz, processor
- RAM: 384 Mb
- hard disk drive: 20GB
- video adapter: 1280 x 1024 pixels

The PC Workstation supplied by Philips have been configured, tested and validated to meet the specific medical device requirements for operating the application software. Therefore, they are the only hardware approved for use in Information Center systems.

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**Warning**

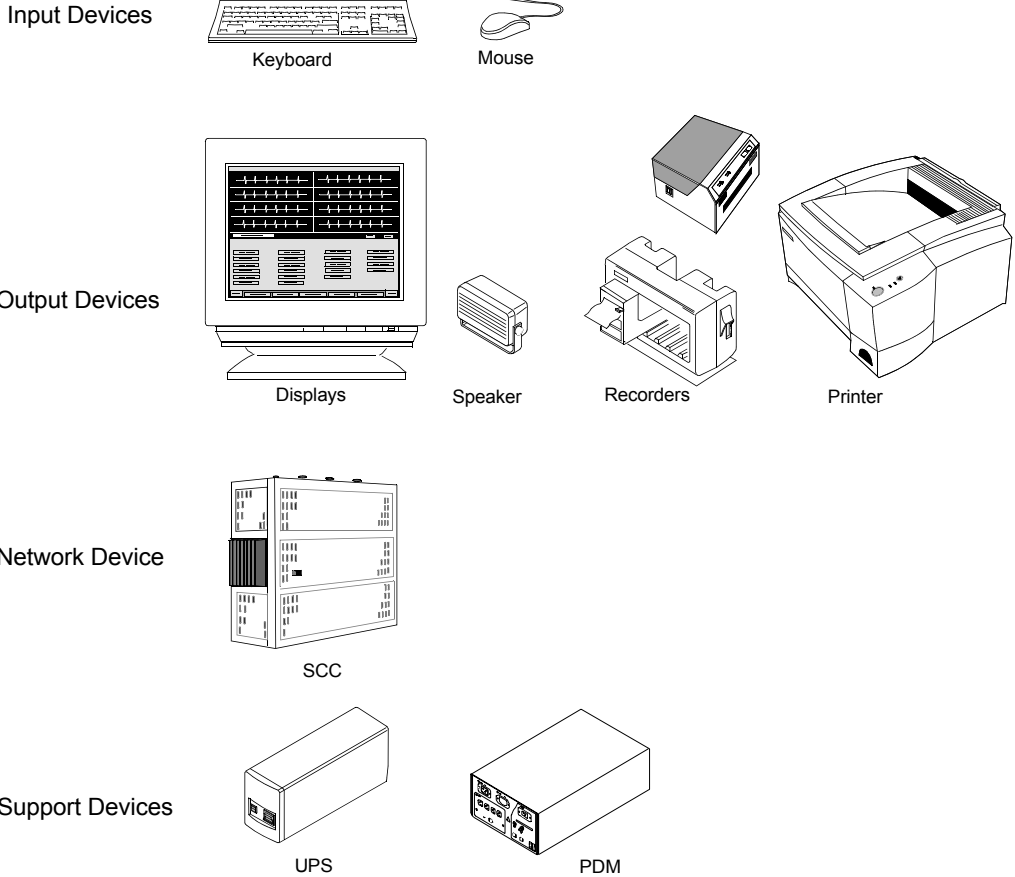
**Hardware products not supplied by Philips for IntelliVue Information Center systems are not approved or supported by Philips for use with Information Center patient monitoring systems.**

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**Peripheral Devices**

In addition to the PC, the Information Center hardware platform includes a variety of peripheral devices that are compatible with it and achieve the desired performance. These include input devices (keyboard and mouse), output devices (displays, speaker, recorder and printer), and networking (SDN/SCC/PCC), as well as supporting hardware such as the UPS and Power Distribution Module.



**Figure 3-3 Peripheral Devices of the Hardware Platform**

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## Windows Operating System

The Information Center software uses the Microsoft Windows XP and Windows 2000 Operating Systems (the operating system used depends on device type). The Windows OS provides a 32-bit operating system for the Information Center, which requires a multi-tasking environment to run multiple application capability simultaneously.

Other features of the Operating System that make it suitable for the Information Center are integrated networking, a modular architecture that makes integration easy, open, and expandable, and built-in security capability.

### Operating System

The Operating System (OS) for the PC Workstation is **Microsoft's Windows™ XP**. The Operating System (OS) for the M3154 Database Server is **Microsoft's Windows™ 2000 Server**. These OS's are used in a wide variety of products. Their adequacy and reliability for use with Information Center software has been validated by Philips in extensive system and safety tests.

Information Center software interacts with OS software only through standard Application Programming Interfaces (APIs). The Operating System and its APIs are described in detail in Microsoft Windows documentation but only briefly here. Philips support personnel are encouraged to gain knowledge of these subjects through the variety of OS documentation and training programs available.

### Application Programming Interfaces

Examples of OS **Application Programming Interface** services used by Information Center application software are the following:

- Windows graphical user interface
- Windows Print Manager
- access to hardware device drivers for the hard disk drive, floppy disk drive, CD ROM drive, parallel printer, keyboard, and mouse.
- performance monitoring
- Event Viewer for storage of system and application error information

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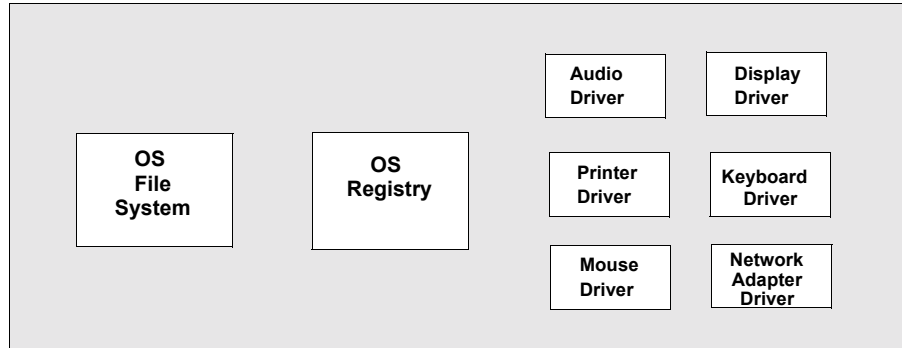
### Note

A function of the Windows XP operating system is to hide “inactive” windows behind active windows. If an application is open, but is not visible, press Alt + Tab keys to select the application and make it visible.

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Information Center APIs have also been extensively documented and exercised by Philips in unit tests to assure their reliability.

The OS also provides two principal software management functions for Information Center software -- File System and Registry (and its peripheral hardware drivers). See Figure 3-4.



**Figure 3-4 Operating System Components**

**File System** The **File System** (NTFS) is a high performance file system used by Windows for the storage of data. It incorporates more power for features, such as long file names and better protection against viruses than the earlier Windows 3.x File Allocation Table (FAT).

**Registry** The **Registry** is a structured set of records stored in a single OS database. It provides a secure, unified database of configuration data for the operating system and for Information Center application software.

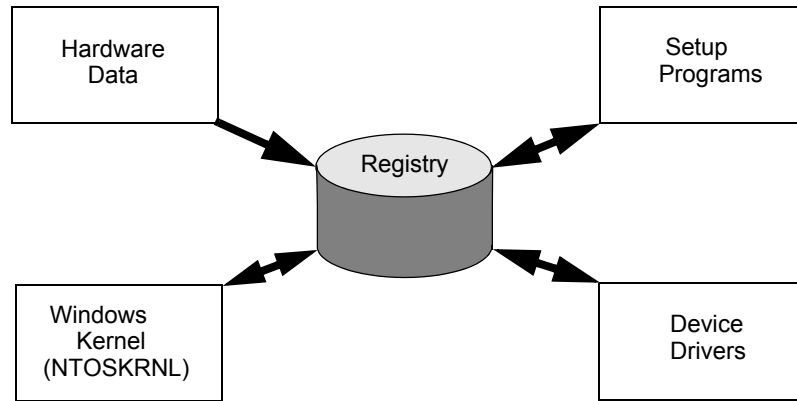
The Registry replaces the Microsoft MS-DOS system files, such as AUTOEXEC.BAT and CONFIG.SYS, as well as common Microsoft Windows 3.x files, such as SYSTEM.INI, WIN.INI, and REG.DAT.

It uses a fault-tolerant approach to writing data that ensures that the Registry remains intact even if a power failure occurs in the middle of an update.

The operating system uses the Registry for the following tasks:

- store configuration data
- provide startup information
- pass and receive device driver configuration parameters
- store new configuration data

A diagrammatical representation of the Registry for the OS is shown in Figure 3-5.



**Figure 3-5 Windows Use of the Registry**

The Registry is constructed from the following components of the Windows OS:

**Hardware Data** - When Windows starts, the Registry obtains volatile hardware configuration data -- hardware information detected in the computer. On x86-based computers, this is done by a program called NTDETECT.COM.

**Windows Kernel (NTOSKRNL)** - During startup, the kernel (NTOSKRNL.EXE) extracts information from the Registry, including which device drivers to load and in what order they should be loaded. The kernel also passes back information on itself, such as its version number.

**Setup Programs** - Whenever the Windows Setup program or other setup programs for applications or hardware run, the Setup Program can add new configuration data to the Registry.

**Device Drivers** - Device drivers pass data to the Registry and receive load and configuration parameters from the Registry. A device driver tells the Registry what system resources it is using, such as hardware interrupts and direct memory access (DMA) channels. Device drivers can also report discovered configuration data.

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**Warning**

**Changing system configurations using the Registry Editor is not supported and could result in patient injury or death. Specific IntelliVue Information Center installed configuration applications must always be used.**

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Information Center software uses the Registry for the following tasks:

- store clinical application configurations for the clinical unit and individual patients
- store system configurations for the clinical unit and the system
- pass and receive device driver configuration parameters for the SDN interface
- store configuration data during installation



A diagrammatical representation of the Registry for Information Center software is shown in Figure 3-6.



**Figure 3-6 Information Center Software Use of the Registry**

Functioning of Registry components for Information Center software is as follows:

**Clinical Configuration Settings** - All editable patient settings, such as unit wide settings, and patient demographic information are stored in the MS SQL Server™ Database. Many of these clinical unit configuration settings can also be stored on the Archive disk for reconfiguration.

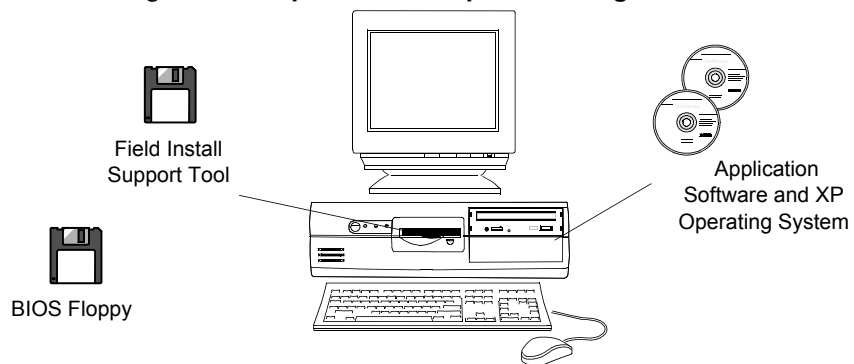
**System Configuration Settings** - Many of these configuration settings can also be stored on the Archive disk for reconfiguration.

**SDN Interface Driver** - The SDN interface driver passes data to the Registry and receives load and configuration parameters from the Registry.

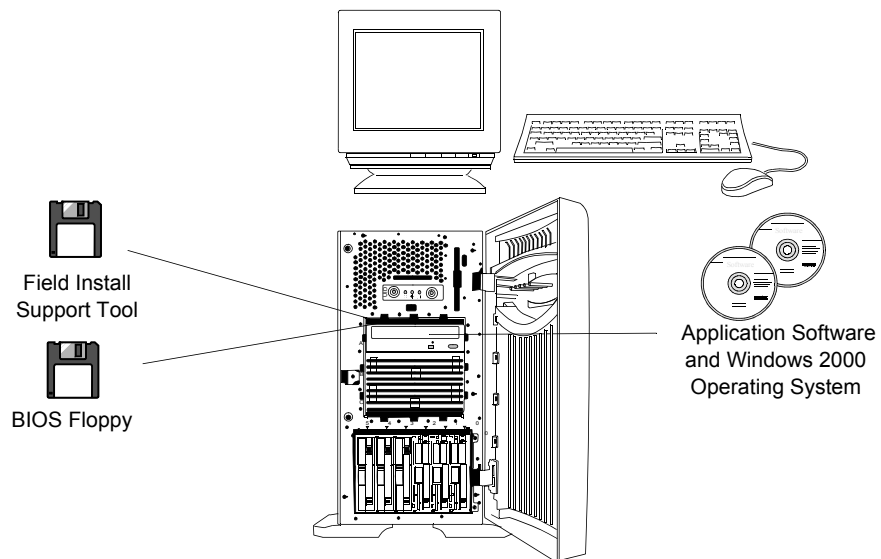
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## IntelliVue Information Center Application Software

Application software is the central component of the Information Center system. Application software is contained on one **IntelliVue Information Center Application Software CD ROM** and Operating System software is contained on another, and both CDs can be loaded into the PC Workstations for both Information Center models using the processing unit's CD ROM drive. A **Field Install Support Tool (FIST)** on a floppy disk is also provided to facilitate the installation process and a BIOS floppy disk with the latest BIOS for your PC workstation. Installation procedures are given in **Chapter 6: Start-up and Configuration**.



**Figure 3-7 Information Center Application Software on CD ROM**



**Figure 3-8 M3154 Database Server Application Software on CD ROM**

## **Modes of Operation**

Application software has two modes of operation -- Monitoring Mode and Non-monitoring Mode.

### **Monitoring Mode**

**Monitoring Mode** is the principal mode of operation in which application software provides centralized monitoring, alarms, storage, and review of patient information obtained from LAN based bedsides and bedside and telemetry monitors connected to the SDN.

### **Non-monitoring Mode**

**Non-monitoring Mode** suspends patient monitoring (no central patient monitoring occurs) and instead provides functions for Information Center configuration, maintenance, and troubleshooting. A service password is required to gain access to non-monitoring mode functionality to prevent inexperienced users from changing operational parameters and inadvertently disrupting patient monitoring and data collection.

## Architectural Design

Information Center Application Software is partitioned into two major components -- Applications and Services. This architectural design permits additional features to be easily added in future releases. These two components do the following:

### Applications

**Applications** functionality is further partitioned into two types, those that operate in monitoring mode and those that operate in non-monitoring mode.

**Monitoring Mode Applications** are primarily clinical applications that provide clinicians with information about their patients and are visible on the Philips display. The **Main Screen** is the primary clinical application and is always visible during Monitoring Mode. All other clinical applications become visible in the **Patient Window** area of the screen when the operator requests them.

**Non-monitoring Mode Applications** are primarily for service support, providing tools for support personnel to configure the system, maintain system software, and troubleshoot system problems.

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### Warning

**During non-monitoring mode applications, no patients are being monitored by the IntelliVue Information Center system!**

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### Services

**Services** functionality manages data for the Applications and for other Services but has no visibility on the Information Center display. It operates in the background and has no operator interface. Service functionality includes collection and storage of patient data, distribution of data to other applications and devices, recording and printing of data, and annunciation of alarms.

### Error Handling

Additional **Error Handling** software provides prevention, notification, and recovery of operator, device, and software errors.

- **Operator errors** are addressed by designed-in prevention mechanisms.
- **Peripheral device errors** are addressed by detection and notification messages on the **Main Screen**.
- **Internal software errors** are detected by integrity self-checks built into the interfaces.

The primary purpose of these error handling functions is to ensure the safety of monitored patients.

### Block Diagram

The relationship among the Application Software, the Windows Operating System, and the PC Workstation Platform is shown in the functional block diagram of **Figure 3-9**. The components are described in the following sections.

## IntelliVue Information Center System

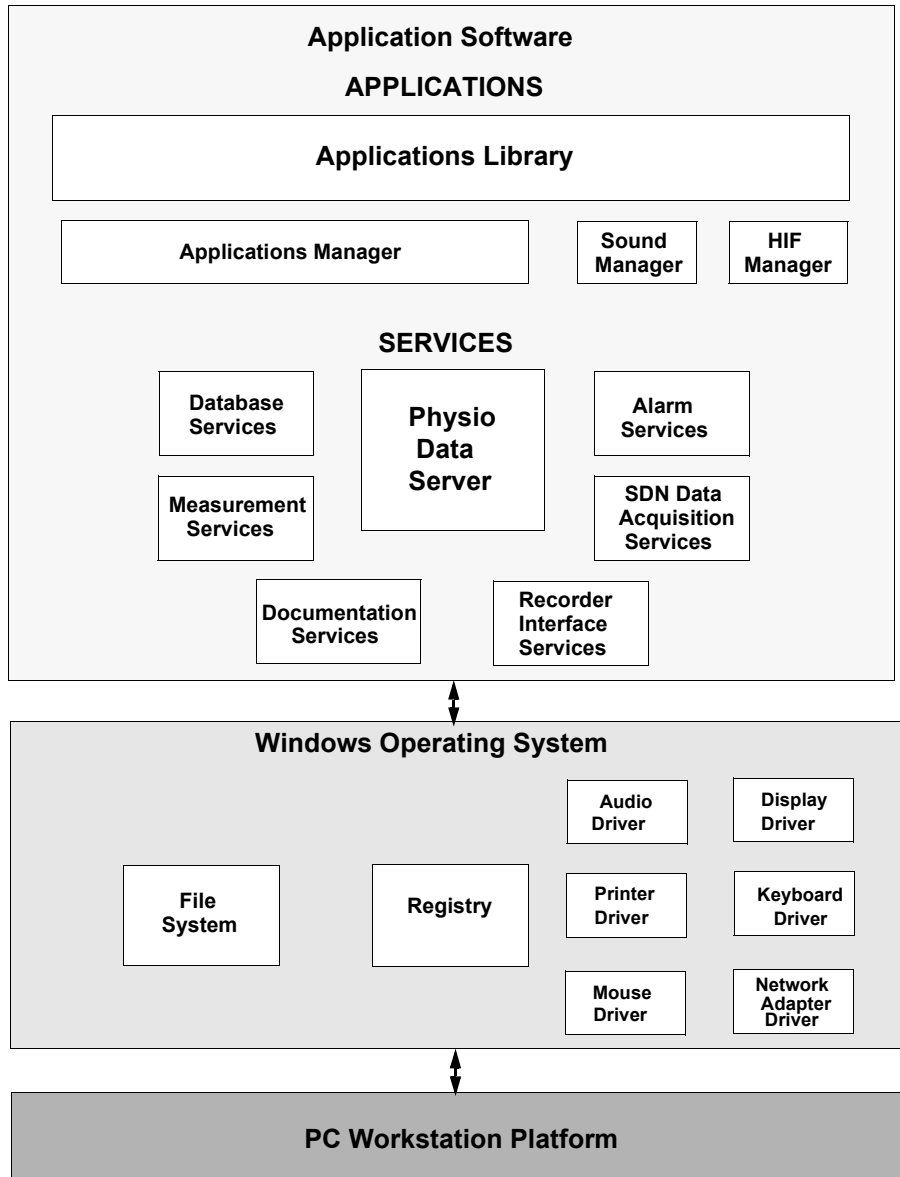


Figure 3-9 Block Diagram of Information Center System

## Applications

Philips Applications Software consists of an **Applications Library** of the following Philips Information Center applications:

- Real-time Applications
- Control Applications
- Review Applications
- Support Applications

and the following **Management Functions** for managing the Philips input devices (keyboard, mouse) and output devices (display, speaker):

- Applications Manager
- Sound Manager
- Human Interface (HIF) Manager

These functions are shown in the block diagram of Figure 3-10 and described in the following sections.

## IntelliVue Information Center Applications

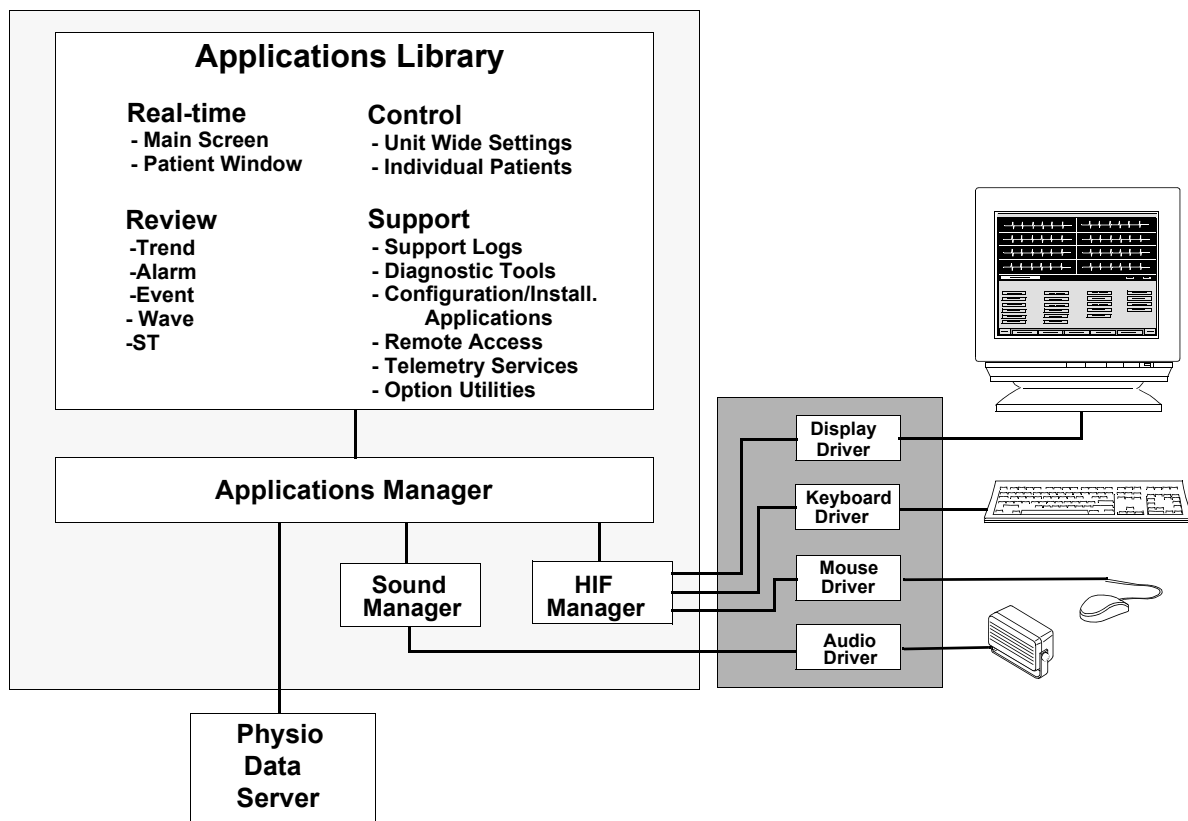


Figure 3-10 Block Diagram of the Application Software

**Applications Library**

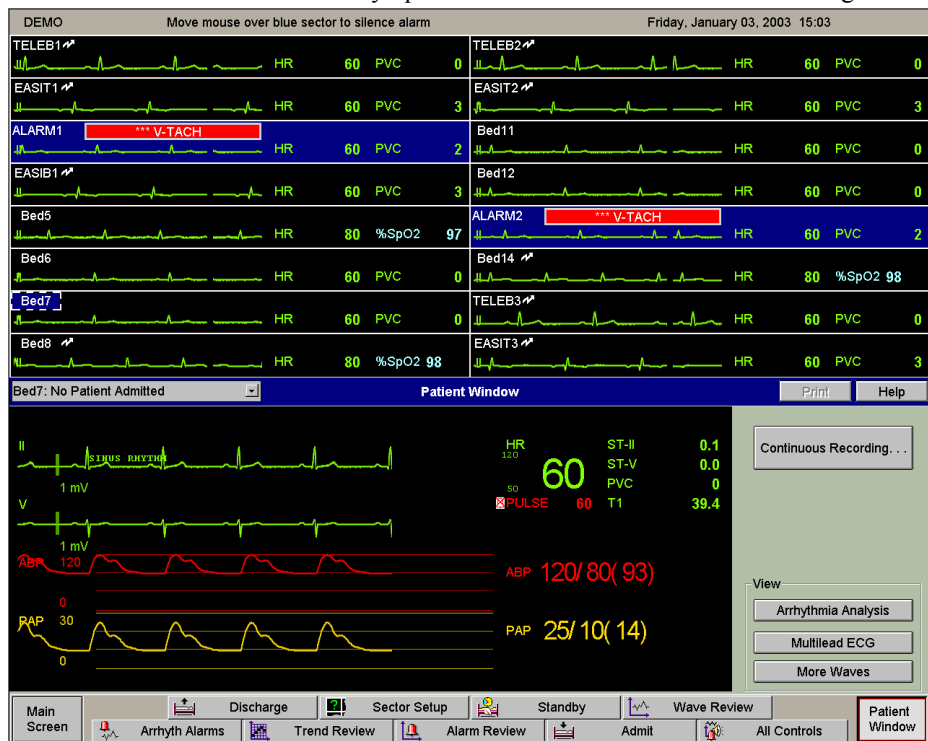
Applications Library software does the following:

**Real Time Applications**

**Real Time Applications** control the display of real time patient data from bedside and telemetry monitors on the Main Screen and Patient Window, shown in Figure 3-11.

The **Main Screen** application controls the display of real time physiological and alarm information for each monitored patient on the Main Screen. This information is obtained from the Physio Data Server and is continuously displayed in a Patient Sector of the Main Screen. As patient data or alarm conditions change, this information is received by the Physio Data Server from the SDN/LAN and passed on to the Main Screen.

The **Patient Window** application controls the display of real time physiological and alarm information in the Patient Window. It has access to more real time patient data from the Physio Data Server than are available for the Main Screen application. As for the Main Screen, patient data and alarm information is continuously updated in the Patient Window as it changes.



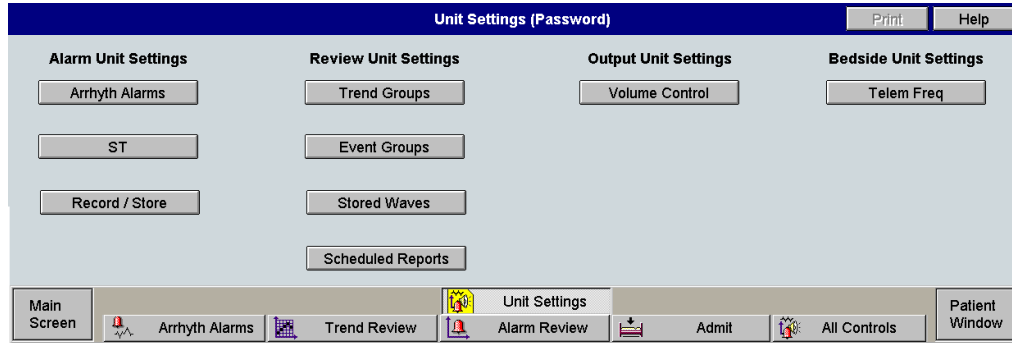
**Figure 3-11 Main Screen/Patient Window Applications**

**Control Applications**

**Control Applications** provide a range of functionality that allows the clinician to adjust patient monitoring behavior on a unit wide basis, as well as overrides for individual patients.

**Unit Settings:** Control Applications for unit settings provide functionality for the clinical unit setting buttons in the Unit Settings window accessed from

the All Controls window. See Figure 3-12. This functionality requires a password for access. Unit settings apply to all patients unless overridden by the individual patient Control Application. When a patient is discharged, the clinical unit settings automatically replace the individual patient's custom settings.



**Figure 3-12 Unit Settings Applications**

Unit settings include the following:

**Arrhythmia Alarms** sets a variety of parameters for the arrhythmia alarms.

**ST** sets a variety of parameters for the ST alarms and measurement.

**Record/Store** sets which alarms are recorded and stored in the database.

**Trend Groups** sets the contents of the trend groups.

**Event Groups** sets the contents of the event groups.

**Stored Waves** sets the patient waves that will be stored.

**Scheduled Reports** sets the time and settings for reports to be printed.

**Volume Control** sets the sound volume of the Information Center internal and external speakers.

**Telemetry Freq** sets the telemetry frequencies for telemetry monitors assigned to the unit.

**Individual Patients:** Control Applications for individual patients provide functionality for the Patient Management and Alarm Management and Setup buttons in the All Controls window.

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**Note**

Not all features may have been purchased. Not all features are available in local mode.

---

They include the following functionality:

**Admit** provides for patient Admit, Discharge, and Transfer



**Sector Setup** allows the user to change the monitoring equipment associated with a bed.

**Stored Waves** sets the waves that will be stored for an individual patient.

**Standby** allows temporary suspension of monitoring for a patient and the display of standby messages in their **Patient Sector**.

**Alarm Limits** provides Arrhythmia Alarm and ST Alarm limits that control conditions for triggering and turning on and off certain alarms for individual patients.

**Record/Store Alarms** controls which alarms are recorded and/or stored for each patient. This control also affects the **Alarm Review** application that provides review recordings of stored alarms.

**ST Setup** turns ST segment measurements on and off and sets the measurement point for an individual patient.

**Telemetry Setup** sets telemetry controls for an individual patient.

## Review Applications

**Review Applications** provide functionality for the **Patient Data Review** buttons of the All Controls window. Each review application obtains its specific data for an individual patient from Database Services and presents it in the **Patient Window** display or delivers it to the Philips recorder or printer when requested.

Review Applications include the following for each patient.

**Trend Review** provides a history of groupings of physiological parameters plotted over time.

**Alarm Review** provides a history of alarms, including waves and alarm text.

**Event Review** provides a history of events detected for a patient along with waveforms stored at the time of the event.

**Wave Review** provides a history of full disclosure waveform data that have been continuously stored.

**ST Review** displays a history of acquired and derived ST waveforms and segment values for telemetry monitored patients.

## Support Applications

**Support Applications** is principally software for the **Service** applications. Most of these applications run in non-monitoring mode when patient monitoring is turned off. They used for managing the installation, configuration, and service aspects of the Information Center system. To access the support applications, a Service password is required to prevent accidental termination of monitoring and unauthorized access to system management applications.

Support software contains the following features.

- Support Logs
- Diagnostic Tools

- Configuration/Installation Applications
- Remote Access
- Telemetry Services
- Option Utilities

They are described in more detail in the following section, **Services**.

## **Management Functions**

**Management Functions** software does the following:

### **Application Manager (SDProcess)**

**Application Manager** (SDProcess) controls when an application is allowed to use the display area and is responsible for initiation and termination of applications. Applications are modular and do not interact directly with other applications. They can only communicate with one another through the Applications Manager.

### **Sound Manager**

**Sound Manager** is responsible for annunciating the highest level alarm sound for all patients being monitored by the Information Center system. It has exclusive control of the audio capability of the PC and there is no external volume control knob. Each patient's Alarm Manager provides the Sound Manager with the highest priority alarm condition for its patient, and the Sound Manager causes the tone corresponding to the most critical condition of all of the patients to be annunciated.

### **Human Interface Manager**

**Human Interface (HIF) Manager** is responsible for directing the keyboard strokes and mouse (or trackball) cursor movements on the display and for displaying the keys (buttons or other display click area) for selecting applications.

HIF Manager also prevents the operator from accessing any software that is not part of the Applications Library when in Monitoring Mode. The PC is dedicated to Information Center software during Monitoring Mode and no other software is allowed to run concurrently. HIF Manager intercepts and blocks operator attempts to access the operating system directly.

HIF Manager also disables keyboard sequences such as Alt-Tab, Ctrl-Alt-Del, and Ctrl-Esc. This prevents access to functions such as the Windows Program Manager and Windows Explorer and makes it impossible to start other programs while patients are being monitored.

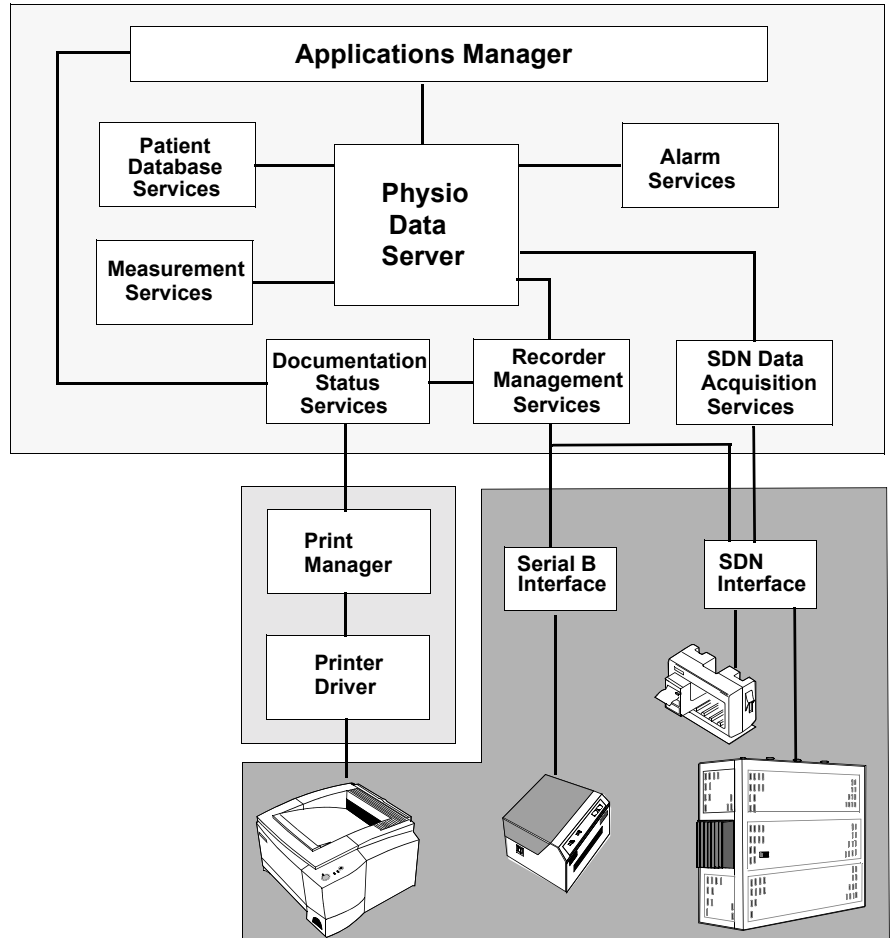
## **Services**

The **Services** portion of Monitoring Mode software manages data with the following functionality:

- Physio Data Server (PDSService)
- Patient Database Services (PDSSStore)
- Measurement Services
- Alarm Services
- SDN Data Acquisition Service
- Recorder Measurement Services (RecMgr)
- Documentation Status Services (DocStatusService)

Services software is shown in the block diagram of Figure 3-13 and described in the following sections.

### Information Center Services



**Figure 3-13 Functional Block Diagram of Information Center Services Software**

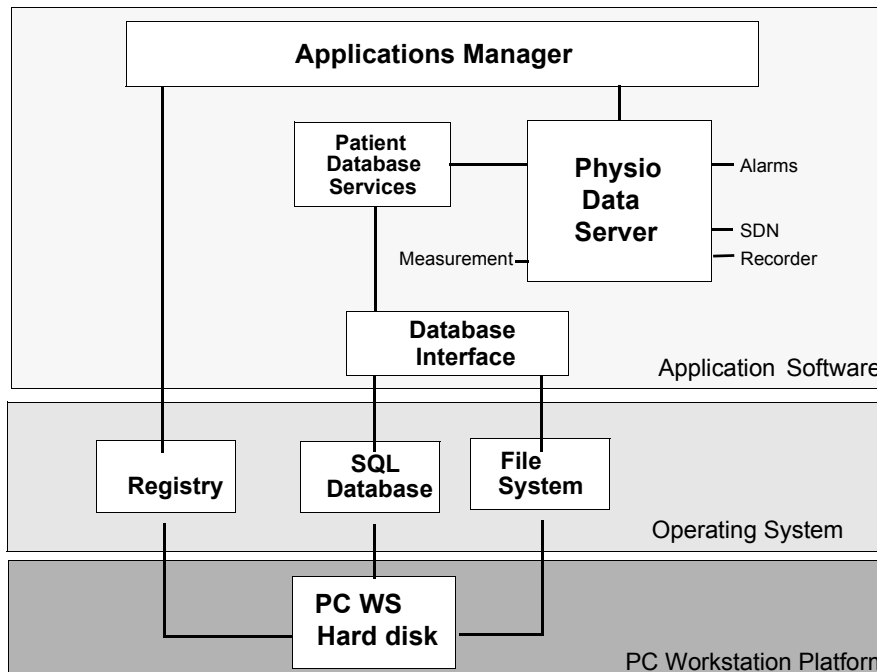
**Physio Data Server (PDSService)**

**Physio Data Server (PDSService)** is the communication hub of the Services software, providing the common interface for receiving and distributing data among Information Center Applications and other Services.

**Patient Database Services (PDSStore)**

**Patient Database Services (PDSStore)** provide interfaces for patient data storage to and retrieval from the processing unit’s hard disk. A functional block diagram of

Patient Database Services showing its interface with the Operating System and processing unit hard disk is shown in Figure 3-14.



**Figure 3-14 Functional Block Diagram of Patient Database Services**

Patient Database Services receive real time patient data from SDN bedside and telemetry monitors through the Physio Data Server and transmits them to the hard disk for storage. Patient Database Services also retrieve the stored data on request from the Physio Data Server for distribution to Information Center Applications and other Services.

Patient Database Services interface with the OS File System through a Database Interface, which directs data for storage to either a MS SQL Server™ Database or the NT File System. Data stored are editable unit settings and patient data, such as name, id, demographics, alarms, and configurations (about 1% of data). All other patient data are stored in the NT File System in standard NTFS (flatfile) and sequel database format for later retrieval by applications. Up to 96 hours of waveform data can be stored for each patient. As noted earlier, the Registry maintains configuration data for the application software.

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**Note** Only configuration data from the Registry and editable unit and patient data from the MS SQL Server™ Database are archived on the Archive Disk.

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**Measurement Services** **Measurement Services** contains the ST/AR algorithm as well as interfaces between it and the Physio Data Server. The Physio Data Server delivers newly acquired patient monitoring data for each patient to the ST/AR input interface for analysis. After the ST/AR algorithm has completed its analysis, results for each patient are

available at the ST/AR output interface. Measurement Services makes this output available to the Physio Data Server for distribution on request. Measurement Services also provide the control interface to ST/AR that delivers the specific ST/AR data requested by an Application.

### **Alarm Services**

**Alarm Services** provides alarm monitoring for each patient. Each patient has a separate Alarm Manager that receives its information from the Physio Data Server. The Alarm Manager determines which events should be announced as alarms or INOPs and announces them consistent with the bedside-determined priority. For ST/AR alarms, each Alarm Manager merges ST/AR and bedside monitor alarms and INOPs, determines the overall priority, and provides the Sound Manager with its highest priority alarm condition. The Sound Manager causes the tone corresponding to the most critical condition of all of the patients to be annunciated. For information on alarm prioritization, see the **IntelliVue Information Center User's Guide**.

### **SDN Data Acquisition Service**

**SDN Data Acquisition Service** is the interface between the Physio Data Server and the SDN Interface Card in the processing unit. It receives patient data from bedside and telemetry monitors connected to the SCC through the SDN Interface Card and transmits them to the Physio Data Server for distribution. It also receives information from the Physio Data Server and transmits it in SDN message format for display by bedside monitors.

### **Recorder Management Services (RecMgr)**

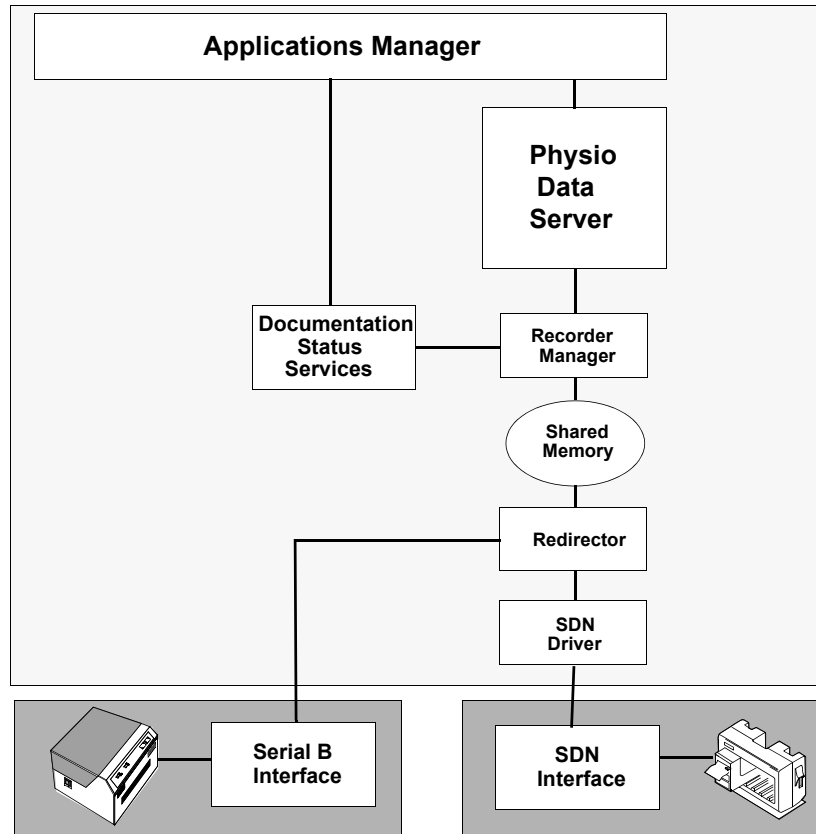
**Recorder Management Services (RecMgr)** provide an interface between the Physio Data Server and Documentation Services. For the Philips Recorders, Recorder Interface Services both transmit data and documentation requests from the processing unit and bedside monitors to the Recorder and receive status information from the Recorder for distribution to the processing unit and bedside monitors. Data communication for both the 2-channel recorder and bedside monitors takes place through the SDN Interface Card, and for the 4-channel recorder through the Serial B interface port in the processing unit.

### **Documentation Status Services (DocStatusService)**

**Documentation Status Services (DocStatus Service)** provide documentation control services to both the Philips Recorder and the LaserJet printer. It receives data from Recorder Management Services and provides output interfaces to both the Philips Recorder and the printer through the Windows Print Manager. The data can be either real-time patient data from bedside or telemetry monitors or stored patient data from Database Services. Documentation Status Services provide interfaces for data transmission and to initiate and control printing and recording. A more detailed description of Documentation Status Services for recording and printing is provided in the following sections.

**Recorder Documentation Services**

A functional block diagram of Documentation Status Services for the Philips Recorder is shown in Figure 3-15.



**Figure 3-15 Documentation Status Services for the Philips Recorder**

Communication between the Applications Manager and the Philips Recorders can be of two types -- requests to record and requests for recorder status. Requests to record include the name of the patient, time of request, length of recording, and waveform data. Requests for recorder status include recorder failure, out of paper, door open, and no recorder connected.

Process components of Documentation Status Services for the Philips Recorder do the following:

**Documentation Status Services** receive recorder requests from the Applications Manager and pass them on to the Recorder Manager. If patient data are to be sent to the Recorder, they are obtained from the Physio Data Server.

**Recorder Manager** keeps track of the status and location of Recorder(s) in the Recorder Rack and assigns recorder information to the next available Recorder.

**Shared Memory** provides the recorder status messages from its RAM based on status information received from the Recorder.

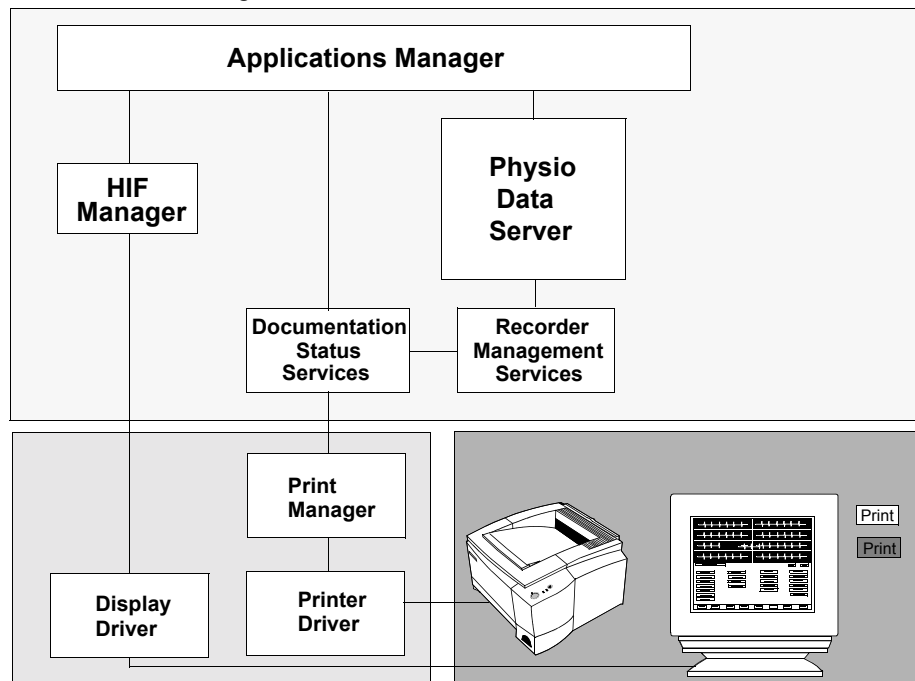
**Redirector** adds a header message to the destination recorder.

**SDN Driver** moves data back and forth between Recorder Services and the Recorder.

**SDN Interface** detects the position (L, C, R) of each recorder in the recorder rack, determines recorder status, and conveys data for recording. In multiple recorder operation, a recorder that is busy or off-line goes to the bottom of the recorder queue and the next available recorder is selected.

### Printer Documentation Services

A functional block diagram of Documentation Status Services for the LaserJet Printer is shown in Figure 3-16.



**Figure 3-16 Documentation Services for the LaserJet Printer**

Documentation Status Services manages the printing process for the Information Center system through the Print Manager and Printer Driver of the OS. The Print Manager uses a Graphical Data Interface (GDI), which is a common API for applications that draw things, either on a display or a printer.

Documentation Status Services also keeps track of each application's print capability. If the application is configured for printing, it signals the Applications Manager to activate the print button in the Patient Window. If the application is not configured for printing, it signals the Applications Manager to deactivate the print button and gray it out.





# Site Planning and Preparation

## Overview

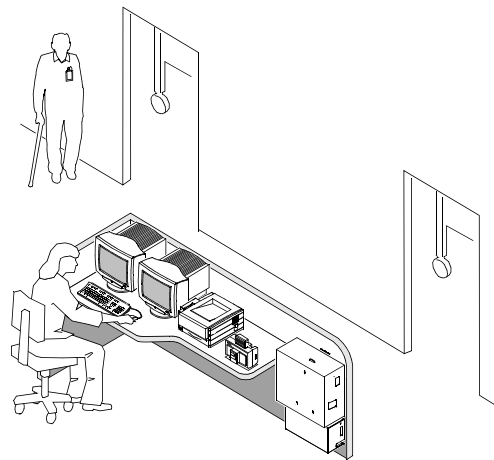
The Information Center is the information hub of a clinical patient monitoring environment. It displays patient monitoring information from fixed bedside and mobile telemetry monitors and provides alarm annunciation, arrhythmia and ST analysis, and patient data storage and review. As the information hub, the Information Center system should be centrally located in the clinical patient monitoring unit so that users can have ready and convenient access to both Information Center patient information and patients being monitored.

Planning for the Information Center system is only part of site planning and preparation for the total patient monitoring environment. Detailed descriptions of site planning for the patient monitoring environment are provided in the Component Monitoring System **Site Preparation and Installation Manual**. Site planning and preparation for the Information Center system will focus principally on the unique requirements of installing Information Center hardware as the central station component.

The Database Server is one of the “hidden” components of the Philips Patient Care Network. The Database Server is generally located in out of the way equipment rooms or wiring closets. It is rarely seen by clinicians or patients but must be accessible to service personnel. Significant planning and careful network design is required to assure low cost and effective network operation.

**Chapter 3** describes site planning and installation of the system in the following sections.

Site Planning . . . . .	page 4-2
Network Design . . . . .	page 4-6
Site Preparation . . . . .	page 4-20



**Figure 4-1 Typical Information Center Installation**

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## Site Planning

<b>Considerations</b>	Elements of site planning that should be considered in preparing for a Database Server installation include the following:
<b>Design</b>	Selecting appropriate components that best meet the monitoring needs of the clinical environment.
<b>Location</b>	Selecting locations for Information Centers and Clients, display(s), keyboard, mouse, processing unit, UPS, recorders, printers, and the network components and Server that will support them
<b>Network</b>	Assuring that proper network cabling, conduiting, wall boxes, and faceplates are provided for connecting devices to the Network.
<b>Cabling</b>	Selecting equipment cabling of the proper type and length to interconnect system components.
<b>Modem</b>	Providing a direct-dial, analog, phone line for the Server's modem.
<b>Web Access</b>	Providing a hospital intranet connection to the Server's web access LAN card
<b>Environment</b>	Assuring that the installation meets environmental specifications recommended for each Clinical Network/Server component.
<b>Electrical</b>	Assuring that electrical outlets with proper grounding, electrical isolation, voltage, current, and frequency are available to power the system and components.
<b>Mounting</b>	Selecting hardware for mounting system components in their designated locations.
<b>Safety</b>	Assuring that all medical safety requirements are met.

A detailed description of the design of the system, including location of Server components and network considerations, is given in the following section, **Network Design**. Brief descriptions and references to the other considerations are also given in this section.

**Responsibilities** Planning and preparing the site for an installation is a joint responsibility between the Customer and Philips. Sales and Support Representatives are available for consultation and assistance in each of the areas above. To assure that the system is properly designed and that all necessary preparations are completed when the system is delivered, the Customer should contact a Sales and Support Representative and develop a schedule for consultation, delivery, and installation.

- Customer** The customer is responsible for the following site preparation tasks.
- ensure that the site complies with all structural, environmental, network, electrical, cabling, and safety requirements
  - install all wall channels required for wall mounted devices
  - install all required Information Center network and Network cables
  - provide a direct-dial phone line to the Server modem (if required)

- provide a properly configured hospital intranet connection
- removal of old equipment
- frequency management

**Note**

If there are any concerns about the structural, environmental, network, electrical, RF, cabling, or safety requirements for the installation, the Customer should contact an independent consulting engineer or the Response Center.

The Customer is also expected to assist the Service Provider during the installation process by providing personnel with knowledge of the hospital environment and its facilities, resources, policies, and procedures.

**Philips Factory**

The Philips Factory is responsible for assuring shipment of a fully configured Philips product including:

- all ordered system hardware, network components, and peripheral equipment fully tested and ready for installation
- preloaded Windows operating systems and Philips application software with customer purchased options and factory default configurations
- pre-installed LAN cards and modem card (US and Canada only) in the Server
- all ordered mounting hardware and equipment cabling
- all Philips support and service documentation
- shipment inventory Packing List

**Philips Service Provider**

The Service Provider is responsible for installation of the system at the Customer site including:

- unboxing the products from their shipment containers
- installing the products in their designated locations, including any required mounting hardware
- connecting the Information Centers, Clients, Printers, and Server to the Network and to all peripheral equipment
- connecting electrical power to Information Centers, Clients, Printers, Server, and all Network components
- installing purchased and upgrade options
- starting up the Philips system and configuring it to Customer specifications
- verifying system operation and testing system performance using recommended Product Assurance Testing procedures
- assuring Customer satisfaction and acceptance of the installation
- removal of packaging materials (if necessary)

## Location

The location of the Database Server is a critical first step in site planning and network design. In general, they should be located in places inaccessible to patients and clinicians but convenient to service and support personnel. Typically this is a wiring closet or room specifically designed for Server equipment. The following issues should be considered when selecting and planning locations for the Database Server.

## Wiring Closets

Locked wiring closets or equipment rooms are recommended locations for all active Network components (except access points) because they can be made secure from unauthorized access and required electrical and environmental conditions can be maintained.

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## Caution

**In planning wiring closets, careful consideration must be given to the availability of properly grounded electrical outlets of the correct voltage and frequency for each device and to the environmental control of temperature and humidity. The high density of devices in a small room can lead to large heat loads in a small space that must be controlled.**

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## Switches

Network switches are the central communication hubs of the Clinical Network. Therefore, they should be located at a point central to the Information Centers, Clients, and Server. In selecting switch locations, consideration should be given to the cabling distances between devices because cabling is a key cost and limitation of Network design. In general, switches should be in wiring closets centrally located on the Network.

## Server

The Database Server is the network device most accessed by service personnel. Software installation, system and device configuration, network maintenance and troubleshooting all take place at the Server. Therefore, it should be located in a closet or room convenient to service personnel and include typical workstation amenities -- chair, work surface, bookshelf, equipment storage, lighting.

## UPSs

**Active Clinical Network components must be on a UPS (Uninterruptible Power Supply) to assure network operation during short power interruptions.**

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## Warning

**The Database Server must be connected to a BATTERY BACKUP outlet of the 1000 VA UPS.**

**The following components must be connected to the BATTERY BACKUP outlets of a UPS:**

- **Core, Edge, and Extension switches**
- **media translators**
- **workstations for all Small Database Servers, Information Centers and Clients**
- **Philips 2 Channel and 4 Channel Recorders**

**Up to 3 Clinical Network components -- switches, repeaters, media translators -- may be connected to a single, 650VA UPS.**

**It is recommended that Access Points and Repeater also be connected to a 650 VA UPS.**

The following components may be connected to the ACCESSORY outlets of a 650 VA UPS or to a separate non-UPS electrical outlet with the same ground.

- displays
- video splitters
- printer spooler
- paging components

The LaserJet Printer must not be connected to the UPS.

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**Other** Other issues to consider when selecting device locations include the following:

- Assure adequate distance of all devices from electrical equipment that may produce strong electromagnetic fields that can effect data transmission.
- Do not expose devices to water or excessive moisture, lint, dust, or dirt.
- Provide easy access to all devices by service personnel
- Provide at least 5 cm (2 in.) of clearance on all sides of each device for adequate air circulation.
- Do not obstruct ventilation holes at the top, bottom, sides, and rear of devices.

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## Network Design

This section describes the methodology for designing a Philips Patient Care Network for a specific clinical environment. It includes the clinical issues that should be considered, the capabilities of the Information Center components, and the design rules that govern Patient Care Network design.

### **Clinical Requirements**

Designing a **Patient Care Network** requires a full understanding of the monitoring requirements of the clinical unit(s) it will serve. There are several key elements that optimize system design:

- **number of clinical units and beds** to be simultaneously monitored
- **level of patient monitoring** required by each unit
- **types of patient monitors** to be used -- SDN/PCC connected (hardwired and/or telemetry), M3/M4 connected (wired and/or wireless), IntelliVue Patient Monitors connected, or mixed.
- **locations** of clinical units, central monitoring stations, and review stations
- **type of patient data access** required at each location (real-time or stored -- read, write, or both)
- possible **future capability** or expansion

These issues are described below.

### **Number of Units and Beds**

The first issue to consider is the number of clinical units and beds to be served by the Patient Care Network and their location. The number of beds determines the number of patient monitors and Information Centers required to monitor patients. The number of clinical units and their locations determines how the Information Centers should be networked to provide efficient and convenient access to patient monitoring data.

### **Patient Monitoring Level**

The level of monitoring required for patients determines the model Information Center necessary to serve each clinical unit and its level of clinical application software. The more intensive the monitoring requirements, the more capability is required of Information Center hardware and software. Since hardware and software cost increases with capability, it is important to understand the exact patient monitoring requirements for each clinical unit, both present and future.

<b>Patient Monitor Type</b>	Another consideration is the type of patient monitor that will be used -- SDN/PCC (hardwired and/or telemetry), M3/M4 (wired and/or wireless), IntelliVue Patient Monitors, or mixed. For installations of acute patient care, where patients remain in their beds, hardwired bedside monitors, either SDN/PCC or Network connected, are generally required. For less acute care installations, in which patients are ambulatory, SDN/PCC telemetry monitors are generally required. For installation in which patients may change from bed restricted to ambulatory, both hardwired and telemetry monitors should be available. And for installations where patient monitors may be frequently moved from bed to bed, wireless monitors, may be preferred. The software can accommodate all of these types of installations, providing continuous collection of monitoring data as patients change beds or from bed restricted to ambulatory.
<b>Central Monitor Type</b>	The type of central monitor should also be matched to the level of patient monitoring required. For a detailed discussion of each central monitor's capabilities, see <b>Components and Options</b> in <b>Chapter 1</b> .
<b>Central Monitoring Locations</b>	Locations where central patient monitoring will take place. These will generally be in clinical units where patient beds are located.
<b>Patient Data Review Locations</b>	Locations where review of patient data is required. While the Patient Care Network provides extensive access to patient monitoring data, both within and across clinical units and at multiple distant locations, there are limitations on the length of cable runs for each network interconnection. Cable length limitations must be carefully reviewed in selecting patient data review locations.
<b>Type of Patient Data Access</b>	The type of access to patient data and monitoring controls at each monitoring location. For example, does the clinician need to view both real-time and stored patient data from a clinical unit and/or other clinical units? Will it be necessary to silence alarms or change monitoring control settings? The answers to these types of questions are critical to the selection of monitoring hardware and network design. And they have great impact on the effectiveness of the Information Center system in meeting the needs of clinicians, as well as system cost.
<b>Future Capability</b>	When designing a Patient Care Network, both present and future requirements should be considered. While all Patient Care Network components can be upgraded to future capability, individual component capability can be limited. There are limitations on cable lengths for each type of component interconnection. Hence, consideration should be given to possible future growth or requirements in system design. Review this thoroughly with a Service Provider.
<b>Philips Hardware Capability</b>	<p>The design also requires a full understanding of the capabilities and limitations of network components so they can be properly matched to the clinical requirements.</p> <p>The Clinical Network can collect and display patient monitoring data from both SDN/PCC connected monitors (hardwired and telemetry), M3/M4 monitors (wired and wireless), and IntelliVue Patient Monitors and store patient monitoring data for: up to 128 patients monitored by 8 Information Centers at 8 separate locations and can also accommodate 8 Clients for viewing data (real-time and stored) at 8 separate locations on the M3154 Database Server and up to 48 patients monitored by 3 Information Centers at 3 separate locations and can also accommodate 3 Clients for viewing data (real-time and stored) at 3 separate locations on the M3169 Small Database Server and viewing of stored patient data from any browser equipped PC on the hospital's intranet. From this overview of maximum system capability, smaller, more limited systems can be designed.</p>

A Patient Care Network is designed from the following general components:

- **patient monitors** for collecting patient monitoring data
- **CareNet** (Serial Distribution Network and Serial Communications Controller) for transmitting and managing patient data among monitors and central stations
- **wireless access points** for receiving monitoring data from wireless Patient Monitors
- **central monitoring stations** for displaying patient monitoring data
- **review stations** for viewing real-time and stored patient data
- **database server** for receiving, storing, and retransmitting monitoring data from multiple patients
- **Clinical Network** for interconnecting multiple central monitoring and review stations and the database server
- **Printers** for printing patient data and configuration settings

Following is a brief description of the key capabilities of these components that must be considered when designing a Patient Care Network to meet specific clinical monitoring requirements.

**Patient Monitors** Patient monitors can be connected to the Clinical Network in one of two ways -- via the CareNet (SDN/PCC), either hardwired or telemetry, and directly, either wired or wireless. Each type of monitor can monitor only **1 patient**.

**CareNet monitors** can be:

**Hardwired Monitors** can be the Philips Component Monitoring System (CMS) with extensive monitoring capability, the Philips 24 patient monitor with more limited monitoring capability, or the older Compact Configured Monitor.

**Telemetry Monitors** can be Philips Telemetry system or the older model Digital UHF Telemetry system. **Each telemetry mainframe** can accommodate up to **8 telemetry monitors**, 1 per patient.

**Network monitors** can be:

**Hardwired M3/M4 Monitors** that connect directly to a Network switch.

**Wireless M3/M4 monitors** that transmit patient monitoring data to a Wireless Access Point.

**Hardwired IntelliVue Patient Monitors** that connect directly to a Network switch.

**Wireless IntelliVue Patient monitors** that transmit patient monitoring data to a Wireless Access Point.

**CareNet** To display data from multiple patient monitors on a central monitoring station, the monitors can be connected to the **CareNet** [Serial Distribution Network (SDN) and Philips Communications Controller (PCC)]. The PCC is the CareNet switch, which receives,



transmits, and manages the flow of data among patient monitors and central stations connected to the SDN.

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**Note** M2350/60A CCMs (release B.03.13) that monitor telemetry with release 2.x cannot connect to the same Philips Communications Controller (PCC) as the Information Center systems (release C.0 and later). This unsupported configuration will cause loss of all telemetry patients being monitored, and Standby and ECG size control will be unavailable at the Information Center.

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**Note** Each CareNet switch can accommodate a total of **24 patient monitors per PCC** (hardwired and telemetry) and **6 central monitors**.

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**Central Monitoring Stations**

The **M3150 Information Center** is used for monitoring data from all types of patient monitors (CareNet connected and Network connected). The Information Center can monitor and display patient data for up to **16 patients**.

The **M3155 Information Center** is used for monitoring data from all types of patient monitors (CareNet connected and Network connected). Patient monitoring data are transmitted via the Network to the Server where they are stored. The Information Center can monitor and display patient data for up to **16 patients**.

**Review Station**

**M3151 Information Clients** connected to a Database Server can be used to review real-time and stored monitoring data for any patient connected to the Network. The Client can also display monitoring data for up to **16 patients**. Clients can **only** be used on Networks with a Database Server.

**Documentation Station**

**M3170 Patient Link** provides a central location for bedside recordings and reports initiated from SDN hardwired bedsides, M2/3/4 bedsides and IntelliVue Patient Monitors for up to 16 patients. In addition, the Patient Link provides support for bed to bed overview and alarm reflection for M3/4 bedsides and IntelliVue Patient Monitors. **Patient Link cannot be used with Telemetry bedsides.**

**Database Server**

The **M3154 Database Server** provides database storage of patient monitoring data for the Patient Care Network. Patient monitoring data from all Information Centers on the Network are received and stored by the Database Server. Up to **96 hours of patient data** and **150 events** for up to **128 active patients** plus **32 transfer patients** can be stored. Any Information Center or Client on the Network can overview real-time monitoring data from any other Information Center on the Network and access any patient's data stored in the Database Server.

**Small Database Server**

The **M3169 Small Database Server** provides database storage of patient monitoring data for the Patient Care Network. Patient monitoring data from all Information Centers on the Network are received and stored by the Database Server. Up to **48 hours of patient data** and **150 events** for up to **48 active patients** plus **12 transfer patients** can be stored. Any Information Center or Client on the Network can overview real-time monitoring data from any other Information Center on the Network and access any patient's data stored in the Database Server.

**Printers** HP LaserJet printers can be network connected to the network for shared printing capability.

A summary of these design capabilities and limitations of Patient Care Network components is given in Table 4-1.

**Table 4-1. Release E.01 System Capabilities**

Description of Limit	M3150 Local Database	M3169 Small Database	M3154 Central Database
Maximum Number of Information Centers per system	1	3	8
Maximum Number of Clients per system	0	3	8
Maximum Number of Database Servers per system	0	1	10
Maximum Number of beds per Information Center	16	4	16
Maximum Number of monitored beds per system	16	48	128
Maximum Number of networked printers	2	4	8

**Information Center (Local Database)**

This section includes independent Information Center designs only, that is Information Centers that are **not** connected to a IntelliVue Clinical Network.

**Equipment Capability**

Requirements must be matched to the following Philips Patient Care Network equipment capabilities.

- **Information Center** capability can:
  - display data from up to **16 patient monitors**
  - annunciate **22 alarms**
  - store up to **150 alarm records**
  - store up to **96 hours** of patient data for:
    - waves
    - ST segments
    - trends
    - events
- each **System Communications Controller** can manage data for up to **6 Information Centers** and from up to **24 patient monitors**.
- **Patient monitors** for both systems can be **hardwired or telemetry**.
- **Telemetry mainframes** can support **8 channels of telemetry** monitoring.

These design capabilities and limitations are summarized in Table 4-2, Philips Patient Care Network Component Capabilities and Limitations.

**Table 4-2. Philips Patient Care Network Component Capabilities and Limitations**

Component	Device	Capabilities	Limitations
<b>Patient Monitors</b>	Hardwired monitor	1 per patient	
	Telemetry monitors	1 per patient	
	Telemetry Mainframe	8 monitors per Mainframe	See <b>Note</b> below

**Table 4-2. Philips Patient Care Network Component Capabilities and Limitations**

Component	Device	Capabilities	Limitations
SDN/SCC		24 hardwired monitors	Total hardwired and telemetry monitors cannot exceed 24 per SCC
		6 telemetry mainframes (24 monitors)	
		6 central stations	
Central monitors	IntelliVue Information Center	16 patients, maximum clinical capability	independent or LAN independent only
	Component Central Monitor	12 patients, limited clinical capability	

**Note** A IntelliVue Information Center can monitor patients from up to 2 telemetry mainframes (16 patients) without the need for an SCC. In this application, the telemetry mainframes are connected in series and the series output is connected directly to the Information Center's SDN Interface Card input.

**Designing the System** Once the patient monitoring requirements of the clinical unit are determined, the Philips Patient Care Network can then be optimally designed from the Philips equipment. This section describes the procedures for network design.

**Note** Philips recommends that customers consult with a Philips representative when designing a Philips Patient Care Network for their clinical environment to assure optimum selection of equipment and system performance.

The first step is to determine the **clinical requirements** for the system. The second is to select the **hardware components** that will satisfy the clinical requirements. And the third step is to determine which Information Center **software and hardware options** to purchase to make the system more effective, efficient, and convenient for clinical users. With these steps completed, the final design of the Patient Care Network can be made.

**Design Worksheets** IntelliVue Information Center Design Worksheets are provided in **Appendix A** for recording clinical, hardware, and software requirements and options for Information Center system designs. Use these sheets to facilitate your design.

**Drawing the Design** Once the Design Worksheets have been completed, the final step in the design is to draw the Philips Patient Care Network using the devices, components, and cabling entered into the tables. Your final design should show all relevant information (**Device Names, Locations, Cable Types and Lengths, etc.**) as recorded in the tables.

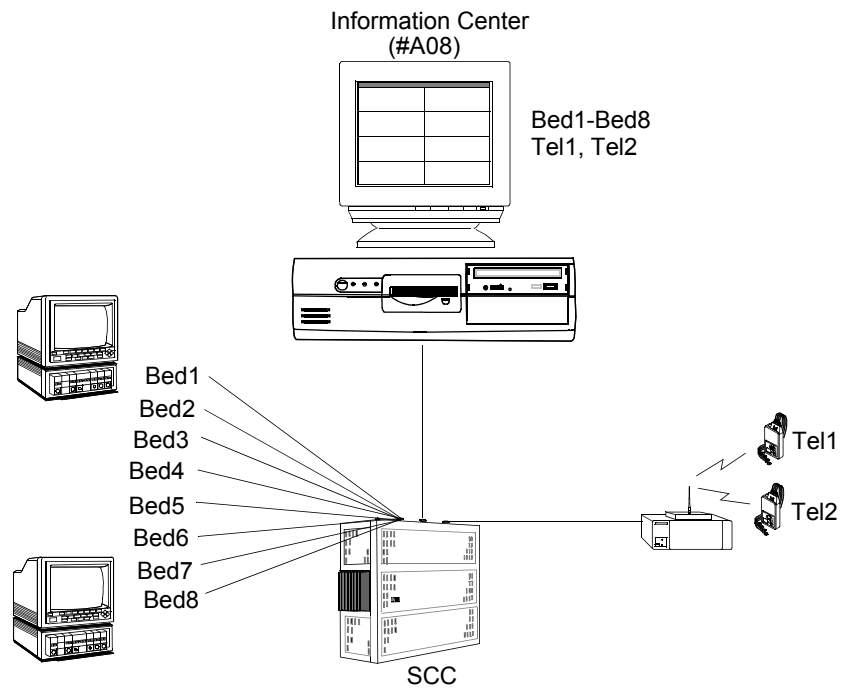
**Design Examples** This section shows schematic designs of typical independent Information Center systems as examples of how the Philips Patient Care Network can meet the needs of a wide range of clinical environments.

**Small ICU** A simple Philips Patient Care Network is for an 8-bed ICU with intensive patient monitoring requirements for all patients and the possibility of transferring up to 2 patients to telemetry. See Figure 4-2.

Equipment required for this installation is the following:

- 8 beds, each with a hardwired bedside patient monitor
- 2 telemetry monitors on one telemetry mainframe
- 1 Information Center with 8 patient (Option #A08) and full alarm and wave review capability
- 1 System Communications Controller

With 2 telemetry monitors, any 2 of the 8 patients can be transferred to telemetry monitoring with no loss of patient monitoring and data storage. This Patient Care Network can be expanded to 12 beds by adding the 4 patient upgrade Option #C44 to the Information Center. Additional telemetry monitoring capability can be obtained by adding telemetry monitors and mainframes to the SCC.



**Figure 4-2 Small, 8-Bed ICU Patient Care Network**

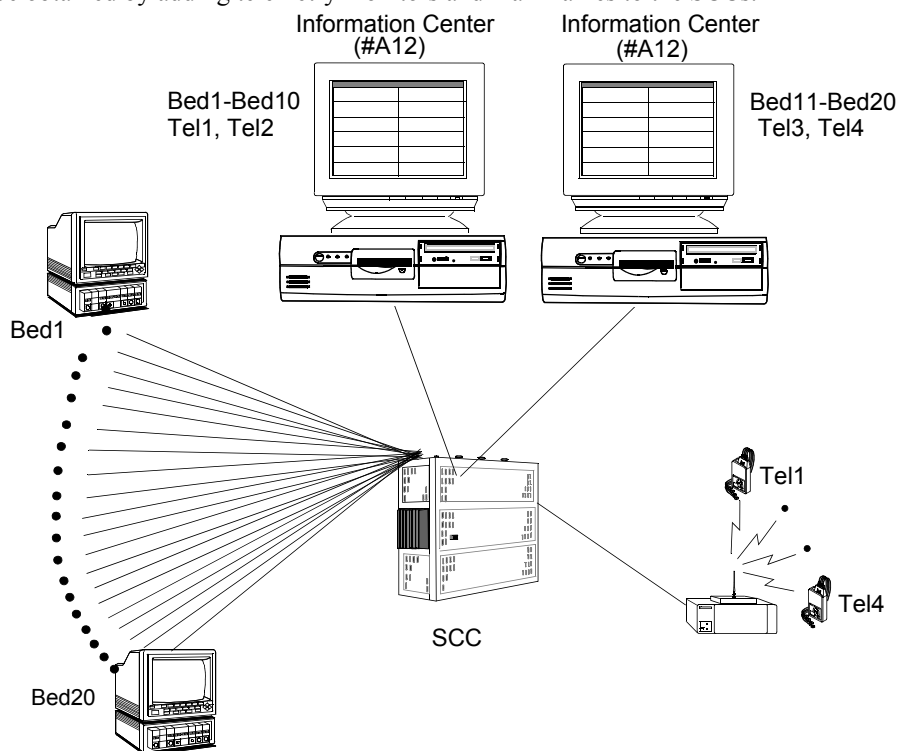
**Large ICU** The next example is a large, 20-bed ICU with intensive monitoring requirements for all patients and the ability to transfer up to 4 patients to telemetry. See Figure 4-3.

Equipment required for this installation is the following:

- 20 beds, each with a hardwired bedside patient monitor
- 4 telemetry monitors on one telemetry mainframe
- 2 Information Centers, each with 12 patient (Option #A12) and full alarm and wave review capability
- 1 System Communications Controller

The hardwired bedside and telemetry monitors are assigned to specific Information Centers. In Figure 4-3, 10 bedside and 2 telemetry monitors are assigned to Information Center #1 and 10 bedside and 2 telemetry monitors to Information Center #2, although other combinations are possible.

This Patient Care Network can be expanded to 32 patients by adding a 4 patient upgrade Option #C44 to each Information Center. For more than 24 patient monitors (hardwired + telemetry), however, a second SCC is required. Additional telemetry monitoring capability can also be obtained by adding telemetry monitors and mainframes to the SCCs.



**Figure 4-3 Large, 20-Bed ICU Patient Care Network**

**Note**

Assignment of **hardwired monitors** to specific Information Centers is recommended because data for patients are stored on specific Information Centers and patients cannot be transferred between Information Centers.

Assignment of **telemetry monitors** to specific Information Centers is recommended because information that a telemetry monitor is being used by another Information Center is not shared across the SDN. Hence, a telemetry monitor used by another Information Center will appear as available in the **Sector Setup** window. To eliminate this problem, some form of telemetry monitor labeling, indicating which telemetry monitors can be used with which patient beds, is generally required.

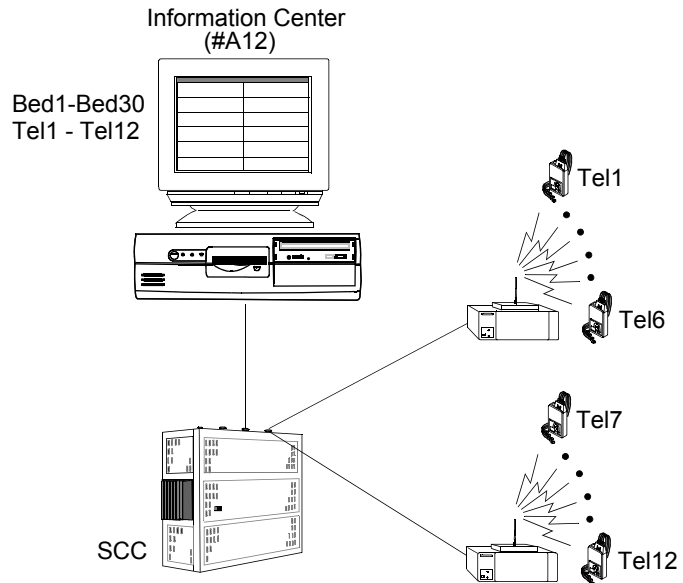
**Medium Stepdown Unit with Telemetry Monitoring**

In a Stepdown Unit, patients are typically monitored by telemetry monitors and there are generally more beds than monitors. A Patient Care Network for this example is shown in Figure 4-4.

Equipment required for this installation is the following:

- 30 beds with no hardwired bedside monitors
- 12 telemetry monitors on two telemetry mainframes
- 1 Information Center with 12 patient (Option #A12) capability
- 1 System Communications Controller

In this example, all 30 beds are assigned to one Information Center and any telemetry monitor not being used on an admitted patient can be assigned to a patient in any of the 30 beds.



**Figure 4-4 Medium Stepdown Unit with Telemetry Monitoring**

**Large Stepdown Unit with Telemetry Monitoring**

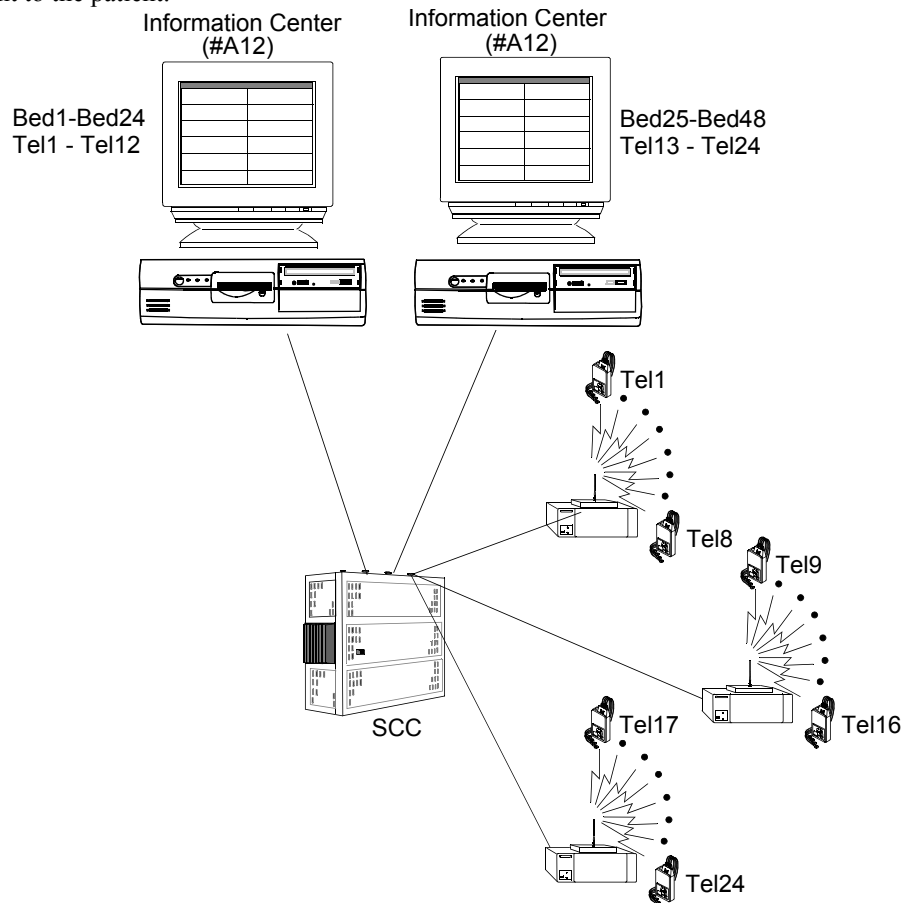
If the number of telemetry monitors is increased beyond 16, an additional IntelliVue Information Center is required. See Figure 4-5.

Equipment for this installation is the following:

- 48 beds with no hardwired bedside monitors
- 24 telemetry monitors on three telemetry mainframes

- 2 Information Centers, each with 12 patient (Option #A12) capability
- 1 System Communications Controller

In this example, 24 beds and 12 telemetry monitors are assigned to each Information Center. The bedside and telemetry monitor assignments are unique to each Information Center because Information Centers do not communicate with each other as to which monitors are currently being used. When selecting a bed for monitoring, only those unused monitors configured to that Information Center will appear in the **Sector Setup** window for assignment to the patient.



**Figure 4-5 Large Stepdown Unit with Telemetry Monitoring**

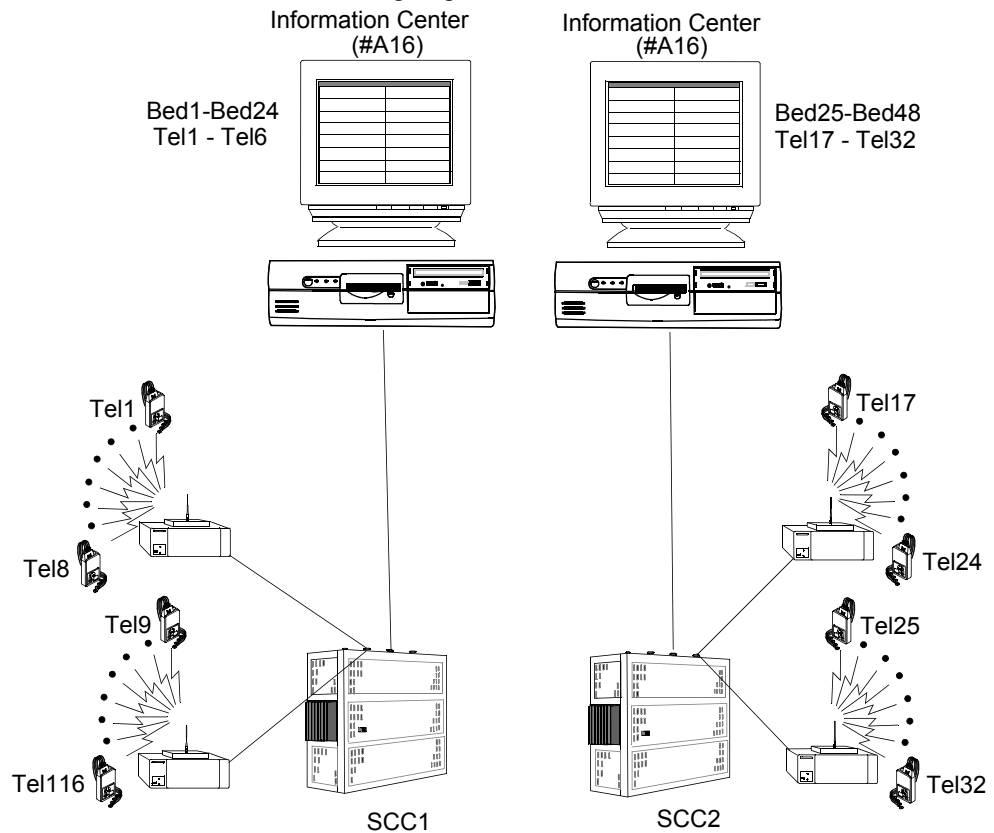
**Very Large Stepdown Unit with Telemetry Monitoring**

When the number of patient monitors in a Stepdown Unit exceeds 24, a second System Communications Controller is required. This is shown in Figure 4-6.

Equipment for this installation is the following:

- 48 beds with no hardwired bedside monitors
- 32 telemetry monitors on 4 telemetry mainframes
- 2 Information Centers each with 16 patient (Option #A16) capability
- 2 System Communications Controller

With 2 System Communications Controllers, the Information Centers and telemetry mainframes must be assigned to specific SCCs. In this example, 16 telemetry monitors and 1 M3150 Information Centers covering 24 patients are networked to each SCC.



**Figure 4-6 Very Large Stepdown Unit with Telemetry Monitoring**

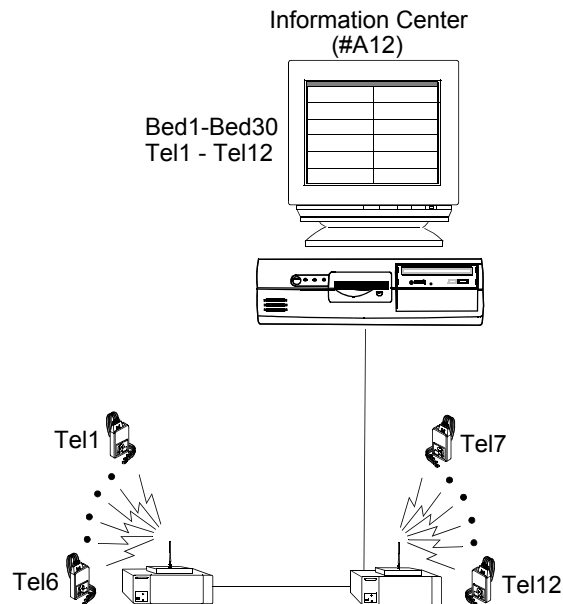
In such a large system, clinicians must know which patients are on each SCC network and which telemetry monitors can be used with each Information Center. Clear labeling of bed and telemetry assignments will assist clinicians in assigning telemetry monitors to patients. Unused telemetry monitors for each Information Center will appear in the Setup Display list as available for patient monitoring.



### Telemetry Monitoring Without a SCC

As noted in the description of the SCC in Chapter 2, the Information Center can monitor up to two telemetry mainframes without an SCC. Therefore, when only telemetry monitoring is required, the SCC may not be required. This can reduce the cost of some of the Philips Patient Care Network designs described earlier. The Medium Stepdown Unit with Telemetry Monitoring, for example, could be more simply redesigned as shown in Figure 4-7.

In these applications, the telemetry mainframe output is connected directly to the Information Center's SDN Interface Card input. For two telemetry mainframes, the units are daisy chained as shown in Figure 4-7. With this connection, the priority wires of the connecting cables are required. See Pin Connections in section 2.



**Figure 4-7 Telemetry Monitoring Without a SCC**

These examples illustrate the issues that should be considered when designing a Philips Patient Care Network. When designing the network, however, Philips recommends that clinicians consult with a Philips Customer Representative to assure that their specific patient monitoring requirements are met in the most cost effective and flexible way.

## Database Server Systems

The design of a Database Server (DBS) system depends on the type of patient monitors connected to it -- SDN PCC monitors, Network Patient Monitors, or mixed SDN and Network monitors.

The design of **DBS Server systems** involves two major steps. The first is to determine the **switch requirements**, that is, the number of switches required, and the devices (PCCs, central monitors and review stations, M3/M4 monitors, IntelliVue patient monitors, access points) that will be connected to each switch port. The second is to determine the **Cable Plant requirements** -- cabling types and lengths and components (wall boxes, repeaters, media translators) necessary to interconnect network devices.

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### Note

This manual does not describe the design and implementation of DBS Server systems in detail because each clinical environment requires careful analysis by an experienced network designer. Philips Service Providers are specially trained to assist customers in reviewing their clinical requirements and designing a Server system that meets those requirements and will be supported by Philips Medical Systems.

The general concepts and capabilities of Server components and systems given here should only be used as a reference for understanding the final design. Two examples are provided to illustrate the design process.

Consult a Philips Service Provider for Server system design advice.

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### Connecting Devices

Review the locations of the network devices and select the repeaters, media translators, cable types and lengths required to interconnect them. The **IntelliVue Clinical Network** documentation provides examples, details and connection type diagrams that can assist in the connection planning.

### Drawing the Design

The final step is to draw the Patient Care Network using the devices, components, and cabling. Your final design should show all relevant information (Device Names, Locations, Cable Types and Lengths, etc.).

## Guidelines

This section describes the guidelines to be followed when designing a DBS system. Two examples are given: one is a single switch network and the other is a multiple switch network. These examples describe hardware design only. Hardware installation is described in the following section, and the application software configuration is described in **Chapter 6**.

The basic principles in designing the network design are:

- design a network that will minimize the number of devices data needs to flow through
  - optimizes performance by minimizing traffic on the network
  - minimizes the impact of a single device failure
- design systems with troubleshooting in mind
  - combine in as few locations as practical
  - use host names to easily identify device information (i.e. unit and location)
  - recognize the trade-offs in using Extension and Edge switches

There are three types of messages that are used in the network. **Directed**, **Broadcast**, and **Multicast** messaging.

### Directed Messages

A directed message is a message that is sent from one device to another device using the receiving device's IP address. Most network communication is handled via directed messaging. Some examples of this are Wave, Event and Trend Review exchanges between the Information Center and DBS, print requests between the Information Center and printer, and physiological data and control messages between a bedside and the Information Center.

### Broadcast and Multicast Messages

Broadcast and Multicast messages are messages that are sent to the entire network, regardless of the network design. Some examples of **broadcast** messages are time synchronization and bootp requests. Bed to Bed Overview is handled via a **multicast** message.

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### Note

Access points block multicast messages to the wireless bedsides to conserve bandwidth on the wireless network. This is why the Overview feature is not available on the wireless bedsides.

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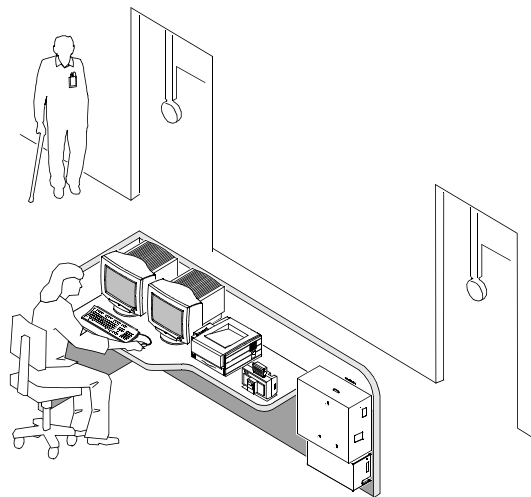
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## Site Preparation

This Section gives more detailed information on the preparation of a site for IntelliVue Information Center system installations.

### Equipment Location

The Information Center system should be centrally located in the clinical environment so that nursing staff have convenient and ready access to the Information Center display, where patient information is available, and to patients' bedsides. Typically, the central monitoring station is a flat work surface situated at the hub of the patient environment. The display is positioned so that the monitoring nurse can view both the display and the patient areas. See Figure 4-8.



**Figure 4-8 Typical IntelliVue Information Center Monitoring Location**

There are a variety of ways to locate Information Center equipment that satisfy these guidelines. In general, components used most frequently by monitoring nurses -- display, keyboard, mouse, speaker, recorders, printer -- are located near where they can monitor patients most conveniently.

Items that are used less frequently -- processing unit, UPS, power supplies -- can be located in an out-of-the-way location that will not interfere with the monitoring process. The locations of these components should allow access by service personnel without disruption to the clinical environment.

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#### Note

Each piece of equipment should have at least 2 in. (5 cm) of clearance on all sides for proper air circulation.  
The maximum acceptable cabling distance from a peripheral device to the Information Center PC is 6 m (19.7 ft.).

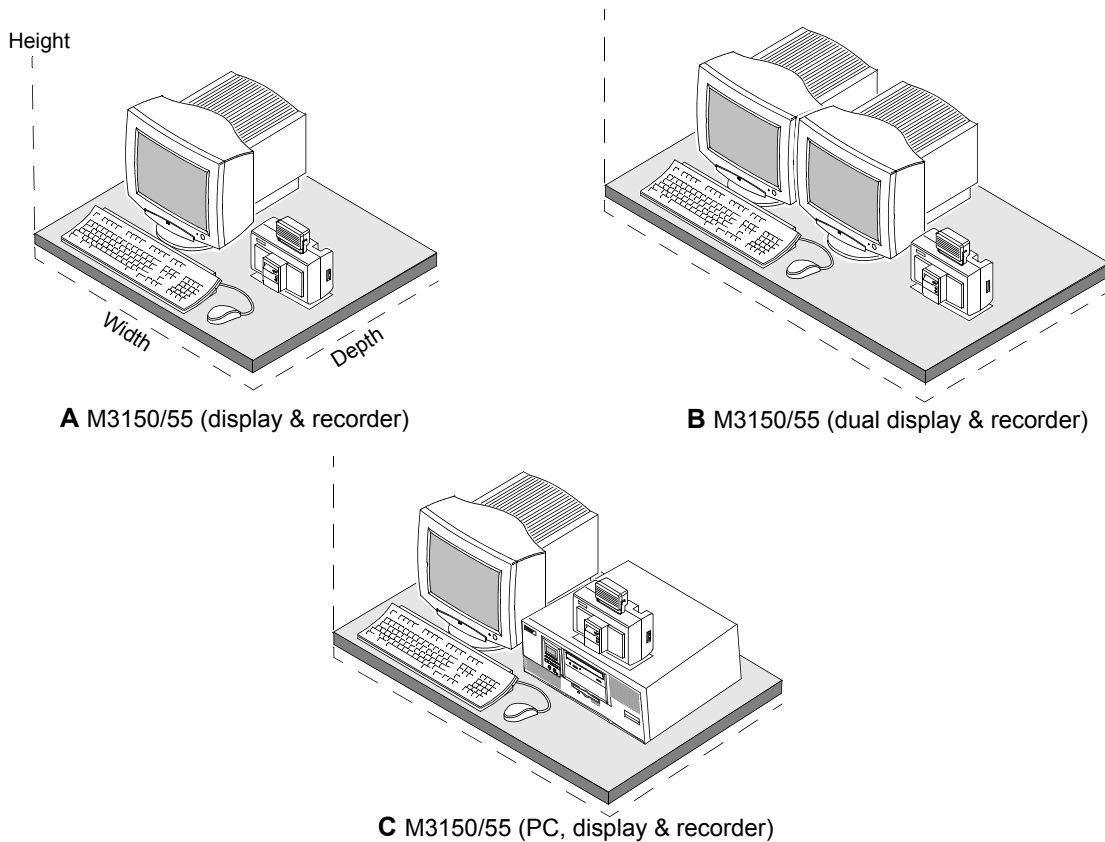
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**Typical Installations** Typical worksurface installations are shown in Figure 4-9.

**Note** Items not shown are assumed to be located elsewhere.

The space, weight, environmental, and electrical requirements for these examples are given in the tables following. The data for these tables are derived from the **Specifications** for individual units given in **Chapter 2**.

**Caution** The following tables give specifications for units shipped at the time of this manual's publication. For specifications of more recent units, consult their documentation.



**Figure 4-9 Typical Information Center Installations**

**Space and Weight Requirements**

The following table gives space and weight requirements for the systems shown in Figure 4-9. To determine similar specifications for Information Center systems different from Figure

4-9, consult Table 4-3, Space and Weight Requirements for Information Center Installations and/or the documentation for the units that comprise the system.

**Table 4-3 Space and Weight Requirements for Information Center Installations**

System	Height cm (in.)	Width cm (in.)	Depth cm (in.)	Weight kg. (lbs.)	# Power Outlets*
<b>A</b>	42.2 (16.6)	72 (28)	64 (25)	19.7 (43.3)	2
<b>B</b>	42.2 (16.6)	114 (45)	64 (25)	36.7 (80.7)	3
<b>C</b>	42.2 (16.6)	89 (35)	66 (26)	34.7 (76.3)	2
* Includes PC and UPS +1 for optional LaserJet printer					

**Environmental Requirements**

The environment where the Information Center system will be used should be reasonably free from vibration, dust, and corrosive or explosive gases. The ranges of ambient operating conditions -- temperature and relative humidity (RH) -- and the maximum heat dissipated for the Information Center installations shown in Figure 4-9 are given in the following table. To determine similar specifications for Information Center installations different from those in Figure 4-9, consult Table 4-4 and/or the documentation for the units that comprise the system.

**Caution**

**If the environmental specifications of the Information Center system are not met, damage may be caused to the equipment.**

**Table 4-4. Environmental Requirements for Information Center Installations**

System	Heat (max) BTU/hr.	Temperature	Relative Humidity	Notes
<b>A</b>	2928	15 - 30 °C 59 - 86 °F	20 - 80% @ 30 °C (86 °F)	Assumes single, medium display, PC, Recorder, and UPS.
<b>B</b>	3270	15 - 30 °C 59 - 86 °F	20 - 80% @ 30 °C (86 °F)	Assumes dual, medium displays, PC, Recorder, and UPS.
<b>C</b>	2928	15 - 30 °C 59 - 86 °F	20 - 80% @ 30 °C (86 °F)	Assumes single, medium display, PC, Recorder, and UPS.

## Electrical Requirements

The following table gives electrical requirements for the Information Center installations shown in Figure 4-9. To determine similar specifications for Information Center installations different from those in Figure 4-9, consult Table 4-5 and/or the documentation for the units that comprise the system.

**Table 4-5. Electrical Requirements for Information Center Installations**

System	Input Voltage (VAC)	Input Frequency (Hz)	Manual Switching Required?	Input Power (max) (Watts)	Notes
<b>A</b>	110 - 127	UPS: 50/60	PC & UPS: yes	858	Assumes single, medium display, PC, Recorder, and UPS.
	220 - 240	All others: 50-60	All others: no		
<b>B</b>	110 - 127	UPS: 50/60	PC & UPS: yes	958	Assumes dual, medium displays, PC, Recorder, and UPS.
	220 - 240	All others: 50-60	All others: no		
<b>C</b>	110 - 127	UPS: 50/60	PC & UPS: yes	858	Assumes single, medium display, PC, Recorder, and UPS
	220 - 240	All others: 50-60	All others: no		

## Network Connection

The Information Center computer obtains its information from patient monitors connected to the Serial Distribution Network (SDN) through the System Communications Controller (SCC). Therefore, an SDN wall box connection to the SCC should be installed near where the Information Center computer will be located.

Procedures for installing SDN wall boxes and cabling are described in detail in the **CMS Site Preparation and Installation Manual**. Refer to that manual for installing SDN wall box connections. For available SDN installation material options, see **M3199AI Options using UTP Cable**.

Clinical Network cabling, wall boxes, and faceplates are generally the responsibility of a certified cabling installer. However, the network design should give careful consideration to the locations of RJ-45 wall boxes, both for the clinical equipment -- Information Centers, Clients, printers -- and for the active Network components that require them. Distances between wall boxes and the devices that connect to them will depend on the lengths of RJ-45 and other types of cable.

## Network Card and TCP/IP Settings

The following features of the Information Center software require a second Network interface card (NIC) to be installed (refer to **Chapter 2 Hardware Description**):

- 12-Lead Export
- Holter Export
- HL7 Export
- Web Access
- Patient Data Transfer

The settings required for this NIC card are for connection to the hospital network and are site-specific. These settings will be entered into the Control Panel during hardware installation. Physical network connections including cable runs and wall boxes must also be considered. Connection to the Hospital LAN requires a 100 Mbit connection.

The following settings must be determined before installation:

IP Address	. . .
Subnet Mask	. . .
Default Gateway	. . .
DNS IP Address (search order)	. . . . . .
WINS IP Address	primary . . . . secondary . . . .

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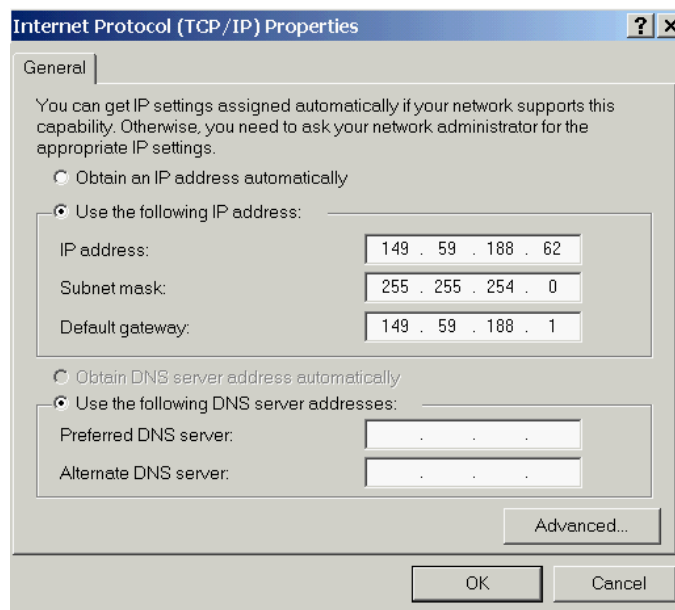
**Note** These 2nd NIC Adapter Card settings are site-specific. These settings should be documented clearly and be available in case the device has to have the Operating System re-installed.

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The location of the Network Card and TCP/IP Settings depend on the Operating system installed on the device.

**Windows 2000**

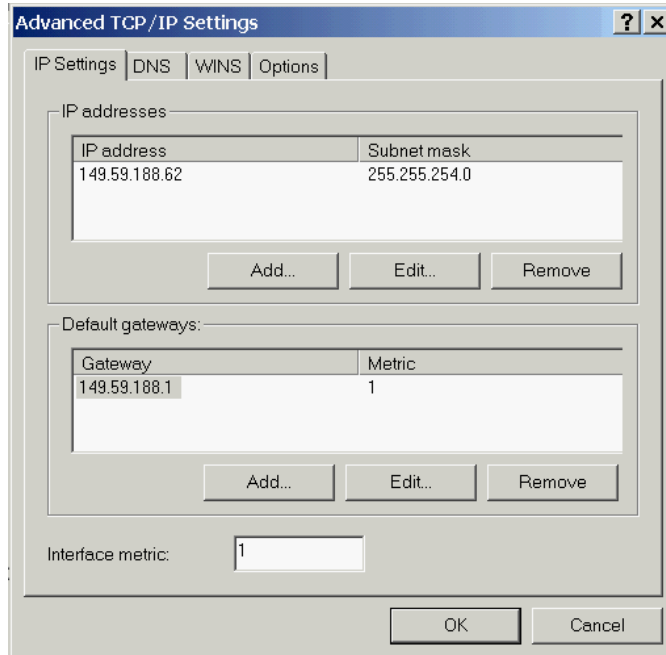
- Step 1.** Open the Control Panel
- Step 2.** Open Network and Dial-up Connections.
- Step 3.** Select the icon for **Hospital LAN**
- Step 4.** Right-click and select **Properties** from the drop down menu. The TCP/IP Properties, including the IP Address, Subnet mask, Default Gateway and DNS settings can be entered.



**Figure 4-10 Windows 2000 Hospital LAN TCP/IP Settings**



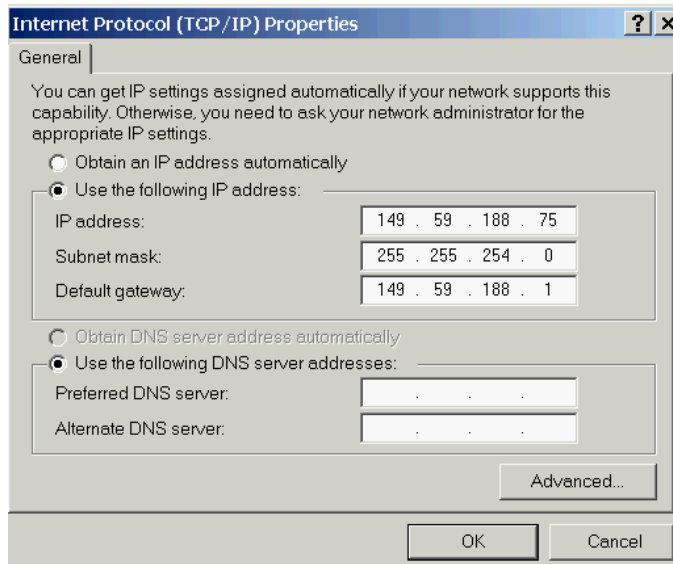
**Step 5.** Click on the **Advanced** button and click on the DNS and/or WINS tabs to enter in the DNS/WINS settings if required.



**Figure 4-11 Windows 2000 Hospital LAN TCP/IP Advanced Settings**

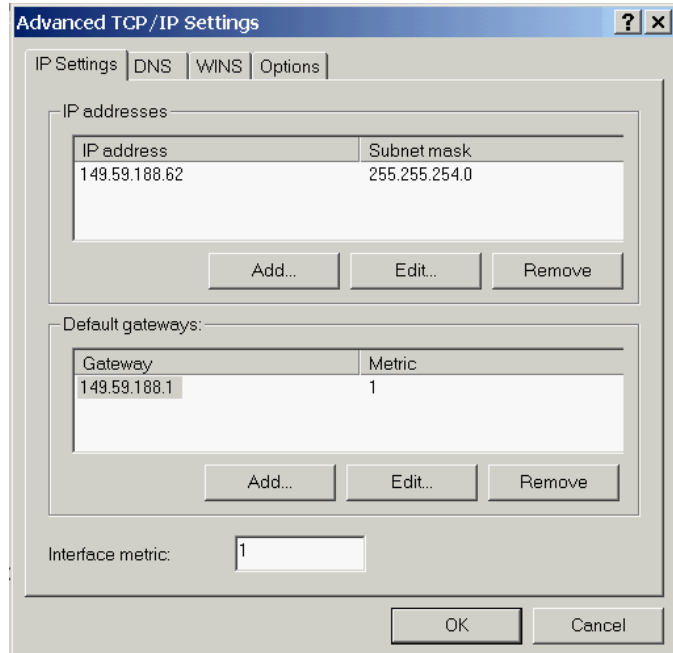
- Windows XP**
- Step 1.** Go the Start Menu, and select **Settings - > Network Connections**
  - Step 2.** Select the icon for **Hospital LAN**
  - Step 3.** Right-click and select **Properties** from the drop down menu.
  - Step 4.** Highlight **Internet Protocol (TCP/IP)** and press **Properties**.

**Step 5.** The TCP/IP Properties, including the IP Address, Subnet mask, Default Gateway and DNS settings can be entered.



**Figure 4-12 Windows XP Hospital LAN TCP/IP Settings**

**Step 6.** Click on the **Advanced** button and click on the DNS and/or WINS tabs to enter in the DNS/WINS settings if required.



**Figure 4-13 Windows XP Hospital LAN TCP/IP Advanced Settings**

**Equipment Cabling**

When selecting locations for each Information Center components, consideration should be given to the lengths of cables required for interconnections. Standard length, interconnection cables are provided with each component, but other cable lengths are available as options.

For available cable options, see **M3181A Cable Options for Information Center Systems** and **78599AI Cable Options for Remote Slave Display**.

**Note**

If the Remote Slave Display is located sufficiently far from the PC, extended length cabling is required. This is described in the 2-Way Video Splitter Installation Note and 6-Way Video Splitter Installation Note and illustrated in **Chapter 5 Hardware Installation**.

**Safety****Medical Device Standards**

Any medical device that connects directly to a patient, such as bedside monitors, must comply with IEC 60601-1, IEC 60601-1-1, and IEC 60601-1-2, the international safety requirements for medical electrical equipment. Any equipment that connects directly to a bedside monitor creates a medical electrical system that must also comply with IEC 60601-1-1. In practice, this means that the combined chassis leakage current of a medical device connected directly to a patient and any directly interconnected device must be less than 500 mA (300 mA in the U.S.)

IEC 60601-1-1 does allow, however, for the use of other equipment in a medical environment provided that it complies with the relevant IEC standard and is not directly connected to a patient. Relevant IEC standards are IEC 60950 for computer equipment and IEC 61010 for laboratory equipment.

**Philips Device Requirements**

Philips workstations, server, displays, LaserJet printers, and active Network components may be connected to bedside monitors through the Clinical Network and SDN provided that they are located outside the patient environment and provided that the PCC or telemetry mainframe contains a redundant Protective Earth connection. PCC redundant Protective Earth connections are described in the Information Center Installation and Service Manual. When the PCC and telemetry mainframe are properly installed, the resulting system complies with IEC 60601-1-1.

**Patient Environment**

**None** of the Information Center or Database Server equipment is approved for use within the patient environment. Figure 4-14 shows acceptable distances from the patient environment beyond which all Philips equipment must be located.

**Warning**

**Information Center workstation, server, displays, recorder, LaserJet Printer, and Clinical Network components are not approved for placement within the patient environment -- any area within 1.5 meters (4.9 ft.) horizontally and 2.5 m (8.2 ft.) vertically above the floor from any patient care location in which medical diagnosis, monitoring, or treatment of the patient is carried out.**

Site Preparation

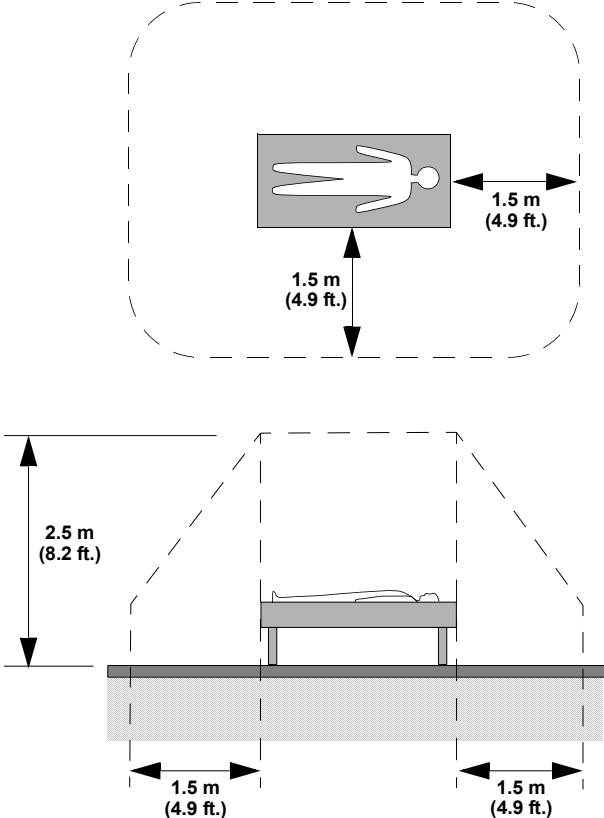


Figure 4-14 Limits of the Patient Environment

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## Overview

The process for installing a Server network comprises the following general steps. They are described in detail in the following sections.

**Chapter 5** describes site planning and installation of the Information Center system in the following sections.

Locating System Components. . . . .	page 5-6
Interconnecting the System. . . . .	page 5-19
Providing Electrical Power . . . . .	page 5-32
Network Names and IP Addresses . . . . .	page 5-33

## Cable Plant Installation

Philips requires that the customer contract with a certified CAT5 cable installer for cable plant installation and that the installer provide test documentation that demonstrates that the cable plant meets required specifications.

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**Note** The hospital cable plant should be completely installed and tested before Philips Representatives and Information Center and Server equipment arrive.

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**Installation Materials** Philips supplies a variety of UTP Category 5 (orange colored) cable and installation materials, including bulk UTP cable [in 305 m (1000 ft.) rolls], UTP patch panels, UTP and fiber optic patch cables, and UTP wall boxes. Available options are given in the **IntelliVue Clinical Network** documentation.

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**Note** Philips does not supply bulk fiber optic cable.

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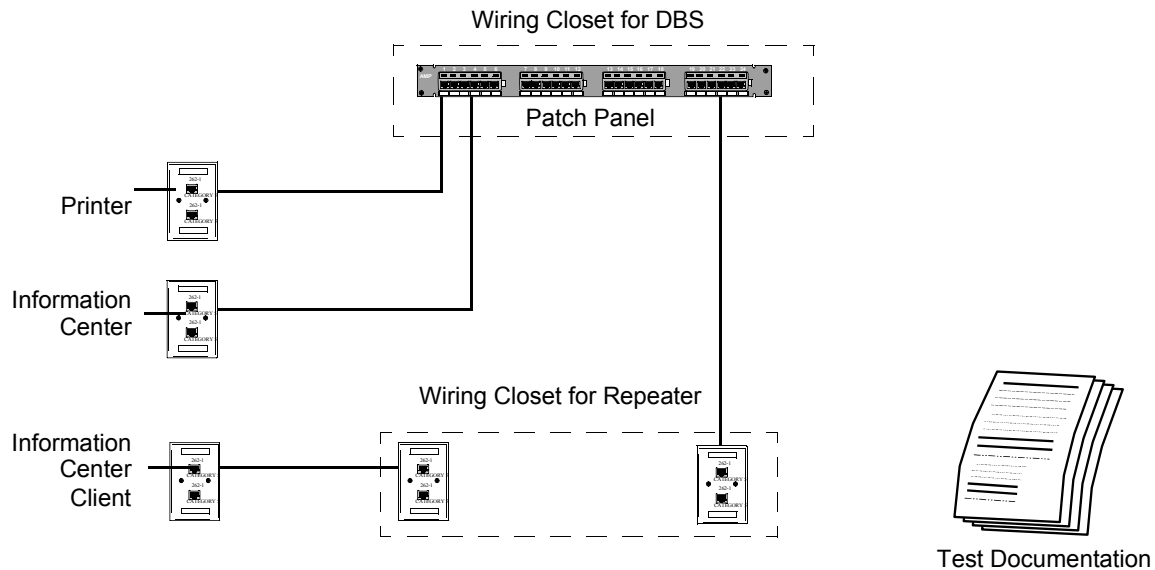
**Noise Immunity** UTP CAT5 cable has excellent immunity from noise when installed correctly. To achieve this characteristic, all UTP cables and active network components should be kept as far away as possible from all sources of electrical noise, which includes all RF sources and AC powered devices and their power cables. Data signals on UTP cables that receive excessive electrical noise, e.g. line power surges or spikes, can become corrupted and produce unpredictable results on the networks they support.

When installing the cable plant, UTP cables, patch panels, wall boxes, and active network components should:

- **not** be in wiring closets where RF transmission sources are used
- **not** be placed within 1 m (3 ft.) of any AC device (UPS, CRT, etc.) or AC power cord except where necessary to connect them to workstations or the server

The noise immunity of fiber optic cable is superior to UTP cable so that fiber optic cable should be used for any 10 Mbit/s cable runs over 100 m for which RF or electrical noise is a potential problem.

**UTP Cable Plant Installation** A typical cable plant installation for UTP Category 5 cables for Information Centers, Clients and Clinical Network/Database Server components is shown in Figure 5-1.



**Figure 5-1 Typical UTP CAT5 Cable Plant Installation**

The UTP CAT5 cable plant should meet the following:

- **Patch panels for all switches** should be in the wiring closets where switches will be installed
- **RJ-45 wall boxes or patch panels for repeaters and extension switches** should be in closets where they will be installed. Repeater and Extension Switches should **not** be located above a ceiling.
- **RJ-45 Wall boxes for Information Centers, Clients, Printers, and Server**, should be within patch cable lengths of their devices.
- **Cabling, patch panels, switches, repeaters, and media translators** should be more than 1 m (3 ft.) from all powered devices (Server, UPS, etc.).
- **Labels on all UTP CAT5 cables and terminations** should identify the cable, patch panel, port number, and wall box termination.
- **Test Documentation** should demonstrate that the UTP CAT5 cable plant meets CAT5 standards for NEXT, attenuation, wiremap, and length.

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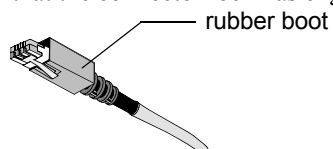
**Caution**

**In-wall cabling - UTP and fiber optic - must be terminated at a patch panel or wall box and not directly at an active Network device.**

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## RJ-45 Connections

**RJ-45 connectors** should also be securely seated in their sockets. The rubber boot over the end of the connector can be slid back slightly to assure that the connector can be inserted far enough for the connector lock to engage. The boot should then be repositioned over the connector after the connection has been made. The RJ-45 connection should also be tugged lightly after insertion to verify that the connector lock has engaged.



**Figure 5-2 RJ-45 Connector**

## Fiber Optic Cable Plant Installation

Fiber optic cable installation should follow similar installation, testing procedures, and requirements.

## Unpacking and Inspection

Once the cable plant has been installed, Information Center and Server hardware and software are ready for installation. The first step is unpacking system components from their shipment containers and thoroughly inspecting them. An inventory Packing List is provided with the shipment for verifying that all ordered components have been received.

Hardware components, except the Philips Recorders, are manufactured by equipment manufacturers other than the Philips Cardiac and Monitoring Solutions Group. With the exception of the PC workstation processing units, these products are received from their manufacturers and reshipped, unopened.

Unopened IntelliVue Information Center hardware components include:

- Display(s)
- Philips 2-Channel Recorder Rack Assembly
- UPS
- Philips 4-Channel Recorder (optional)
- LaserJet Printer (optional)
- Printer Hub (optional)
- Video Splitter (optional)

**PCs** are opened at the Philips factory and interface cards and operating system and application software installed and tested. They are then repackaged for shipment to customers along with other IntelliVue Information Center hardware.

An **Accessories Box** is included in the shipment and contains a variety of accessories to the IntelliVue Information Center system including:

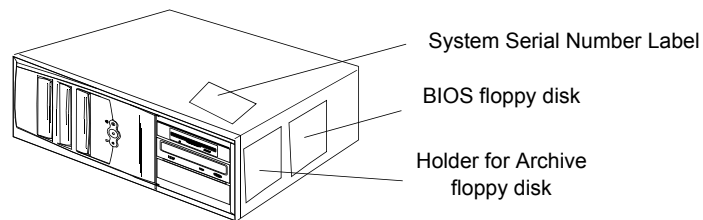
- Keyboard
- Mouse (or optional Trackball)
- M1116B #201 Recorder
- Cables
- Information Center Service Documentation Kit
- Software Media Kit

**Caution** The Information Center Media Kit contain Operating System and Application software. It is the **MOST VALUABLE PART** of the shipment. Be sure it is carefully unpacked and placed in a safe, secure place for possible software reinstallation!

**Unpacking Components** When the shipment is received by the customer, it should be moved to the installation area but remain unopened. The Philips Service Provider assigned to the installation will remove the components from their packaging and assure the integrity of the shipment. The Philips Service Provider will also remove shipment packaging materials from the customer site if requested.

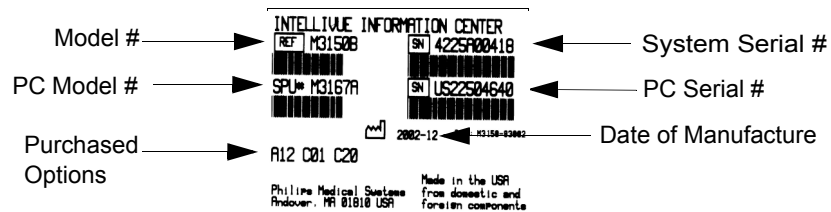
**Checking Inventory** An inventory **Packing List** is included with the shipment. Each shipped item should be carefully checked against the Packing List to assure that it has been received. As items are identified they should be set aside and missing items should be looked for thoroughly. If an item on the Packing List is not found, call the **Response Center** and report the missing item. It will be shipped immediately to the customer site.

**Note** An **Archive floppy disk** is attached to the side of the server and workstations. Make certain that it is in place and does not get lost.



**Figure 5-3 Archive Floppy Disk and Holder**

**System Serial Number** Each processing unit has a **System Serial Number label** attached to its case as shown in Figure 5-3. The information on the label is shown in Figure 5-4. Verify that this information correctly matches the system ordered.



**Figure 5-4 System Serial Number Label**

**Service Documentation** The Information Center Service Kit includes the Service Quick reference Guides and a CD-ROM that contains all the documentation for the Information Center system. Service manuals for the other components are included in their individual shipment containers.



**Inspection** The Information Center system has been carefully packaged at the Philips factory so that no damage should occur in shipment. However, Philips has no control over shipping and handling after it leaves its facility, and a thorough inspection of Philips components after removal from their packaging is an essential step to assuring that no damage has occurred.

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**Note** Documenting possible damage in shipment may be necessary to support claims for hidden damage that becomes apparent only during testing and operation.

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**Packaging Inspection** Before removing the components from their packaging, the shipment container should be inspected for damage. External damage to shipping containers may indicate damage to its contents. Open the shipping containers and check the cushioning material. Note any signs of stress for indications of rough handling in transit. Document any damage conditions.

**Mechanical Inspection** Unpack each component from its shipping material. Examine all parts of each component for visible damage -- broken connectors or controls, dents or scratches on instrument surfaces, or any other unusual appearance. Document any damage conditions.

**Electrical Inspection** No detailed internal or electrical inspection is required. The equipment has undergone extensive electrical testing and configuration prior to shipment and all PC boards and operating software have been pre-installed.

**Claims for Damage** If physical damage is evident during unpacking or if, during initial testing and operation, the Philips system fails to meet performance specifications in any way, immediately notify the shipment carrier and the nearest Philips Sales/Support Office. Philips will arrange for immediate repair or replacement of the instrument without waiting for any claims to be settled.

**Re-packaging for Shipment** To ship the system to a Philips Sales/Support Office, the original Philips packaging materials should be used (if at all possible) to provide proper protection during shipping. If the original packaging is not available or reusable, contact the Philips Sales/Support Office, which will provide information on alternative packaging materials and methods.

When addressing the shipment, securely attach a label and include the name and address of the owner, the instrument model and serial number, and a detailed description of any damage, repair required, or symptoms of faults.

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## Locating System Components

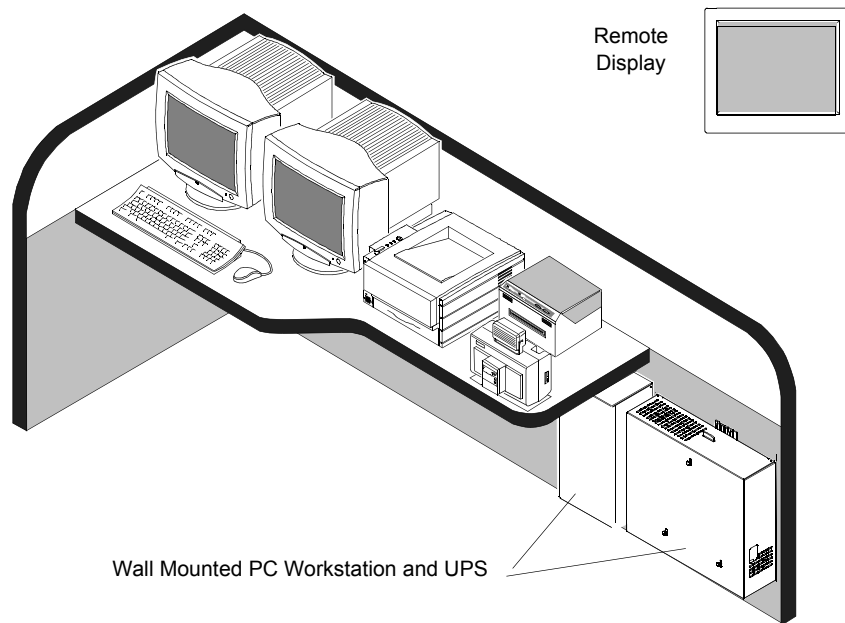
This section describes proper installation of the components of the Information Center system in their intended locations, including the assembly and installation of mounting hardware. The procedure for a particular installation depends on the planned locations of individual components developed during site planning and preparation in Chapter 4. Hence, this section will only give general procedures for locating individual components and must be adapted for each installation.

### Components on the Work Surface

Information Center components to be located on the work surface of the clinical workstation are simply placed on the work surface in their intended locations. As a minimum, these include the primary display(s), the keyboard, and the mouse (or trackball), but may also include the recorders, speaker, printer, processing unit, and UPS.

### Typical Installations

Units placed on the work surface should be positioned in the manner most convenient for use by clinicians. Figure 5-5 shows a typical work surface installation of the Information Center with dual display and optional printer and 4-Channel Recorder. The PC workstation and UPS are located inside the wall mount hardware, which is attached to the wall of the clinical workstation.

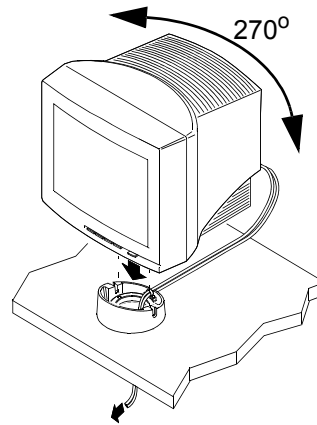


**Figure 5-5 Information Center Installation with PC/UPS Wall Mount**

### Display Swivel Mount

A **Swivel Mount Option** (PN M3180A #A05) is also available for medium CRT displays to provide 270° swivel capability (not supported for large CRT displays). Installation requires drilling a hole in the work surface for the display's power cord and cables and securing the hardware to the surface with screws.

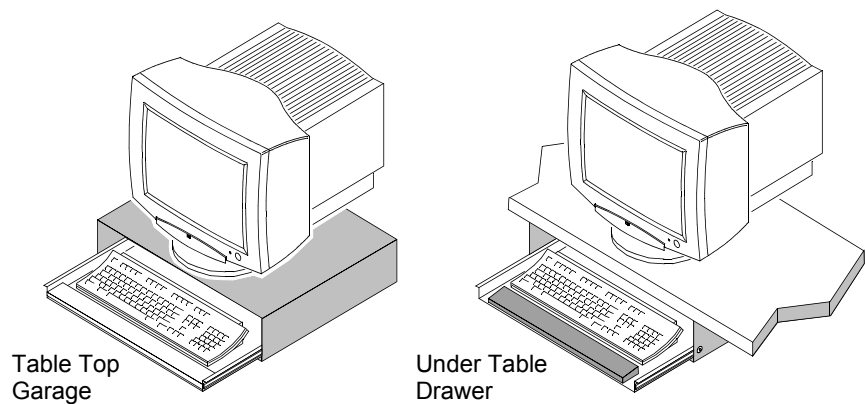
The procedure for mounting the swivel mount hardware and display is described in detail in the **Installation Note** supplied with that option.



**Figure 5-6 M3180 #A05 Permanent Swivel for Medium CRT Displays**

### Keyboard Mounting Options

Two work surface installation options are available for the computer keyboard -- a table top garage (PN M3180A #A09) and an under table drawer (PN M3180A #A08). See Figure 5-7. These options permit putting the keyboard out of the way when not being used to provide additional work surface area. Procedures for installing these units are described in installation notes that come with the units.



**Figure 5-7 Computer Keyboard Mounting Options**

**Component Mounting**

A variety of wall mount hardware is available for mounting Information Center devices not located on the central monitoring worksurface -- remote displays, processing units, UPS, power distribution module. Mounting locations and hardware should be identified during site planning and mounting brackets and hardware ordered as part of the Information Center system purchase.

**Note**

Philips is responsible for assembling the mounting hardware, attaching it to the display, and mounting the system to the ceiling or wall mount bracket.

**Display Ceiling and Wall Mounts**

It may also be convenient to mount displays to walls or ceilings where they can be more easily viewed by clinical users. Wall and ceiling mounts for these items are also available.

**Caution**

**Careful consideration should be given to assuring that the surface, wall, or ceiling structure can hold the weight of the item being mounted. See Specifications.**

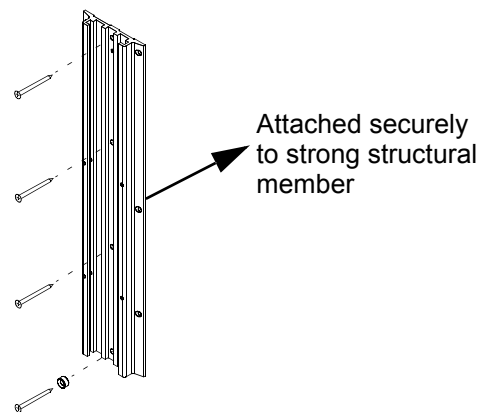
The **Philips Customer Engineer** is responsible for assembling the mounting hardware, securing it to the surface, wall, or ceiling mounts, and attaching the Information Center component to the mounting hardware.

**Wall Brackets**

Attachment of wall mount hardware to ceilings and walls requires the secure attachment of a wall bracket to a building structural member. This is to assure that the installation can safely and securely support the weight of the mounted hardware. The Philips supplied wall bracket is shown in Figure 5-8.

**Caution**

**The customer is responsible for installing ceiling and wall brackets that hold mounting hardware and for assuring that the bracket installation can safely support the weight of the device. Philips assumes no responsibility for this portion of the installation.**



**Figure 5-8 Bracket for Holding Wall Mount Hardware**

### Ceiling and Wall Mounts for Displays

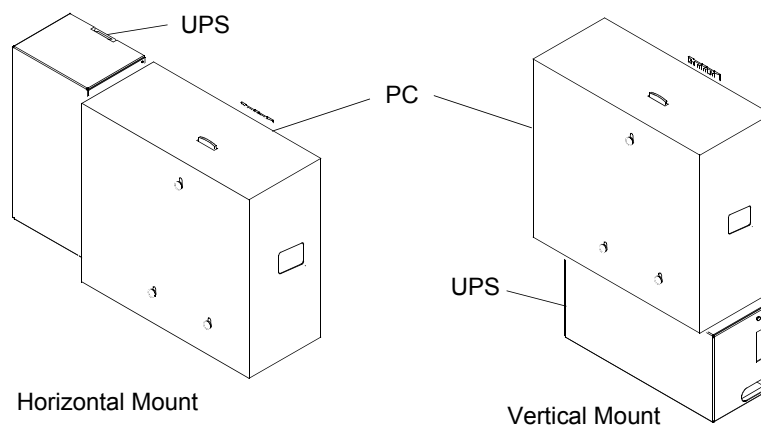
For installations in which mounting the medium or large CRT displays to a wall or ceiling provides better patient monitoring convenience, display mounting hardware is available. Ceiling and wall mounts are particularly useful for locating remote displays. A wall mount (only) is also available for the large, flat panel display.

Procedures for installing mounting hardware and attaching the display are described in detail in documentation that comes with the mount hardware.

### Wall Mounts for Processing Unit and UPS

Because the processing unit is not used by the clinician and is infrequently accessed by service personnel, it is generally desirable to mount this unit and its UPS in an out-of-the-way location. They can be simply placed on the floor or on a shelf, but wall mount hardware is also available.

The wall mount can be attached to a vertical surface under the IntelliVue Information Center system work surface or on a wall in the neighboring vicinity. Figure 5-9 shows the wall mount option for the PC workstation (M3180A #A18) and its UPS (M3180A #A11) in vertical and horizontal mounting options.



**Figure 5-9 Wall Mounts for PC Workstation and UPS**

The following **Installation Notes** that describe procedures for installing these units are provided with the unit.

- M3180A #A11 UPS Wall Mount Kit
- M3180A #A18 Desktop PC Wall Mount Kit

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#### Caution

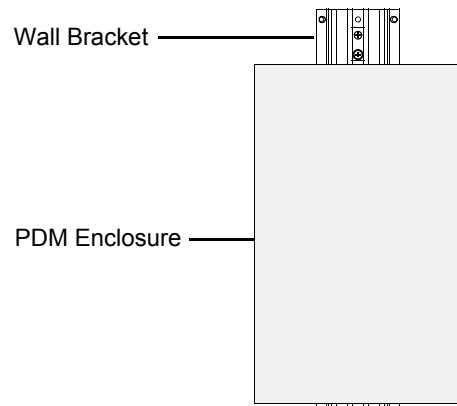
**There should be no obstructions between wall mount enclosures and the wall that can obstruct air flow around mounted components. Inadequate air flow can lead to overheating and failure of the Information Center components.**

---

### Wall Mount for Power Distribution Module

An additional wall mount option is available for installations that utilize the Power Distribution Module (required for Japanese installations). See Figure 5-10. The PDM is generally mounted next to the wall mounts for the UPS and the PC. Installation procedures

for this wall mount are described in the **Power Distribution Module Installation Note** supplied with the PDM:



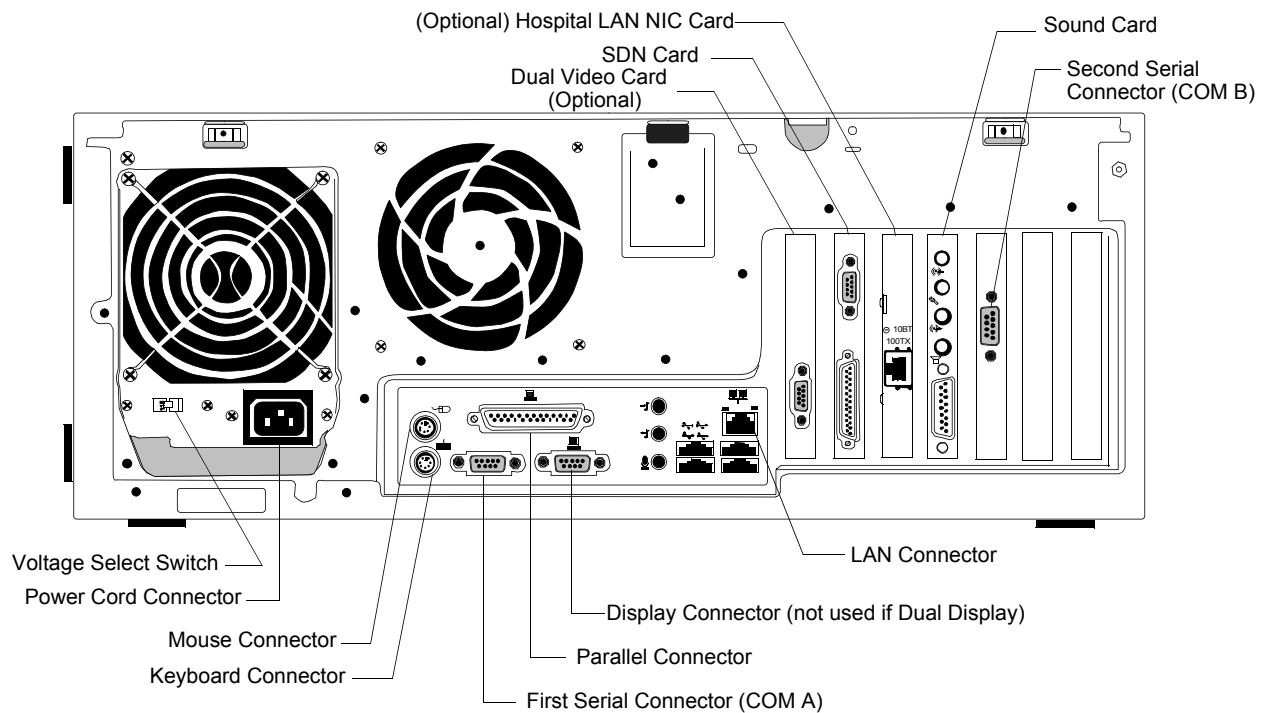
**Figure 5-10 Wall Mount for Power Distribution Module**

## Information Center Installation

The final step is to install all Information Centers, Clients, and their peripheral equipment -- displays, keyboards, mice, video splitters, keyboard-video-mouse switches, recorders, etc. in their planned locations. Rear panel cabling connections for Information Center workstations are shown in Figure 5-11. Rear panel cables without screw connected plugs must also be secured so they do not accidentally unplug. Figure 5-13 shows examples of how to secure cables of friction fit plugs to cables with screw connected plugs using cable ties.

### Note

Connect the speaker to the connector on the Audio Card with the speaker icon.



**Figure 5-11 Rear Panel Connections to D510 Information Center PC**

### Warning

Cables with plugs not firmly attached by screw connections must be secured to prevent accidental unplugging. Make certain that the speaker cable cannot accidentally be pulled out because it annunciates alarms. Use the Strain Relief Kit (M3150-60019) provided and secure the speaker cable to another cable that is secured with a screw connection. When securing all cables, be sure to provide strain relief loops and cinch cable ties securely. See Figure 5-13.

**Step 1. Install the 650 VA UPS** with the proper voltage for the PC as follows:

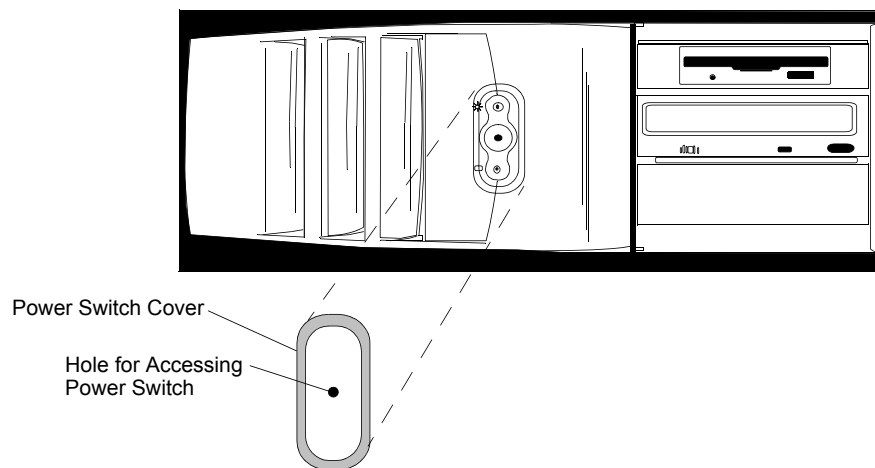
- **Connect the battery wire** of the 650 VA UPS.
- **Turn Off** the UPS On/Off switches.
- **Connect the UPS input power cord** to a properly grounded electrical output.

- **Connect the PC input power cord** to a UPS battery backup outlet.
- **Verify the UPS Switch settings are accurate**, see page 2-25.
- **Connect the Philips 9 pin UPS communication cable (gray)** to the computer interface port of the UPS and the Serial A port on the rear of the PC. See Figure 5-11.

### D510 Power Switch Cover

A **Power Switch Cover** (PN M1380-41902) is provided with the D510 PC to prevent an accidental depression of the power button and subsequent turn-off of the PC. The Power Switch Cover is a piece of clear plastic with a sticky backing that completely covers the power button so that it cannot be easily depressed. A small hole is provided in the center of the cover so that a small rigid object (e.g. a paper clip) can be used to turn the unit ON and OFF.

The procedure for installing the Power Switch Cover is the following. See Figure 5-12.



**Figure 5-12 Power Switch Cover Installation**

- Step 1.** Peel off the sticky backing on the back of the Power Switch Cover
- Step 2.** Carefully align the Cover over the Power Switch, making certain that the hole in the Cover is centered on the power button.
- Step 3.** Firmly press the surface of the Cover so it adheres securely to the case of the D510 PC.

### Securing PC Cables

When all cables have been plugged into the rear of the PC, cables without screw connected plugs must be secured so they do not accidentally unplug. Figure 5-13 provides an example of how to use cable ties to secure cables of friction fit plugs to cables with screw connected plugs on the rear of Information Center PCs.

---

**Note** The Power Plug cable is secured with a stick-on cable tie attached to the chassis of the PC.

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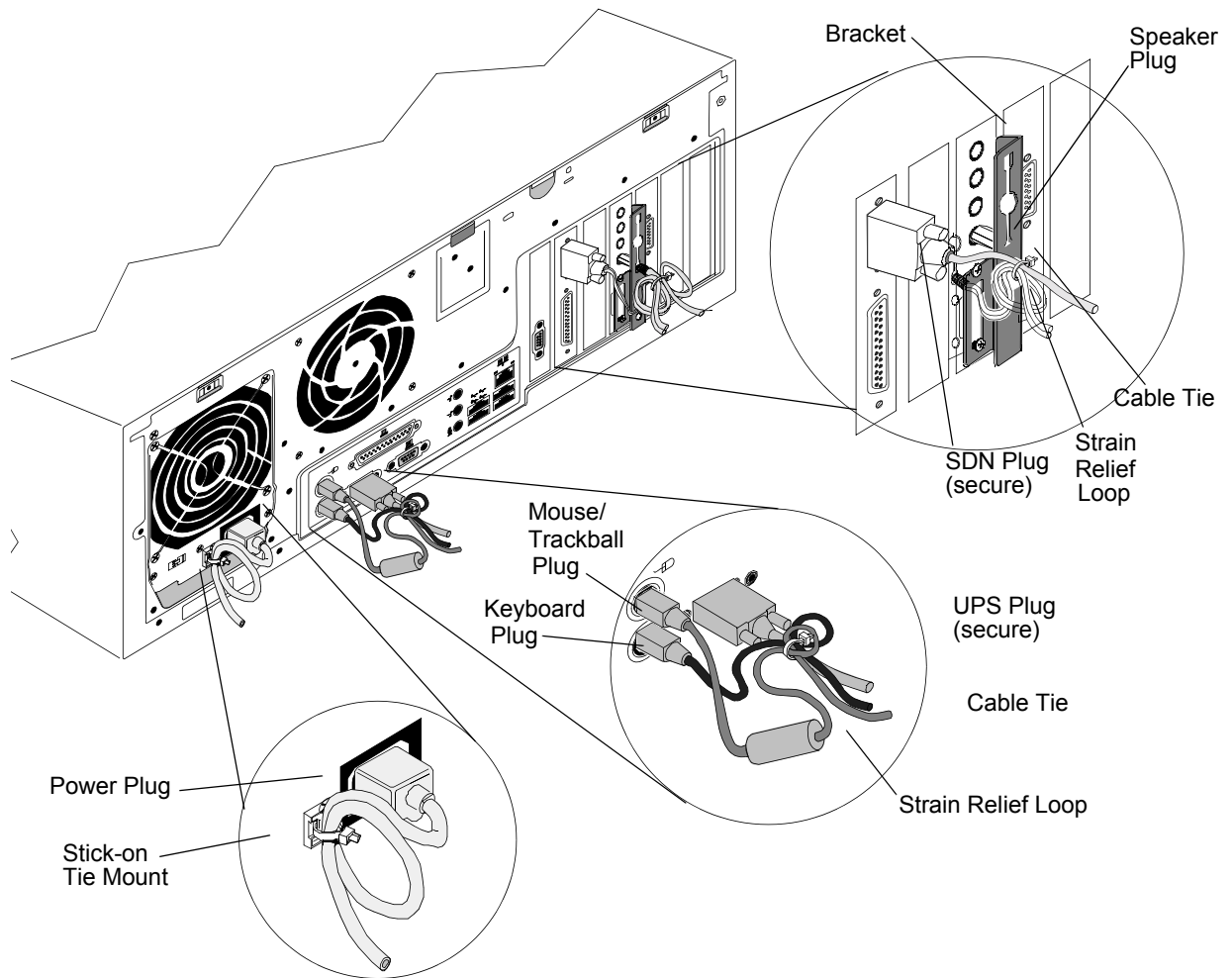


Figure 5-13 Securing Cables on Information Center and Client PCs

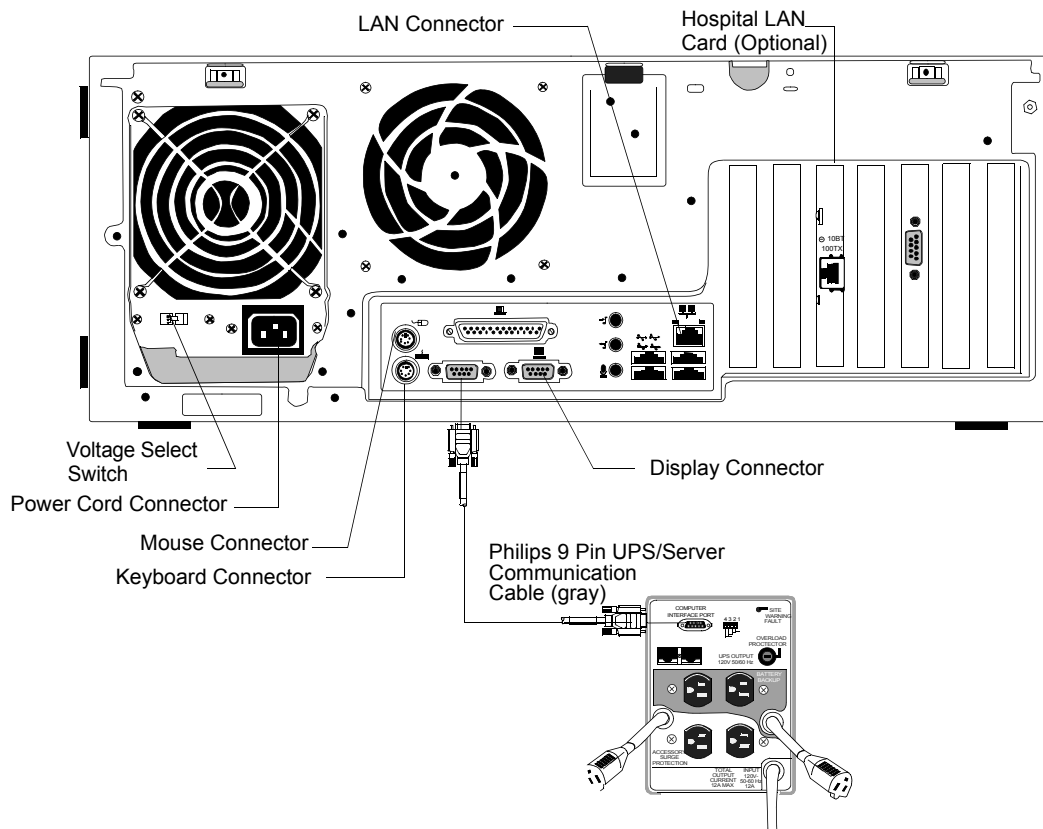
## M3169 Small Database Server Installation

The M3169 Small Database Server should be installed in its intended location. This includes the Server, display, keyboard, and, mouse. The display, keyboard, and mouse are intended for a work surface.

**Step 1. Install the Small Database Server components in their intended positions.**

**Step 2. Install the 650 VA UPS with the proper voltage for the Server as follows:**

- Turn Off the UPS On/Off switches.
- Connect the battery wire of the 650 VA UPS.
- Connect the UPS input power cord to a properly grounded electrical output
- Verify PC Voltage select switch setting
- Connect the PC power cord to a UPS battery backup outlet.
- Verify the UPS Switch settings are accurate, see page 2-25.
- Connect the Philips 9 pin UPS communication cable (gray) to the computer interface port of the UPS and the Serial A port on the rear of the Server. See Figure 5-14.



**Figure 5-14 Connections to the M3169 Small Database Server D510 PC**

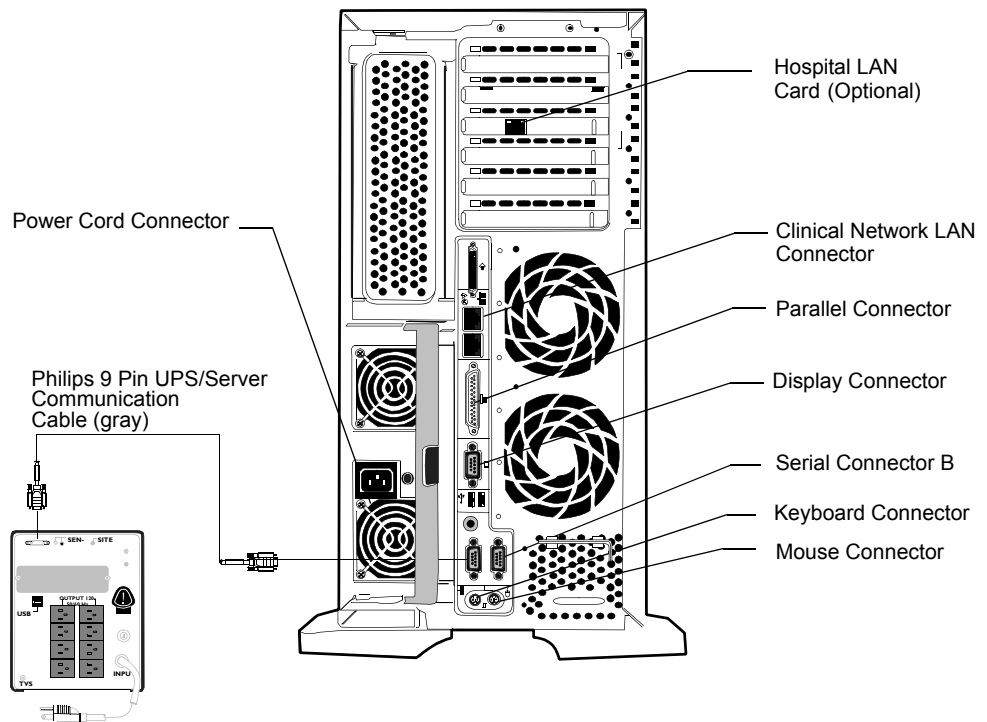
## M3154 Database Server Installation

The M3154 Database Server should be installed in its intended location. This includes the Server, display, keyboard, and, mouse. The Server has 4 wheels on its base and is intended for sitting on the floor. The display, keyboard, and mouse are intended for a work surface.

**Step 1. Install the Database Server** components in their intended positions.

**Step 2. Install the 1000 VA UPS** with the proper voltage for the Net Server as follows:

- Turn Off the UPS On/Off switches.
- Connect the battery wire of the 1000 VA UPS.
- Connect the UPS input power cord to a properly grounded electrical output
- Connect the Server power cord to a UPS battery backup outlet.
- Connect the Philips provided 9 pin UPS communication cable (gray) to the computer interface port of the UPS and the Serial A port on the rear of the Server. See Figure 5-15.



**Figure 5-15 ML370 G3 UPS/Server Communication Cable Connection**

## Server to Hospital Intranet

If Information Center Web (Option #C22) has been purchased, interconnect the Database Server to the Hospital’s intranet using proper cabling. This is a 100 Mbit/s connection.

## Printer Installation

Install all printers that connect to switches as follows:

When connected to a network, a JetDirect, 10Base-T Ethernet card must be installed in the LaserJet Printer. This card comes with Option M3159A #A02. A 10 Mbit/s, UTP cable with an RJ-45 connector is then used for the connection.

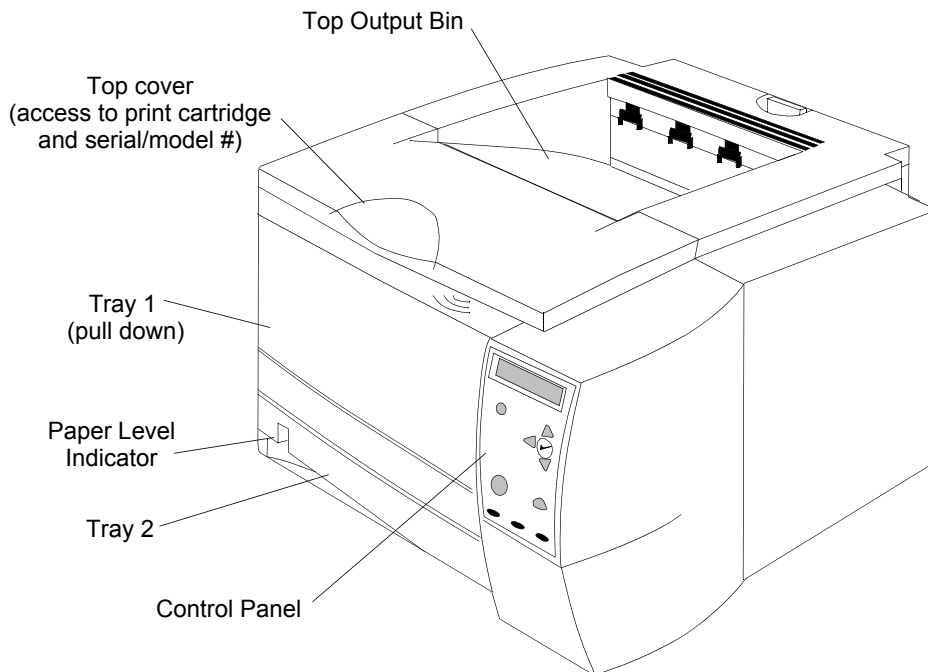
Device	Maximum # of Printers
M3150 Information Center (local database); M3170 Patient Link	2
M3154 Database Server system (connection to M3155 Information Centers)	8
Large Network M3154 Database System	80
M3169 Small Database Server System	4

The Printer is the **2300L** model manufactured by **Hewlett-Packard** and shown in Figure 5-16. Front panel controls for the 2300L are shown in Figure 5-17. Rear panel cable connections are shown in

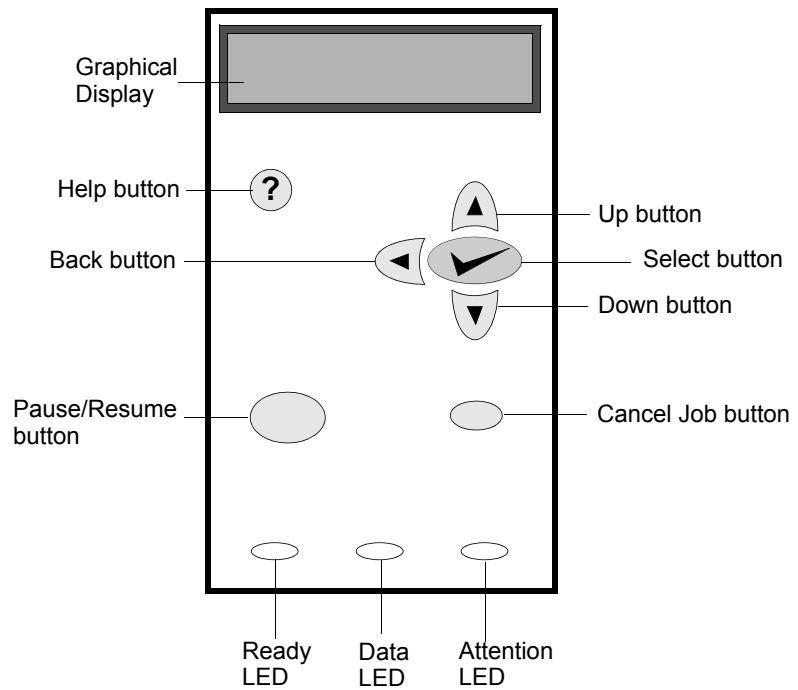
---

**Note** See the LaserJet 2300 Printer User's Manual for procedures for properly unpacking and setting up the printer.

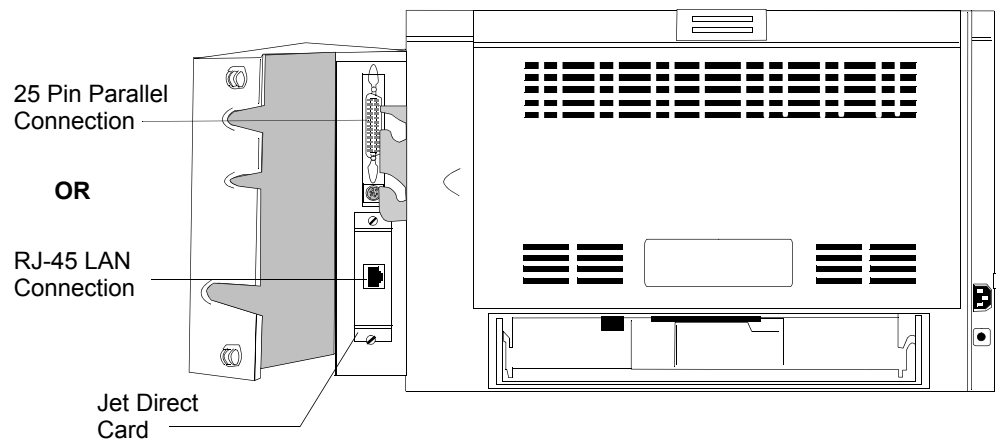
---



**Figure 5-16 2300L LaserJet Printer**



**Figure 5-17 Front Panel Controls**



**Figure 5-18 Rear Panel Connections**

**Note**

For proper operation, the CONFIG METHOD of the LaserJet Printer must be set to **\*BOOTP**. The setting **\*BOOTP** is the default setting (indicated by the **\***) and can be observed in the Control Panel's Graphical Display.

This setting can be made as follows:

- press the **Select** button to display the **Control Panel** menu.

## Locating System Components

- press the **Down** button to scroll through the Control Panel menu to display the **Configure Device** menu and then press **Select**.
- press the **Down** button to scroll through the Configure Device menu to display the **I/O** menu and then press **Select**.
- press the **Down** button to scroll through the I/O menu to display the **EIO 1 JET DIRECT** menu and then press **Select**.
- press the **Down** button to scroll through the EIO 1 JET DIRECT menu to display the **TCP/IP** menu and then press **Select**.
- press the **Down** button to scroll through the TCP/IP menu to display the **CONFIG METHOD** menu and then press **Select**.
- press the **Down** button to scroll through the CONFIG METHOD menu to display the **\*BOOTP** setting and press **Select** to save this configuration setting.

---

**Note**

The **LJ2300 User Guide** on the CD-ROM supplied with the LaserJet Printer provides more detailed instructions for menu settings and button sequences for the Control Panel's Graphical Display.

---

## Interconnecting the System

Once the Information Center system components have been positioned in their locations, they can be interconnected using proper equipment cables. Wiring diagrams for the Database Server and Information Center systems are given in this section. Diagrams for plug connections to the processing unit and wiring diagrams for the total system, including options, are provided. The key to cable numbers is given in Table 3. Follow the appropriate figure to interconnect each unit of the system.

### IntelliVue Information Center

The general layout of a typical Information Center installation is shown in Figure 5-19. Plug connections for the PC Workstations are given in Figures 5-13 and 5-14.

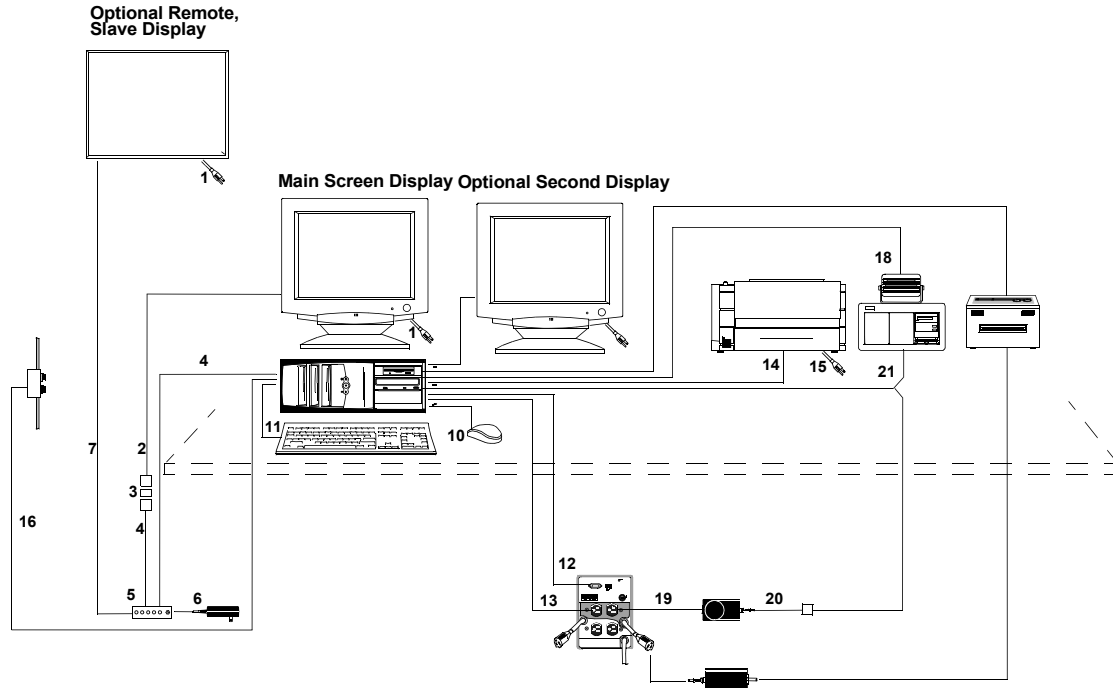
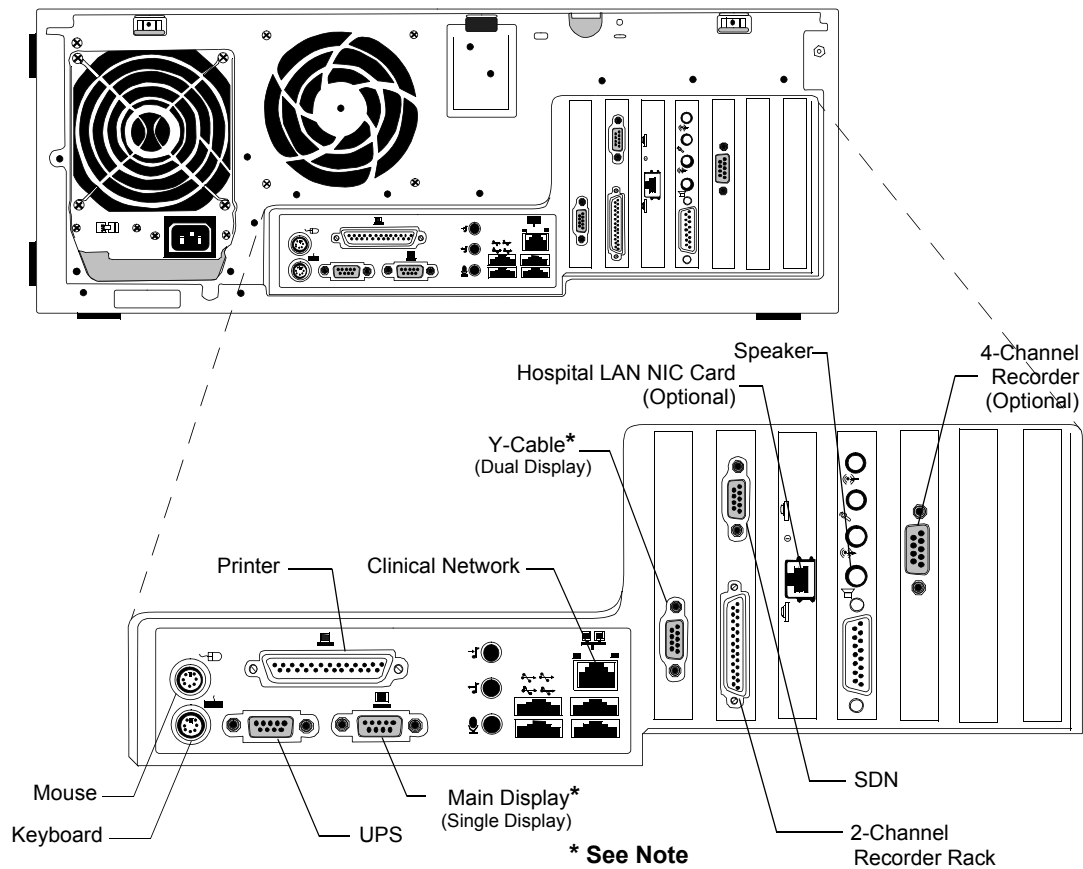


Figure 5-19 Typical Layout of Information Center Installation

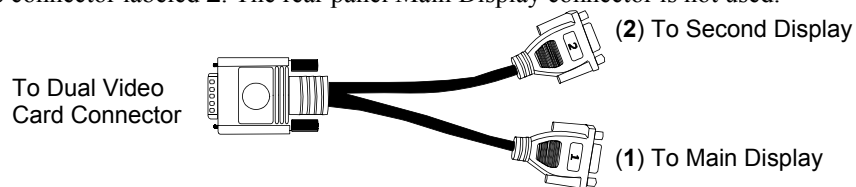
**D510 System**



**Figure 5-20 Plug Connections for D510 PC Workstation**

**Note**

For **Single Display** systems, the Main Display is plugged into the 9-pin Main Display connector on the rear of the D510 PC.  
 For **Dual Display** systems, a Dual Video Card and Y-Cable are required. The Y-Cable plugs into the 9-pin Display connector on the Dual Video Card. See Figure 5-20. The Main Display then plugs into the Y-Cable connector labeled **1** and the Second Display plugs into the Y-Cable connector labeled **2**. The rear panel Main Display connector is not used.

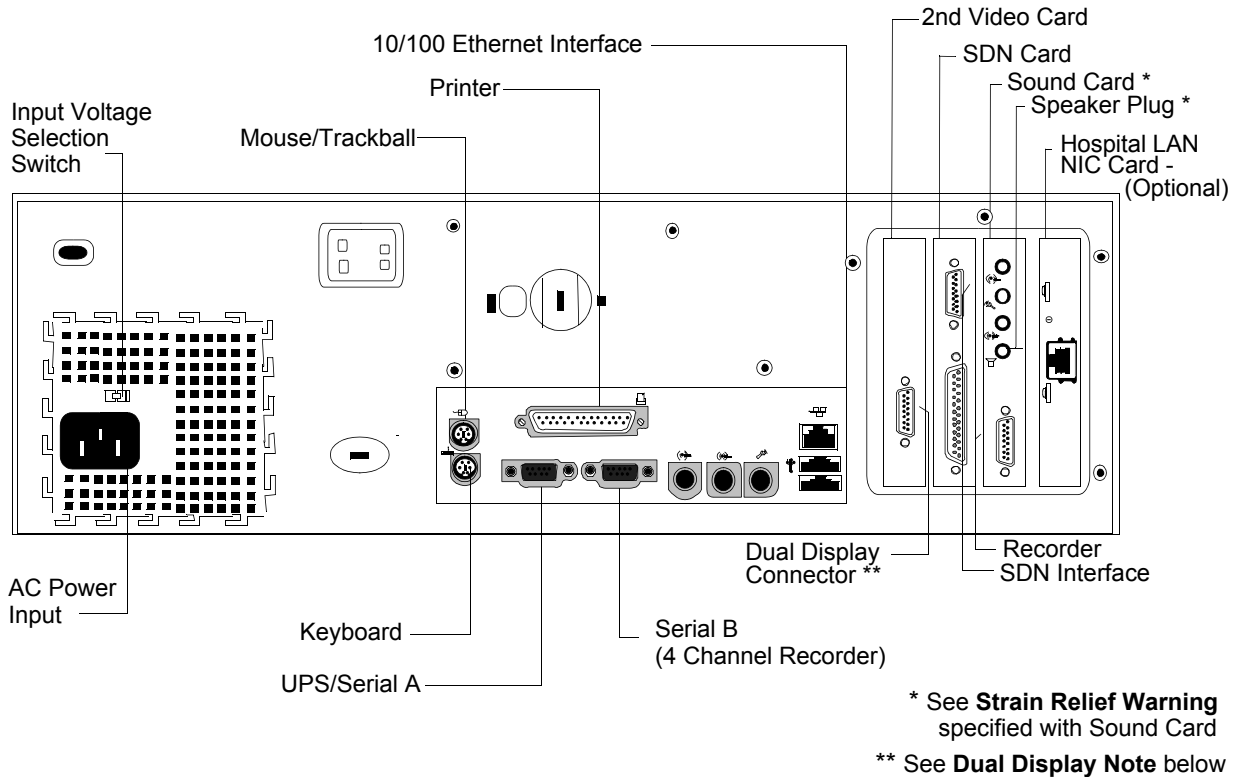


**Caution**

Single Display systems must not have a Dual Video Card installed. The Main Display connector must be used.



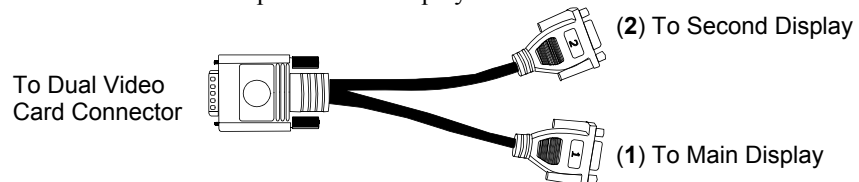
**VL420 System**



**Figure 5-21 Plug Connections for VL420 PC Workstation**

**Note**

For **Single Display systems**, the Main Display is plugged into the 9-pin Main Display connector on the rear of the PC.  
 For **Dual Display systems**, a Dual Video Card and Y-Cable are required. The Y-Cable plugs into the 9-pin Display connector on the Dual Video Card. See Figure 5-21. The Main Display then plugs into the Y-Cable connector labeled **1** and the Second Display plugs into the Y-Cable connector labeled **2**. The rear panel Main Display connector is not used.

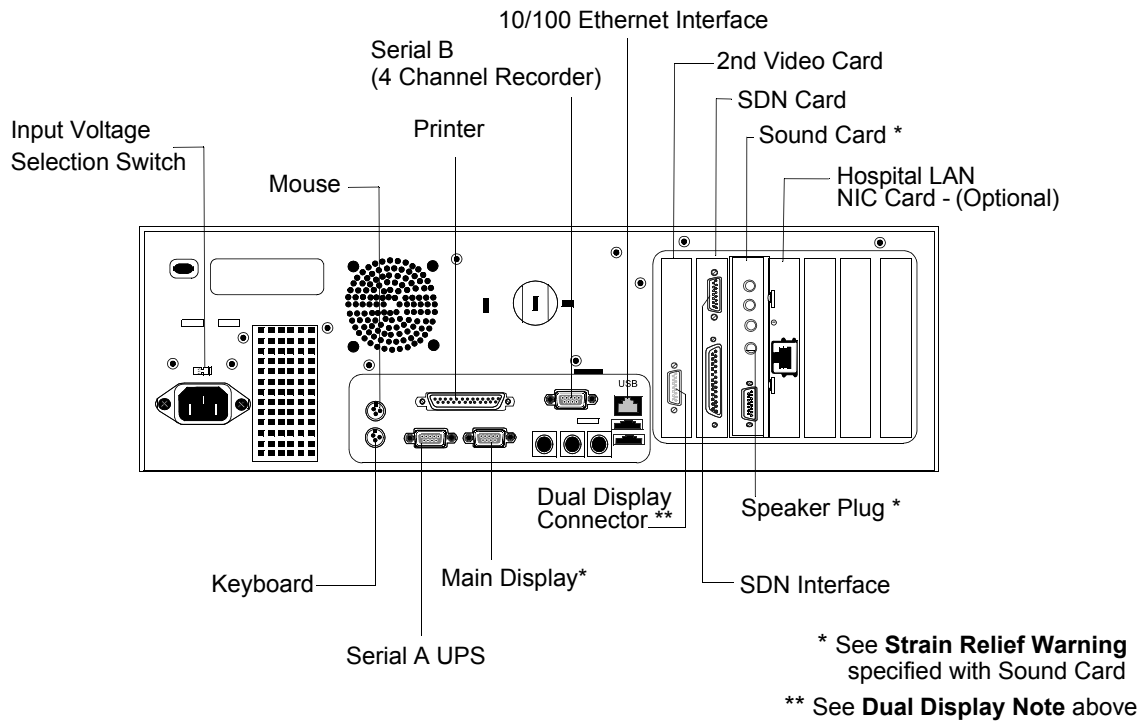


When upgrading, the Video Memory Module already inserted in the slot must be replaced with the new Second Video card.

**Caution**

**Single Display systems must not have a Dual Video Card installed. The Main Display connector must be used.**

### VL400 System

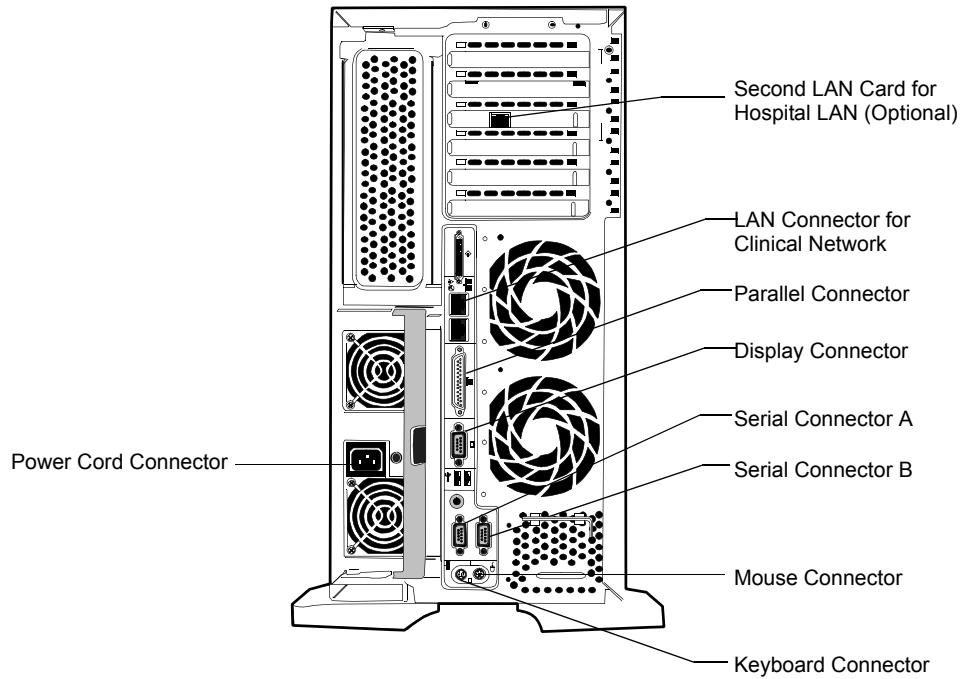


**Figure 5-22 VL400 Rear Panel Connections**

### Database Server

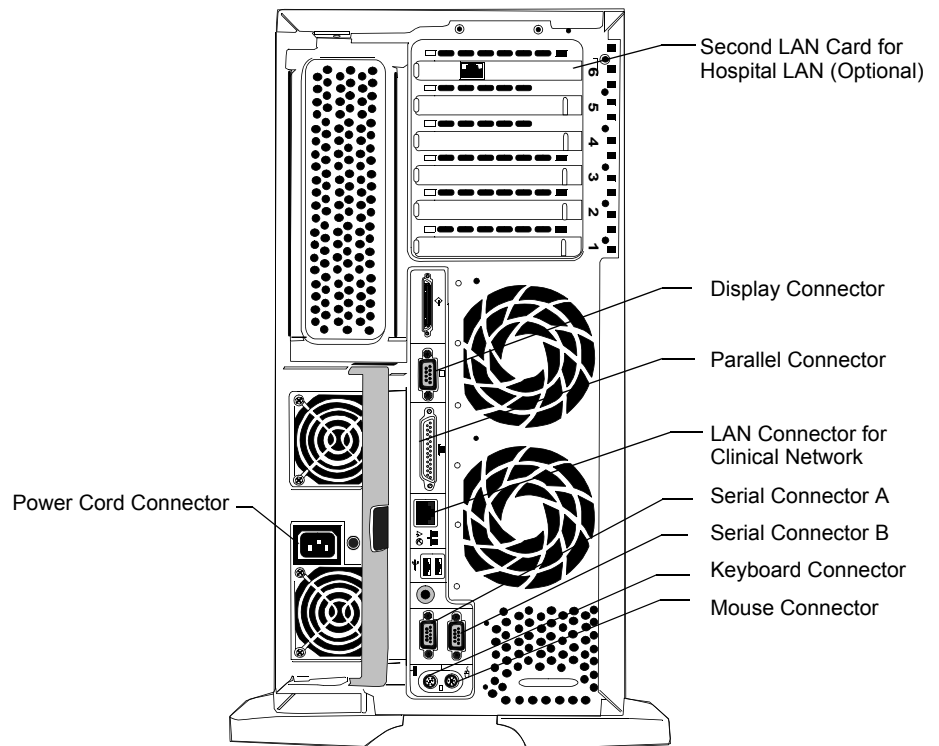
Plug connections for the Servers is given in Figure 5-23, Figure 5-24 and Figure 5-25.

**ML370 G3**



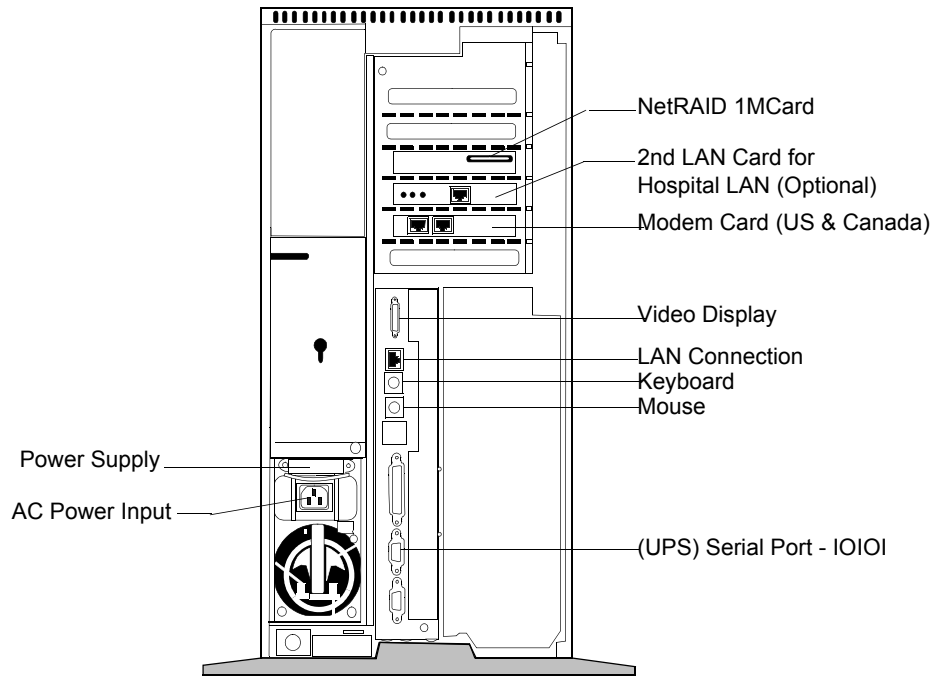
**Figure 5-23 ML370 G3 Plug Connections**

**ML370 G2**



**Figure 5-24 ML370 G2 Plug Connections**

**LC2000**



**Figure 5-25 LC2000 Plug Connections**

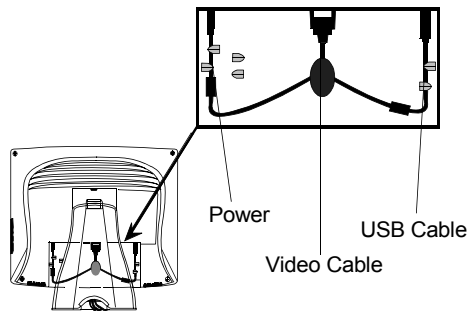
**Touch Display** The touch display has the following procedures that must be done at installation time.

---

**Note** When touch screens are used in Dual Display configuration, use of one stylus and holder for only the right display may be preferred.

---

**Cable Connections** The rear panel of the touch display has three connections: one for the Power cord, one for the Video cable (see Touch Display Stylus and Holder Mount), and one for the USB Cable (see Figure 5-26). When the connections have been made, the cables can be thread through the mounting stand.

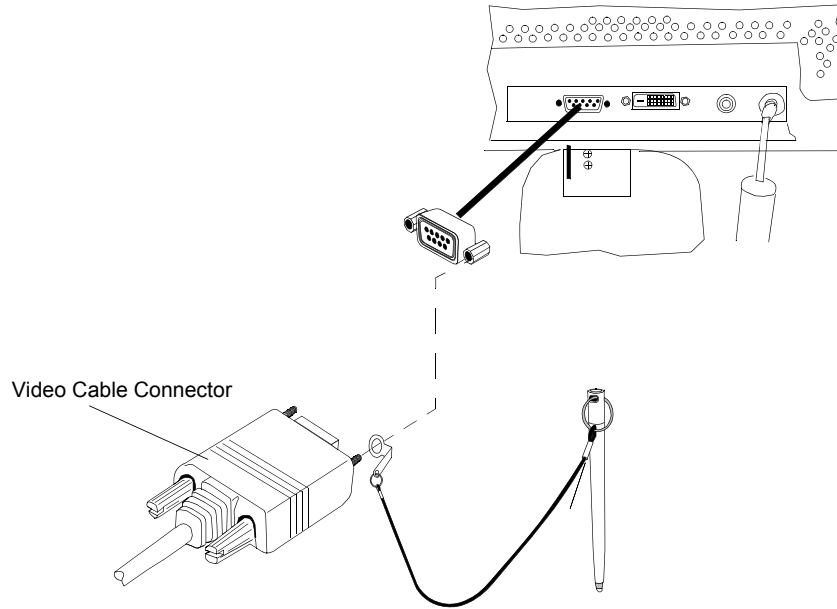


**Figure 5-26 Touch Display Panel Connections**

**Touch Display  
Stylus and  
Holder Mount**

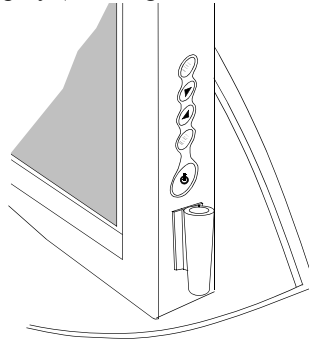
The touch display comes with a stylus that can be mounted to the display.

**Step 1.** Attach the stylus cord to the display as illustrated in Figure 5-27.

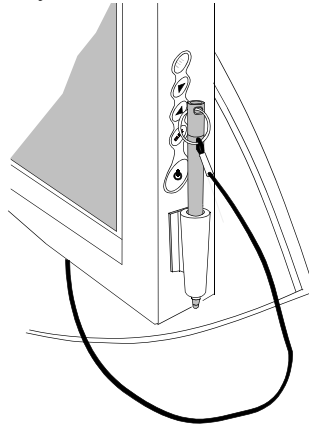


**Figure 5-27 Stylus Cord connection**

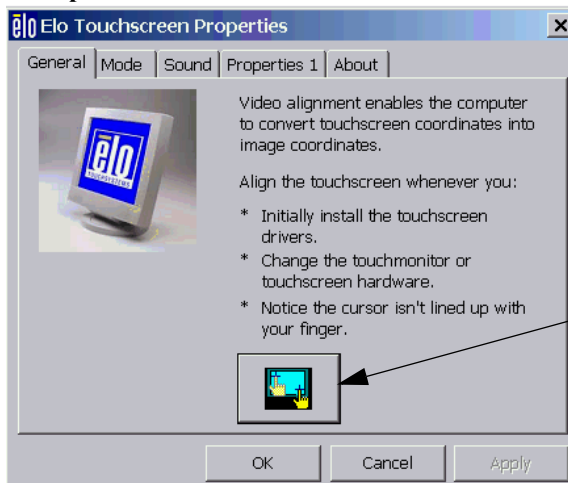
**Step 2.** Clean the area below the Control buttons on the right hand side of the display with alcohol. Wait for the surface to dry, and then remove the backing from the stylus holder and adhere it to the display (ensuring the wide end of the holder is facing up).



**Step 3.** Place the stylus in the stylus holder.



**Touch Display Calibration** **Step 1.** Open the Control Panel. Double click the ELO icon to open the **ELO Touchscreen Properties** window.



Video Alignment icon

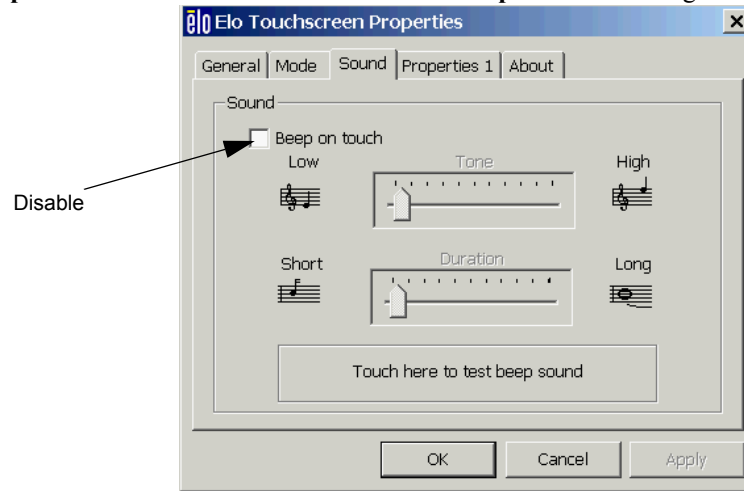
**Step 2.** Press the Video Alignment icon.

**Step 3.** Follow the instructions on the screen (press 3 targets per screen).

**Step 4.** Test the touch alignment by following the on screen instructions.

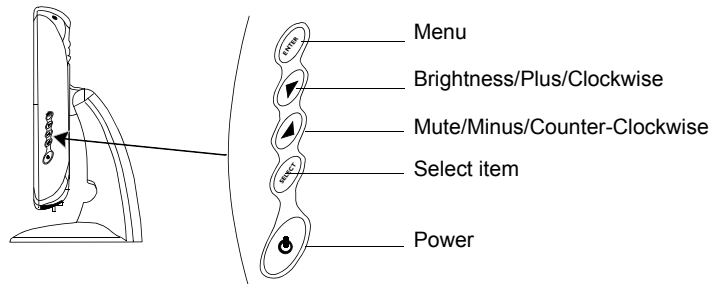
- If touch is ok, press the Green Check icon.
- If touch is not ok, press the Arrow icon to redo the calibration.

**Step 5.** Select the Sound tab and disable the **Beep on touch** setting. Press **OK**



**Step 6.** Close the **ELO Touchscreen Properties** window.

**Display Controls** The touch display has five control buttons on the side of the display, as identified in Figure 5-28. These control the On Screen Display (OSD) functionality of the touch display.



**Figure 5-28 Touch Display Controls**

These controls must be disabled.

**Step 1.** Press and hold the top two buttons (Menu and Brightness) until the message **OSD IS LOCK** appears on the screen. (If the same buttons are pressed again, it becomes unlocked).

**Step 2.** Press the Menu button to confirm that the Menu buttons are disabled.

**Step 3.** Press and hold the top and third buttons (Menu and Mute) until the message **POWER IS LOCK** appears on the screen. (If the same buttons are pressed again, it becomes unlocked).

**Step 4.** Press the Menu button to confirm that **POWER** button is disabled.

**Step 5.** To re-enable these controls for troubleshooting purposes, repeat steps 1-4. **Make sure they are disabled when troubleshooting is complete!**

**Remote Slave Display Wiring** If the slave display is located remotely from the processing unit, extended length, coax cabling may be required. This is described in the **Installation Note** that ships with the option. The wiring diagram for this installation is shown in Figure 5-29.

**Notes** The maximum length coax cable supported is 90 m (300 ft.).  
 Image quality diminishes somewhat with increasing cable length.  
 Coax cable lengths must be cut from the same spool of cable and be equal within  $\pm 1$  m (3 ft.).

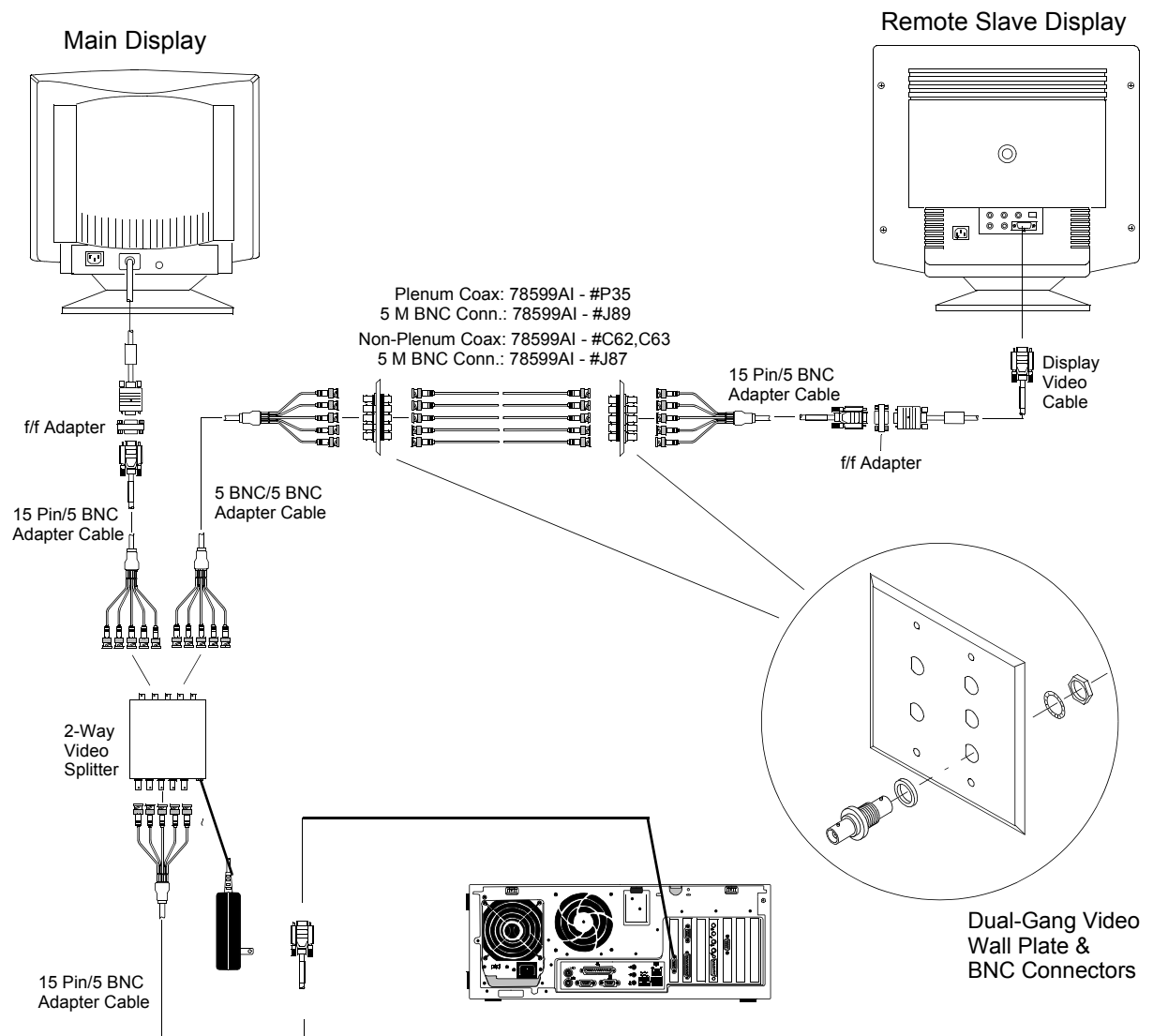


Figure 5-29 Remote Slave Display Wiring Diagram



## Printer Hub

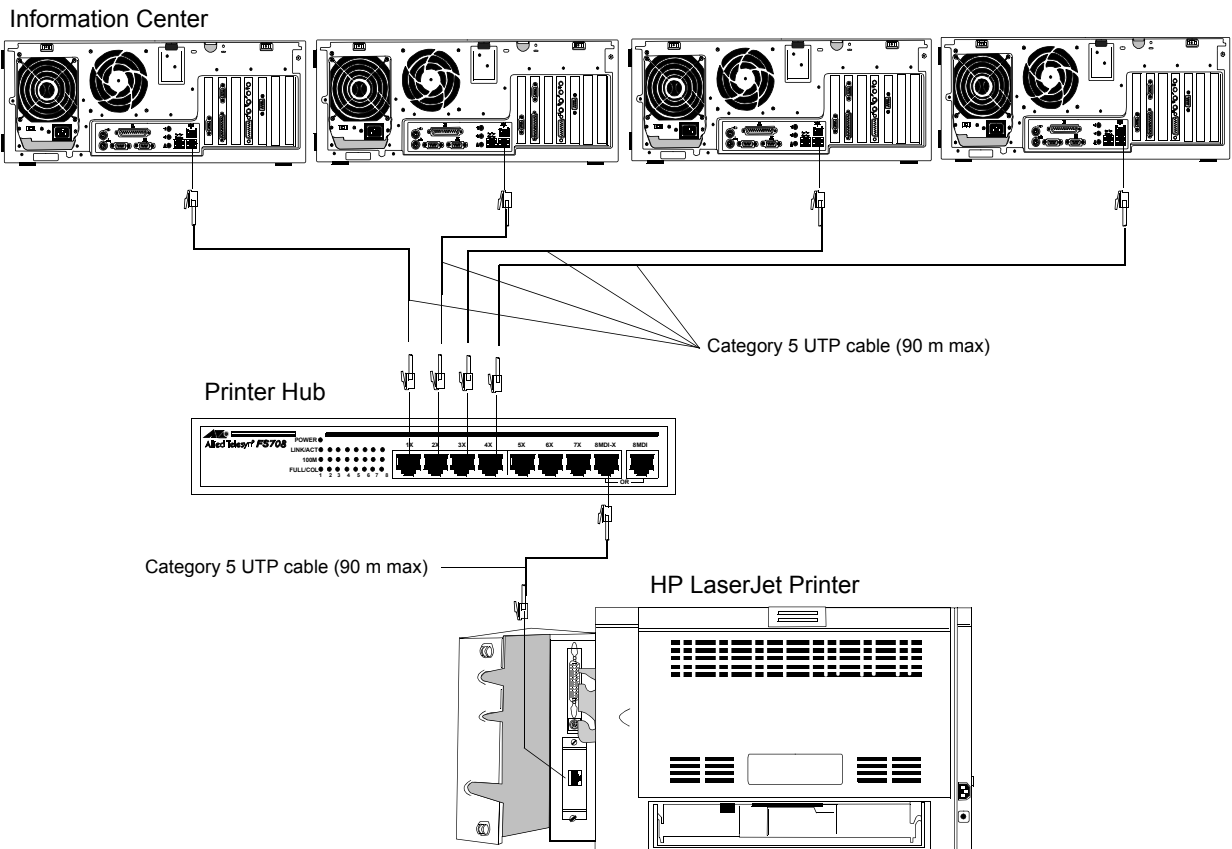
The **Printer Hub** option (M3159A #H21) provides the capability to connect up to 4 Information Center systems to a single **HP LaserJet** printer. Figure 5-30 shows a wiring diagram for 2 Information Centers connected to a Printer Hub. Additional information on Printer Hub installation is given in the **IntelliVue Information Center Printer Hub Installation Note** shipped with the Printer Hub.

---

### Note

Printer **Option #M3159A #A02** with LAN connectivity must be specified.  
 The maximum cabling distance between an Information Center and the Printer is 200 m (656 ft.), using 2, 100 m Category 5 UTP cables, as shown in Figure 5-30.  
 Crossover cables are **not required**.  
 Information Centers can be connected to ports 1-7.  
 The Printer should be connected to Port 8MDI-X

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**Figure 5-30 Wiring Diagram for M3159A-#H21 Printer Hub**

## Keyboard-Video-Mouse Switch

The **Keyboard-Video-Mouse (KVM) Switch** provides for control of up to 4 Information Centers with a single keyboard and mouse. It also permits a single display to serve as the 2nd (applications) display for all Information Centers. Figure 5-31 shows a wiring diagram for 4 Information Centers connected to a KVM Switch. However, it can also be used for only a keyboard or only a keyboard and mouse.

Detailed information on KVM Switch installation is given in the following **Installation Note**, which is provided with the Switch and also contained in the Documentation CD-ROM.

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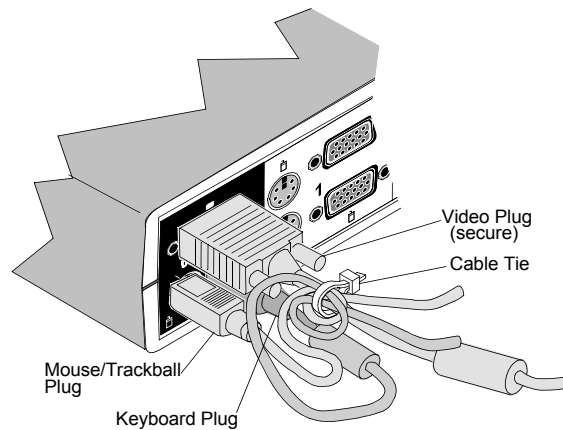
### Note

When installing the KVM Switch, keyboard and mouse cables on the **USER PORTS** must be attached securely with a cable tie, either to the video plug (if present) or to the cable tie mount provided, as shown in Figure 5-31.

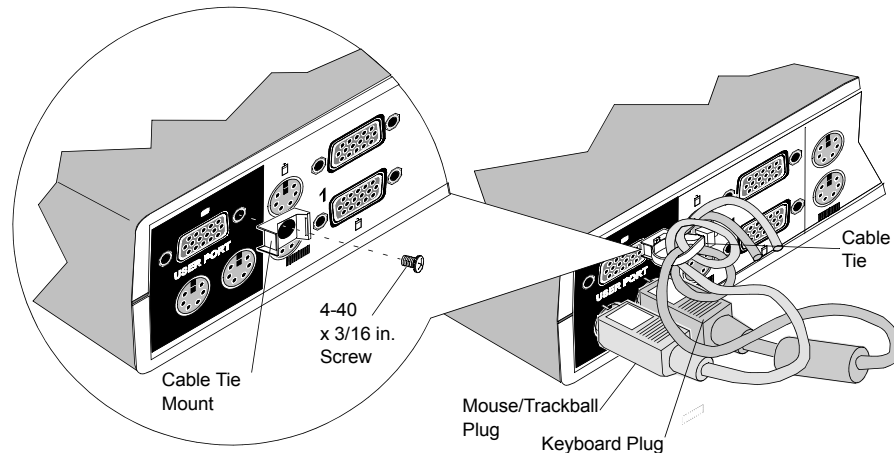
When securing cables, be sure to **provide strain relief loops and cinch cable ties tightly**.

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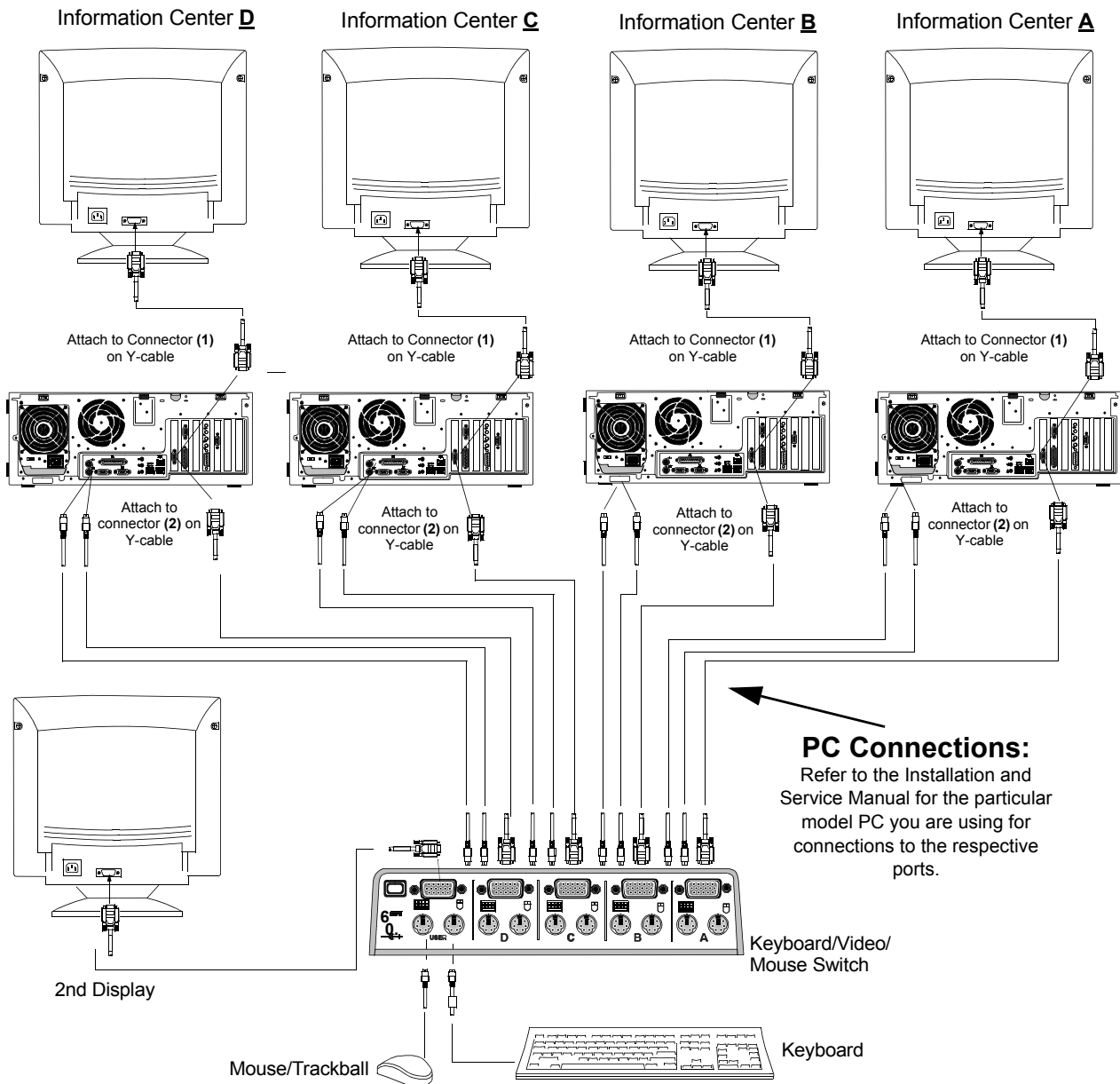
#### Securing Cables to Video Plug



#### Securing Cables to Cable Tie Mount



**Figure 5-31 Securing Keyboard and Mouse Cables on KVM Switch**



**Figure 5-32 Wiring Diagram for KVM Switch**

**Note**

A touch display cannot be used as the *2nd* display on the current (PS/2 based) KVM switch.

**Server to Hospital Intranet**

If Information Center Web (Option #C22) has been purchased, interconnect the Database Server to the Hospital's intranet using proper cabling. This is a 100 Mbits connection.

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## Providing Electrical Power


The following IntelliVue Information Center components are provided with 3-wire, grounded power cables.

- Display(s)
- Processing Unit
- UPS
- Power Supply for Philips 2-Channel Recorder Rack
- Power Supply for Philips 4-Channel Recorder
- HP LaserJet Printer
- 6-Way Video Splitter

Each 3-wire, power cable must be separately connected to the appropriate 3-wire, grounded electrical receptacle. See Figures 5-13 and 5-14 for power cables and instrument connection points

---

### Caution

- **BEFORE** connecting power cables to electrical outlets:
  1. Verify that all components of the Information Center system that can be turned off are turned OFF!
  2. Review **Safety** in Chapter 4 to assure proper electrical grounding and isolation.
  3. Set the input voltage selection switch  on the rear of the PC workstation to the proper line voltage.
  4. Set 120V UPS rear panel switch settings to those shown in **Figure 2-27**.
  5. Set Power Distribution Module input and output voltage switch settings to their proper values. See Table 2.
- PC workstation, 60V 2-Channel Recorder Power Supply, and the optional external modem or 4-Channel 24V Power Supply connect to the **BATTERY BACKUP** outlets on the UPS.
- Displays, video splitters, and printer hubs may be connected to **ACCESSORY** outlets of the UPS or to a separate non-UPS outlet.
- HP LaserJet Printers should not be connected to a UPS.

---

### Warning

IntelliVue Information Center system components do not comply with IEC 60601-1 and may not be located within the Patient Environment. See **Safety** in Chapter 4.

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## Network Names and IP Addresses

When all devices have been installed, interconnected, and turned on, the next step is to identify their names and locations on the Network. A variety of names and location identifiers are used for this purpose. The names and addresses for each Network device -- Switches, Information Centers, Clients, and Printers -- must be unique so they can be properly located by the Database Server and other Network devices.

### IP Address

**Internet Protocol (IP) Address** is a 32 bit binary number that uniquely identifies the device on the Network. The IP Address is generally in dotted decimal format, which consists of 4 sets of numbers separated by dots, e.g. 172.31.252.1. Part of the IP Address identifies the network and part identifies the device.

For the M3185 Clinical Network, a range of possible IP addresses has been set for each type of Network device. If separate systems are being installed today with an expectation of connecting them in the future, do not use the same names or IP addresses. This will save time later when they are connected together. The IP Address ranges are given in Table 5-1.

**Warning**

**IP Addresses outside the ranges given in Table 5-1 have not been tested by Philips and are not supported by Philips software.**

**Table 5-1. Range of IP Addresses for Network Devices**

Device	Range of IP Addresses	Recommended IP Addresses
M2/M3/M4/IntelliVue Patient Monitors	172.31.16.0 - 172.31.79.255	These IP Addresses are automatically allocated by Philips Software
RangeLAN2 Wireless Access Points	172.31.234.0 - 172.31.240.255	172.31. <b>234.0</b> - 172.31. <b>234.15</b>
M3150 Information Centers	172.31.101.0 - 172.31.150.255	172.31. <b>101.0</b> - 172.31. <b>101.7</b>
M3151 Information Center Clients	172.31.151.0 - 172.31.200.255	172.31. <b>151.0</b> - 172.31. <b>151.7</b>
M3154/M3169 Database Server LAN Card	172.31.221.0 - 172.31.227.255	172.31. <b>221.0</b>
Information Center Web Card	172.30.221.0 - 172.30.227.255	172. <b>30.221.0</b>
M3185 Core/Edge Switches	172.31.252.0 - 172.31.253.255	172.31. <b>252.0</b> - 172.31. <b>252.9</b>
M3159 Networked LaserJet Printers	172.31.254.1 - 172.31.254.4	172.31. <b>254.1</b> - 172.31. <b>254.4</b>
M3165 Paging Transmitters/Serial Servers	172.31.248.0 - 172.31.248.255	172.31. <b>248.0</b> - 172.31. <b>248.7</b>

In addition to IP Address, there are several other identifiers given to Network devices so they can be uniquely identified by the network and in Philips software application windows. These include the following:

### Subnet Mask

Because the last 2 digit sets of the IP Address are the key digits that uniquely identify a device, a Subnet Mask is applied to the IP Address to “mask” the first 2 IP Address digit sets. The **Subnet Mask** used for Philips software is **255.255.0.0**. For example, adding the Subnet Mask to the IP Address of the Database Server gives a “masked” address of 255.255.221.0, where the unique last 4 digits of the Server’s IP Address have been added to the Subnet Mask.

Almost all IP Address handling applications require the specification of a Subnet Mask. The Subnet Mask default value of 255.255.0.0 is used for all Network connected devices and will appear in Windows configuration applications. It is not necessary to know the “masked” IP Addresses of Philips devices, although it does appear in the **Network** category of the **Status Log**. In all other applications, the real IP Address for networked devices is shown.

### Default Gateway

**Default Gateway** is another field that must be specified in many IP Addressing applications. The default gateway for all Information Centers and Clients must be set to the Database Server’s IP Address. The default gateway for the Database Server can be set to its default value.

### MAC Address

**Media Access Control (MAC) Address** is a fixed, unique 12 digit HEX number that identifies each device. Part of the number identifies the device manufacturer. It is hard coded into the device’s network interface card and cannot be changed. It is **not necessary to know** the MAC Addresses of Network devices, although they will appear in some OS application windows. For instance, if the MAC address of the printer is needed, it is on the configuration page printed out during the printer installation.

### Host Name

**Host Name** is an alphanumeric name assigned to each workstation -- Information Centers, Clients, Database Server -- and resides in its software. Philips assigns a Host Name to each PC before shipment; but it should be changed to a name that identifies its function, associated unit, and physical location. A Host Name for an Information Center in the CCU on the third floor, south wing of the hospital might be **ICCCU3S**. Or the Database Server might be **DBSRM96**.

---

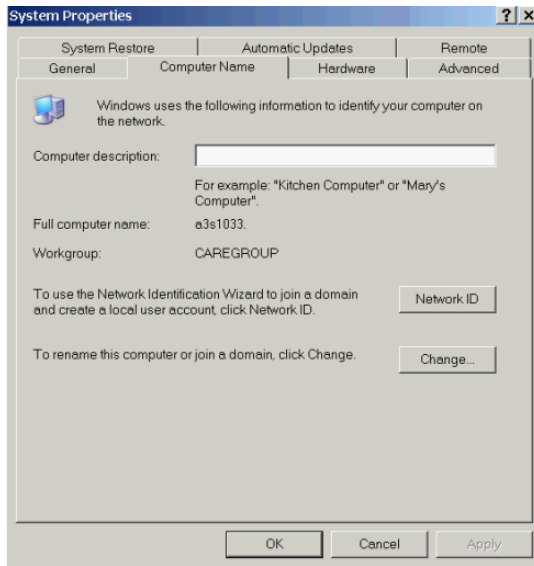
### Notes

**Rules for Host Name** for a device on the Network are:

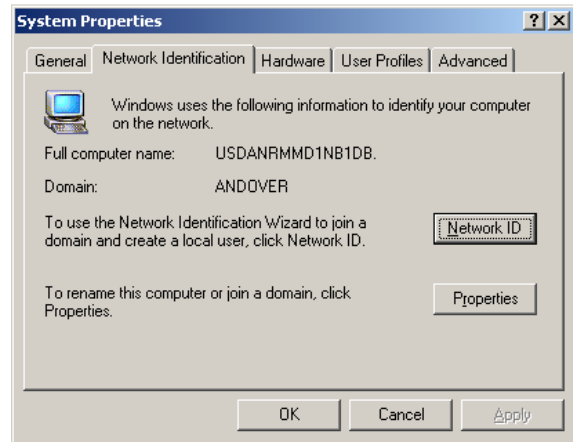
- **must be unique** for the Server to identify it
  - **must be no more** than 15 characters
  - **must use alpha-numeric characters only**, no other characters acceptable (no spaces, hyphens, underscores, etc.)
  - cannot begin with a number
  - **must be changed from factory settings** during device installation
-

**Device Name** Device Name is another name given to a device -- Information Center, Client, Server, Switch -- when it is configured on the network. Device Name is generally the same as its Host Name.

Host Names and IP Addresses for all devices can be found from their Control Panel application. Double-clicking on the **System** icon in the **Control Panel** menu brings up the **System Properties** window. Click on the **Computer Name** tab in Windows XP or **Network Identification** tab in Windows 2000. The **Host Name** appears as the **Computer Name**. See Figure 5-33.



Windows XP

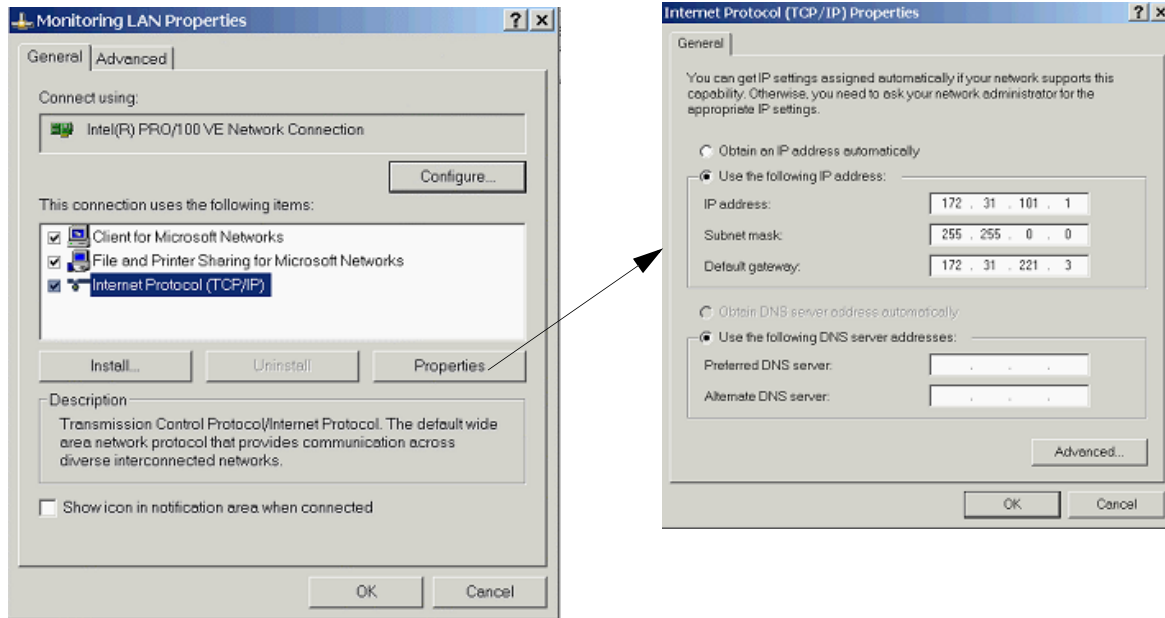


Windows 2000

**Figure 5-33 Host Name from Control Panel**

A device's **IP Address** can be found by clicking on the **Start->Settings->Network Connections** in Windows XP, or **Start->Settings->Network and Dial-up Connections** in Windows 2000. Right-click on the **Monitoring LAN** icon, and select **Properties**. Highlight the **TCP/IP** in the Protocols window and click on **Properties** brings up the **Internet Protocol TCP/IP Properties** window of Figure 5-34. The IP Address tab shows the **IP Address** of the device. The IP Address can also be entered or changed in

this window. Note that the default **Subnet Mask** and **Default Gateway** address are also shown.



**Figure 5-34 IP Address from Control Panel on Windows XP/2000 Device**

## Setting Host Names and IP Addresses

After all Network devices have been installed, their **Host Names** and **IP Addresses** should be set. Philips workstations and the Server should have their **Host Names** changed to something associated with their setting or application. All Network devices -- Information Centers, Clients, Server, Switches, Printers -- must also have their **IP Addresses** set before Philips software can be installed and configured.

---

### Notes

**IP Addresses** for M3/M4/IntelliVue Patient Monitors are automatically assigned by Philips software.

**Network Installation Worksheets** are provided in Appendix A to record **Host** and **Device Names**, hospital **Locations**, and **IP Addresses**. Complete these **Network Installation Worksheets** for all devices on the Network.

---

### Information Centers, Clients, Patient Link, and Small Database Server

The following steps describe how to set **Host Names** and **IP Addresses** for Information Centers, Clients, and Small Database Servers. After these have been set, the **Network Interface Card** (NIC) configuration must also be verified. That procedure follows.

- Step 1.** Click on **Start, Settings** and **Control Panel** to open the **Control Panel**.
- Step 2.** Double click on the **System** icon in the **Control Panel** window to open the **System Properties** window of Figure 5-33.
- Step 3.** Change the **Computer Name** for this device to a **Host Name** associated with its location in the hospital, e.g. ICU, CCU.



---

**Note** When selecting a Host Name, refer to the **Note** on **page 5-34** for Host Names.

---

**Step 4.** To set the **IP Address**, click on **Start->Settings->Network Connections**.

**Step 5.** Right-click on the **Monitoring LAN** icon, and select **Properties**.

**Step 6.** Highlight the **TCP/IP** in the Protocols window and click on **Properties** brings up the **Internet Protocol TCP/IP Properties** window of Figure 5-34

**Step 7.** Enter an **IP Address** for this device using one of the **Recommended IP Addresses** for that type of device given in Table 5-1.

**Step 8.** Enter a **Default Gateway** for this device:

For Information Centers and Clients, use the **IP Address of the Server**.

For the Server, use the **factory default value**.

**Step 9.** Click **OK** to close the TCP/IP Properties window, **OK** again to close the Network window, and then close the Control Panel to return to the **Desktop**.

**Step 10.** **Shutdown** and **Restart** the device to return to the Windows Main Menu.

---

**Note** After all Host Names have been changed, Database Server and all connected Information Center/Client software must be reinitialized. See **Software Reinitialization** on page 6-5.

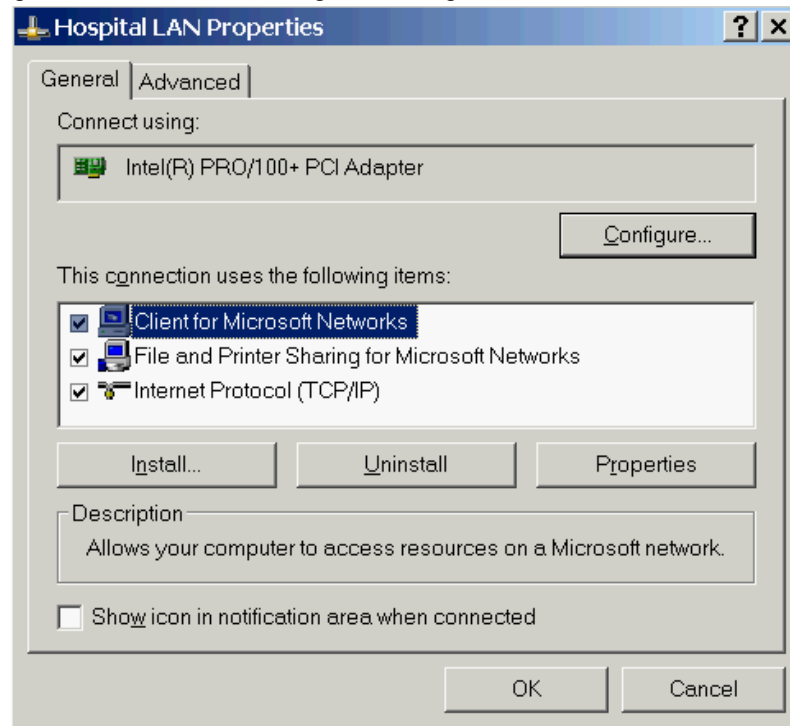
---

After setting Host Names and IP Addresses, **Network Interface Card (NIC)** configurations must also be verified. The following steps give the procedure for NIC configuration for the various model Information Centers and Client PCs.

**Step 11.** Click on **Start, Settings** and **Control Panel** to reopen the **Control Panel** window.

**Step 12.** Double click on the **Network Connections** icon to reopen the **Network Connections** window of Figure 5-33.

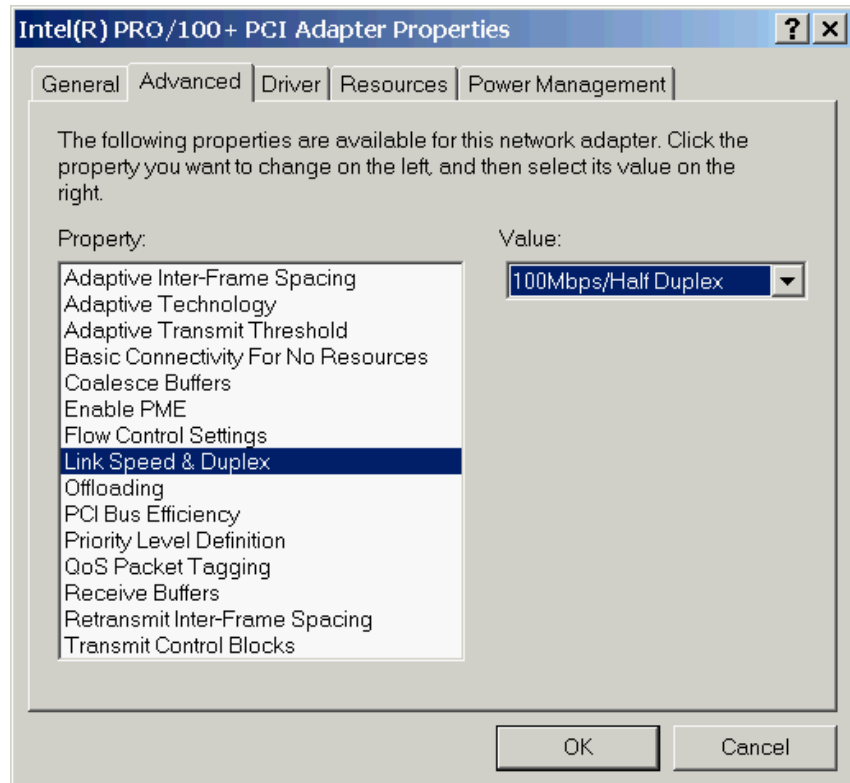
**Step 13.** Right click on the **Hospital LAN** icon and select **Properties**. The Hospital LAN Properties window shown in Figure 5-35 opens.



**Figure 5-35 Hospital LAN Properties Window**

**Step 14.** Click the **Configure** button. Click on the **Advanced** tab.

**Step 15.** Verify the value in the field shown in Figure 5-36.



**Figure 5-36 PC HLAN Speed/Duplex Setting**

**Step 16.** Click **OK** to close the window and return to the **Network Connections** window.

**M3154 Database Server** The following steps describe how to set Host Names and IP Addresses for the M3154 Database Server. After these have been set, the **Network Interface Card (NIC)** configuration must also be verified. That procedure follows.

**Step 1.** Click on **Start, Settings** and **Control Panel** to open the **Control Panel** window.

**Step 2.** Double click on the **System** icon in the **Control Panel** window to open the **System Properties** window. Click on the **Network Identification** tab

**Step 3.** Click on **Properties** to change the **Computer Name** for this device to a **Host Name** associated with its location in the hospital, e.g. ICU, CCU.

---

**Note** When selecting a Host Name, refer to the **Note** on **page 5-34** for Host Names.

---

**Step 4.** To set the **IP Address**, click on **Start->Settings->Network and Dial-Up Connections**.

**Step 5.** Right-click on the **Monitoring LAN** icon, and select **Properties**.

**Step 6.** Highlight the **TCP/IP** in the Protocols window and click on **Properties** brings up the **Internet Protocol TCP/IP Properties** window of Figure 5-34

**Step 7.** Enter an **IP Address** for this device using one of the **Recommended IP Addresses** for that type of device given in Table 5-1.

**Step 8.** Enter a **Default Gateway** for this device. Use the **factory default value**.

**Step 9.** Click **OK** to close the Microsoft TCP/IP Properties, **OK** again to close the **Network** window, and then close the **Control Panel**.

**Step 10.** **Shutdown** and **Restart** the device to return to the **Windows Main Menu**.

After setting **Host Names** and **IP Addresses**, **Network Interface Card (NIC)** configurations must also be verified. The following steps give the procedure for verifying the **NIC** configuration for the **Server**.

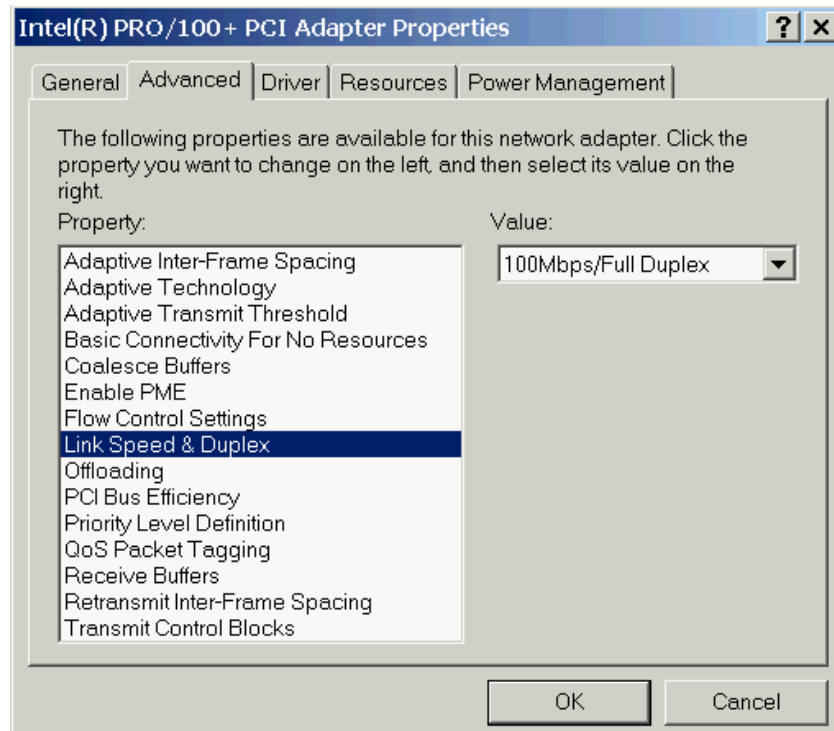
**Step 11.** Click on **Start, Settings** and **Control Panel** to open the **Control Panel**.

**Step 12.** Double click on the **Network and Dial-up Connections** icon to open the **Network and Dial-up Connections** window.

**Step 13.** Right click on the **Hospital LAN** icon and select **Properties**. The **Hospital LAN Properties** window shown in Figure 5-35 opens.

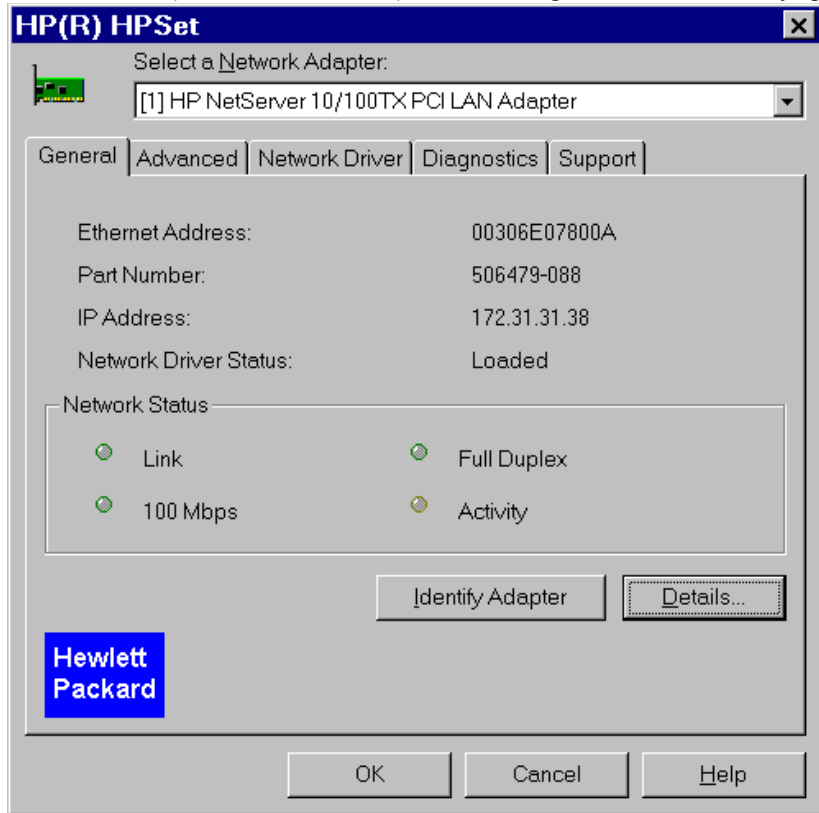
**Step 14.** Click the **Configure** button. Click on the **Advanced** tab.

**Step 15.** Verify the value in the field shown in Figure 5-37.

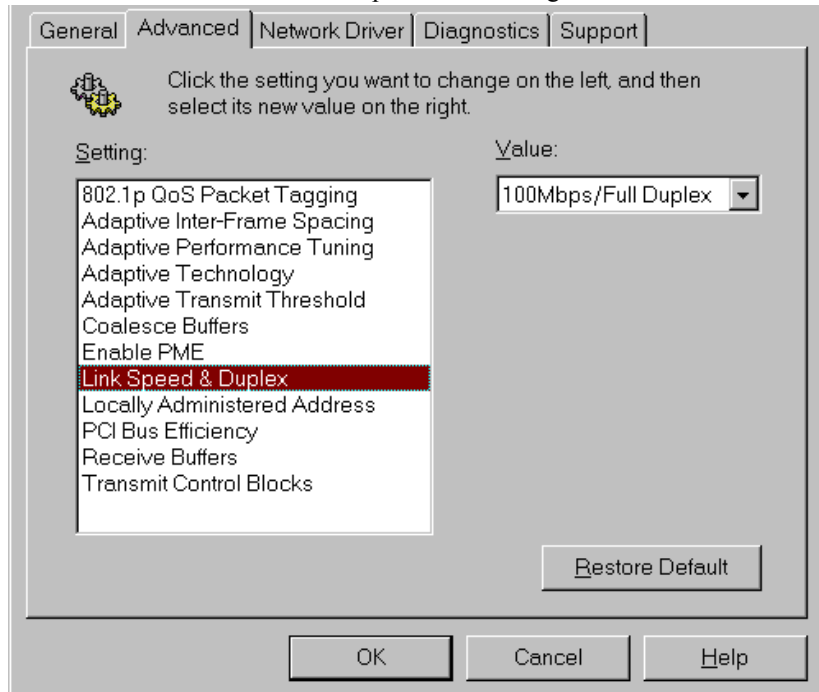


**Figure 5-37 M3154 Server HLAN Speed/Duplex Setting**

For NetServer LC2000 (P2748U & P2748W), the following **HPSet** window may appear:



- Click on the **Advanced** tab to open the following window.



## Network Names and IP Addresses

- Verify the value in the field shown above.

**Step 16.** Click **OK** to close the window and return to the **Network and Dial-up Connections** window.

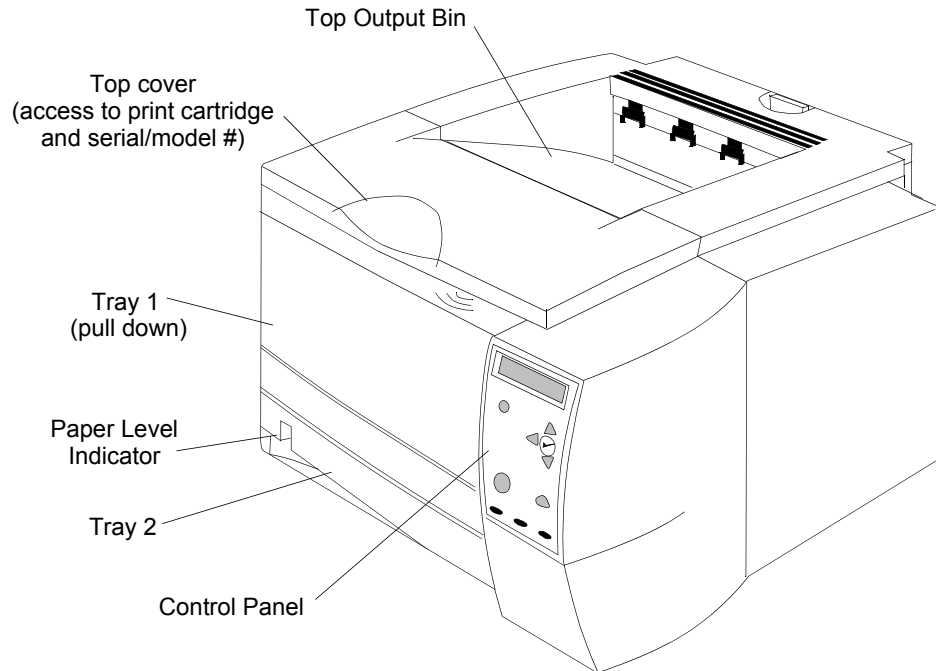
**Step 17.** Click **OK** to close the **Network** window.

**Procedure for Printers** Set the IP Addresses for all connected printers. The procedure is as follows.

**Step 1.** Turn **On** the power of one LaserJet printer with all other printers turned Off.

**Step 2.** Generate a **JetDirect Configuration Page**:

- a. Press the **SELECT** button to open the menus.
- b. Use the **Up** or **Down** button to scroll to **INFORMATION**, and then press the **SELECT** button).
- c. Use the **Up** or **Down** to scroll to **PRINT CONFIGURATION**, and then press the **SELECT** button.



**Figure 5-38 LaserJet Printer Controls**

**Step 3.** Make note of the Hardware Address. This address will be used during the **Config Wizard** procedure.

---

**Note**

Each Printer must have an IP Address that is different from all other Printers and taken from the **Required IP Addresses** for Printers from **Table 6-2**.

---

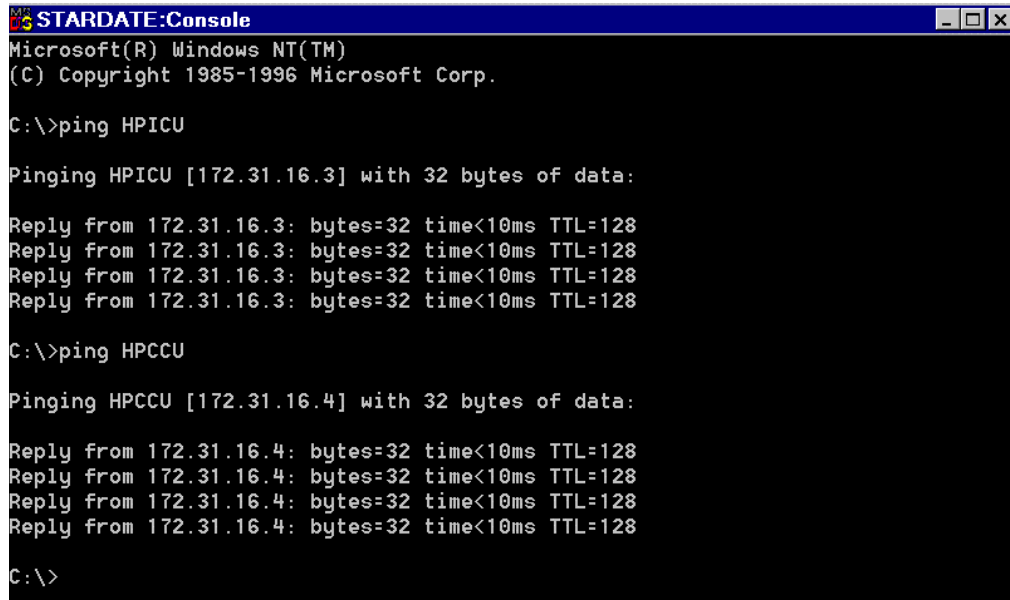
**Testing Network Connectivity**

Once the IP Addresses of the Server, workstations, switches, Access Points, and printers have been set, the Network should be tested to assure the integrity of each connection and that each device can be identified by the Server. The procedure is done at the Server and is as follows.

**Step 1.** Click on **Start** in the lower left of the Windows Main Menu. Select **Programs** to show the **Programs** menu.

**Step 2.** Select **Accessories** to show the **Accessories** menu.

**Step 3.** Click on **Command Prompt** to bring up the **MS DOS Console** window shown in Figure 5-39.



```
STARDATE:Console
Microsoft(R) Windows NT(TM)
(C) Copyright 1985-1996 Microsoft Corp.

C:\>ping HPICU

Pinging HPICU [172.31.16.3] with 32 bytes of data:

Reply from 172.31.16.3: bytes=32 time<10ms TTL=128
Reply from 172.31.16.3: bytes=32 time<10ms TTL=128
Reply from 172.31.16.3: bytes=32 time<10ms TTL=128
Reply from 172.31.16.3: bytes=32 time<10ms TTL=128

C:\>ping HPCCU

Pinging HPCCU [172.31.16.4] with 32 bytes of data:

Reply from 172.31.16.4: bytes=32 time<10ms TTL=128
Reply from 172.31.16.4: bytes=32 time<10ms TTL=128
Reply from 172.31.16.4: bytes=32 time<10ms TTL=128
Reply from 172.31.16.4: bytes=32 time<10ms TTL=128

C:\>
```

**Figure 5-39 MS DOS Console Window for Testing Network Connectivity**

**Step 4.** Type **ping hostname** (or **ping IPAddress**) for one of the Network connected Information Centers after the **C:\>** prompt, as shown for Host Name = **HPICU** (and **HPCCU**) in Figure 5-39, and press Enter.

If the ping is successful, i.e. the network connection is complete and the Host Name is correct, a reply using the device’s correct IP Address will appear, as shown in Figure 5-39.

If the ping fails, the reason for the failure (e.g. bad IP Address) will be shown. Identify the problem, correct it (e.g. use an IP Address instead of the Host Name), and repeat the process.

**Step 5.** Repeat **Step 4** for each Information Center, Client, Switch, Access Point, and Printer on the Network.

**Step 6.** Click **Yes** to restart the computer.

---

**Note** Allow the computer to fully reboot before proceeding.

---

---

**Note** Allow the computer to fully reboot before proceeding.  
After the Host Name has been changed, **Philips software must be reinitialized**. See **Installation Procedure**.

---

**Step 7.** Repeat this process for each Information Center, Client, and the Server.



---

## Optional Second Network Interface Card Settings

The features of the Information Center software that require a second Network interface card (NIC) must be configured before the software is configured. Verify the cards are installed in the correct slot:

- D510 - PCI slot 3 (see Figure 5-20)
- VL400 - slot 3 (see Figure 5-22)
- VL420 - slot 3 (see Figure 5-21)
- ML370 G2 - slot 6 (top slot) (see Figure 5-24)
- ML370 G3 - slot 3 (see Figure 5-23)
- LC2000 - slot 4 (see Figure 5-25)

These settings are required for this NIC card to connect to the hospital network and are site-specific. The factory default of the second NIC card IP address is DHCP. Use the settings defined in **'Network Card and TCP/IP Settings on page 4-23** to perform the following steps:

---

### Note

Windows XP and Windows 2000 have different locations for Network properties. Both of these locations are given below.

---

#### Windows XP - PCs

**Step 1.** Click on **Start, Settings** and **Control Panel** to open the **Control Panel**.

**Step 2.** Double click on the **System** icon in the **Control Panel** window to open the **System Properties** window of Figure 5-33.

**Step 3.** Right-click on the **Hospital LAN** icon, and select **Properties**.

**Step 4.** Highlight the **TCP/IP** in the Protocols window and click on **Properties** brings up the **Internet Protocol TCP/IP Properties** window of Figure 5-34

**Step 5.** In the IP Address tab configure for a fixed IP Address or a reserved DHCP IP address.

**Step 6.** Select the DNS tab. Enter in the appropriate DNS settings.

**Step 7.** Select the WINS Address tab. Enter in the appropriate settings.

#### Windows 2000 - M3154 Database Server

**Step 1.** Open the Control Panel. Double-click on the Network and Dial-up Connections icon.

**Step 2.** Right-click on the **Hospital LAN** icon, and select **Properties**.

**Step 3.** Highlight the **TCP/IP** in the Protocols window and click on **Properties** brings up the **Internet Protocol TCP/IP Properties** window of Figure 5-34

**Step 4.** In the IP Address tab configure for a fixed IP Address or a reserved DHCP IP address.

## Optional Second Network Interface Card Settings

**Step 5.** Select the DNS tab. Enter in the appropriate DNS settings.

**Step 6.** Select the WINS Address tab. Enter in the appropriate settings.

# Software Installation & Configuration

---

## Introduction

This chapter applies to Information Centers shipped from the factory with software preloaded, where the application software must be reinitialized.

---

### Note

This chapter does **not** cover the Operating System installation or the Application software installation. That procedure is covered in **Chapter 7, Maintenance, Troubleshooting, and Repair**.

---

All Information Center devices must be running same software revision.

---

## Large Networks

A Large Network Database System is the interconnection of up to 10 M3154 Database Server systems. When installing and configuring a Large Network system, keep the following in mind:

- All M3154 Database Servers and their connected Information Centers and Clients **must** be running the same revision of Information Center software.
- In a large network system, combining E.0 and E.01 M3154 Database Server systems is supported.
- One of the M3154 Database Servers must be designated as the “Master Server”. The master server is responsible for maintaining the list of other servers in its database and also provides for the addition/deletion/changing of additional servers during monitoring.
- In a mixed E.0/E.01 large network system, the Master Database Server **must** be running E.01.
- The Master Database Server must be installed and configured first.
- The remaining M3154 Database Servers (non-masters) must enter in the Master Server’s name in the Purchased Options and Support Information window. If the non-masters are not registered with the Master Database Server, they cannot receive or send patient data outside of its domain.
- If a Master Database Server adds a non-master server to its list, verify that the non-master does not already have a Master Database Server associated with it. If the non-master has another Master Database Server name configured, it will not accept the new Master Database Server.
- The Master Database Server behaves as the external time source for all non-master servers. If an external time source (source other than the Master Database Server) is configured, all connected Information Centers and Clients have the Date/Time configuration window disabled. The Database Server’s is enabled, but it is overridden by the external time source. If there is no external time source configured, only the Master Database Server’s domain has the Date/Time application enabled.
- The Master Database Server list is part of the archive/restore for the Master Database Server and all the non-masters.
- In a large network system, when restoring archive files, verify the archive is for the correct Database Server. If a Master Database Server archive is restored on a non-master Database Server, an invalid configuration is introduced (two Database Servers cannot be set to master).
- When Web Access/Large Network system option is enabled, and a new Master/non-master relationship is configured, note that all the clinician data (user names and passwords) on the non-master server will be lost. These must be re-entered using the “Web User Access Config Tool” on page B-6.
- If the Master Database Server is offline, the non-master Database Servers cannot view the review applications using Information Center Web, since the Master Database

Server is responsible for maintaining the Patient List. There is no message on the Information Centers connected to the non-master Database Server that the Master is offline.

**Time Synchronization** All patient monitoring network components are time synchronized. Single synchronization is supported from a master time source located either within the Clinical Network or provided externally by the hospital. The external time source is added as a network device as part of the **Equipment Setup** configuration window. The following table illustrates the supported configurations and the time synchronization rules:

**Table 6-1. M3150 Information Center (Local Database) without External Time Source**

System Component	Can Date/Time be set on this component?	Expected Behavior on Time Change
Information Center	Yes	Immediate Synchronization
Bedside	No	Synchronized within 5 minutes

**Table 6-2. M3150 Information Center (Local Database) with External Time Source**

System Component	Can Date/Time be set on this component?	Expected Behavior on Time Change
Information Center	No	Synchronized 0-15 minutes
Bedside	No	Synchronized within 5 minutes after Information Center synchronization

**Table 6-3. Database Server System without External Time Source**

System Component	Can Date/Time be set on this component?	Expected Behavior on Time Change
Database Server	Yes	Immediate synchronization
Information Center	No	Synchronized within 1 minute
Information Center Client	No	Synchronized within 1 minute
Bedside	No	All bedsides synchronized within 5 minutes after Information Center synchronization

**Table 6-4. Database Server System with External Time Source**

System Component	Can Date/Time be set on this component?	Expected Behavior on Time Change
Database Server	No	Synchronized 0-15 minutes
Information Center	No	Synchronized within 1 minute after Database Server
Information Center Client	No	Synchronized within 1 minute after Database Server

**Table 6-4. Database Server System with External Time Source**

<b>System Component</b>	<b>Can Date/Time be set on this component?</b>	<b>Expected Behavior on Time Change</b>
Bedside	No	All bedsidess synchronized within 5 minutes after Database Server

**Table 6-5. Large Network System without External Time Source**

<b>System Component</b>	<b>Can Date/Time be set on this component?</b>	<b>Expected Behavior on Time Change</b>
Master Database Server	Yes	Immediate synchronization
Non-Master Database Servers	No	Synchronized within 1 minute
Information Center	No	Synchronized within 1 minute
Information Center Client	No	Synchronized within 1 minute
Bedside	No	All bedsidess synchronized within 5 minutes

**Table 6-6. Large Network System with External Time Source**

<b>System Component</b>	<b>Can Date/Time be set on this component?</b>	<b>Expected Behavior on Time Change</b>
Master Database Server	No	Synchronized 0-15 minutes
Non-Master Database Servers	No	Synchronized within 1 minute after Master Database Server
Information Center	No	Synchronized within 1 minute after Master Database Server
Information Center Client	No	Synchronized within 1 minute after Master Database Server
Bedside	No	All bedsidess synchronized within 5 minutes after Master Database Server

## Software Reinitialization

**Step 1.** Modify the hostname and/or IP Address (via Control Panel -> Network) if necessary. Reboot the PC.

**Step 2.** On the Database Server only: when the Server comes back online, double-click the **IIS Configuration** icon on the desktop.

**Step 3.** Insert the Application Software CD ROM containing **Release E.01** software into the CD ROM drive of the device.

**Table 6-1. Software CDROM Identification**

Disk Label	Description
A	Operating System Software for PC Based devices: Information Centers, Clients, Patient Link, Small Database Server
B	Application Software for PC Based devices: Information Centers, Clients, Patient Link, Small Database Server
C	Operating System Software for M3154 Database Server
D	Application Software for M3154 Database Server

With the application software CDROM inserted, Philips application software can be installed.

**Step 4.** Double-click the **mastersetup** icon.

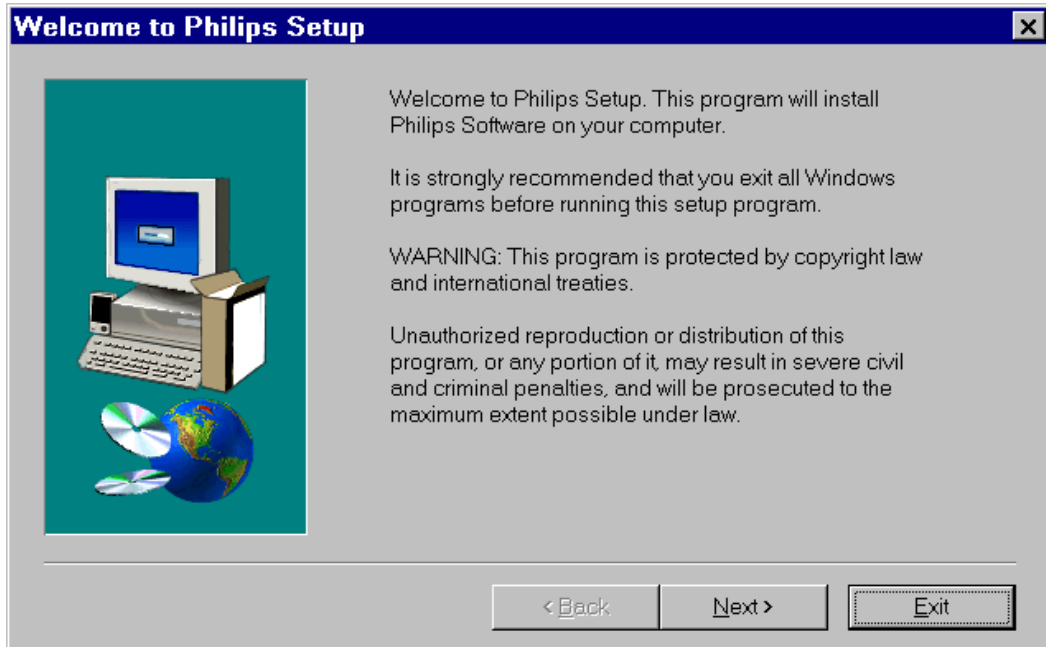
**Step 5.** The **Software Installer** splash screen opens (see Figure 6-1).



**Figure 6-1 Software Installer Splash Screen**

**Step 6.** Press the **Install** link to initiate the software. A second splash screen opens and launches the software installation.

**Step 7.** The **Welcome** screen opens (see Figure 6-2). As noted in the text, **exit all Windows programs before running this setup program.**



**Figure 6-2 Welcome to Philips Setup Window**

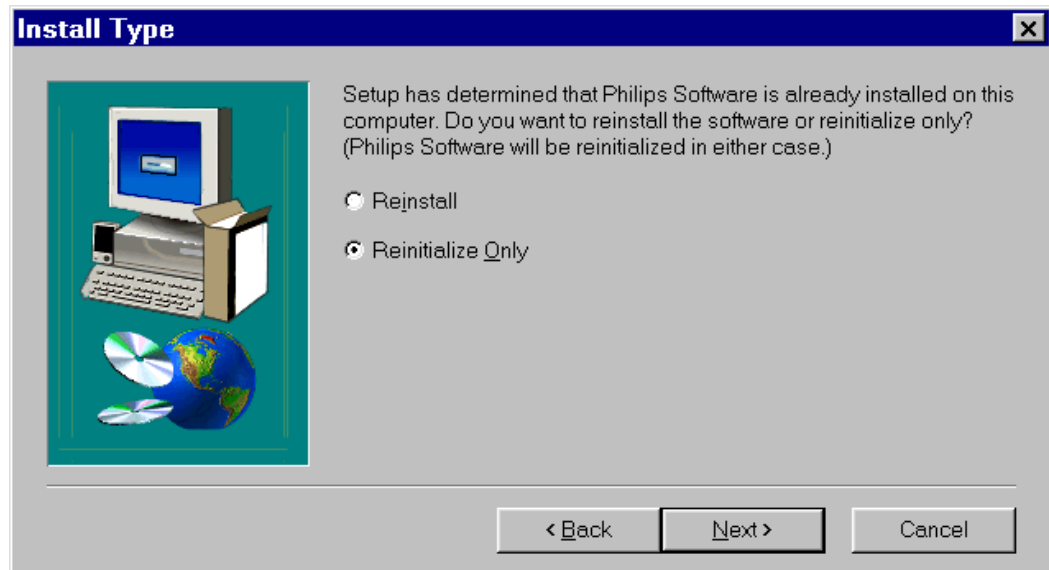
**Step 8.** Click **Next>** to access the **Language** window of Figure 6-3.



**Figure 6-3 Language Window**



**Step 9.** Click **Next>** to access the **Install Type** window of Figure 6-4.



**Figure 6-4 Install Type Window**

This **Install Type** window has 2 installation options:

- **Reinstall** is for devices in which installed software is suspected of being corrupt (See the “Software Re-Installation Procedure” on page 7-147 for this procedure)
- **Reinitialize Only** is for new devices from Philips for which the Host Name and IP Address have been changed. If the Database Server is reinitialized, ALL devices must also be reinitialized.

Click a  in the circle preceding **Reinitialize Only**

---

**Note**

Failure to reinitialize software when a device’s Host Name or IP Address is changed will result in the device being unable to communicate with the Database Server when it is being configured in the Purchased Options and Support Information application.

---

**Step 10.** Click **Next>** to access the Installing Information Center software window.

**Step 11.** Click **Next>** to access the **Installing Philips Software** window of Figure 6-5.



**Figure 6-5 Installing Philips Software Window**

**Step 12.** Click **Next>** and the **Configuration Wizard** window appears indicating that Philips software is initializing.

The software reinitializing process takes about 2 - 3 minutes. When the software process is complete, the **!Config Wizard** begins and sequences through the required configuration windows for the device.

---

## Configuration

### Config Wizard

The Config Wizard sequence of configurations for each Model Type is as follows:

#### Database Server:

- Restore from Archive
- Purchased Options and Support Information
- General Configuration
- Network Configuration
- Equipment Setup
- Report Settings
- Date and Time Setup
- Archive

#### M3155 Information Center on the Network with a Database Server:

- Purchased Options and Support Information
- General Configuration
- Display Setup
- Bed Config
- Report/Recording Destination
- Security Access

#### M3150 Information Center on the Network without a Database Server:

- Restore from Archive
- Purchased Options and Support Information
- General Configuration
- Network Configuration
- Display Setup
- Equipment Setup
- Bed Config
- Report Settings
- Report/Recording Destination
- Date and Time Setup
- Archive

#### M3151 Information Center Client:

The same as for Information Center on the Network with a Database Server, except that the following applications **do not appear**:

- Security Access

#### M3170 Patient Link:

The same as for M3150 Information Center, except that the following application appears in addition to the ones listed above:

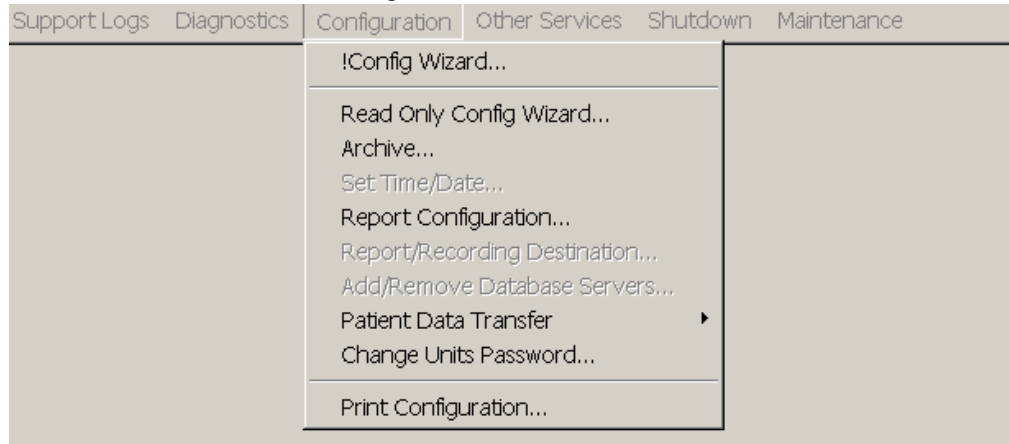
- Backup Error Logs

Note that the following **Service** applications can also be accessed directly from the **Configuration** menu without going through the !Config Wizard.

## Configuration

- Date & Time Setup
- Archive
- Report Configuration
- Report/Recording Destination
- Print Configuration

Note that a **Read Only Config Wizard** option provides Read-Only versions of the Configuration windows so that configuration settings can be viewed without forcing all Information Centers and Clients to go into local database mode.



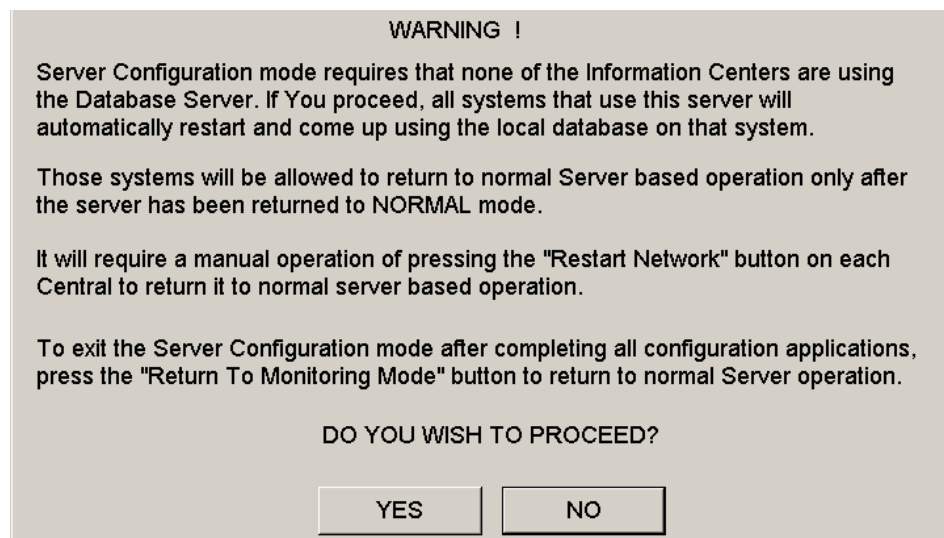
**Figure 6-6 Database Server Configuration Menu**

When the !Config Wizard is accessed from this menu, the following **Warning** appears.

---

---

### Warning



Clicking **Yes** will cause all Information Centers and Clients on the Network to reboot and go into local database mode, after which the **Config Wizard** will begin. This process takes about a 3-5 minutes to complete.

---

---

**Buttons** at the bottom of each **Config Wizard** window do the following:

<b>Print All</b>	prints all configuration settings
<b>&lt;Back</b>	saves all entries in the current page and returns to the previous configuration window
<b>Next&gt;</b>	saves all entries in the current page and advances to the next configuration window
<b>Exit</b>	saves all entries in the current page and exits Config Wizard
<b>Help</b>	brings up descriptive information about the window
<b>Finish</b>	appears instead of Next> in the last window and closes the configuration process.

**Descriptions** of the **Config Wizard** applications are provided in the following sections along with **Procedures** for making configuration settings.

---

**Notes**

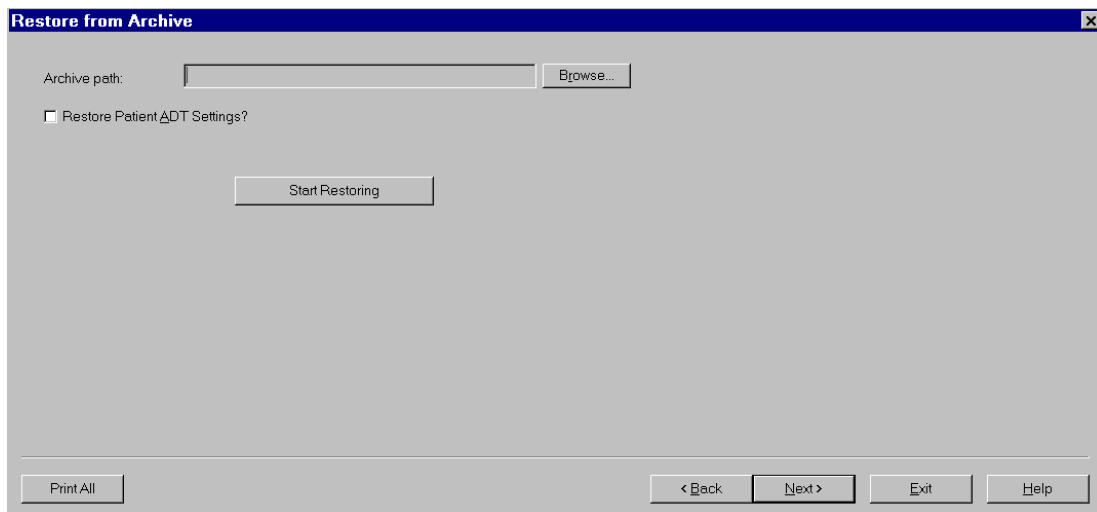
Some of the fields in **Config Wizard** windows are grayed out and can be ignored. These fields may be read-only or they may apply only to Information Centers and Clients.

---

**Restore From Archive** **Restore From Archive** is used to restore configuration settings for the device from an Archive disk. All clinical **Unit Settings**, **Configuration** settings, and **Purchased Options** are restored. Patient Admit, Discharge, and Transfer (**ADT**) settings can also be restored.

**Note** When the device is being configured for the first time, no configuration settings have been stored and this application should be skipped. Click **Next>** to advance to **Purchased Options and Support Information**.

**Caution** In a large network system, verify the archive is for the correct Database Server. If the Master Database Server archive is restored on a non-master Database Server, an invalid configuration is introduced whereby two database servers are set to master.



**Figure 6-7 Restore from Archive**

**Description** Fields and buttons in the **Restore from Archive** window are .

Field	Description
<b>Archive Path:</b>	Enter the name given to the archive file when it was stored on the Archive disk. The software automatically selects the <b>A:\</b> floppy disk drive
<b>Browse:</b>	Clicking <b>Browse</b> brings up an <b>Open</b> window, which displays the <b>File Manager</b> . The procedure for using <b>Browse</b> is as follows: <ul style="list-style-type: none"> <li>• Insert the <b>Archive disk</b> into the <b>A:\</b> drive on the Server.</li> <li>• Click on <b>Browse</b> to display <b>File Manager</b> files.</li> <li>• Click on <b>3 1/2 Floppy A:\</b> to display the files on the Archive disk.</li> <li>• Click on the <b>file name</b> to be used</li> <li>• Click <b>OK</b> and the file name appears in the <b>Archive path:</b> field.</li> </ul>

Field	Description
<b>Restore Patient ADT Settings?</b>	Select whether information on patients that were on Information Centers at the time the Archive disk was created should be restored as admitted patients. Clicking a check in the box means that patient names will be restored. No check means they will not be restored and no patient names will appear on the <b>Main Screen</b> . Patient <b>ADT</b> settings that will be restored for each patient on the Network are the following: <ul style="list-style-type: none"> <li>• Patient Name</li> <li>• Medical Record Number #</li> <li>• Admit state</li> <li>• Paced Status</li> <li>• Patient Type</li> </ul>
<b>Start Restoring:</b>	Initiates the <b>Restore</b> process once the correct archive file appears in <b>Archive path</b>

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**Note** After restoration is complete, the ConfigWizard must be run until all the settings have been verified in each window. Restoration of the settings from earlier releases may not populate all the settings that are available in release E.01.

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**Note** The **Patient Data Transfer Bandwidth Utilization** setting **must** be manually configured. It is not archived. See “Patient Data Transfer - Bandwidth Utilization” on page 7-75.

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**Warning** **Patient ADT settings should only be restored if the Archive was made very recently and contains information on patients presently being monitored. Patients admitted after the archive are not restored. If patient ADT settings are restored, they should be verified to assure that patient ADT data are accurately displayed and stored.**

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**Note** If the message “**Restore from Archive failed. Error: Error performing inpage operation**” appears, reboot the device and retry the Restore.

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**Procedure** The procedure for restoring archived configuration settings from an Archive disk is as follows.

**Step 1.** Insert the disk into the **A:\** drive.

**Step 2.** Enter the correct configuration **file name** from the disk in the **Archive path:** field.

If you do not recall the correct file name:

- Click **Browse** to display the **File Manager** files.
- Click on **3 1/2 Floppy A:\** to display the files on the disk.
- Click on the correct **file name** in the A:\ list
- Click **OK** and the file name will appear in the **Archive path:** field.

**Step 3.** Select whether to **Restore Patient ADT Settings?**

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**Note**

When restoring ADT settings, the alarms will be either the last known settings for that patient or the unit settings, if the patient was not on the Information Center when shut down.

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**Step 4.** Click **Start Restoring**: to begin the restoration process. A dialog box opens with the archive details.

If these are the correct Archive data for this device, click **Yes** to continue the restore process.

If these are not the correct Archive data for this device, click **No** and re-enter the correct file name or replace the disk with one with the correct file name and repeat the process.

If the configuration file in **Archive path**: was not archived from this device, the following warning message appears.

Incompatible setup: different model! Operation aborted.

Enter the correct configuration file name in **Archive path**: and repeat the process.

If **Restore Patient ADT Settings** was checked, a **Caution!** window appears warning of the consequences of restoring old Patient ADT data and ending with the question:

Continue Restoring?

If you want to **Restore Patient ADT Settings**, click **Yes** to continue.

If you do not want to **Restore Patient ADT Settings**, click **No**, and patient ADT settings will not be restored.

When the correct file name has been entered, configuration settings that were archived on that disk will be restored.

When the restoration process is complete, the message **Restore program has completed**. appears.

**Step 5.** Click **Next>** to advance to the next configuration window.

If **Restore** is not part of **!Config Wizard**, click **OK** and the message **Select Service key to return to service main menu**. appears.

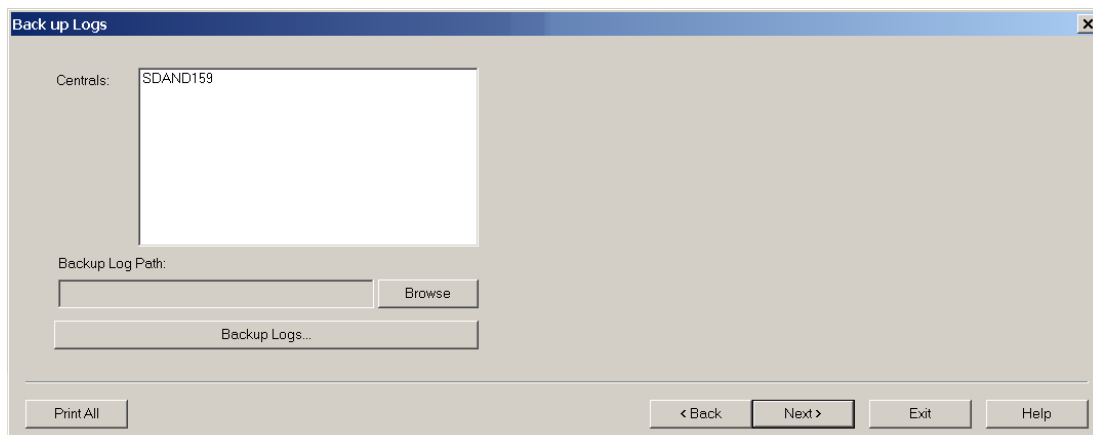
When the **Restore** process has completed:

**Step 6.** Remove the Archive disk from the **A:\** drive and store it in the holder on the side of the device.

**Step 7.** Click **Next>** to save changes and advance to the next window



**Backup Logs** **Backup Logs** is used to copy all operating system event logs and Information Center logs to a compressed file on a floppy for later review. **Backup Logs** is only enabled on the M3170 Patient Link device. The **Backup Logs** window is shown in Figure 6-8.



**Figure 6-8 Backup Logs**

The support user can select which of the Information Centers/Clients to obtain the logs from, and select the destination location. Two files are created, a **hostname.zip** file that contains the operating system event logs and all the Information Center log files, and a **hostnamejunk.zip** file that contains a .dat file (password protected alarm.log file).

**Procedure** The procedure for backing up log files is as follows.

**Step 1.** Select the hostname of the device(s).

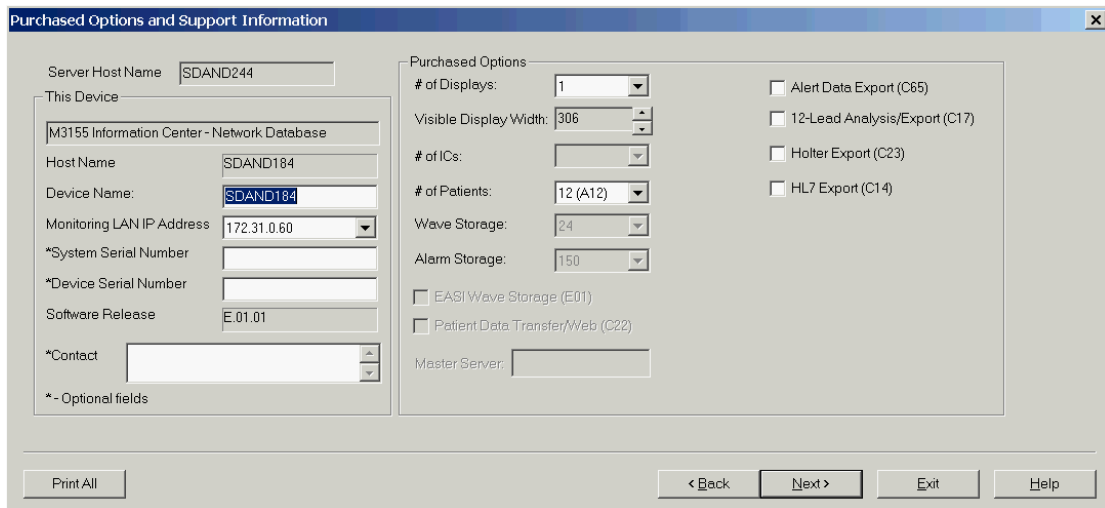
**Step 2.** Verify the location of the destination backup log path. If another location is desired, press the **Browse** button.

**Step 3.** Press the **Backup Logs** button to begin backup.

**Step 4.** Click **Next>** to save changes and advance to the next window

## Purchased Options and Support Information

**Purchased Options and Support Information** displays information that identifies hardware, software, and purchased options and provides for entering support information for users. The **Purchased Options and Support Information** window is shown in Figure 6-9.



**Figure 6-9 Purchased Options and Support Information Window**

**Description** Fields in the Purchased Options and Support Information are:

**Note** Only the Device Name and Clinical Network IP Address fields require entries. Fields with an asterisk (\*) are optional and all others are read-only.

Field	Description
<b>Server Host Name</b>	Read Only for all devices - associated Database Server hostname
<b>This Device</b>	<ul style="list-style-type: none"> <li>• Networked Information Center: M3155 Information Center Network Database</li> <li>• Database Server: M3154 Large Database Server/M3169 Small Database Server</li> <li>• Local Database Information Center: M3150 Information Center Local Database</li> <li>• Client: M3151 Information Center Client</li> <li>• Patient Link: M3170 Patient Link</li> </ul>
<b>Host Name</b>	Host name of the Device
<b>Device Name</b>	Clinical name for the Device. Generally, Device Name is the same as Host Name. Device Name has a limit of 15 characters
<b>Monitoring LAN IP Address</b>	For all devices, must be selected from drop-down list. Each device must have its own unique IP address.

**Note** If the Server has more than one LAN card installed (e.g. for Web Access), select the IP Address for the **primary** Clinical Network connection (i.e. not the 2nd LAN connection).

<b>*System Serial Number</b>	System Serial # of the Server. It is found on the label on the top of the Server as System
<b>*Device Serial Number</b>	Device Serial # of the Database Server. It is also found on the label on the top of the Server as Product.
<b>Software Release</b>	Read Only. The number of the application software revision installed -- E.xx.xx for present software
<b>*Contact</b>	Service resource information for users. Names and contact information (telephone numbers, beeper numbers, etc.) of persons or contractors assigned as service support can be entered in this field along with any other support information of benefit to users, e.g. service contract numbers. Information is entered by keyboard and has a 255 character limit.
<b>*Optional Fields</b>	Entries are not required in fields preceded by an *

**Purchased Options** displays the purchased options that are active on the device.

<b># of Displays</b>	<p><i>Note</i>—If configuring a Dual Display system, both displays must be connected in order to select <b>2</b> in this field.</p> <p><i>Note</i>—If a display is disconnected or fails on a system configured for dual display, the resting display comes up in an unusable state. In such a case when a second display replacement is not available, the number of displays must be changed to <b>1</b> for the system to work properly.</p> <p>Number of displays for the device</p> <ul style="list-style-type: none"> <li>• Networked Information Center: <b>1</b> (default) or <b>2</b> (Option C01)</li> <li>• Database Server: disabled</li> <li>• Local Database Information Center: <b>1</b> (default) or <b>2</b> (Option C01)</li> <li>• Information Center Client: <b>1</b> (default) or <b>2</b> (Option C01)</li> <li>• Patient Link: disabled</li> </ul>
<b>Viewable Display Width</b>	<p>Sets the viewable sweep speed parameter. Use this list as a guideline in determine what value is to be used for the display size of the device being configured.</p> <ul style="list-style-type: none"> <li>• M3161 (medium) CRT Display: 308 mm</li> <li>• M3162 (large) CRT Display: 381 mm</li> <li>• 862100 Medium Flat Panel Display: 338 mm</li> <li>• 862428 Medium Touch Flat Panel Display: 338 mm</li> <li>• 862103 Large Flat Panel Display: 359</li> </ul>
<b># of ICs</b>	<p># of Information Centers that can be connected to the device</p> <ul style="list-style-type: none"> <li>• Networked Information Center: not applicable</li> <li>• Database Server: <b>2</b> (Option A02), <b>4</b> (Option A04), <b>6</b> (Option A06), or <b>8</b> (Option A08)</li> <li>• Local Database Information Center: not applicable</li> <li>• Information Center Client: not applicable</li> <li>• Patient Link: not applicable</li> </ul>
<b># of Patients</b>	<p># of patients whose data can be stored by the M3154 Database Server.</p> <ul style="list-style-type: none"> <li>• Networked Information Center: <b>4</b> (Option A04), <b>6</b> (Option A06), <b>8</b> (Option A08), <b>12</b> (Option A12), or <b>16</b> (Option A16)</li> <li>• Database Server: <b>disabled</b></li> <li>• Local Database Information Center: <b>4</b> (Option A04), <b>6</b> (Option A06), <b>8</b> (Option A08), <b>12</b> (Option A12), or <b>16</b> (Option A16)</li> <li>• Information Center Client: <b>4</b> (Option A04), <b>6</b> (Option A06), <b>8</b> (Option A08), <b>12</b> (Option A12), or <b>16</b> (Option A16)</li> <li>• Patient Link: <b>4</b> (Option A04), <b>6</b> (Option A06), <b>8</b> (Option A08), <b>12</b> (Option A12), or <b>16</b> (Option A16)</li> </ul>

Configuration

<b>Wave Storage</b>	<p>Number of hours of patient waves stored by the Server.</p> <ul style="list-style-type: none"> <li>• Networked Information Center: not applicable</li> <li>• Database Server: <b>24</b> hours, <b>48</b> hours, <b>72</b> hours, or <b>96</b> hours</li> <li>• Local Database Information Center: <b>24</b> hours, <b>48</b> hours, <b>72</b> hours, or <b>96</b> hours</li> <li>• Information Center Client: not applicable</li> <li>• Patient Link: <b>24</b> hours, <b>48</b> hours, <b>72</b> hours, or <b>96</b> hours</li> </ul>
<b>Alarm Storage</b>	<p>Number of 30 second alarm events stored by the Server.</p> <ul style="list-style-type: none"> <li>• Networked Information Center: not applicable</li> <li>• Database Server: <b>150</b></li> <li>• Local Database Information Center: <b>50</b> or <b>150</b></li> <li>• Information Center Client: not applicable</li> <li>• Patient Link: <b>50</b> or <b>150</b></li> </ul>
<b>EASI Wave Storage (E01)</b>	<ul style="list-style-type: none"> <li>• Networked Information Center: not applicable</li> <li>• Database Server: <b>Enable</b> or <b>Disable</b></li> <li>• Local Database Information Center: <b>Enable</b> or <b>Disable</b></li> <li>• Information Center Client: not applicable</li> <li>• Patient Link: <b>Enable</b> or <b>Disable</b></li> </ul>
<b>Patient Data Transfer/ Web (C22)</b>	<p>Access to patient data via the hospital's web is <b>Disabled</b> or <b>Enabled</b></p> <ul style="list-style-type: none"> <li>• Networked Information Center: not applicable</li> <li>• M3154 Database Server: <b>Enable</b> or <b>Disable</b></li> <li>• Local Database Information Center: not applicable</li> <li>• Information Center Client: not applicable</li> <li>• Patient Link: not applicable</li> </ul>
<b>Master Server</b>	<p>If the Patient Data Transfer/Web option was enabled (above) on the Database Server, the Master Server name field is active. Enter in the hostname of the Master Database Server.</p> <p><b>Note</b>—The Master Server must be installed and configured first. However, if the Master Server is down, and a non-master server is in Config Wizard, it cannot enable the Patient Data Transfer/Web option and enter in the Master server. Enter in the hostname of the non-master server and continue through the Config Wizard. When the Master Server is back up, you must do the following at the non-master server (both Servers remain in monitoring mode):</p> <ol style="list-style-type: none"> <li>1. On the non-master server, enter Service Mode</li> <li>2. Go to <b>Configuration -&gt; Server Config</b></li> <li>3. Select the hostname of the non-master server that was entered as the master and press <b>Remove</b> (the Patient Data Transfer/Web option is still enabled)</li> <li>4. On the Master Server, enter Service Mode</li> <li>5. Go to <b>Configuration -&gt; Server Config</b></li> <li>6. Enter in the non-master hostname that was removed in step 3 and press <b>Add</b>.</li> <li>7. Follow the prompts on the screen and verify that language and software compatibility are correct.</li> </ol>
<b>Alert Data Export (C65)</b>	<ul style="list-style-type: none"> <li>• Networked Information Center: <b>Enable</b> or <b>Disable</b></li> <li>• Database Server: not applicable</li> <li>• Local Database Information Center: <b>Enable</b> or <b>Disable</b></li> <li>• Information Center Client: not applicable</li> <li>• Patient Link: not applicable</li> </ul>
<b>12-Lead Analysis/Export (C16)</b>	<p>Enables 12-lead export capability</p> <ul style="list-style-type: none"> <li>• Networked Information Center: <b>Enable</b> or <b>Disable</b></li> <li>• Database Server: not applicable</li> <li>• Local Database Information Center: <b>Enable</b> or <b>Disable</b></li> <li>• Information Center Client: <b>Enable</b> or <b>Disable</b></li> <li>• Patient Link: <b>Enable</b> or <b>Disable</b></li> </ul>

<b>HL7 Export (C14)</b>	Enables HL7 export capability <ul style="list-style-type: none"> <li>• Networked Information Center: <b>Enable</b> or <b>Disable</b></li> <li>• Database Server: not applicable</li> <li>• Local Database Information Center: <b>Enable</b> or <b>Disable</b></li> <li>• Information Center Client: not applicable</li> <li>• Patient Link: <b>Enable</b> or <b>Disable</b></li> </ul>
<b>Holter Export (C23)</b>	<ul style="list-style-type: none"> <li>• Networked Information Center: <b>Enable</b> or <b>Disable</b></li> <li>• Database Server: not applicable</li> <li>• Local Database Information Center: <b>Enable</b> or <b>Disable</b></li> <li>• Information Center Client: <b>Enable</b> or <b>Disable</b></li> <li>• Patient Link: not applicable</li> </ul>

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**Note** Changes in **Purchased Options** can **only** be made by an authorized Philips Representative.

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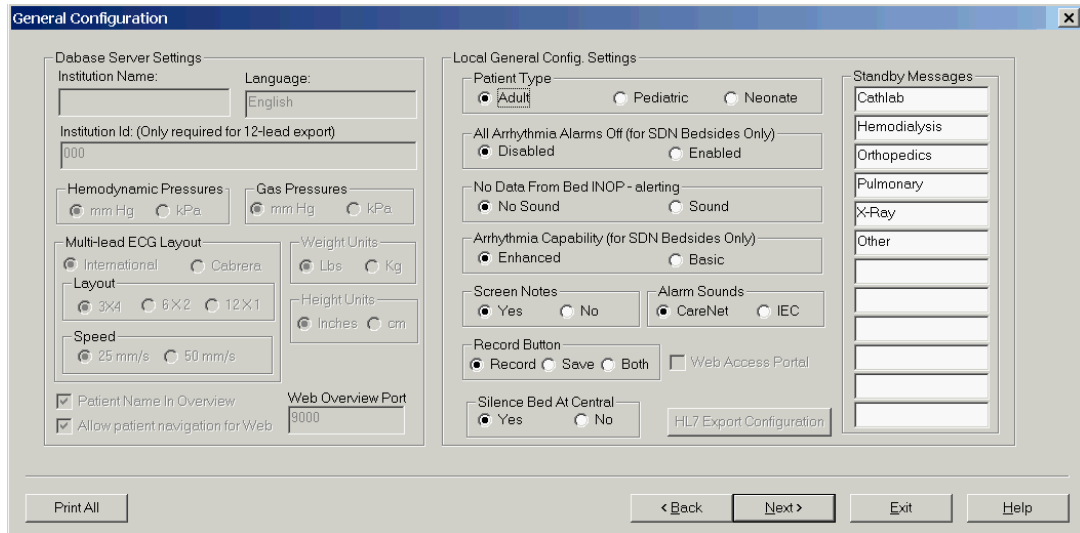
**Procedure** The procedure for configuring the Purchased Options and Support Information window is as follows.

**Step 1.** Enter the required (and optional) information in the fields that are not grayed out.


**Step 2.** Click **Next>** to save changes and advance to **General Configuration**

## General Configuration

**General Configuration** is used to set several Domain-Wide clinical configuration settings that apply to all Information Centers and Clients on the Network. The **General Configuration** window is shown in Figure 6-10.



**Figure 6-10 General Configuration Window**

**Note** The keyboard **Tab** key can be used to progress through the fields. To make a selection in fields having options, click a  in the circle preceding the desired option.

**Description** Fields in the General Configuration window are:

**Database Server Settings** are set **only** at the Database Server and apply to all Information Centers and Clients on the Network. They include the following:

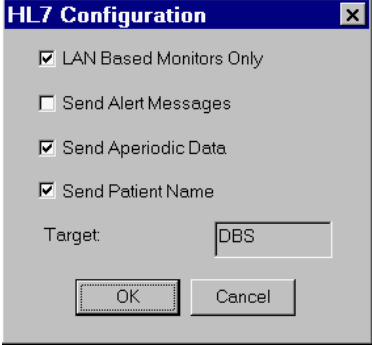
Field	Description
<b>Institution Name</b>	Name of the hospital where the system resides. The <b>Hospital Name</b> appears in the footer of some printed reports. This field has a 48 character limit.
<b>Language</b>	Read Only. Displays the language used in the display text. <i>Note</i> —The language is selected during Windows Operating System installation. To change the language, the Operating System must be reinstalled and the desired language selected during the installation process
<b>Institution ID</b>	Required for systems with 12-Lead ECG Management export configured. This is a 32 character alphanumeric string that represents the Institution ID. If the 12-Lead ECG Management option is not configured, the default value of 000 should not be changed. <i>Note</i> —TraceMaster supports Institution ID: 001-998.
<b>Hemodynamic Pressure</b>	mmHg or kPa (millimeters mercury, kilo Pascals).
<b>Gas Pressures</b>	mmHg or kPa (millimeters mercury, kilo Pascals).
<b>Weight Units</b>	Lbs or Kg (pounds or kilograms)
<b>Height Units</b>	Inches or cm (centimeters)

Field	Description
<p><b>Warning</b> The height, weight, and gas units of measure configured on the Information Center must match the units of measure at the bedside. Failure to do so may result in incorrect hemodynamic calculations and patient documentation.</p>	
<b>Multi-lead ECG Layout</b>	Sets several initial presentation parameters for the display in the 12-lead review applications. The first set of selections sets the type of layout of ST segment review data - <b>International</b> or <b>Cabrera</b> . The <b>Layout</b> group selects the layout for the presentation of the 12-lead waveforms, as either 3 rows by 4 columns, 6 rows by 2 columns, or 12 rows by 1 column. The <b>Speed</b> group allows for selecting the chart speed used in presenting the waveforms, and can be either 25 mm/sec or 50 mm/sec.
<b>Patient Name in Overview</b>	If <b>yes</b> , the patient name for all overviewed beds is displayed in the alarm reflector, overview bed list, overview window, and alarm overview window. If <b>no</b> , the name is not displayed. This setting is for M2/M3/M4/IntelliVue patient monitors monitored by the Information Centers connected to this Database Server. This setting does not apply to SDN beds.
<b>Allow patient navigation for Web</b>	Enabled only if the Patient Data/Transfer parameter was enabled in the Purchased Options window. <i>Note</i> —This option must be disabled if automated web access is used.
<b>Web Overview Port</b>	Port of the TCP/IP socket connection for web access. The default is <b>9000</b> .

**Warning** If Hemodynamic Pressures and/or Gas Pressures are changed, the entire patient database for the Server -- Alarms, Waves, Trends, and Parameters -- will be erased.

**Local General Config Settings** set at the individual Information Center or Client are only applicable to that particular device.

Field	Description
<b>Patient Type</b>	Default setting for the type of patient being monitored -- <b>Adult</b> , <b>Pediatric</b> , <b>Neonate</b> -- for SDN Bedside monitors. This can be changed for specific patients in the <b>Admit</b> window.
<b>All Arrhythmia Alarms Off (for SDN Bedside Only)</b>	Arrhythmia alarms from telemetry monitors can be turned off in the Arrhythmia Alarms Setup menu for SDN Bedside monitors. <b>Enabled</b> means they can be turned off. <b>Disabled</b> means they cannot be turned off.
<b>No Data From Bed INOP - alerting</b>	<b>INOP</b> sound is to be sounded when there is a NoDataFromBed INOP. The <b>NoSound</b> selection disables the sound alert while the <b>Sound</b> selection will play the alert tone
<b>Arrhythmia Capability</b>	Sets whether the <b>Enhanced</b> or <b>Basic</b> set of arrhythmia measurements are to be used for SDN Bedside monitors. <b>Enhanced</b> has 22 arrhythmia alarms. <b>Basic</b> has 10 arrhythmia alarms
<p><b>Note</b> The Arrhythmia Capability parameter configuration (<b>Enhanced</b> or <b>Basic</b>) must have the same configuration setting enabled in the Patient Monitor (if arrhythmia is on).</p>	

Field	Description
<b>Screen Notes</b>	Screen Notes made in the patient Admit window will be displayed on the Main Screen. <b>Yes</b> means they will be displayed. <b>No</b> means they will not be displayed.
<b>Alarm Sounds</b>	<ul style="list-style-type: none"> <li>• CareNet</li> <li>• IEC</li> </ul> <p><i>Note</i>—IEC alarm sounds are only supported on IntelliVue and TeleMon Patient Monitors. V24 and CMS monitors only support Traditional (CareNet) alarm sounds. If the Information Center has a mix of these monitor types, configure the Information Center to use CareNet in order to have consistent alarm sounds across these monitoring devices. Verify all the monitors are configured for the Traditional (CareNet) alarm sounds also.</p>
<b>Record Button</b>	Buttons for recording and/or storing waveforms display on the Main Screen <ul style="list-style-type: none"> <li>• <b>Record</b> means that a button for recording waveforms will be shown.</li> <li>• <b>Store</b> means that a button for storing waveforms will be shown.</li> <li>• <b>Both</b> means that buttons for both recording and storing waveforms will be shown.</li> </ul>
<b>Silence Bed at Central</b>	Button for silencing bedside monitor alarms at the device appears in Patient Sectors. <b>Yes</b> means that a silencing button appears. <b>No</b> means it does not appear and alarms can only be silenced at the bedside monitor.
<b>Web Access Portal</b>	If enabled, the <b>Browser</b> button is present on the All Controls window. The <b>Browser</b> button is used to open a web browser for viewing browser based applications when an Application Server is connected.
<b>HL7 Export Configuration</b>	<p>Active only if HL7 Export option is selected in the Purchased Options and Support Information page.</p> <p>When selected, a HL7 Configuration window opens:</p>  <ul style="list-style-type: none"> <li>• LAN Based Monitors only: <b>Enable</b> or <b>Disable</b>. If enabled, only data originating from LAN monitors (M2/M3/M4 or IntelliVue Patient Monitors) is sent.</li> <li>• Send Alert Messages: <b>Enable</b> or <b>Disable</b>. If enabled, alert, INOP, and parameter data is output in HL7.</li> <li>• Send Aperiodic Data: <b>Enable</b> or <b>Disable</b>. If enabled, aperiodic measurements (e.g. noninvasive blood pressure) is included in the HL7 output.</li> <li>• Send Patient Name: <b>Enable</b> or <b>Disable</b>. If enabled, the patient name is included in the HL7 output. This may not be allowed per hospital policy.</li> <li>• Target: Specifies the HL7-client host name that the HL7 data is to be exported to.</li> </ul>



Field	Description
Standby Messages	<p>Write up to 12 <b>Standby Messages</b> that can be selected in the <b>Patient Window</b> when the <b>Standby</b> button is clicked. Each message can contain up to 15 characters.</p> <p><b>Factory Default</b> messages are:</p> <ul style="list-style-type: none"> <li>Cathlab</li> <li>Hemodialysis</li> <li>Orthopedics</li> <li>Pulmonary</li> <li>X-Ray</li> <li>Other</li> </ul> <p>Type in the desired <b>Standby Messages</b> in the boxes provided using the keyboard. The keyboard <b>TAB</b> key can be used to advance to the next message.</p>

**Procedure** The procedure for configuring the **General Configuration** window is as follows.

**Step 1.** Enter the name of the hospital in the **Institution Name** field using the keyboard.

**Step 2.** For a Database Server, make the desired selections in the **Database Server Settings** fields.

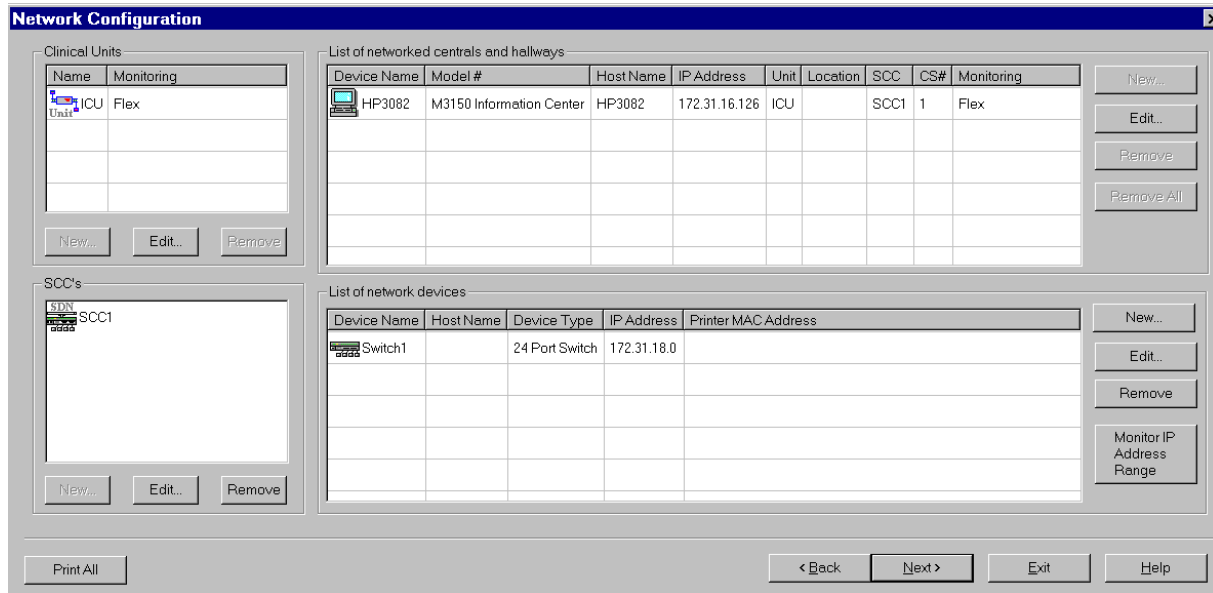
**Step 3.** For networked Information Centers and Clients, make the desired selections for this device in the **Local General Config Settings** fields and type in any desired **Standby Messages** in the boxes provided using the keyboard

**Step 4.** For an Information Center, make the desired selections for this device in the **Database Server Settings** fields.

**Step 5.** Click **Next>** to save changes and advance to the next page.

## Network Configuration

**Network Configuration** is used to identify all Information Centers, Clients, switches, access points, Application Servers, SNTP Time Sources, and networked printers and recorders on the Network. It also is used to correlate each Information Center with its Clinical Unit and (for SDN systems) Philips Communications Controller (PCC) - this is also the SCC. The **Network Configuration** window is shown in Figure 6-11.



**Figure 6-11 Network Configuration Window**

**Description** Fields in the Network Configuration window are:

**Clinical Units** lists the names of the Clinical Units and their associated monitoring type. There is no default unit created at installation.

**Buttons** below the field are for adding, changing, and deleting Clinical Unit names. The maximum number of Clinical Units is 8.

Button	Description
<b>New</b>	<p>Adds a Clinical Unit name to the list.</p> <ul style="list-style-type: none"> <li>Click <b>New</b> to bring up the <b>Add/Edit Unit</b> window.</li> <li>Type in the name of the Clinical Unit to be added in the <b>Type new name or label:</b> field. The name has a limit of 12 characters.</li> <li>Select the correct monitoring mode in the <b>Monitoring</b> field. <b>Fixed</b> monitoring is for systems where dynamic movement of equipment is not expected (e.g. Patient Link). <b>Flex</b> is for systems with Telemetry equipment, IntelliVue Patient Monitors, or M3/M4 bedsides that are to be identified by their monitor label.</li> </ul> <p><i>Note</i>—M3170 Patient Link devices <b>must</b> be configured for <b>Fixed</b> monitoring</p> <ul style="list-style-type: none"> <li><b>Department Id</b> is only required for systems with 12-Lead ECG Management configured. The Department Id configured here must match the department ID configured in the ECG Management system. This Id has a 32 character limit. The default is 00.</li> </ul> <p><i>Note</i>—TraceMaster supports Department ID: 01-99. ID 00 is “lost and found”</p> <ul style="list-style-type: none"> <li>Click <b>OK</b> and the new Clinical Unit name and its monitoring type is added to the Clinical Units list.</li> </ul> <p><i>Note</i>—Large network systems do not automatically check for duplicate clinical unit names or duplicate bed labels. If a large network is being configured, verify that no duplicate names are entered. When transferring patient data across database servers, the clinical units are not listed under their database server. If duplicates exist, there is no way to determine which unit belongs to which database server.</p>

---

**Note** At least one Clinical Unit must be entered in the Clinical Units field. A new name must be added before an unwanted name is deleted.

---

Button	Description
<b>Edit</b>	<p>Changes the name of a Clinical Unit in the list</p> <ul style="list-style-type: none"> <li>Click on (highlight) the Clinical Unit name to be changed to select it.</li> <li>Click <b>Edit</b> to bring up an <b>Add/Edit Unit</b> window. (Double clicking on the Clinical Unit name brings up this window directly).</li> <li>Type in the new name of the Clinical Unit in the <b>Type new name or label:</b> field.</li> <li>Change the <b>Monitoring</b> mode for the unit in the monitoring field if needed. Note that if IntelliVue Patient Monitors or M3/M4 beds are already assigned, and the monitoring mode is changed, all IntelliVue Patient Monitors and M3/M4 beds assigned to that unit must be deleted before the monitoring mode can be changed.</li> <li>Click <b>OK</b> and the changes appear in the Clinical Units list.</li> </ul>
<b>Remove</b>	<p>Removes a name from the Clinical Units list.</p> <ul style="list-style-type: none"> <li>Click on (highlight) the Clinical Unit name to be deleted to select it.</li> <li>Click <b>Remove</b> and the name is deleted from the Clinical Units list. If there are beds mapped for monitoring to this unit, those associations must be removed otherwise the Clinical Unit cannot be removed.</li> </ul>

**SCCs** lists the Communications Controllers connected to Information Centers on the Network if SDN bedsides are connected. The maximum number of SCCs is 8. Names can be added, edited, and removed

## Configuration

using the buttons below the SCCs field. These buttons are the same as for Clinical Units. If there are only IntelliVue Patient Monitors or M3/M4 bedside monitors on the Network, this field is not applicable.

**Buttons** below the field are for adding, changing, and deleting SCCs names.

Button	Description
<b>New</b>	<p>Adds a SCC name to the list.</p> <ul style="list-style-type: none"> <li>Click <b>New</b> to bring up the <b>Add/Edit SCC</b> window.</li> <li>Type in the name of the SCC to be added in the <b>Type new name or label:</b> field. The name has a limit of 12 characters.</li> </ul>
<b>Edit</b>	<p>Changes the name of a SCC in the list</p> <ul style="list-style-type: none"> <li>Click on (highlight) the SCC name to be changed to select it.</li> <li>Click <b>Edit</b> to bring up an <b>Add/Edit SCC</b> window. (Double clicking on the SCC name opens this window directly).</li> <li>Type in the new name of the SCC in the <b>Type new name or label:</b> field.</li> <li>Click <b>OK</b> and the changes appear in the SCC list.</li> </ul>
<b>Remove</b>	<p>Removes a name from the SCC list.</p> <ul style="list-style-type: none"> <li>Click on (highlight) the SCC name to be deleted to select it.</li> <li>Click <b>Remove</b> and the name will be deleted from the list. If an Information Center is mapped to this SCC, it cannot be removed until the association is removed.</li> </ul>

---

**Note** At least one Clinical Unit and must be entered in the Clinical Units and SCC's fields at all times. Therefore, a new name must be added before an unwanted name is deleted.

---

**List of networked centrals and hallways** lists the Information Centers and Clients on the Network.

**Columns** in the List of network centrals and hallways field are:

Field	Description
<b>Device Name</b>	<p>Lists the names of the Information Centers and Clients (with an identifying icon) on the Network of this Server. Device Names are entered in the Add to network domain window when the device is added to the network.</p> <p><i>Note</i>—On the M3170 Patient Link, only the Patient Link device can be configured.</p>
<b>Model #</b>	Model Number of the Device -- M3155 Information Center or M3151 Information Center Client
<b>Host Name</b>	Name given to the Device when it was installed. Generally it is the same as its Device Name. Host Names for each device must be unique for the Server to properly identify it
<b>IP Address</b>	Internet Protocol Address that identifies the location of the Device on the Network. It is read from the Device when it connects to the Server for the first time. If no IP Address appears, then the Device has not yet connected to the Server.
<b>Location</b>	Optional field for identifying the location of the Device in the hospital. It is entered in the Add new device to this domain window when the device is added to the network
<b>Unit</b>	Clinical Unit in the Clinical Units list served by the Device.
<b>SCC</b>	(for SDN systems) Name of the Serial Communications Controller in the SCCs list that an Information Center is connected to.
<b>CS#</b>	(for SDN systems) The Central Station number that the Information Center uses to connect to the SCC.

Field	Description
Monitoring	Monitoring mode of the Clinical Unit, either Fixed or Flex

**Buttons** to the right of the field are for adding, editing, and removing **Devices** from the list.

Button	Description
<b>New</b>	<p>Adds a new Information Center or Client on the Network to the Server. Clicking <b>New</b> brings up the <b>Add to network domain</b> window</p> <p><b>Fields</b> in the Add new device to this domain window are:</p> <ul style="list-style-type: none"> <li>• <b>Model #</b> - Selects the <b>Device</b> model to be added - M3155 Information Center or M3151 Information Center Client. Clicking on the arrow to the right of the box lists the model numbers. Click on the model number to be added to select it.</li> <li>• <b>Host Name</b> - Enter the name assigned to the <b>Device</b> when it was installed. The <b>Host Name</b> of a device can be found in the <b>Network</b> application of its <b>Control Panel</b>. It is the <b>Computer Name</b> in the <b>Identification</b> window.</li> <li>• <b>Device Name</b> - Enter a name for the <b>Device</b>. Generally, the <b>Host Name</b> and <b>Device Name</b> are the same and the same name will be entered in both boxes</li> </ul>

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**Note** If the number of Information Centers selected on the **Purchased Options and Support Information** have already been installed, then adding a new Information Center is not allowed.

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**Note** **Devices Names** are sensitive to upper and lower case.

When **Host Name** is entered in this window, it will appear as read-only in **Purchased Options and Support Information** of the **Device** being added.

**Host Name** and **Device Name** must be identical to these names in the **Purchased Options and Support Information** window for the **Server** to identify it.

---

Field	Description
<b>Location</b>	(Optional). The hospital location for the <b>Device</b> being added. As indicated, entering this information is optional.
<b>Associations</b>	Specifies the <b>Clinical Unit</b> and <b>SCC</b> (for <b>SDN</b> systems) for the <b>Device</b> being added
<b>Central Station</b>	Available <b>Central Station</b> numbers for the selected <b>SCC</b> . A <b>SCC</b> can support up to 6 <b>Central Stations</b> , and each must have a unique <b>Central Station #</b> . This field is only applicable when a <b>SCC</b> has been selected. Clicking on the down arrow to the right brings up a list of available central station numbers. <b>CS#s</b> that have already been assigned are disabled for selection.
<b>Connected to SCC</b>	List of <b>SCCs</b> for assigning to the <b>Device</b> . Click on (highlight) the <b>SCC</b> that the <b>Device</b> being added is connected to. Not all <b>Information Centers</b> have an <b>SCC</b> . If no <b>SDN</b> beds are to be monitored by an <b>Information Center</b> , this field is grayed out.
<b>Belongs to unit</b>	Displays the list of <b>Clinical Units</b> for assigning to the <b>Device</b> . Click on (highlight) the <b>Clinical Unit</b> that the <b>Device</b> being added is associated with.
<b>2-Channel Recorder/Rack</b>	Enable this field if a 2 Channel recorder/rack is connected to this device.
<b>4-Channel Recorder</b>	Enable this field if a 4 Channel recorder is connected to this device.

**Buttons** at the bottom of the window do the following:

**OK** stores the information entered. It then appears in the **List of network devices** in the Network Configuration window.

**Cancel** closes the Add to network domain window with no Device being added.

The remaining buttons to the right of the List of network centrals and hallways have the same use as for Clinical Units.

**List of network devices** lists the network devices connected to this system. This field is accessed by **Network Statistics** to provide status information on network switches and access points.

**Columns** in the List of network devices field are:

Field	Description
<b>Device Name</b>	Names given to a 12-Lead ECG Management, 24 Port-Switch, Application Server, Holter, Networked Printer, SNTP Time Source, Alert Data Export Client, Wireless Access Point (with an identifying icon) on the Network of this Server. Device Names for devices are specified in the Add new network device to this domain window when the device is added to the network
<b>Host Name</b>	Host name of device being added
<b>Device Type</b>	Type of device: 12-Lead ECG Management, 24 Port-Switch, Alert Data Export Client, Application Server, Holter, Networked Printer, SNTP Time Source, Wireless Access Point
<b>IP Address</b>	Internet Protocol Address of the device that identifies its location on the Network.
<b>Printer MAC Address</b>	(Media Access Control Address) is the 12 digit HEX number that uniquely identifies the printer. This number must be obtained from the printer's configuration printout.

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**Note** IP Addresses for devices **must be entered** in this window in order to identify their performance in the **Network Statistics** application. If no switches are entered, then the **Equipment Setup** page will not allow any of the Mx/IntelliVue Patient Monitor installation options.

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**Adding Network Devices** In addition to adding these network devices to the Database Server/Information Center system, the network devices must also be configured to communicate with the system. The following table provides what their additional configuration requirements are:

Device Type	Systems Supported on	Requirements
<b>12-Lead ECG Management</b>	Database Server	ECG Management system must be configured to receive Information Center data (PMDEXport folder must be created). The Database Server must be configured with the 12-Lead ECG Management system's hostname
<b>24 Port Switch</b>	all	Must be configured using the Information Center ConfigTool

<b>Application Server</b>	Database Server Local Database M3150 Information Center	Application Server must be configured with the Database Server or Information Center hostname and Clinical Network IP Address. The Database Server or Information Center must be configured with the Application Server's hostname and IP Address (172.31.211.0).
<b>Alert Data Export Client</b>	Database Server Local Database M3150 Information Center	Device name and host name of Alert Data Export client is required to add the client to the list of network devices. A Port number must be defined, and it must be unique for each DBS. The range of port numbers is 8010-8050. The IP address of the Alert Data Export client can be used, and if it is entered, it can be used in place of the hostname.
<b>SNTP Time Source</b>	Database Server Local Database M3150 Information Center	SNTP Time source must be provided by the hospital, and must not be part of the IntelliVue Clinical Network. It is defined as a separate PC and must be an SNTP Master Time Server that is running the W32TIME service as defined for Windows NT/2000/XP/ME. The host name can either be a DNS hostname, URL, or IP Address. The time source can reside geographically in any time zone without any requirements for "Automatically adjusting clock for Daylight saving changes". If the time source is behind the hospital's firewall, the hospital must open the appropriate port (port 123) for the NTP protocol.
<b>Holter</b>	Database Server	Holter device must be configured to receive Information Center data. (PMDEExport folder must be created). Only 1 Holter device is supported per system. The Database Server must be configured with the 12-Lead ECG Management system hostname.
<b>Network Printer</b>	all	The Printer MAC address is needed to add Network printers. This is the <b>only</b> supported way to add network printers to the Information Center system.
<b>Wireless Access Point</b>	all	Must be configured using the Information Center ConfigTool

**Buttons** to the right of the field are for adding, editing, and removing Devices from the list.

Button	Description
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<p><b>New</b></p>	<p>Adds a new Network Device to the list.</p> <ul style="list-style-type: none"> <li>Click <b>New</b> to bring up the <b>Network Devices</b> window.</li> </ul> <p><b>Fields</b> in the Network Devices window are:</p> <ul style="list-style-type: none"> <li><b>Device Type</b> - Select the type of device being added: 12-Lead ECG Management, 24 Port-Switch, Alert Data Export Client, Application Server, Holter, Networked Printer, SNTP Time Source, Wireless Access Point</li> <li><b>Device Name</b> - Enter a name for the device. It has a limit of 15 characters.</li> <li><b>Host Name</b> - Enter a name for the device being added. It has a limit of 15 characters. This field is required to add Holter, Alert Data Export Client, Application Server, SNTP Time Source, and 12-Lead ECG Management devices.</li> <li><b>IP Address</b> - Enter the IP Address of the device being added. The device IP Address is assigned when it is installed. The IP Address is required to add Access Point, 24 Port Switch, and Application Server devices.</li> <li><b>Port</b> - Enter the port number. These must be unique for each DBS. The range of port numbers is 8010-8050. This field is enabled only if Alert Data Export Client is selected.</li> <li><b>MAC Address</b> - (Media Access Control Address) is the 12 digit HEX number that uniquely identifies the printer. This number must be obtained from the printer’s configuration printout</li> <li><b>Select Printer</b> - Assign a printer to be added to the network. This field is enabled only if Network Printer is selected as the device type.</li> </ul>
<p><b>Edit</b></p>	<p>Change the information for a Device in the List of network devices</p>
<p><b>Remove</b></p>	<p>Remove a Device from the List of network devices</p> <p><i>Note</i>—When removing a network printer, if there are reports configured to be printed to the printer, a warning message is displayed and those reports must be removed before the printer can be removed.</p>
<p><b>Monitor IP Address Range</b></p>	<p>Opens a window to review and edit the acceptable range of IP Addresses that can be used by Mx/IntelliVue patient monitors. (<b>Acceptable range is 172.31.16.0 - 172.31.79.255</b>). The fields are as follows:</p> <ul style="list-style-type: none"> <li><b>IP Address Range Starting Value</b> - Enter or edit the first IP Address in the range of IP Addresses that can be assigned to Mx/IntelliVue patient monitors.</li> <li><b>IP Address Range Ending Value</b> - Enter or edit the last IP Address in the range of IP Addresses that can be assigned to Mx/IntelliVue patient monitors</li> </ul>

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**Note** On Database Server systems, a 24 Port Switch configuration is required before the user is allowed to continue to the next configuration window.

---

**Procedure** The procedure for configuring the **Network Configuration** window is as follows.

**Step 1. Add Clinical Unit Names.**

- Click New to bring up the Add/Edit window.
- Type in the name of the Clinical Unit being added in the Type new name or label: field
- Select if this Unit is a fixed or flex monitor
- If the 12-Lead Export option is enabled in the Purchased Options and Support Information Page, enter in the Department ID (TraceMaster supports Department ID: 01-99. ID 00 is “lost and found”)
- Click OK.
- Repeat Step 1 for each Clinical Unit being served by the Server.

**Step 2. Add SCC names.**

- Click New to bring up the Add/Edit window.



- Type in the name of the SCC being added in the Type new name or label: field and click OK.
- Repeat Step 2 for each SCC connected to the Clinical Network (of this Server).

**Step 3.** Delete unwanted Clinical Unit and SCC names.

- Click on (highlight) the unwanted name to select it for deletion.
- Click Remove and the unwanted name will be deleted.

**Step 4.** Add Networked Centrals and Hallways

- Click on the New button to the right of the List of networked centrals and hallways to bring up the Add new device to this domain window.
- Select the Model of the device being added.
- Type in the Host Name of the device being added using the keyboard.
- Type in a Device Name for the device being added. This has a 15 character limit and is case sensitive. Generally, Device Name will be the same as Host Name, but it can be different.

If the Model # is an Information Center:

- Click on (highlight) the name of the Clinical Unit in the Belongs to unit list where the device being added is assigned.

For systems with SDN monitors:

- Click on (highlight) the name of the SCC in the Connected to SCC list that the device being added is connected to.
- Select an available Central Station number.
- Check the 2 Channel and 4 Channel Recorder settings.
- Click OK to add the device to the List of networked centrals and hallways.
- Repeat Step 4 for all current and planned Information Centers and Clients on the Clinical Network (of this Server).

**Step 5.** Add Network devices.

- Click on the New button to the right of the List of network devices to bring up the Network Device window.
- Click on the type of device to be added in the Device Type field.

For Switches, Access Points, Holter, Application Server, 12-Lead ECG Management system, and SNTP Time source:

- Type in the required fields for the device being added. Required fields are dependent on the device type.
- Click OK to add the device to the List of network devices.

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**Note**

Only one Holter Device is allowed. An additional Holter device will not display in the list if there is already one configured.

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For Network Printers

- Click on (select) a name for the printer to be added from the Selected Printer field. 8 LAN connected LaserJet printers -- lj\_001, lj\_002, lj\_003, lj\_004, lj\_005, lj\_006, lj\_007, lj\_008 -- and 1 direct connected parallel printer -- lj\_lpt1 can be selected.

---

**Note**                      **Network connections** only support the **LaserJet 2100/2200/2300** printer  
**Parallel connection** supports **LaserJet 2100/2200/2300** and **LaserJet 6P** printers.  
**Default printer** selection for all devices is **lj\_lpt1**.  
**LaserJet 5P printer driver** is used for both printers.

---

IP assignments can be used to identify which printer is associated with each lj\_00x icon. For simplicity, the last digit of the Printer icon and the IP Address are the same.

**Table 6-2. IP Addresses for Printer Configurations**

Printer Icon	IP Address	Printer Icon	IP Address
lj_001	172.31.254.1	lj_005	172.31.254.5
lj_002	172.31.254.2	lj_006	172.31.254.6
lj_003	172.31.254.3	lj_007	172.31.254.7
lj_004	172.31.254.4	lj_008	172.31.254.8

- Type in the MAC Address of the printer being added as determined from its configuration printout.

The procedure for determining the MAC Address for the Laserjet printer is as follows:

- Turn On the Printer, with all other printers turned Off
- Generate a JetDirect Configuration Page by simultaneously pressing and releasing the Go and Job Cancel buttons.
- Read and Record the LAN Hardware Address from the JetDirect Configuration Page. The Hardware Address = MAC Address.
- Click OK to add the printer to the List of network devices.

---

**Caution**                      **Printers can only be added or removed via this window. Default printers are determined via the Report and Recording Destination window.**

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**Note**                      If an Application Server is on the network and needs to connect to the Information Center printers, the printers must be shared.

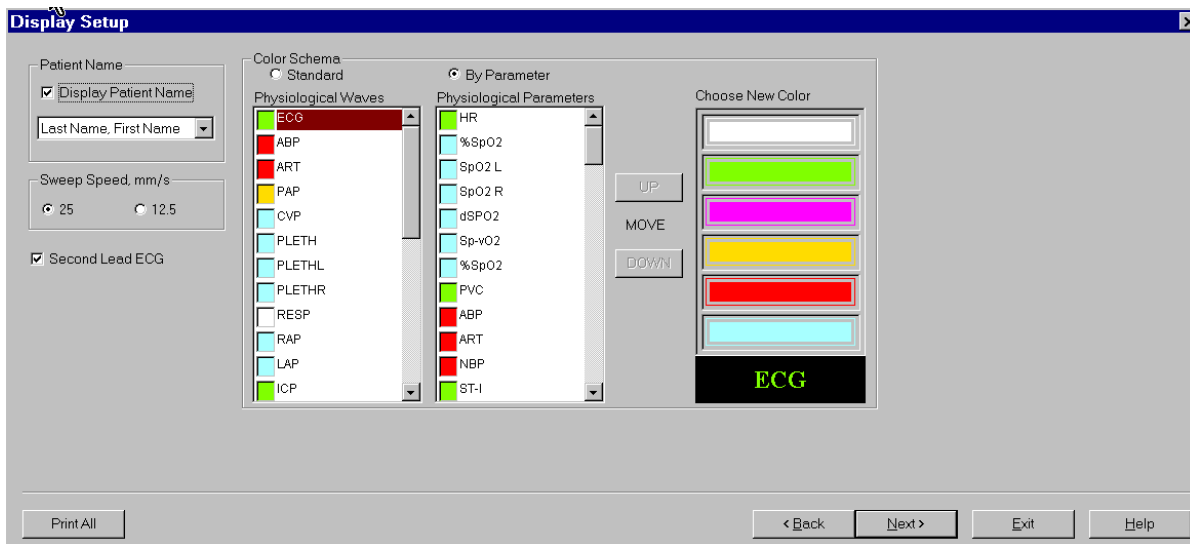
---

For systems with Mx/IntelliVue patient monitors:

- Verify that the IP Address Range for Mxs is sufficient.
- Click Monitor IP Address Range to display the IP Address Range for Mx window.
- Verify that the IP Address Range includes sufficient IP Addresses for all Mx/IntelliVue patient monitors to be added to the network. Increase the range if it is not sufficient. The acceptable range is 172.31.16.0 to 172.31.70.255.

**Step 6.** Click **Next>** to save changes and advance to the next page.

**Display Setup** **Display Setup** is used to configure the display of patient data on the Main Screen and in the Patient Sectors. The **Display Setup** window is shown in Figure 6-12.



**Figure 6-12 Display Setup Window**

**Description** Fields in Display Setup are:

Field	Description
<b>Patient Name</b>	Sets two parameters <ul style="list-style-type: none"> <li>Clicking a check <input checked="" type="checkbox"/> in the <b>Display Patient Name</b> box causes the Patient Name to be displayed in the Patient Sector. No check <input type="checkbox"/> means it will not be displayed and the following field is not active.</li> <li>Clicking on the pull down button in the right box provides four options for displaying the Patient Name. Click on the option preferred.</li> </ul>
<b>Sweep Speed, mm/sec</b>	Sweep speed of displayed waveforms. Click a <input checked="" type="radio"/> in the circle preceding the desired waveform sweep speed -- <b>25 mm/sec</b> or <b>12.5 mm/sec</b> .
<b>Second Lead ECG</b>	Sets whether the second lead ECG is to be displayed. <i>Note</i> —On EASI CMS and V24 bedsides, if Second Lead ECG is enabled, the secondary wave on the Information Center is always the second channel of ECG regardless of the secondary wave selected at the CMS or V24 bedside.
<b>Color Scheme</b>	Provides 2 color options for patient data. Click a <input checked="" type="radio"/> in the circle preceding the desired option to select it. <ul style="list-style-type: none"> <li><b>Standard</b> sets all data parameters to white on a black background.</li> <li><b>By Parameter</b> permits setting data parameters to different colors.</li> </ul>
<b>Physiological Waves</b>	Physiological waves that can be displayed for each patient on the Main Screen.
<b>Physiological Parameters</b>	Physiological parameters that can be displayed for each patient on the Main Screen. Each Wave and Parameter has a color box to its left indicating the color it will have on the Main Screen. Up/down arrows to the right of each list permits viewing the entire list.

Field	Description
<b>MOVE (UP, DOWN)</b>	<p>Use to change the priority order of the <b>Parameters</b> for display.</p> <p>To change the order of a <b>Parameter</b>, there are two methods:</p> <ul style="list-style-type: none"> <li>• Click on the <b>Parameter</b> to be changed to activate it for a change. <ul style="list-style-type: none"> <li>– Click the <b>UP</b> or <b>DOWN MOVE</b> button to the right of the list to move its position in the list.</li> </ul> </li> <li>• Click and hold the left mouse button on the <b>Parameter</b> to be changed. <ul style="list-style-type: none"> <li>– Drag the <b>Parameter</b> to its new location. (A gray line identifies the location of the changing <b>Parameter</b> during the drag.)</li> <li>– Release the left mouse button when the <b>Parameter</b> is positioned in its new location.</li> </ul> </li> </ul>
<b>Choose New Color</b>	<p>Used to change the color of <b>Waves</b> and <b>Parameters</b>.</p> <p>To change the color of a <b>Wave</b> or <b>Parameter</b>:</p> <ul style="list-style-type: none"> <li>• Click on the <b>Wave</b> or <b>Parameter</b> to be changed to activate it for a change.</li> <li>• Click on the desired color for that <b>Wave</b> or <b>Parameter</b> from the 6 options provided in the <b>Choose New Color</b> field. Changing the color of a <b>Wave</b> automatically changes the color of its <b>Parameter</b>.</li> <li>• View the changed color in the <b>Preview</b> field.</li> </ul>

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**Warning**      **If the correct primary display is not selected, the display sweep speed will not be correct and Philips application software will not meet its specifications.**

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**Note**              The number of waves on the Main Screen can be 3 for 4 Patient Sectors, 2 for 5-12 Patient Sectors, and 2 for 16 Patient Sectors.

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**Notes**              The order of the **Waves** or **Parameters** specifies their priority for display.  
The priority order of **Waves** is fixed, but the order of **Parameters** can be changed.

---

**Procedure**      The procedure for configuring the **Display Setup** window is as follows.

**Step 1.** Select whether the colors of the **Wave** and **Parameters** should be **Standard** or **By Parameter**.

**Step 2.** Set the desired **priority** of the **Physiological Parameters** using one of the methods to **change the order** described above.

**Step 3.** If **By Parameter** color selection was chosen in **Step 1**, set the colors of the **Waves** and **Parameters** to the desired colors using the **Choose New Color** box using the method to **change the color** described above.

**Step 4.** Click **Next>** to commit changes and advance to **IBed Configuration**.

---

**Note**              For Information and Centers on the Network without a Database Server, the next configuration window is **Equipment Setup**, for creating labels for Beds, Telemetry Equipment, and bedside Monitors and assigning monitors to beds.

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## Equipment Setup

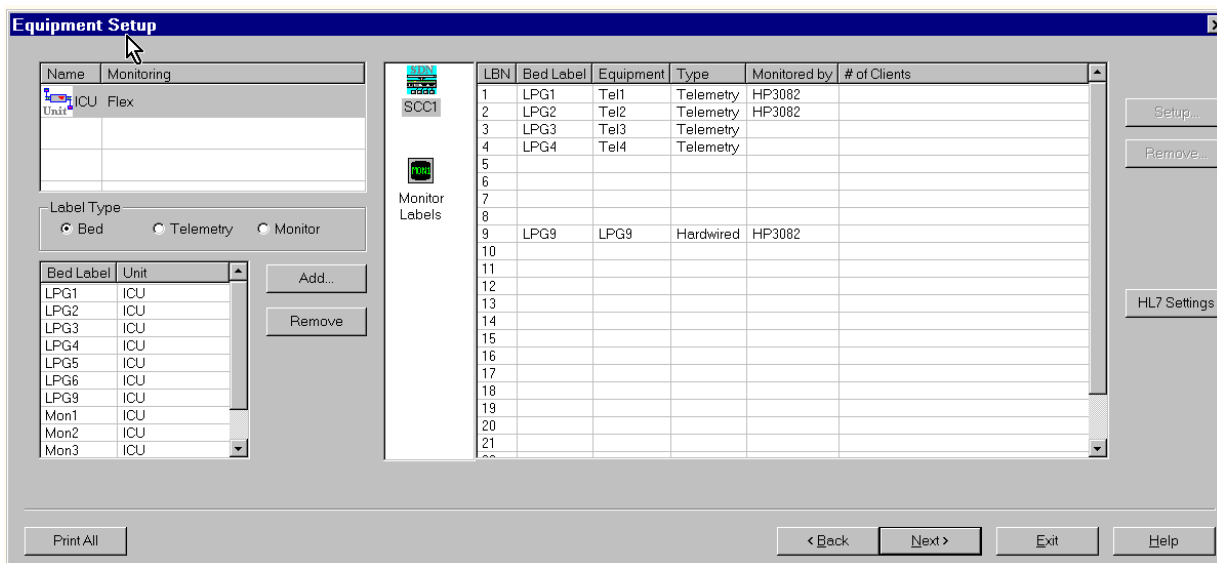
**Equipment Setup** is used to select the patient monitors (hardwired, wireless, telemetry) that will be available to each Information Center for patient monitoring.

**Note**

For Clinical Network/Database Server networks, **Equipment Setup** runs on the Database Server.

For independent Information Centers, **Equipment Setup** runs on the device.

Equipment Setup is used to create labels for **Beds, Telemetry Equipment,** and bedside **Monitors,** associate these labels with a specific Clinical Unit, assign monitors to beds, and display the Information Center that will receive their monitoring data. The **Equipment Setup** window is shown in Figure 6-13.



**Figure 6-13 Equipment Setup Window for Beds**

### Description

Field	Description
Selected Unit	Selects the unit to set up the equipment. All the units added to the domain in the Network Configuration window are displayed and the first unit is highlighted. To select a different unit, click on the desired unit. Each selection modifies the Equipment Setup window for that selection. On the Network/Database Server, all the units added to the domain in the Network Configuration window will be displayed and the first unit will be highlighted. In addition to displaying the Unit Name, the Monitoring Mode setting for that unit is displayed.

<b>Label Type</b>	<p>Selects the type of label to assign -- <b>Bed</b>, <b>Telemetry</b>, or <b>Monitor</b>. Clicking in the circle preceding the desired <b>Label Type</b> selects it. Each selection modifies the <b>Equipment Setup</b> window for that selection.</p> <p><b>Note</b>—Text must be entered when adding Labels. Adding spaces without text is not allowed. If spaces used without text, the system must be reinitialized.</p> <ul style="list-style-type: none"> <li>• Selecting <b>Bed</b> as the <b>Label Type</b> displays a window with a <b>Bed Labels</b> field. This window is used to set up a series of bed labels for assigning to monitoring equipment for each clinical unit. Columns in the <b>Bed Labels</b> field are: <ul style="list-style-type: none"> <li>– <b>Bed Label</b> lists the identifying labels to be assigned to patient monitoring equipment for each clinical unit, e.g. <b>Bed1</b>, <b>Bed2</b>, ....</li> <li>– <b>Unit</b> is the name of the <b>Clinical Unit</b> where the monitoring equipment is located, <b>Unit_1</b>, <b>Unit_2</b>, .... For networked Information Centers, clinical <b>Unit</b> names are given in the <b>Network Configuration</b> window.</li> <li>– Selecting <b>Telemetry</b> as the <b>Label Type</b> displays a window with an <b>Equipment Labels for Telemetry</b> field. This window is used to set up labels for telemetry monitors to be used in the selected unit. The <b>column</b> in the <b>Equipment Labels for Telemetry</b> field is <b>Equipment Label</b>, which lists the identifying labels to be assigned to telemetry monitors, e.g. <b>Tel1</b>, <b>Tel2</b>, ....</li> </ul> </li> <li>• Selecting <b>Monitor</b> as the <b>Label Type</b> displays a window with a <b>Monitor Labels</b> field. This window is used to set up a series of labels for assigning to patient monitors connected to the network. The <b>column</b> in the <b>Monitor Labels</b> field is <b>Monitor Label</b>, which lists the identifying labels to be assigned to patient monitors, e.g. <b>Mon1</b>, <b>Mon2</b>,....</li> </ul> <p><b>Note</b>—When adding new equipment (e.g. IntelliVue Patient Monitors) to an existing system in Flex mode, you must add an additional label for each bedside <b>Monitor</b> added. This additional label is required in order to enable the “Setup equipment only” option when setting up these new monitors.</p>
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**Note** For Database Server networks and Local Database Information Centers, all the beds that are added to the system are displayed. The bed labels are unique across all units.

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**Buttons** to the right of the **Labels** field are for adding, changing, and removing beds from the list:

Button	Description
<b>Add</b>	<b>Add new labels</b> window is for adding labels to the list.

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**Note** **Fields** in the **Add new labels** window are:

Button	Description
<b>Prefix</b>	Type in a prefix (up to 5 characters) for the label, e.g. <b>Bed</b> for beds, <b>Tel</b> for telemetry monitors, or <b>Mon</b> for bedside monitors

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**Note** Some non-alpha numeric characters are not compatible with the SDN. If an invalid character is entered, the following message appears:

An invalid character(s) has been entered in the label prefix field. Only SDN compatible characters are allowed. Please re-enter the label.

<b>Start with index</b>	Type the first number in the list, e.g. <b>1</b> .
<b>Number of labels</b>	Type the number of labels that have the specified <b>Prefix</b> and follow in sequence from the <b>Start with index</b> : number. Generally, the <b>Number of labels</b> will be the number of <b>Beds, Telemetry Equipment, or Monitors</b> in the clinical <b>Unit</b> -- one number for each device
<b>Associated with Unit</b>	Appears for the <b>Bed</b> labels and is for selecting the clinical <b>Unit</b> where the monitoring equipment is located. Clicking on (highlighting) the <b>Unit</b> name in the field selects it for assigning <b>Bed Labels</b> . The up/down arrows to the right of the field permit scrolling the list up and down.
<b>OK</b>	Stores the information that has been entered, which then appears in the <b>Labels</b> list
<b>Cancel</b>	Closes the <b>Add new labels</b> window and returns to the <b>Equipment Setup</b> window

**Note** The warning message  
One or more new labels are already in use. Cannot create duplicate labels  
appears if duplicate labels are detected in the **Add** and **Remove** label operations.

<b>Remove</b>	is for removing a label from the <b>Label</b> field. The procedure is as follows: <ul style="list-style-type: none"> <li>Click on (highlight) the <b>Label(s)</b> in the <b>Label</b> column to select them for removal.</li> <li>Click <b>Remove</b> to remove the selected <b>Label(s)</b>.</li> </ul>
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**Note** If a device is currently configured to a **Label**, the following message appears:

- for **Bed Labels**: Cannot remove the beds selected because equipment is connected to some or all of them.
- for other **Labels**: Cannot remove the selected labels because beds are mapped to some or all of them.

Right-hand fields in the **Equipment Setup** window are used to map bed labels to equipment of various types. There are icons available for mapping bed labels to equipment that depend on the **Monitoring Type** of the **Unit** selected and types of devices (i.e. **SCCs** and **Switches**). There are three basic modes for mapping bed labels to equipment:

Selecting the **SCC** icon is used to map either **hardwired** or **telemetry** SDN based bedsides to a bed label. SDN patient monitors on each **SCC** branch # and the Information Center that receives their patient data are displayed.

Selecting the **Switch** icon is used to map bed labels to **Mx/IntelliVue** Patient Monitors in a unit using the **fixed monitoring** mode where the **Mx/IntelliVue** is mapped to a specific port in the switch. The switch port number, their associated **Bed Label**, and the Information Center that receives their patient data is displayed.

Selecting the **Monitor Label** icon is used to map bed labels to **Mx/IntelliVue** Patient Monitors in a unit using **flexible monitoring** mode, where the bedside monitors have been

## Configuration

configured with a Monitor Label. The Mx/IntelliVue patient monitors, their associated Bed Label, and the Information Center that receives their patient data are displayed.

Field	Description
<b>LBN</b>	The Logical Branch Numbers ( <b>1-24</b> ) of the SDN branches on the SCC for patient monitors
<b>Bed Label</b>	Label assigned to the <b>patient bed</b> for the monitoring equipment attached to that LBN. If an entry has an equipment <b>Label</b> but no <b>Bed Label</b> , then it has been entered as unassigned for monitoring equipment that can be assigned during monitoring with the <b>Sector Setup</b> application
<b>Equipment</b>	Label assigned to the <b>monitoring equipment</b> attached to that LBN.

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**Note** For **hardwired monitors**, Bed Label and Equipment Label will be the same.  
For **telemetry monitors**, Bed Label and Equipment Label will be different because telemetry monitors can be reassigned by the user to different beds.


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<b>Type</b>	Indicates whether the monitoring equipment is a <b>hardwired</b> bedside monitor or a mobile <b>telemetry</b> monitor.
<b>Monitored by</b>	Host Name given to the Information Center that monitors the equipment connected to the SCC selected. Host Names are displayed in Purchased Options and Support Information.
<b># of Clients</b>	The # of Information Center Clients that have selected the Monitored by Information Center for over-viewing patient data.

**Buttons** to the right of the Equipment setup for the selected SCC field are for making Bed Label and monitoring Equipment assignments.

Button	Description
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<p><b>Setup</b></p>	<p>Assigns monitoring Equipment on each SCC branch # to an Information Center for monitoring:</p> <ul style="list-style-type: none"> <li>• Click on (highlight) an <b>SCC</b> in the left column to display its LBN #s.</li> <li>• Click on (highlight) an <b>LBN #</b> to select it for assignment.</li> <li>• Click on <b>Setup</b> to bring up the <b>Map Monitor to LBN #X</b> window (where <b>X</b> is the # of the LBN selected).</li> </ul> <p><b>Fields</b> in the <b>Map Monitor to LBN #X</b> window are:</p> <ul style="list-style-type: none"> <li>• <b>Equipment type</b> is for specifying the type of monitoring equipment -- <b>Hardwired</b> or <b>Telemetry</b> -- connected to the selected SCC branch number. Clicking in the circle  preceding the monitor type selects it.</li> <li>• <b>Equipment Label</b> is for entering an Equipment Label for telemetry monitors. Because a telemetry monitor is not associated with a specific bed, its Equipment Label should be different from its Bed Label, e.g. Tel1. This field is activated if Telemetry is selected, as shown in the above right window , and disabled (grayed out) if Hardwired is selected, as shown in the above left window. For hardwired monitors, the Equipment Label is automatically made the same as the Bed Label.</li> <li>• <b>Setup equipment only</b> is for assigning monitoring equipment to a branch number without giving it a Bed Label. This allows for telemetry monitors to be available to the user in <b>Sector Setup</b> but with no Bed Label or Patient Sector assignment. Clicking a check in the box <input checked="" type="checkbox"/> selects this option and the Located at bed: field will be disabled.</li> </ul> <p><i>Note</i>—When adding new equipment (e.g. IntelliVue Patient Monitors) to an existing system in Flex mode, there must be an additional label added for each bedside <b>Monitor</b> label that was added. This additional label is required in order to enable this option.</p> <ul style="list-style-type: none"> <li>• <b>Located at bed:</b> is for selecting the Bed Label to be assigned to the monitoring equipment. Bed Labels and Unit names in the Bed Labels field appear in this window. Clicking on (highlighting) a Bed Label in the list assigns that Bed Label to the monitoring equipment. Up/down buttons to the right of the field permit scrolling the list up and down             <ul style="list-style-type: none"> <li>– Clicking <b>OK</b> stores the entered information, which then appears for the LBN selected in the list.</li> <li>– Clicking <b>Cancel</b> closes the Map Monitor... window and returns to the Equipment Setup window</li> </ul> </li> </ul>
<p><b>Remove</b></p>	<p>Removes monitoring equipment from an LBN. The procedure is as follows:</p> <ul style="list-style-type: none"> <li>• Click on (highlight) a branch number in the <b>LBN</b> column to select the associated equipment for removal.</li> <li>• Click <b>Remove equipment</b> and the monitoring equipment for the selected branch number will be removed from the list.</li> </ul> <p><i>Note</i>—When removing mapped equipment, a message displays: “This will remove all selected beds. Are you sure?” This must be confirmed before the equipment is removed.</p>

**Equipment Setup for Monitor Labels** field is used to assign M3/M4/IntelliVue Monitor Labels to Bed Labels.

The **left column** displays icons for the **Monitor Labels** for M3/M4/IntelliVue Patient Monitors on the network. These are the labels setup in the **Monitor Label** field for each Information Center on the network. Clicking on (highlighting) the **Monitor Labels** icon causes the patient monitors for that Information Center to be displayed.

The **other columns** are the following:

Field	Description
Label #	Identifies the order of the M3/M4/IntelliVue monitors in the list
Monitor Label	Label assigned to the M3/M4/IntelliVue monitor

<b>Bed Label</b>	Label of the bed to which that M3/M4/IntelliVue <b>Monitor Label</b> is assigned. If an entry has a <b>Monitor Label</b> , but no <b>Bed Label</b> , then it is an unassigned for monitoring M3/M4/IntelliVue equipment that can be assigned to an IC and a specific sector using the <b>Sector Setup</b> application
<b>Monitored by</b>	Host Name of the Information Center that displays patient data from that M3/M4/IntelliVue monitor.
<b># of Clients</b>	# of Information Center Clients that have selected the Monitored by Information Center for over-viewing patient data

**Buttons** to the right of the **Equipment Setup for Monitor Labels** field are for making **Bed Label** and **M3/M4/IntelliVue Monitor Label** assignments.

<b>Button</b>	<b>Description</b>
<b>Setup</b>	<p>Assigns M3/M4/IntelliVue monitors to patient beds for monitoring. The procedure is as follows</p> <ul style="list-style-type: none"> <li>• Click on (highlight) a <b>Monitor Labels</b> icon in the left column to display its <b>Label #s</b>.</li> <li>• Click on (highlight) a <b>Label #</b> to select that M3/M4/IntelliVue monitor for assignment. The Information Center displaying patient data from the selected <b>Monitor Labels</b> icon appears in the <b>Monitored by</b> column.</li> <li>• Click on <b>Setup</b> to bring up the <b>Map Monitor to Monitor label #X</b> window shown here (where <b>X</b> is the # of the Monitor Label selected)</li> </ul> <p><b>Fields</b> in the <b>Map Monitor to Monitor Label #X</b> window are:</p> <ul style="list-style-type: none"> <li>• <b>Equipment Type</b> is not active for M3/M4/IntelliVue monitors and is grayed out.</li> <li>• <b>Equipment Label</b> is for selecting a Monitor Label for assigning to a Bed Label. The arrow to the right of the field displays the list.</li> <li>• <b>Setup equipment only</b> is for assigning M3/M4/IntelliVue monitoring equipment without giving it a <b>Bed Label</b>. This allows for M3/M4/IntelliVue monitors to be available in Sector Setup but with no <b>Bed Label</b> or <b>Patient Sector</b> assignment. Clicking a check in the box <input checked="" type="checkbox"/> selects this option and the <b>Located at bed:</b> field is now disabled.</li> <li>• <b>Located at bed:</b> is for selecting the <b>Bed Label</b> to which the <b>Monitor Label</b> for the selected M3/M4/IntelliVue is to be assigned. Clicking on (highlighting) a <b>Bed Label</b> in the list assigns that <b>Bed Label</b> to the M3/M4/IntelliVue monitor shown in the <b>Label equipment</b> field. Up/down buttons to the right of the field permit scrolling the list up and down.</li> <li>• Clicking <b>OK</b> stores the entered information, which then appears for the <b>Label #</b> selected in the list.</li> <li>• Clicking <b>Cancel</b> closes the <b>Map Monitor...</b> window and returns to the <b>Equipment Setup</b> window</li> </ul>
<b>Remove</b>	<p>Removes M3/M4/IntelliVue monitors from patient beds. The procedure is as follows:</p> <ul style="list-style-type: none"> <li>• Click on (highlight) a label in the <b>Label #</b> column to select the associated equipment for removal.</li> <li>• Click <b>Remove equipment</b> and the monitoring equipment for the selected <b>Label #</b> will be removed from the list.</li> </ul>

**Equipment Setup for Selected Switch** is used to assign M3/M4/IntelliVue monitors to a port of the selected switch.

**Fields** in the **Equipment Setup for Selected Switch** window are:

<b>Field</b>	<b>Description</b>
<b>Port #</b>	Identifies the port of the switch selected
<b>Bed Label</b>	Label of the bed to which the M3/M4/IntelliVue Monitor Label is assigned

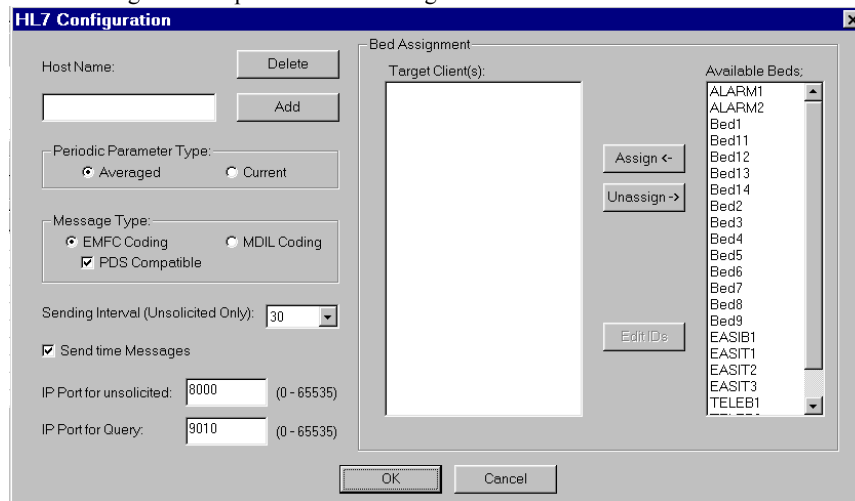
<b>Monitored by</b>	Host Name of the Information Center that displays patient data from that M3/M4/IntelliVue Monitor.
<b># of Clients</b>	# of Information Center Clients that have selected the Monitored by Information Center for over-viewing patient data.

**Buttons** to the right of the **Equipment Setup for Selected Switch** window are for making Bed Label and M3/M4/IntelliVue monitoring equipment assignments:

<b>Button</b>	<b>Description</b>
<b>Setup</b>	<p>Assigns monitoring Equipment on each Switch port # to an Information Center for monitoring. The procedure is as follows:</p> <ul style="list-style-type: none"> <li>• Click on (highlight) a <b>Switch</b> in the left column to display its <b>Port #</b>.</li> <li>• Click on (highlight) a <b>Port #</b> to select it for assignment</li> <li>• Click on <b>Setup</b> to bring up the Map Monitor to <b>Port #X</b> window. (X is the # of the Port selected)</li> </ul> <p><b>Fields</b> in the <b>Map Monitor to LBN #X</b> window are:</p> <ul style="list-style-type: none"> <li>• <b>Located at bed:</b> is for selecting the <b>Bed Label</b> to the monitoring equipment. <b>Bed Labels</b> and <b>Unit</b> names in the <b>Bed Labels</b> field appear in this window. Clicking on (highlighting) a <b>Bed Label</b> in the list assigns that <b>Bed Label</b> to the monitoring equipment. Up/down buttons to the right of the field permit scrolling the list up and down.</li> <li>• Clicking <b>OK</b> stores the entered information, which then appears for the LBN selected list.</li> <li>• Clicking <b>Cancel</b> closes the Map Monitor... window and returns to the Equipment Setup window.</li> </ul>

**HL7 Settings**

The HL7 Settings button opens the HL7 Configuration window.



Fields in the **HL7 Configuration** window are:

- **Host Name** - Specify the host name for the target HL7 client.

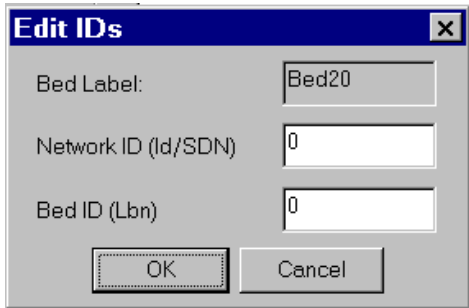
*Note*—To use the client.exe tool on the Database Server, the Target Client must have the IP Address of the 2nd NIC card of the Database Server as its hostname.

- **Periodic Parameter Type - Averaged or Current.** Current sends the last actual parameter value received from the monitor. Averaged sends the average of measurement since the last data time values were sent.
- **Message Type - PDS Compatible | EMFC Coding | MDIL Coding. Default: EMFC Coding.** This option affects the parameter identification field. Depending on the option, a numeric code is displayed. The EMFC Coding selection uses the Extended Medical Function Codes for these numerics. The MDIL (Medical Device Interface Language) Coding uses the MDIL codes for the numerics.
- **Sending Interval** - Specify the interval that triggers the HL7 unsolicited data export for periodic parameter. **Range: 30 | 60. Default: 30.**
- **Send Time Messages** - Specify whether a Network Management (NMD) message with the current date/time should be sent periodically every 60 seconds. Right after the connection is established, the message is sent to the client. **Range: Yes or No. Default: Yes**
- **IP Port for unsolicited** - Specify the socket port number through which clients connect to the HL7 unsolicited message interface. **Range: 1 to 65535. Default port is 9010**
- **IP Port for Query** - Specify the socket port number through which clients connect to the HL7 polling message interface. **Range: 1 to 65535. Default port is 8000**
- **Bed Assignment** - Determine the **Bed Labels - Target Client** host name association. Select the hostname and from the Target Client(s) list and then select the beds from the Available Beds list and press Assign (or Unassign) to associate the client to the bed label.
  - Only clients whose host names can be found in the list are allowed to connect to the HL7 export interface.
  - Bed Labels must only be listed once.
  - Only one client can be associated with a bed label.

*Note*—If a Target client is a CareVue server in duplex mode configuration, use the secondary server name as the target client.

**Edit IDs**

Edit IDs is for configuring the SDN ID and the LBN ID.



Fields in the Edit IDs window are:

- Bed Label - lists the bed label. It is read only.
- Network ID (Id/SDN) - indicates the target client bed network ID value. It is either 1 or 2. The default is 0.
- Bed ID (LBN) - indicates target client 2-digit bed ID from 1- 24. The default is 0.

*Note*—If exporting HL7 output to CareVue, the Id/SDN and Lbn settings must be configured to match the CareVue system. The CareVue system settings must match exactly what is configured in the Information Center or Database Server.

in CareVue	Enter in DBS/Information Center
11	1
12	2
21	1
22	2

- For existing CareVue systems with CMS beds upgrading to IntelliVue Monitors, document the existing CareVue Unit SDN Bed Map page. Enter these settings for each bed label.
- For new CareVue systems installed with IntelliVue monitors, continue to assign SDN settings for IntelliVue monitors (id/SDN & Lbn) in the Unit SDN Bed map page.

**Procedure** The procedure for configuring the **Equipment Setup** window is as follows:

**Step 1.** Select a Unit to be set up.

**Step 2. Select the Label Type to be set up** by clicking in the circle preceding the desired type -- **Bed, Telemetry, Monitor**.

**Step 3. Remove unwanted Labels.** If there are Labels in the Labels field that are not desired, remove them by:

- Click on (highlight) the **unwanted Label** to select it for removal. (A sequence of labels can be selected by clicking on the first label, pressing the keyboard **Shift** key, and clicking on the last label to be removed.)
- Click **Remove** to remove the unwanted labels.

**Step 4.** Add new Labels.

- Click **Add** to bring up the **Add new labels** window.

- Type in the desired **label prefix** (e.g. Bed, Tel, Mon) in the **Prefix:** box using the keyboard.
- Type in the **first number** (typically 1) of the Label sequence in the **Start with Index:** box.
- Type in the desired **number of labels** with the Prefix entered above in the **Number of labels:** field. Typically this is the number of Beds, Telemetry Equipment, or M3/M4/IntelliVue Monitors in the clinical Unit.
- For Bed Labels, click on the clinical **Unit** where these beds reside from the **Associated with Unit** field. This field is grayed out for Telemetry Equipment and Monitor labels.
- Click **OK** to enter these Labels in the Labels list.

**Step 5.** Select an icon -- SCC, Switch or Monitor Labels -- in the left column of the Equipment Setup for ... field.

If an **SCC** icon is selected, follow the **Setup LBN Procedure** that follows:

If a **Monitor Labels** icon is selected, skip to the **Setup Monitor Procedure**.

If a **Switch** icon is selected, skip to the **Setup Switch Procedure**.

#### **Setup LBN Procedure**

**Step 1. Assign SDN monitoring Equipment** (hardwired and telemetry) on SCC Logical Branch Numbers (LBNs) to Bed Labels as follows:

- Click on (highlight) the first **SCC** in the left column of the **Equipment Setup for Selected SCC** field.
- Click on (highlight) the first **LBN #** in the **LBN** column to activate it for assigning a patient monitor.
- Click **Setup** to bring up the **Map Monitor to LBN #X** window for that LBN #.

Select the type of patient monitor attached to that LBN # -- **Hardwired** or **Telemetry** -- by clicking in the circle preceding it.

- If **Telemetry** was selected, select a Label for that telemetry monitor (e.g. Tel1) in the **Equipment Label** box.  
If **Hardwired** was selected, proceed to the following step.
- If this patient monitor is to be assigned a Bed Label, click on (highlight) the Bed Label to be assigned to that patient monitor from the **Located at bed** list.  
If this patient monitor is not to have a bed label, click a check  in the **Setup equipment only** box.
- Click **OK** to enter that monitor and Bed Label assignment in the Equipment Setup for Selected SCC.

**Step 2. Repeat Step 6 for each LBN # and SCC** in the list.

**Setup Monitor Label Procedure**

**Step 1. Assign M3/M4/IntelliVue Monitor Labels to Bed Labels** as follows:

- Click on (highlight) the first **Monitor Labels** icon in the left column of the **Equipment Setup for Monitor Labels** field.
- Click on (highlight) the first **Label #** in the **Label #** column to activate it for assigning a Bed Label.
- Click **Setup Monitor** to bring up the **Map Monitor to Monitor label #X** window for that Label #.
- Click on (select) the first **Monitor Label** in the Label equipment list.
- Click on (highlight) the Bed Label to be assigned to that patient monitor from the Located at bed list.
- Click **OK** to enter that M3/M4/IntelliVue Monitor Label and Bed Label assignment in the Equipment Setup for Monitor Labels field.

**Step 2. Repeat Step 8 for each Monitor Label and Bed Label** in the Equipment Setup for Monitor Labels field.

**Note**

The **Monitor Label** must also be entered in the Patient Monitor.

- See the **M3/M4 or IntelliVue Patient Monitor User's Guide** for more details.

**Setup Switch Procedure**

**Step 1. Assign M3/M4/IntelliVue Monitoring Equipment** on Switch Port Numbers to Bed Labels as follows:

- Click on (highlight) the desired **Switch** in the left column of the **Equipment Setup for Selected Switch** field.
- Click on (highlight) the desired **Port** in the **Port** column to activate it for assigning a patient monitor.
- Click **Setup Monitor** to bring up the **Map Monitor to Port #X** window for that Port #.
- Click on (highlight) the **Bed Label** in the Located at bed: list that the M3/M4/IntelliVue with that Monitor Label will be assigned.
- Click **OK** to enter that M3/M4/IntelliVue Monitor Label and Bed Label assignment in the Equipment Setup for Selected Switch.

**Step 2. Repeat Step 10 for each Port # and Switch** in the list.

When all patient monitors have been assigned:

Click **Next>** to save changes and advance to the next window.

## Bed Config

**Bed Config** is used for two purposes -- to format Patient Sectors on the Main Screen and to assign patient monitors to Patient Sectors. The **Bed Config** window is shown in Figure 6-14.

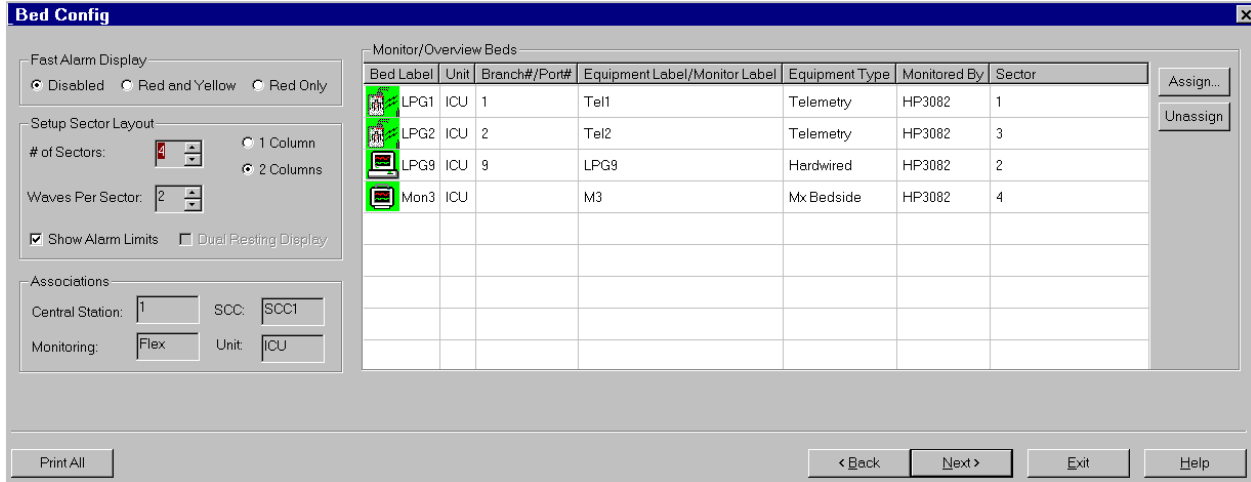


Figure 6-14 Bed Config Window

**Description** Fields in Bed Config are:

Field	Description
<b>Fast Alarm Display</b>	<p>Fast alarm strip displays in the Patient Window when the Silence button has been clicked after an alarm has occurred.</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b> means that a fast alarm strip will not display.</li> <li>• <b>Red and Yellow</b> means that a fast alarm strip will display for Red and Yellow alarms.</li> <li>• <b>Red Only</b> means that a fast alarm strip will display only for Red alarms.</li> </ul> <p>Click a <input checked="" type="radio"/> in the circle preceding the option to select it.</p>
<b>Sector Setup Layout</b>	<p>Controls for formatting the Patient Sectors on the Main Screen. It has the following fields</p> <ul style="list-style-type: none"> <li>• <b># Sectors</b> - Set the number of Patient Sectors displayed on the device's Main Screen -- <b>4, 6, 8, 12, or 16</b>. This cannot exceed the # of Patients in the Purchased Options field in Device Setup and Support Information. Click the up/down arrows to the right of the box to change the number in the box.</li> <li>• <b>1 Column/2 Columns</b> - # of columns of Patient Sectors on the Main Screen. 1 Column is only available for 8 patients or less. Click in the circle <input checked="" type="radio"/> preceding the desired selection.</li> <li>• <b>Waves per Sector</b> - Sets the number of monitoring waveforms that appear in Patient Sectors. The number of waves can be <b>3</b> for 4 Patient Sectors, <b>2</b> for 6 - 12 Patient Sectors, <b>1</b> for 16 Patient Sectors on a single display, and <b>2</b> for 16 Patient Sectors with Dual Resting Display enabled.</li> <li>• <b>Show Alarm Limits</b> - select whether the Heart Rate Alarm Limits set in Alarm Management and Setup will be displayed in Patient Sectors. Clicking a check in the box <input checked="" type="checkbox"/> causes the Heart Rate Alarm Limits to be displayed. No check <input type="checkbox"/> means they will not be displayed.</li> <li>• <b>Dual resting display</b> - Selects whether both displays of a dual display Information Center will display Patient Sectors. A check means that Patient Sectors will display on both displays when a Patient Window or All Controls are not active. No check means that Patient Sectors will display on the primary display only. This field is not active if 1 is selected as the # of Displays.</li> </ul>



Field	Description
Associations	<ul style="list-style-type: none"> <li>• <b>Central Station</b> - Read Only. # of this Information Center -- <b>1 - 6</b>. The # of each Information Center on each SCC must be different. Clicking the arrow to the right of the field displays a list of the Central Station #s that are available for the SCC the Information Center is connected to. Central Station #s already in use will be grayed out and are not selectable. Clicking on any Central Station # changes the # being used for that Information Center.</li> <li>• <b>SCC</b> - Read Only. Identifies the SCC supplying patient monitoring data to this device</li> <li>• <b>Monitoring</b> - Read Only. Set whether the assignment of patient monitors will be Fixed or Flex             <ul style="list-style-type: none"> <li>– <b>Fixed</b> means that assignment of a patient monitor (bedside or telemetry) to a Bed Label is fixed and cannot be changed by the user. This is the Factory Default setting.</li> <li>– <b>Flex</b> means that patient monitors (bedside and telemetry) can be assigned to different Bed Labels by the user. These reassignments are made in Sector Setup.</li> </ul> </li> <li>• <b>Unit</b> - Read Only. Identifies the name of the clinical Unit where the patient monitors for the device selected in Central Station are located</li> </ul>

---

**Note** Central Station: and SCC: fields are not active (n/a) for M3151 Clients and for Information and Centers with M3/M4 Only monitors.  
 SCC and clinical Unit assignments are made in **Network Configuration**.

---



---

**Warning** If the # of Patients is decreased when beds are assigned to Patient Sectors, a ? appears in the Sector column of Beds assigned to invalid Sectors in Monitor/Overview Beds. A warning message states that these beds will not be monitored or overviewed if they are not reassigned to a valid Patient Sector.

---



---

**Note** For setups with 8 rows of Patient Sectors and more than 1 Wave per Sector, Show Alarm Limits will automatically be unchecked because there is not sufficient display space for Heart Rate Alarm Limits. Show Alarm Limits is not active for M3/M4 patient monitors because these monitors do not display alarm limits. Show alarm limit will be automatically unchecked, if 8 rows and 1 column (not 2 columns) is selected.

---

**Monitor/Overview Beds** displays the assignment of beds to Patient Sectors.

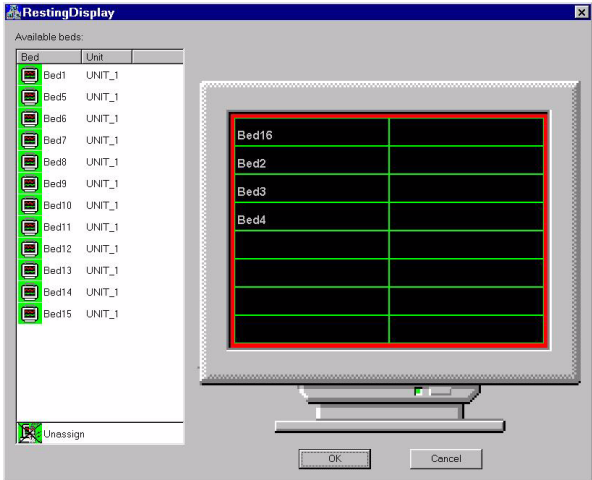
**Columns** in this field are:

Field	Description
Bed Label	Label assigned to the patient bed where the monitoring equipment is located. An icon to the left of the number indicates whether the monitor is a hardwired, telemetry or wireless unit
Unit	Name of the clinical Unit where the patient monitor is located.
Branch #/Port #	Logical Branch Number ( <b>LBN</b> ) of the SDN branch on the SCC that the patient monitor is connected to or the port number of a switch that M3/M4/IntelliVue Patient Monitors are mapped to
Equip. Label/Monitor Label	Label assigned to the monitoring equipment.

## Configuration

Field	Description
<b>Notes</b> Bed Label, Unit, Branch #, and Equip. Label/Monitor Label are assigned in <b>Equipment Setup</b> . For <b>hardwired</b> monitors, Bed Label and Equipment Label are the same. For <b>telemetry</b> monitors, Bed Label and Equipment Label are different. For <b>M3/M4/IntelliVue</b> monitors, Bed Label and Monitor Label are different.	
<b>Equipment Type</b>	Specifies whether the monitoring equipment is: <ul style="list-style-type: none"><li>• <b>Hardwired</b> patient monitor fixed to a bed location or a mobile</li><li>• <b>Telemetry</b> monitor that can be assigned to patients from different beds</li><li>• <b>M3/M4/IntelliVue</b> Patient monitor</li></ul>
<b>Monitored by</b>	Name of Information Center that is monitoring this device
<b>Sector</b>	Number of the Patient Sector on the Main Screen where the patient monitoring data is displayed.

**Buttons** below Monitor/Overview Beds are for assigning beds to Patient Sectors. They do the following:

Button	Description
<p><b>Assign</b></p>	<p><b>Resting Display</b> window opens for making and changing bed assignments to Patient Sectors</p>  <p>The <b>Resting Display</b> window is for assigning patient Beds to Patient Sectors. It has the following fields.</p> <p><b>Available beds</b> lists the Bed labels and clinical Units that have been associated with patient monitors on this device, but not presently assigned to a Patient Sector.</p> <ul style="list-style-type: none"> <li>• For <b>Information Centers</b> that monitor <b>M3/M4/IntelliVue patient monitors</b>, Available beds are those associated with these monitors in <b>Equipment Setup</b>, but not presently being monitored by any Information Center.</li> <li>• For <b>Information Centers</b> that monitor <b>SDN monitors</b>, Available beds are those associated with SDN monitors in <b>Equipment Setup</b> that share the same SCC as this device, but not presently being monitored by any Information Center.</li> <li>• For <b>Information Centers</b> that monitor both <b>M3/M4/IntelliVue and SDN monitors</b>, Available beds are those associated with both M3/M4/IntelliVue and SDN monitors (that share the same SCC) in <b>Equipment Setup</b>, but not presently being monitored by any Information Center.</li> <li>• For <b>Clients</b>, Available beds are those presently being monitored by an Information Center but not yet assigned to a Patient Sector on this Client.</li> <li>• For <b>Patient Link</b>, If there are 12 or less beds configured, only one default CareGroup (#1 Olive) is created, and all Available beds are assigned to this Olive CareGroup. If there are 16 beds configured, two CareGroups (#1 Olive and #2 Teal) are created. In this configuration, beds assigned to sectors 1-8 are assigned to CareGroup #1 and beds assigned to sectors 9-16 are assigned to CareGroup #2. The default attributes of the CareGroup(s) are auto-alarm notification = <b>Red Alarms</b> and Overview prompt sound = <b>enabled</b>.</li> </ul>
<p><b>Note</b>                      If all Patient Sectors have been assigned, clicking Change Sector Assignment brings up the following message.                      There are no unassigned sectors left. Please increase the number of sectors if possible, or unassign a sector.</p>	

---

**Note** A Bed can be overviewed by a maximum of 4 Clients.

---

To **assign** a bed to a Patient Sector:

- Click on a **Bed** label in the Available beds list.
- Move the cursor to the desired Patient Sector.
- Click the mouse button when the cursor is over the desired Patient Sector. The Bed label will then appear in that Sector.

---

**Notes** When the cursor moves over a Patient Sector with no bed assigned, it shows a single bed icon.  
When the cursor moves over a Patient Sector with a bed already assigned, it shows a 2-bed icon.  
If a Bed label is replaced, it will reappear in the **Available beds** list.

---

To **remove** a bed from a Patient Sector:

- Click on the **Unassign** icon at the bottom of Available beds.
- Move the cursor to the Patient Sector where the Bed is to be removed.
- Click the mouse button and the Bed label in that Patient Sector will be removed and reappear in the Available beds list.

---

**Notes** When the Unassign cursor moves over a Patient Sector with no bed, it shows a circle with a slash.  
When the Unassign cursor moves over a Patient Sector with a bed assigned to it, it shows a single bed icon with an X.

---

- Clicking **OK** stores the bed assignments and returns to the **Bed Config** window where the new assignments appear in the Sector column of the Monitor/Overview Beds field.
- Clicking **Cancel** returns to the **Bed Config** window and no bed assignments have been changed.

---

**Note** If Dual Resting Display is checked, the top half of this screen will show the Patient Sectors that will appear on Display 1, and the bottom half, those that will appear on Display 2.  
**Display 1** indicates the color (**green**) of Patient Sectors on Display 1.  
**Display 2** indicates the color (**magenta**) of Patient Sectors on Display 2.

---

**Unassign** button is for removing a bed from a Patient Sector. To remove a bed:

- Click on the **Bed Label** in the Monitor/Overview Beds field to highlight it for removal.
- Click **Unassign** and that bed is removed.

**Procedure** The procedure for configuring the **Bed Config** window is as follows:

**Step 3.** Select the desired **Fast Alarm Display** option -- **Disabled, Red and Yellow**, or **Red Only**.

**Step 4.** Select the correct **Central Station: #** for this device for Information Centers. This should have already been set on the Network Configuration page at the Database Server, or earlier in the configuration on a Information Center without a Database Server.

**Step 5.** Verify that entries in the **SCC:** and clinical **Unit** fields of **Associations** are correct.

**Step 6.** Verify the entry in the **Monitoring:** box is correct for the Unit listed above.

**Step 7.** Select the correct

# of Patients:

# **Columns** of Patient Sectors

# of **Waves Per Sector**

and whether to **Show Alarm Limits** in the Setup Sector Layout fields whether the **Dual Resting Display** option should be enabled.

---

**Note**

The number of waves can be **3** for 4 Patient Sectors, **2** for 6 - 12 Patient Sectors, **1** for 16 Patient Sectors, and 2 for 16 Patient Sectors with Dual Resting Display enabled.

---

**Step 8.** Verify the desired Patient Sector layout (# of Patients and # Columns) in the **Layout preview** display.

**Step 9.** Click on **Assign** to access the **Resting Display** window.

**Step 10.** Assign **Beds** from the **Available beds:** field to **Patient Sectors** as follows:

- Click on a **Bed label** in the Available beds list.
- Move the cursor to the desired **Patient Sector**.
- Click the mouse button when the **Bed label** is over the desired Patient Sector. The **Bed label** will then appear in that Sector. If a **Bed label** is replaced, it will reappear in the **Available beds:** list.

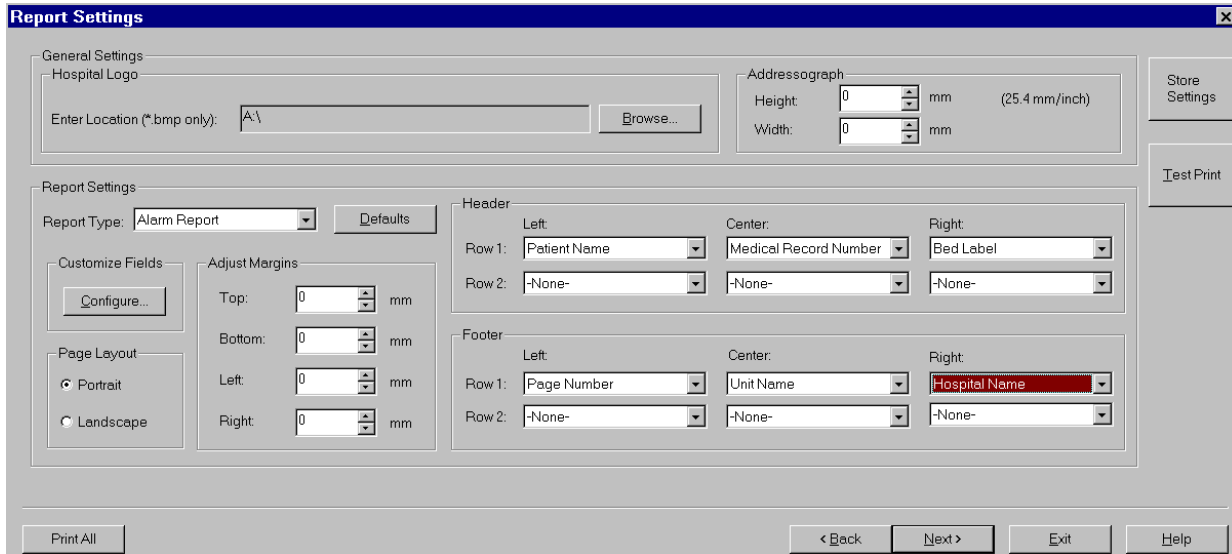
When **Beds** have been assigned to all Patient Sectors:

**Step 11.** Click **OK** to return to the **Bed Config** window.

**Step 12.** Click **Next>** to commit the changes and advance to the next configuration window.

## Report Settings

**Report Settings** is used to configure the layout of the header and footer, including the positioning of the following items: Print date/time stamp, Patient Name, Medical Record Number, Bed label, page number, Unit name, and Hospital name. The **Report Settings** window is shown in Figure 6-15.



**Figure 6-15 Report Settings Window**

**Description** Fields in General Settings are:

Field	Description
<b>Hospital Logo</b>	Name and location of the bitmap (.bmp) file that can be displayed on the reports.
<b>Addressograph</b>	Specify the dimensions of large the bitmap is to be. There is no maximum/minimum limits. A typical size of an addressograph is 30mm x 70mm

Fields in Report Settings are:

Field	Description
<b>Report Type</b>	Lists the names of each of the report types. For every report type, a unique configuration can be given. The list of report types are: <ul style="list-style-type: none"> <li>• Alarm Report</li> <li>• Event Report</li> <li>• Event Summary Report</li> <li>• Fast Alarm Report</li> <li>• ST Report</li> <li>• Trend Report</li> <li>• 12 Lead Report</li> <li>• Unit Report</li> <li>• Wave Report</li> </ul>
<b>Customize Fields</b>	Specify the additional customized text fields that can be printed out in either the header or footer. A configure button is used to do the customization. When <b>Configure</b> is pressed, a Field Setup window opens. Buttons in the Field Setup window are <b>New Field</b> , <b>Delete Field</b> , and <b>Edit Field</b> .
<b>Page Layout</b>	Specify Portrait or Landscape

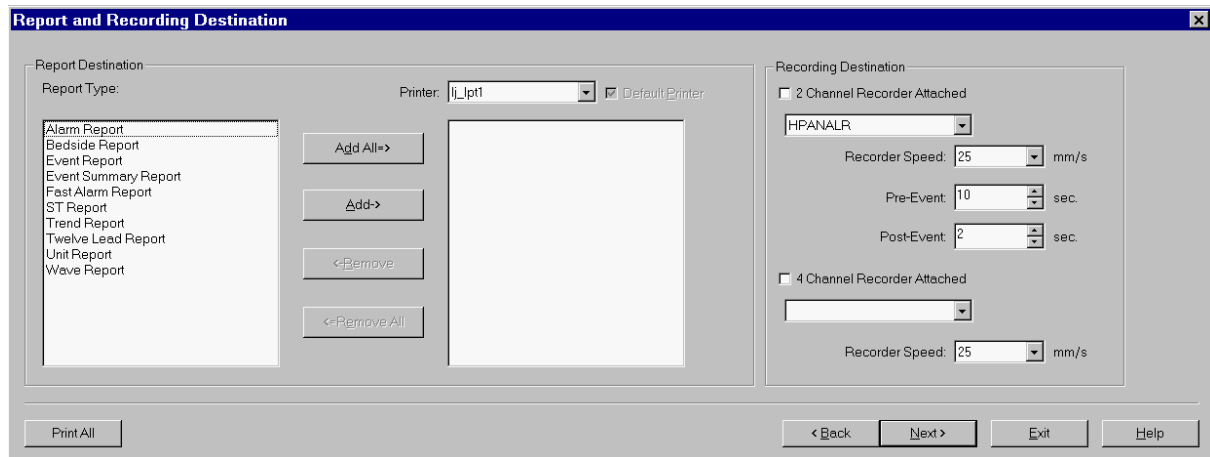
Field	Description
<b>Adjust Margins</b>	Specify the size of the margins. There are no maximum or minimum limits. The margins are measured from the printer defined area, not the paper edges, the printer defined area is printed on the test page. 25mm is adequate for the left margin if hole-punched paper is used.
<b>Header and Footer Labels</b>	Configure what information is to be printed in the header and footer areas. List of available items are: <ul style="list-style-type: none"> <li>• None</li> <li>• Addressograph</li> <li>• Bitmap</li> <li>• Patient Name (header default)</li> <li>• Medical Record Number (header default)</li> <li>• Bed Label (header default)</li> <li>• Page Number (footer default)</li> <li>• Unit Name (footer default)</li> <li>• Hospital Name (footer default)</li> <li>• Report Name</li> <li>• Print Date &amp; Time</li> </ul>

#### Buttons in Report Settings are

Button	Description
<b>Store Settings</b>	Stores the configured settings
<b>Test Print</b>	Prints a test page of what the configuration looks like <i>Note</i> —Test Print only works after network printers have been installed. Use <b>Test Print</b> prior to activating the Information Centers (see “Activating the Network/Server System” on page 6-59). Once in monitoring mode, any changes to the Report Settings will require the Database Server/Information Center to be in Configuration mode.

## Report and Recording Destination

Report and Recording Destination is used by the networked Information Center or Client to configure a set of reports to a selected printer and to identify what Two Channel Recorder is attached to the Information Center and allows the connection to a Four Channel Recorder. It operates in non-monitoring mode and can be accessed via **All Controls / Configuration and Support / Service / Configuration / !Config Wizard** and sequencing through the configuration tools.



**Figure 6-16 Report/Recording Destination Window**

**Note** Sharing of recorders is only available for Information Centers and Clients on the Clinical Network. A maximum of 4 Information Centers or Clients can be set to use the same Recorder/Rack.

**Fields** in Report Destination are:

Field	Description
<b>Report Type</b>	Lists the possible report types that can be assigned to a printer. Possible types are Alarm Report, Event Report, Event Summary Report, Fast Alarm Report, ST Report, Trend Report, 12 Lead Report, Unit Report, Wave Report
<b>Printer</b>	Lists the network printers that have been configured in the Network Configuration window. <i>Note</i> —If a local printer is configured, the local printer is listed in the printer list
<b>Default Printer</b>	Indicates a printer set as the default printer of the system. A warning message displays if no printer is configured as the default printer <i>Note</i> —To change the default printer, select another printer from the list and enable the default printer check box

**Buttons** in Report Destination are:

Button	Description
<b>Add All</b>	Indicates all the reports listed in the Report Type will be configured to print to the printer selected in the printer fields. The button is disabled if there are no more reports to be configured.
<b>Add</b>	Indicates all the reports selected in the Report Type will be configured to print to the printer selected in the printer fields. The button is disabled if there are no more reports to be configured.
<b>Remove</b>	Indicates reports selected to the right of the button will be removed from the printer selected in the in the printer field. The button is disabled if there are no more reports configured to the printer shown



Button	Description
<b>Remove All</b>	Indicates all configured reports to the right of the button will be removed from the printer selected in the in the printer field. The button is disabled if there are no more reports configured to the printer shown.

Fields in Recording Destination are:

Field	Description
<b>2 Channel Recorder/Rack Attached</b>	Indicates the current device has a local Two Channel Recorder attached to it. <i>Note</i> — The combo box under this field indicates the 2 Channel recording destination for this device. The combo box is disabled if the 2 Channel Recorder Attached checkbox is checked and the current device is listed in the combo box as the recording destination. It is enabled if the check box is unchecked. <i>Note</i> —In a Local Database system, there is no device listed in the combo box if the checkbox is unchecked. In a networked environment, the combo box lists the device names of current available Information Centers/Clients that have 2 channel recorders attached when the checkbox is unchecked
<b>2 Channel Recorder Speed (mm/s)</b>	Indicates the speed the recorder is to be run at when printing waveforms. The range of values is <b>6.25, 25, or 50</b> . The <b>default is 25</b> .
<b>Four Channel Recorder Attached</b>	Same behavior as 2 Channel Recorder/Rack Attached field.
<b>4 Channel Recorder Speed (mm/s)</b>	Indicates the speed the recorder is to be run at when printing waveforms. The range of values is <b>12.5, 25, or 50</b> . The <b>default is 25</b> .

---

**Note** To change the 2 or 4 Channel recording destination in a network environment, uncheck the 2 Channel Recorder/Rack Attached or 4 Channel Recorder/Rack Attached checkbox and select a new destination from the combo box.

---

<b>Selected</b>	Shows what the current selected 2 Channel Recorder is. If YES was selected for the Recorder/Rack Attached to this Central.
<b>Pre Event (seconds)</b>	Specify how many seconds of wave data to print before the recording was initiated. The range is <b>4 - 20</b> . The <b>default is 10</b> . This is for 2 Channel Recorders only.
<b>Post Event (seconds)</b>	Specify how many seconds of wave data to print after the recording was initiated. The range is <b>2 - 20</b> . The <b>default is 2</b> . This is for 2 Channel Recorders only.

---

**Note** If a device had the 2 or 4 Channel Recorder/Rack Attached checkbox checked (indicating that the system his configured with attached 2 or 4 channel recorders), it is possible that other Information Centers/Clients may have selected this system for its recording destination. These systems must redesignate another system as its destination for recording before you can uncheck this checkbox. A warning message displays if this conflict is present, and if no recording destination is selected. To add a destination at a later time, the recording destination can be configured by accessing the Report/Recording Destination window via the Configuration menu.

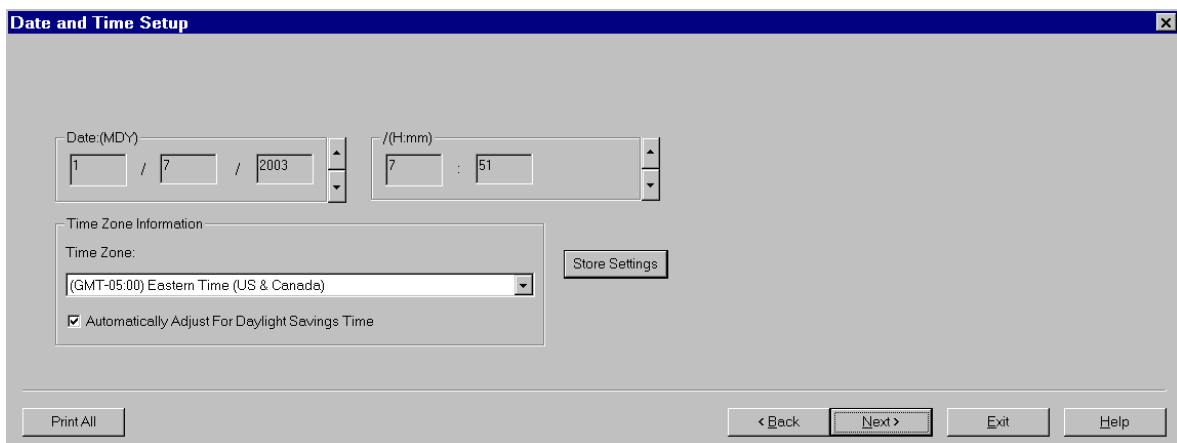
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## Time & Date Setup

**Time & Date Setup** is used to set and synchronize the date and time on all Information Centers and Clients on the Network and all patient monitors connected to SCCs. It can be set in monitoring mode on the Server or any Network connected Information Center or Client. Settings are automatically stored on the Database Server and distributed to all other Information Center and Clients on the Network within seconds. The **Time and Date Setup** window is shown in Figure 6-17.

### Caution

**In order for the time and date to be set on SDN patient monitors, one Information Center must be connected to Branch 0 of each SCC.**



**Figure 6-17 Time and Date Setup Window**

**Description** Fields in the **Time and Date Setup** window are:

Field	Description
<b>Date: (MDY)</b>	Sets the current <b>Month</b> , <b>Date</b> , and <b>Year</b> . To change the values, do the following: <ul style="list-style-type: none"> <li>Click in a box to highlight the number.</li> </ul> Use the up/down arrows to the right of the field to increase or decrease the value in the box
<b>Time:(H:mm)</b>	Sets the current <b>Hour</b> and minute ( <b>mm</b> ). To change the values, use the same procedure as above
<b>Time Zone Information</b>	Is for setting the following <ul style="list-style-type: none"> <li><b>Time Zone</b> sets the correct Time Zone for the system location</li> </ul> The procedure is as follows: <ul style="list-style-type: none"> <li>Click the <b>arrow</b> to the right of the Time Zone field to display the list of Time Zones.</li> <li>Click on (highlight) the correct <b>Time Zone</b> for your location.</li> </ul>
<b>Automatically Adjust For Daylight Savings Time</b>	Selects whether the time will automatically adjust when the time changes to or from Daylight Savings Time. <ul style="list-style-type: none"> <li>Clicking a check in the box <input checked="" type="checkbox"/> causes time to automatically change.</li> <li>No check <input type="checkbox"/> means it will not change.</li> </ul>
<b>Store Settings</b>	Activated <b>only</b> if <b>Date and Time Setup</b> is opened directly from the <b>Configuration</b> menu of the <b>Service</b> application and <b>not</b> from Config Wizard

### Notes

In some languages, Time Zone will not automatically adjust for daylight savings correctly. If this happens, Time Zone must be reset manually.

When **Date and Time Setup** is opened directly from the Configuration menu, **Store Settings must be clicked** for the settings to be stored.

---

**Procedure** The procedure for setting time and date in the **Time and Date Setup** window is the following:

**Step 1.** Set **date** and **time** to present values by clicking in the boxes of the **Date:** and **Time:** fields and using up/down arrows to change the values.

**Step 2.** Set the **time zone** of the Information Center location in the **Time Zone** field by clicking the pull down button on the right of the field and then clicking on the appropriate Time Zone.

**Step 3.** If the Information Center location uses daylight savings time:

- Click in the **Automatically Adjust For Daylight Savings Time** box. Time will then change automatically to the correct value when daylight savings time changes.

**Step 4.** If Date and Time Setup was activated directly from the **Configuration** menu:

- Click on **Store Settings**. A **Time Set App** box will appear asking *Are you sure? Please Confirm.*
- Double check your settings. When they are correct,
- Click **Yes** and the date and time will be set on the Information Center and all other devices on the network.

If Date and Time Setup was activated from **Config. Wizard**,

- Click **Next>** to advance to the **!Config Wizard Print All** window.

---

**Note**

For Information Centers without a Database Server, the next window is **Archive**.

---

## Setup Complete

The final **!Config Wizard** window for Information Centers and Clients is **Setup Complete**, which indicates that !Config Wizard configurations are complete.

Click **Finish** and the device will return to the **Windows Main Menu**.

There are several more steps before the setup and configuration of an Information or Center or Client is complete. These include **assigning a printer** and **Testing Product Assurance** in both Network connected and local mode.

## Activating the Database Server

When all Server configuration settings have been made, it can be brought up in operating mode. This can be accomplished by simply shutting down and restarting the Server as follows.

---

### Note

The Server must be in operating mode in order to configure Network connected Information Centers and Clients.

---

### Step 1. Shutdown and restart the Database Server by:

- Click on **Start** in the lower left of the Windows Main Menu to bring up the Windows Server menu.
- Click on **Shut Down** to bring up the **Shut Down** window.
- Click on **Restart the Computer?** and **Yes** to restart Server software.

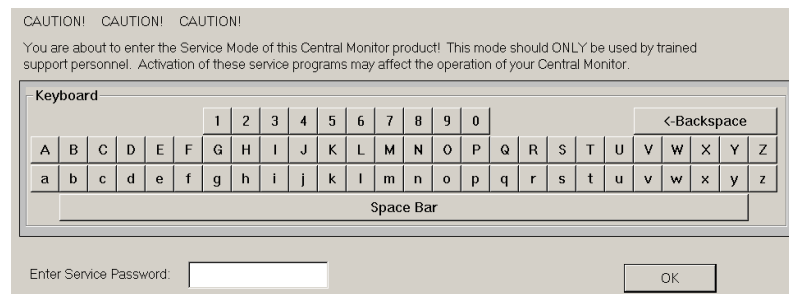
---

### Note

If the system has the Web Access option, hospital IT broadcast messages may appear on the Server's Main Screen. These messages do not affect system operation and may be disregarded.

---

### Step 2. When the Server reboots, the **Service Password** window of Figure 6-18 appears and the Database Server is activated.



**Figure 6-18 Service Password Window**

---

### Note

To access the Server's Service application, type in the **Service Password** in the **Enter Service Password:** field using the keyboard or by clicking the password character sequence on the characters of the window keyboard.

The **Service Password** is **m3150**. It should only be released to support personnel assigned to service the Philips system.

Each password character appears as an \* to maintain password confidentiality.

---

**Buttons** at the bottom of Database Server’s **Service** windows, see for example Figure 6-18, do the following:

Button	Description
<b>Main Screen</b>	Returns to the <b>Service Password</b> window of Figure 6-18 in a locked out mode requiring the Service password to be reentered
<b>Enter Config Mode</b>	<p>Opens the <b>WARNING</b> window:</p> <div style="border: 1px solid black; padding: 10px; background-color: #f0f0f0;"> <p style="text-align: center;"><b>WARNING !</b></p> <p>Server Configuration mode requires that none of the Information Centers are using the Database Server. If You proceed, all systems that use this server will automatically restart and come up using the local database on that system.</p> <p>Those systems will be allowed to return to normal Server based operation only after the server has been returned to NORMAL mode.</p> <p>It will require a manual operation of pressing the "Restart Network" button on each Central to return it to normal server based operation.</p> <p>To exit the Server Configuration mode after completing all configuration applications, press the "Return To Monitoring Mode" button to return to normal Server operation.</p> <p style="text-align: center;">DO YOU WISH TO PROCEED?</p> <div style="display: flex; justify-content: center; gap: 20px;"> <input type="button" value="YES"/> <input type="button" value="NO"/> </div> </div> <p>Clicking <b>Yes</b> causes all Information Centers and Clients on the Network to reboot and go into <b>Local Mode</b> and the Server stops storing patient data.</p>
The remaining buttons indicate the status of Information Centers and Clients on the Network. Following are the status indicators and their meanings:	
<b>OFF-LINE</b>	Indicates the device is off, in Desktop, start-up, or its connection to the Network is not functioning. When the Server is being configured, all devices are shown as <b>OFF-LINE</b>
<b>MONITORING</b>	Indicates the device is connected to the Server and in Monitoring Mode
<b>SERVICE</b>	Indicates the device is connected to the Server and in Service mode
<b>LOCAL MON</b>	Indicates the device is in Monitoring Mode; storing a limited set of data locally, not on the Server
<b>LOCAL SVC</b>	Indicates the device is not accessing the Server and is in Service mode

**Activating the Network/Server System**

When all Information Centers and Clients have been configured, the complete system can be activated as follows:

**Step 1. Reconnect the Network cables** of all Information Centers and Clients on the Network to cause them to reconnect to the Network.

**Step 2. Configure Unit Settings** for all Information Centers and Clients on the Network.

**Note**

If clinical **Unit Settings** have been configured when the Information Center or Client was in Local Database Mode, they will be lost when the device reconnects to the Network. Therefore, **Unit Settings must be configured after the Network connection has been made.**

**Step 3. Verify the performance** of each Information Center and Client connected to the Network using the procedures described in **“Testing Product Assurance” on page 8-1.**

When the Product Assurance Tests are complete:

**Step 4.** Go to the Database Server and open the **Service** window.

**Step 5.** Click on **Archive** in the Configuration menu.

**Step 6.** Archive system configuration settings.

**Step 7.** Return to the **Service** window.

**Step 8.** Click on **Print Configuration** in the Configuration menu.

**Step 9.** Print the configuration settings for all device on the Network.

**Step 10.** Return to the **Service** window.

When the Database Server reboots, the Network/Server system will be in operating mode

**Step 11.** If **3 or more Database Servers** are connected, each Database Server must restart the IIS Service by entering the Service Shell, and going to **Maintenance -> Restart IIS Service**. If this is not done at this time, Patient Data may not be visible across all Database Servers using the Web Access feature.

---

**Note**

**Restart IIS Admin Service** must be run after all Database Servers are configured and in monitoring mode. Running this utility does not cause the Database Servers and connected Information Centers and Clients to go into Local Database Mode.

---

The **software installation and configuration process is now complete.**

CONGRATULATIONS!

The Network/Server system can now be used for patient monitoring by all patient monitors connected to the Network. Patient data will be stored on the Database Server and all patient data review applications are fully operational.

# Maintenance, Troubleshooting, and Repair

## Overview

The Database Server system is designed to provide a robust and reliable central monitoring network, needing minimal maintenance and having few failures requiring troubleshooting or repair. As with all complex, multi-device systems, however, problems can occur, and the failure of any one of the system's components can cause down time and disruption to patient monitoring.

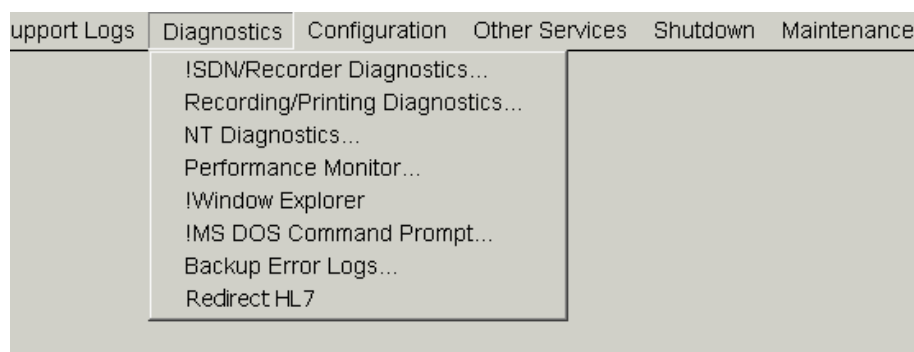
The Database Server contains a variety of applications and tools to assist users and service personnel in quickly identifying, troubleshooting, and resolving problems so that monitoring down time is minimized.

**Chapter 7** describes procedures for maintenance, troubleshooting, and repair of the Information Center system in the following sections.

Maintenance . . . . .	page 7-2
Troubleshooting . . . . .	page 7-7
HL7 Tools . . . . .	page 7-87
ST/AR Configuration Reporting Tools . . . . .	page 7-89
LED Diagnostics . . . . .	page 7-108
Repair . . . . .	page 7-111
Software Re-Installation Procedure . . . . .	page 7-147

### Note

Descriptions of the maintenance, troubleshooting, and repair of most hardware devices are contained in their individual manuals and are not repeated here.



**Figure 7-1 Diagnostic Tools in the Service Menu**

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## Maintenance

The Information Center system hardware is generally maintenance free. However, the equipment should be kept clean and dry and maintained within its environmental specifications. There are also several routine maintenance procedures that should be followed at regular intervals. This section describes those procedures.

### Surface Cleaning

The exterior surfaces of Information Center system components should be regularly cleaned of dust, lint, and dirt. To clean equipment surfaces, use a lint-free cloth or sponge, moistened with soap and water or dilute, non-caustic, detergent solution.

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### Caution

**To avoid damage to the equipment:**

- **do NOT use abrasive material, such as steel wool or silver polish**
  - **do NOT use Povodine, Sagrotan, or Mucocit cleaning agents or strong solvents, such as acetone.**
  - **do NOT submerge any part of the equipment in water or other liquid.**
  - **do NOT pour liquid onto the system during cleaning**
  - **do NOT allow liquid to enter the equipment case**
  - **do NOT allow any cleaner to remain on any of the equipment surfaces, wipe it off immediately.**
- 

### Disable Touchscreen for cleaning process

With a touch screen display you can access patient data by pressing the screen element directly on the display. You need to disable the touch feature before cleaning the display screen.

Disable touch and clean the display by performing the following steps

**Step 1.** Disable touch by pressing then releasing the Alt-F5 key combination.

**Step 2.** Verify that touch is off by touching the screen.

**Step 3.** Clean the touch screen by applying window or glass cleaner on a soft, clean cloth then wiping the touchscreen. Never spray or apply the cleaner directly on the screen. The active area of the touchscreen is resistant to all chemicals that do not affect glass for example ammonia-based glass cleaners and vinegar.

- Do not use alcohol (methyl, ethyl or isopropyl) or any strong dissolvent.
- Do not use thinner or benzene, abrasive cleaners or compressed air.
- Avoid getting liquids inside your touch monitor. If liquid does get inside have a qualified service technician check it.
- Do not wipe the screen with an abrasive cloth or sponge that could scratch the glass surface.

**Step 4.** When you are finished cleaning the screen re-enable touch by pressing then releasing the Alt-F5 key combination.

**Step 5.** Verify that touch is enabled by touching the screen.



**Cleaning Agents** For comprehensive details on cleaning agents and their efficacy, refer to:

**Guidelines for Prevention of Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Health-Care and Public-Safety Workers.**  
(June 23, 1989)

issued by:

U.S. Department of Health and Human Services  
Public Health Service  
Centers for Disease Control  
Atlanta, Georgia 30303

## **Routine Maintenance**

For most components, the recommended maintenance is described in **User's Manuals** provided with the unit. Refer to those documents for maintenance procedures and frequencies to assure reliable, trouble-free operation.

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## **Note**

All **Preventive Maintenance is the responsibility of the customer.** Recommended frequency is **every 6 months**, or less in harsh environments.

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Two areas of maintenance deserve special mention -- cleaning air intakes of workstations and the server and regular replacement of UPS batteries.

## **Workstations and Server**

Fans used to cool electronic devices generally develop dust build-up in air intake areas that must be removed to assure proper cooling and circuit operation. Air intakes of workstations and the server should be checked regularly and any dust buildup removed. Status/error messages on **Main Screens**, LED displays, and LCD front panel displays and entries in device **Event Logs** may also alert the customer to these conditions.

## **UPS**

The UPS requires little maintenance other than regular battery replacement. It also contains no serviceable parts except the battery and should not be opened by hospital personnel because it contains potentially hazardous voltages that can be dangerous to unskilled persons.

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## **Warning**

**Do not attempt to disassemble the UPS. It contains no serviceable parts except for the battery, and interior voltages can be hazardous. Repair should be performed by factory trained service personnel only.**

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Regular testing of the UPS is not generally required because it is tested during any emergency power system test. However, a simple reliability test is given in **Chapter 8**, under **Power Failure Response Test**.

To assure dependable UPS performance, regular replacement of UPS batteries is recommended. The replacement frequency depends somewhat on the environmental conditions experienced by the UPS.

- For ambient temperature normally **below 25°C (77°F)**, UPS batteries should be **replaced every 3 years**.
- For ambient temperatures regularly **above 25°C (77°F)**, UPS batteries should be **replaced every 2 years**.

Purchase of **spare batteries** is **Not Recommended**, since they need to be recharged at least every 6 months to maintain their capacity. Instead, batteries should be purchased a few weeks prior to their replacement schedule.

If spare emergency power is desired, purchase of a **spare UPS** is **Recommended** and should be maintained in a charged condition.

Order information and Philips Part Numbers are given in the **Replaceable Parts List** included in the tabbed section of this manual.

The UPS battery is accessed through a door in the bottom or front of the unit, which is secured by screws. Refer to the **UPS User's Manual** for proper battery replacement.

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**Warning**

**UPS batteries are lead-acid and must be handled carefully and disposed of properly.**

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**Display Sweep Speed**

To assure full compliance with Information Center specifications, the sweep speed of the main display can be checked and adjusted to assure 25 mm/s  $\pm 10\%$ . The procedure for adjusting a display to achieve this sweep speed is described in **Chapter 8** under **Testing Product Assurance**.

**Philips 2-Channel Recorder**

The Philips Recorder has mechanical and optical components that require regular cleaning for dependable operation. This includes cleaning of the paper-out, optical sensor to assure reliable paper-out messages and the paper roller to prevent paper slippage and keep recordings clear and clean.

Cleaning the **paper-out sensor** and interior of the Philips Recorder can be done with a container of compressed air.

**Step 1.** Open the Philips Recorder door and remove the paper roll.

**Step 2.** Use compressed air to clean all dirt and debris from the interior of the recorder and especially from the surface of the paper-out sensor. If an excessive amount of dust or dirt particles builds up on the optical sensor, the recorder will “think” it is out of paper when it is not and send an error message to the Information Center monitor.

Cleaning the **paper roller** should be done with a lint-free cloth, lightly wetted with isopropyl alcohol.

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**Caution**

**To avoid damage to the paper roller, do NOT use any of the following cleaning agents:**

- **dilute sodium hypochlorite (laundry bleach)**
- **dilute formaldehyde**
- **hydrogen peroxide**

**Step 3.** Carefully wipe all surfaces of the paper roller with the lint-free cloth wetted with isopropyl alcohol until the surfaces are thoroughly clean and dirt free.

**Step 4.** Place a new roll of paper in the Recorder and close the Recorder door.

### Philips 4-Channel Recorder

The Philips Recorder has mechanical and optical components that require regular cleaning for dependable operation. This includes cleaning of the paper-out tray and the paper roller to prevent paper slippage and keep recordings clear and clean.

### Maintenance and Handling

Recorder:

- Be careful not to drop or bump the printer.
- Clean exterior surfaces of the printer using a soft, lint free cloth dampened with diluted soap and water.
- Do not use alcohol or other solvent.
- Do not disassemble, repair, or remodel the recorder.
- Do not use an AC adapter other than which is specified.
- Do not pull on the paper - see instructions for clearing paper jams.

### Caution

**Do not ship with the roll of paper installed; cut off the end of paper and remove the roll.**

Thermal Paper:

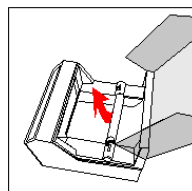
- Store thermal paper in a cool, dry, and dark place.
- Do not rub the paper with hard objects.
- Do not leave the paper near organic solvents.
- Do not allow plastic film, erasers, or adhesive tape to touch the paper for long periods.
- Do not use chemical glues.
- Always use specified thermal paper (p/n PSE11268 package of 24 rolls)

### Paper Loading

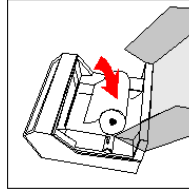
To load paper into the 4-channel recorder perform the following steps:

**Step 1.** Lift the clear plastic cover on the top of the recorder.

**Step 2.** Remove the old spool from the recorder by pushing up and out on the two plastic tabs that hold the spool in place.

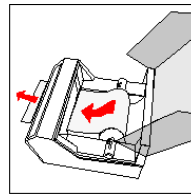


**Step 3.** Place the new spool in the recorder by pushing down and in on the two plastic tabs. Be sure that the paper feeds from the top of the roll.



**Step 4.** Trim the end of the paper to make a clean edge.

**Step 5.** Insert the paper near the feed slot. The recorder automatically takes up the paper.



**Step 6.** Close the plastic cover on the top of the recorder.

### Clearing Paper Jams

**Step 1.** Open the printer cover.

**Step 2.** Rotate the thermal printhead release lever toward the back of the printer.

**Step 3.** Open the paper cover and remove any paper that has become jammed.

**Step 4.** Rotate the thermal print head release toward the front of the printer.

**Step 5.** Shut the printer cover.

**Step 6.** Make sure that the end of the paper has been cut straight.

**Step 7.** Insert the end of the paper into the insertion slot. The PAPER EMPTY indicator goes off, and the paper is automatically fed through the paper exit slot. If the end of the paper does not come out from the paper exit slot, press the FEED switch until it does.

**Step 8.** Close the paper cover.

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## Troubleshooting

There is a **Troubleshooting Symptoms** section that provides symptoms (by feature) that may be exhibited on the Information Center system. These symptoms are listed with possible causes and the actions that will correct them.

Information Center software provides extensive troubleshooting functionality. To best use the tools, a **Troubleshooting Strategy** should generally be employed. The first section provides a systematic troubleshooting procedure for isolating system problems and identifying the proper tool for determining causes and corrective actions. The following **System Troubleshooting Tables** are also provided:

- “Alert Data Export” on page 7-9
- “Patient Data Transfer/Web Access” on page 7-9
- “HL7 Export” on page 7-10
- “Web Based Applications” on page 7-12
- “12-Lead Export/Holter Export” on page 7-12

The troubleshooting tools are then described. These include first level support for users from the **All Controls** menu during patient monitoring and more extensive troubleshooting applications for service personnel from the **Service** menu in non-monitoring mode.

Information available for **User Troubleshooting** during patient monitoring include:

- **Error and Status Messages** on the Main Screen that indicate recorder conditions, status of print jobs, and monitor connections
- **Status Log (Quick Unit Status)** for identifying the operational status of devices in their clinical unit
- **Purchased Options and Support Information** for determining who to call when a problem cannot be resolved and important identifying information about the device

More advanced resources available for **Service Personnel Troubleshooting** from the **Service** menu are as follows. Note that items with an ! require the device (Information Center or Server) to be taken out of monitoring.

- **Event Logs** for identifying system events and errors
- **Service Logs** for reviewing past service performed on the system
- **Status Log (All Data Categories)** for identifying the operational status of all Philips hardware
- **Network Statistics** for information about network switches
- **Telemetry Services** for information from Telemetry Mainframes
- **!Diagnostic Tools** for troubleshooting Philips and OS devices

- **!Config Wizard** tools to reconfigure the system
- **Remote Access Admin (RAS)** for remote troubleshooting by Philips service personnel
- **!Shutdown** and restart for rebooting system software.

**LED Diagnostics** tables are also included that list symptoms displayed by LEDs on nonfunctioning hardware, possible causes, and corrective actions that can be taken to restore functionality.

## Troubleshooting Symptoms

In many cases, a problem or symptom exists that requires an action to correct it. In the Information Center system, there can be more than one cause that contributes to a problem. The tables below lists the possible symptoms that can be exhibited and what can be done to resolve the problem.

### Alert Data Export

Symptom	Possible Cause	Action
“Alarm Paging not Available” displayed in Information Center status text area	TCP/IP connection to Alert Data Export device is no longer valid	Ping the hostname of the Alert Data Export device. Verify proper host name and/or IP address in Network Configuration screen of the Config Wizard. See “ <b>Network Configuration</b> ” on page 6-24.
	Device is not configured	Configure correct host name and/or IP address in Network Configuration screen of the Config Wizard. See “ <b>Network Configuration</b> ” on page 6-24
	Alerts not received by Emergin® Alarm Messenger	Go to Paging.log in log directory (see “Support Logs” on page 7-23) and verify alerts are logged with bed label, text information, and time/date information.  If alerts are in paging.log file, alerts have been received by the Emergin Alarm Messenger system. Notify customer to contact Emergin for further troubleshooting within the Emergin system, wireless infrastructure, and/or end user devices
	Alert Data Export interface is not running	Verify status of Alert Data Export by checking the Status Log and verify status of Alert Data Export interface. Check paging.log for more detailed information.

### Patient Data Transfer/ Web Access

Symptom	Possible Cause	Action
Web Access Not Available	The Master Database Server is off-line	Verify the Master Database Server is online and working
Web Access is accessible from the Information Center but not from a PC Client on the Hospital LAN	Network properties (for 2nd NIC Card) are not configured correctly.	Verify the 2nd NIC Card TCP/IP settings include IP Address, subnet, default gateway, DNS and/or WINS according to hospital requirements. See “ <b>Network Card and TCP/IP Settings</b> ” on page 4-23.
Clinical Units cannot accept patient transfers/are not on the clinical unit transfer list	Database Server associated with those Units is off-line.	Verify the Database Server is online, and press the <b>Update</b> button in the Discharge screen.

Symptom	Possible Cause	Action
Browser button is not available on the Information Center All Controls window	<b>Web Access Portal</b> configuration setting was not enabled	Enable the Web Access Portal configuration parameter in the Network Configuration screen of the Config Wizard. See “ <b>Network Configuration</b> ” on page 6-24.
Patient Data Transfer has intermittent failures		<ul style="list-style-type: none"> <li>• Check <b>Export Log Files</b> for messages</li> <li>• Hospital Bandwidth utilization may be affecting transfers. This utilization can be modified via the tools provided. See “<b>Patient Data Transfer - Bandwidth Utilization</b>” on page 7-75.</li> </ul> <p><i>Note</i>—Decreasing the bandwidth utilization for the hospital LAN increases the time required to complete the transfer of patient data.</p>

### HL7 Export

Symptom	Possible Cause	Action
HL7 Output to CareVue is not working	<ul style="list-style-type: none"> <li>• If CareVue is set up as a redundant server system, and the primary server fails, the HL7 export does not work</li> </ul>	<ul style="list-style-type: none"> <li>• Bring CareVue server back online. If it cannot be brought back up, remove it from the HL7 target client list.</li> </ul>
	<ul style="list-style-type: none"> <li>• CareVue client and hostnames are incorrect in the HL7 configuration</li> </ul>	<ul style="list-style-type: none"> <li>• Correct the HL7 configuration parameters that are set in Config Wizard -&gt; Network Configuration -&gt; HL7 Settings. See “<b>Network Configuration</b>” on page 6-24.</li> </ul>
	<ul style="list-style-type: none"> <li>• Information Center is running in local database mode</li> </ul>	<ul style="list-style-type: none"> <li>• Reconnect the Information Center to the Database Server by pressing the <b>Press Restart Network</b> button on the Information Center.</li> </ul>
	<ul style="list-style-type: none"> <li>• CareVue client SDN/Id and LBN values do not match across products</li> </ul>	<ul style="list-style-type: none"> <li>• Verify settings and re-configure if necessary. See “<b>Equipment Setup</b>” on page 6-35</li> </ul>



Symptom	Possible Cause	Action
HL7 Output is not working	<ul style="list-style-type: none"> <li>• Configuration settings are not set properly</li> </ul>	<ul style="list-style-type: none"> <li>• Check configuration of network card, switches, and TCP/IP settings. Verify the Information Centers are configured with the Database Server's IP address as their default gateway.</li> </ul>
	<ul style="list-style-type: none"> <li>• No communication between devices</li> </ul>	<ul style="list-style-type: none"> <li>• Ping by IP and hostname the device from the other device.</li> </ul>
	<ul style="list-style-type: none"> <li>• Network errors</li> </ul>	<ul style="list-style-type: none"> <li>• Check the Network Statistics for network errors</li> <li>• Check System Error logs on Information Center and Database Server for indications of unexpected network conditions or errors</li> </ul>
	<ul style="list-style-type: none"> <li>• Export errors</li> </ul>	<ul style="list-style-type: none"> <li>• Check the Export log file on Information Centers originating HL7 data and on the Database Server. Pay careful attention to all "<b>Connection accepted from. . .</b>" and "<b>Connection from. . . rejected</b>" messages. There should be one accepted message each time an HL7 target system makes a connection. A disconnect message with <b>error 0</b> means the HL7 target system performed a normal close of its socket connections. A rejected message means the Database Server configuration is incorrect. Socket errors other than 0 are abnormal, meaning the connected system disappeared without closing the socket connection. Review these abnormal errors with a HL7 receiving system technical expert.</li> </ul>

### Web Based Applications

Symptom	Possible Cause	Action
Application served web applications are not working on the Information Center patient window when the Browser button is selected	Application Server IP Address is not configured/correct	Verify the Application Server has been added as a network device with the correct settings. See <b>“Adding Network Devices” on page 6-28</b>
	Database Server/Information Center IP address is not configured in the Application Server	Verify the Database Server/Information Center IP address is configured on the Application Server
	Incorrect network connection	Verify the Application Server is connected to the Clinical Network on a 100 Mbps, Full Duplex connection
	Application Server applications are not published	Publish the applications at the Application Server
	Internet Information Services (IIS) is not running	Restart the IIS Service. See <b>“Restart IIS Admin Service” on page 7-83</b>
	Second NIC Card on Database Server/Information Center is not configured correctly.	Verify the Second NIC Card is configured with the appropriate settings. See <b>“Network Card and TCP/IP Settings” on page 4-23</b>
	Application Server and Database Server/Information Center are not connected	Ping the Application Server using its hostname from the Database Server/Information Center  Verify the Status Log of the Database Server shows the Application Server as <b>Active</b>  Verify the NetServices.log file on the Application Server has an entry of “<DeviceData> : Post OnHostUp, device = DBSName (DBS MLAN IP)”

### 12-Lead Export/Holter Export

Symptom	Possible Cause	Action
12-Lead Data/Holter export data is not arriving at destination device	Device IP address is not assigned	Verify 12-Lead/Holter devices are correctly configured via the Network Configuration window in Config Wizard. See <b>“Network Configuration” on page 6-24.</b>
	System is offline	Ping the hostname of the 12-Lead or Holter Export device
	Shared folders on receiving device are not setup/shared properly	Verify the PMDExport folders on the 12-Lead/Holter device are setup properly. See Appendix E, “Data Export - Installation on the Database Server”

Symptom	Possible Cause	Action
	Second NIC Card on Database Server/Information Center is not configured correctly.	Verify the Second NIC Card is configured with the appropriate settings. See “ <b>Network Card and TCP/IP Settings</b> ” on page 4-23
	Hospital ID/Department ID configuration settings do not match those of the receiving device	Verify the configurations settings in the Purchased Options and Support Information Page and the Equipment Setup (clinical unit setup) window match. See <b>Purchased Options and Support Information</b> and <b>Equipment Setup</b> in Chapter 6.

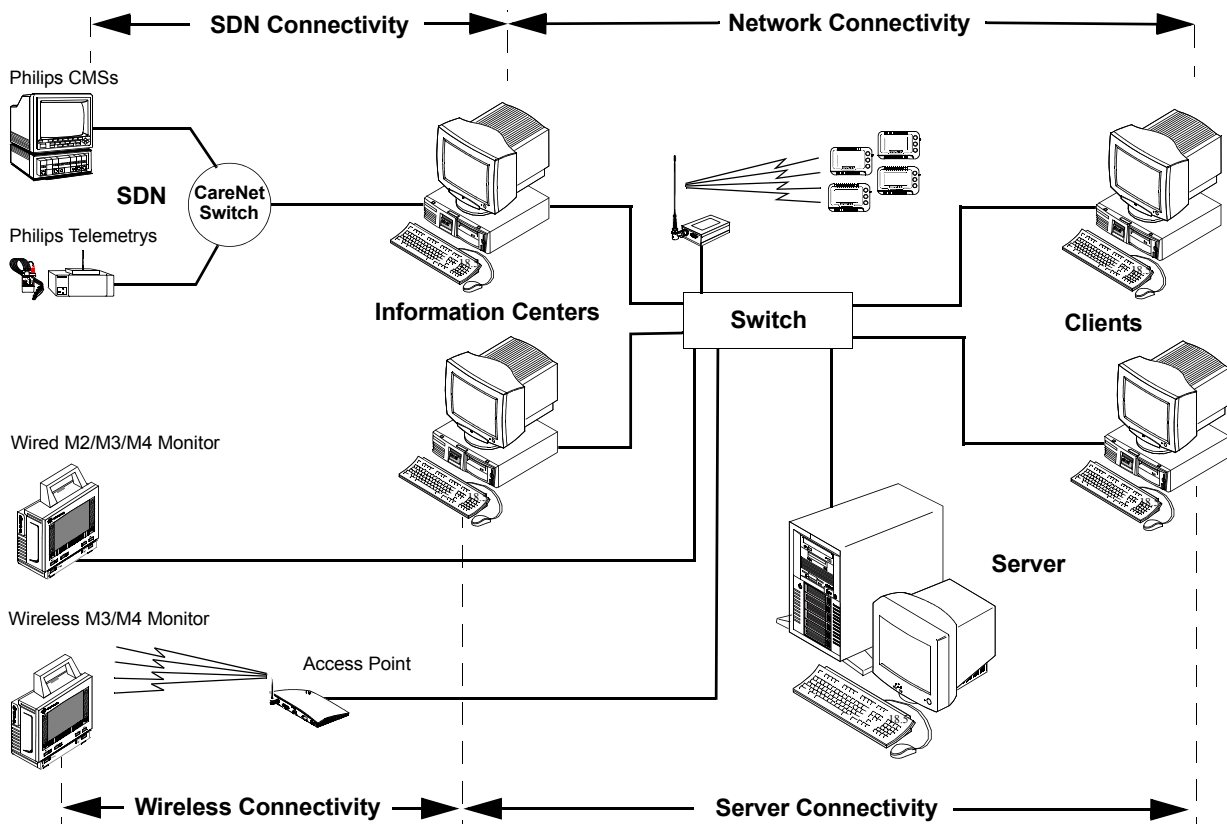
## Troubleshooting Strategy

The flow of information in Information Center systems can be divided into 4 major connectivity components: (See Figure 7-2):

- **SDN connectivity** - flow of real-time patient monitoring data from patient monitors through the SDN to Information Centers for display
- **Wireless connectivity** - flow of real-time patient monitoring data from wireless Patient monitors via Access Points to Information Centers for display
- **Network connectivity** - flow of real-time patient data from Information Centers to Network connected Information Centers and Clients for overviewing
- **Server connectivity** - flow of stored patient monitoring data to the Server for storage and out to Information Centers and Clients for review

### Note

SDN and Server Connectivity are covered in this manual. Wireless and Network Connectivity are covered in the Clinical Network Service Manual.



**Figure 7-2 Network/Server Connectivity Components**

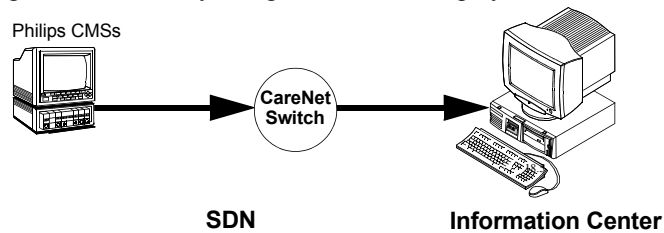
Each connectivity component should be evaluated separately to identify the source of a problem. The following questions can be asked:

- What devices and functions **are working**?

- What devices and functions **are not working**?
- What **tools** can be used to diagnose devices or functions not working?
- What troubleshooting actions will **minimize intrusion** on the user?
- What actions will be the **quickest** to implement?

**SDN Connectivity**

The first step is to investigate **SDN connectivity** -- are real-time patient monitoring data flowing from patient monitors connected to the SDN to Information Centers? Each SDN/Information Center connection should be checked to determine if patient monitoring data are correctly being received and displayed.



**Figure 7-3 SDN Connectivity Investigation**

The following table provides a brief guideline for identifying sources of SDN connectivity problems.

**Table 7-1. SDN Connectivity Troubleshooting**

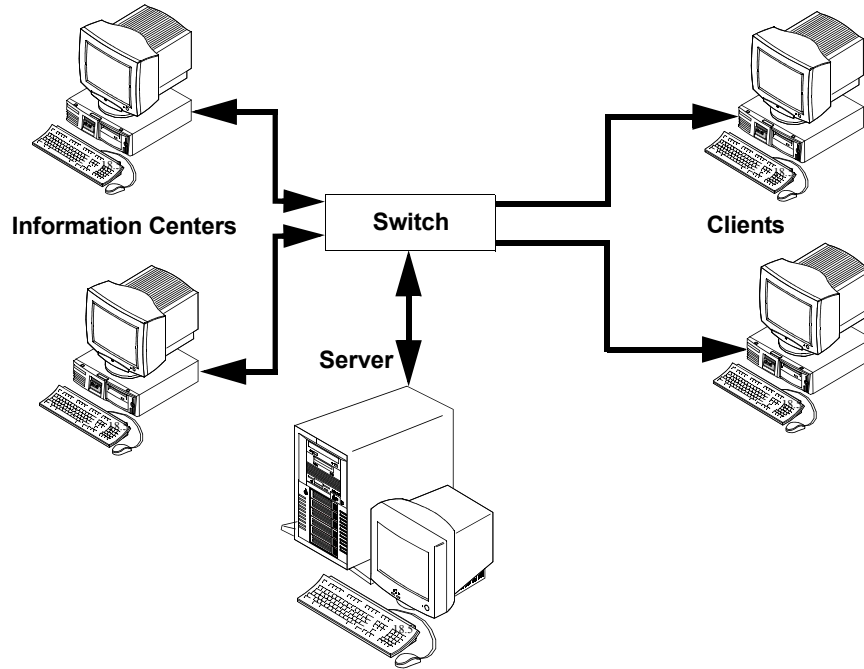
Assessment	Investigation
Are patient data (waveforms and parameters) from the SCC being properly displayed on the Information Center?	- Check <b>Patient Sectors</b> for each connected patient
Are all devices operational?	- Check <b>status LEDs</b> on each device
Are all devices connected?	- Check <b>Status Log</b> (See <b>Caution</b> )
Is the SDN interface operating correctly?	- Check IC <b>SDN interface card LEDs</b>
Is the SDN configured correctly?	- Check <b>!Bed Config</b> application

**Caution**

**Status Log** information on a device that is disconnected from the network (e.g. gone into local database mode) may not reflect the current status of other devices on the Network.

**Server Connectivity**

**Server connectivity** -- are patient monitoring data being correctly stored by the Server and accessible from the Server by Information Centers and Clients? Each Server/Device connection should be checked to determine if stored patient monitoring data can be reviewed.



**Figure 7-4 Server Connectivity Investigation**

The following table provides a brief guideline for identifying sources of Server connectivity problems.

**Table 7-2. Server Connectivity Troubleshooting**

Assessment	Investigation
Are patient data (waveforms and parameters) being received by the Server?	<ul style="list-style-type: none"> <li>• Check that Information Centers are not in <b>Local Database Mode</b></li> </ul>
Are patient data (waveforms and parameters) being stored correctly by the Server?	<ul style="list-style-type: none"> <li>• Check <b>Review Applications</b> for each connected patient and verify that patient data have been correctly stored</li> </ul>
Are all Network devices operational?	<ul style="list-style-type: none"> <li>• Check <b>Status LEDs</b> on each Network device -- switch, repeaters, media translators</li> </ul>
Are all devices connected?	<ul style="list-style-type: none"> <li>• Check <b>Status Log</b> (See <b>Caution</b>)</li> <li>• <b>Ping</b> each device from the Server</li> <li>• Check <b>Link LEDs</b></li> </ul>

## System Troubleshooting

The following **System Troubleshooting Tables** provide Symptoms, Possible Causes, Verifications, and Corrective Actions to take for problems identified in M3150 Information Centers, M3151 Clients, and the Network/Server System.

**Table 7-3. Troubleshooting Information Centers**

Symptom	Possible Cause(s)	Verification	Corrective Action(s)
<p>Information Center</p> <ul style="list-style-type: none"> <li>- applications shut down</li> <li>- workstation goes to desktop for 10-20 seconds</li> <li>- reboots to local database mode</li> <li>- locks up</li> </ul>	<p>Information Center has lost connection to network or Server due to:</p> <ul style="list-style-type: none"> <li>- <b>bad connection</b> to Switch, including cabling</li> <li>- <b>failed component</b> (Repeater, or Media Translator) between Information Center and Switch</li> <li>- <b>loss of Server connection</b> to network</li> </ul>	<p>Determine if problem is on the <b>device or the network</b> by observing functionality</p> <ul style="list-style-type: none"> <li>- check whether Clients are <b>receiving data</b> from Information Center.</li> <li>- determine if other Information Centers are in <b>local database mode</b></li> <li>- look at <b>Link LEDs</b> on device ports of Network interfaces</li> </ul> <p>If <b>only Information Center</b> is affected, problem is likely its network connection</p> <p>If <b>other Information Centers or Clients</b> are affected, problem is likely a network or Server connection</p> <p>Review Event Log, Application Log. An "SDProcess" error message is logged, either</p> <ul style="list-style-type: none"> <li>- <b>Warning 3257</b> "System restarted using the local database mode because the server is not available" or</li> <li>- <b>Warning 4208</b> "Restarting applications because the database server connection is unavailable. System will come up in Local DB."</li> </ul>	<p><b>Test UTP and fiber optic cable</b> connections</p> <p><b>Re-establish Information Center connection</b> to the network</p> <p><b>Reboot the Information Center PC</b> if necessary</p> <p><i>Note</i>—When connection is reestablished, Information Centers display "Press Restart Network" at top of display. Use Restart button to reboot the Information Center.</p> <p>For network problems, see <b>Network/Server System Troubleshooting Table</b></p>

**Table 7-4. Troubleshooting M3151 Information Center Clients**

Symptom	Possible Cause(s)	Verification	Corrective Action(s)
<p>M3151 Client</p> <ul style="list-style-type: none"> <li>- waveforms drop out for 15-60 seconds</li> <li>- applications shut down</li> <li>- PC goes to Desktop for 10-20 seconds</li> <li>- reboots to local database mode</li> <li>- displays patient waveforms in sectors where patients were assigned</li> <li>- locks up</li> </ul>	<p><b>Client has lost connection to Server</b>, but still has active network connection to Information Center sourcing data to it.</p> <p>Problem probably also affects <b>other devices</b> on the network</p> <p>Possible causes:</p> <ul style="list-style-type: none"> <li>- <b>bad connection</b> between Switch and Server. May include in-wall and patch cables</li> <li>- <b>failed component</b> (Repeater, or Media Translator) between Server and Switch</li> <li>- <b>Server down</b></li> <li>- <b>Server in Config mode</b></li> </ul>	<p><b>Isolate problem</b> by observing functionality on rest of network.</p> <p>Determine if other Information Centers <b>can receive data</b> from Server</p> <p>If Server’s network connection is lost, then other devices (Information Centers and Clients) should not be able to retrieve stored data and should be in local database mode.</p> <p>Review <b>Event Viewer, Application Log</b>. An “SDProcess” error message is logged, either</p> <ul style="list-style-type: none"> <li>- <b>Warning 3257</b> “System restarted using the local database mode because the server is not available” or</li> <li>- <b>Warning 4208</b> “Restarting applications because the database server connection is unavailable. System will come up in Local DB.”</li> </ul> <p>Look at <b>Link LEDs</b> on device ports of LAN interfaces to identify the failed connection</p> <p>Test <b>UTP and fiber optic cable</b> connections</p>	<p><b>Reestablish Server connection</b> to network</p> <p><b>Reboot Clients</b> if necessary (Clients may reboot automatically once connection to the Database Server is restored)</p>
<p>M3151 Client</p> <ul style="list-style-type: none"> <li>- waveforms dropout for 15-120 seconds</li> <li>- applications shut down</li> <li>- PC goes to Desktop for 10-20 seconds</li> <li>- reboots to local database mode</li> <li>- displays “Monitoring lost for this patient” in sectors where patients were assigned</li> </ul>	<p>Client has lost connection to network due to:</p> <ul style="list-style-type: none"> <li>- <b>bad connection</b> between Client and Switch including in-wall and patch cables</li> <li>- <b>failed component</b> (Repeater or Media Translator) between Client and Switch</li> <li>- <b>network Switch down</b></li> </ul>	<p><b>Isolate problem</b> by observing functionality present on rest of network.</p> <p>Determine if Information Centers <b>are operational</b> and can receive data from Server</p> <p>Review <b>Event Log, Application Log</b>. An “SDProcess” error message is logged, either</p> <ul style="list-style-type: none"> <li>- <b>Warning 3257</b> “System restarted using the local database mode because the server is not available” or</li> <li>- <b>Warning 4208</b> “Restarting applications because the database server connection is unavailable. System will come up in Local DB.”</li> </ul> <p>If problem is isolated to Client connection, then other devices (ICs and Clients) should all be operating normally</p> <p>Look at <b>Link LEDs</b> on device ports of LAN interfaces to identify the failed connection</p> <p>Test <b>UTP and fiber optic cable</b> connections</p>	<p><b>Reestablish Client connection</b> to network</p> <p><b>Reboot Client</b> if necessary (Client may reboot automatically once connection to the Database Server is restored)</p>



**Table 7-5. Troubleshooting the Network/Server System**

Symptom	Possible Cause(s)	Verification	Corrective Action(s)
All M3150 Information Centers and M3151 Clients reboot and go into local database mode	<b>Connection between Switch and Server is lost</b>	All Information Centers and Clients are in <b>local database mode</b> , and Information Centers <b>do not show “Restart Network”</b> message with button Review Event Log, Application Log on Information Centers and Clients. An “SDProcess” error message is logged, either - <b>Warning 3257</b> “System restarted using the local database mode because the server is not available” or - <b>Warning 4208</b> “Restarting applications because the database server connection is unavailable. System will come up in Local DB.” If Server connection is lost, Information Centers and Clients will still show Server “offline/idle” in their Status Logs <b>Ping connections</b> between devices and Server to test connectivity	<b>Identify failed link or device</b> <b>Correct failed link or device</b> <b>Reestablish Server connection to Switch</b> <b>Reboot Information Centers and Clients</b> if necessary (Clients may reboot automatically)
	<b>Switch down</b>	Inspect the Switch front panel LEDs for indications of - <b>power loss</b> - <b>device failure</b> - <b>Link LEDs off</b> Review Event Log, Application Log on Information Centers and Clients. An “SDProcess” error message is logged, either - <b>Warning 3257</b> “System restarted using the local database mode because the server is not available” or - <b>Warning 4208</b> “Restarting applications because the database server connection is unavailable. System will come up in Local DB.” <b>Ping connections</b> between devices and Server to test connectivity <b>Ping Switch</b> by its IP Address	<b>Identify failed link or Switch</b> <b>Correct failed link or Switch</b> <b>Reestablish Server connection to Switch</b> <b>Reboot Information Centers and Clients</b> if necessary (Clients may reboot automatically)
Clients boot to operating mode but display “Data Lost for this Patient”	<b>Information Centers sourcing data is in Local Database Mode</b> (common during system startup)	Server connectivity must be operational or Client will boot to local database mode	<b>Complete all configurations of data sourcing Information Center</b> <b>Reboot data sourcing Information Center</b>
	<b>Client configuration wrong on Server</b> , e.g. it could be looking for a non-existent SDN source	Review Client’s configuration in Server’s Bed Configuration-Read Only application to confirm	<b>Correct Client’s configuration on Server</b> <b>Reboot all Information Centers and Clients</b>
Some or all Information Centers and Clients reboot and return to normal operating mode	<b>Intermittent network interruption</b>	This condition is difficult to verify. If the network problem is transient, the problem may have cleared after devices reboot	<b>Call Philips Service Representative or Response Center</b>
Information Centers and Clients have sluggish Wave Review behavior	<b>Device connected as 100 Mb FULL duplex</b>	Inspect switch port speed and duplex Check for CRC errors on switch port	<b>Connect Information Center and/or Client to 100 MB HALF duplex port</b>

## User Troubleshooting

In many cases users can identify errors or potential problems in the Information Center system without disrupting patient monitoring. Error and status messages appear on the Main Screen to alert users to minor problems or status conditions, while other problems can be reviewed in the Status Log. Once a problem has been identified, the user can also access Support Information to determine who to contact to resolve the problem.

### Note

Service support staff should periodically review **User Troubleshooting** tools with users to assist them in self-diagnosing minor problems, to identify who to call when unable to resolve a problem, and so they can provide useful information to service personnel about a problem.

### Error and Status Messages

There are a number of system conditions that will be identified by Philips software during routine system assessments. For these conditions, the system will immediately display the appropriate error and status message in the upper left corner of the Main Screen. See Figure 7-5.

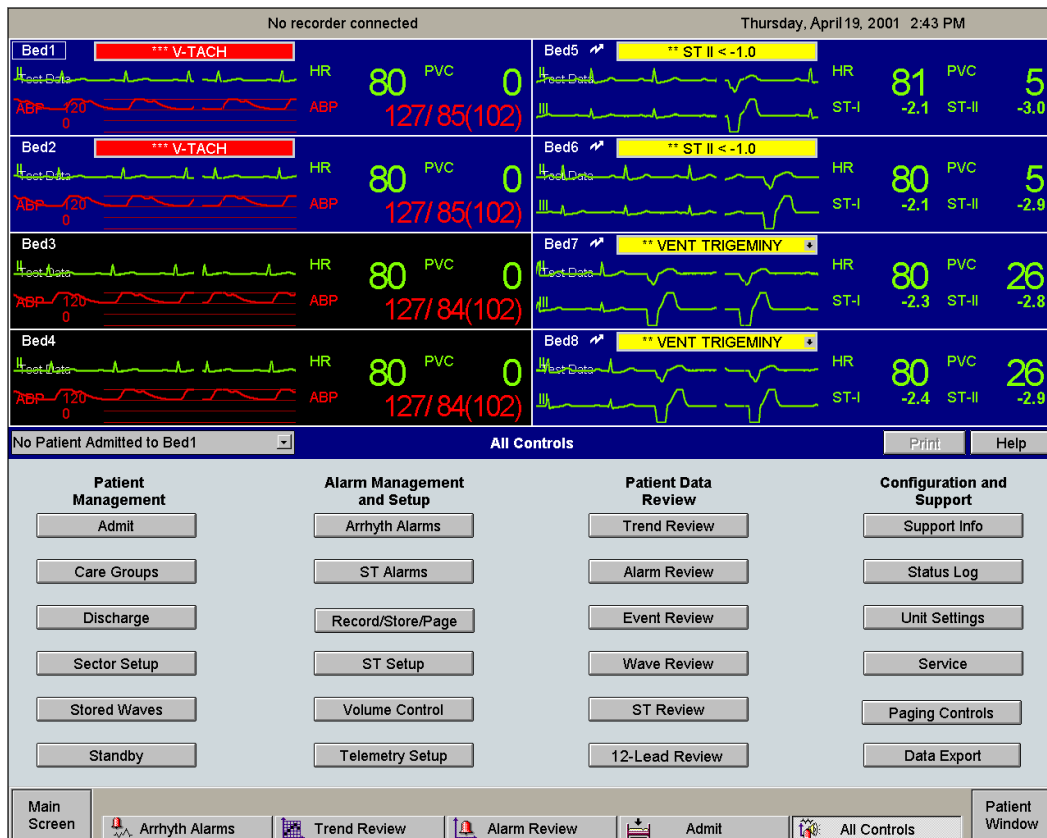


Figure 7-5 Error and Status Messages on Main Screen

**Table 7-6** gives error and status **Messages** that can be displayed on the Main Screen, **Possible Cause(s)** of the message, and **Corrective Action(s)** that can be taken to resolve the problem.

**Table 7-6. Error and Status Messages on Main Screen**

Message	Possible Cause(s)	Corrective Action(s)
<b>Recorder Error Messages</b>		
XXX recorder out of paper (XXX = Left, Center, or Right)	Recorder is out of paper	Replace paper roll
XXX recorder door is open	Recorder door is open	- Close Recorder door - Replace Recorder
No recorder connected	- No Recorder is in Recorder Rack - Recorder is in Recorder Rack	- Insert Recorder in Recorder Rack - Reseat Recorder in Recorder Rack - Replace Recorder or Rack
XXX recorder hardware fault	Recorder is inoperable	Replace Recorder.
Recorder Rack Power Supply Fault No Recorder	There is a fault in the Recorder Rack or Recorder Rack Power Supply	- Reseat Recorder in Recorder Rack - Check Recorder Rack and Power Supply
<b>Printer Status Messages</b>		
Appxx print job - in progress sent to printer - waiting for printer - failed where Appxx is the name of the application (e.g. Trend Review)	- print job is being sent to the printer - printer has received the job, printing is in process - print job is spooled and waiting for printer to become available - print job has failed	- None - None - None, If problem persists, check printer, printer spooler or hub - Resend print job
Check printer for problems	- printer has a paper jam - out of paper - printer off line	- remove paper jam - add paper to printer - consult printer User's Guide
Printer is busy Printer needs attention	- printer is presently printing - printer problem exists	- None - see steps above
No printer connected	System does not recognize any connected printer	- check printer connection - check printer configuration
<b>Other Messages</b>		
Move mouse over blue sector to silence alarms	No mouse movement within 30 seconds following an alarm	Use the mouse to silence the alarms
To Restore Normal Operation - Press "Restart Network" in Patient Window	Connectivity to Server has been restored after a power failure	Press <b>Restart Network</b> in Patient Window. System reboots and monitoring will be unavailable for about 5 minutes
Operating in Local DB -- See User's Guide for Details; Check Patient and Unit settings	Connectivity to Server has failed	Check <b>User's Guide</b> to review limited operations Check Patient and Unit settings
System problem -- contact service. Some functions disabled		Check <b>Network/Server</b> connectivity
Patient Database Server Disk Failure -- contact service	Server has detected a failure on one of its disks	Replace failed disk
The sound subsystem failed -- No Alert Sound	Device was unable to generate an alarm or inop sound	System will automatically reboot. If problem persists, replace sound card

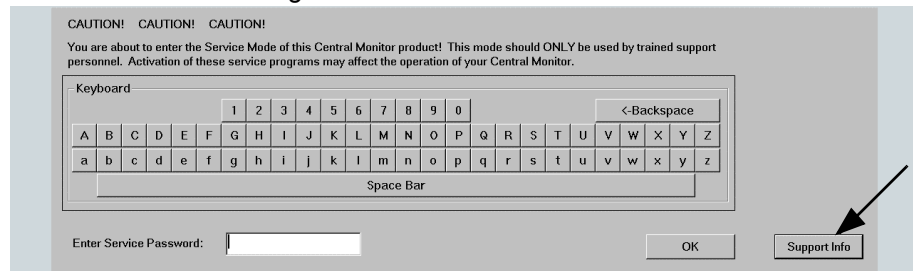
**Status Log**

If the system does not seem to be operating properly or some unusual hardware or software event occurs, users should access the **Status Log** to determine the operational status of devices on the system. The **Status Log** can be accessed by users from the **All Controls** window and is the first place users should look to identify a problem with a Philips hardware device.

Users can quickly review the **Status** column of this Log to identify devices that are not in proper operational condition, e.g. “Offline”, or are not listed, meaning they are no longer connected to the SDN. These device conditions can then be reported to service personnel for corrective action.

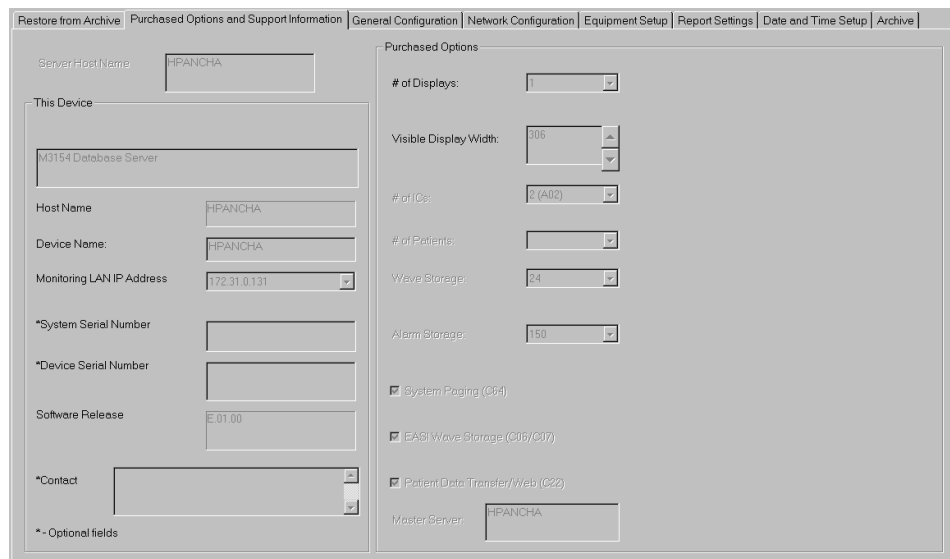
**Support Information**

Users can also access the **Purchased Options and Support Information** window, which lists who to contact when a problem occurs and gives a variety of information about the Information Center or Client that may be useful to service personnel. Clicking on **Service** in the **All Controls** window brings up the **Service Password** window of Figure 7-6.



**Figure 7-6 Service Password Window Showing Support Info Button**

Clicking on **Support Info** brings up the **Purchased Options and Support Information** window shown in Figure 7-7, which is **Read Only**.



**Figure 7-7 Purchased Options and Support Information Window - Read Only**

## Service Personnel Troubleshooting

If the user is unable to identify and resolve a problem, service personnel should be called. They can then access the extensive troubleshooting applications in the **Service** menu. There are 6 major categories of **Service** applications for troubleshooting:

### Support Logs

**Support Logs** provide information on the operational condition of the Network/Server system and devices connected to it. They include:

- **Event Log** stores information about system, security, and software application events that occur during system startup and operation. It utilizes the Event Viewer, but entries are made by both the Operating System and the application software.
- **Service Log** provides a history of service performed on the equipment of the system.
- **Status Log** provides information on the operational status of the network, hardware, and software devices. Entries to this log are made by the Information Center software. The Status Log is also viewable in Monitoring Mode from the Configuration and Support menu of the All Controls window. This allows clinicians to check the status of the Information Center devices without disrupting monitoring.
- **Network Statistics** provides operational information on network switches and access points.
- **Telemetry Services** provides information about telemetry monitors and mainframes connected to the Information Center.

### Diagnostics

**Diagnostics** provides the following troubleshooting diagnostic tools.

- **Printing, Recording, and SDN** tools for determining status and diagnostic information on networked printers, recorders, and Serial Distribution Network (SDN) interfaces.
- **Diagnostics** for determining status and diagnostic information on the Information Center workstation and its Windows Operating System.
- **Backup Error Logs** copies all Event Logs and Information Center logs from selected host names to a compressed file on a floppy disk or hard drive. The logs are copied and compressed for one Information Center, Client or Database Server at a time.
- **Redirect HL7** allows the HL7 data stream to be temporarily redirected for troubleshooting purposes.

### Configurations

**Configuration** applications provide a variety of tools for configuring Network devices, the Server, Information Centers, and Clients. These tools include the following, with specific tools available for specific devices:

- **!Config Wizard** sets a variety of configuration settings for Information Centers, Clients, Network Devices, and the Database Server.
- **Read Only Config Wizard** displays the current configuration settings.

- **Archive** creates a archive of the existing configuration settings.
- **Set Time/Date** sets and synchronizes the date and time on all devices on the Clinical Network and all patient monitors on the SDN Network.
- **Report Configuration** configures and creates the layout of the configured report types. Settings include header and footer, print date/time stamp, Patient Name, Medical Record Number, Bed label, page number, Unit name, and Hospital name.
- **Report/Recording Destination** is used by Information Centers and Clients that have no recorder connected to select another device with a recorder to print its recordings.
- **Add/Remove Database Servers** is used by the Master Database Server for adding and removing non-master Database Servers. This list is used in the Web Access and Patient Data Transfer options.
- **Patient Data Transfer -> Bandwidth Utilization** has 3 menu items: Low, Medium and High. These settings control the hospital LAN bandwidth utilization during patient data transfer.
- **Change Units Password** opens the change units password dialog box. Available on the Database Server and M3150 Information Center only
- **Print Configuration** opens the Printer dialog box.

**Other Services**

**Other Services** include the following additional tools:

- **Control Panel** tools for installing and configuring a variety of peripheral devices, e.g. keyboard, mouse, display, ports, modems, UPS.
- **Remote Access Admin.** for external access to the Information Center workstation via modem.
- **Software Versions** displays information that identifies the current versions of the Product, Application, Network, Operating, and Paging software that is currently installed on the system.
- **Internet Service Manager** displays Windows Internet Service Manager. Refer to the Windows documentation for more information.

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**Warning**

**Internet Service Manager provides read/write access to all Internet configurations.**

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- **User Manager** displays Read/Write access to all logon account configurations.

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**Warning**

**User Manager provides read/write access to all logon account configurations.**

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- Shutdown** **Shutdown** includes the following:
- **!Shutdown-Normal** tool for the normal shut down of software for rebooting
  - **!Desktop Tools** provides access to the Windows Main Menu.

- Maintenance** **Maintenance** includes the following:
- **Restart IIS Admin Service** stops and restarts the IIS service, which supports the Information Center Web functionality. This does not cause the Information Centers to operate in local mode.
  - **Restart DBServ** stops and restarts the DbServ process. This does not cause loss of patient data and does not cause Information Centers to operate in local mode.
  - **Synchronize Large Network Server List** used to synchronize the server list on non-master Database Servers.
  - **!Reset Database Log** resets the SQL server transaction log files to optimize performance. This does cause Information Centers to operate in local mode. On Database Servers only.
  - **!Upgrade NLS Catalogs** used to automatically update the NLS catalogs for new releases of patient monitors. On Database Servers only.

These tools, except Configuration tools, and their use in troubleshooting problems are described in detail in the following sections. Configuration tools are described in **Chapter 6**.

## Support Logs

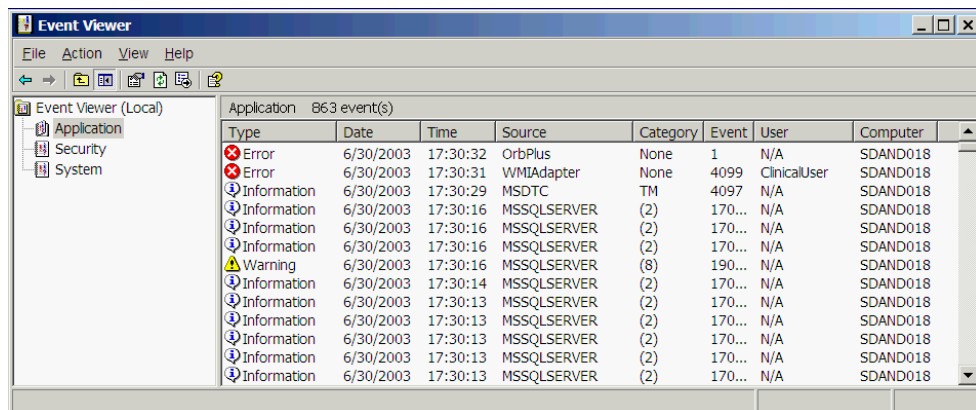
**Support Logs** provide information on the operational condition of the Philips system and devices connected to it. They are the following.

### Note

If using a remote PC to view the Logs, the specific Information Center PC platform driver must be installed on that remote machine.

### Event Log

The **Event Log** records all events and errors that occur in the Philips system when it starts and as it operates. It uses the standard Windows Event Viewer application. The **Event Log** is the first place service personnel should look for system problems. It cannot be printed. An “event” is any significant occurrence in the system, security, or applications for which users should be notified. Clicking on **Event Log** in the **Service** menu brings up the following **Event Log** window.



**Figure 7-8 Event Viewer (Log) Window**

Clicking on **Log** in the menu in the upper left of the **Event Log** window permits selection of the **Event Log** categories. Events recorded in each category are the following.

**System Log** records events logged by Windows system components, services, and SDN interfaces; for example, the failure of a driver or other system component to load during startup.

**Security Log** records events related to system security.

### Note

The **Security Log** is not used in present Philips releases.

**Application Log** records events in Information Center applications; for example, a database error in the patient wave review application.

Each event is described by the following information:

**Date** of the event.

**Time** of the event



**Source** indicates the software that logged the event, either an application or a system component, such as a driver.

**Category** indicates the type of event as defined by the source.

**Event** number assigned to the event for identification

**User** name that matches the text in the User name field.

**Computer** name of the computer where the logged event occurred

Each event is also given one of the following icon symbols for quick identification of event type:



**Error** - Significant problem, such as a loss of data or loss of function; for example, an application or Windows service was not loaded during startup.



**Warning** - Events that are not necessarily significant but indicate possible future problems; for example, when disk space is low.



**Information** - Infrequent significant events that describe successful operations of major server services; for example when a database program loads successfully.



**Success Audit** - Audited security access attempts that were successful; for example, a user's successful attempt to log on to the system.



**Failure Audit** - Audited security access attempts that failed; for example, if a user tried to access a network driver and failed.

**Note**

**Error** coded events are the only type of events that relate to Philips applications and are the only codes described in this manual. For other types of events, consult Windows documentation.

The other Event Log menu selections do the following:

**V**iew provides features for filtering, ordering, and finding events

**O**ptions provides for a low speed connection, saving settings on exit, and changing character fonts.



**H**elp brings up detailed descriptions of the features and terms of the Event Log.

**Note**

Windows Help windows often cover part of patient waveforms. However, they do not effect monitoring or alarms. To see patient data, resize and move the Help window to the lower half of the display screen. The Event Log cannot be printed.

The following tables provide information on events that can appear in the Event Log. Table 7-7 provides information on **Application Events**; Table 7-8 provides information on **System Events**.

**Application Events**

To access **Application** events designated **Error**  and **Warning**  :

**Step 1.** Click on **Event Log** in the Support Log menu of the Service window.

**Step 2.** Click **Log** in the upper left corner of the Event Log to access the Log menu. Then check **Application** to display only Application Events.

**Step 3.** Click **View** to access the View menu and then check **Filter Events** to access the **Filter** window.

**Step 4.** In the Filter window, select the following and click **OK**:

**View From:** First Event  
**View Through:** Last Event  
**Types:** Error  
Warning  
**Source:** (All)  
**Category:** (All)

**Step 5.** To view the **Description** of an event, click View and then check Detail to display the **Event Detail** window. The Previous and Next buttons can be used to access **Descriptions** of other events in the list.

The following table gives entries that can appear in the **Source** column and **Description** field for Application events in the Event Log. Information in the Description column appears in text format in the Description field of the Event Detail window. Explanation of the events and Corrective Action to take to correct the problem are also provided. In some cases, the proper action is to contact the **Response Center**.

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**Note**

When Philips software restarts for any reason, for example a deliberate Shutdown and Restart or automatically after a system crash, the following sequence of codes appears in the **Application Events Log**:

Source	Description
Stardateshell	started application c:\stardate\bin\SDProcess.exe
OrbPlus	cannot find ti_locator: exception returned
OrbPlus	cannot find ti_locator: exception returned
OrbPlus	cannot find ti_locator: exception returned

If it is suspected that the system has automatically restarted after a crash, possible cause information can be found in the **Run Time Error Log Files** and **Exception Error Log Files** described at the end of **Table 7-7**.

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**Table 7-7. Application Events**

Source	Description (Event Code)	Explanation	Corrective Action
dataserver	Error: 2000	Monitoring conflict or Central Station # conflict. A bed is being monitored by more than one Information Center	Correct SDN branch assignments in <b>SDN Config</b> and <b>Display Setup</b> to assure that each monitor is assigned to only one Central Station
	Error: 2001	Patient Data Store told DataAcquisition to tune more than 16 beds simultaneously	Contact Response Center
	Error: 2002	Network error. SCC probably disconnected or turned off.	- Check SCC cable and SDN interface connection - Check that SCC is turned on.
	Error: 2004	Length of message block received from Redirector does not equal the first word of the buffer	Contact Response Center
	Error: 2005	Invalid link to next SDN message. Corrupt incoming data.	Contact Response Center
	Error: 2006	SDN message too small	Contact Response Center
	Error: 2007	HRC check failed. Corrupt incoming data	Contact Response Center
	Error: 2008	Invalid link to next SDN message. Corrupt incoming data.	Contact Response Center
	Error: 2009	Invalid high order bits in SDN message. Corrupt incoming data.	Contact Response Center
	Error: 200B	Virtual Terminal Protocol could not connect to arrhythmia controls object.	Contact Response Center
	Error: 200C	Virtual Terminal Protocol could not connect to database alarms object	Contact Response Center
	Error: 200D	Virtual Terminal Protocol error in GetAlarmWave	Contact Response Center
	Error: 200E, 200F, 2010, 2011, 2106, 2017, 2018, 2019	Low level Data Control Protocol error	No action required
	Error: 201A	Data Acquisition Receive thread is shutting down	Not an error, no action required
	Error: 201B	Low level Data Control Protocol error	No action required
	Error: 2021	Branch number changed. User altered SCC configuration while system was running	- Check SCC cabling - Shut down Information Center and restart. System should recognize new branch and start normally.
	Error: 2022	SDN Interface Card reset	Shut down Information Center and restart
	Error: 2023	Data Link Control header incorrectly terminated	Reseat or replace SDN Interface Card
	Error: 2024	SDN Data block incorrectly terminated	Reseat or replace SDN Interface Card

**Table 7-7. Application Events**

Source	Description (Event Code)	Explanation	Corrective Action
dataserver redirector recmgr sdprocess pdsstore docstatusserver	Error: Unhandled Exception Filter is kicking in	Fatal error. System will automatically reboot to clear error state	Reboot system to clear. Contact Response Center if it happens often.
EMSMainMenu	Winsock connection failed		Reboot system. If this persists, reinstall OS software.
	Mode of operation could not be read from registry. Therefore, the mode was defaulted to monitoring mode.		No action required.
	The user logon flag could not be read from the registry. Therefore, the user logon was defaulted to the SystemManager account		Reboot system
	Could not open the specified event to send to the Shell application.		Reboot system
	Could not start application because Error = XX		Reboot system. If this persists, reinstall Philips software
	Could not open HKEY_LOCAL_MACHINE Registry because Error = XX		Reboot system. If this persists, reinstall OS and Philips software
	Could not write value to Registry because Error = XX		Reboot system. If this persists, reinstall Philips software
Install	Could not open HKEY_LOCAL_MACHINE Registry because Error = XX		Reboot system.
	Could not write value to Registry because Error = %d		Reboot system. If this persists, contact Response Center
	OpenProcessToken failed.		Contact Response Center
	AdjustTokenPrivileges enable failed.		Contact Response Center
	Auto Reboot Failed		Reboot system or recycle power
NetCfgLib	Auto Reboot failed		Reboot system, If this persists, reinstall Philips software
	OpenProcessToken failed		Reboot system. If this persists, reinstall Philips software
	AdjustTokenPrivileges enable failed		Reboot system. If this persists, reinstall Philips software
	Could not open HKEY_LOCAL_MACHINE Registry because Error = XX		Reboot system. If this persists, reinstall OS and Philips software
	Could not write value to Registry because Error = XX		Reboot system. If this persists, reinstall Philips software
	Could not read value from Registry because Error = %d		Reboot system. If this persists, reinstall Philips software
	Could not write to Error File		No action required
OrbPlus	Error: all		No action required

**Table 7-7. Application Events**

Source	Description (Event Code)	Explanation	Corrective Action
ProductConfig	Could not open HKEY_LOCAL_MACHINE Registry because Error = XX		Reboot system. If this persists, reinstall OS and Philips software
	Could not write value to Registry because Error = XX		Reboot system. If this persists, reinstall Philips software
	Could not read value from Registry because Error = %d		Reboot system. If this persists, reinstall Philips software
	WinSock connection failed		Reboot system. If this persists, reinstall OS software
	Could not read which configuration applications to run from the Registry.		Reinstall Philips software
	Could not start application because Error = XX		Reboot system.
PswdScrDlg	Could not start EMS Main Menu application		Reboot system. If this persists, reinstall Philips software
	... Application could not be started.		Reboot system. If this persists, reinstall Philips software
	Logon User does not have the privilege to access EMS applications. Need to update the access rights of the SystemManager User.		Reboot system. If this persists, reinstall Philips software
	WinSock connection failed		Reboot system. If this persists, reinstall OS software
	System manager password entered		Verify proper user access
	Philips Private password entered		Verify proper user access
RecMgr	Error: 2504, The default case on a switch was reached.		Report to Response Center and reboot system.
	Error: 2510, No primary wave was found in the pds. Using the first two waves.		Reboot system. If this persists, reinstall Philips software.
	Error: 2511, No data was found in the pds. This could be a temporary startup condition.		If this occurs around a patient discharge or transfer or when a bedside monitor module is pulled out, no action required. If occurs at other times, reboot system.
	Error: 2512, A pds collector could not be created for the specified patient.		If this occurs around a patient discharge or transfer or when a bedside monitor module is pulled out, no action required. If occurs at other times, reboot system.
	Error: 2513, A patient could not be found from the information supplied.		If this occurs around a patient discharge or transfer or when a bedside monitor module is pulled out, no action required. If occurs at other times, reboot system.
	Error: 2514, This unmarshall routine does not support the version of data that was marshalled.		Reboot system. If problem persists, reinstall Philips software. If problem still exists, contact Response Center.

**Table 7-7. Application Events**

Source	Description (Event Code)	Explanation	Corrective Action
RecMgr	Error: 2515, One of the waves needed for the recording is no longer available.		If this occurs around a patient discharge or transfer or when a bedside monitor module is pulled out, no action required. If occurs at other times, reboot system.
	Error: 2516, The requested memory could not be allocated.		Reboot system. If this persists, reload Philips software.
	Error: 2517, Data from the pds has not arrived yet. Indicates a long time delay in retrieving data from the pds.		If this occurs around a patient discharge or transfer or when a bedside monitor module is pulled out, no action required. If occurs at other times, reboot system.
	Error: 2518, One or more threads in this process failed to start. Problem is likely due to a system wide failure and may require a reboot of the machine.		Reboot system. If this persists, reload Philips software.
	Error 250C, The recorder corba id key was missing or could not be read or written to.		Reinstall Philips software.
	Error: 250D, A corba call failed		Reboot system. If this persists, reinstall Philips software
	Error: 250E, Programmer error. Please submit a bug report with the text from this message.		Report text in <b>Event Log</b> to Response Center. Reboot system.
SDNConfig	The database service has not started. The application must be terminated		Reboot system.
sdprocess	Clinical password entered	Clinical password was used in <b>Unit Settings</b> password window	Verify proper user access
ServiceLog EntryApp	Winsock connection failed		Reboot system. If this persists, reinstall OS software
	Could not initialize and/or update the application. The application was terminated		Reinstall Philips software
	All devices on the network are unavailable. Application terminated.		Check SDN cable and connections, test SCC
	Cannot connect to database. Application terminated.		Reboot system. If this persists, reinstall Philips software
	EMS Service Log Database is corrupt.		Shut down the <b>Service Log</b> and Contact the Response Center
	Application could not be started.		Reboot system. If this persists, reinstall Philips software
ServiceLog ViewerApp	Winsock connection failed		Reboot system. If this persists, reinstall OS software
	Could not initialize and/or update the application. The application was terminated		Reinstall Philips software
	All devices on the network are unavailable. Application terminated.		Check SDN cable and connections. Test SCC
	Cannot connect to database. Application terminated.		If this persists, reinstall Philips software

**Table 7-7. Application Events**

Source	Description (Event Code)	Explanation	Corrective Action
Stardateshell	Started application c:\stardate\bin\SDProcess.exe		System restarted from a normal reboot or a crash. If normal startup, no action required. If system crash, contact Response Center.
	Entering non-monitoring mode		No action required
	Could not start application: ....		Reboot system. If this persists, reinstall Philips software
	The following service did not start: ....		Reboot system. If this persists, reinstall Philips software
	Unable to run the Display Setup Application		Reboot system. If this persists, reinstall Philips software
	Unable to run the Product Configuration Application		Reboot system. If this persists, reinstall Philips software
	Keyboard filter is not running, or its state cannot be verified. Exiting to operating system		Check keyboard connection, reinstall Philips software
	SDN access card or sound driver not started, exiting to operating system.		Reboot system. If this persists, reinstall OS and Philips software
	Unable to start all Stardate services, exiting to operating system.		Reboot system. If this persists, reinstall OS and Philips software
	Failed to set VideoMode		Access <b>Display Setup</b> , and set number of displays to 1
	Unable to start SDProcess, exiting to operating system.		Reboot system. If this persists, reinstall Philips software
	Unable to shutdown BootService, exiting to operating system		Reboot system
	The sound driver is not running or its state could not be verified.		Reboot system. If this persists, reinstall OS software
Support Info	Winsock connection failed		Reboot system. If this persists, reinstall OS software
	Could not open HKEY_LOCAL_MACHINE Registry because Error = XX		Reboot system. If this persists, reinstall OS and Philips software
	Could not read value from Registry because Error = %d		Reboot system. If this persists, reinstall Philips software
TimeSetApp	Winsock connection failed		Reboot system. If this persists, reinstall OS software
	Could not open HKEY_LOCAL_MACHINE Registry because Error = XX		Reboot system. If this persists, reinstall OS and Philips software
	Could not read value from Registry because Error = %d		Reboot system. If this persists, reinstall Philips software
	Unable to set time on this device. It is not configured.		Reboot system. If this persists, reinstall Philips software
TimeSetApp	Unable to set system wide time.		Check SDN cable and connections. Test SCC
	Unable to set time zone information!		Reboot system. If this persists, reinstall OS software
	Unable to set the local time!		Reboot system. If this persists, reinstall OS software

**System Error Log Files**

Some software errors that are significant to system operation (unexpected error events), and can help the Response Center or factory personnel resolve problems, are logged into **System Error Log** text files. Examples of these errors are Open failed, socked bind failed, and registry read/write failed. There are two ways to access these files:

**Step 1.** Access the **Windows Explorer** from the Diagnostics menu in the Service window

**Step 2.** Select the path **c:\stardate\log**.

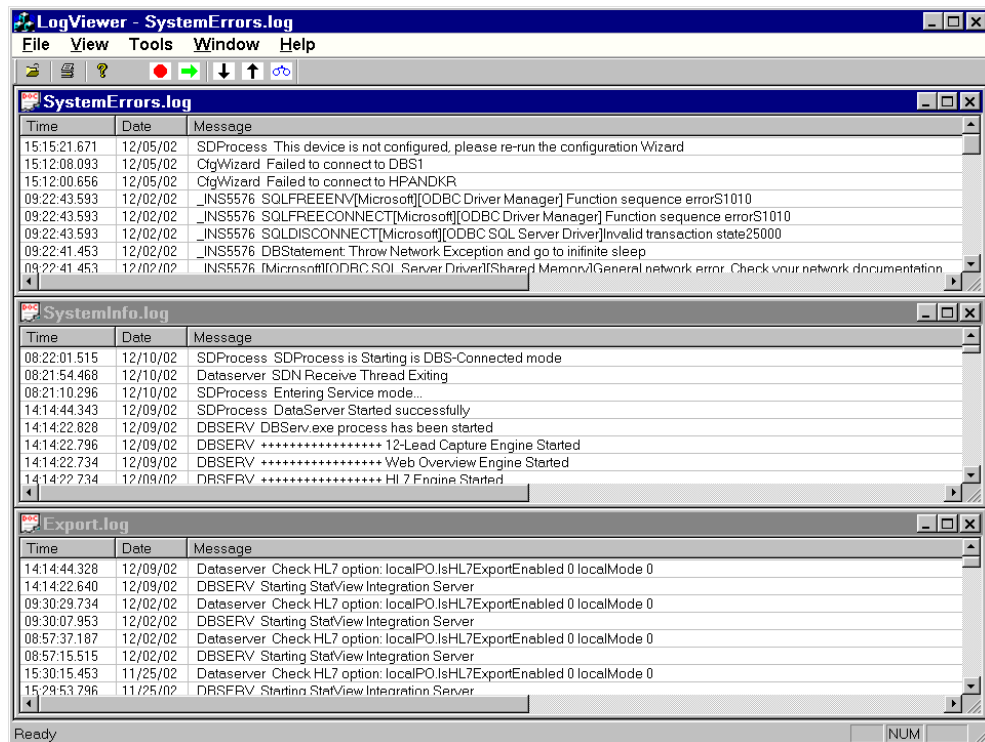
**Step 3.** The **SystemErrors.log** will be displayed.

**Step 4.** Print this file by clicking on **Print** in the **File** menu at the top left corner of the screen.

or

**Step 1.** Go to **c:\stardate\bin** and double-click on **LogViewer.exe**

**Step 2.** The Log Viewer application opens. Go to **File -> Open** to select the log files. More than one log file can be displayed, as shown in Figure 7-9



**Figure 7-9 LogViewer Window**

**System Info Log Files**

Some software errors are not significant to system operation (unexpected cod/data-logic errors), are logged into **System Error Log** text files that are different from the System Error Log. Examples of these errors are: shutdown, startup local mode, and user went to service mode. These files can be accessed as follows.



**Step 1.** Access the **!Windows Explorer** from the Diagnostics menu in the Service window.

**Step 2.** Select the path **c:\stardatellogs**.

**Step 3.** The SystemInfo.log will be displayed.

**Step 4.** Print this file by clicking on **Print** in the **File** menu at the top left corner of the screen.

or

**Step 1.** Go to **c:\stardatelbin** and double-click on **LogViewer.exe**

**Step 2.** The Log Viewer application opens. Go to **File -> Open** to select the log files. More than one log file can be displayed, as shown in Figure 7-9

### **Export Log Files**

Software errors that are related to the export features (HL7, paging, 12-Lead ECG Management, Holter, Patient Data Transfer) are logged into **Export Log** text files. The file can be accessed as follows.

**Step 1.** Access the **!Windows Explorer** from the Diagnostics menu in the Service window.

**Step 2.** Select the path **c:\stardatellogs**.

**Step 3.** The Export.log will be displayed.

**Step 4.** Print this file by clicking on **Print** in the **File** menu at the top left corner of the screen.

or

**Step 1.** Go to **c:\stardatelbin** and double-click on **LogViewer.exe**

**Step 2.** The Log Viewer application opens. Go to **File -> Open** to select the log files. More than one log file can be displayed, as shown in Figure 7-9

### **Exception Error Log Files**

If the system crashes or “exceptions” occur, the state of the system when it crashed is stored in special **Exception Error Log** files. These files can be useful to the Response Center or factory personnel for determining the state of the system when the exception or crash occurred. These files can be accessed as follows.

**Step 1.** Access the **!Windows Explorer** from the Diagnostics menu in the Service window.

**Step 2.** Select the path **c:\stardatellogs**.

**Step 3.** Double click on the file **drwtsn32.log** and this log will be displayed.

**Step 4.** Print this file by clicking on **Print** in the **File** menu at the top left corner of the screen.

The **drwtsn32.log** file can keep track of exceptions. When the capacity is reached, the original file is renamed **drwtsn32\_old.log**, and the original **drwtsn32.log** file is erased so that new exceptions can be added.

**Backup Error  
Logs**

The Backup Error Logs tools copies all Event Logs and Information Center logs from selected host names to a compressed file on a floppy disk or hard drive. The logs are copied and compressed for one Information Center, Client or Database Server at a time.

**Step 1.** Select **Diagnostics -> Backup Error Logs**

**Step 2.** Select the **hostname** of the device.

**Step 3.** Verify the location of the backup log path. If another location is desired, press the **Browse** button.

**Step 4.** Press the **Backup Logs..** button to begin backup.

**System Events** To access **System** events that are designated **Error** and **Warning**, follow the steps for **Application Events** on page 7-27, except check **System** in **Step 2**. The following table gives entries that can appear as **System** events.

**Table 7-8. System Events**

Source	Description (Event Code)	Corrective Action
SDN	Error: 513, SDN RAM error	Replace SDN Interface Card
	Error: 514, SDN signature RAM error	Replace SDN Interface Card
	Error: 515, SDN autopoll error	Replace SDN Interface Card
	Error: 516, SDN TB2 error	Replace SDN Interface Card
	Error: 517, SDN chip access not in dead time at start of dead time. [(No SYNC TAP, (i.e., no SDN connection to IC)]	Check SDN cable connection to the Philips PC
	Error: 519, Background not complete	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 769, Host not responding to interrupt from SDN card.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 770, Write to host did not complete - DATA LOST.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error 771, Read from host did not complete.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 896, The card was told to read 0 bytes from the SDN driver	Reboot Philips system. If problem persists, reload Philips software. If problems still persists, reload OS and then Philips software.
	Error: 897 The driver is trying to send too much data to the card. The transfer did not complete.	Reboot Philips system. If problem persists, reload Philips software. If problems still persists, reload OS and then Philips software.
	Error: 898, The amount of data read by the card from the driver does not agree with the expected count. The transfer did not complete.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 899, The transfer count indicating the amount of data that the driver wants the card to read exceeds the amount that can be read by the AMCC chip. The transfer did not complete.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 900, The transfer count indicating the amount of data that the driver wants the card to read is old. The transfer did not complete.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 901 The message header contained in the driver to card data is not a valid header. Transfer did not complete.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 902, The size of the recorder message from the driver to the card is incorrect. The transfer did not complete.	Reboot Philips system. If problem persists, replace SDN Interface Card
Error: 903, The driver to card read appeared to be successful but the transfer count to read did not agree with the amount read. The transfer did not complete.	Reboot Philips system. If problem persists, replace SDN Interface Card	
Error: 904, The recorder ID in the driver to card recorder message is not a valid ID. Data not sent to the recorder.	Reboot Philips system. If problem persists, replace SDN Interface Card	

**Table 7-8. System Events**

Source	Description (Event Code)	Corrective Action
SDN	Error: 905, Overflow of one of the driver to card recorder queues (i.e., too much data sent to a recorder). Data not sent to the recorder.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 906, Underflow of one of driver to card recorder queues (i.e., not enough data sent to the recorder).	No action required. The Philips system will automatically correct the situation.
	Error: 907, Unexpected state of the software for one of the recorders. The software logic for the recorder will be reinitialized and the driver to card recorder connection will be reestablished. Some recording data may be lost	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 909, Unexpected state of the software for one of the recorders, The software logic for the recorder will be reinitialized and the driver to card recorder connection will be reestablished. Some recording data may be lost.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 910, Unexpected state of the software for one of the recorders, The software logic for the recorder will be reinitialized and the driver to card recorder connection will be reestablished. Some recording data may be lost.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 911, All SDN and recorder message packets were transferred from the driver to the card correctly but there was no end of message header. Transfer did not complete.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 912, Unexpected state of the software for one of the recorders. The software logic for the recorder will be reinitialized and the driver to card recorder connection will be reestablished. Some recording data may be lost.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 913, Have reached the end of the driver to card transfer count while reading an sdn message packet and there was no end of message header. Transfer did not complete.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 914, Have reached the end of the driver to card transfer count while reading a recorder message packet and there was no end of message header. Transfer did not complete.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 917, The card did not have enough time to transfer the data to the driver across the PCI bus (i.e., some device may be holding onto the PCI bus for too long). Transfer did not complete.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 918, Card to driver message queue overflow. The card was not able to push data to the driver fast enough. One 32ms frame of data lost.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 919, The driver interrupted the card indicating that the next card to driver transfer could be started but the transfer count indicates that the driver did not finish reading data from the last transfer from the card. Data from the card to the driver may be lost.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 920, Unexpected state in the card to driver data transfer software.	Reboot Philips system. If problem persists, replace SDN Interface Card
Error: 928, Device id list is too small	Reboot Philips system. If problem persists, replace SDN Interface Card	

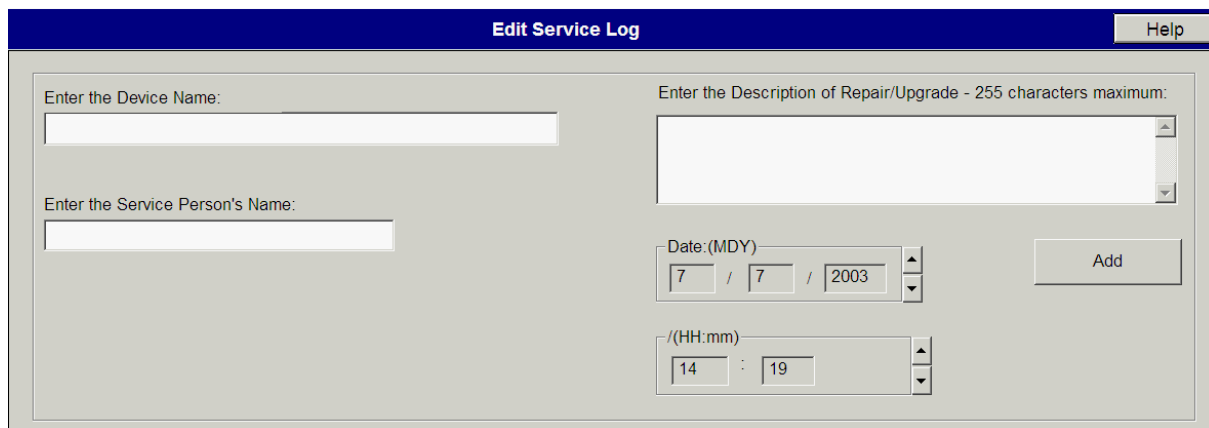
**Table 7-8. System Events**

Source	Description (Event Code)	Corrective Action
SDN	Error: 930, Plugged devices table does not match number of devices marked as plugged in	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 931, Invalid rack interface number or rack slot number	Connect correct or new rack to the Philips system
	Error: 935, A device other than a Morgana recorder is plugged in	Remove incorrect plug-in module
	Error: 938, Can't find a device status entry that should be there	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 1553, SDN adapter incompatible hardware and firmware	Replace SDN Interface Card. If problem persists, reinstall Philips software.
	Error: 1554, SDN adapter missing hardware	Replace SDN Interface Card.
	Error: 1793, Adapter never responded to reset command within time-out period. Adapter has been declared dead.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 1794, Firmware data file janus.afc is not accessible.	Reinstall Philips software.
	Error: 1795, Invalid firmware found on adapter -- Loading new firmware from local firmware file	No action required, normal operation when the Philips system is started.
	Error: 1796, Unable to create the symbolic link for janus.afc.	Reboot Philips system. If problem persists, reload Philips software. If problems still persists, reload OS and then Philips software.
	Error: 1797, No SDN adapter interrupts have occurred within time-out period - Scheduling an adapter reset.	Reboot Philips system. If problem persists, replace SDN Interface Card
	Error: 1798, Performing driver initiated adapter reset.	No action required, normal operation when the Philips system is started.
	Error: 1799, The SDN adapter is running.	No action required, normal operation when the Philips system is started.
	Error: 1800, A user requested an adapter reset via the SdnMonitor utility.	No action required, normal operation when the Philips system is started.
	Error: 1801, The driver was not called back to perform an adapter reset within the predetermined amount of time. The driver and adapter have been made inactive.	Reboot Philips system. If problem persists, reload Philips software. If problems still persists, reload OS and then Philips software.
	Error: 1802, Timeout while waiting for the OS kernel to call the driver back to perform an adapter reset - retrying kernel call-back request.	Reboot Philips system. If problem persists, reload Philips software. If problems still persists, reload OS and then Philips software.
Error: 1803, The previous error has repeated. To avoid filling the event log with the same error, this error will not be logged until a different error, or no error, is encountered.	No action required, normal operation when the Philips system is started.	
Error: 1804, The adapter's boot strap code (DBOOT) has been started. The driver will attempt to restart the SDN adapter.	No action required, normal operation when the Philips system is started.	

**Service Log** The **Service Log** permits logging of service performed on equipment connected to the Network/Server system. Each time the system or a device is changed, -- moved, repaired, upgraded -- an entry should be made to the **Service Log** to track system status and history. The **Service Log** can store up to 500 entries.

New entries are made in the **Edit Service Log** option of the **Service Log**. Equipment status and history can be reviewed in the **View Service Log** option.

**Edit Service Log** The **Edit Service Log** window is used to add information to the **Service Log** on devices that have been serviced. See Figure 7-9.



**Figure 7-9 Edit Service Log Window**

The following fields are used to **Enter** the device information

**Device Name** is for entering the name of the device being serviced, e.g. **Central1, Bed1**.

**Service Person's Name** is for entering the name of the person who made the change or is entering the information.

**Description of the Repair/Upgrade** is for entering a brief description of the change that was made. It has a 255 character limit.

**Date (MDY)** is for setting the date (**Month / Day / Year**) the change was made using the up/down buttons to change the values in the boxes.

**Time (h:mm)** is for setting the time (**hour:minutes**) the change was made using the up/down buttons to change the values in the boxes.

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**Note** The **ADD** button **must** be clicked after the information has been entered for it to be recorded in the system.

---

The **Service Log** has a capacity of 500 entries. When the log is approaching full (490 - 500 entries), a message indicating that the **Service Log** should be archived appears with an option to archive immediately. Choosing to archive the **Service Log** brings up a **Save As** window for archiving the **Service Log** to a disk. The archive procedure is described under **Archiving**

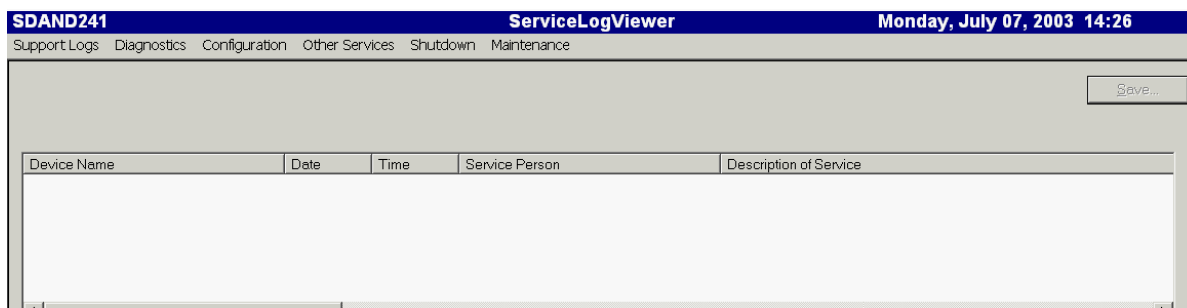
**the Service Log.** The Service Log will continue to display the last 500 entries even if it has been archived.

If the decision is not to archive the Service Log, the system will delete the oldest entry each time a new entry is added. The log makes room for new entries by writing over the oldest entry.

**Note** For Network/Server systems, Service Log information is stored on the Server. If information is stored when a device is in local database mode, it will be lost when the device reconnects to the Server.

**Caution** Service Log information should be archived regularly since it may be lost if the disk drive crashes.

**View Service Log** The View Service Log window is used to review the service history of the system. See Figure 7-10.



**Figure 7-10 Service Log View Window**

The service history of individual devices can be viewed.

**Device Name**, e.g. Central1, Bed1, ...

**Date** of the entry

**Time** of the entry

**Service Person** who performed the service

**Description of Service** that was performed

**Note** The width of the columns can be changed by clicking and holding on the vertical line separating the field titles and moving the line left or right. Arrows on the lower corners of the field can be used to scroll the fields left and right and up and down.

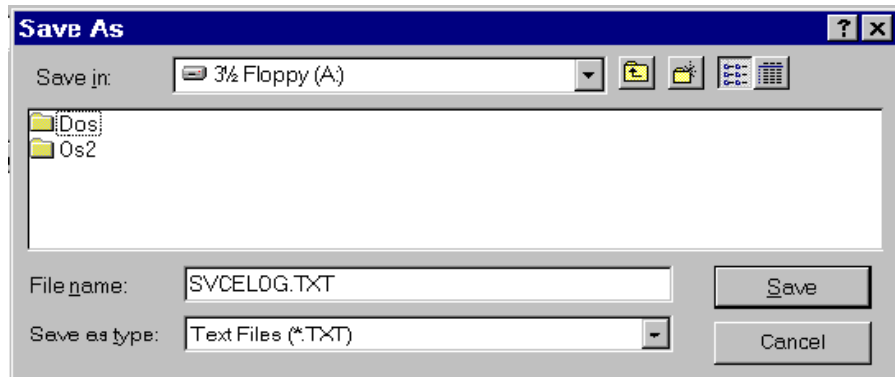
### Archiving the Service Log

Service Log information can be archived by clicking on the **Save** button in the View Service Log window. The procedure for archiving the Service Log is the following:

**Step 1.** Click on the **Save** button in the View Service Log window. The following message appears.

Please insert your disk into the floppy disk drive. When you are ready, select OK. Otherwise, select CANCEL to quit.

**Step 2.** Insert the Archive disk into the external **A:** drive of the device and click **OK**. The **Save As** window shown in Figure 7-11 appears.



**Figure 7-11 Save As Window for Archiving the Service Log**

**Step 3.** Click on **3 1/2 Floppy (A:)** from the **Save in:** pull down list.

**Step 4.** Type in a **File name** for the Service Log, such as **SVCELOG**.

**Step 5.** Click on the **Save as type** pull down button and click on either of the following entries.

**Text Files (\*.TXT)** saves the data in ASCII type format for viewing applications, such as Notepad. The suffix **.TXT** will be added to the **File Name** if a file extension has not been added.

**dB Export file (\*.DAT)** saves the data to a disk for importing to a database for operational applications, such as spreadsheets. The file consists of rows corresponding to the data columns in the **Service Log**. Column items are surrounded by quotes (") and separated by commas (.). The suffix **.DAT** will be added to the **File Name** if a file extension has not been added.

**Step 6.** Click **Save**.

When the archive has been made, an **SDProcessed** window appears with the message: Saved files A:\File Name.

Click **OK** to continue.

If a file overwrite is required, a **Yes/No** verification question appears.

Click **Yes** to overwrite the existing file with the new file.



If the file cannot be saved for some reason, an error message to **Cancel** the **Save** operation is displayed.

Replace the Archive disk with another disk and repeat the process.

When the **Save** process has completed:

**Step 7.** Remove the Archive disk from the **A:** drive and store it in the holder on the side of the Server.

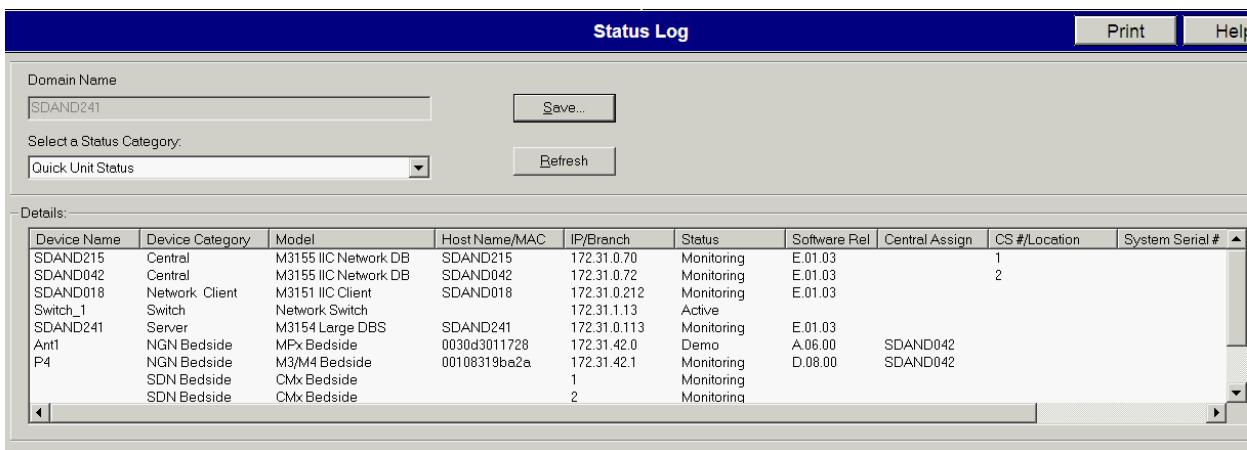
**Service Log** data for the first 200 entries have been stored on the disk. If the file was saved as a **dB Export file**, the data can now be imported to another database.

**Status Log** The **Status Log** provides information on the operational status of all devices connected to the same Network as an Information Center or Client.

**Note** If the Information Center or Client is in Local Database Mode, data on other Network connected devices will not be current and may be incorrect.

There are two versions of the Status Log -- **Quick Unit Status** and **All Data Categories** -- and both can be accessed from either the **All Controls** window or the **Service** menu.

**Quick Unit Status** The **Quick Unit Status** version of the **Status Log** provides summary information to clinical users for quick identification and reporting of problems with devices in their clinical unit. The **Quick Unit Status** window is shown in Figure 7-12.



**Figure 7-12 Quick Unit Status Log Window**

The following information is displayed

**Domain Name** is a read-only field that displays the **Host Name** of the Database Server on the Network of the device. For local database Information Centers, it is blank.

**Status Category** has a pull down list for selecting the desired version of the **Status Log**

**Quick Unit Status** provides information on **Devices** only and is the version accessed by users directly from the **Configuration and Support** menu of the **All Controls** window.

**All Data Categories** is for service personnel and provides information on **Devices**, **Network**, **Hardware**, **Software**, **Product Options**, and the **Recorder Destination** for each Information Center and Client.

The **Details:** field displays the following information.

**Device Name** is the name assigned to the device when it was added to the network in **Network Configuration**.

**Device Category** is the type of device.

**Model** is the specific model or model number of the device (e.g. M3150, CMx Bedside)

**Host Name/MAC Address** is the **Host Name** or **MAC Address** of the Information Center the device is connected to.

**IP Branch** is the IP Address or SDN branch number (0 - 31) of the device (if applicable).

**Status** is the operational status of the device (e.g. **Online**, **Offline**)

**Operating Mode** is the device operating mode, if defined (e.g. **Monitoring**, **Demo**, **Unknown**)

**Software Revision** is the identifying number of the Philips software release (e.g. E.xx.xx for current software)

**Central Assign.** is the name of the central station to which the device is assigned (if applicable).

**CS#/Location** is the number of the central station to which the device is assigned (if applicable) or the Port location of the device.

**System Serial #** is the serial number of the Information Center system.

**Device Serial #** is the serial number of the Information Center to which the device is connected.

**Firmware Addr.** is the radio firmware address of wireless M3/M4 monitors.

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**Notes**

The column width of the **Details** field can be changed by clicking and holding on the vertical line separating the field titles and moving the line left or right.

Arrows in the corners of the field scroll the field left/right and up/down.

The **Status Log** can **only** be accessed from **Monitoring Mode**.

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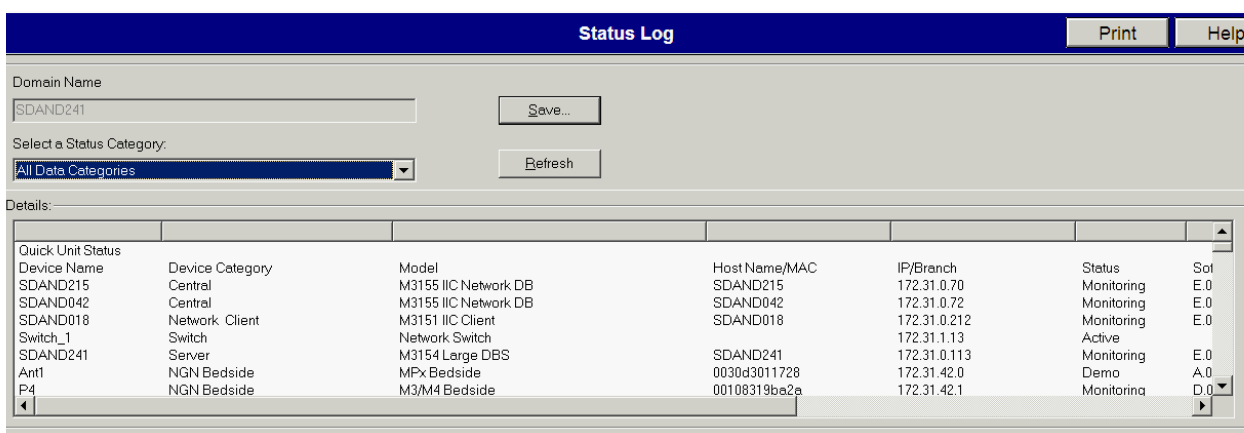
**Print** in the upper right of the window brings up a **Print** window that can be used to print **Status Log** information to the default printer.

**Save** prompts the user to insert a floppy disk into the A: drive of the Philips PC for saving Status Log information to a disk. Inserting a disk and clicking on OK brings up a Save As window. The archive procedure is the same as that for the Service Log. See **Archiving the Service Log**.

**Refresh** gives an immediate update of recent events.

**All Data Categories**

The **All Data Categories** version of the Status Log displays the same Device information as the Quick Unit Status plus the following Philips system information -- Network, Hardware, Software, Product Options, and Recorder Destination. The All Data Categories Status Log is shown in Figure 7-13.



**Figure 7-13 All Data Categories Status Log Window**

**Network:** The following information is provided in the Status Log for each device on the network.

- Device Name:** e.g. CCU1, Central1, etc.
- IP Address #:** e.g. 172.31.xxx.x
- Subnet Mask:** i.e. 255.255.0.0
- MAC Address:** of the device PC

**Hardware:** Information on the following hardware components of each device on the network is provided:

- Processing Unit:** Processor, System BIOS, Video BIOS
- Hard Disk Drive:** (information may only be model #)
- Floppy Disk Drive:** (information may only be model #)
- CD ROM drive:**
- SDN Interface Card:** firmware Revision # and hardware Serial #
- Sound card:** model type only
- Serial Ports:** COM1, COM2
- Parallel Port:**
- Network Adapter:**
- Keyboard:**
- Pointer Device:**
- Printer:**

The following information is provided for each of these hardware components, if available:

**Device Name:** Device Name given to the networked device (e.g. ICU1, Central1, etc.)

**Hardware Name:** name of the hardware component contained in the Device (e.g. as listed in the previous Hardware component list)

**Hardware Model:** (not available for all hardware components)

**Version** (of Firmware or driver): (not available for all hardware components)

**Serial #:** (not available for all hardware components)

**Software:** The following information is provided for Information Center software for each networked device:

**Device Name:** e.g. ICU1, Central1, etc.

**Revision:** E.xx.xx for current software

**Network Version:** E.xx.xx for current software

**Product Version:** E.xx.xx for current software

**Product Options:** The following information is provided for the options that have been purchased for each Philips system on the network:

**Model Type:** M3150 IIC Local DB, M3155 IIC Network DB, M3151 IIC Client, M3154 Large DBS, M3169 Small DBS, M3170 Patient Link

**Number of Patients:** 4, 6, 8, 12, 16 for Information Centers and Clients; up to 48 for the M3169 Small Database Server; up to 128 for the M3154 Database Server

**Number of Displays:** 1 or 2

**Host Name:** Host Name given to the device when it was installed

**Recorder Destination:** Identification of the recorder where each device's recordings are sent, as configured in **!Set Recording Destination** for each device:

**Device Name:** Device Name for each Information Center or Client

**Is Recorder Connected:** whether a recorder is connected to the Device, Yes or No

**Recorder Destination Host Name:** Host Name of the Device whose recorder will print recordings from this Device

**Recorder Destination Device Name:** Device Name of the Device whose recorder will print recordings from this Device

## Network Statistics

The **Network Statistics** tool provides access to operational information from switches on the Clinical Network. This information allows service personnel to determine if network switches are operating within normal bounds, troubleshoot network component failures, and correlate observed application events to network communication problems. **Network Statistics** runs in monitoring mode and is available on the Server and all Network connected Information Centers and Clients.

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### Note

If you purchased a new Database Server system, the Network Statistics screen is the HP 2524 as shown below. If upgrading from an earlier release, the Cisco 1900 switch may be shown. If this is the case, please go to the section titled "Cisco 1900 Switch" on page 5-53.

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### Caution

**Verify that clinical users are not using the Information Center Web when opening the Network statistics on the Database Server. When the Network Statistics web page is invoked, the Information Center Web Access loses its communication.**

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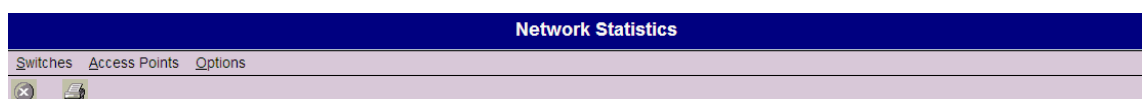
### Warning

**Do Not Load HP TopTools or any other network management software on the system - it will adversely affect system performance and may result in loss of monitoring.**

---

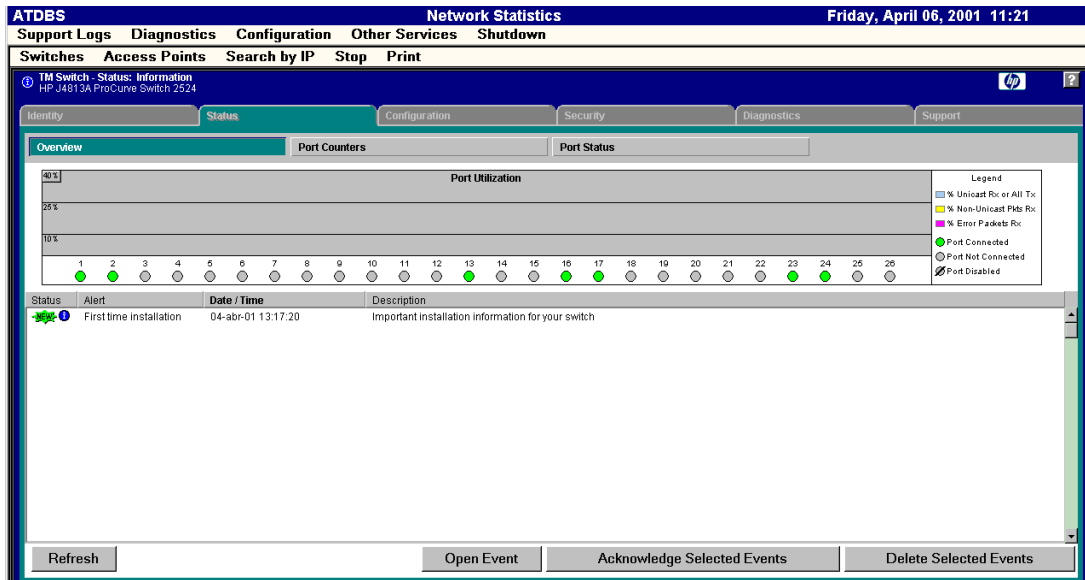
### Switches

Clicking on **Network Statistics** in the Support Logs menu in the Service window brings up the **Network Statistics** window shown in Figure 7-14, with the following selection options -- **Switches, Access Points, Options, Stop, Print.**



**Figure 7-14 Network Statistics Menu**

**HP 2524 Switch** Select a Switch from the pull-down menu (shows all configured switches) in the Network Statistics window displays the Status Overview window shown in Figure 7-15.



**Figure 7-15 Network Statistics for HP 2524 Switch**

The **HP2524 Status Overview** window provides the following information about the switch and a switch image:

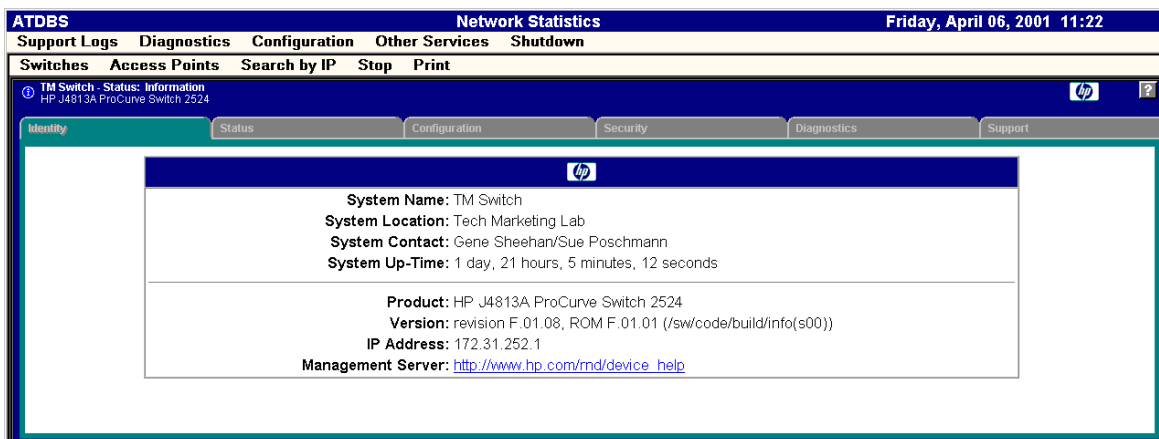
**Status:** the level of severity of the event generated.

**Alert:** the specific event identification.

**Date/Time:** the date and time the event was received by the web browser interface. This value is shown in the format: DD-MM-YY HH:MM:SS AM/PM, for example, 19-04-01 09:15:26 AM.

**Description:** a short narrative statement that describes the event.

Click on the Identity tab to open the window shown in Figure 7-16.



**Figure 7-16 Identity Window - HP2524 Switch**

The Identity window provides the following information:

- System Name:** name of the selected switch.
- System Location:** where the switch is located.
- System Contact:** person to contact if the system experiences trouble.
- System Up-Time:** how long the system has been active
- Product:** displays the HPJ4813A ProCurve Switch 2524 information
- Version:** firmware version installed
- IP Address:** IP Address assigned to switch
- Management Server:** website URL to go to for help

For information on network traffic quality, go to the **Status** tab, and then Port Counters. See Figure 7-17:

Port	MCast Rx	MCast Tx	BCast Rx	BCast Tx	Pkts Rx	Pkts Tx	Errors Rx
1	0	253736	965	35019	599179	302370	0
2	0	253761	962	35023	597144	302367	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0
13	0	253762	0	35995	0	299798	0
14	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0
16	100688	153074	4776	31207	3958374	5166186	0
17	73096	180659	7736	28243	3670568	3801389	0
18	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0
23	2606	250848	2	34184	16114	300312	0
24	0	253755	21563	14426	497464	776334	0
25	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0

Figure 7-17 Status/Port Counters - HP 2524 Switch

The Device View under Configuration tab (this window gives another visualization of the switch port status - Figure 7-18).

**Caution**

Do not use the Configuration screens to make modifications to the Switch configuration. Use the Network Configuration Tool described in the Clinical Network documentation to ensure that all parameters are set properly.

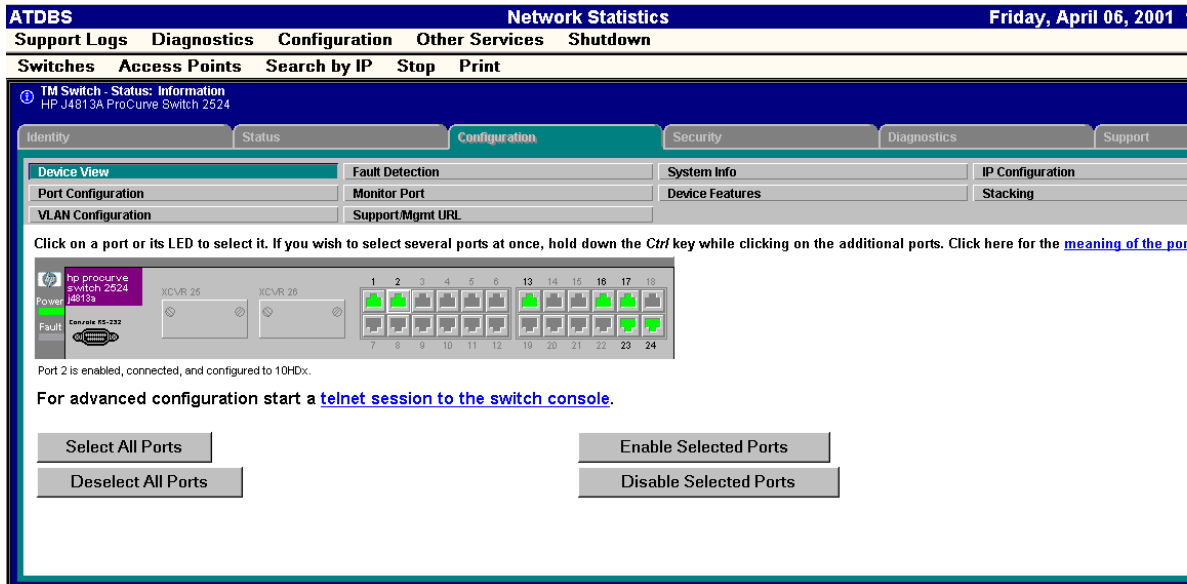


Figure 7-18 Device View - HP 2524 Switch

The System Info window under the Configuration tab is an area where you can give or view the location of the switch and a contact name which will be viewed in the Identity window (Figure 7-16). Enter any information and then click **Apply Changes**. See Figure 7-19.

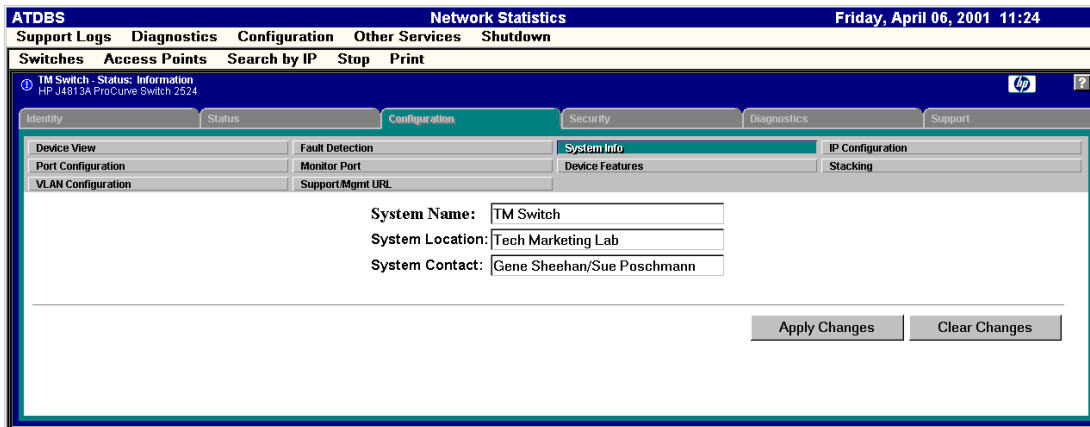
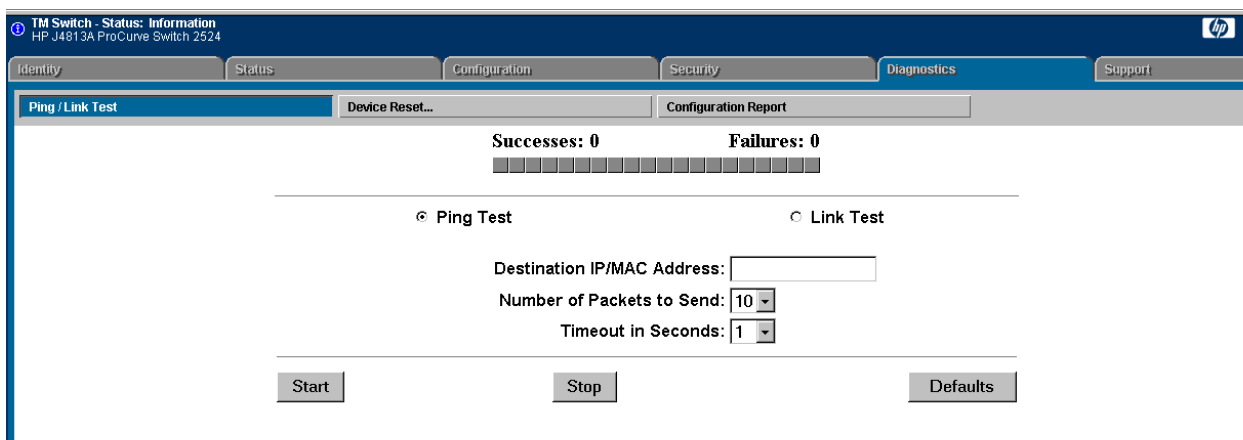


Figure 7-19 System Info - HP 2524 Switch



You can **ping** network devices using the HP2524 web browser. Click on the **Diagnostics** tab and then the **Ping/Link Test** to get to the window shown in Figure 7-20. Type in the IP address of the device and press **Start**.



**Figure 7-20 Ping/Test Window - HP 2524 Switch**

Another diagnostic tool for the HP2524 switch is to view the Configuration settings. To do this, click on the **Diagnostics** tab, and then press the **Configuration Report** button. The resulting text displays the current configuration settings on the HP2524 switch. The following table compares the HP2524 default settings and configured HP2524 (using the ConfigTool, see the Clinical Network documentation) settings:

**Table 7-9. Configuration Parameters**

Setting	Factory Default	Recommended (Configured)
System Name	HP ProCurve Switch 2524	Name given to switch
Inactivity Timeout (min)	0	10
Port/Trunk settings (Ports 1-26)		
<i>Type</i>	All set to 10/100TX	All set to 10/100TX
<i>Enabled</i>	All set to Yes	All set to Yes
<i>Mode</i>	All set to Auto	Ports configured to specific mode and speed via the ConfigTool. <b>10HDx</b> for 10 Mbps Half Duplex devices, <b>100HDx</b> for 100 Mbps Half Duplex devices, or <b>100FDx</b> for 100 Mbps Full Duplex devices  <i>Example:</i> For a system with a DBS and two extension switches, one port (24) must be set to 100FDx since the DBS requires a 100 Mbit Full Duplex connection. Two ports (22-23) must be set to 100HDx since extension switches require 100 Mbit Half Duplex connections.
<i>Flow Ctrl</i>	All set to Disable	All set to Disable
IP Address		IP Default 172.31.252.0 through 172.31.253.255 Subnet Mask 255.255.0.0
Console/Serial Link		
<i>Inbound Telnet Enabled</i>	Yes	Yes
<i>Web Agent Enabled</i>	Yes	Yes

**Table 7-9. Configuration Parameters**

<b>Setting</b>	<b>Factory Default</b>	<b>Recommended (Configured)</b>
<i>Terminal Type</i>	VT100	ANSI
<i>Screen Refresh Interval (sec)</i>	3	3
<i>Displayed Events</i>	All	All
<i>Baud Rate</i>	speed-sense	speed-sense
<i>Flow Control</i>	XON/XOFF	XON/XOFF
<i>Session Inactivity Time (min)</i>	0	10
Spanning Tree Operation*		

\* The Spanning Tree Operation values are not shown in this window. To see the Spanning Tree values, you must use a HyperTerminal connection. The PC must meet the following requirements.

- Microsoft Operating System software (Windows 98 or Windows NT)
- 200 MHz or faster
- RS 232 serial interface port (9-Pin D type connector)

If the PC is the Database Server using Hyperterminal from Port A, the UPS connection must be temporarily removed and disabled. The following steps describe the procedure.

**Step 1.** Plug one end of the 9-pin D female - 9-pin D female cable into the RS 232 connector of the configuring PC

**Step 2.** Plug the other end of the cable into the **CONSOLE** port on the front of the HP ProCurve 2524 switch.

**Step 3. Turn On the PC and Switch**

If the Server's UPS service detects that the UPS is not connected to Serial Port A, a message indicating **At least one service failed to initialize...** may appear.

If this message appears:

**Step 4.** Click **OK** and proceed to **Step 11**.

If this message **does not** appear:

**Step 5.** Go to the Windows Main Menu and click on **Start / Settings / Control Panel** and double click on the **Services** icon (2 gears) to open the **Services** window.

**Step 6.** Scroll down the list of Services to **UPS**.

**Step 7.** Click on **UPS** to highlight it.

**Step 8.** Click on the **Stop** button to disable the UPS connection.

**Step 9.** Click **Yes** to the **Are you sure..** message. A momentary **Attempting to stop...** message will then appear.

When the UPS connection has been disabled:

**Step 10.** Close the **Services** window and **Control Panel**.

**Step 11.** Run **HyperTerminal** by clicking on **Start / Programs / Accessories / Hyperterminal / HyperTerminal** to bring up the **New Connection - HyperTerminal** window.

---

**Note**

If a **Connection Description** window appears, click **Cancel** to close it.

---

**Step 12.** Click on **File** in the **New Connection - HyperTerminal** window to display its menu.

**Step 13.** Click on **Properties** to open the **New Connection Properties** window.

**Step 14.** Click on the **Connect to** tab to display its menu.

**Step 15.** Click on the **Connect Using** pull down arrow to display its menu.

**Step 16.** Click on **COM1**.

**Step 17.** Click on **Configure** to display the **COM1 Properties** window.

**Step 18. Configure the COM1 port** to the following RS 232 settings:

Bits per second:	9600
Data bits:	8
Parity:	None
Stop bits:	1
Flow control:	Xon/Xoff

**Step 19.** Press **Enter** twice to get to the command line. If the command line does not appear, recycle power on the switch (disconnect and connect power cable).

**Step 20.** At the command line prompt, enter the following:

- Type **2** for **Switch Config**
- Type **4** for **Spanning Tree operation**

The first 8 ports are displayed. To view the other ports, go to **Edit** and press **Enter**. Use the down arrow navigate.

The ports configured to **10/100 Mb/s Half Duplex** should be set to **FAST** mode, and the **100 Mb/s Full Duplex** ports should be set to **NORM**.

- When done, press **Enter**
- Press **Cancel**

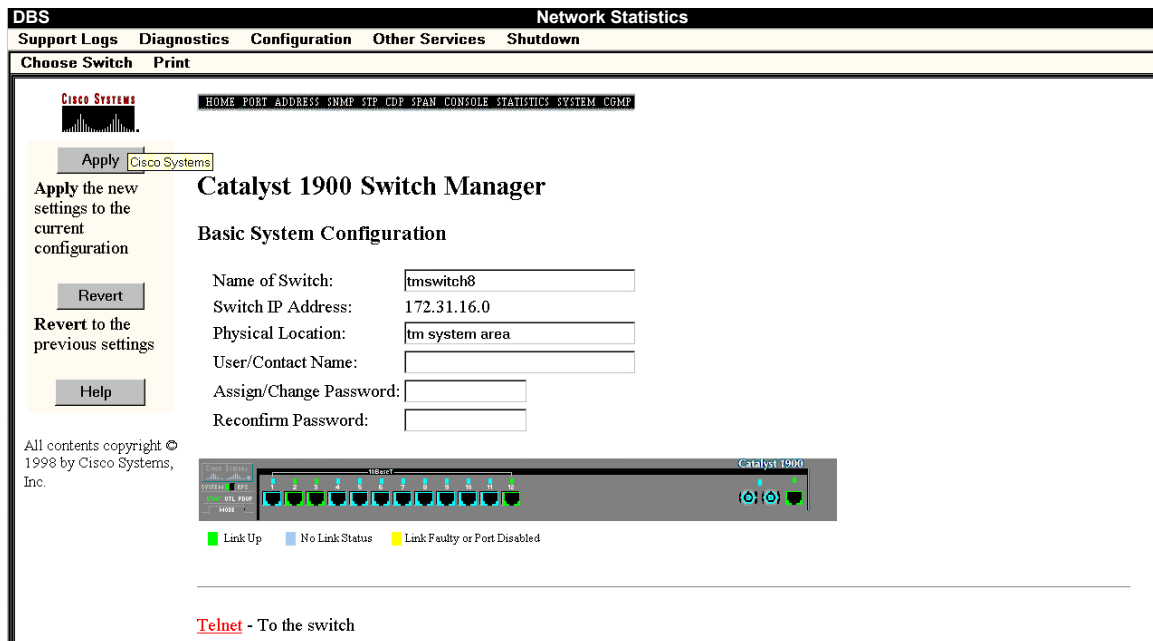
**Cisco 1900 Switch**

Clicking on **Switch** in the **Network Statistics** window on upgraded systems displays the list of switches (and their IP Address configured in **Network Configuration**). Clicking on a switch in the list displays the **Catalyst 1900 Switch Manager** window shown in Figure 7-21. If asked for a user name and password, enter the Console Password, **m3150**.

---

**Caution**      **Verify that clinical users are not using the Information Center Web when opening the Network statistics on the Database Server. When the Network Statistics web page is invoked, the Information Center Web Access loses its communication.**

---



**Figure 7-21 Network Statistics Window for Cisco Switch**

The **Catalyst 1900 Switch Manager** window provides the following information about the switch and a switch image:

**Host Name** of the Server the switch is connected to is in the upper left corner of the window. **DBS** in Figure 7-21.

**Name of Switch:** the Device Name assigned to the switch in Network Configuration.

**Switch IP Address:** the IP Address of the switch on the network.

**Physical Location:** the location of the switch as entered in Network Configuration.

The **Help** button provides access to Help information. Help screens may cause temporary color changes to Philips monitoring screens but do not otherwise effect patient monitoring display or storage.

---

**Note**      This application allows the user to change switch settings. However, **changing switch settings should only be done by a with the Network Configuration Tool described in the Clinical Network documentation to ensure all parameters are set properly.**

---

The **Switch Manager** window also provides an image of the selected switch. Clicking on a port in the switch image brings up a **Ports Table** with statistical information about each port

on the switch. Figure 7-22 shows the **100 Base T Ports Table** for ports used by another switch (0/26) and the Server (027).

**100 Base-T Ports Table:**

Module	Port	Status: Requested Actual	Duplex Mode: Requested Actual	Flood Unknown MACs	Enhanced Congestion Control	Port Name/ Description	Statistics
System	FastEthernet 0/26	<input checked="" type="checkbox"/> Enable suspended- linkbeat	Full duplex Full duplex	<input checked="" type="checkbox"/> unicast <input checked="" type="checkbox"/> multicast	Disabled		Stats...
	FastEthernet 0/27	<input checked="" type="checkbox"/> Enable enabled	Full duplex Full duplex	<input checked="" type="checkbox"/> unicast <input checked="" type="checkbox"/> multicast	Disabled		Stats...

**Figure 7-22 100 Base T Ports Table**

Clicking on **Stats...** in the **Statistics** column of a port brings up a **Detailed Port Statistics Report** for that port. Figure 7-23 shows the Detailed Port Statistics Report for port **0/27**, which is used by the Database Server. Report statistics are cumulative from the time the device was started or since the Report was last cleared.

<b>Detailed Port Statistics</b>			
<b>FastEthernet 0/27 Statistics Report</b>			
<b>Receive Statistics</b>		<b>Transmit Statistics</b>	
Total good frames:	3963738	Total frames:	5213256
Total octets:	547988387	Total octets:	2836851515
Broadcast/multicast frames:	108060	Broadcast/multicast frames:	724259
Broadcast/multicast octets:	15491082	Broadcast/multicast octets:	50863645
Good frames forwarded:	3963727	Deferrals:	0
Frames filtered:	11	Single collisions:	0
Runt frames:	48	Multiple collisions:	0
No buffer discards:	0	Excessive collisions:	0
		Queue full discards:	0
<b>Errors:</b>		<b>Errors:</b>	
FCS errors:	0	Late collisions:	0
Alignment errors:	0	Excessive deferrals:	0
Giant frames:	0	Jabber errors:	0
Address violations:	0	Other transmit errors:	0

**Figure 7-23 Detailed Port Statistics Report for the Database Server**

**Access Points** **Access Points** provides a list of the networked access points configured in Network Configuration, this is described in the Clinical Network documentation.

The **other three options** in the menu of Network Statistics of Figure 7-14 do the following:

**Search by IP** displays a window for selecting a Switch by typing in its IP Address:

- Type in the **IP Address** of the device whose statistics are desired.
- Click **OK** and the **Statistics** window for that device will display.

**Stop** terminates a search for the **Statistics** window of a Switch before it has completed.

**Print** brings up the **Print Manager** window for printing the information on the page being viewed to a networked printer.

## Telemetry Services

The **Telemetry Services** tool is used by Information Centers to access information from Telemetry Mainframes. Clicking on Telemetry Services in the Support Logs menu of the Service window brings up the **Telemetry Mainframe Services** window shown in Figure 7-24. It is available in monitoring mode only.

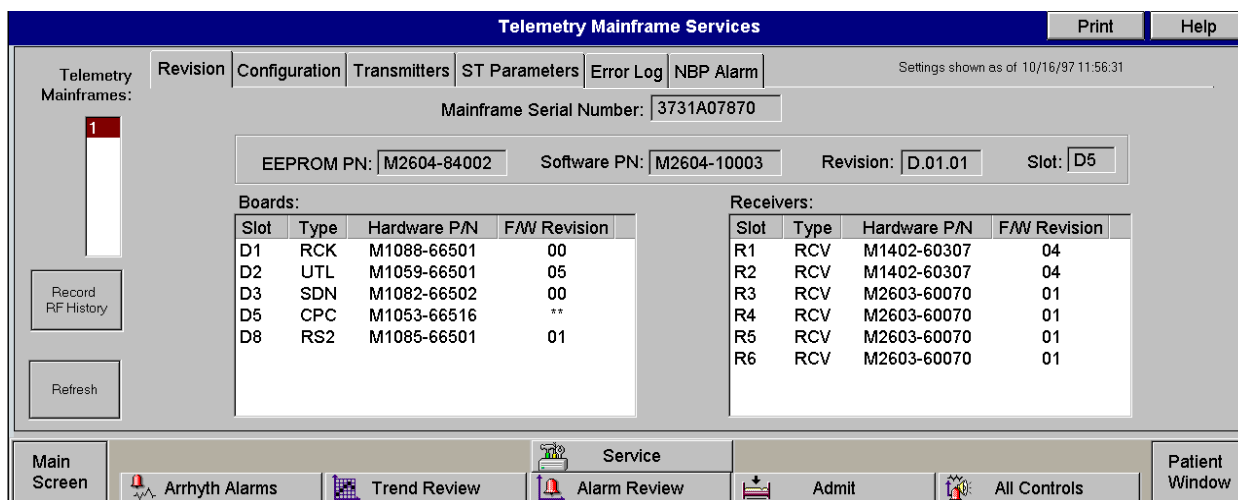


Figure 7-24 Telemetry Services Window

### Notes

Telemetry Mainframe Services windows are **read only** and cannot be edited.

To change telemetry settings, use the **Telemetry Service Tool**.

To change frequency settings for telemetry receivers, use the **Telem Freq.** application in the **Unit Settings** menu.

For more detailed information on telemetry mainframes and transmitters, refer to their **Service Manuals**.

The Telemetry Mainframe Services window has 6 tabs in the upper left corner that access the windows listed below. Each window contains the following controls on the left side of the window:

**Telemetry Mainframes:** field for selecting the telemetry mainframe number whose information is to be displayed.

**Record RF History** button for producing a recording strip of all receiver RF histories for the currently selected telemetry mainframe.

**Refresh** button for updating the information in the window being viewed to current values

### Note

If Telemetry Mainframe configurations are changed, both the Telemetry Mainframe and the Information Center must be rebooted to see the changes in the **Telemetry Mainframe Services** window. The **Refresh** button will not update this window if configurations change.

**Revision** The **Revision** window displays the following revision information:

**Mainframe Serial Number**  
**EEPROM Part Number**  
**Software Part Number**  
**Revision Number**  
**Slot Number**  
**Boards in the Mainframe:** Slot, Type, Hardware Part Number, Firmware Revision  
**Receivers for the Mainframe:** Slot, Type, Hardware Part Number, Firmware Revision

**Configuration** The **Configuration** window displays the following configuration information:

**SDN Unit Number**  
**SDN Branch Numbers**  
**Language**  
**Transmitter Button**  
**Auto Self Test (on/off)**  
**Self Test Strip (on/off)**  
**GENERAL ALARM PARAMETERS:** Alarm Suspend Time, Alarm Reminder  
**GENERAL ECG PARAMETERS:** HR Alarm Limits, Lead Fallback, Extended Monitoring

**Transmitters** The **Transmitters** window displays the following information for telemetry transmitters:

**M1400X series transmitters:** Bandwidth, Lead Selection, Lead Label, Lead Swap (on/off)  
**M26xxx series transmitters:** Bandwidth, Lead Selection, Lead Label, SpO2 Alarm Limits

**ST Parameters** The **ST Parameters** window displays the following information for ST measurements:

**General ST Parameters:** ST Module (Enabled/Disabled), ST Alarm Limits  
**Measurements (ms):** ST Module (Enabled/Disabled), ST Alarm Limits

**Error Log** The **Error Log** window displays the following current Error Log information:

**Error Log Information:** Card ID, Device ID, Slot, Error Code, Fatal (Yes/No), Time, Date

A **Clear Error Log** button is also provided for erasing Error Log information for the currently selected telemetry mainframe.

**NBP Alarm** The **NBP Alarm** window displays the following **Teleframe Settings** for NBP Alarms:

**NBP Parameter:** NBP Param (Enabled/Disabled), Diastolic Alarm (Enabled/Disabled), Systolic alarm (Enabled/Disabled)

**Diastolic Alarm Limits** (High, Low)



**Systolic Alarm Limits** (High, Low)**SpO2 Alarm Limits** (High, Low)

---

**Notes**

If the telemetry mainframe is not configured for NBP parameters, the **NBP Parameters** fields (NBP Parameter, Diastolic Alarm Limits, Systolic Alarm Limits) are disabled and settings will be those configured in the telemetry mainframe.

When telemetry beds are monitored by an Information Center, some telemetry mainframe parameter settings are ignored while others are overridden.

The following telemetry mainframe settings are **ignored** by the Information Center and **Unit Settings** are used instead. To change these settings, use the Information Center's **Unit Settings** application.

- ECG HR Alarm limits
- ST Alarm Limits
- ST Measurement points

The following telemetry mainframe settings are **overridden** by the Information Center and cannot be changed.

- ST processing in the telemetry mainframe is disabled since ST monitoring is done by Information Center Software
  - ECG Bandwidth will always be ST, if ST monitoring is on, or Monitor, if ST monitoring is off.
-

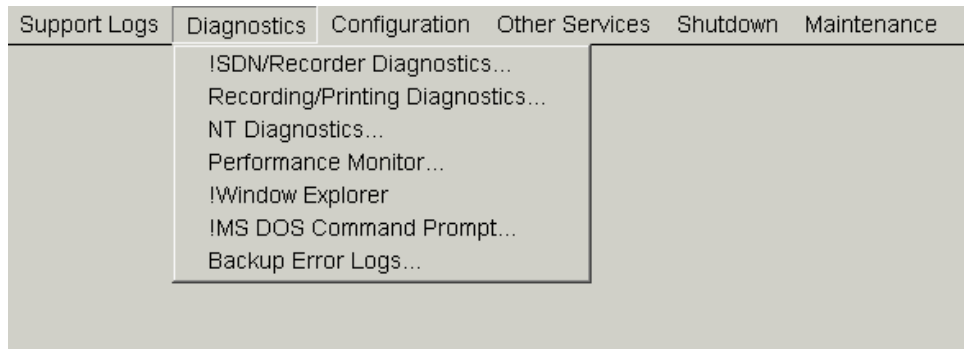
**Diagnostics** The **Diagnostics** menu provides two types of troubleshooting diagnostic tools -- Philips Software Tools and Windows Tools.

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**Note** Philips software tools are available on Information Centers and Clients.

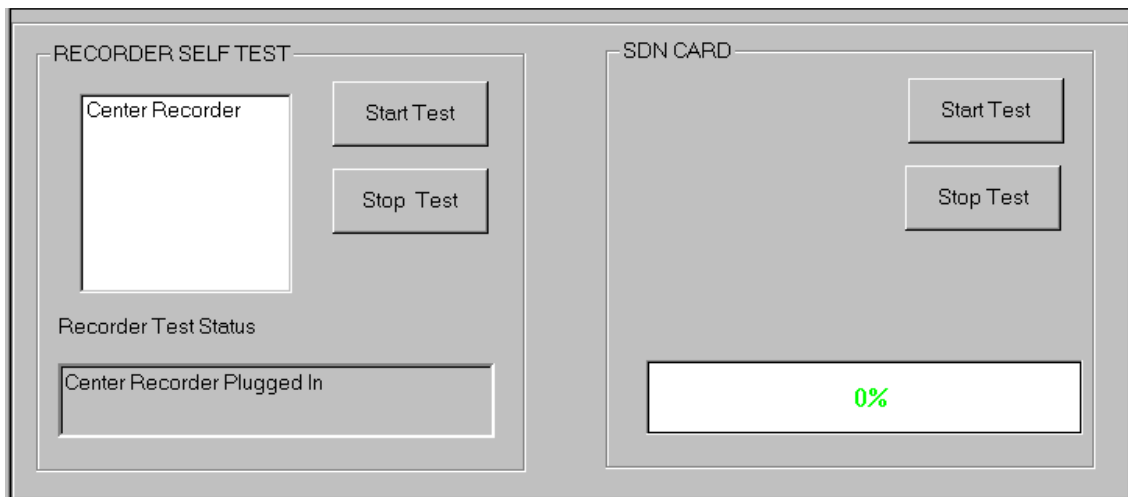
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**Software Tools** **Software Tools** determine status and diagnostic information on the Philips recorder, printer, and SDN interface cards of Information Centers and Clients. Two tools are provided -- !SDN/Recorder Diagnostics and Recording/Printing Diagnostics. They are accessed from the Diagnostics menu of Service as shown in Figure 7-25.



**Figure 7-25 Diagnostics Menu for Information Centers and Clients**

**!SDN/Recorder Diagnostics** The **!SDN/Recorder Diagnostics** tool tests the Serial Distribution Network (SDN) interface cards in Information Center and Client PCs and the Philips Recorder. It runs in non-monitoring mode, as indicated by the exclamation mark (!). Clicking on !SDN/Recorder Diagnostics in the Diagnostics menu brings up the **SDN/Recorder Diagnostics** window of Figure 7-26.



**Figure 7-26 SDN/Recorder Diagnostics Window**

Two diagnostic tests are provided in the SDN/Recorder Diagnostics window.

**RECORDER SELF TEST** initiates a self-test of the Recorder. The procedure is as follows:

**Step 1.** Select the Recorder to be tested by clicking on its location in the rack -- **Left Recorder, Center Recorder, Right Recorder.**

**Step 2.** Click **Start Test** to initiate the self-test. The Recorder then begins its self-test. The Recorder will print out codes that indicate its operational status. Explanations of these codes can be found in the **Recorder Service Manual.**

**Stop Test** stops the print test before it has completed.

**Recorder Test Status** provides messages that assist the procedure and indicate the status of the self-test and the Recorder's condition.

**SDN CARD** initiates a self-test of the SDN Card in the Information Center or Client PC and its branch connections. The procedure is as follows:

**Step 1.** Click **Start Test** to initiate the self-tests.

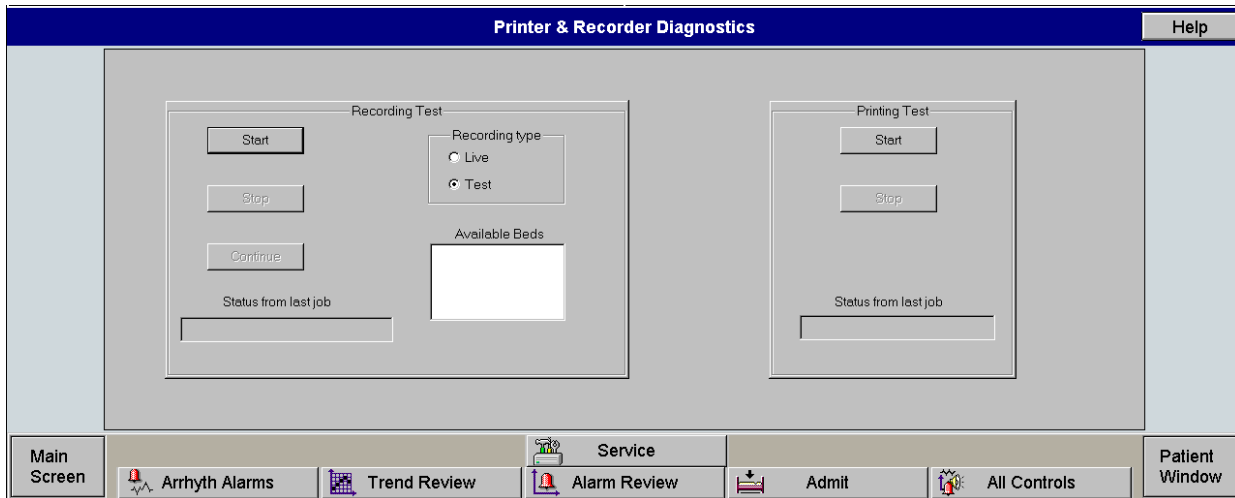
**Stop Test** stops the SDN card tests before they have completed.

a **% complete** field indicates the progress of the test.

If the SDN Card self-tests pass, the message **SDN Card Testing PASSED** appears. Click **OK** to continue.

If there is an SDN card self-test failure, the message **SDN Card Failure** appears.

**Recording/Printing Diagnostics** The **Recording/Printing Diagnostics** tool tests the connectivity of LaserJet printers and Philips Recorders connected to the Information Center or Client. It requires a connected printer or recorder and a source of patient data. Clicking Recording/Printing Diagnostics in the Diagnostics menu brings up the **Printer & Recorder Diagnostics** window of Figure 7-27.



**Figure 7-27 Printer & Recorder Diagnostics Window**

The Printer & Recorder Diagnostics window has two test options -- Recording Test and Printing Test.

**Recording Test** tests Philips Recorders.

**Recording type** provides two data source options -- Live (an actively monitored patient) and Test (an internal test recording).

**Live** activates the **Available Beds** field from which a live recording from a specific bed can be selected. A 20 second delayed recording of the primary and secondary waves from the patient in that bed serves as the recording test.

**Test** selects internal test data for the recording test.

**Start** initiates the selected test recordings. The **Recording Test** output is sent to one of the recorders in the Recorder Rack.

**Stop** terminates a test in process.

**Continue** produces a continuous recording.

**Status from last job** indicates the status of the test (e.g. active, done, error).

---

**Note** If there is more than one recorder in the Recorder Rack and the Recording Test fails, repeat the test with only one recorder in the Rack at a time to determine which recorder is failing the test.

---



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**Note** This window does not provide diagnostics for the 4 Channel Recorder.

---

**Printing Test** tests LaserJet printers.

**Start** initiates the test and sends a print test page to the default printer set in Print Manager.

**Stop** terminates a test in process.

**Status from last job** indicates the status of the test (e.g. active, done, error).

**Note** Troubleshooting printer problems is described in the HP **LaserJet Quick Reference Service Guide** included on the Information Center Documentation CDROM.

**NT Diagnostics** **NT Diagnostics** provides access to tools that help determining status and diagnostic information about the Windows Operating System, hardware, drivers, and BIOS. They are available for both Information Centers and Clients and for the Server. These tools are accessed from the **Diagnostics** application of the **Service** menu.

Note that **Diagnostics** tools can run on the Server while the Network is in Monitoring Mode.

More detailed descriptions of these tools are provided in Windows Help windows accessed by clicking on **Help** in the menu bar of each application.

**Note** Windows Help windows often cover part of patient waveforms. However, they do not effect Philips system monitoring or alarms. To see patient data, resize and move the Help window to the lower half of the display screen.

**Performance Monitor** Performance Monitor is a graphical tool for measuring the performance of the computers on the network.

**!Windows Explorer** **!Windows Explorer** is the standard Window tool for organizing and managing files and directories.

**!MSDOS Command Prompt** **!MS DOS Command Prompt** is a character-based interface to Windows and its subsystems.

**Backup Error Logs** **Backup Error Logs** copies all Event Logs and Information Center logs from selected host names to a compressed file on a floppy disk or hard drive. The logs are copied and compressed for one Information Center, Client or Database Server at a time.

**Redirect HL7** The Redirect HL7 allows for easier troubleshooting of HL7 data export problems. This diagnostic tool redirects the HL7 target system output data configured for one target system to a **different** host system and allows the Client.exe tool to run on the Database Server. The original target system will not receive the HL7 data while this tool is running.

This can be run while in Monitoring mode, however there is a possibility that a reboot may be required. To redirect the HL7 output data:

**Step 1.** At the **Database Server** service window, go to the **Diagnostics** menu and select **Redirect HL7**. The dialog window shown in Figure 7-28 opens.

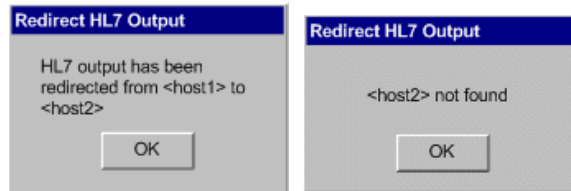


**Figure 7-28 Redirect HL7 Dialog**

**Step 2.** In the **From:** field, select the Target system you want the HL7 output data redirected from (e.g. if the target system 149.59.198.78 is having HL7 problems, select that one).

**Step 3.** In the **To:** field, enter in the new Target system you want the HL7 output data redirected to (e.g. IP Address of 2nd NIC) instead of the original target system.

**Step 4.** Click **Redirect**. If successful, a message displays confirming the HL7 output has been redirected. If it fails, a message displays showing the connection could not be made to the new target device. See Figure 7-29. Verify the new target system is connected and retry.



**Figure 7-29 Redirect HL7 Messages**

**Step 5.** When the data has been collected, the target system must be configured back to the original configuration setting using this menu item. Follow steps 2-4, except switch the **From** and **To** fields.

---

**Note** The **Redirect HL7** menu must be used to return the target system setting to the original configuration.

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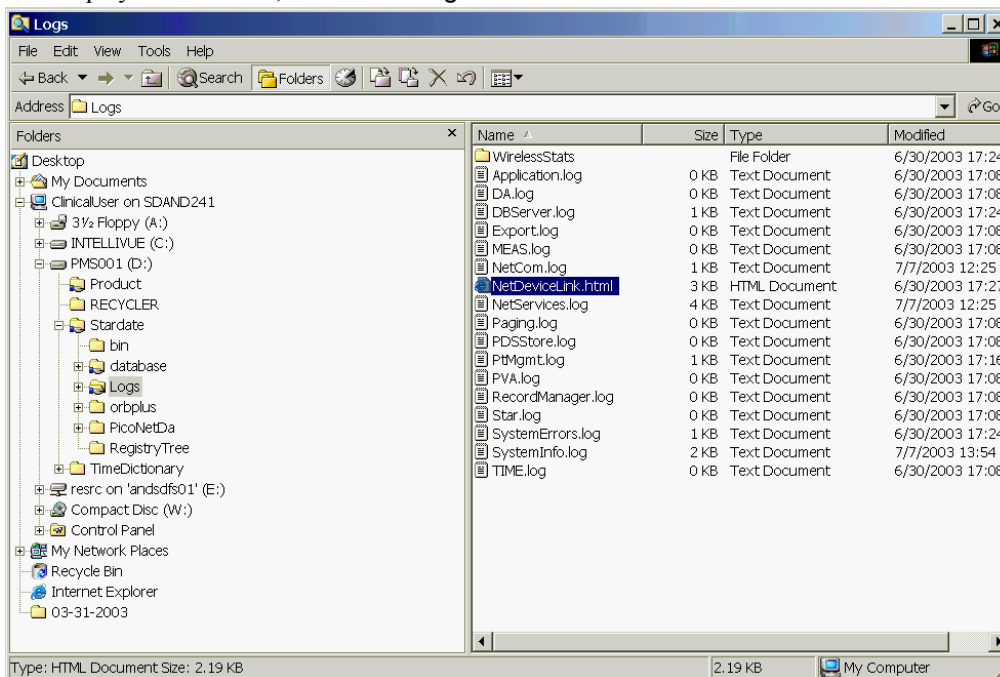
**Service Portal Support** One useful diagnostic capability that can be accessed from the Diagnostics menu of the Database Server is Service Portal Support. This application provides direct access to most of the Support Logs for all devices on the network -- Information Centers, Clients, Switches and Access Points.

---

**Note** The **Event Log** and its **Application** and **System** log files are not available when using Service Portal Support.

---

Click on **Windows Explorer Manager** in the Diagnostics menu of the Database Server and display the **D:\** drive, as shown in Figure 7-30.

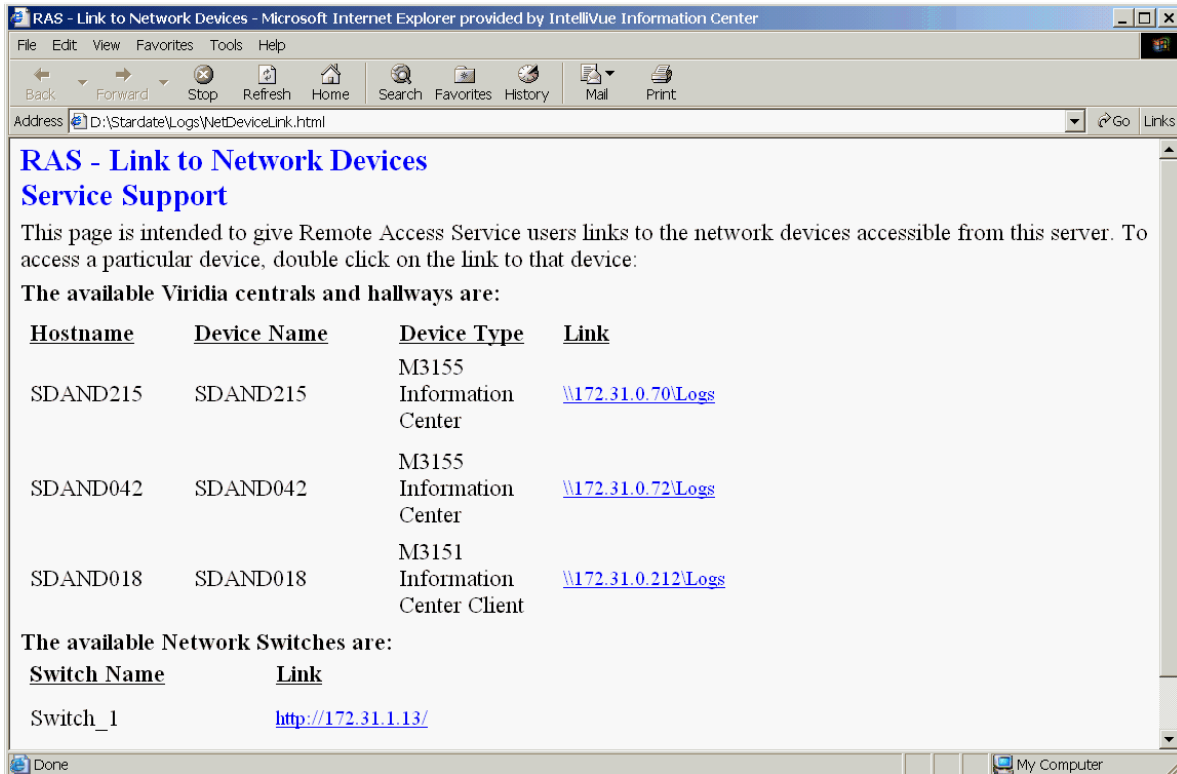


**Figure 7-30 D:\ Directory of the Database Server**

To start Service Portal Support, **double-click** on **NetDeviceLink.html** in the **Logs** directory of the **Startdate** directory of the Server's **D:\** drive. This opens the **RAS Link to Network Devices** window shown in Figure 7-31.

**Note**

Service Portal Support capability is also available to a remote PC accessing the Server through **Remote Access Services**. See **Appendix D: Dial-In Procedure for Remote Access to Information Center Systems**.



**Figure 7-31 Link to Network Devices Window**

Clicking on the **Link** next to each device will display a menu of available **Logs** for that device. For example, clicking on the Link **\\172.31.0.70\Logs** next to the **Device Type M3155 Information Center**, brings up the **Logs** window, where icons for each of the logs available through Service Portal Support are displayed.

Clicking on a **Switch Link** or **Access Point Link** will bring up the **Network Statistics** windows for that device as described in **Network Statistics** on **page 7-47**.



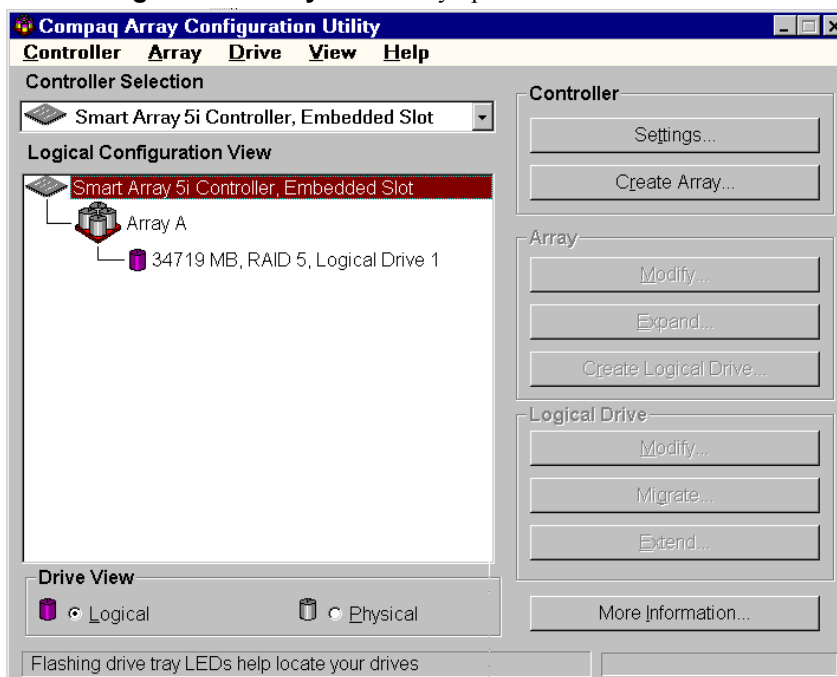
**Raid Utilities** Another useful diagnostic capability is the viewing of the RAID settings. Depending on the platform of the server (LC2000 vs ML370) the utilities differ:

**Compaq G2 ML370 - Compaq Array Configuration Utility**

This application provides direct access to status and configuration settings of the Server’s RAID software. The M3169 Database Server does not support RAID.

**Step 1.** Click on **Desktop Tools** in the Shutdown menu.

**Step 2.** Select **Start -> Programs ->Compaq System Tools ->Compaq Array Configuration Utility**. The Utility opens with the window shown in Figure 7-32.



**Figure 7-32 Compaq Array Configuration Utility**

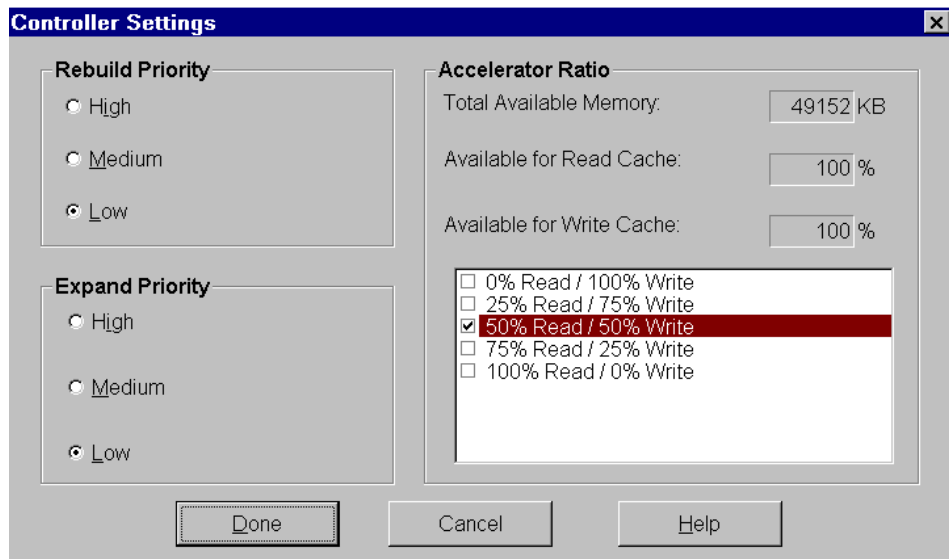
**Step 3.** Verify an array is listed in the **Logical Configuration View**.

**Step 4.** Select **Physical** in the Drive View field as shown in Figure 7-33



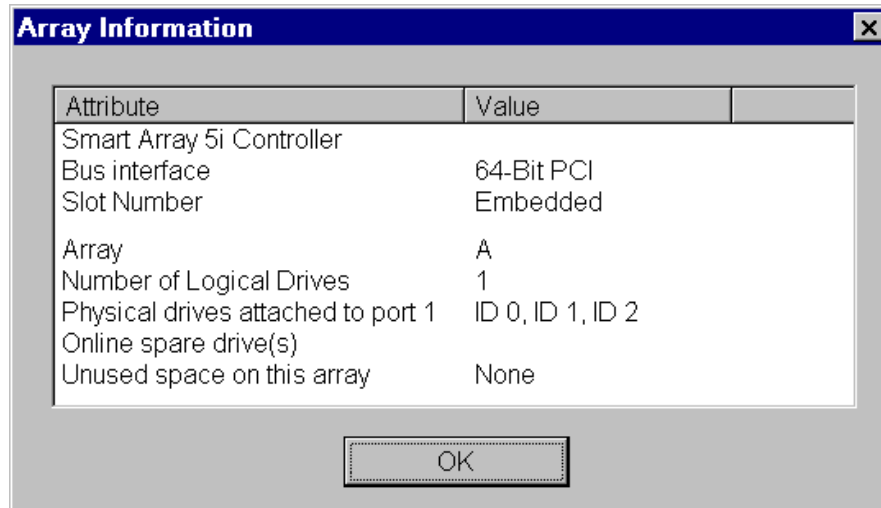
**Figure 7-33 Physical Drive View**

**Step 5.** Select Settings. This opens the **Controller Settings** window of Figure 7-34.



**Figure 7-34 Controller Settings**

**Step 6.** Select **More Information** to view the window shown in Figure 7-35



**Figure 7-35 Array Information**

Proper configuration settings for the Raid disk drive are shown in Figure 7-35. If this is not the configuration settings, the RAID configuration may have to be restored. This procedure is described in **Restoring RAID Configurations** on **page 7-140**.

**NetServer LC2000 - NetRaid Assistant Utility**

This application provides direct access to status and configuration settings of the Server’s RAID software.

Click on **Windows Explorer** in the Diagnostics menu of the M3154 Database Server and display the **C:\** drive, as shown in Figure 7-36.

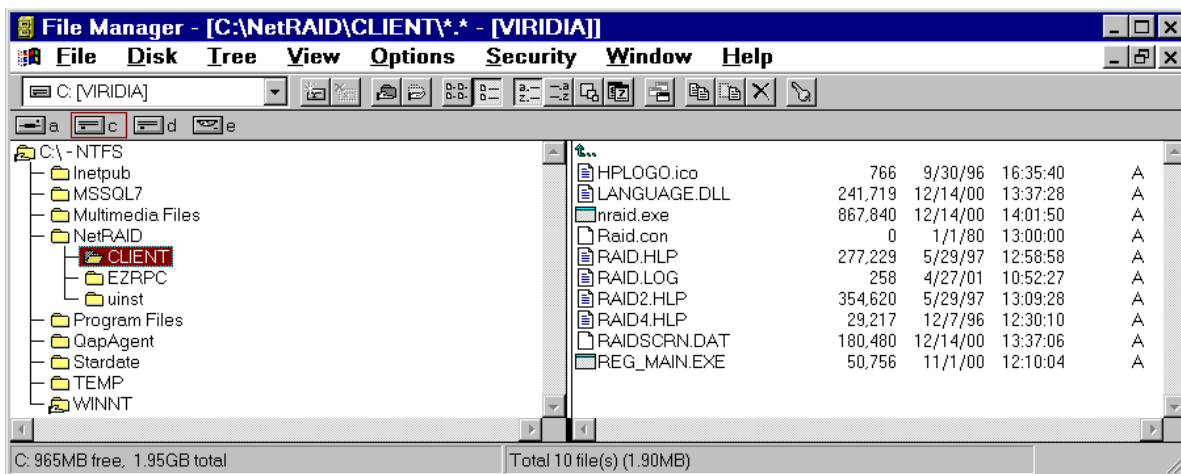


Figure 7-36 C:\ Directories of the Database Server

To open the **NetRaid Assistant**, double-click on **NRAID.EXE** in the **CLIENT** directory of **NetRAID** on the Server's **C:\** drive. This opens the **HP NetRaid Assistant - Server Selection** window of Figure 7-37. Select **View Only** and click **OK** to display the **HP NetRaid Assistant** window of Figure 7-38.

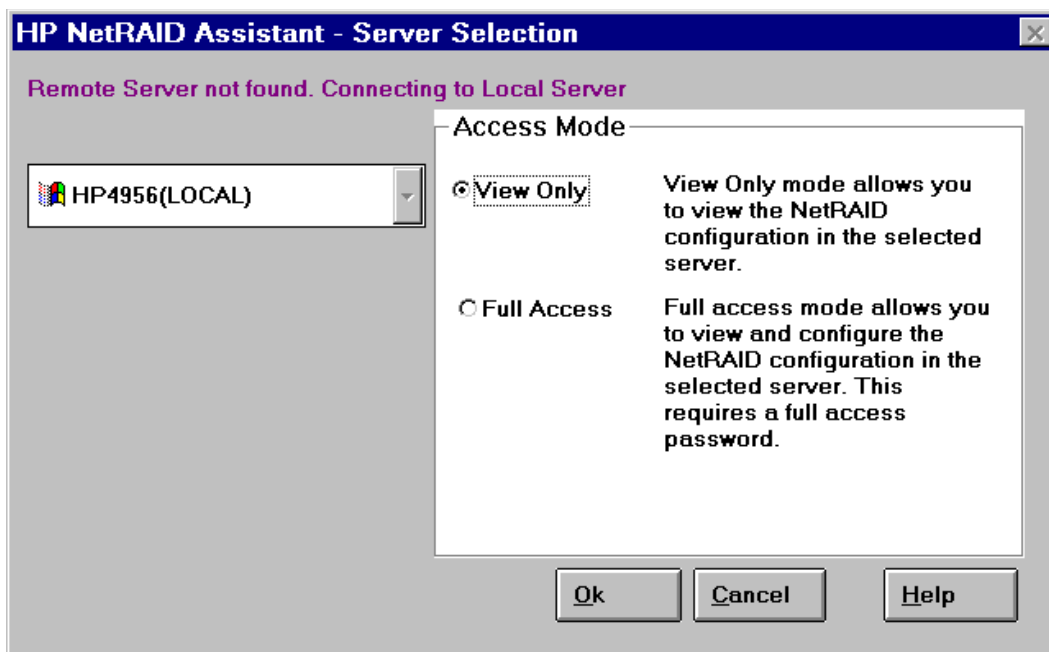


Figure 7-37 HP NetRaid Assistant - Server Selection Window

**Note** This application can also be accessed from the **Windows Main Menu** by clicking on **Start \ Programs \ NetRAID \ NetRAID Assistant**.

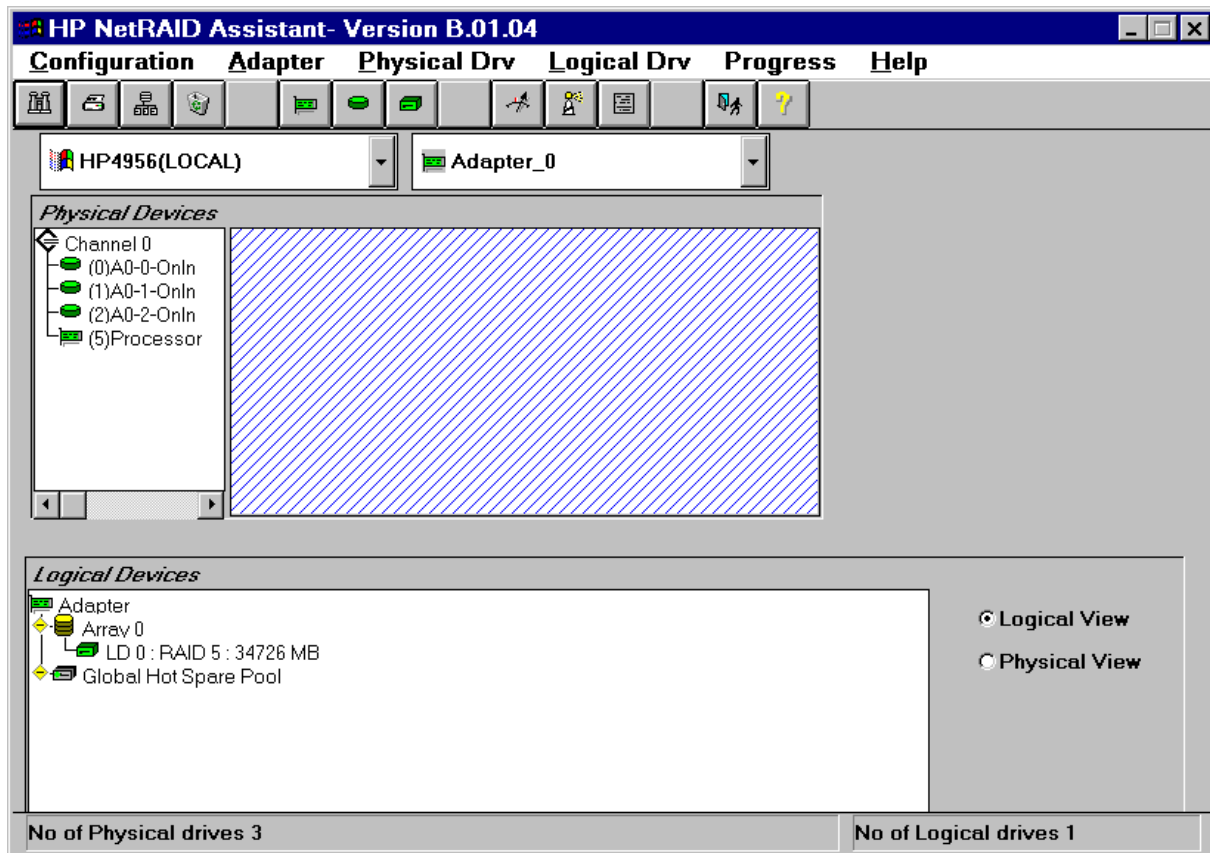


Figure 7-38 HP NetRaid Assistant Window

Status information on each of the NetRaid disks is shown in the *Physical Devices* field. Possible status conditions are the following:

- **Onln** - disk is operating properly as part of a configured logical drive
- **READY** - disk is free to be included in RAID, but has not yet been configured
- **Failed** - disk has failed and may have to be replaced
- **Rebuilding** - disk is in the process of being rebuilt into a logical drive
- **HOTSP** - disk is kept as a Hot Spare (not applicable for the Database Server)

For proper Server operation, the status of each disk should be **Onln**, as shown in Figure 7-38.

Configuration settings can be viewed by clicking on **Configuration** in the upper row menu to display its menu, as shown in Figure 7-39.

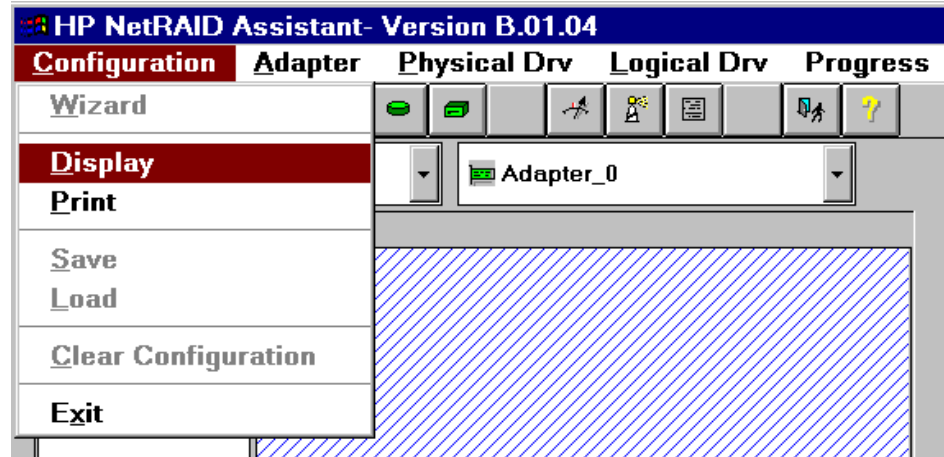


Figure 7-39 HP NetRAID Assistant Configuration Menu

Clicking on **Display**, opens the **Raid System Configuration** window of Figure 7-40 which shows the configuration settings of the NetRaid disks.

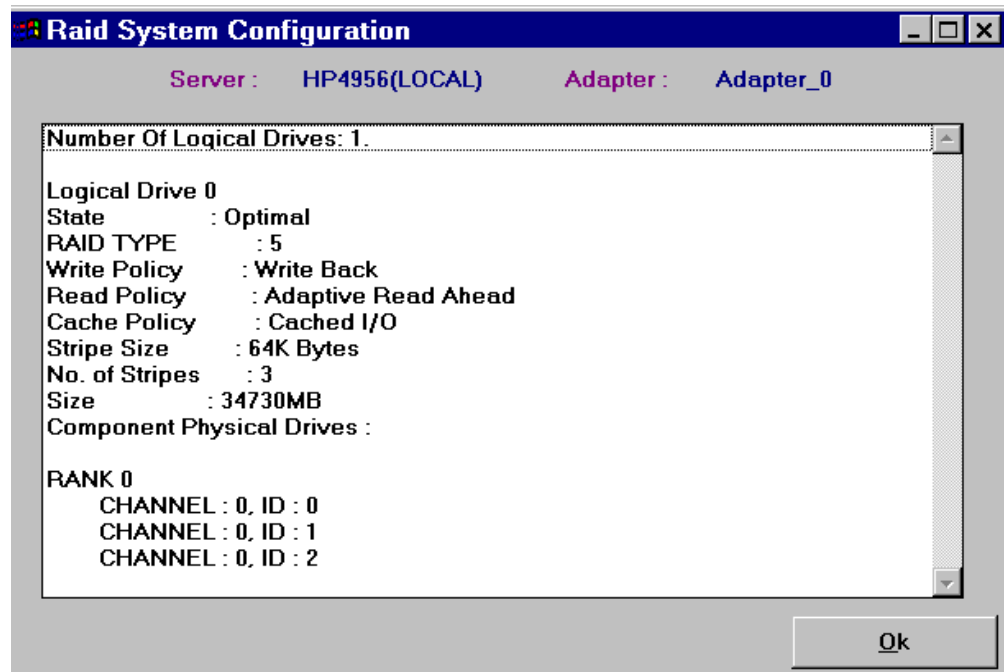
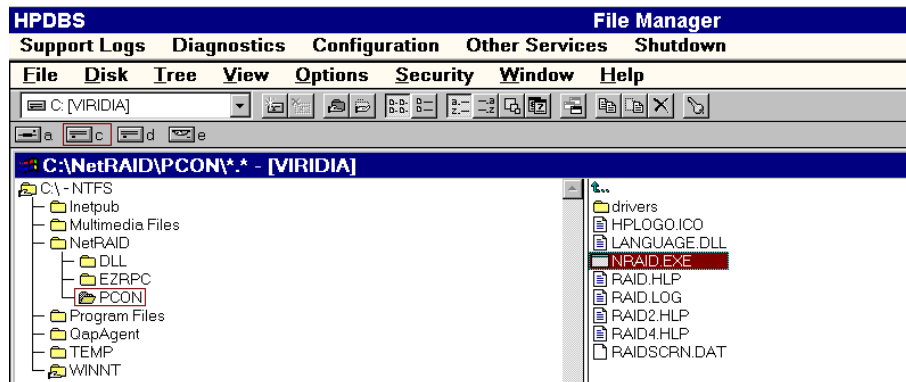


Figure 7-40 Raid System Configuration Window

Proper configuration settings for the 3 Raid disk drives are shown in Figure 7-40. If these are not their configuration settings, RAID configurations may have to be restored. This procedure is described in **Restoring RAID Configurations** on page 7-140.

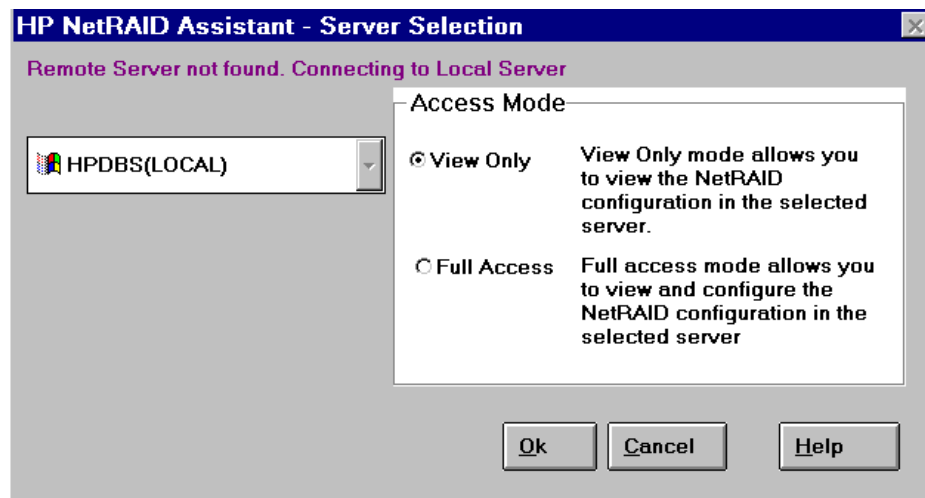
**LH3 - NetRaid Assistant Utility**

Click on **Windows Explorer** in the Diagnostics menu of the Database Server and display the **C:\** drive, as shown in Figure 7-36.



**Figure 7-41 C:\ Directories of the Database Server**

To open the **NetRaid Assistant**, double-click on **NRAID.EXE** in the **PCON** directory of **NetRAID** on the Server's **C:\** drive. This opens the **HP NetRaid Assistant - Server Selection** window of Figure 7-41. Select **View Only** and click **Ok** to display the **HP NetRaid Assistant** window of Figure 7-42.



**Figure 7-42 HP NetRaid Assistant - Server Selection Window**

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**Note** This application can also be accessed from the **Windows Main Menu** by clicking on **Start \ Programs \ NetRAID \ NetRAID Assistant**.

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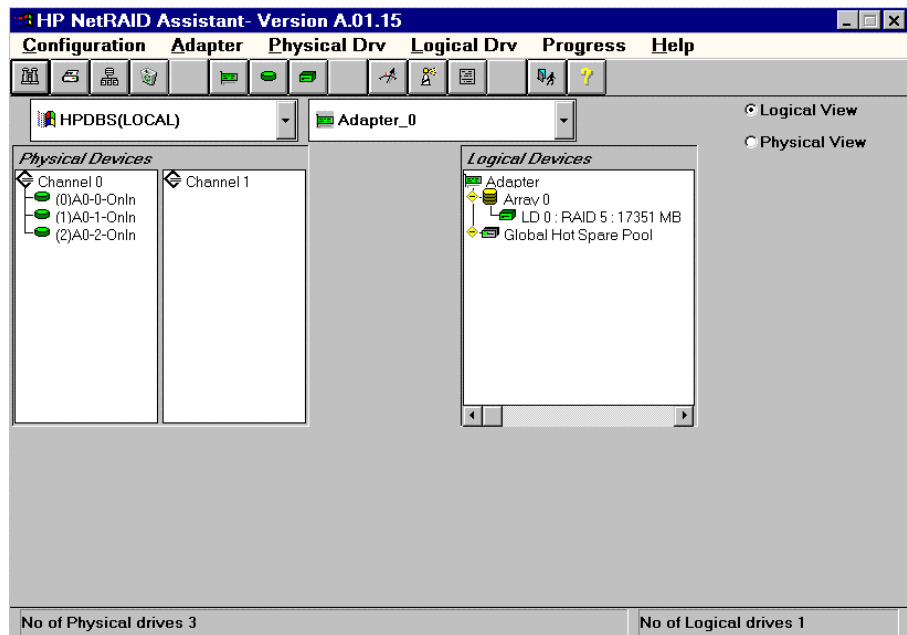


Figure 7-43 HP NetRAID Assistant Window

Status information on each of the NetRAID disks is shown in the **Physical Devices** field. Possible status conditions are the following:

- **Onlin** - disk is operating properly as part of a configured logical drive
- **READY** - disk is free to be included in RAID, but has not yet been configured
- **Failed** - disk has failed and may have to be replaced
- **Rebuilding** - disk is in the process of being rebuilt into a logical drive
- **HOTSP** - disk is kept as a Hot Spare (not applicable for the Database Server)

For proper Server operation, the status of each disk should be **Onlin**, as shown in Figure 7-43.

**Configuration settings** can be viewed by clicking on **Configuration** in the upper row menu to display its menu, as shown in Figure 7-44.

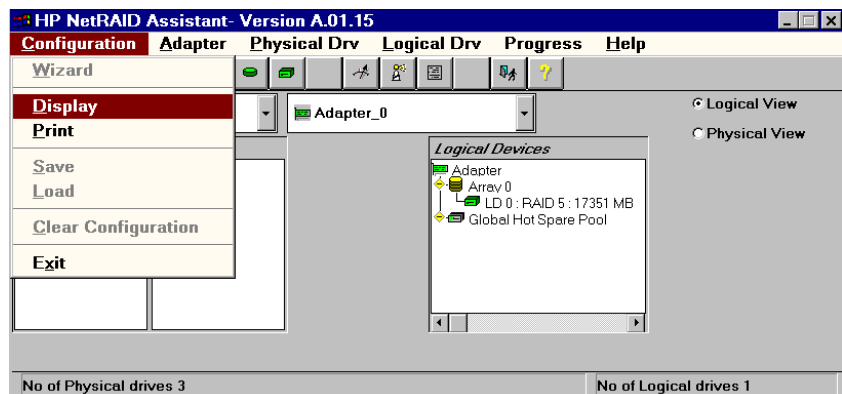
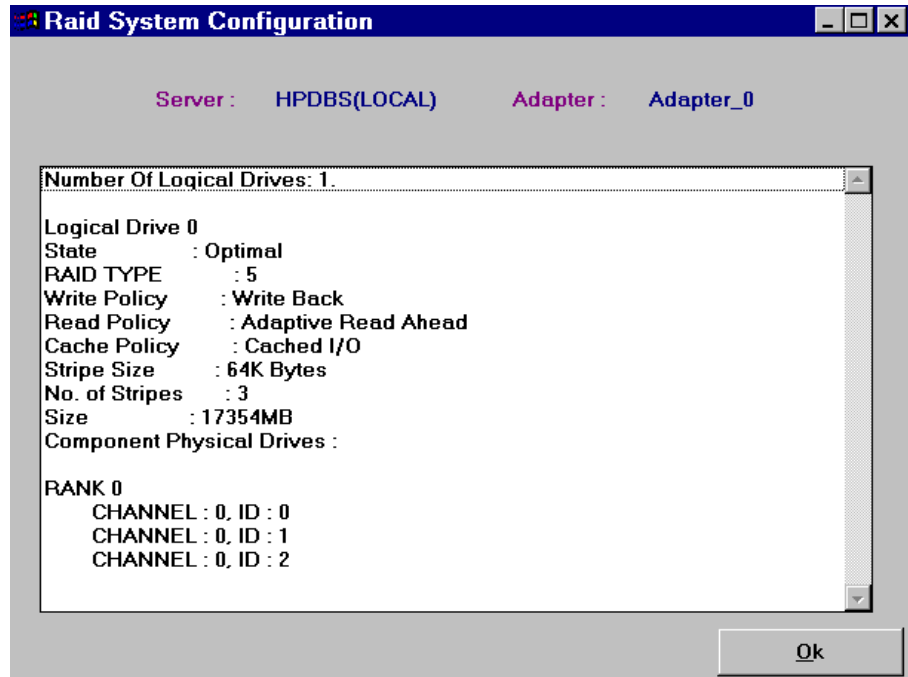


Figure 7-44 HP NetRAID Assistant Configuration Menu

Clicking on **Display**, opens the **Raid System Configuration** window of Figure 7-40 which shows the configuration settings of the NetRaid disks.



**Figure 7-45 Raid System Configuration Window**

Proper configuration settings for the 3 Raid disk drives are shown in Figure 7-45. If these are not their configuration settings, RAID configurations may have to be restored. This procedure is described in **Restoring RAID Configurations** on page 7-140.



<b>Configuration</b>	The configuration menu items are mostly items used during the initial configuration of the device. Viewing of the configuration settings can be done using this menu without dropping the devices into local database mode.
<b>!Config Wizard</b>	Sets a variety of configuration settings for Information Centers, Clients, Network Devices, and the Database Server. Refer to <b>Chapter 6</b> . Selecting this option drops all connected Information Centers and Clients into Config Mode.
<b>Read Only Config Wizard</b>	Displays the current configuration settings. This does not cause all devices to reboot into local database mode. Each configuration page can be selected by clicking on the associated tab.
<b>Archive</b>	Creates an archive of the existing configuration settings.
<b>Set Time/Date</b>	Sets and synchronizes the date and time on all devices on the Clinical Network and all patient monitors on the SDN Network.
<b>Report Configuration</b>	Configures and creates the layout of the configured report types. Settings include header and footer, print date/time stamp, Patient Name, Medical Record Number, Bed label, page number, Unit name, and Hospital name.
<b>Report/Recording Destination</b>	Used by Information Centers and Clients that have no recorder connected to select another device with a recorder to print its recordings.
<b>Add/Remove Database Servers</b>	<p>Used by the Master Database Server for adding and removing non-master Database Servers. This list is used in the Web Access and Patient Data Transfer options.</p> <p>If a Master Database Server adds a non-master server to its list, verify that the non-master does not already have a Master Database Server associated with it. If the non-master has another Master Database Server name configured, it will not accept the new Master Database Server.</p> <p>When the Web Access/Large Network system option is enabled, and a new Master/non-master relationship is configured, note that all the clinician data (user names and passwords) on the non-master server will be lost. These must be re-entered using the “Web User Access Config Tool” on page B-6.</p>
<b>Patient Data Transfer - Bandwidth Utilization</b>	<p>This menu has 3 items: Low, Medium and High. These settings control the hospital LAN bandwidth utilization during patient data transfer. Medium is the factory default and provides the overall best transfer duration. At the same time, it minimizes hospital LAN bandwidth utilization for both 10 and 100 Mbit LANs.</p> <p>Patient Data Transfer times vary depending on the number of network switches and routers the connection must go through.</p> <p>Table 7-10 provides an estimate of the time and bandwidth utilization the Patient Data Transfer can use on these network types.</p>

If transfer time is determined to be too long, adjust the Bandwidth Utilization setting to try to shorten the time period. This change takes 3-5 seconds and can be done while monitoring. Decreasing the time period of the data transfer will increase the bandwidth utilization of the hospital LAN, which may be undesirable.

**Table 7-10. Patient Data Transfer - Bandwidth Utilization**

Hospital Infrastructure Topology	Peak Bandwidth Utilization (Average)	Patient Data Transfer Duration	Bandwidth Utilization Setting
Pure 100 Mbit Hospital LAN	72 Mbps 32 Mbps (avg)	1-2 minutes	High
	56 Mbps 30 Mbps (avg)	3-5 minutes	Medium
	32 Mbps 8 Mbps (avg)	10-15 minutes	Low
Mixed 10/100 Mbit Hospital LAN	8 Mbps 8 Mbps (avg)	6-8 minutes	High
	8 Mbps 6 Mbps (avg)	10-12 minutes	Medium
	8 Mbps 4 Mbps (avg)	15-20 minutes	Low

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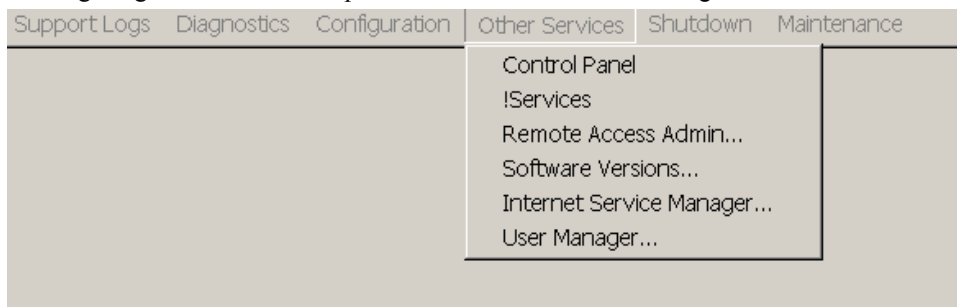
**Note** Patient Data Transfer durations are estimates. Actual time on a hospital network will vary depending on the design of the network and the level of network bandwidth that is available.

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**Change Units Password** Changes the Unit settings password. This is available on Database servers and M3150 Local Database Information Centers only.

**Print Configuration** Opens the Printer dialog box to delete a print jobs in the queue or a stuck print job while the devices are in monitoring mode. This is not to be used to add or delete printers! Adding and deleting printers must be done via the **Network Configuration** page of the Config Wizard.

**Other Services** The Other Services menu provides access to a variety of PC Control Panel applications, Remote Access Services (RAS) capability (Remote Access Admin.), and Paging tools for configuring intranet access to patient data on the Server. See Figure 7-46.



**Figure 7-46 Applications in the Other Services Menu**

**Control Panel** The **Control Panel** menu contains a variety of Windows tools for Philips systems. The following installation and configuration settings can be made with these tools.

---

**Warning** **During Philips software installation, the Philips CD ROM and Field Installation Support Tool automatically set Operating System parameters to their proper values. Therefore, the following tools should only be used to validate settings and not to change or modify them.**

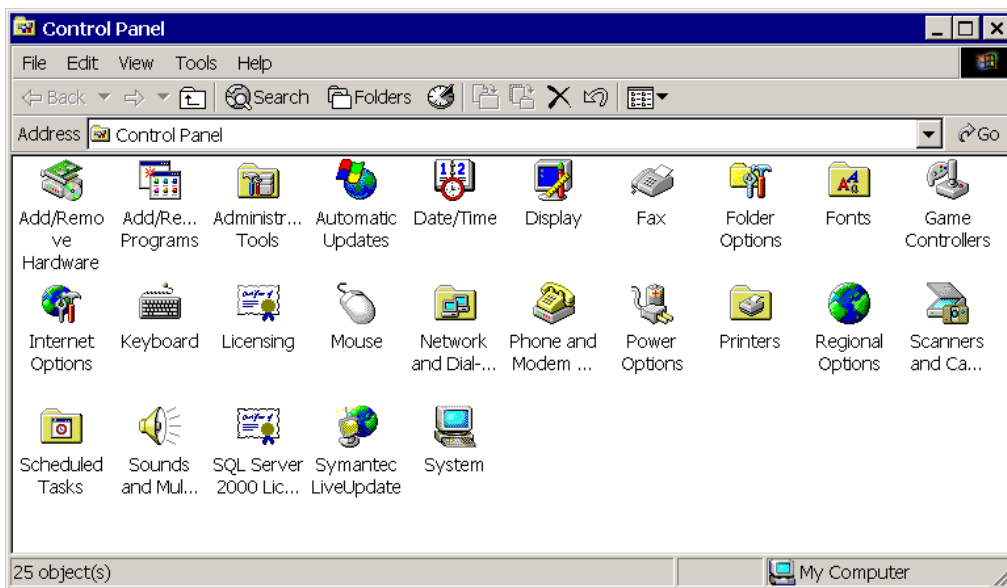
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**Note** More detailed descriptions of these tools are provided in Windows **Help** windows accessed by clicking on the **Help** button in the menu bar of each application.

---



**Figure 7-47 Control Panel**

Depending on the operating system, the service applications, when opened, may display over the **Main Screen**. If this happens, the mouse can be used move the window. Another operating system behavior is to “hide” the application window when it is inactive. If an application is open, but not shown in the screen, press Alt + Tab simultaneously to select the application and bring it to the front.

**!Services** Displays the status of Windows and OS software applications and provides for stopping and starting them without having to reboot the entire software. Clicking on **!Services**, brings up the **Services** window shown in Figure 7-48.

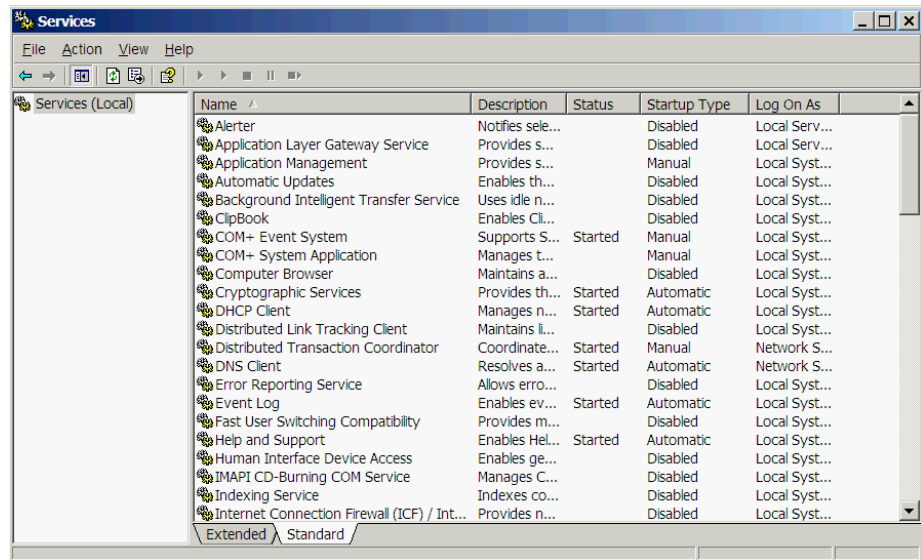


Figure 7-48 Services Window

If the **Status** of an application is given as **Stopped**, it can be simply restarted by highlighting it, right clicking, and then selecting **Start**.

If the **Status** is **Started**, but the application does not seem to work properly, it can be stopped by highlighting it, right clicking, and then selecting **Stop** and then restarted by clicking on **Start**.

In some cases this can quickly resolve an application problem, e.g. with a UPS or Web Access, without having to reboot the entire system.

**Remote Access Admin.** If service personnel are unable to resolve a problem, the **Response Center** can be contacted for additional help. The M3154 Database Server provides **Remote Access Services (RAS)** capability to all Information Centers and Clients on the LAN so that service personnel can directly access performance data via modem. RAS on the Server can operate while all central monitors are in monitoring mode so that patient monitoring is not disrupted. **Remote Access Admin.** provides connection and configuration tools for remote access.

**Notes** RAS software is installed in all M3154 Database Servers. However, its use requires a modem to be installed and a dedicated, analog, direct inward dial, telephone line connection. A modem is standard for Servers for US and Canadian shipments but must be purchased and installed by the customer in other countries.

Procedures for installing an external modem are given in **Appendix C: External Modem Installation on M3154 Database Server**.

Dial-in access to the Server is described in **Appendix D: Dial-In Procedure for Remote Access to Information Center Systems**.

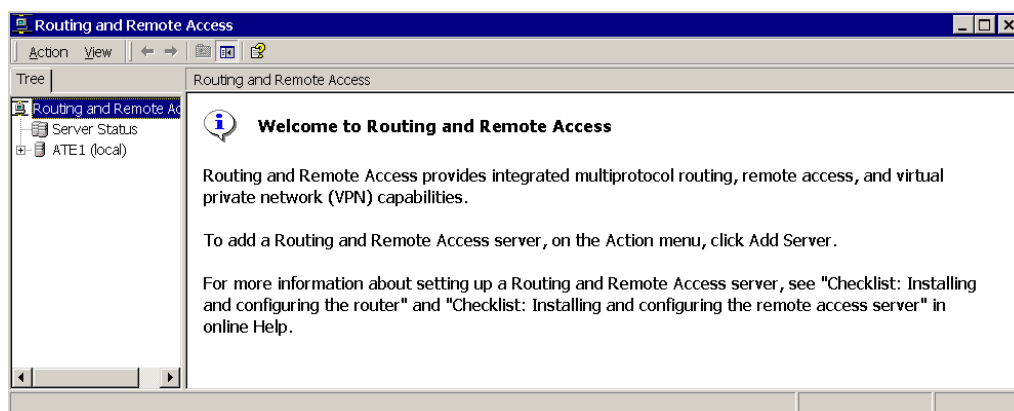
RAS provides remote access to the following Windows applications **only**.

- Windows Explorer
- Registry Editor
- Performance Monitor
- Event Viewer (Event Log)

For the modem to make a connection, RAS must be activated. Windows **Help** information describing these tools is provided in each window.

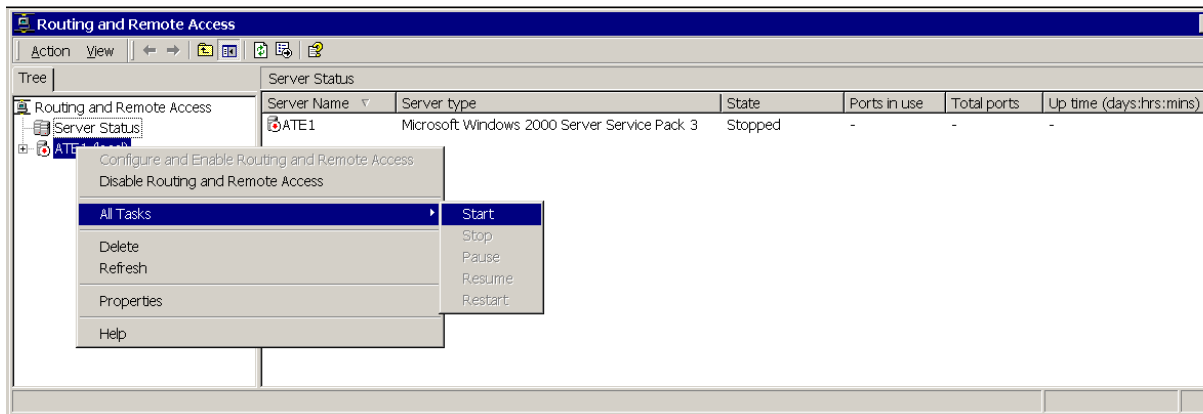
The procedure for opening the RAS Administrator is the following:

**Step 1.** Click on **Remote Access Admin.** in the Other Services menu of the Service window to access the **Remote Access Admin.** window.



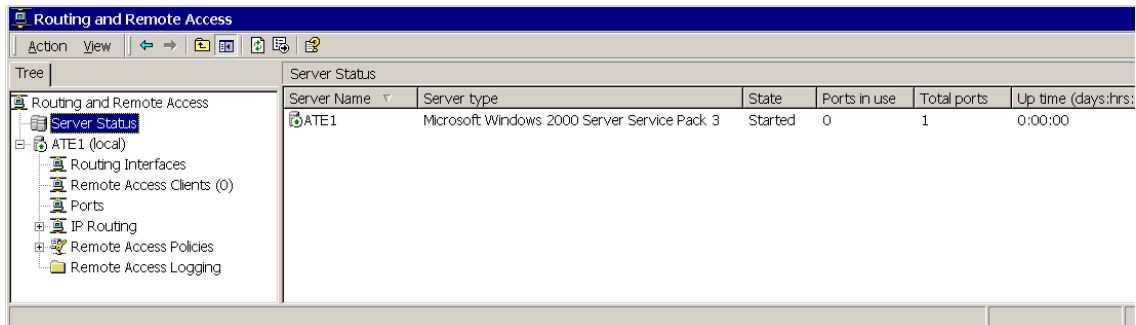
**Figure 7-49 Remote Access Admin. Window**

**Step 2.** Click on the Server Name in the left frame. Right click and select **All Tasks -> Start** to start the service as shown in Figure 7-50.



**Figure 7-50 Start Remote Access Service Window**

**Step 3.** Verify the State is **Started** as shown in Figure 7-51.



**Figure 7-51 RAS Started**

When RAS is operating, the **Response Center** can dial the number of the modem telephone line to access the Server.

---

**Note** To access the Server, an outside caller must have the correct dial in permission and a Philips password. This prevents persons from gaining unauthorized access.

---

When remote access is no longer required, it should be shut down. This is accomplished by selecting the **Server name** in the left frame and then right click and select **All Tasks -> Stop** to stop the service.

Windows **Help** information describing these tools is provided in the windows for each application.

**Internet Service Manager** **Internet Service Manager** is used to configure settings that grant or deny access to patient data on the Server by specific PCs on the hospital network.

**User Manager** **User Manager** is used to set or change passwords for permission to access patient data on the Server from the hospital web.

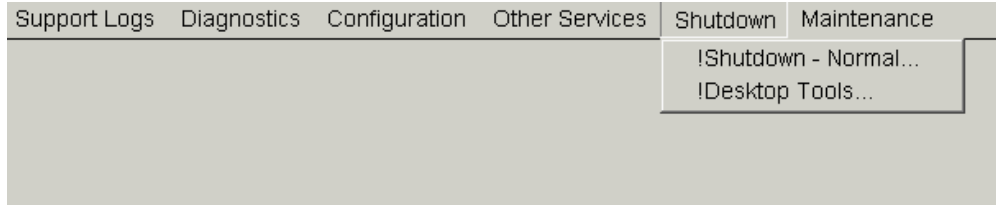
**Software Versions** Software Version displays information that identifies the current versions of the Product, Application, Network, and Operating software that is currently installed on the system. See Figure 7-52.

Component	Version
Software Release	E.01.01
Network	E.00.23
Application	E.01.01
Operating System	E.01.xx 030210 14:40

**Figure 7-52 Software Versions**

## Shutdown

In many cases, software problems can be resolved by simply shutting down a device and rebooting it. The **Shutdown** menu of the **Service** window provides a **Shutdown - Normal** application as well as direct access to the **Desktop Tools** main menu. See Figure 7-53.



**Figure 7-53 Applications of the Shutdown Menu**

In some cases, a dialog box will open when the operating system cannot shutdown a process. This requires user input to either Wait or End Task. If this dialog box appears, select End Task to continue the shutdown process.

### Shutdown - Normal

**Shutdown - Normal** in the **Shutdown** menu provides for the controlled shutdown of software and the saving of all existing data and configuration settings. An optional choice in the shutdown sequence provides for immediate software rebooting from the final window.

### Caution

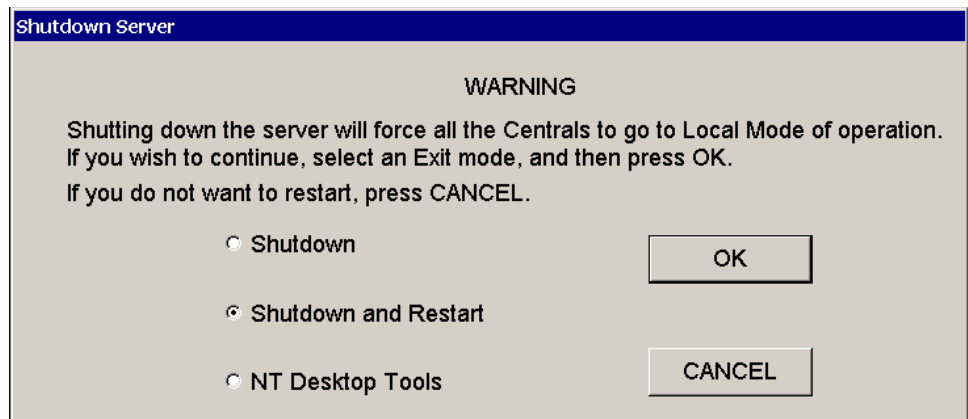
**Shutdown Normal is the only recommended way to properly power down the Philips system. If the Reset or power Off buttons are used or the power plug is removed to shut down the Philips system, the NTFS File System can be corrupted.**

The shutdown procedure is as follows:

**Step 1.** Click on **Shutdown-Normal** in the **Shutdown** menu of the **Service** window.

The **Shutdown Server** window of Figure 7-54 appears with the following

**WARNING:**



**Figure 7-54 Shutdown Server Window**

The **Shutdown** server window has 3 shutdown mode options.

**Shutdown** shuts the Philips system down normally and prepares it to be turned off. Windows messages follow describing the shutdown condition.

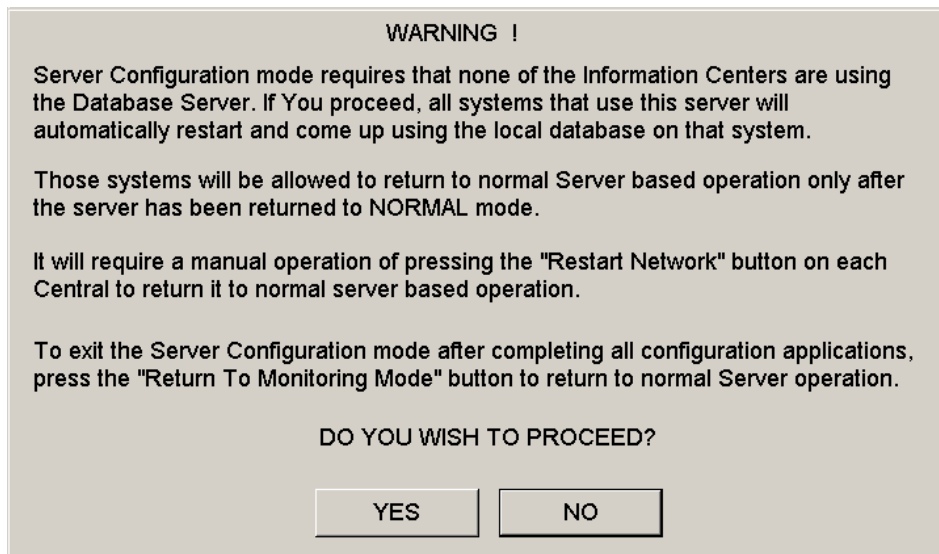
**Shutdown and Restart** shuts the Philips system down normally and automatically restarts system software to bring up all Philips applications and all stored patient data.

**Desktop Tools** shuts down the Philips system and brings up the **Windows Main Menu**. A complete reboot of the computer is required to bring up Philips application software and return to central monitoring.

**Step 2.** Click in the circle preceding the desired option to select that option.

**Step 3.** Click **OK** and the Philips system will shutdown following the option selected.

**Desktop Tools Desktop Tools** shuts down Philips application software and returns the Server to the Operating System mode. Clicking on **Desktop Tools** brings up the following **WARNING** indicating that all Information Centers and Clients will go into local database mode.



**Figure 7-55 Desktop Tools Warning Window**

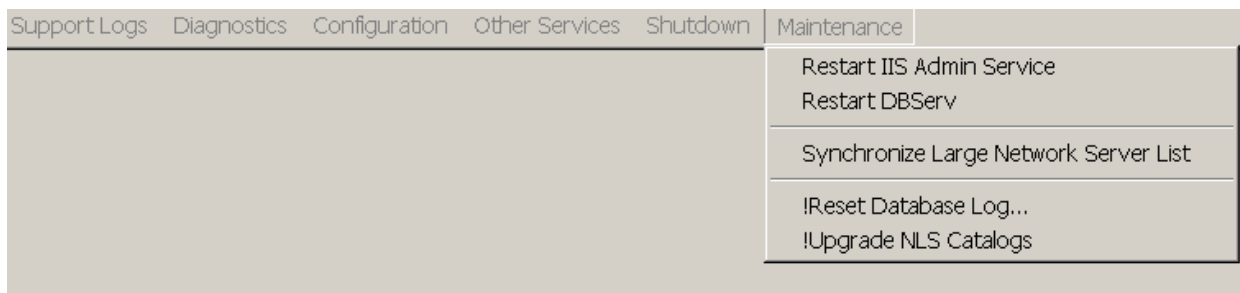
Clicking **Yes** causes Philips software to shut down and all Information Centers and Clients to go into local database mode.

After the shutdown, the **Windows Main Menu** appears. The Windows Main Menu has a **Config Wizard** icon that will automatically bring up the Config Wizard for the Server.



## Maintenance

The maintenance menu provides additional troubleshooting tools to assist in situations that do not cause the system to be rebooted. See Figure 7-56.



**Figure 7-56 Applications of the Maintenance Menu**

**Restart IIS Admin Service** **Restart IIS Admin Service** restarts the Internet Information server used in the Web Access and Paging functions. Using this menu item does not require the system reboot into local database. This should be run when:

- Web Access feature persistently fails from various locations
- “**Server busy**” appearing in various locations
- Persistent failures indicating **Contact System Administrator**

**Restart DBServ** **Restart DBServ** stops and restarts the DBServ process with no interruptions to monitoring. This should only be run when all of the following services are persistently failing:

- Patient Data storage and retrieval
- 12 Lead Analysis/Export
- Patient Data Transfer
- Holter Export
- Web Overview
- HL7 Export
- SNTP Time Source
- Bed-to-bed overview
- CareGroups

Contact the Response Center or factory for recommendations.

**Synchronize Large Network Server List** **Synchronize Large Network Server List** manually synchronizes the server list on each server in a Large network system configuration (this is only available on the M3154 Database Server). This is a rare condition occurs during configuration and startup on the non-master Database Server when it cannot locate the Master Database Server name. A window opens to prompt for the addition of the Master Database Server name. Enter the name and click **Synchronize**.

**!Reset Database Log** **!Reset Database Log** resets the SQL server transaction log files. When using this utility, all Information Centers and Clients will reboot into local database mode. This should only be run when all of the patient-related operations fail:

- Admit/Discharge
- Transfer

- changing alarm limits
- Arrhythmia settings
- CareGroups

and the following failure message is logged into the System Error Log Files:

**[Microsoft][ODBC SQL Server Driver][SQL Server] The log file for Database 'viridia' is full. Back up the transaction log for the database to free up some log space**

Contact the Response Center or factory for recommendations.

### **!Upgrade NLS Catalogs**

Upgrades the NLS text catalog on all devices when new bedside releases are available. Selecting this option drops all connected Information Center and Clients into Config Mode. There are two procedures given below, **Upgrade NLS Catalogs - Automatic Process** for release E.01 Database Server systems, and the **Upgrade NLS Catalog - Manual Process** is supported on release M3150 Information Center Local Database (E.01 and earlier releases, and earlier release (D.01, E.0) Database Server systems.

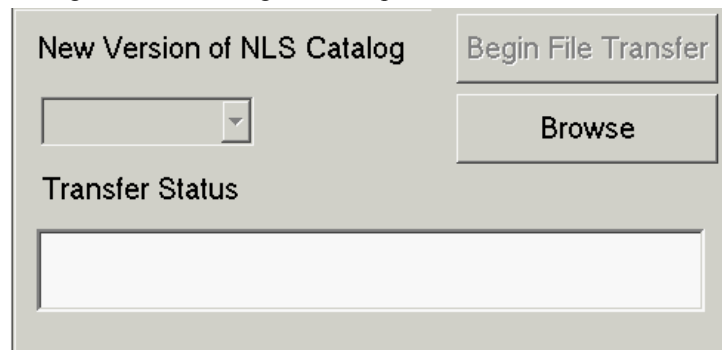
#### **Upgrade NLS Catalogs - Automatic Process**

The NLS text catalog files must be retrieved from the patient monitor Documentation CDROM.

**Step 1.** Insert the media containing the NLS text catalog files into the CDROM drive of the Database Server.

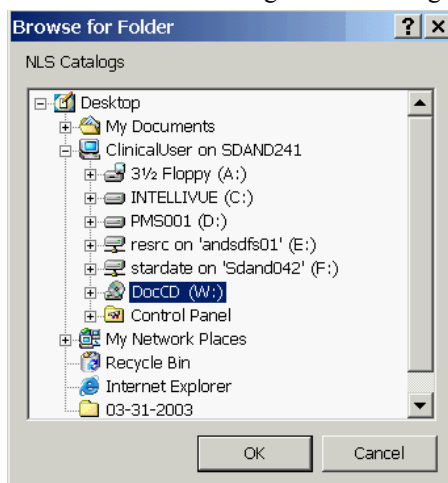
**Step 2.** Select **!Upgrade NLS Files** from the Maintenance menu on the Database Server service shell window.

**Step 3.** The dialog box shown in Figure 7-57 opens. Press the **Browse** button.



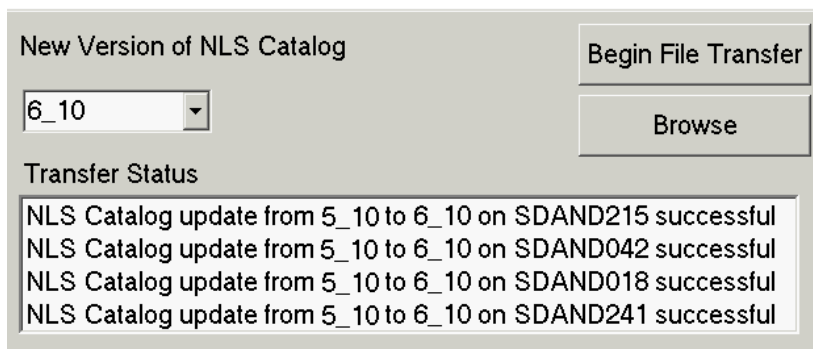
**Figure 7-57 !Upgrade NLS**

**Step 4.** Browse to the CDROM drive containing the NLS strings and press **OK**.



**Figure 7-58 Browse for NLS**

**Step 5.** In the New Version of NLS Catalog drop list, select the latest NLS version. Press **Begin File Transfer**. If errors are encountered, the tool displays the error. See Figure 7-59.



**Figure 7-59 NLS Status**

A device that continues to fail can be skipped, and that device must be upgraded using the Manual process procedure given below.

**Step 6.** When complete reboot the connected M3155 Information Centers and Clients. They automatically return to monitoring.

**Upgrade NLS Catalog - Manual Process**

The NLS text catalog files must be retrieved from the IntelliVue Patient Monitor Documentation CDROM. Performing this procedure drops all devices into non-Monitoring Mode.

**Step 1.** Insert the media containing the NLS text catalog files into the CDROM drive.

**Step 2.** Open Windows Explorer and browse to the CDROM drive.

**Step 3.** Select the file folder containing the NLS version (e.g. 6\_10) and copy (Ctrl + c or Edit -> Copy) the folder.

**Step 4.** Browse to the **Stardate\PicoNetDa\NLS** folder on the hard drive and paste (Ctrl + v or Edit -> Paste) the folder.

**Step 5.** Click on the new NLS directory (e.g. 6\_10) and verify all language folders are present. Open each folder and verify a file exists in each.



**Figure 7-60 NLS Directory**

**Step 6.** Two NLS folders with the same major revision number **cannot** co-exist in the NLS folder. If an earlier sub-version exists (i.e. 6\_8 was present in the directory that the 6\_10 files were copied to), the 6\_8 directory must be deleted. Folders with different major numbers (i.e. 5\_10, 6\_10) **can** co-exist in the NLS folder.

**Step 7.** Reboot the devices. They return automatically to monitoring.

**Step 8.** Repeat steps 1 - 7 for each Information Center, Client, and Database Server in the system.

## HL7 Tools

There are 2 tools available to assist in troubleshooting HL7 problems:

- the **client.exe** tool for the Unsolicited Message Interface (UMI)
- the **qryclnt.exe** tool for the Query Message Interface

These tools are located on the Application software CD-ROM and can be run on the M3154 Database Server or on a PC on the hospital LAN.

The Export.log file located in the Stardate\Log directory contains HL7 interface and external receiving system messages that can be useful in troubleshooting.

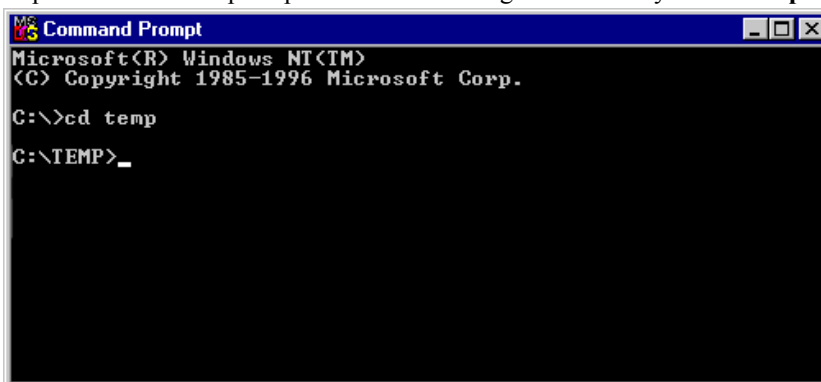
### Client.exe tool

The Client.exe tool is to be used for troubleshooting UMI messages.

To run this tool on the Database Server, the Database Server HL7 settings must reflect the target host name and the IP Address of the 2nd NIC Card. This is mentioned in the **Config Wizard** section of Chapter 6. If this is done at the time the tool is run, all connected Information Centers and Clients will reboot into local database mode. If this is unacceptable, run the tool on a PC connected to the hospital LAN.

**Step 1.** Insert the Application Software CDROM. Using Windows Explorer or File Manager, copy the client.exe tool located in the **Viridia\Tools\HL7** directory to the **C:\Temp** directory.

**Step 2.** Open an MSDOS® prompt window and change the directory to **C:\Temp**



```

MS-DOS Command Prompt
Microsoft(R) Windows NT(TM)
(C) Copyright 1985-1996 Microsoft Corp.
C:\>cd temp
C:\TEMP>_

```

**Figure 7-61 MS-DOS Prompt window**

**Step 3.** Type **CLIENT xxx.xxx.xxx.xxx** (IP Address of 2nd NIC or hostname of DBS) > **test.txt** (e.g. **CLIENT 192.35.0.55 > test.txt** or **CLIENT DBSSVR1 > test.txt**) and hit Enter.

This saves the HL7 output as ASCII text in a file in the C:\Temp directory. Let the data collect for **5 minutes**.

**Step 4.** Press **Ctrl + C** simultaneously to end the program.

**Step 5.** Review the file and then save it to a floppy disk.

**Step 6.** Delete the **test.txt** file from the C:\Temp directory.

**Step 7.** If the tool was used on the Database Server, the HL7 target client name must be reconfigured back to the original hostname via the **Config Wizard**.

## **Qryclnt.exe Tool**

The Qryclnt.exe tool is for troubleshooting the Query Message Interface. It is to be used by the third party that programs the HL7 Query message interface for the hospital. This tool can be run on the hospital HL7 target client (Windows based) to troubleshoot HL7 problems configured for the solicited message interface.

Syntax:

**QRYCLNT <server> [/CONTINUOUS] [query1 .. queryn]**

where:

<b>&lt;server&gt;</b>	is the host name or IP address of the target client
<b>/CONTINUOUS</b>	if used, repeats the query continuously
<b>query1 .. queryn</b>	lists with bed labels or CareNet branch* specifications

CareNet branch specification: \*<CareNet number><branch number>

Example:

ICU1 ICU2 "Bed12" \*1-17 \*2-22

\*MDIL message type format does not include CareNet branch data

If the list with bed labels/CareNet branch specifications is empty, then a query for all beds is generated.

## ST/AR Configuration Reporting Tools

This section provides a list of the 7-character encoded ST/AR configuration parameters that display as part of the alarm information on alarm strip recordings. This information can be used to identify problems in the operation of ST/AR arrhythmia analysis as well as in the interpretation of results obtained by the algorithm. The information is encoded with a [ ] after the time stamp.

---

**Note** The ST/AR diagnostic tool encoding scheme is only available on SDN and Telemetry beds.

---

The items are coded into a 7 character string, broken down as follows:

Character	Identifies
First	ST/AR's revision.
Second	Patient category, pacing mode and analysis level.
Third and Fourth	<ul style="list-style-type: none"> <li>• Classification mode (single or multi-lead)</li> <li>• Detection mode (auto or manual)</li> <li>• User specified lead label (manual detection mode only)</li> <li>• User specified minimum threshold (150-350uV) (manual detection mode only)</li> <li>• Algorithm minimum detection threshold (150-350uV) (manual detection mode only)</li> </ul>
Fifth	Number of active classification and detection channels EASI mode/EASI coefficient set
Sixth	ECG hardware source and lead set in use (3-wire, EASI, etc.)
Seventh	Source of Asystole, Pause, Missed Beat, PNP or PNC alarm (detection or beat interval)

**First Character Codes** The first character identifies the ST/AR revision.

STAR revision	First Character
Release E	4

**Second Character Codes** The second character identifies the patient category, pacing mode and analysis level.

Patient Type	Paced Mode	Arrhythmia Level	Second Character
Neo	True	Cardiotach	0
		Basic	1
		Enhanced	2
	False	Cardiotach	3
		Basic	4
		Enhanced	5
Ped	True	Cardiotach	6
		Basic	7
		Enhanced	8
	False	Cardiotach	9
		Basic	B
		Enhanced	C
Adult	True	Cardiotach	D
		Basic	F
		Enhanced	G
	False	Cardiotach	H
		Basic	J
		Enhanced	K



**Third and Fourth Character Codes**

The third and fourth character identifies the:

- Classification mode (single or multi-lead)
- Detection mode (auto or manual)
- User specified lead label (manual detection mode only)
- User specified minimum threshold (150-350uV) (manual detection mode only)
- Algorithm minimum detection threshold (150-350uV) (manual detection mode only)

**Note**

Use the Multi/Manual/Lead I entries as a guideline in determining the appropriate expanded values for each Lead listed in the table below

Classification Mode	Detection Mode	User Specified Detection Lead	User Specified Detection Threshold	Algorithm Minimum Detection Threshold	Third and Fourth Character
Multi	Auto	N/A	N/A	150	00
	Manual	Lead I	150	150 350	10 11 <sup>a</sup>
			200	200 350	12 13 <sup>a</sup>
			250	250 350	14 15 <sup>a</sup>
			300	300 350	16 17 <sup>a</sup>
			350	350 350	18 19 <sup>a</sup>
		Lead II	150 - 350	150 - 350	20 - 29
		Lead III	150 - 350	150 - 350	30 - 39
		Lead AVR	150 - 350	150 - 350	40 - 49
		Lead AVL	150 - 350	150 - 350	50 - 59
		Lead AVF	150 - 350	150 - 350	60 - 69
		Lead V1	150 - 350	150 - 350	70 - 79
		Lead V2	150 - 350	150 - 350	80 - 89
		Lead V3	150 - 350	150 - 350	90 - 99
		Lead V4	150 - 350	150 - 350	B0 - B9
		Lead V5	150 - 350	150 - 350	C0 - C9
		Lead V6	150 - 350	150 - 350	D0 - D9
		Lead V	150 - 350	150 - 350	F0 - F9
Lead MCL1	150 - 350	150 - 350	G0 - G9		

Troubleshooting

Classification Mode	Detection Mode	User Specified Detection Lead	User Specified Detection Threshold	Algorithm Minimum Detection Threshold	Third and Fourth Character
		Lead MCL2	150 - 350	150 - 350	H0 - H9
		Lead MCL3	150 - 350	150 - 350	J0 - J9
		Lead MCL4	150 - 350	150 - 350	K0 - K9
		Lead MCL5	150 - 350	150 - 350	L0 - L9
		Lead MCL6	150 - 350	150 - 350	M0 - M9
		Lead MCL	150 - 350	150 - 350	N0 - N9
		Single	Auto	N/A	N/A
Manual	Lead I		150 - 350	150 - 350	P0 - P9
	Lead II		150 - 350	150 - 350	R0 - R9
	Lead III		150 - 350	150 - 350	S0 - S9
	Lead AVR		150 - 350	150 - 350	T0 - T9
	Lead AVL		150 - 350	150 - 350	V0 - V9
	Lead AVF		150 - 350	150 - 350	W0 - W9
	Lead V1		150 - 350	150 - 350	X0 - X9
	Lead V2		150 - 350	150 - 350	Y0 - Y9
	Lead V3		150 - 350	150 - 350	Z0 - Z9
	Lead V4		150 - 350	150 - 350	b0 - b9
	Lead V5		150 - 350	150 - 350	c0 - c9
	Lead V6		150 - 350	150 - 350	d0 - d9
	Lead V		150 - 350	150 - 350	f0 - f9
	Lead MCL1		150 - 350	150 - 350	g0 - g9
	Lead MCL2		150 - 350	150 - 350	h0 - h9
	Lead MCL3		150 - 350	150 - 350	j0 - j9
	Lead MCL4		150 - 350	150 - 350	k0 - k9
	Lead MCL5		150 - 350	150 - 350	m0 - m9
	Lead MCL6		150 - 350	150 - 350	n0 - n9
Lead MCL	150 - 350	150 - 350	p0 - p9		

a. User specified lead is not active

**Fifth Character Codes** The fifth character identifies the number of active classification and detection channels and EASI mode/EASI coefficient set.

EASI Mode	Active Classification Channels	Active Detection Channels	Fifth Character
Standard (non-EASI) electrode placement	0	0	0
		1	1
		2	2
	1	0	3
		1	4
		2	5
	2	0	6
		1	7
		2	8
EASI placement for conventional 12-Lead derivation	0	0	9
		1	B
		2	C
	1	0	D
		1	F
		2	G
	2	0	H
		1	J
		2	K

**Sixth Character Codes** The sixth character identifies the ECG hardware source and lead set in use (3-wire, EASI, etc.).

ECG HW Source	Lead Set	Sixth Character
unknown	unknown	0 or z
	3w	1
	4w	2
	5w	3
	10w	4

Troubleshooting

<b>ECG HW Source</b>	<b>Lead Set</b>	<b>Sixth Character</b>
M1401 Telemetry	unknown	5
	3w	6
	4w	7
	5w	8
	10w	5
ECG A module	unknown	9
	3w	B
	4w	9
	5w	C
	10w	9
ECG/resp A module	unknown	D
	3w	F
	4w	D
	5w	G
	10w	D
ECG B module	unknown	H
	3w	J
	4w	H
	5w	K
	10w	H
ECG/resp B module	unknown	L
	3w	M
	4w	L
	5w	N
	10w	L
M3000A Measurement Server	unknown	P
	3w	R
	4w	P
	5w	S
	10w	P

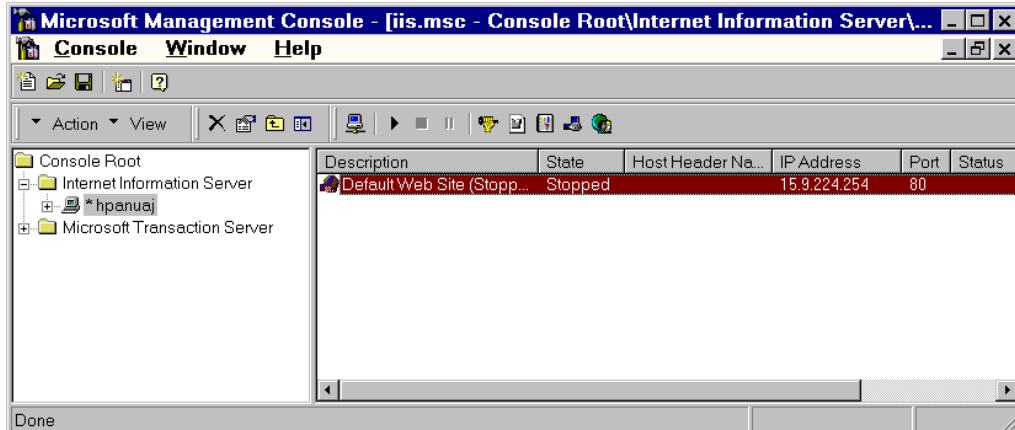
ECG HW Source	Lead Set	Sixth Character
M2600 Telemetry	unknown	T
	3w	V
	4w	P
	5w	W
	10w	P
M3001A Measurement Server	unknown	b
	3w	c
	4w	b
	5w	d
	10w	f

**Seventh Character Code** The seventh character identifies the Source of Asystole, Pause, Missed Beat, PNP or PNC alarm (detection or beat interval).

Event Source	Seventh Character
N/A	0
look_ahead	1
look_back	2
look ahead beat rejection	3

## Manual IIS Settings

**Step 1.** Click on Start -> Run and type mmc and press enter to open the **Microsoft Management Console (MMC)** window. This window provides for configuration of Information Center Web network services. These services must be configured manually and are critical to Web performance.



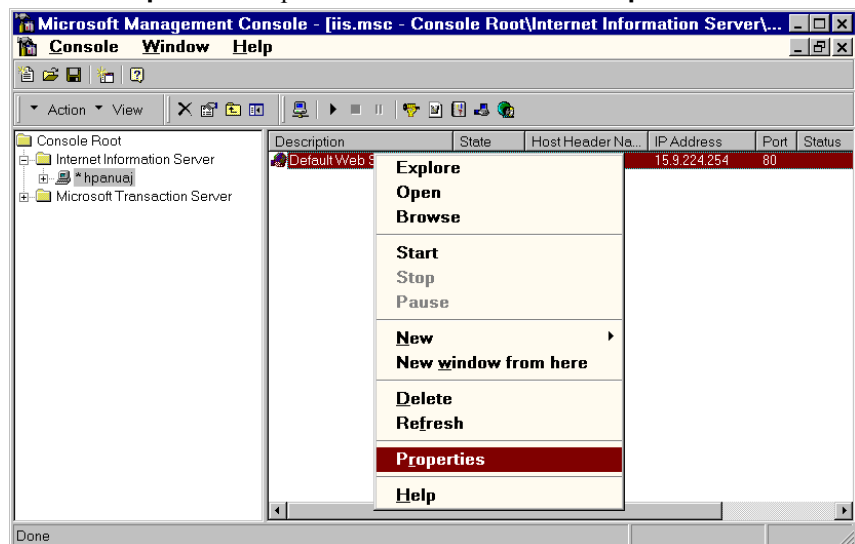
The following procedure describes how to make the necessary settings, some of which must be supplied by the customer to make Web compatible with the hospital's intranet.

**Step 2.** Double-click on the **Internet Information Server** item in the Console Root menu in the left area of the Microsoft Management Console window to display the Server Host Name.

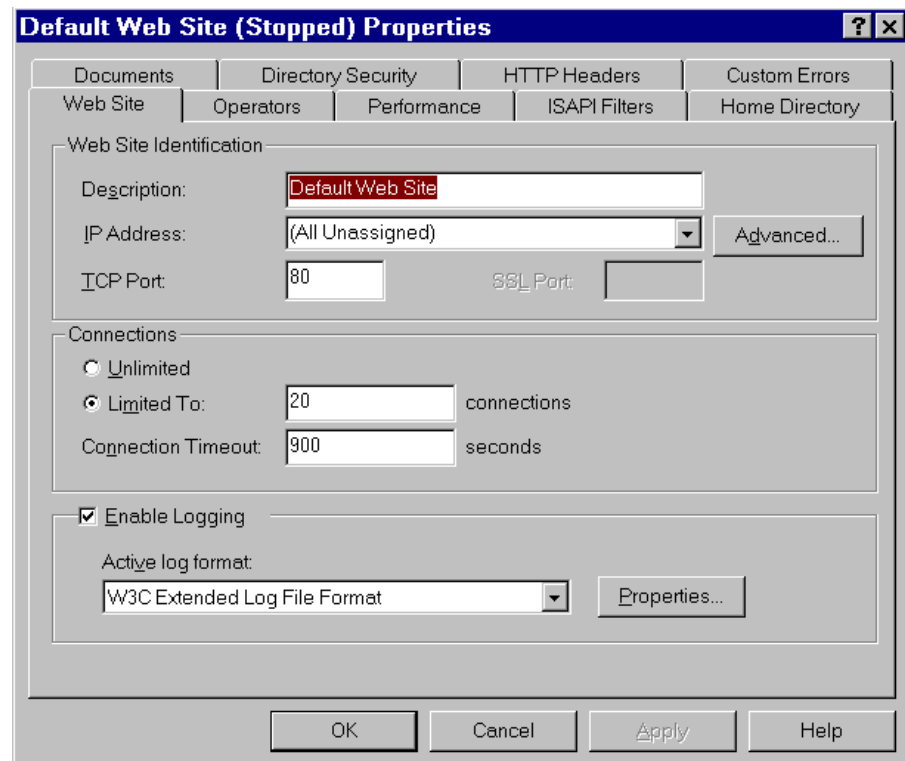
**Step 3.** Click on the Server **Host Name** to display its Description and IP Address in the right area of the Microsoft Management Console window. The Description reads Default Web Site ...

**Step 4.** **Right-click** on the words **Default Web Site...** to display its menu.

**Step 5.** Click on **Properties** to open the **Default Web Site Properties** window.



**Step 6.** Click on the **Web Site** tab. Verify the IP Address field is set to **(All Unassigned)**.



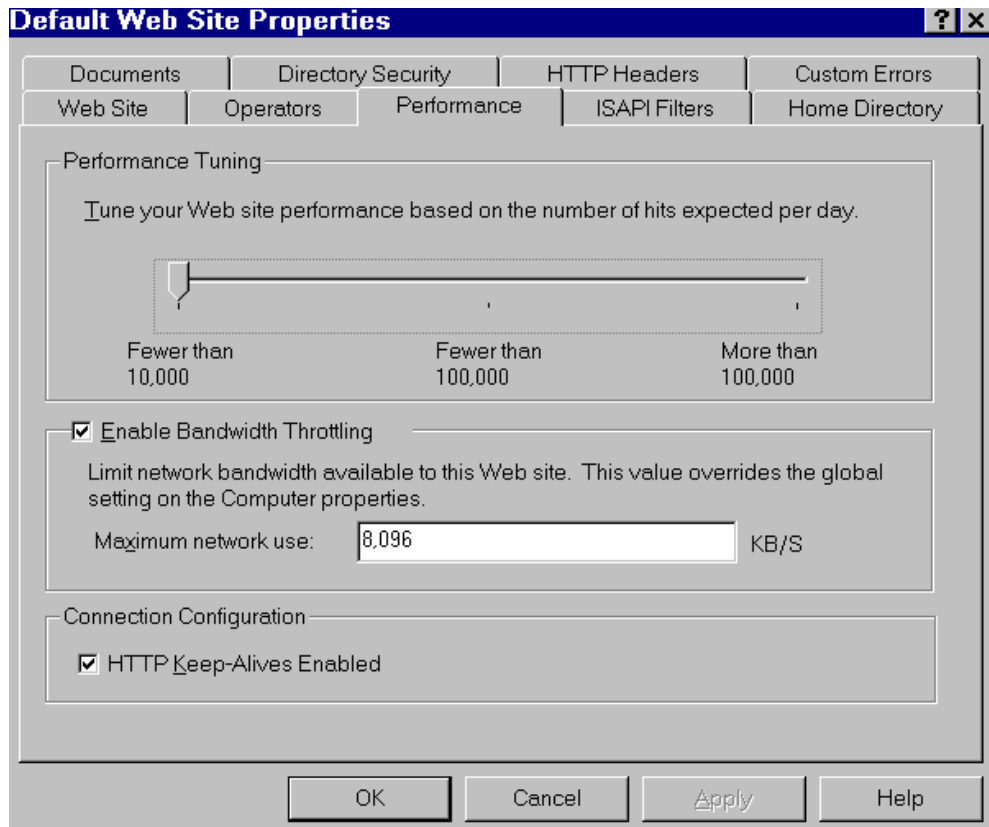

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**Note** Be careful to select the IP Address of the NIC for the hospital’s Internet and not that of the Clinical Network LAN.

---

**Step 7.** Click in the circle preceding **Limited To:** in the Connections field and set the number to **20 connections**.

**Step 8.** Click on the **Performance** tab in the Default Web Site Properties window.



**Step 9.** Move the **Performance Tuning** slider to **Fewer than 10,000** (all the way to the left).

**Step 10.** Assure that the following selections are made:

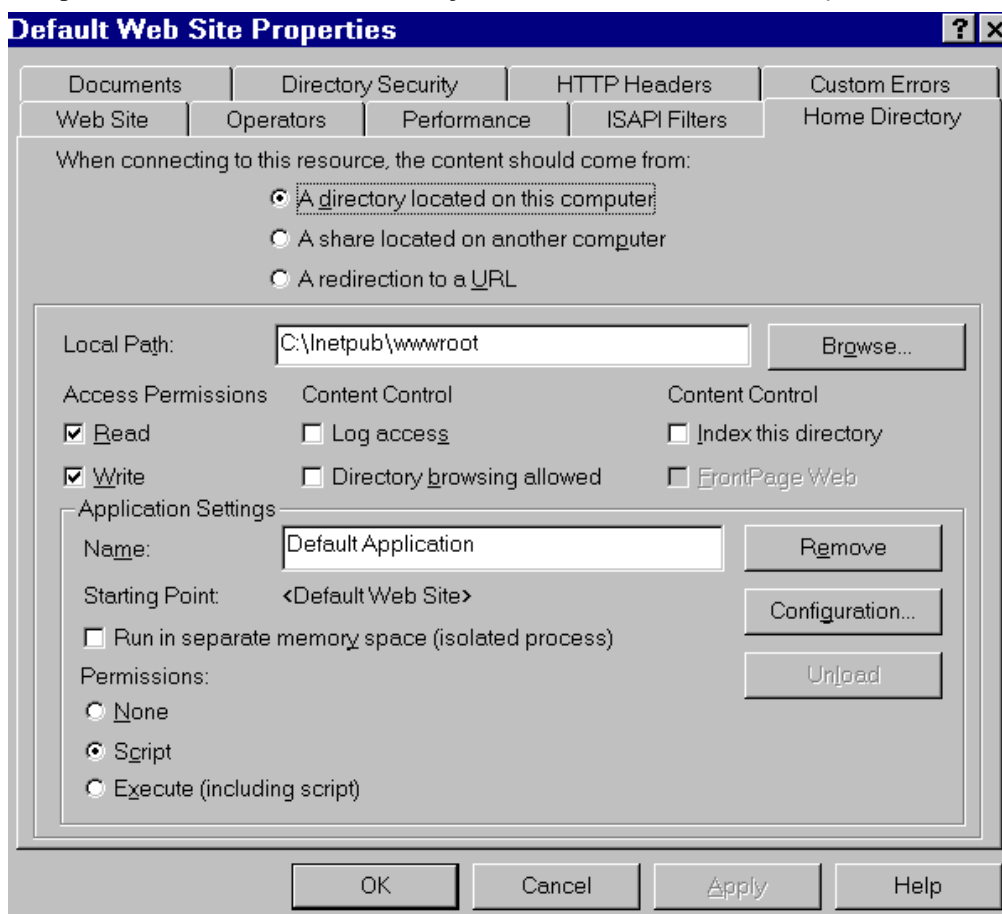
- Enable Bandwidth Throttling**  
**Maximum network use: 8,096 KB/S**

Connection Configuration

- HTTP Keep-Alives Enabled**



**Step 11.** Click on the **Home Directory** tab in the Default Web Site Properties window.



**Step 12.** Make the following settings in the **Home Directory** window:

**When connecting to this resource, the content should come from:**

- A directory located on this computer**

**Local Path:** C:\inetpub\wwwroot

**Access Permissions**      **Control Content**      **Content Control**

**Read**       **Log access**       **Index this**  
**directory**

**Write**       **Directory browsing allowed**

**Application Settings**

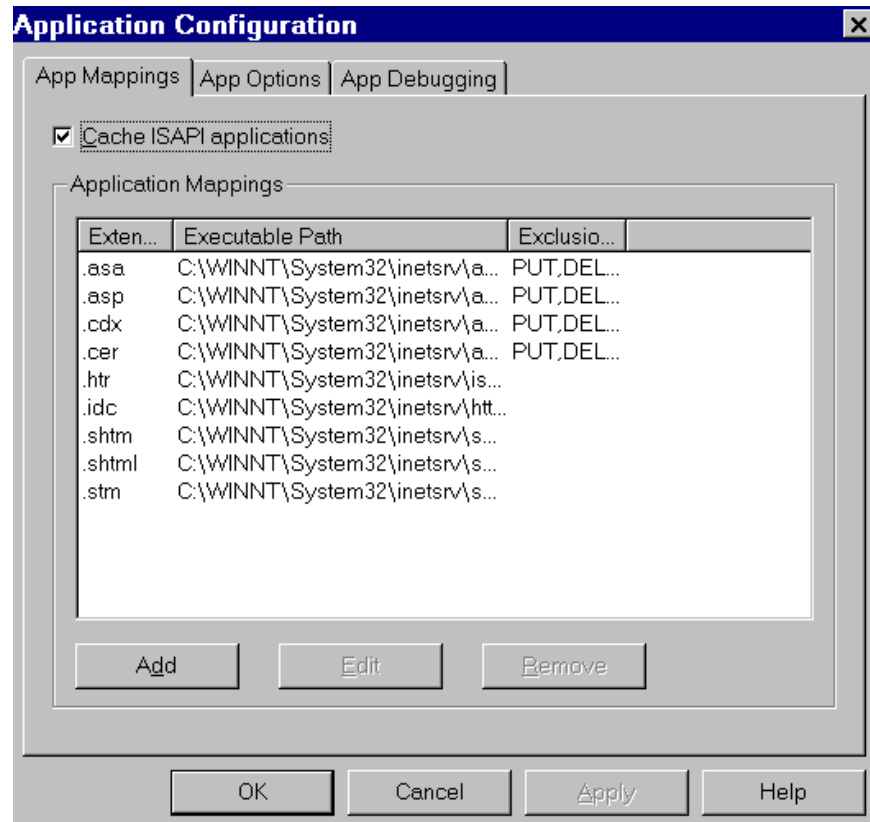
**Name:** Default Application

**Permissions:**

- Script**

**Step 13.** Click the **Configuration** button in the **Application Settings** field.

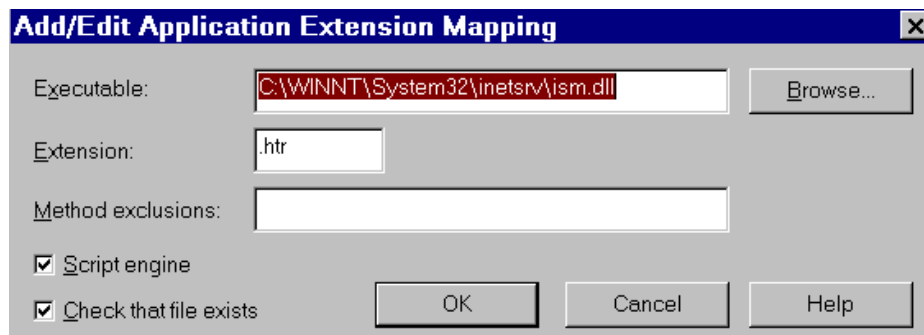
**Step 14.** Click on the **App Mappings** tab.



**Step 15.** Make the following setting in the **App Mappings** window:

**Cache ISAPI applications**

**Step 16.** Double-click on the line in the **Extension mappings** field containing **.htr** to open the **Add/Edit Application Extension Mapping** window.



**Step 17.** Make the following settings:

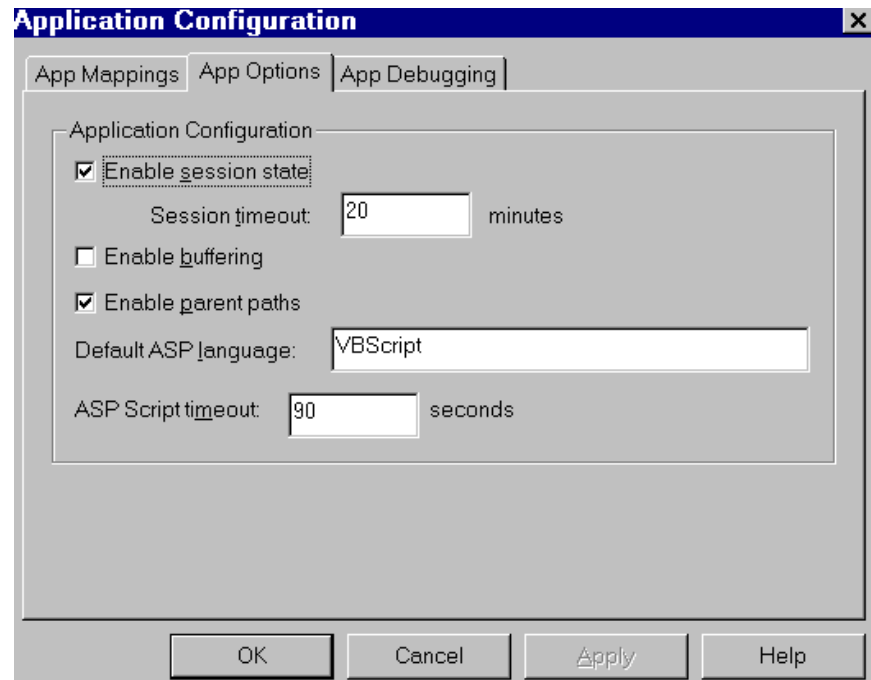
**Script engine**

**Check that file exists**

**Step 18.** Click **OK** to return to the App Mappings window.

**Step 19.** Repeat the Steps 16 - 18 for Extension mappings .stm and .idc

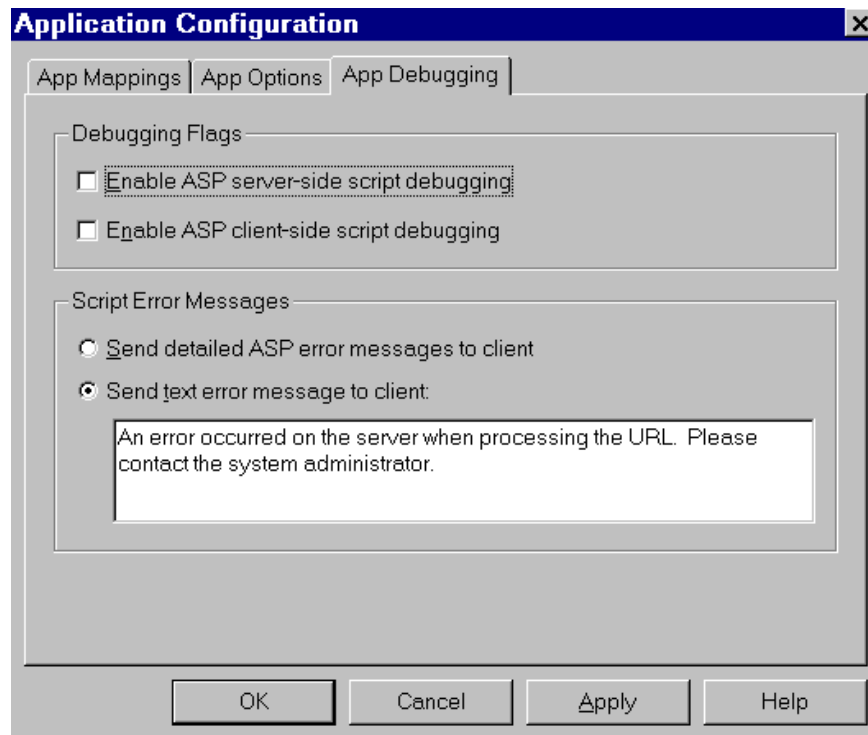
**Step 20.** Click on the **App Options** tab in the **Application Configuration** window.:



**Step 21.** Make the following settings in the **App Options** window:

- Enable session state**  
     **Session timeout**      **20 minutes**
- Enable buffering**
- Enable parent paths**  
     **Default ASP language**      **VBScript**
- ASP Script timeout**      **90 seconds**

**Step 22.** Click on the **App Debugging** tab.



**Step 23.** Make the following settings in the **App Debugging** window:

**Debugging Flags**

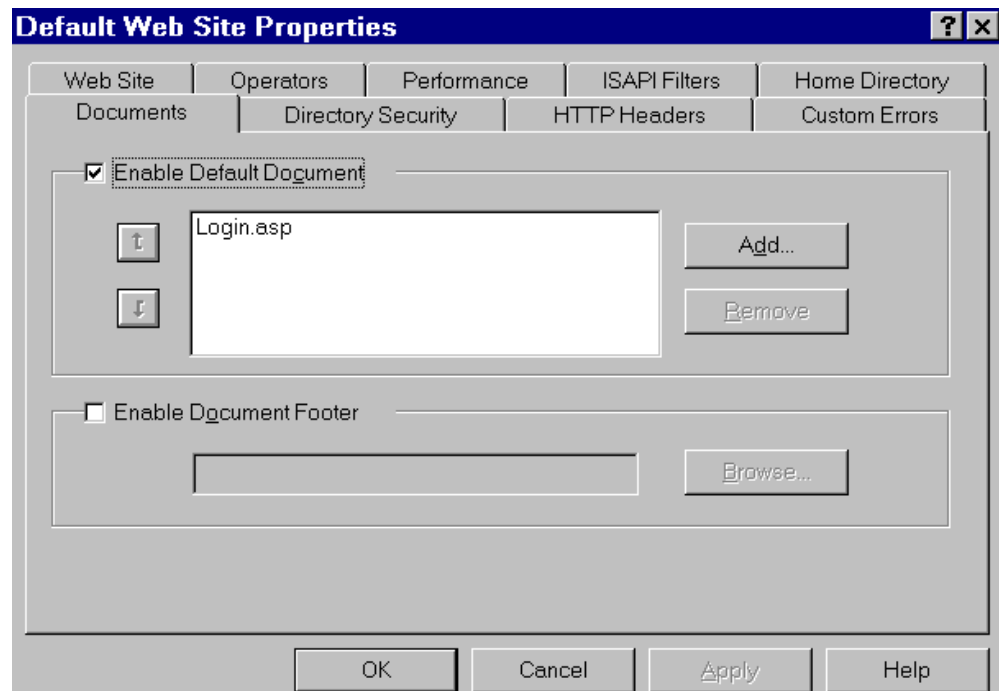
- Enable ASP server-side script debugging**
- Enable ASP client-side script debugging**

**Script Error Messages**

- Send detailed ASP error message to client**
- Send text error message to client**

**Step 24.** Click **OK** to close the **Application Configuration** window.

**Step 25.** Click on the **Documents** tab in the Default Web Site Properties window.



**Step 26.** Make the following setting in the Documents window:

**Enable Default Document**

**Step 27.** Remove all documents from the **Enable Default Document** field by:

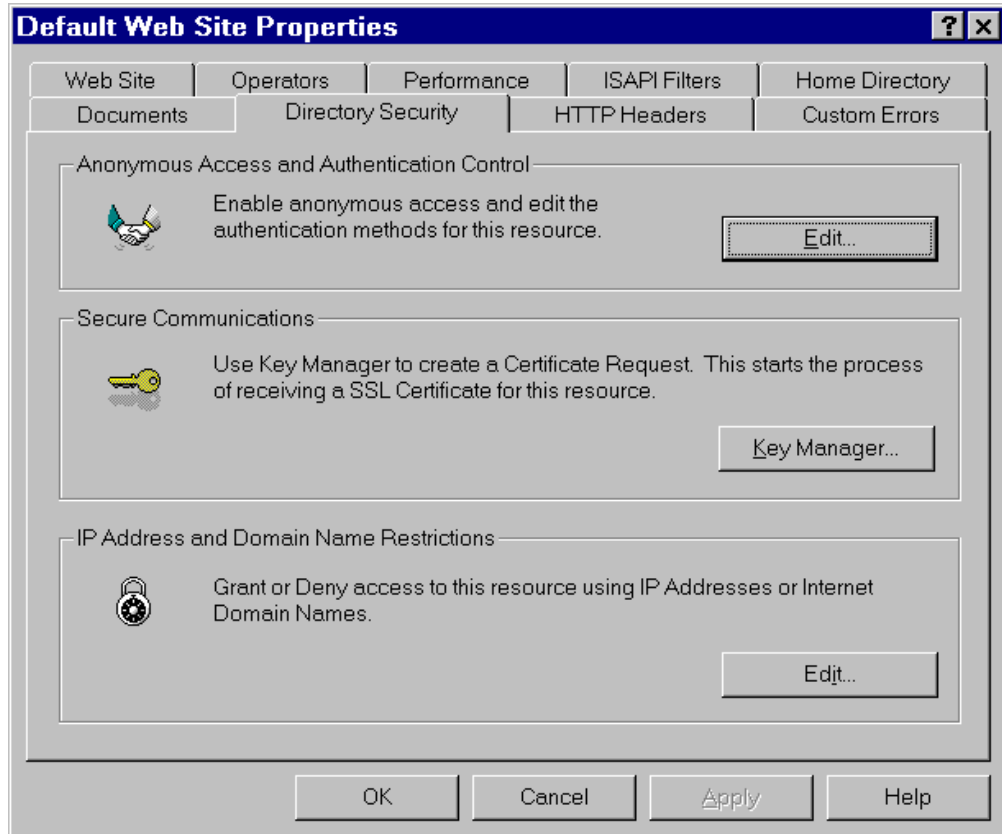
- click on a document name to select it for removal (multiple documents cannot be selected)
- click Remove

**Step 28.** Add the **Login.asp** document to the **Enable Default Document** field by:

- click Add to open the Add window
- type Login.asp in the Document field
- click OK to close the Add window

**Login.asp** should now be the only document in the **Enable Default Document** field.

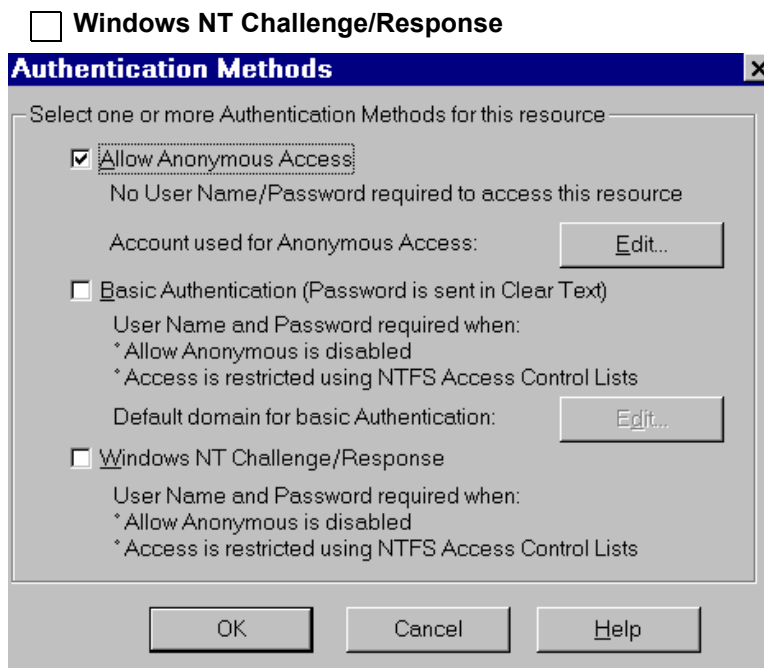
**Step 29.** Click on the **Directory Security** tab in the Default Web Site Properties window.



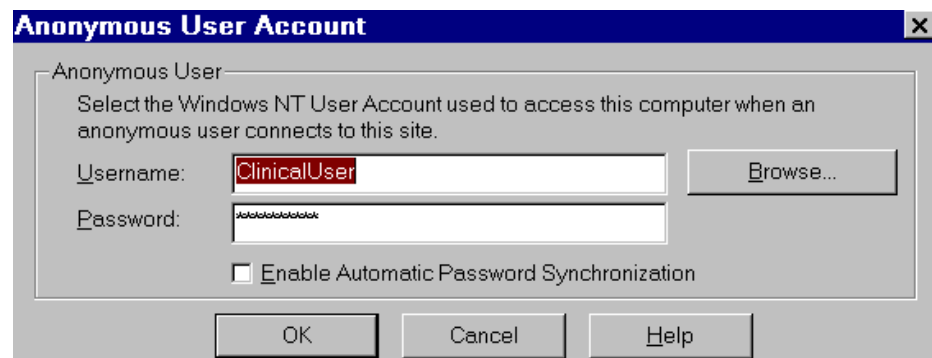
**Step 30.** Click **Edit** in the Anonymous Access and Authentication Control field to open the **Authentication Methods** window.

**Step 31.** Make the following settings in the **Authentication Methods** fields:

- Allow Anonymous Access**
- Basic Authentication (Password is sent in Clear Text)**



**Step 32.** Click **Edit** to the right of Account used for Anonymous Access to open the **Anonymous User Account** window.



**Step 33.** Make the following settings in the **Anonymous User** field:

**User Name: ClinicalUser**

**Password: ClinicalUser**

**Enable Automatic Password Synchronization**

---

**Note**

Be certain to enter the **User Name** and **Password** *exactly* as given above.

---

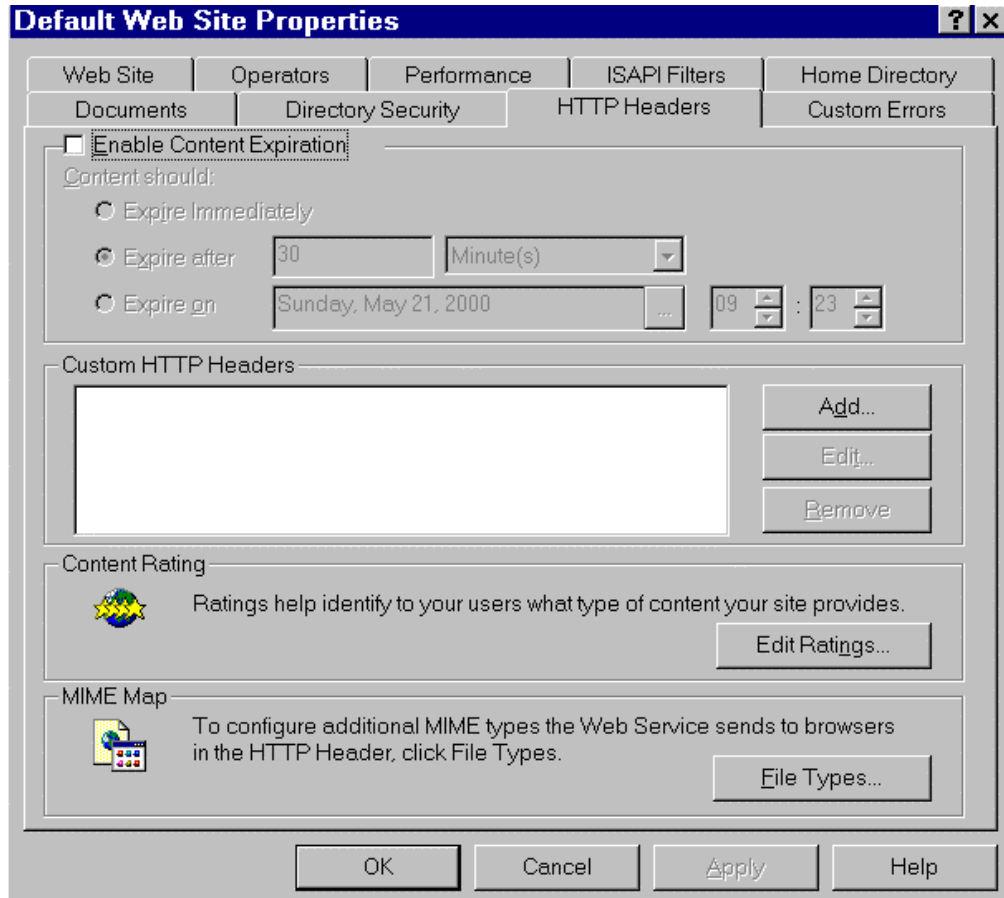
**Step 34.** Click **OK**. A dialog box will appear for confirming the password.

**Step 35.** Reenter **ClinicalUser**.

**Step 36.** Click **OK** to confirm the password.

**Step 37.** Click **OK** to close the Authentication Methods window and return to the Directory Security tab.

**Step 38.** Click on the **HTTP Headers** tab in the Default Web Site Properties window.



**Step 39.** Click on the **File Types** button to bring up the **File Types** window.



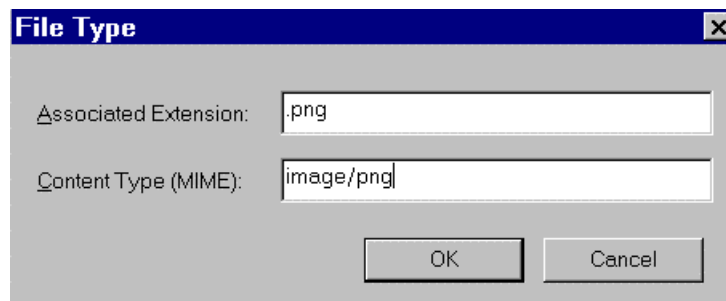


**Step 40.** Click on the **New Type** button to display the **File Type** window.

**Step 41.** Make the following settings in the **File Type** fields.

**Associated Extension:** **.png**

**Content Type (MIME):** **image/png**



**Step 42.** Click **OK** to return to the Default Web Site Properties window.

## LED Diagnostics

When investigating signal flow, many hardware components have diagnostic LEDs that can be used to determine whether they are functioning properly and are receiving and passing data. These include:

- SDN Interface Card
- LAN Interface Card
- Access Point\*
- Switch\*
- Repeater\*
- 10 Mbit/s Media Translator Transceiver\*
- 100 Mbit/s Media Translator\*

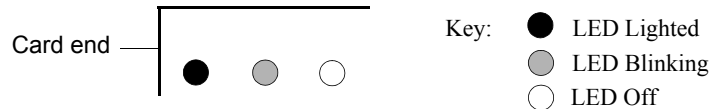
\* The LED descriptions for these components are in the Clinical Network documentation.

Brief description of these LED diagnostic tools and the meaning of their lighting codes are presented in this section as a guide for determining operational status, identifying hardware problems, and tracing signal continuity in the Patient Care Network. For more detailed discussions of the use of these LEDs in troubleshooting, consult their User's Manuals.

### SDN LED Diagnostics

Diagnostic information can be obtained from the 3 LEDs on the rear corner of the SDN Interface Card during software startup. To view these LEDs, the workstation cover must be removed. The following LED lighting sequence should occur during power-on, software rebooting, and during the SDN Interface Diagnostics test.

The LED lighting key is as follows:



**Table 7-10. SDN Card LED Sequence During Software Rebooting**

Test Stage	LED Condition	Description
Power Off	○ ○ ○	Before power is turned on, all LEDs are off.
SDN Card Test Begins Card Reset	● ● ●	When power is turned on, the SDN Interface Card Self-Test is initiated and all LEDs are lighted.
SDN Card Test Passes	○ ● ○	Any other pattern indicates that some self-test error occurred and the Card should be replaced. If all three LEDs remain on, it is possible that the ROM was never programmed.
POST and start OS software boot	○ ● ○	During POST and OS software booting, only the center LED is on
Code-to-card option	● ● ○	When the SDN driver starts, it checks that the code version is correct. If not, it downloads the correct code. This operation is indicated by the LED closest to the card end turning on and the middle LED rapidly flashing. After programming is complete (1-2 seconds) the normal sequence above occurs.

**Table 7-10. SDN Card LED Sequence During Software Rebooting**

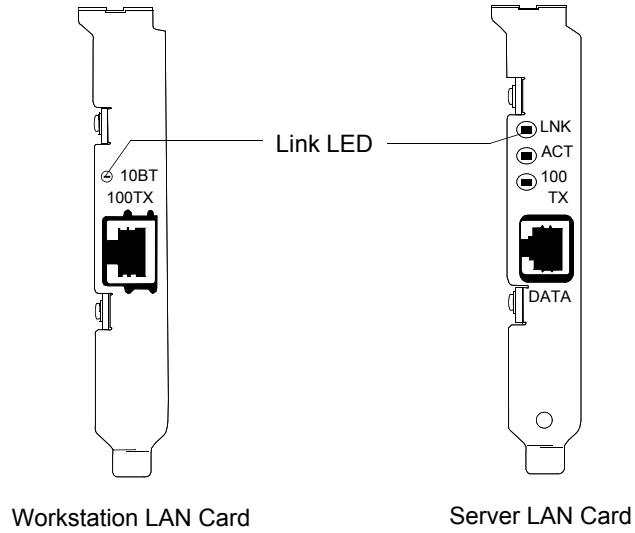
Test Stage	LED Condition	Description
SDN Driver Installation		The SDN driver starts near the end of the OS boot process. When it starts, it sets all 3 LEDs on, flashes the 2 outside LEDs off and then on, and then extinguishes all 3 LEDs one by one. Normal operation then begins.
Normal Operation		The LED furthest from the card end flashes at a one second rate indicating that communication with the computer is occurring.
SDN Problem		If the LED nearest the card end comes on during normal operation, an SDN problem has occurred. Generally, this means that the Card is not connected properly to a functioning SDN.

This lighting sequence happens very rapidly (1-2 s), so it may not be possible to identify each stage. However, by carefully observing the SDN Card LEDs during software start up or the SDN Diagnostic test and comparing the lighting sequence to the above tables, it may be possible to identify errors in SDN operation. For example;

- if the **SDN Card Test** does not pass, the problem is with the SDN Card. Replace the card and rerun the test
- if the **Code-to-card** stage did not occur, then the firmware code on the SDN Card was not reprogrammed. For a Philips system that has been operating normally, this stage should not occur,
- if the **SDN Driver Installation** stage does not occur, then the SDN driver did not establish contact with the SDN Card,
- if the **Normal Operation** stage pattern did not occur, then normal operation has not been established,
- if the **SDN Problem** pattern occurs during normal operation, then there is an SDN connection problem. Check the SDN interconnections and reboot the Philips system.

**LAN Card LED Diagnostics**

Continuity of signal flow in LAN cards can be determined by **Link LEDs** on the rear of the card. The locations of these LEDs on LAN cards for Workstations and the Server are shown in Figure 7-62.



**Figure 7-62 LAN Card Link LEDs**

Table 7-11 shows the meaning of the green Link LED that can be viewed through the hole in the rear of the card.

**Table 7-11. LAN Card LED Diagnostics**

LED Condition	Description	Possible Cause
Off	No Link	- no connection - device at other end of cable is Off - faulty cable - inverted TX/RX
Solid Green Flashing Green	Operational	- proper operation with or without activity

## Repair

Once the problem has been localized to a specific hardware device or software application, causes of the problem can be identified and corrective actions taken.

### Philips Hardware

For most Philips system hardware -- processing units, displays, printers, switches, repeaters, media translators -- the **User's Manual** provided with the unit is the primary source of repair information. Refer to the User's Manual for proper troubleshooting, maintenance, and repair procedures for these units.

**UPS** One exception is troubleshooting and repair of the UPS. The following table gives Symptoms, Possible Causes, and Corrective Actions to be followed for problems with the UPS.

### Notes

The following table departs slightly from a similar table given in the **APC UPS User's Manual** and should be followed instead of that table.

The most common problems encountered are:

- tripped UPS circuit breaker due to excessive loads.  
Remove the excess loads and reset the circuit breaker.
- incorrect rear panel switch settings.  
Switch settings for 120V models are shown in Figure 2-27.

**Table 7-12. Troubleshooting the UPS**

Symptom	Possible Cause	Corrective Action
UPS will not turn on (lamp within power I/O switch is not illuminated), but beeps when power I/O switch is on.	Rear panel circuit breaker is tripped (Circuit breaker is tripped when button is extended.)	Unplug excessive loads and press button to reset breaker.
	Line cord plug is not properly connected	Check line cord plug and engage it properly
	No power at wall socket	Check power at wall socket and establish proper power
UPS operates normally, but SITE WIRING FAULT indicator is illuminated	Building wiring error, such as a missing ground, hot and neutral polarity reversed, or overloaded neutral wiring.	A qualified electrician should be called to correct the building wiring problem. The UPS will not provide rated noise and surge suppression with incorrect building wiring.
	Ground not connected, e.g. "cheater" plug or adapter installed on line cord plug	Plug the UPS into a proper 3 wire grounded outlet only
UPS occasionally emits a beep, but connected equipment operates normally	The UPS is briefly transferring the equipment to its alternate power source due to incoming power spikes or sags	This operation is normal. The UPS is protecting connected equipment from abnormal line voltages. If the audible alarm becomes annoying, set option switch #1 to its up position.

**Table 7-12. Troubleshooting the UPS**

Symptom	Possible Cause	Corrective Action
UPS emits a beep very often (more than once or twice an hour), but connected equipment operates normally.	Utility voltage is distorted or branch circuits are too heavily loaded.	Have the line power checked by an electrician and corrected if not adequate.
		Operate UPS from an outlet on a different branch fuse or circuit breaker with adequate power.
		Change the transfer voltage of the UPS using option switches #2 and #3 on the rear of the UPS (if the equipment will operate normally for the line power being supplied). See Figure 2-27 or the <b>UPS User's Manual</b> for switch positions for different transfer voltages.
UPS emits loud tone. Power I/O switch is on, but connected equipment is not powered. UPS's rear panel circuit breaker is tripped (button extended). Normal utility voltages are known to be supplied	UPS has shut down due to severe overload.	Turn off the UPS and unplug excessive loads. Laser printers will overload the UPS and should not be connected to the UPS. When overload is removed, press the button to reset the circuit breaker.
UPS emits loud tone during utility failure. Power I/O switch is on, but connected equipment is not powered. Rear panel circuit breaker is not tripped	UPS has shut down due to overload.	Turn off UPS and unplug excessive loads. UPS may be turned on when line power is restored.
UPS does not provide expected run time. Low battery warning is sounded prematurely.	Excessive loads connected to UPS.	Unplug excessive loads from UPS
	Battery is weak due to wear or recent operation during utility power outage.	Recharge battery by leaving UPS plugged in for 12 hours without use. Test control during recharge. If UPS sounds low battery warning prematurely when retested, replace battery or UPS.
UPS beeps continuously. Lamp within I/O power switch is illuminated. Line power has not failed.	Circuit breaker is tripped	Unplug excessive loads and press button to reset circuit breaker.
	Line cord plug is not properly connected	Check line cord plug and engage it properly
UPS does not shut down when RS-232 HI level is applied to computer interface port pin 1.	Signal not applied during line power failure.	UPS responds to this signal only during utility failures (load is operating from the UPS's internal power source).
	Signal is not referenced to the UPS common.	Signal must be referenced to the UPS's common at pins 4 or 9.
Low battery warning interval is <i>shorter</i> than 2 or 5 minutes, according to rear panel option switch #4 setting: down = 2 minutes up = 5 minutes	Excessive loads connected to UPS	Excessive loading may shorten run time to less than the 2 or 5 minute low battery warning interval. Remove excessive loads.
	Battery capacity low due to wear or consecutive line power failures	Consecutive line power failures may not allow time for the battery to recharge, thereby causing shortened run time. Recharge as described above.

**Table 7-12. Troubleshooting the UPS**

Symptom	Possible Cause	Corrective Action
Low battery warning interval is <i>much longer</i> than 2 or 5 minutes, according to rear panel option switch #4 setting: down = 2 minutes up = 5 minutes	UPS is loaded to less than 10% of rated capacity	This operation is normal. The low battery warning interval is adjusted at the factory for consistent operation at loads above 10% of rated capacity.

If the problem cannot be resolved, note the UPS model, serial number, and date of purchase and contact the UPS Customer Service Department at the phone number given in the **UPS User's Manual**. While waiting for corrective action, replace the UPS on the Philips system to assure continuous patient monitoring.

**UPS Configuration**

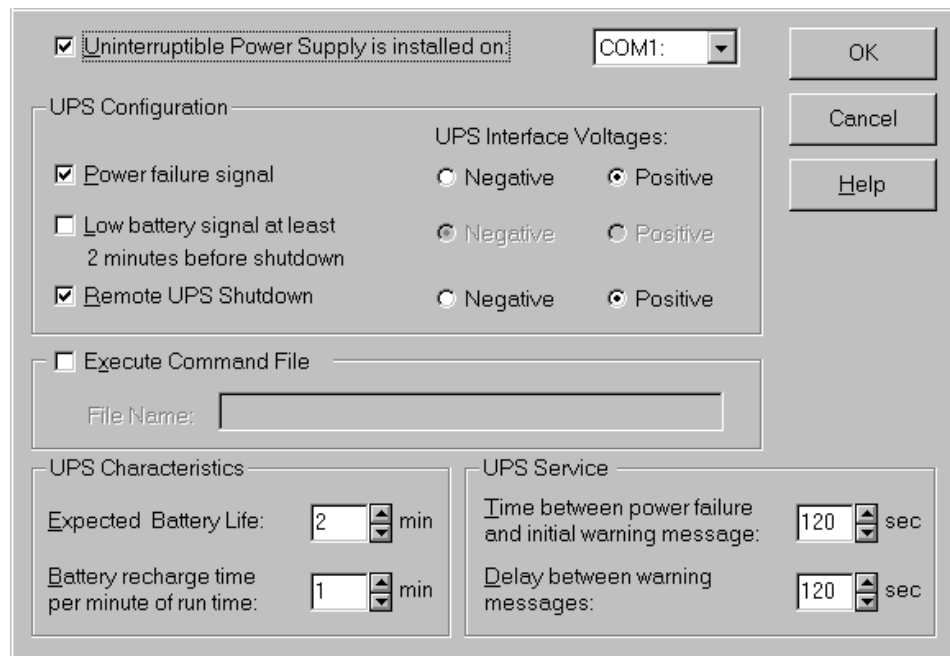
Philips PCs, including the Server, have been preconfigured for proper UPS operation when shipped from Philips. This section describes the UPS configuration procedure so that configurations can be reset if they are lost. The UPS configuration application can be accessed from the **Windows Main Menu**.

**Note**

The **UPS** configuration window can also be accessed from the **Control Panel** menu of the **Other Services** menu of Service as shown in Figure 7-46.

The procedure for opening the **UPS** configuration window from the Windows Main Menu is as follows:

- Step 1.** Click on **Start** in the lower left corner of the Windows Main Menu to access the **Windows Workstation** menu.
- Step 2.** Click on **Settings** to display its menu.
- Step 3.** Click on **Control Panel** to display the Control Panel menu of icons.
- Step 4.** Click on the **UPS icon** to open the **UPS** configuration window of Figure 7-63.



**Figure 7-63 UPS Configuration Window**

**Step 5.** Verify (or enter) the following information in the fields of the UPS configuration window.

Uninterruptible Power Supply is installed on: **COM1:**

UPS Configuration

Power failure signal

Low battery signal at least  
2 minutes before shutdown (Disabled)

Remote UPS Shutdown

Execute Command File (Disabled)

UPS Interface Voltages:

Positive

Positive

UPS Characteristics

Expected battery Life: **2 min.**

Battery Recharge time  
per minute of run time: **1 min.**

UPS Service

Time between power failure  
and initial warning message: **120 sec.**

Delay between warning  
messages: **120 sec.**

**Step 6.** When the UPS configuration settings have been verified, click **OK** to return to the **Windows Main Menu**.



**SDN Interface Card** The following table gives Symptoms, Possible Causes, and Corrective Actions for problems with the SDN Interface Card.

**Table 7-13. Troubleshooting the SDN Interface Card**

Symptom	Possible Cause	Corrective Action
"No data from bed" error message on Main Screen.	Faulty SDN cable	Check all SDN cables
	SDN Interface Card malfunction	- Run SDN Card Diagnostic - Check Event Log for causes - Shut down system and reboot
	Software malfunction	- Shut down system and reboot - Reinstall Philips application software - Reinstall Windows Operating System software
SDN data-source malfunction	Faulty bedside monitor	Troubleshoot bedside monitor
	Faulty telemetry monitor	Troubleshoot telemetry monitor
Philips system malfunction	System configuration	An Information Center system must be on Branch 0 of the SCC.

**Philips Recorder** The following table gives Symptoms, Possible Causes, and Corrective Actions for problems with the Philips Recorder.

**Caution** **DO NOT use a M1116A Recorder Module with the Philips system. Use of a M1116A in the same rack as a M1116B can result in damage to the M1116B, rendering it inoperable.**

**Table 7-14. Troubleshooting the Recorder**

Symptom	Possible Cause(s)	Corrective Action(s)
XXX recorder out of paper message (XXX = Left, Center, or Right)	Recorder is out of paper	Replace paper roll
	Paper-out sensor is dirty	Clean paper-out sensor
	Recorder is faulty	Replace Recorder
XXX recorder door is open message	Recorder door is open	Close Recorder door
	Door switch is dirty	Clean door switch
	Door switch is defective	Replace door switch
	Recorder is faulty	Replace Recorder
No recorder connected message	No Recorder is in the Recorder Rack	Insert Recorder in Recorder Rack
	Recorder Rack or Rack Power Supply cable is disconnected or faulty	Connect or replace cable
XXX recorder hardware fault message	Poor Recorder connection to the Rack	Unplug the Recorder from the Rack and plug it in again (watch for LED to flash)
	Power supply cable is faulty	Check Rack and Recorder power supply cables
	Power supply voltage is faulty	Check 60 VDC Recorder Power Supply voltage
	Recorder is faulty	Replace Recorder
	Recorder Rack is faulty	Replace Rack
	SDN Card is faulty	Run SDN Interface Diagnostic Test
	Software is malfunctioning	- Shut down system and reboot - Reinstall Philips application software - Reinstall Windows OS software

**SDN Interface Card** The following table gives Symptoms, Possible Causes, and Corrective Actions for problems with the SDN Interface Card.

**Table 7-15. Troubleshooting the SDN Interface Card**

<b>Symptom</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
"No data from bed" error message on Main Screen.	Faulty SDN cable	Check all SDN cables
	SDN Interface Card malfunction	- Run SDN Card Diagnostic - Check Event Log for causes - Shut down system and reboot
	Software malfunction	- Shut down system and reboot - Reinstall application software - Reinstall Windows Operating System software
SDN data-source malfunction	Faulty bedside monitor	Troubleshoot bedside monitor
	Faulty telemetry monitor	Troubleshoot telemetry monitor
IntelliVue Information Center system malfunction	System configuration	The system must be on Branch 0 of the SCC.

## Philips Software

If a software problem is suspected, there are several steps that can be taken to attempt to resolve the problem -- rebooting the system, reinstalling software, and updating the BIOS.

### Rebooting the System

The first step in trying to correct a software problem is to shutdown and restart the system and see if the problem corrects itself. This procedure is described earlier in this chapter under **Shutdown**.

---

### Note

If the system does not respond to the keyboard or mouse so that software shutdown and rebooting procedures can be followed, try the following.  
For the **M3154 Database Server** shutdown and rebooting can be accomplished by pressing the front panel **Reset** button or by turning the power switch **Off** and then **On**.  
If all else fails, disconnect the power cord *for at least 20 seconds* and then reconnect it. Turning On the PC should then restart the system properly.

---

### Reinstalling Software

If restarting the system is unsuccessful, the next step is to reinstall the software, both Operating System and Philips application software.

---

## ML370 G3 Database Server ILO Configuration

The following procedure describes how to set the Integrated Lights-Out (ILO) configuration on the M3154 Database Server ML370 G3.

---

### Note

The ILO configuration procedure is required only for a new Server that has not been previously configured, or, for example, if its mother board has been replaced.  
If the Server has been configured, the message **Integrated Lights-Out is disabled** appears during boot up. If this message appears, skip this section and proceed to **Raid Configuration**.

---

**Step 1.** Turn **ON** the Server to begin the boot up process.

When the prompt **Integrated Lights-Out Press <F8> to Configure** appears:

**Step 2.** Press the keyboard **F8** key to enter the **Integrated Lights-Out Setup Utility**.

**Step 3.** Enter the **Login Name** and **Password** for this Server in the **iLO ROM-Based Setup Utility** window and press the keyboard **F10** key to log in and display the **Integrated Lights-Out Main Menu**.

---

### Note

The Server's **Login Name** is **Administrator** (case sensitive).  
The Server's **Password** can be found on a string tag attached to the rear of the Server.

---

**Step 4.** Select **Settings** using the arrow keys to display its menu.

**Step 5.** Select **Configure** and press Enter to display the **Global iLO Settings** window.

**Step 6.** Change the following settings to **Disabled**.

- Lights-Out Functionality: **Disabled**
- ILO ROM-Based Setup Utility: **Disabled**

**Step 7.** Press the keyboard **F10** key to save these settings.

**Step 8.** Select **File** to display its menu.

**Step 9.** Select **EXIT** and press Enter to Confirm and Exit Utility.

When prompted Are you sure?

**Step 10.** Press **Enter** and the system will reboot.

## Updating BIOS

Another step to possibly resolve a specific software problem is to update the Basic Input/Output System (BIOS). This step is generally required only if the BIOS file has been lost, for example if the PC mother board is replaced during a repair. The procedure for updating BIOS is different for the Server and for Information Centers and Clients. BIOS for the Server are also on a separate disk from those for Information Centers and Clients.

### Note

The Kayak family of PCs and the LH3 NetServer is not supported in E.01. The BIOS settings for these platforms are in this section for reference only, and the settings are for Release E.0.

### M3154 Database Server

Server BIOS are contained on the Server BIOS Upgrade Disk in the holder on the side of the Server.

**ML370 G3 Step 1.** Insert the **Recovery BIOS Floppy Disk** into the **A:** drive of the Server.

**Step 2.** Properly **shutdown** the Server. **Power cycle** the Server to reboot it.

When **Welcome to ROMPAQ** appears on the screen:

**Step 3.** Press **Enter** to display the **Select a Device** window.

**Step 4.** Verify that **Compaq Proliant ML370 G3** is highlighted in the List of Programmable Devices and press **Enter**. The message Please Wait appears.

### Note

If power was not cycled in step 2, an Error message opens stating that Flash Programming is Locked! If this error message opens, press **Enter** -> **ESC**, and then perform a cold boot.

When **Select an Image** appears on the screen:

**Step 5.** Verify that the proper software **version** is highlighted and press **Enter**.

When **Caution** appears on the screen with the message **If you continue, your Firmware will be Reprogrammed**:

**Step 6.** Press **Enter** to program the device.

---

**Note**

Do not reboot or power cycle the device until the programming is complete.

---

When **Flash Programming Completed Successfully** appears on the screen with the message **Reboot Now** for the new System ROM to take effect:

**Step 7.** Press **Enter**.

When the question **Do you want to reprogram another ROM** appears:

**Step 8.** Press the keyboard **Esc** key to Exit the program.

**Step 9.** Remove the **Recovery BIOS Floppy Disk** from the **A:** drive and place it in its holder on the side of the Server the PC.

**Step 10.** Perform the **System Setup** procedure for the “ML370 G3 Database Server” on page 7-122.

**ML370 G2 Step 1.** Insert the **Recovery BIOS Floppy Disk** into the **A:** drive of the Server.

**Step 2.** Properly **shutdown and power cycle** the Server to reboot it.

When **Welcome to ROMPAQ** appears on the screen:

**Step 3.** Press **Enter** to display the **Select a Device** window.

**Step 4.** Verify that **Compaq Proliant ML370 G2** is highlighted in the List of Upgradeable Devices and press **Enter**. The message **Please Wait** appears.

When **Select an Image** appears on the screen:

**Step 5.** Verify that the proper software **version** is highlighted and press **Enter**.

When **Caution** appears on the screen with the message **If you continue, your Firmware will be Reprogrammed**:

**Step 6.** Press **Enter** to program the device.

---

**Note**

Do not reboot or power cycle the device until the programming is complete.

---

When the question **Do you want to reprogram another device** appears:

**Step 7.** Press the keyboard **Esc** key to Exit the program.

**Step 8.** Remove the **Recovery BIOS Floppy Disk** from the **A:** drive and place it in its holder on the side of the Server the PC.

**Step 9.** Perform the **System Setup** procedure for the “ML370 G2 Database Server” on page 7-124.

**LC 2000** Server BIOS are contained on the **HP NetServer LC 2000 BIOS Upgrade Disk** in the holder on the side of the Server. If the LC2000 BIOS floppy disk is lost or has failed, a new one can be made. Refer to “Creating Server BIOS Bootable Floppy Disk” on page 7-146. The procedure for updating Server BIOS is as follows.

**Step 1.** Insert the **NetServer LC 2000 BIOS Upgrade Disk** into the A:\ drive of the Server.

**Step 2.** Shutdown and Restart the Server following proper shutdown procedure.

When the **BIOS Update Utility** window appears:

**Step 3.** Press the keyboard **1** key to begin the update.

The BIOS updating process takes about 8 minutes.

---

**Note**

If an **Incorrect System Configuration** message appears, press the keyboard **F1** key to continue. The correct system configuration is setup later in the procedure.

---

When the **BIOS Update Utility** window reappears,

**Step 4.** Press the keyboard **2** key to exit the BIOS Update Utility. The Server will automatically shutdown and restart.

**Step 5.** REMOVE the **HP NetServer LC 2000 BIOS Upgrade Disk** from the Server’s A:\ drive and place it in its holder on the side of the Server.

When **Press <F2> to enter Setup** appears at the bottom of the screen,

**Step 6.** Press the keyboard **F2** key and the **Phoenix BIOS System Configuration** window appears.

**Step 7.** Perform the **System Setup** procedure for the **HP P2478WA Net Server LC 2000** on **page 7-126**.

---

**Note**

The **F2** Key **MUST BE PRESSED** when **Press <F2> to enter Setup** is displayed to access the **Setup** menu. If you forget to press **F2** and the **System Setup** procedure is not followed, Philips software installation may fail. To recover, **Shutdown and Restart** the system following normal procedures and remember to press **F2** when **Press <F2> to enter Setup** appears.

---

**PCs**

PC BIOS are contained on the **BIOS Upgrade Disk** in the holder on the side of the PC. If the BIOS floppy disk is lost or has failed, a new one can be made. Refer to “Recreating Information Center BIOS Disk” on page 7-145. The procedure for updating PC BIOS is as follows.

**Step 1.** Insert the **BIOS Upgrade Disk** into the A:\ drive.

**Step 2.** Shutdown and Restart the PC following proper shutdown procedure.

When the **BIOS Update Utility** window appears:

**Step 3.** Press the keyboard **1** key to begin the update.

The BIOS updating process takes about 8 minutes.

---

**Note** If an **Incorrect System Configuration** message appears, press the keyboard **F1** key to continue. The correct system configuration is setup later in the procedure.

---

When the **BIOS Update Utility** window reappears,

**Step 4.** Press the keyboard **2** key to exit the BIOS Update Utility. The PC will automatically shutdown and restart.

**Step 5. REMOVE** the **BIOS Upgrade Disk** from the A:\ drive and place it in its holder on the side of the PC.

---

## System Setup

The **System Setup** procedure is required after the BIOS have been updated. The System Setup procedure depends on the PC or Server system. Follow the procedure below that matches the system being updated.

### M3154 Database Server

**ML370 G3 Database Server** During the Boot Up process, watch for the message (about 30 seconds) Press <F9> key to ROM-Based Setup Utility (2 beeps may be emitted just before this message appears).

When this message appears:

**Step 1.** Press the keyboard **F9** key to display the **ROM-Based Setup Utility**.

---

**Note** The **F9** key must be pressed immediately after the message appears or the Server will continue the boot process.  
If the **F9** prompt is missed, reboot the Server by pressing the keyboard Ctrl-Alt-Delete keys simultaneously and try again.

---

If the Server BIOS has not been set up before, the message **Select OS** will appear. If it does:

**Step 2.** Select **Microsoft Windows 2000** and press Enter to display System Configuration Complete.

**Step 3.** Press **any key** (other than the keyboard F10 key) to Modify the Configuration.

---

**Note** **DO NOT PRESS** the keyboard F10 key.

---

If the **Select OS** message does not appear, proceed to the **Step 4**:



**Step 4.** Select **Advanced Options** and press Enter to display its menu.

**Step 5.** Select **Erase Non-volatile Memory** and press Enter twice.

**Step 6.** Select **Yes, Select to Erase** and press Enter.

When prompted that Power Cycle Required!:

**Step 7.** Reboot the Server by turning the power **Off** and then **On**.

**Step 8.** Repeat **Step 1** and **Step 2** to re-enter the **ROM Based Setup Utility**.

**Step 9.** Select **System Options** and press Enter to display its menu.

**Step 10.** Change settings as follows:

- Select **NUMLOCK Power-on State** and press Enter twice to display its options: Change its setting to **On** using the arrow key and press Enter.
- Select **Embedded NIC PXE Support** and press Enter to display its options: Change its setting to **Disabled** using the arrow key and press Enter.

**Step 11.** Press the keyboard **Esc** key to return to the ROM Based Setup Utility window.

**Step 12.** Select **PCI Devices** and press Enter to display its menu.

**Step 13.** Change settings as follows:

- Select **PCI Embedded Compaq 64-Bit Dual Wide Ultra3 SCSI Adapter Port 1** and press Enter to display its options: Change its setting to **Disabled** using the arrow key and press Enter.
- Select **PCI Embedded Compaq 64-Bit Dual Wide Ultra3 SCSI Adapter Port 2** and press Enter to display its options: Change its setting to **Disabled** using the arrow key and press Enter.

**Step 14.** Press the keyboard **Esc** key to return to the ROM Based Setup Utility window.

**Step 15.** Select **Boot Controller Order** and press Enter to display its menu.

**Step 16.** Select **Ctlr:3 PCI Slot 1 HP Smart Array 641 Controller** and press Enter.

**Step 17.** Select **Controller Order 1** and press Enter.

**Step 18.** Verify that Ctlr1 PPCI Slot 1 is **HP Smart Array 641 Controller**.

**Step 19.** Press the keyboard **Esc** key to return to the ROM Based Setup Utility window.

**Step 20.** Select **Date and Time** and press Enter to display its window.

**Step 21.** Set the Date and Time to present values using the number keys and press Enter.

**Step 22.** Select **Advanced Options** and press Enter to display its menu.

**Step 23.** Change settings as follows:

- Select **POST Speed Up** and press Enter to display its options: Change its setting to **Disabled** using the arrow key and press Enter.
- Select **Wake-On LAN** and press Enter twice to display its options: Change its setting to **Disabled** using the arrow key and press Enter.

**Step 24.** Press the keyboard **Esc** key twice to return to the ROM Based Setup Utility.

**Step 25.** Press the keyboard **F10** key to Confirm and Exit Utility.

The system will then reboot to the Windows 2000 Main Menu.

---

**Note** If the BIOS are reset, all software (Operating System and Application) **must be reinstalled**. For software installation procedures, see the IntelliVue Clinical Network Installation and Service Manual.

---

### **ML370 G2 Database Server**

---

**Note** The following procedure only indicates **changes** that should be made from the system's Default values. Unless otherwise indicated, retain the system Default settings. Keyboard **arrow keys** can be used to move through menu options and change values. Generally, the keyboard **Enter** key is used to select a menu item and the keyboard **Esc** key is used to return to the previous item.

---

The following procedure describes how to set the BIOS for the Server.

**Step 1. Shutdown and restart** the Server to reboot it.

---

**Note** The Press F9 Key... message of **Step 2** appears only briefly so you have to be attentive. If you miss it, reboot the Server by turning the Server Off and then On or simultaneously pressing the keyboard Ctrl-Alt-Del keys.

---

**Step 2.** Follow the boot process carefully and watch for the **Press F9 Key...** message.

**Step 3.** Press the keyboard **F9** key when the message **Press F9 Key for ROM-Based Setup Utility** appears at the top of the screen. (You may hear 2 faint beeps just before this message appears.) The **Setup** menu appears.

#### **Advanced Options**

**Step 4.** Select **Advanced Options** and press **Enter** to display its menu.

**Step 5.** Select **Erase Non-Volatile Memory** and press **Enter** twice to display a Yes, No window.

**Step 6.** Select **Yes, Select to Erase** and press **Enter** to display the message Power Cycle Required.

**Step 7.** Turn the Server power **OFF** and then **ON** to reboot the Server.

**Step 8.** Repeat **Step 3** during the boot process to again display the **Setup** menu.

---

**Note** If the Server BIOS has not been setup before, the **Select OS** message will appear. Select **Windows 2000** and Press **Enter**. (for E.01 systems; Windows NT for others)

The message System Configuration Complete! appears  
Press **any keyboard key** to display the **Setup** menu

**DO NOT PRESS** the keyboard **F10** key.

---

### System Options

**Step 9.** Select **System Options** and press **Enter** to display its menu.

**Step 10.** Change the following System Options to the values indicated:

- NUMLOCK Power-On State: On
  - Embedded NIC Port 1 PXE Support: Disabled
- 

#### Note

If **Enabled** has been selected, a message will appear. Press **Enter** again to display its sub menu and then select **Disabled**.

---

**Step 11.** Press **Esc** to return to the Setup menu.

### PCI Devices

**Step 12.** Select **PCI Devices** and press **Enter** to display its menu.

**Step 13.** Change the following PCI Devices to the values indicated:

- **PCI Embedded Compaq PCI USB Controller:** Disabled
- **PCI Embedded 64 Bit Dual Wide Ultra3 SCSI Adapter Port 1:** Disabled
- **PCI Embedded 64 Bit Dual Wide Ultra3 SCSI Adapter Port 2:** Disabled
- **PCI Slot 6 Ethernet Network Controller:** IRQ 11

**Step 14.** Press **Esc** to return to the Setup menu.

---

#### Note

**Steps 15** and **16** may be required to satisfy License requirements.

---

### Date and Time

**Step 15.** Select **Time and Date** and press **Enter** to display the Set Time and Date window.

**Step 16.** Set the Time and Date (if incorrect) following the instructions given at the bottom of the screen.

### Advanced Options

**Step 17.** Select **Advanced Options** and press **Enter** to display its menu.

**Step 18.** Change the following Advanced Options to the values indicated:

- **Hot Plug Resources:** Disabled
- **Post Speed Up:** Disabled

**Step 19.** Press **Esc** to return to the Setup menu.

**Step 20.** Press **Esc** again to display the message <F10> to Confirm.

**Step 21.** Press the keyboard **F10** key to save the settings and exit the Setup utility.

**Step 22.** The system will then reboot.

**HP P2478W or P2878U LC2000:**

**Step 1.** Properly **shutdown and restart** the Server. During bootup, press **F2** to enter Setup. Press the keyboard **F9** key to open the **Setup Defaults** window.

**Step 2.** Select **Yes** and press **Enter** to display the **Phoenix BIOS System Configuration** window.

**Step 3.** Select **Configuration System** folder. using the keyboard right arrow key.

**Step 4.** Select the **Configuration System** folder. Tab to the **Configuration Menu** items and change the settings as indicated below (all other settings keep as is):

- Set the correct **Time** and **Date** if incorrect
- Select **Integrated I/O Port Settings** and press **Enter**

If no external modem is connected:

- select **Serial Ports** and press **Enter**
  - select **Serial Port B**
  - change to **Disabled**
  - press **Enter** twice
  - press **ESC** twice to return to the Configuration Menu

If an external modem is installed:

- select **Serial Ports** and press **Enter**
  - select **Serial Port B**
  - change to **Enabled**
  - **2F8**
  - **IRQ3**
  - press **ESC** twice to return to the Configuration Menu

- Select **PCI Device Settings** and press **Enter**
  - select **PCI IRQ Locking** and press **Enter**
  - Tab down to select **Individual IRQ Locking** and press **Enter** and make the following changes:

PCI Slot 1	Change to <b>[Disabled]</b>
PCI Slot 2	Change to <b>[Disabled]</b>
PCI Slot 3	Change to <b>[11]</b>
PCI Slot 4	Change to <b>[10]</b>
PCI Slot 5	Change to <b>[3]</b> (if external modem is connected, set this to <b>[Disabled]</b> )
PCI Slot 6	Change to <b>[Disabled]</b>
Embedded LVD SCSI A	Change to <b>[Disabled]</b>
Embedded LVD SCSI B	Change to <b>[Disabled]</b>
Embedded LAN	Change to <b>[5]</b>

- Press **ESC** three times to return to the Configuration Menu

- Select **Boot Settings** and press **Enter**
  - select **QuickBoot Mode** and change to **[Disabled]**

**Step 5.** Press **ESC** twice.

**Step 6.** Select **EXIT Saving Changes**, then **Enter** and select **Yes**.

**Step 7.** Store the **BIOS floppy disk** and place it into the plastic holder on the side of the **NetServer**. It is recommended that you make a copy of the BIOS on another floppy disk in a safe and secure place.

**Step 8.** Continue the OS installation procedure described in **Operating System Installation** in this chapter.

**Note**

The D5000A LH3 Server is not supported on E.01 systems. These BIOS settings are here for reference only. They apply to E.0.

**HP D5000A Net Server LH3:**

**Step 1.** Properly **shutdown and restart** the Server. During bootup, Press **F2** to enter **Setup**.

**Step 2.** Select **Yes** and press **Enter** to display the **Phoenix BIOS System Configuration** window.

**Step 3.** Select **User Preferences** using the keyboard right arrow key.

**Step 4.** Select the **Included SCSI-B** channel using the down arrow key and press **Enter**.

**Step 5.** Change the value to **Yes** using the up/down arrow keys and press **Enter**.

**Step 6.** Press the right arrow key *twice* to move to the **Configuration** menu.

**Step 7.** Select **Integrated I/O Ports** and press **Enter** to access its menu.

**Step 8.** Select **Serial Ports** and press **Enter** to access its menu.

**Step 9.** Select **Serial Port B** and press **Enter**.

**Step 10.** If no external modem is connected, change its value to **Disabled** using the up/down arrow keys and press **Enter**. If an external modem is connected, change its value to **Enabled, 2F8, IRQ3** and press **Enter**.

**Step 11.** Select **Management Port** using the down arrow key and press **Enter**.

**Step 12.** Change its value to **Disabled** using the up/down arrow keys and press **Enter**.

**Step 13.** Press the keyboard **ESC** key *twice* to return to the **Configuration** menu.

**Step 14.** Select **PCI Slot Devices** and **Enter**.

**Step 15.** Select **PCI IRQ Locking** and **Enter**.

**Step 16.** Select **Routing Algorithm** and **Enter**.

**Step 17.** Select **Fixed** and **Enter**.

**Step 18.** Select **INTA for Slots 1& 5** and **Enter**.

**Step 19.** Select **IRQ 15** and **Enter**. (Note: Slot 1 may contain an optional internal modem)

- Step 20.** Select **INTA for Slots 2 & 6** and **Enter**
- Step 21.** Select **IRQ 10** and **Enter**. (Note: Slot 2 may contain an optional Information Center Web LAN card)
- Step 22.** Select **INTA for Slots 3 & 7** and **Enter**.
- Step 23.** Select **IRQ 11** and **Enter**. (Note: Slots 3 & 7 are empty)
- Step 24.** Select **INTA for Slots 4 & 8** and **Enter**.
- Step 25.** Select **IRQ 5** and **Enter**. (Note: Slot 4 contains the LAN card)
- Step 26.** Select **HP NetRaid** and **Enter**
- Step 27.** Select **IRQ 11** and **Enter**.
- Step 28.** Press the keyboard **ESC** key *twice* to return to the **Configuration** menu.
- Step 29.** Select **ISA non-Plug-and-Play Devices** and **Enter**.
- Step 30.** Select **Interrupt Resources** and **Enter**.
- Step 31.** Select **IRQ 3** and **Enter**.
- Step 32.** If no external modem is connected, change its value to **Reserved** and **Enter**. If an external modem is connected, set to **Available** and **Enter**
- Step 33.** Press the keyboard **ESC** key *three times* to go to the **Exit Menu**.
- Step 34.** Select **EXIT Saving Changes** and press **Enter** to access the **Setup Confirmation** window.
- Step 35.** Select **Yes to Save configuration changes and exit now?** and press **Enter** to save the changes.
- Step 36.** Continue the OS installation procedure described in **Operating System Installation**.

## Compaq D510 PCs

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### Notes

The procedure for setting the BIOS only indicates **changes** to be made from the system's Default values. Unless otherwise indicated, retain the system Default settings.

Keyboard **arrow keys** can be used to move through menu options and change values.

Generally, the keyboard **Enter** key is used to select a menu item and the keyboard **Esc** key is used to return to the previous item.

---

**Step 1.** Properly **shutdown and restart** the PC to reboot it and watch for the **<F10 = Setup>** message.

---

### Note

**<F10 = Setup>** appears only briefly so be attentive. If you miss it, reboot the PC by turning the PC Off and then On or simultaneously pressing keyboard Ctrl-Alt-Del keys.

---

**Step 2.** Press the keyboard **F10** key when <F10 = Setup> appears in the lower right of the screen during the first few seconds of boot up when the word *COMPAQ* appears on the screen. The Language Menu displays.

### Language

**Step 3.** Select **English** in the Language Menu and press **Enter** to display the Setup Utility window.

### File Menu

**Step 4.** Select **File** in the upper row menu bar to display its menu.

**Step 5.** Select **Set Defaults and Exit** in the File Menu and press Enter.

When the prompt Are you sure ... appears:

**Step 6.** Press the keyboard **F10** key for Yes. The PC will then automatically reboot.

**Step 7.** Repeat **Steps 1, 2, and 3** to display the File menu again.

**Step 8.** Select **Set Time and Date** in the File menu and press **Enter** to display the Set Time and Date window.

**Step 9.** Set the Time and Date in the File Menu following the instructions given on the screen.

When the prompt Are you sure ... appears:

**Step 10.** Press the **F10** key to Accept. The system returns to the Setup Utility window.

### Storage Menu

**Step 11.** Select **Storage** in the upper row menu to display the Storage menu.

**Step 12.** Select **Device Configuration** and press **Enter** to display its menu.

**Step 13.** Select **Hard Disk** and **IDE Primary 0** and press **Enter** to display its menu.

**Step 14.** Select **Default Values** and **IDE Defaults** and press **Enter** to display its menu. Select **Translation Mode**, change its value to **LBA Assisted** using the keyboard left or right arrow key, and press the **F10** key to Accept this change.

**Step 15.** Press the **Esc** key to return to the Setup Utility window.

### Security Menu

**Step 16.** Select **Security** in the upper row menu to display the Security menu.

**Step 17.** Select **Network Service Boot** and press **Enter** to display its menu.

**Step 18.** Select **Network Service Boot** and change its value to **Disable**.

**Step 19.** Press **F10** to Accept these changes and return to the Setup Utility window.

### Power Menu

**Step 20.** Select **Power** in the upper row menu to display the Power menu.

**Step 21.** Select **Energy Saver** and press **Enter** to display its menu.

**Step 22.** Select **Energy Saver Mode**, change its value to **Disable**, and press **F10** to Accept this change.

### Advanced Menu

**Step 23.** Select **Advanced** in the upper row menu to display the Advanced menu.

**Step 24.** Select **Power On Options** and press **Enter** to display its menu.

**Step 25.** Change the following Power On Options to the values indicated:

- **POST Mode:**       **Full Boot**
- **POST Messages:** **Enable**
- **F12 Prompt:**       **Disable**

**Step 26.** Verify the following Power On Options is the value indicated:

- **After Power Loss:** **On**

**Step 27.** Press **F10** to Accept these changes.

**Step 28.** Select **Onboard Devices** and press **Enter** to display its menu.

**Step 29.** Change the following Onboard devices item to the value indicated:

- **Serial Port B:**    **2E8-2EF IRQ 3** (if no external modem)
- **Serial Port B:**    **2F8-2FF IRQ 3** (with external modem)

**Step 30.** Press **F10** to Accept this change.

**Step 31.** Select **Device Options** and press **Enter** to display its menu.

**Step 32.** Verify the following Device Options to the values indicated:

- **Num Lock at Power-On:** **On**
- **PME Wakeup Events:** **Disable**
- **ACPI S3 Support:**    **Disable**
- **Integrated Audio:**    **Disable**

**Step 33.** Press **F10** to Accept these changes.

### Reboot

**Step 34.** Select **File** in the upper row menu to display its menu.

**Step 35.** Select **Save Changes and Exit** and press **Enter**.

When the prompt Are you sure ... appears:

**Step 36.** Press the **F10** key for Yes.

The system reboots and displays the system Startup window.

**HP Vectra VL420** The PC BIOS is contained on the **Upgrade Floppy Disk** located in the holder on the side of the PC. The procedure for updating the PC BIOS is as follows.

**Step 1.** Insert the “**BIOS Update for HP Vectra VL420**” disk into the A:\ drive of the PC.

**Step 2.** Shutdown and Restart the PC following proper shutdown procedure.

When the following screen appears: “**This program will flash your system with BIOS version JA.01.04US**”

**Step 3.** Press the **Enter** key (or any key) to begin loading the BIOS ROM (see progress indicator arrows - takes about a minute).



**Step 4.** When the “**AMI Flash Utility**” screen appears and the flashing process has COMPLETED - (Pass), remove the BIOS Upgrade Disk from drive A.

**Step 5.** Reboot the system (**Ctrl - Alt - Delete**) and IMMEDIATELY press and hold down the **F2** key until the “**AMIBIOS EASY SETUP UTILITY - version 2.01a**” screen appears.

---

**Note**

Note: if you don't depress the F2 key during reboot cycle and remove the BIOS Upgrade Disk, then the application will load and you will have to reboot the PC and try again.

---

**Step 6.** Press the **Setup Defaults F9** key to open the **Setup Defaults** window, and press **Enter** to continue.

**Step 7.** Select the **Main** folder. Move down the Configuration Menu items using the UP and DOWN arrow keys and change only the settings as indicated below (**all other settings remain the same**):

- **PnP OS** - press **Enter** and change from No to **Yes** (Set to **No** for PnP OS if prior to Release E.01)
- Set the correct **Time**, and then the correct **Date** if needed
- **Initial Display Mode** - press **Enter** and change from Silent to **BIOS**, then press **Enter**

**Step 8.** Select the **Advanced** folder. Move down the Configuration Menu items using the UP and DOWN arrow keys and change only the settings as indicated below (**all other settings remain the same**):

- **Integrated USB Interface** - press **Enter**
  - **USB Controller** - press **Enter** and change from Disabled/PnP OS to **Auto** and press **Enter**. Press **Esc**
- **Peripheral Configuration** - press **Enter**
  - **OnBoard Serial Port A** - press **Enter** and change from Auto to **Enabled**
    - **Base I/O Address** should read **3F8**
    - **Interrupt** should read **IRQ 4**
  - **OnBoard Serial Port B** - press **Enter** and change from Auto to **Enabled**
    - **Base I/O Address** - press **Enter** and change to read **2E8** (or **2F8** if an External Modem is installed)
    - **Interrupt** should read **IRQ 3**, and press **Esc**
- **Integrated Audio Device** - press **Enter**
  - **Integrated Audio** - press **Enter** and change from Auto to **Disabled**, press **Enter**, and then press **Esc**
- **PCI Device, Slot #1** - press **Enter**
  - **High Priority** - press **Enter** and change from Disabled to **Enabled**, press **Enter**, and then press **Esc**

**Step 9.** Select the **Security** folder. Move down the Configuration Menu items using the UP and DOWN arrow keys and change only the settings as indicated below (**all other settings remain the same**):

- **Device start Protection** - press **Enter**
  - **Start from Network** - press **Enter** and change from Enabled to **Disabled**, press **Enter**
  - **Start from USB** - press **Enter** and change from Enabled to **Disabled**, press **Enter**, and then press **Esc**

**Step 10.** Select the **Boot** folder. Move down the Configuration Menu items using the UP and DOWN arrow keys and change only the settings as indicated below (**all other settings remain the same**):

- **Boot Device Priority** - press **Enter**
  - **2nd** - press **Enter** and change from CD ROM to **Disabled**, press **Enter**
  - **4th** - press **Enter** and change from BBS-0 HP Diagnostics to **Disabled**, press **Enter** and then press **Esc**

**Step 11.** Select the **Power** folder. Move down the Configuration Menu items using the UP and DOWN arrow keys and change only the settings as indicated below (**all other settings remain the same**):

- **Remote Power On** - press **Enter** and change to **Disabled**, press **Enter**
- **Boot on LAN after RPO** - press **Enter** and change to **Disabled**, press **Enter**

**Step 12.** Select the **Exit** folder. Move down the Configuration Menu items using the UP and DOWN arrow keys and change only the settings as indicated below (**all other settings remain the same**):

- **Exit Saving Changes** - press **Enter**
- **Save Current changes and Exit** - press **Enter**. The PC will now reboot.

**Step 13.** It is recommended that you make an additional copy of the BIOS (on another floppy disk) and store the floppy disk in a safe and secure place.

**HP Vectra VL400** The PC BIOS is contained on the **Upgrade Floppy Disk** located in the holder on the side of the PC. If the BIOS disk must be recreated, refer to the “Recreating Information Center BIOS Disk” on page 7-145. The procedure for updating the PC BIOS is as follows.

**Step 1.** Insert the “**BIOS Update for HP Vectra VL400**” disk into the A:\ drive of the PC.

**Step 2.** Shutdown and Restart the PC following proper shutdown procedure.

When the following screen appears: “**This program will flash the system with BIOS version IP.01.08US**”

Press the **Enter** key (or any key) to begin loading the BIOS ROM (see progress indicator arrows - takes about a minute).

**Step 3.** When prompted, remove the BIOS Upgrade Disk from drive A. and reboot the system (**Ctrl - Alt - Delete**) and IMMEDIATELY press and hold down the **F2** key until the “**Phoenix Bios Setup Utility**” screen appears.

**Note**

Note: if you don't depress the F2 key during reboot cycle and remove the BIOS Upgrade Disk, then the application will load and you will have to reboot the PC and try again.

**Step 4.** Press the **Setup Defaults F9** key to open the **Setup Defaults** window, and press **Enter** to continue.

**Step 5.** Select the **Advanced** menu in the Setup Utility by pressing the keyboard right arrow key.

- Select **Plug & Play OS** and verify it is set to **Yes**. (Set to **No** for Plug & Play OS if prior to Release E.01)

**Step 6.** Select **Integrated USB Interface** and verify it is set to **Auto**.

**Step 7.** Select **Integrated Audio Interface** and Change to **Disabled**.

**Step 8.** Select **Video Options** and press **Enter**. Select **Video Primary Controller** and Change to **AGP** or **Embedded Video**. Press **Esc**.

**Step 9.** Select **Integrated I/O Ports**:

- **Serial Port A**                   Change to **Manual** and **Verify Settings: Base I/O 3F8; Interrupt IRQ 4**
- **Serial Port B**                   Change to **Manual** and **Change Settings: Base I/O 2E8; Interrupt IRQ 3** (if no external modem)  
**Base I/O 2F8; Interrupt IRQ 3** (with external modem)
- **Parallel Port**                   **Auto** (Default)
- **Mode**                            Change to **ECP**
- Press **Esc**.

**Step 10.** Select **Boot Menu**. Select **Quick Boot Mode** and Change to **Disabled**.

**Step 11.** Select **Power Menu**. Keep **State after Power Failure** at **Auto**. All other settings are disabled:

- **Auto Suspend Timeout**                   Change to **Disable**
- **Suspend Wakeup On**
  - **Modem Ring**                   Change to **Disable**
  - **IRQ**                            Change to **Disable**
  - **PCI Bus Activity**            Change to **Disable**
- **Power Up On**
  - **PCI Bus Activity**            Change to **Disable**
- **Suspend to RAM**                    Change to **Disable**
- **Wakeup On Modem Ring**            Change to **Disable**
- Select **F10** to **SAVE and EXIT BIOS Setup**

Remove the BIOS floppy disk and place it into the plastic holder on the side of the PC. And, it is recommended that you make an additional copy of the BIOS (on another floppy disk) and store the floppy disk in a safe and secure place.

---

**Note** The Kayak family of PCs are not supported with release E.01. The BIOS settings below are listed for reference only, and they are for release E.0.

---

- HP D6723T Kayak XA (Series 05xx) or D6731T Kayak XA (Series 05)**
- Step 1.** Properly shutdown and restart the PC and IMMEDIATELY press and hold down the F2 key.
- Step 2.** Select the **Advanced** menu in the Setup Utility by pressing the keyboard right arrow key.
- Step 3.** Select the **ISA Resource Exclusion** submenu by using the down arrow key and press **Enter**.
- Step 4.** Select **IRQ 3** and press **Enter** to access the IRQ3 submenu.
- Step 5.** Change the IRQ3 value to **Reserved** and press **Enter**. If a 4-Channel Recorder or external modem is connected, set IRQ 3 to **Available**.
- Step 6.** Press the keyboard **ESC** key *once* to return to the **Advanced** menu.
- Step 7.** Select **Integrated I/O Ports** and press **Enter** to access its submenu.
- Step 8.** Select **Serial Port B** and press **Enter** to access its submenu.
- If no 4-Channel Recorder or external modem is connected: change the value to **Disabled** and press **Enter**
  - If a 4-Channel Recorder is connected, change the value to **Enabled, 2E8, IRQ3** and press **Enter**.
  - If an external modem is connected, change the value to **Enabled, 2F8, IRQ3** and press **Enter**.
- Step 9.** Press the keyboard **ESC** key *twice* to access the **BOOT** menu.
- Step 10.** Select **Quickboot Mode** and press **Enter** to access its submenu.
- Step 11.** Change its value to **Disabled** and press **Enter**.
- Step 12.** Press the keyboard **ESC** key once to access the **Exit Menu**.
- Step 13.** Select **Exit Saving Changes** and press **Enter** to access the **Setup Confirmation** window.
- Step 14.** Select **Yes to Save configuration changes and exit now?** and press **Enter** to save the changes.
- If only changing the BIOS settings, remove the floppy from the PC and reboot. If using the FIST floppy as part of an installation, the Philips system will then return to the blue **HP Kayak PC Workstation** screen and the installation process will continue. When the **MS DOS 6.22 Startup Menu** reappears:
- Step 15.** Enter **4** [D6723T - Kayak XA (Series 05xx)] or **5** [D6731T - Kayak XA (Series 05xx)] after **Enter a choice:** and press **Enter**.
- Step 16.** Follow the OS installation procedure described in **Operating System Installation**.

- HP D5765T Kayak XA-s**
- Step 1.** Properly shutdown and restart the PC and IMMEDIATELY press and hold down the **F2** key.
- Step 2.** Select the **Advanced** menu in the Setup Utility by pressing the keyboard right arrow key.
- Step 3.** Select the **ISA Resource Exclusion** submenu by using the down arrow key and press **Enter**.
- Step 4.** Select **IRQ 3** and press **Enter** to access the IRQ3 submenu.
- Step 5.** Change the IRQ3 value to **Reserved** and press **Enter**. If a 4-Channel Recorder or external modem is connected, set IRQ 3 to **Available**.
- Step 6.** Press the keyboard **ESC** key *once* to return to the **Advanced** menu.
- Step 7.** Select **Integrated I/O Ports** and press **Enter** to access its submenu.
- Step 8.** Select **Serial Port B** and press **Enter** to access its submenu.
- If no 4-Channel Recorder or external modem is connected: change the value to **Disabled** and press **Enter**
  - If a 4-Channel Recorder is connected, change the value to **Enabled, 2E8, IRQ3** and press **Enter**.
  - If an external modem is connected, change the value to **Enabled, 2F8, IRQ3** and press **Enter**.
- Step 9.** Press the keyboard **ESC** key *once* to return to **Advanced Menu**.
- Step 10.** Select **Integrated Audio Device** and press **Enter** to access its submenu.
- Step 11.** Make the following selections:
- Integrated Audio - Disabled (top entry)
  - MIDI Port - Disabled
  - Game Port - Disabled
- Step 12.** Press the keyboard **ESC** key *twice* to access the **BOOT** menu.
- Step 13.** Select **Quickboot Mode** and press **Enter** to access its submenu.
- Step 14.** Change its value to **Disabled** and press **Enter**.
- Step 15.** Press the keyboard **ESC** key once to access the **Exit Menu**.
- Step 16.** Select **Exit Saving Changes** and press **Enter** to access the **Setup Confirmation** window.
- Step 17.** Select **Yes** to **Save configuration changes and exit now?** and press **Enter** to save the changes.
- If only changing the BIOS settings, remove the floppy from the PC and reboot. If using the FIST floppy as part of an installation, the Philips system will then return to the blue **HP Kayak PC Workstation** screen and the installation process will continue. When the **MS DOS 6.22 Startup Menu** reappears:
- Step 18.** Enter **4 [D5765T Kayak XA-s (Series 02xx)]** after **Enter a choice:** and press **Enter**.

**Step 19.** Follow the OS installation procedure described in **Operating System Installation**.

**HP D4692N Kayak XU**

- Step 1.** Properly shutdown and restart the PC and IMMEDIATELY press and hold down the **F2** key.
- Step 2.** Select the **Advanced** menu in the Setup Utility by pressing the keyboard right arrow key.
- Step 3.** Select the **ISA Resource Exclusion** submenu by using the down arrow key and press **Enter**.
- Step 4.** Select **IRQ 3** and press **Enter** to access the IRQ3 submenu.
- Step 5.** Change the IRQ3 value to **Reserved** and press **Enter** - or - if 4 Channel Recorder or external modem is installed change IRQ3 value to **Available** and press **Enter**.
- Step 6.** Select **IRQ 5** and press **Enter** to access the IRQ5 submenu.
- Step 7.** Change the IRQ5 value to **Reserved** and press **Enter**.
- Step 8.** Press the keyboard **ESC** key *once* to return to the **Advanced** menu.
- Step 9.** Select **Integrated I/O Ports** and press **Enter** to access its submenu.
- Step 10.** Select **Serial Port B** and press **Enter** to access its submenu.
- Step 11.** Change its value to **Disabled** and press **Enter** - or - if a 4 Channel Recorder or external modem is installed then change its value to **Enabled** and press **Enter**.
- Step 12.** Select Base I/O address (Serial Port B) and press **Enter** to access its submenu.
- Change its value to 2E8 and press **Enter** if no external modem
  - Change its value to 2F8 and press **Enter** if external modem present
- Step 13.** Select Interrupt (Serial Port B) and press **Enter** to access its submenu.
- Step 14.** Change its value to IRQ3 and press **Enter**.
- Step 15.** Press the keyboard **ESC** key *twice* to access the **BOOT** menu.
- Step 16.** Select **Quickboot Mode** and press **Enter** to access its submenu.
- Step 17.** Change its value to **Disabled** and press **Enter**.
- Step 18.** Press the keyboard **ESC** key *once* to access the **Exit Menu**.
- Step 19.** Select **Exit Saving Changes** and press **Enter** to access the **Setup Confirmation** window.
- Step 20.** Select **Yes to Save configuration changes and exit now?** and press **Enter** to save the changes.

If only changing the BIOS settings, remove the floppy from the PC and reboot. If using the FIST floppy as part of an installation, the system will then return to the blue **HP Kayak PC Workstation** screen and the installation process will continue. When the **MS DOS 6.22 Startup Menu** reappears:

**Step 21.** Enter the appropriate # for the PC (D4692N - Kayak XU) after **Enter a choice:** and press **Enter** and the Information Field Installation Support Tool **Main Menu** appears.

**Step 22.** Follow the OS installation procedure described in **Operating System Installation.**

**HP D4367N Vectra XU**

There are 3 specific settings in this application that are required for the application software -- setting the COM port, setting the audio functions on the PC mother board, and setting the Memory Test. The procedure is as follows.

**Step 1.** Properly shutdown and restart the PC and IMMEDIATELY press and hold down the **F2** key.

**Step 2.** Select **Serial Port B** in the Setup Utility by pressing the keyboard down arrow key.

**Step 3.** Set **Serial Port B** to **disable**. (Use **F8** for the next value) - or -

- if an external modem is installed then set **Serial Port B** to **Serial 4** (2F8, IRQ3)
- if a 4 Channel Recorder is installed then set **Serial Port B** to **Serial 4** (2E8, IRQ3)

**Step 4.** Use the down arrow key to scroll down to **Audio, Audio Functions**.

**Step 5.** Set **Audio Functions** to **disable**. (Use **F8** for the next value).

**Warning**

**The Vectra XU minitower PC MUST have its embedded audio functions disabled or NO ALARMS SOUNDS will be generated.**

**Step 6.** Use the arrow key to scroll to **Memory Test**.

**Step 7.** Set **Memory Test** to **Enable** (use the keyboard **F8** key to select the next value).

**Step 8.** Press the keyboard **F3** key (**Exit Saving Changes**) and then **Enter** to continue the reboot process.

If only changing the BIOS settings, remove the floppy from the PC and reboot. If using the FIST floppy as part of an installation, when the reboot is complete, the Information Field Installation Support Tool **Main Menu** will appear.

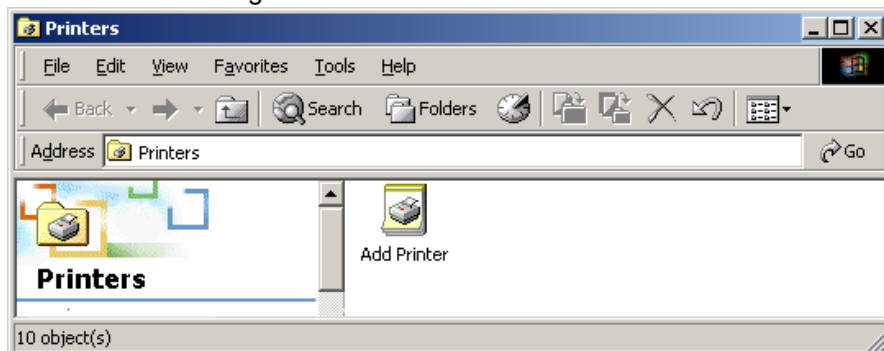
**Step 9.** Enter the appropriate # for the PC (D4367N - Vectra XU) after **Enter a choice:** and press **Enter** and the Information Field Installation Support Tool **Main Menu** appears.

Follow the OS installation procedure described in **Operating System Installation.**

**Restoring Printer Configurations**

If configuration of printers on the network is lost, the **Printer Icons** can be restored to the Printers window as shown in Figure 7-64 using the following steps.

**Step 1.** Click on **Control Panel** in the Other Services menu of Service to bring up the **Printers** window of Figure 7-64.



**Figure 7-64 Printers Configuration Window**

**Step 2.** Double click on the **Add Printer** icon in the **Printers** window of Figure 7-64 and the **Add Printer Wizard** window appears.

**Step 3.** Sequence through the **Add Printer Wizard** dialog boxes using the **Next** button to advance to the next box. The following entries should be made to add LaserJet printer icons.

**Step 4.** In the Local or Network Printer window, select **Local Printer attached to this computer**. Do **not** check Automatically detect and install my Plug and Play printer. Leave this disabled.

**Step 5.** In Select a Printer Port window:

- For a local printer, click **Use the following port** and accept the recommended (LPT1 and skip to Install Printer Software Window in step ). Click Next.
- For a network printer, click **Create a new port** and select **Standard TCP/IP Port** option in Type of port field. Click Next.

**Step 6.** When the Add Standard TCP/IP Printer Port Wizard is up, click **Next** to Add Port window. Enter **172.31.254.1** in the Printer Name of IP Address field. The Port Name field is automatically filled in. Click Next.

**Step 7.** In the Additional Port Information Required window, select **Hewlett Packard Jet Direct**.

**Step 8.** Review the port created and click **Finish**. The Install Printer Software window opens. Select **HP** as the manufacturer, and the **HP LaserJet 5P** as the printer. Click Next.

---

**Note**

At present, the HP LaserJet 5P driver is the proper choice for configuring an HP LaserJet 6P and 2200 printer to the Philips system.

---

**Step 9.** In the Use Existing Driver window, select **Keep existing driver (recommended)**.

**Step 10.** In the Name Your Printer window,  
Printer name:



For a parallel connected printer: **lj\_lpt1**

For a Network connected printer, use the  
Printer Icon name from Table 6-2 for the  
IP Address entered: **lj\_001 to lj\_008**

- Select if it will be the default printer.

**Step 11.** In the Printer Sharing window, select **Do not share this printer**.

**Step 12.** In the Print Test Page window, select **Yes** to print a test page. A **Printer Icon** dialog box will appear and the LaserJet printer will print a **Windows Printer Test Page**. If this page prints correctly, click **Yes** in the dialog box.

- Did the test page print correctly? **Yes**

**Step 13.** Review the printer information in the last window and click **Finish** to complete the configuration.

**Step 14.** Double click on the **Printer Icon** to access the **Printer Icon** window.

**Step 15.** Click on **Printer** in the upper row menu.

**Step 16.** Click **Properties** in the Printer menu to bring up the **Printer Icon Properties** window.

**Step 17.** Click on the **Advanced** tab in the **Properties** window. Make the following selections in the window:

- Always available
- Priority: 1
- Spool print documents so program finishes printing faster
- Start printing after last page is spooled
- Print spooled documents first

**Step 18.** Click on the **Print Processor** button to bring up the **Print Processor** window.

**Step 19.** Under **Default Datatype**, select **RAW** and then **OK** to return to the Properties window.

**Step 20.** Click on **Printing Defaults** and then **Paper/Quality** tab and **Advanced** to bring up the **Advanced Options** window. Configure the following settings:

Paper Size                      <Letter>

---

**Note**

For users of A4 paper, set Paper Size to <A4>.

---

Print Quality:                      <300 x 300 dots per inch>  
 True Type Font                      <Substitute with Device Font>  
 Halftoning                              <Auto Select>  
 Print Optimizations                      <Disabled>  
 EconoMode                              <EconoMode - Off>  
 Graphics Mode                              <Raster>

**Step 21.** Click **OK** to return to the Printer Icon window.

**Step 22.** Close the **Printer Icon** window by clicking on the **X** in the upper right corner of the window to return to the **Printers** window of Figure 7-64.

**Step 23.** Repeat this procedure for each **Printer Icon** to be added.

When all desired **Printer Icons** have been added to Figure 7-64, Printers can be configured to specific Information Centers, Clients, and the Server in the Network Configuration window in the Config Wizard. See “Adding Network Devices” on page 6-28.

**Adding Printers to the Network**

The **Network Configuration** window in !Config Wizard is the only way printers can be added to the system. It operates in both monitoring and non-monitoring mode and only on the Database Server.

A maximum of 8 LaserJet Printers can be connected to a network and 8 **Printer Names** and **IP Addresses** have been preloaded into the system for assignment to individual printers.

**Printer Names** are: lj\_001  
lj\_002  
lj\_003  
lj\_004  
lj\_005  
lj\_006  
lj\_007  
lj\_008

**IP Addresses** are: 172.31.254.1  
172.31.254.2  
172.31.254.3  
172.31.254.4  
172.31.254.5  
172.31.254.6  
172.31.254.7  
172.31.254.8

**Restoring RAID Configurations**

If the **RAID Configuration** is lost or accidentally deleted, it can be restored using the following steps. After RAID configurations have been restored, Windows Operating System and Philips software must be reinstalled.

**ML370 G3 Server**

The following procedure describes how to set the RAID configuration.

During the Boot Up process, watch for the message (about 30 seconds) **Press <F8> key to run the Option ROM Configuration for Arrays Utility.** When it appears:

**Step 1.** Press the keyboard **F8** key to display the **Main Menu** window.

**Step 2.** Select **Create Logical Drive** using the arrow key and press **Enter** to display its menu.

**Note**

If the message **There are no available physical drives** appears, either the drives have already been configured OR there are no hot swap drives installed. To determine if the drives have already been configured, press **Esc** to return to the **Create Logical Drive** menu, select **View Logical Drive**, and press **Enter**.

**Step 3.** Select **Available Physical Drives** and press **Enter** to display its window. Verify that the 3 available drives have been selected, i.e. an **X** should appear in the brackets next to each drive.

**Step 4.** Select **Raid Configuration** and press **Enter** to display its window. Verify that **Raid 5** has been selected.

**Step 5.** Select **Spare** and press **Enter** to display its window. Verify that **Use one drive as a spare** has **NOT** been selected.

**Step 6.** Press **Enter** to create the Logical Drive.

When prompted to save the configuration:

**Step 7.** Press the keyboard **F8** key to save the configuration.

When **Configuration Saved** appears:

**Step 8.** Press **Enter** to continue.

**Step 9.** Press the keyboard **Esc** key to exit the Raid Configuration.

The system will then reboot.

**ML370 G2 Server**

The following procedure describes how to set the RAID (Redundant Array of Independent Disks) configuration for the Server.

**Step 1. Shutdown and restart** the Server to reboot it.

**Step 2.** Follow the boot process carefully and watch for the **Press <F8> to run the Option ROM Configuration for Arrays Utility** message.

**Step 3.** Press the keyboard **F8** key when the message **Press <F8> to run the Option ROM Configuration for Arrays Utility** appears to display the Main Menu.

**Step 4.** Select **Create Logical Drive** to display the Available Physical Drives menu, the Raid Configuration menu, and the Spare menu.

**Note**

If the message **There are no available physical drives.** appears, the drives have already been configured or there are no hot-swap drives installed. Use the **View Logical Drive** menu to determine if the drives have already been configured. If they have been configured, proceed to **Step 8**.

**Step 5.** Verify the following:

- Available Physical Drives - **X** appears in the brackets next to each drive
- Raid Configuration - **Raid 5** has been selected
- Spare - Use one drive as a spare has **NOT** been selected

**Step 6.** Press **Enter** to create the Logical Drive.

The following message appears You have selected a logical drive with a total datasize of <xx> Gb and RAID 5 fault tolerance.

**Step 7.** Press the keyboard **F8** key to Save the configuration.

When Configuration Saved appears:

**Step 8.** Press **Enter** to return to the Main Menu.

**Step 9.** Press the keyboard **Esc** key to continue the boot process.

**Step 10.** Insert the FIST disk in to the A:\ drive.

**Step 11.** Insert the Windows 2000 Operating System CDROM.

**Step 12.** Cycle power on the Server. Go to “Software Re-Installation Procedure” on page 7-147.

### **HP P2478W & P2478U Net Server LC2000:**

**Step 1.** Shutdown and Restart the Server.

During the power restoration cycle, NetRAID firmware initializes. When the **Option: experienced users may press Ctrl+M for HP Net RAID Express Tools now** message appears on the bottom of the screen:

**Step 2.** Press the keyboard **Ctrl-M** keys simultaneously to enter the **Net RAID Express Tools** application.

**Step 3. Delete current RAID configurations** as follows:

- a. Select **Configure** in the **Management Menu** using the up/down arrow keys and press **Enter**.
- b. Select **Clear Configuration** and **Yes**, and then **Enter** to clear the RAID configuration

**Step 4. Setup the Logical Drive** as follows:

- a. Select **Configure** in the **Management Menu** and press **Enter**.
- b. Select **View/Add/Delete Configuration** and **Enter** to bring up the View/Add Configuration **ARRAY SELECTION MENU**.
- c. Select (highlight) one of the **RAID disks** in the **CHANNEL-0** window, verify that its state is **Ready**, and press the keyboard **Spacebar**.
- d. Repeat verification of the **Ready** state for each of the RAID disks.
- e. Repeat the process to verify that all RAID disks are **ONLIN**. Press **Enter** to EndArray.
- f. Press the keyboard **F10** key to start the configuration process.
- g. Select **RAID** in the **Logical Drive 0** window and **Enter**.
- h. Select **RAID level 5** and **Enter**.
- i. Select **Accept** in the **Logical Drive 0** window and **Enter** to accept the new settings
- j. Select **Accept** in the **Logical Drive 1** window and **Enter** to accept the new settings.
- k. Select **YES** in answer to **Save Configuration?** and **Enter** to save the settings.
- l. Press **Enter**
- m. Press the keyboard **Esc** key until the **Management Menu** reappears.

**Step 5. Verify the Write Policy settings** as follows:

- a. Select **Objects** in the **Management Menu** and **Enter**.
- b. Select **Logical Drive** and **Enter**.
- c. Select **Properties** and **Enter**.
- d. Select **Write Policy** and **Enter**.
- e. Select **WRBACK** and **Enter**.
- f. Press the keyboard **Esc** key until the **Object Menu** appears.

**Step 6. Verify the SCSI Transfer Rate settings** as follows:

- a. Select **SCSI Channel** in the **Object Menu** and **Enter**.
- b. Select **Channel 0** and **Enter**.
- c. Select **SCSI Transfer Rate** and **Enter**.
- d. Select **ULTRA-3** and **Enter**.
- e. Select **YES** and **Enter**.
- f. Press the keyboard **Esc** key until the **Management Menu** appears.

**Step 7. Verify disk settings** as follows:

- a. Select **Initialize** in the **Management Menu** and **Enter**.
- b. Select **Logical Drive 0** and press the keyboard **Spacebar**.
- c. Press the keyboard **F10** key to start the initialization.
- d. Select **YES** in answer to **Initialize Drive?** and **Enter**.
- e. Press **any keyboard key** when the prompt appears at the bottom of the screen.

**Step 8.** Press the keyboard **Esc** key to return to the **Management Menu**.

**Step 9.** Press the **Esc** key again.

**Step 10.** Select **YES** in answer to **Exit?** and **Enter**.

**Step 11. Reinstall Windows Operating System and Philips Application software** following procedures provided in this chapter.

**For the HP D5000 Net Server LH3:**

**Step 1. Shutdown and Restart the Server.**

During the power restoration cycle, NetRAID firmware initializes. When the **Firmware Initializing** message appears on the bottom of the screen:

**Step 2.** Press the keyboard **Ctrl-M** keys simultaneously to enter the **Net RAID Express Tools** application.

**Step 3. Delete current RAID configurations** as follows:

- a. Select **Configure** in the **Management Menu** using the up/down arrow keys and press **Enter**.
- b. Select **Clear Configuration** and **Yes**, and then **Enter** to clear the RAID configuration.

**Step 4. Setup the Logical Drive** as follows:

- a. Select **Configure** in the **Management Menu** and press **Enter**.
- b. Select **View/Add/Delete Configuration** and **Enter** to bring up the **View/Add Configuration ARRAY SELECTION MENU**.

- c. Select (highlight) one of the **RAID disks** in the **CHANNEL-0** window, verify that its state is **Ready**, and press the keyboard **Spacebar**.
- d. Repeat verification of the **Ready** state for each of the RAID disks.
- e. Repeat the process to verify that all RAID disks are **ONLIN**.
- f. Press the keyboard **F10** key to start the configuration process.
- g. Select **RAID** in the **Logical Drive 0** window and **Enter**.
- h. Select **RAID level 5** and **Enter**.
- i. Select **Accept** in the **Logical Drive 0** window and **Enter** to accept the new settings
- j. Select **Accept** in the **Logical Drive 1** window and **Enter** to accept the new settings.
- k. Select **YES** in answer to **Save Configuration?** and **Enter** to save the settings.
- l. Press **Enter**
- m. Press the keyboard **Esc** key until the **Management Menu** reappears.

**Step 5. Verify the Write Policy settings** as follows:

- a. Select **Objects** in the **Management Menu** and **Enter**.
- b. Select **Logical Drive** and **Enter**.
- c. Select **Properties** and **Enter**.
- d. Select **Write Policy** and **Enter**.
- e. Select **WRBACK** and **Enter**.
- f. Press the keyboard **Esc** key until the **Object Menu** appears.

**Step 6. Verify the SCSI Transfer Rate settings** as follows:

- a. Select **SCSI Channel** in the **Object Menu** and **Enter**.
- b. Select **Channel 0** and **Enter**.
- c. Select **SCSI Transfer Rate** and **Enter**.
- d. Select **ULTRA-2** and **Enter**.
- e. Select **YES** and **Enter**.
- f. Press the keyboard **Esc** key until the **Management Menu** appears.

**Step 7. Verify disk settings** as follows:

- a. Select **Initialize** in the **Management Menu** and **Enter**.
- b. Select **Logical Drive 0** and press the keyboard **Spacebar**.
- c. Press the keyboard **F10** key to start the initialization.
- d. Select **YES** in answer to **Initialize Drive?** and **Enter**.
- e. Press **any keyboard key** when the prompt appears at the bottom of the screen.

**Step 8.** Press the keyboard **Esc** key to return to the **Management Menu**.

**Step 9.** Press the **Esc** key again.

**Step 10.** Select **YES** in answer to **Exit?** and **Enter**.

**Step 11. Reinstall Windows Operating System and Philips Application software** following procedures provided in this chapter.

### **Recreating FIST Bootable Floppy Disk**

If the FIST bootable floppy disk is lost or damaged, it can be recreated at any Information Center, Client, or the Server from the Philips software CD ROM.

---

**Note**                    **For Information Centers and Clients**, this can only be done in **Non-monitoring Mode**, which involves shutting down Philips monitoring software.

**For the Server**, this can be done in Monitoring or Configuration Mode.

                              If from **Monitoring Mode**, all Information Centers and Clients will continue monitoring.

                              If from **Configuration Mode**, all Information Centers and Clients will go to local database mode.

---

The following steps describe the procedure.

**Step 1.** Insert a **formatted 3.5”, 1.44MB, blank floppy disk** into the floppy disk drive.

**Step 2.** Insert the appropriate **Operating System CD ROM** into the CD-ROM drive and close the drive.

---

**Note**                    Verify the correct Operating System CD ROM is loaded in the CD drive. This ensures the correct FIST disk is created. Release E.01 has two Operating System CDs, one for the M3154 Database Server, and one for all other devices.

---

**Step 3.** Browse to the CD ROM drive.

**Step 4.** Open the \\field\dskimage directory.

**Step 5.** Double-click on **mkfloppy.bat**. These files will then be transferred to the floppy disk.

**Step 6.** When the process is complete, scroll through the window to ensure no errors were detected. Press any key and remove the floppy disk.

Label the floppy disk **Information Center Bootable Floppy, Version E.##.##**, where **E.##.##** corresponds to the version number of the Philips software, and store it in a safe place for later availability.

**Recreating  
Information  
Center BIOS Disk**

If the BIOS disk is lost or damaged, it can be recreated at any Information Center or Client from the CDRom.

The following steps describe the procedure.

**Step 1.** Insert a **formatted 3.5”, 1.44MB, blank floppy disk** into the floppy disk drive.

**Step 2.** Insert the **Information Center Operating System CD ROM** into the CD-ROM drive and close the drive.

**Step 3.** Access the PC’s CD ROM drive for Information Centers and Clients

**Step 4.** Open the \\field\dskimage directory.

**Step 5.** Double click on the applicable file that correlates to the PC you are installing on. The files are **MkVL400.bat** or **MkVL420.bat**. These files will then be transferred to the floppy disk.

**Step 6.** Remove the floppy disk when the transfer is complete.

**Step 7.** Label the floppy disk and store it in a safe place for later availability.

**To install the BIOS on the workstation:**

**Step 8.** Insert the floppy disk created in **Step 5** into the **A:\** drive of the workstation.

**Step 9.** Turn the power to the workstation **OFF** and then **ON**.

When the boot up process has completed:

**Step 10.** Follow the instruction indicated on the display screen to install the BIOS.

**Creating Server  
BIOS Bootable  
Floppy Disk**

Follow these procedures to copy the BIOS onto a second floppy disk (for backup purposes):

**Step 1.** Insert the BIOS disk into the floppy disk drive.

**Step 2.** Go to the **Desktop** and open **My Computer**

**Step 3.** Click on the icon for the disk you want to copy from (e.g. **3.5" floppy, (A:)**).

**Step 4.** Open the **File** menu and select **Copy Disk**

**Step 5.** Click **Start**, and follow the onscreen steps.

**Step 6.** When done, write protect the floppy disk, label it, and store in secure location.

**Replaceable Parts**

**Replaceable Parts** for the Information Center system can be ordered from the **Philips Support Materials Organization**. A complete list of orderable replaceable parts is given in the **Replaceable Parts List** on the documentation CDROM. Also provided is the address and telephone number of Philips Sales and Support Offices.

The components, options and accessories for Philips systems are given in **Chapter 1, Components and Options**. These can also be ordered from the **Support Materials Organization**.



---

## Software Re-Installation Procedure

This section describes the procedure for (re)installing application software. The procedure applies to both the Server and the Information Center workstation.

---

**Note**                      **Before installing Philips application software** on any of the devices, complete the **Configuration Worksheets** provided in **Appendix A**. The **Config Wizard** immediately follows software installation and completed **Configuration Worksheets** will facilitate the configuration process.

---

**Field Installation Support Tool**                      The **Field Installation Support Tool** (FIST) is an MS-DOS program that facilitates the installation of the Windows™ Operating System. It resides on both a 3.5 inch Bootable Floppy Disk and the Windows Operating System CDROM. The FIST also includes **Help** information to assist in answering questions that appear during the installation process.

---

**Note**                      To access **Help** information at any time, press the **F1** key at the top of the keyboard.

---

The FIST program can be copied to a floppy disk if the original disk is lost. The procedure for copying the FIST program from the CD ROM to a floppy disk is described in the **Recreating FIST Bootable Floppy Disk** section in this chapter.

## Operating System Installation

**Installation Worksheet**                      An **Installation Worksheet** is provided in **Appendix A** for recording information required for screen entry at various points in the OS installation procedure. Before installation, this worksheet should be filled out and be available during the installation process.

---

**Note**                      A description of the OS and Philips software boot process is given in Chapter 8 - **Testing Product Assurance, Observing Software Boot Up**. Use this section to verify that the boot process that occurs during software installation behaves normally.

---

- OS Installation Procedure**
- Step 1.** Create an **Archive disk** of the current device. Turn **OFF** the power switch of the workstation.
  - Step 2.** Insert the appropriate **3.5” Floppy Disk** that contains the **Field Installation Support Tool** into the floppy disk drive of the workstation.
  - Step 3.** Turn **ON** the power switch of the PC.

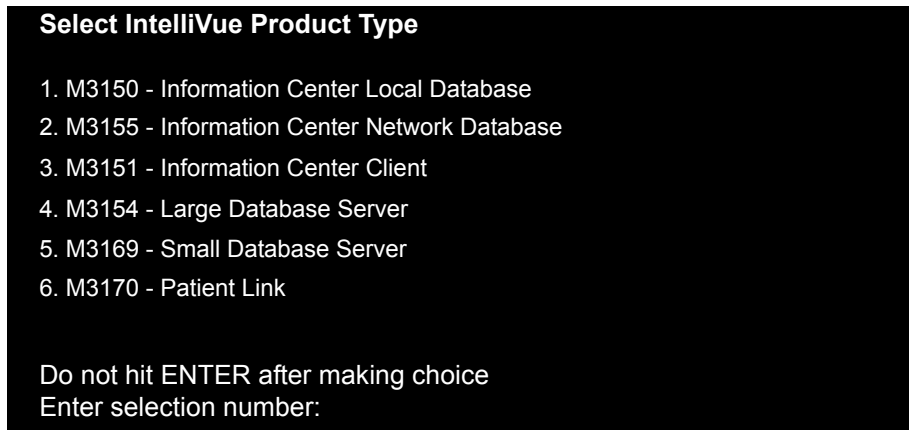
**Step 4.** Open the CD ROM drive of the workstation, insert the **Operating System CD-ROM**, and close the CD-ROM drive.

---

**Note** Twice during the boot process of PCs without a NIC for web access, the following message appears. This message can be ignored.  
!!! ERROR !!! No 3c90X NICs are installed in this computer.

---

After a few seconds a window as shown in Figure 7-60 appears with these options:



**Figure 7-60 Selection Window**

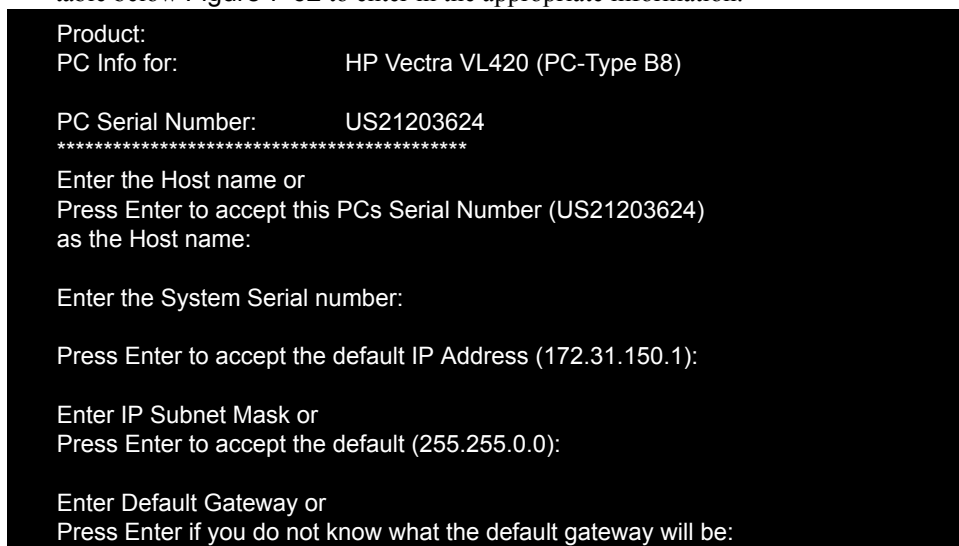
**Step 5.** Enter the appropriate # that corresponds to the device you are installing.

**Step 6.** The copyright screen displays. Press any key to continue, or the Ctrl + C key to stop the installation.



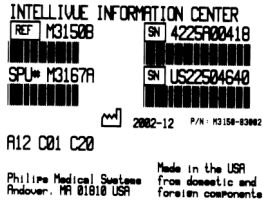
**Figure 7-61 Copyright Window**

**Step 7.** The next window requires the system information. Use the guidelines given in the table below Figure 7-62 to enter in the appropriate information.



**Figure 7-62 Device Input Window**

Enter in the applicable information:

Field	Description
Enter the Host name	15 character limit
System Serial Number	Enter the serial number as shown on the product label. This can be found by looking on the product label and using the value shown in the REF row:  Serial #
IP Address	Enter in the appropriate IP Address for this device. Valid IP Address Ranges are given in "IP Address" on page 5-33
Subnet Mask	Press <b>Enter</b> to accept the default subnet mask (255.255.0.0)
Default Gateway	M3154/M3169 Database Servers & M3150 Local Database Information Centers: press <b>Enter</b> to accept the default  M3155 Network Information Centers & M3151 Information Center Clients: enter in the IP Address of the Database Server and press <b>Enter</b>
Language	Select the appropriate language by typing in the language code that corresponds to the language you need to install (e.g. <b>ABA</b> for English).

**Step 8.** If the FIST disk has already been used to configure the device, the stored device information is displayed, as shown in Figure 7-63. If the information is not for the current device, press **N** at the prompt to reconfigure the settings (see step 7). If the information is correct, press **Y** to continue (and go to step 9).

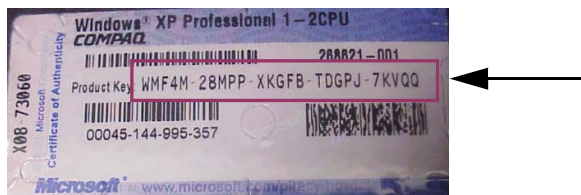


**Figure 7-63 Device Information Window**

**Step 9.** The settings are displayed, as shown in Figure 7-63. If the information is correct, press **Y** and **enter** to continue. If the information is incorrect press **N** and **enter** to re-enter the correct values.

**Step 10.** Follow the prompts on the screen to start the OS installation.

- After approximately 15-20 minutes into the XP OS installation, an error message opens stating “**Unattended Setup is unable to continue because set-up parameter specified by your system administrator or computer manufacturer is missing or invalid. Setup must therefore ask you to provide this information. Once you have furnished the required information, unattended setup operation will continue.**”
- Press **OK** to close the error window.
- In the Windows XP Professional Setup window, enter the Product Key and press **Next**. The Product key is located on the COA (Certificate of Authenticity) label that is provided in the upgrade kit. Attach the COA label to the PC over any existing COA labels.



**Caution**

**You must remove the floppy disk before the PC reboots. If you don't, then you must reinstall the Windows OS again from Step 1.**

The Operating System Installation process, including reboots, takes approximately 30 minutes. No user interaction is required during this Installation until the setup program completes and the desktop is displayed.

**Step 11.** Click on the **Check Activation** icon  on the desktop to begin the OS license activation process.

## OS Activation

The OS license must be activated on each device before the Application Software is installed.

### Caution

**The application software cannot be installed until the XP operating system license is activated.**

When the Check Activation icon was clicked, the window shown in Figure 7-66 appears.



**Figure 7-64 OS Activate Welcome Screen**

**Step 1.** Select **Yes, I want to telephone a customer service representative to activate Windows** and click **Next**.

**Step 2.** Select the location from the drop down list. A toll free number, if available, displays in addition to a toll number. Call the number and follow the voice prompts to provide them an installation ID (this can be via touch or voice input). They will provide a confirmation ID.

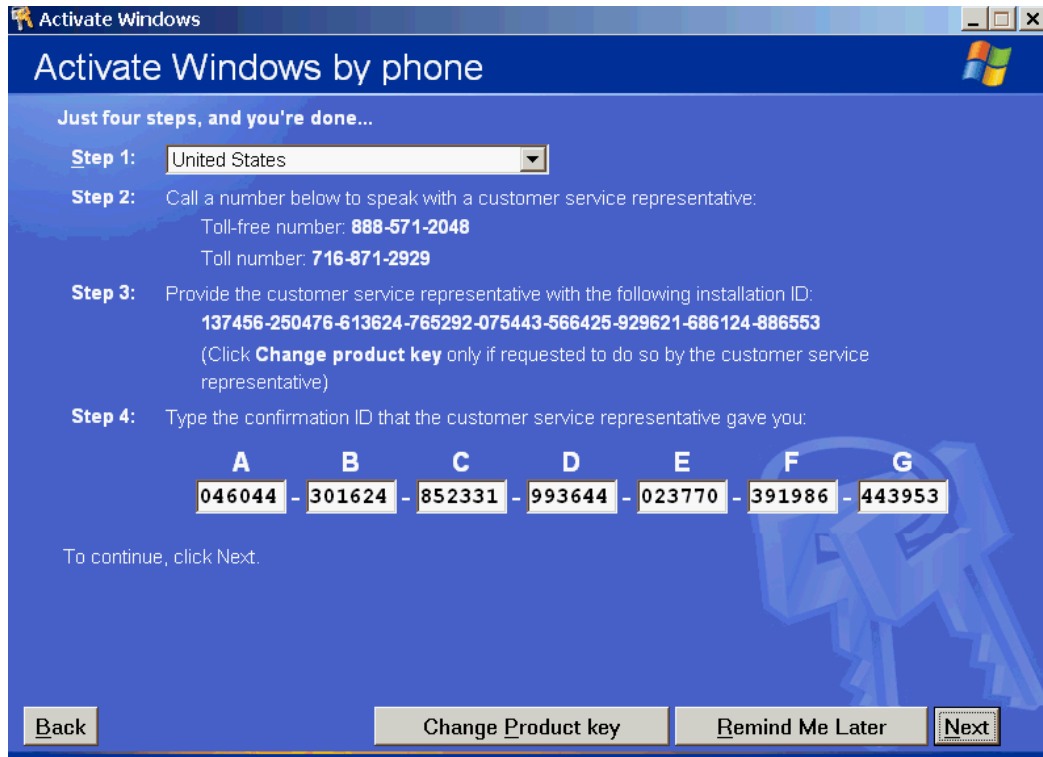
### Caution

**When reading off the installation ID, do not say “O” for the digit “zero”. You must say “zero” in order for that digit to be recognized.**

---

**Note** The Product and Installation ID numbers shown in Figure 7-65 are shown for example purposes only. Do not use these numbers.

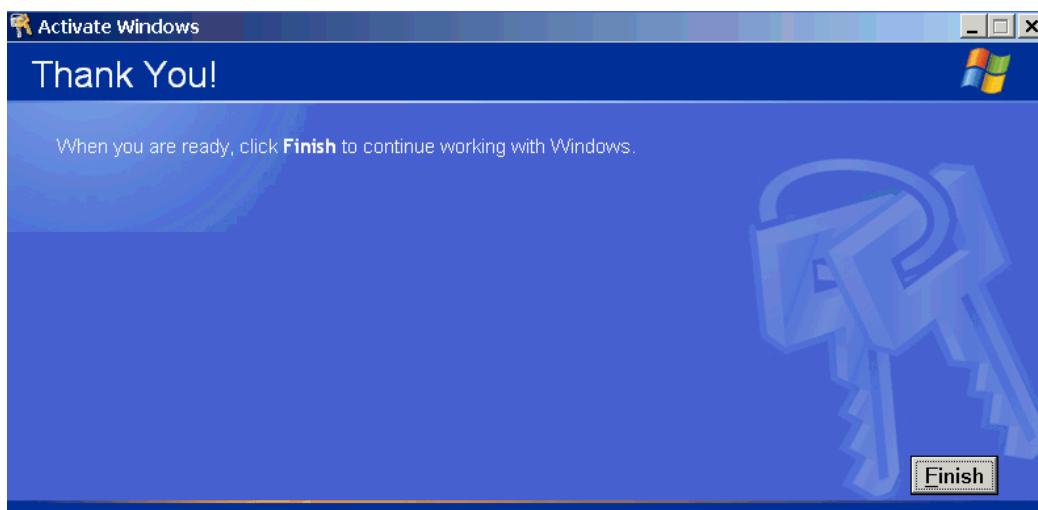
---



**Figure 7-65 OS Activation Phone Screen**

Take care when entering in the confirmation ID numbers. Verify each section before continuing.

**Step 3.** When the confirmation ID number is entered, click **Next**.



**Figure 7-66 OS Activation Complete**

**Step 4.** Click **Finish** to complete the activation.

**Step 5.** On **Simplified Chinese installations only**: the date format must be manually configured. To configure the date format, on the Database Server (or M3150 on local database systems), to the **Control Panel**, and open **Regional Options**. In the Data section, select a long date format that does **not** show Chinese characters. Press **ok** to exit Regional Options.

---

**Note** If an ELO Touch display is connected, it must be recalibrated. See “Touch Display Calibration” on page 5-26 for the procedure.

---

**Application Software**

The installation procedure is given in the following steps.

**Step 1.** Modify the hostname and/or IP Address (via Control Panel -> Network) if necessary. Reboot the PC.

**Step 2.** On the Database Server only: when the Server comes back online, double-click the **IIS Configuration** icon on the desktop. This automatically configures all the IIS settings.

**Caution**

**On M3154 Database Servers, make sure to run the IIS Configuration before installing the application software. If IIS Configuration is not run, a complete OS installation will need to be done.**

---

**Step 3.** Insert the Application Software CDROM into the CD drive of the device.

With the application software CDROM inserted, Philips application software can be installed.

**Step 4.** Browse to the CDROM Directory and double-click the **mastersetup** icon.

**Step 5.** The **Software Installer** splash screen opens (see Figure 6-1).

**Step 6.** Click on the **Install** link and the software initiates.

**Step 7.** The **MS SQL 2000** installation window opens. This installs **MS SQL 2000 Personal** or **MS SQL 2000 Standard** and **MS SQL SP3** (Service Pack 3). This takes approximately 10 minutes.

---

**Note**

If message **“Could not start IIS Admin Service. Timed out while stopping service. IISADMIN cannot continue”** appears, restart the the application software installation.

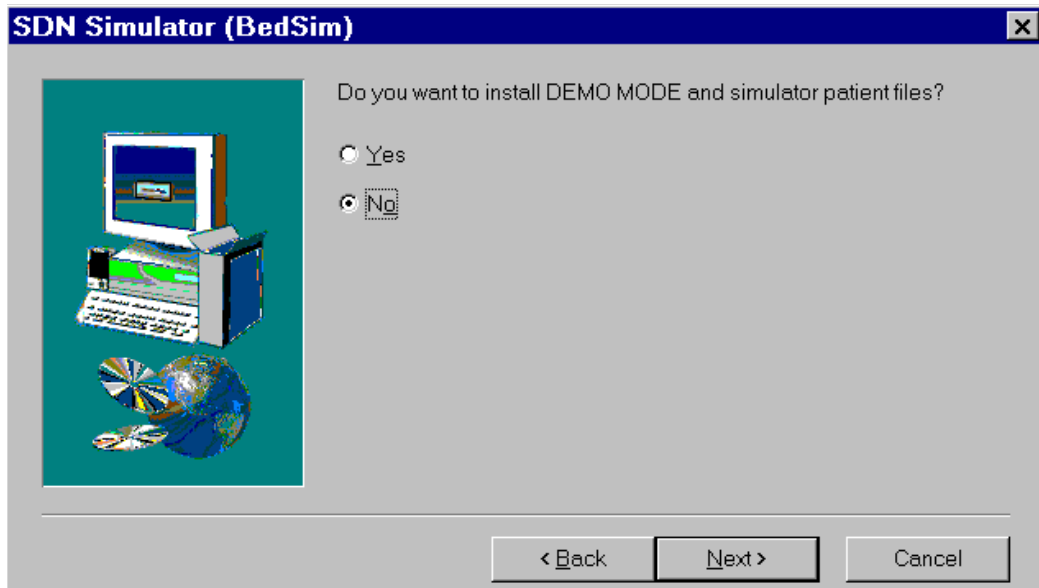
---

**Step 8.** The **Welcome** screen opens (see Figure 6-2). As noted in the text, **exit all Windows programs before running this setup program.**

**Step 9.** Click **Next>** to access the **Language** window (Figure 6-3). Click a  in the box preceding the desired language in the **Select the language:** field. The up/down arrows to the right of the field can be used to scroll through the list.

**Step 10.** Click **Next>** to access the **Model Type** window. Select the  in the circle preceding the correct **Model Type** for your installation.

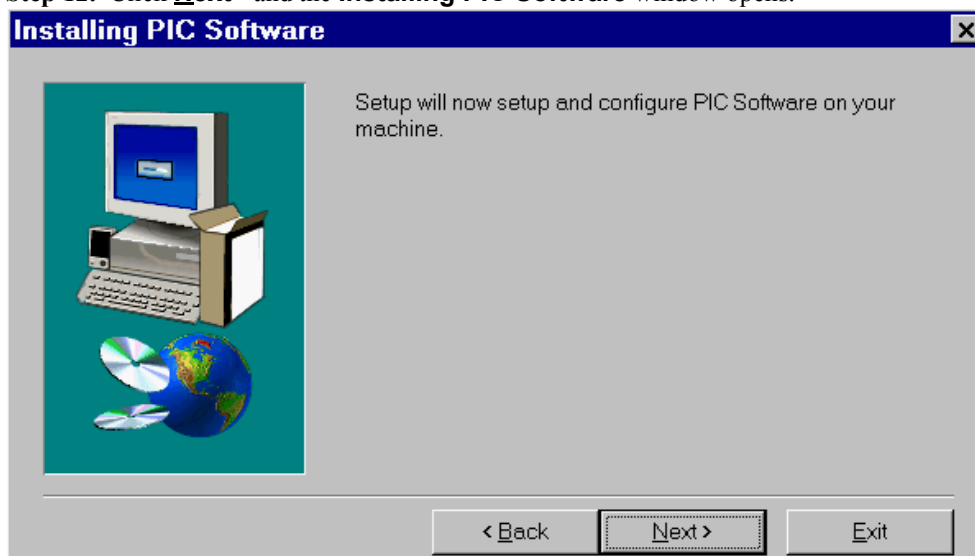
**Step 11.** Click **Next>** to access the **SDN Simulator (BedSim)** window (Figure 7-67). Select **Yes** or **No** to install the DEMO MODE and simulator patient files. For Database Server systems, select **No**.



**Figure 7-67 SDN Simulator Window**



**Step 12.** Click **Next>** and the **Installing PIC Software** window opens.



**Step 13.** Click **Next>** to begin the installation.

**Step 14.** When the software process is complete, the **Config Wizard** begins and sequences through the required configuration windows for the device. See “**Configuration**” on page 6-9.

---

**Note**

If restoring, all settings will be restored using the **Archive disk** created before the OS installation. The only setting that must be manually configured is the **Patient Data Transfer Bandwidth Utilization**. See “Patient Data Transfer - Bandwidth Utilization” on page 7-75.

---

Troubleshooting

# Testing Product Assurance

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## Testing Product Assurance

Before using the Philips system clinically with patients, proper performance of the system shall be verified. This section includes a series of **Product Assurance Tests** that shall be performed after system installation and any system repair or upgrade to verify system functionality.

---

### Note

These validation tests do not check all system specifications but are intended to verify performance of the primary features of Information Center functionality. However, successful completion of the performance tests shall yield a fully functioning system. When performing product assurance tests, Information Centers and Clients must be connected to the SDN or Clinical Network.

---

### Visual Tests

Prior to using the Philips system with patients, thoroughly inspect all system components, cables, and connectors.

#### System Components

**Step 1. Check all components** of the Information Center system for signs of mechanical damage.

If damage to a component is found, assess the damage to determine if repair or replacement is required. Repair or replace the component as required before continuing the Product Assurance Tests.

#### Cables

**Step 2. Check all cables** of the Information Center system for signs of abrasion, wear, or other damage.

If any cable shows evidence of damage, repair or replace the cable prior to using the Information Center system for patient monitoring.

#### Connectors

**Step 3. Check all cable connectors** for signs of mechanical damage and each cable connection for connection integrity.

If any cable connector shows signs of damage, replace the cable prior to using the Information Center system for patient monitoring.

**Step 4. Check that all cable connectors are securely fastened** to the rear of each device, including all cable ties. See **Figure 5-13 Securing PC Cables**.

---

### Warning

**Verify that the speaker plug is securely fastened and cannot accidentally be pulled out. Verify the Strain Relief bracket and cable ties are attached. If a Keyboard-Video-Mouse Switch is connected, verify that the keyboard and mouse cables are securely fastened to the rear of the Switch and cannot accidentally be pulled out. Refer to Chapter 5 for details.**

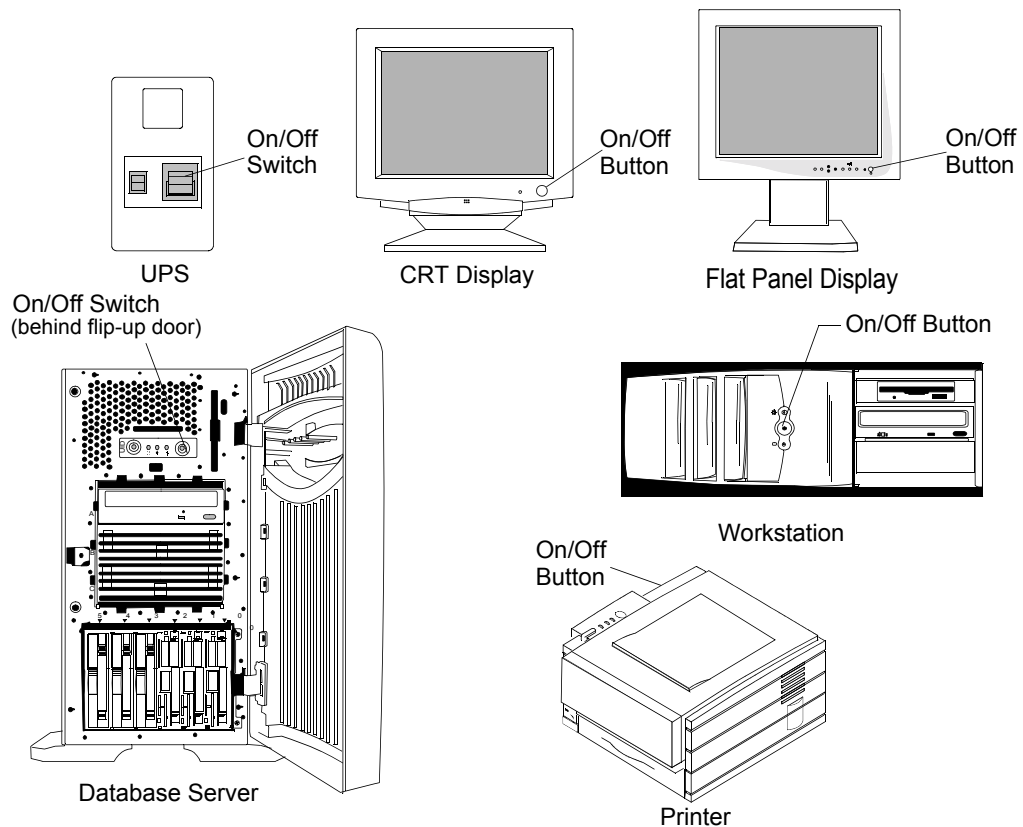
---

## Power On Test

The following steps describe the turn-on sequence for the Information Center system and observations that are to be made during software start up.

### Turning on the Equipment

Turn on the components in the following sequence. On/Off switches for typical units are shown in Figure 8-1.



**Figure 8-1 On/Off Switch Locations for Components**

**Step 1.** Turn on the **UPSs**

**Step 2.** Turn on the **Display(s)**

**Step 3.** Verify that each unit turns on correctly and its **On** light is illuminated.

**Step 4.** Verify that all active Network devices (**switches, repeaters, media translators**) are on and their **On** LED is illuminated.

### Observing Software Boot Up

The software boot up process has 2 phases -- the OS boot process and the Philips boot process. The steps of these processes are described below. Follow the start up sequence and verify the following:

**OS Boot Process** (approximately 120 seconds)

**Step 1.** Turn on the PC or Server.

**Step 2. Power-On Self-Test (POST)**

The POST checks each of the subsystems.

**Warning**

**If any of the POSTS fail, an Error Message will be displayed and the POST will be terminated. If an Error Message is displayed, record the error message(s) and contact the Response Center.  
DO NOT USE WITH PATIENTS!**

**Note**

No action is required during this phase.

**Step 3. Services Load:**

The OS Services are then loaded.

**Step 4. Windows Subsystem Start** (audible sound)

The Windows subsystem is then initiated and the Microsoft Windows logo appears.

Information Center Boot Process

**Step 5. Initialize Services** (grey screen)

Philips Services are first initialized and a grey screen appears with **Waiting for services to initialize.** displayed in the center followed by **Entering monitoring mode....**

**Step 6. Starting Services** (grey screen)

Information Center Services software are initialized and a grey screen appears with **Testing sound system....** During this test, four distinct tone sequences will be played.

Listen to the external speaker for the 4 sound tones.

**Step 7. Monitoring Mode**

Following the loading of the SDProcess application, the Information Center system will immediately enter Monitoring Mode and the **Main Screen** will appear on the Philips display.

**Step 8. Turn on the Printer** (if included)

The Philips system is now ready for patient monitoring and the following Tests shall be performed.

**Performance Test**

After the Philips system enters Monitoring Mode, Philips patient monitoring software shall be fully tested as follows:

**Step 1.** Verify that the **date and time** are displayed correctly.

**Step 2.** Verify **mouse or trackball** functionality as follows.

- Move the cursor across the display to see that it tracks normally.
- Click on a **Patient Window** button to verify control and normal application and display(s) response. For single display configurations, the **Main Screen** will occupy the top half of the screen and the **Patient Window**, the bottom half. For dual displays, the **Patient Window** will appear on the second display.

**Step 3.** Verify **normal system operation** by checking the following:

- Patient data appear for all configured Patient Sectors
- Patient numerics are displayed normally
- Waveforms are updated smoothly
- Arrhythmia softkeys appear on bedside monitors
- For telemetry monitors, telemetry setup can be changed successfully
- no error messages are displayed

**Step 4.** Test the **Philips Recorder(s)** by requesting a recording from a Patient Sector, a bedside monitor, or use the **Recording/Printing Diagnostics** application in the **Diagnostics** menu of the **Service** mode. Verify that annotated data and waveforms are recorded correctly.

**Step 5.** Verify **alarm annunciation**, sound and recording, using an alarm limit adjustment or other means that does not interfere with patient care. Verify that the alarm sound and alarm recording activate correctly.

**Step 6.** Test the **printer** by printing a text-based report or a graphical report with waveforms. Or use the **Recording/Printing Diagnostics** application in the **Diagnostics** menu of the **Service** mode. Check that the data print correctly.

**Step 7.** Test the **keyboard** by accessing the **Purchased Options and Support Information** application of the **Service** mode. Type characters from all keys, (upper and lower case) in the **Contact** field and verify that the correct entries appear.

**Step 8.** Select each Information Center using the buttons on the **KVM Switch** front panel and verify that the keyboard and mouse correctly control that Information Center's **Main Screen** applications.

If the KVM Switch is being used to control a 2nd display:

- Verify the following for each Information Center connected to the Switch that has dual display capability
- the proper applications are activated on the 2nd display when selected on the Information Center's **Main Screen**
- the mouse cursor moves freely between the **Main Screen** and the 2nd Display for the selected Information Center
- the keyboard and mouse correctly control the applications in the 2nd Display
- the connected 2nd display is not a touch display

## Database Storage Test

After at least 10 minutes of monitoring, **Patient Data Review applications** shall be reviewed to verify that stored data are correctly displayed for all patient monitors -- SDN, M3/M4 (wired and wireless) and the IntelliVue Patient Monitors.

## Power Failure Response Test

This test verifies the operation of the **UPS** in providing power in case of a loss of power to the Philips system.

- Step 1.** Disconnect the power cord of the UPS from the wall outlet or Power Distribution Module for about **3 seconds**.
- Step 2.** Verify that the Philips system continues to operate and the UPS gives an audible tone.
- Step 3.** Restore the power cord connection.
- Step 4.** From the **All Controls** page, select the **Service** button and enter the service password.
- Step 5.** Select **Support Logs -> Event Logs-> System**
- Step 6.** Review the log and verify that there are two UPS entries at the time of the test: one indicating a power failure was detected, and one indicating that power was restored.

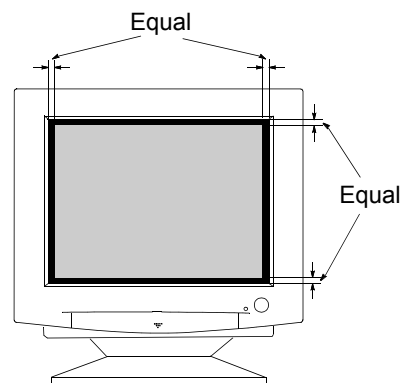
## Setting Display Sweep Speed

For full compliance with Philips system specifications, the sweep speed of the display(s) shall be  $25\text{mm/s} \pm 10\%$ . Setting this value is required for any new or replaced display, but not for replacement of the video card or video driver.

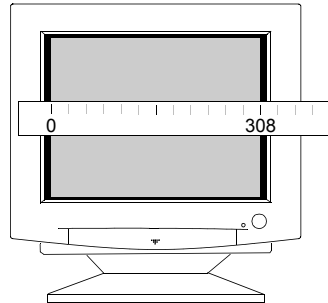
The following procedures describe how to make the sweep speed setting. The procedure for CRT displays is different from that for Flat Panel Displays.

### For CRT Displays:

- Step 1.** Set the image on the **Primary Display** to the **Main Screen**.
- Step 2.** Access the **Image Controls** of the Primary Display located in the lower section of the front panel.
- Step 3.** Using the **horizontal and vertical image position controls**, position the **Main Screen** image as close to the exact center of the display screen as possible. Center the image on the CRT screen by eye by equalizing the size of the black boundaries between the image and the plastic frame. Consult the User's Manual for your display if you are unsure which controls to use.



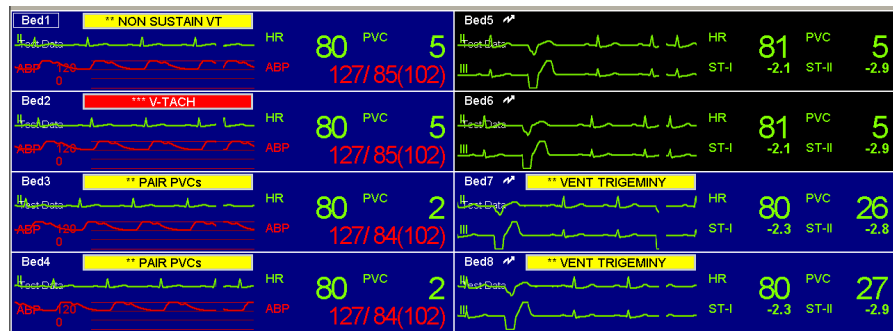
**Step 4.** Using a ruler and the proper image control, adjust the **horizontal width** of the Main Screen to the proper value for the display size used.



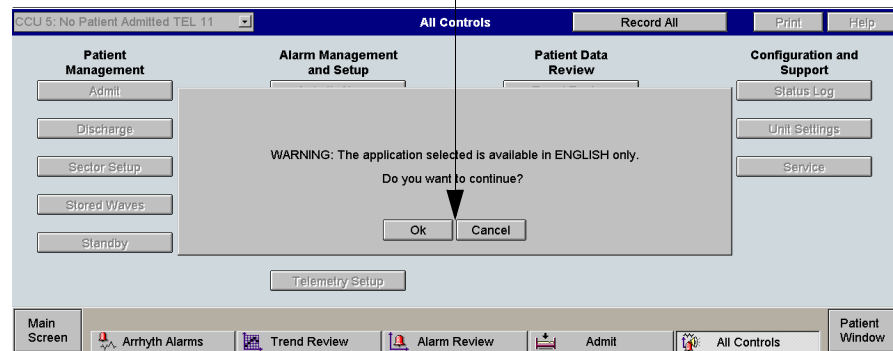
Small	267 mm
Medium	308 mm
Large	381 mm

**Note**

If the ruler is not long enough to span the full width of the CRT screen, the measurement can be made by using half the width dimension and measuring from the mid point of a window to the edge. Window mid points to use are the center line of a 2-column Patient Window or between the **Ok** and **Cancel** buttons on the **Warning** message window. See below.



Screen Center



To assure proper adjustment,

- The ruler must contact the glass of the CRT only in the center of the Main Screen image and should be tangent at point of contact.
- Do NOT bend the ruler to conform to the curvature of the CRT.
- Do NOT bend the ruler to contact the case of the display.



- When sighting the measured edges of the **Main Screen**, close one eye and use a line-of-sight that is perpendicular to the ruler.

---

**Note** To obtain a 25 mm/s sweep speed on the Second display, the Primary and Second displays need to be the same size.

---

**Step 5.** Repeat **Steps 1-4** for all **CRT Displays** of the Philips system.

**For Flat Panel Displays** **Step 1.** Press the **PROCEED** button on the front panel of the display to bring up the **On-Screen Manager** window.

---

**Note** If the **LOCK OUT** mode is displayed, hold down the **PROCEED** button and simultaneously press and release the **CONTROL ▲** button. Then release the **PROCEED** button. If the **On-Screen Manager** appears but has the **wrong orientation**, press and release the display **EXIT** button and then press the display **RESET** button.

---

**Step 2.** Press and release the **CONTROL ►** button to highlight **Auto**.

**Step 3.** Press and release the **PROCEED** button.

The display will briefly go blank and then reappear. This step automatically adjusts the image position, horizontal size, and the fine display settings. The borders shall now be centered and fill the screen.

---

**Note** To reactivate the **ON-Screen Manager LOCKOUT** mode:

- Press **EXIT** twice to activate the **On-Screen Manager**.
- Hold down the **PROCEED** button and simultaneously press and release the **CONTROL ▼** button.
- Immediately press and release the **CONTROL ▲** button.
- Release the **PROCEED** button.
- **Skip Step 4.**

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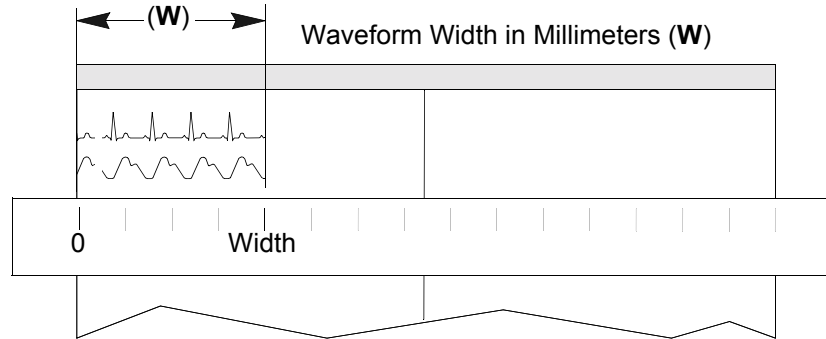
**Step 4.** Press and release the **EXIT** button.

**Step 5.** Repeat **Steps 1-4** for all **Flat Panel Displays** of the system.

**Verifying Sweep Speed Accuracy** **Step 1.** Verify the accuracy of the 25mm/s setting as follows:

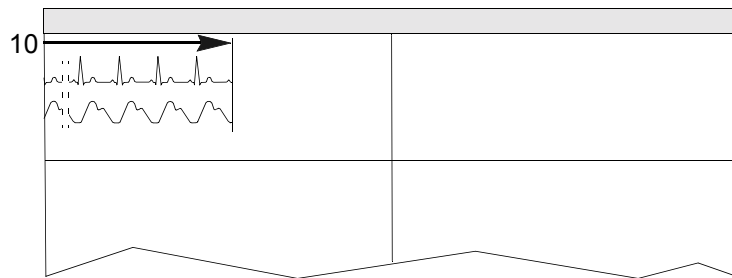
## Configuring the System

- Use the ruler to measure (in millimeters) the full width (**W**) of a waveform in a **Patient Sector** of the **Main Screen** display as shown below. Use the ruler measurement techniques of **Step 5 of For CRT Displays**:



- Measure (in seconds) the time (**t**) for 10 full sweeps of the erase bar for the same waveform as shown below. The measurement shall be to the nearest second.

(**t**) Total Time of 10 Sweeps in Seconds (**t**)



- To meet the sweep speed specification of 25 mm/s  $\pm$ 10%, the measured time (**t**) shall be between:

$$\frac{9.1 \times W}{25} < t < \frac{11.1 \times W}{25}$$

## Modem Test

The following procedure tests a factory installed modem on a PC or server and external dial-in access.

**Step 1.** Click **Start** in the Windows Main Menu and then **Programs**.

**Step 2.** Click **Accessories** in the Programs menu.

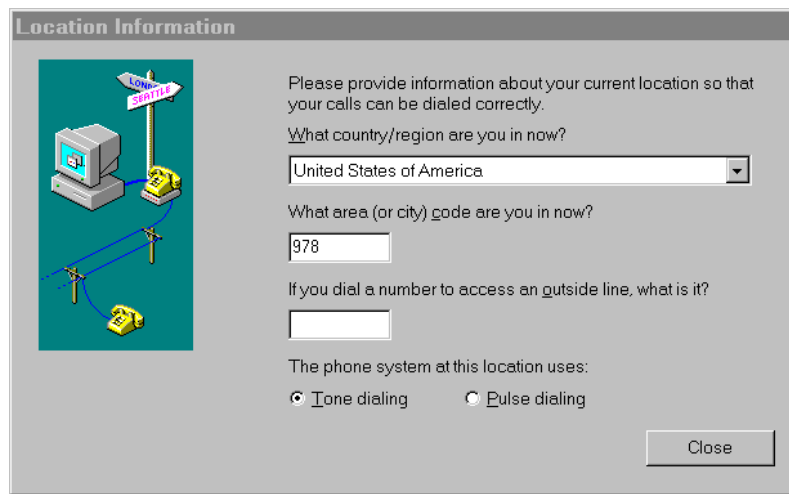
**Step 3.** Click **Hyperterminal** in the Accessories menu.

**Step 4.** Click **HyperTerminal** in the Hyperterminal menu.

If the **Location Information** window of Figure 8-2 appears:

- Select a **country/region**
- Enter an **area or city code**
- Select whether the phone is **Tone dialing** or **Pulse dialing**

- Click **Close**.



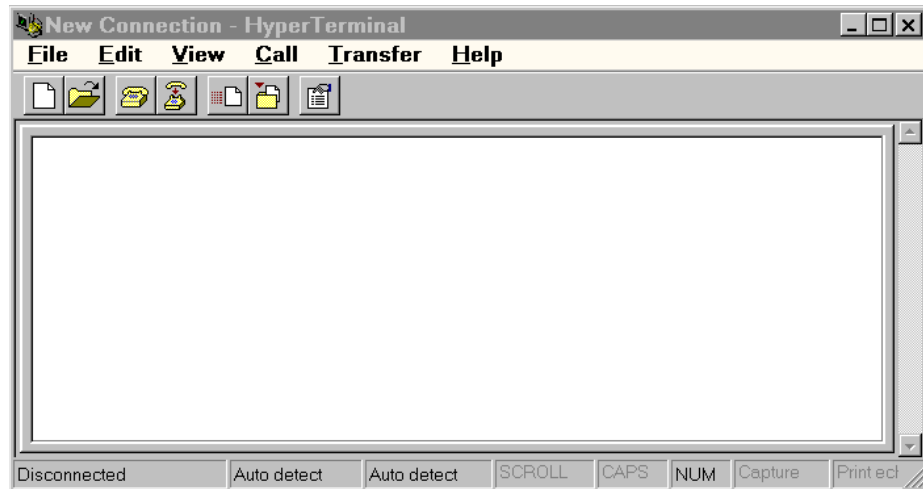
**Figure 8-2 Location Information Window**

If a **Dialing Properties** window appears:

- Click **Cancel**

When the **Connection Description** window appears:

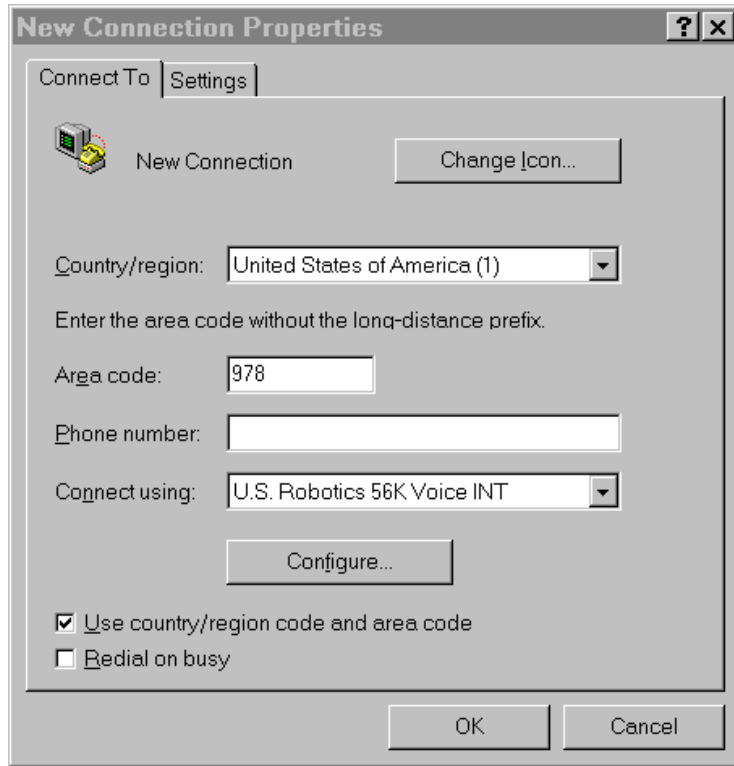
- Click **Cancel** to access the **New Connection - HyperTerminal** window of Figure 8-3.



**Figure 8-3 New Connection - HyperTerminal Window**

**Step 5.** Click on **F**ile in the upper row menu to bring up its menu.

**Step 6.** Click on **Properties** to bring up the **New Connection Properties** window of Figure 8-4.



**Figure 8-4 New Connection Properties Window**

**Step 7.** The **Connect Using:** field shows the **Modem Manufacturer & Model #**.

**Step 8.** Click **Cancel** to return to the **New Connection - HyperTerminal** window of Figure 8-3.

**Step 9.** Follow the **Action** steps in Table 8-1 for your **Model** PC or server to verify the modem connection and dial-in access:

**Table 8-1. Modem Test Procedure**

<b>Model:</b>	<b>D5000A P2478U P2478W M3168A</b>	<b>Notes</b>
<b>Action</b>		
Type: Press <b>Enter</b>	AT&F1	resets the modem to factory defaults
Response if <b>OK</b>	OK	
Type: Press <b>Enter</b>	ATM0	- last character is a 0 (zero) - turns the speaker off
Response if <b>OK</b>	OK	
Type: Press <b>Enter</b>	AT&T8	performs local analog loopback with self-test
Response if <b>OK</b>	OK	it is possible to include a blank line before <b>OK</b>

**Table 8-1. Modem Test Procedure**

<b>Model:</b>	<b>D5000A P2478U P2478W M3168A</b>	<b>Notes</b>
<b>Action</b>		
Type: Press <b>Enter</b>	AT&T0	- last character is a 0 (zero) - ends testing
Response if <b>OK</b>	000 OK	
Type: Press <b>Enter</b>	ATS0=1	- fourth character is a 0 (zero) - auto answer on first ring
Response if <b>OK</b>	OK	
Using any phone, - dial the modem phone # to hear the modem tones - hang up		
Response if <b>OK</b>	Ring	
Press <b>Enter</b>		
Response if <b>OK</b>	no carrier	
Type: Press <b>Enter</b>	AT&F1	resets the modem to factory defaults
Response if <b>OK</b>	OK	

**Step 10.** Exit the New Connection - Hyperterminal window by clicking on the **X** in the upper right of the message box and then **Yes** to return to the **Windows Main Menu**.

**Step 11.** Shutdown and restart the PC or server by:

- Click on **Start**
- Click **Shut Down**
- Select **Restart the computer?**
- Click **Yes**

## Test and Inspection Procedures

This section is intended for **Philips Cardiac and Monitoring Systems Service Providers**. It documents requirements for test, inspection, and reporting of results for Information Center systems to help assure safe and reliable operation.

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### Note

The tests and inspections in these tables *must be followed by Philips Service Providers* when the Philips system is installed and after any service event.

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**Table 8-2** describes which tests shall be performed for Philips system components -- Information Centers, Clients, Database Servers, Clinical Network components -- for each type of service event.

**Table 8-2. M3150/M3151/M3155/M3170/M3154/M3169/M3185 Test and Inspection Requirements**

<b>Service Event When performing....</b>	<b>Test Block(s) Required ....Complete these tests</b>
Installation	Visual, Power On, Performance, Safety
Preventive Maintenance	Visual
Any component repair or replacement	Power On, Performance, Safety
Hardware Upgrade	Power On, Performance, Safety
Software Upgrade	Power On, Performance
All other Service Events	Visual, Performance

**Information Centers and Clients** **Table 8-3** describes the test or inspection to perform for **each Information Center and Client** for each type of test specified in **Table 8-2**.

---

**Note** Detailed procedures for performing the tests in the tables are given in the previous sections of **Testing Product Assurance**.

---

**Table 8-3. M3150/M3155/M3151 - Test and Inspection Matrix**

<b>Test Block Name</b>	<b>Test or Inspection to Perform</b>	<b>Expected Results</b>	<b>What to Record on Service Record</b>
Visual	1. For installation, perform visual inspection of shipping cartons and contents. All other cases, inspect installed device. 2. Is the speaker cable securely fastened? 3. If a Keyboard-Video-Mouse Switch is installed, are keyboard and mouse cables securely fastened to the rear of the KVM switch with cable ties?	No visible damage  Expected answer is "Yes". for steps 1 - 3. If so, Visual test passed.	<b>V:P or V:F</b> where <b>P</b> = Pass <b>F</b> = Fail
Power On:	Power on all devices. Observe software boot up. Observe that resting display shows appropriate information for device configuration and options. Observe that all lights visible from the front panels are in proper status If Elo Touch flat panel display is installed, were onscreen display and display power controls disabled?	Devices power up into expected resting display status  Select onscreen display and power controls and no visual changes occur on screen	<b>PO:P or PO:F</b> where <b>P</b> = Pass <b>F</b> = Fail

**Table 8-3. M3150/M3155/M3151 - Test and Inspection Matrix**

<b>Test Block Name</b>	<b>Test or Inspection to Perform</b>	<b>Expected Results</b>	<b>What to Record on Service Record</b>
Performance:	Verify purchased options are enabled. Do appropriate data (waveforms and parameters) appear? Verify normal system operation. Do the devices respond to user inputs? Do audible speaker tones occur?	Expected answers are “Yes”. If so, Performance test passed.	<b>P:P</b> or <b>P:F</b> where <b>P</b> = Pass <b>F</b> = Fail
	If a Keyboard-Video-Mouse Switch is used, has the KVM Switch successfully passed its <b>Performance Test</b> ?	Expected answers are “Yes”. If so, Performance test passed.	<b>PKVM:P</b> or <b>PKVM:F</b> where <b>P</b> = Pass <b>F</b> = Fail
	If #C14 HL7 Export option is installed, verify successful ping to the target HL7 client device by using hostname	Expected answer is “Yes”. If so, Performance test passed.	<b>PHL7:P</b> or <b>PHL7:F</b> where <b>P</b> = Pass <b>F</b> = Fail
	If #C17 12-Lead Analysis/Export option is installed, verify successful ping to the 12-Lead TraceMaster system device by using hostname	Expected answer is “Yes”. If so, Performance test passed.	<b>P12LEAD:P</b> or <b>P12LEAD:F</b> where <b>P</b> = Pass <b>F</b> = Fail
	If #C23 Holter Export option is installed, verify successful Ping to Holter System by using hostname.	Expected answer is “Yes”. If so, Performance test passed.	<b>PHE:P</b> or <b>PHE:F</b> where <b>P</b> = Pass <b>F</b> = Fail
	If #C65 Alert Data Export is installed, verify successful ping to Alert Data Export device by using host name	Expected answer is “Yes”. If so, Performance test passed.	<b>PADE:P</b> or <b>PADE:F</b> where <b>P</b> = Pass <b>F</b> = Fail
Safety	Is the device connected to a 78581A/B (SCC) or telemetry mainframe?	If answer is “No”, no Safety test required. If answer is “Yes”, move to next step.	<b>S:NA</b> where <b>NA</b> = Not required
	Is there a 2nd earth ground connected to the SCC or telemetry mainframe	Expected answer is “Yes”. If so, Safety test passed.	<b>S:P</b> or <b>S:F</b> where <b>P</b> = Pass <b>F</b> = Fail
	Confirm that 78581A/B or telemetry mainframe has passed Safety Test Block (see 78581A/B or Telemetry Mainframe Test and Inspection Matrix).	If answer is “Yes”, Safety test passed. If answer is “No”, move to next step.	<b>S:P</b> or <b>S:F</b> where <b>P</b> = Pass <b>F</b> = Fail
	Perform 78581A/B or Telemetry Mainframe Safety Test Block	Expected answer is “Yes”. If so, Safety test passed	<b>S:P</b> or <b>S:F</b> where <b>P</b> = Pass <b>F</b> = Fail

**M3170 Patient Link** Table 8-4 describes the test or inspection to perform for each **M3170 Patient Link** for each type of test specified in Table 8-2.

**Note** Detailed procedures for performing the tests in the tables are given in the previous sections of **Testing Product Assurance**.

**Table 8-4. M3170 - Test and Inspection Matrix**

<b>Test Block Name</b>	<b>Test or Inspection to Perform</b>	<b>Expected Results</b>	<b>What to Record on Service Record</b>
<u>V</u> isual	For installation, perform visual inspection of shipping cartons and contents.	No visible damage Expected answer is “Yes”. If so, <b>Visual</b> test passed.	<b>V:P</b> or <b>V:F</b> where <b>P</b> = Pass <b>F</b> = Fail
<u>P</u> ower <u>O</u> n:	Power on all devices. Observe software boot up. Observe that support display shows that the DataServer Startup was complete.	Devices power up into expected status on support display	<b>PO:P</b> or <b>PO:F</b> where <b>P</b> = Pass <b>F</b> = Fail
<u>P</u> erformance:	Verify purchased options are enabled. Verify normal system operation. Do LAN based monitors record and print requests respond to user inputs?	Expected answers are “Yes”. If so, <b>Performance</b> test passed.	<b>P:P</b> or <b>P:F</b> where <b>P</b> = Pass <b>F</b> = Fail
	If #C14 HL7 Export is installed, ping by host name the target HL7 client device	Expected answer is “Yes”. If so, <b>Performance</b> test passed.	<b>PHL7:P</b> or <b>PHL7:F</b> where <b>P</b> = Pass <b>F</b> = Fail
<u>S</u> afety	Is the device connected to a 78581A/B (SCC) or telemetry mainframe?	If answer is “No”, no <b>Safety</b> test required. If answer is “Yes”, move to next step.	<b>S:NA</b> where <b>NA</b> = Not required
	Is there a 2nd earth ground connected to the SCC or telemetry mainframe	Expected answer is “Yes”. If so, <b>Safety</b> test passed.	<b>S:P</b> or <b>S:F</b> where <b>P</b> = Pass <b>F</b> = Fail
	Confirm that 78581A/B or telemetry mainframe has passed Safety Test Block (see 78581A/B or Telemetry Mainframe Test and Inspection Matrix).	If answer is “Yes”, <b>Safety</b> test passed. If answer is “No”, move to next step.	<b>S:P</b> or <b>S:F</b> where <b>P</b> = Pass <b>F</b> = Fail
	Perform 78581A/B or Telemetry Mainframe Safety Test Block	Expected answer is “Yes”. If so, <b>Safety</b> test passed	<b>S:P</b> or <b>S:F</b> where <b>P</b> = Pass <b>F</b> = Fail



**M3169 Small Database Server** **Table 8-5** describes the test or inspection to perform for the **M3169 Database Server** for each type of test specified in Table 8-2.

**Table 8-5. M3169 - Test and Inspection Matrix**

Test Block Name	Test or Inspection to Perform	Expected Results	What to Record on Service Record
<u>V</u> isual	For installation, perform visual inspection of shipping cartons and contents.	No visible damage	<b>V:P</b> or <b>V:F</b> where <b>P</b> = Pass <b>F</b> = Fail
<u>P</u> ower <u>O</u> n:	Power on all devices. Observe software boot up. After Self-Test, observe that DBS status LED is solid green	Expected answers are “Yes”. If so, Power On test passed.	<b>PO:P</b> or <b>PO:F</b> where <b>P</b> = Pass <b>F</b> = Fail
<u>P</u> erformance:	Verify purchased options are enabled.  Observe that all M3155 and M3151 Client Device names configured on the DBS are displayed at the bottom of the service screen with a status of <b>Monitoring</b>	Expected answers are “Yes”. If so, Performance test passed.	<b>P:P</b> or <b>P:F</b> where <b>P</b> = Pass <b>F</b> = Fail

**M3154 Database Server** **Table 8-5** describes the test or inspection to perform for the **Database Server** for each type of test specified in Table 8-2.

**Table 8-6. M3154 - Test and Inspection Matrix**

Test Block Name	Test or Inspection to Perform	Expected Results	What to Record on Service Record
<u>V</u> isual	For installation, perform visual inspection of shipping cartons and contents.	No visible damage	<b>V:P</b> or <b>V:F</b> where <b>P</b> = Pass <b>F</b> = Fail
<u>P</u> ower <u>O</u> n:	Power on all devices. Observe software boot up. After Self-Test, observe that DBS status LED is solid green	Expected answers are “Yes”. If so, Power On test passed.	<b>PO:P</b> or <b>PO:F</b> where <b>P</b> = Pass <b>F</b> = Fail

**Table 8-6. M3154 - Test and Inspection Matrix**

Test Block Name	Test or Inspection to Perform	Expected Results	What to Record on Service Record
Performance:	Verify purchased options are enabled.  Observe that all M3155 and M3151 Client Device names configured on the DBS are displayed at the bottom of the service screen with a status of <b>Monitoring</b>	Expected answers are “Yes”. If so, Performance test passed.	<b>P:P</b> or <b>P:F</b> where <b>P</b> = Pass <b>F</b> = Fail
	If #C22 Web Access option is installed, log in to the Database Server from a PC on the hospital’s intranet or from the Database Server Verify that stored patient data are displayed properly	Expected answer is “Yes”. If so, Performance test passed.	<b>PWA:P</b> or <b>PWA:F</b> where <b>P</b> = Pass <b>F</b> = Fail
	If #C22 Patient Data Transfer option is installed, verify in Add/Remove Database Servers configuration that all DBS hostnames participating in patient data transfer are listed. Ping by hostname each of the Database Servers	Expected answer is “Yes”. If so, Performance test passed.	<b>PPDT:P</b> or <b>PPDT:F</b> where <b>P</b> = Pass <b>F</b> = Fail

**Clinical Network** Table 8-7 describes the test or inspection to perform for active M3185A Clinical Network components for each type of test specified in Table 8-2.

**Table 8-7. M3185 Clinical Network Components - Test and Inspection Matrix**

Test Block Name	Test or Inspection to Perform	Expected Results	What to Record on Service Record
Visual	Inspect all system components for obvious damage.	No visible damage	<b>V:P</b> or <b>V:F</b> where <b>P</b> = Pass <b>F</b> = Fail
Power <u>On</u> :	<p>Power on each active Network device.</p> <p>Observe that all lights visible on the front panel are in proper status and that no error conditions are shown.</p> <p>Following are <b>normal conditions</b> for each type of device:</p> <p>J4813A HP2524 24 Port Switches: After self test, the <b>Power</b> LED is solid green</p> <p>Cisco 24 Port Switches: After self test, the <b>System Status</b> LED is solid green and all of the <b>Port Status</b> LEDs are <b>Off</b> (nothing is connected to the front panel.)</p> <p>J3300A Repeater Hubs: After self test, the <b>Power</b> LED is solid green and the <b>Port</b> and <b>Fault</b> LEDs are <b>Off</b> (nothing is connected to the front panel).</p> <p>If a <b>J2606A Transceiver</b> is installed, the <b>Xcvr</b> LED is <b>On</b>. If it is not installed, it is <b>Off</b>.</p> <p>M3188A (M3185A-#C11) 100 Mbit/s UTP/Fiber Media Translator: With power on, the <b>Power</b> LED is solid green. The SDF, SDC, RXC, and RXF LEDs can flash if data activity is present.</p> <p>J4097A HP408 Extension Switch: After self test, the <b>Power</b> LED is solid green</p> <p>M3189A (M3185A-#C21) Wireless Access Point: After self test (~ 30 s), system <b>Status</b> LED (uppermost LED on the top panel) is solid green. Other LEDs can be on or off depending on whether data activity is present</p>	Devices power up into expected status; no error indications are shown.	<b>PO:P</b> or <b>PO:F</b> where <b>P</b> = Pass <b>F</b> = Fail

**Table 8-7. M3185 Clinical Network Components - Test and Inspection Matrix**

Test Block Name	Test or Inspection to Perform	Expected Results	What to Record on Service Record
Performance:	<p>Perform an operational test of the Clinical Network by executing a data passing operation from each connected Information Center to every other Information Center, Client, or Printer on the Network</p> <p>For each M3150 and M3155 Information Center: Verify that a review application (e.g. Wave Review) can be executed. This verifies connection to the M3154 Database Server (if a M3155 Information Center).</p> <p>For each M3151 Client: Verify that waveforms from every Information Center on the Network having a connection to an SDN can be viewed on the Client.</p> <p>Verify that a review application (e.g. Wave Review) can be executed. This verifies connection to the M3154 Database Server</p> <p>For each wireless Patient Monitor: Verify that waveforms from each wireless patient monitor on the network are displayed on an Information Center and that the waveforms are continuous.</p>	<p>Expected answers are “Yes”. If so, Performance test passed.</p>	<p><b>P:P</b> or <b>P:F</b> where <b>P</b> = Pass <b>F</b> = Fail</p>
Safety	<p>No safety test is required</p>		<p><b>S:NA</b> where <b>NA</b> = Not required</p>

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## Design and Configuration Overview

This document provides a set of worksheets that can assist in the design, installation, and configuration of Information Center Systems. Included in this section are worksheets for the following:

- “Device Installation”
- “Network Configuration”
- “Equipment Setup”
- “Patient Data Transfer/Web Access”

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### Notes

It is recommend that these worksheets be completed **before** beginning each associated task.

These worksheets can serve as templates that can be photo copied so that a blank copy remains available for future use.

Copies of completed worksheets should be retained as a record of the information that was used.

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### Device Installation

The following worksheet can be used to record names, IP Addresses, and locations of devices. Up to 10 M3154 Database Server systems can be connected. Use these tables to ensure that each device has a unique host name, device name, and IP address. M3169 Database Server systems cannot be connected together.

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### Note

If M3154 Database Servers are to be connected to create a Large Central Database Server system, a “Master” Database Server must be identified and configured first.

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**Table 1. Network Devices and Connection Requirements**

Device	Speed (in Mbps)	Duplex setting
Database Server*	100	Full
Edge Switch	100	Full
Information Center*	100	Half
Information Center Client	100	Half
Extension Switch	100	Half
Access Point (RangeLAN2)	10	Half
M2/M3/M4 Bedside	10	Half
IntelliVue Patient Monitor	10	Half
Network Printer	10	Half
Paging Transmitter	10	Half

\* If a second network card (NIC) is installed in this device, that connection requirement is 100 Mbps, Full Duplex.

**Table 1. Database System 1 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3155				172.31.101.0	255.255.0.0
M3155				172.31.101.1	255.255.0.0
M3155				172.31.101.2	255.255.0.0
M3155				172.31.101.3	255.255.0.0
M3155				172.31.101.4	255.255.0.0
M3155				172.31.101.5	255.255.0.0
M3155				172.31.101.6	255.255.0.0
M3155				172.31.101.7	255.255.0.0
M3151 Client				172.31.151.0	255.255.0.0
M3151 Client				172.31.151.1	255.255.0.0
M3151 Client				172.31.151.2	255.255.0.0
M3151 Client				172.31.151.3	255.255.0.0
M3151 Client				172.31.151.4	255.255.0.0
M3151 Client				172.31.151.5	255.255.0.0
M3151 Client				172.31.151.6	255.255.0.0
M3151 Client				172.31.151.7	255.255.0.0
M3154 <b>Master</b> Database Server				172.31.221.0	255.255.0.0
M3169 Server				172.31.221.11	255.255.0.0
12-Lead ECG Management System					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
SNTP Time Source					

**Table 2. Database System 2 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3155				172.31.101.8	255.255.0.0
M3155				172.31.101.9	255.255.0.0
M3155				172.31.101.10	255.255.0.0
M3155				172.31.101.11	255.255.0.0
M3155				172.31.101.12	255.255.0.0
M3155				172.31.101.13	255.255.0.0
M3155				172.31.101.14	255.255.0.0
M3155				172.31.101.15	255.255.0.0
M3151 Client				172.31.151.8	255.255.0.0
M3151 Client				172.31.151.9	255.255.0.0
M3151 Client				172.31.151.10	255.255.0.0
M3151 Client				172.31.151.11	255.255.0.0
M3151 Client				172.31.151.12	255.255.0.0
M3151 Client				172.31.151.13	255.255.0.0
M3151 Client				172.31.151.14	255.255.0.0
M3151 Client				172.31.151.15	255.255.0.0
M3154 Server				172.31.221.1	255.255.0.0
M3169 Server				172.31.221.12	255.255.0.0
12-Lead ECG Management System					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
SNTP Time Source					

**Table 3. Database System 3 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3155				172.31.101.16	255.255.0.0
M3155				172.31.101.17	255.255.0.0

**Table 3. Database System 3 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3155				172.31.101.18	255.255.0.0
M3155				172.31.101.19	255.255.0.0
M3155				172.31.101.20	255.255.0.0
M3155				172.31.101.21	255.255.0.0
M3155				172.31.101.22	255.255.0.0
M3155				172.31.101.23	255.255.0.0
M3151 Client				172.31.151.16	255.255.0.0
M3151 Client				172.31.151.17	255.255.0.0
M3151 Client				172.31.151.18	255.255.0.0
M3151 Client				172.31.151.19	255.255.0.0
M3151 Client				172.31.151.20	255.255.0.0
M3151 Client				172.31.151.21	255.255.0.0
M3151 Client				172.31.151.22	255.255.0.0
M3151 Client				172.31.151.23	255.255.0.0
M3154 Server				172.31.221.2	255.255.0.0
M3169 Server				172.31.221.13	255.255.0.0
12-Lead ECG Management System					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
SNTP Time Source					

**Table 4. Database System 4 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3155				172.31.101.24	255.255.0.0
M3155				172.31.101.25	255.255.0.0
M3155				172.31.101.26	255.255.0.0
M3155				172.31.101.27	255.255.0.0
M3155				172.31.101.28	255.255.0.0



**Table 4. Database System 4 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3155				172.31.101.29	255.255.0.0
M3155				172.31.101.30	255.255.0.0
M3155				172.31.101.31	255.255.0.0
M3151 Client				172.31.151.24	255.255.0.0
M3151 Client				172.31.151.25	255.255.0.0
M3151 Client				172.31.151.26	255.255.0.0
M3151 Client				172.31.151.27	255.255.0.0
M3151 Client				172.31.151.28	255.255.0.0
M3151 Client				172.31.151.29	255.255.0.0
M3151 Client				172.31.151.30	255.255.0.0
M3151 Client				172.31.151.31	255.255.0.0
M3154 Server				172.31.221.3	255.255.0.0
M3169 Server				172.31.221.14	255.255.0.0
12-Lead ECG Management System					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
SNTP Time Source					

**Table 5. Database System 5 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3155				172.31.101.32	255.255.0.0
M3155				172.31.101.33	255.255.0.0
M3155				172.31.101.34	255.255.0.0
M3155				172.31.101.35	255.255.0.0
M3155				172.31.101.36	255.255.0.0
M3155				172.31.101.37	255.255.0.0
M3155				172.31.101.38	255.255.0.0
M3155				172.31.101.39	255.255.0.0

**Table 5. Database System 5 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3151 Client				172.31.151.32	255.255.0.0
M3151 Client				172.31.151.33	255.255.0.0
M3151 Client				172.31.151.34	255.255.0.0
M3151 Client				172.31.151.35	255.255.0.0
M3151 Client				172.31.151.36	255.255.0.0
M3151 Client				172.31.151.37	255.255.0.0
M3151 Client				172.31.151.38	255.255.0.0
M3151 Client				172.31.151.39	255.255.0.0
M3154 Server				172.31.221.4	255.255.0.0
M3169 Server				172.31.221.15	255.255.0.0
12-Lead ECG Management System					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
SNTP Time Source					

**Table 6. Database System 6 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3155				172.31.101.40	255.255.0.0
M3155				172.31.101.41	255.255.0.0
M3155				172.31.101.42	255.255.0.0
M3155				172.31.101.43	255.255.0.0
M3155				172.31.101.44	255.255.0.0
M3155				172.31.101.45	255.255.0.0
M3155				172.31.101.46	255.255.0.0
M3155				172.31.101.47	255.255.0.0
M3151 Client				172.31.151.40	255.255.0.0
M3151 Client				172.31.151.41	255.255.0.0
M3151 Client				172.31.151.42	255.255.0.0

**Table 6. Database System 6 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3151 Client				172.31. <b>151.43</b>	255.255.0.0
M3151 Client				172.31. <b>151.44</b>	255.255.0.0
M3151 Client				172.31. <b>151.45</b>	255.255.0.0
M3151 Client				172.31. <b>151.46</b>	255.255.0.0
M3151 Client				172.31. <b>151.47</b>	255.255.0.0
M3154 Server				172.31. <b>221.5</b>	255.255.0.0
M3169 Server				172.31. <b>221.16</b>	255.255.0.0
12-Lead ECG Management System					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
SNTP Time Source					

**Table 7. Database System 7 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3155				172.31. <b>101.48</b>	255.255.0.0
M3155				172.31. <b>101.49</b>	255.255.0.0
M3155				172.31. <b>101.50</b>	255.255.0.0
M3155				172.31. <b>101.51</b>	255.255.0.0
M3155				172.31. <b>101.52</b>	255.255.0.0
M3155				172.31. <b>101.53</b>	255.255.0.0
M3155				172.31. <b>101.54</b>	255.255.0.0
M3155				172.31. <b>101.55</b>	255.255.0.0
M3151 Client				172.31. <b>151.48</b>	255.255.0.0
M3151 Client				172.31. <b>151.49</b>	255.255.0.0
M3151 Client				172.31. <b>151.50</b>	255.255.0.0
M3151 Client				172.31. <b>151.51</b>	255.255.0.0
M3151 Client				172.31. <b>151.52</b>	255.255.0.0
M3151 Client				172.31. <b>151.53</b>	255.255.0.0

**Table 7. Database System 7 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3151 Client				172.31.151.54	255.255.0.0
M3151 Client				172.31.151.55	255.255.0.0
M3154 Server				172.31.221.6	255.255.0.0
M3169 Server				172.31.221.17	255.255.0.0
12-Lead ECG Management System					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
SNTP Time Source					

**Table 8. Database System 8 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3155				172.31.101.56	255.255.0.0
M3155				172.31.101.57	255.255.0.0
M3155				172.31.101.58	255.255.0.0
M3155				172.31.101.59	255.255.0.0
M3155				172.31.101.60	255.255.0.0
M3155				172.31.101.61	255.255.0.0
M3155				172.31.101.62	255.255.0.0
M3155				172.31.101.63	255.255.0.0
M3151 Client				172.31.151.56	255.255.0.0
M3151 Client				172.31.151.57	255.255.0.0
M3151 Client				172.31.151.58	255.255.0.0
M3151 Client				172.31.151.59	255.255.0.0
M3151 Client				172.31.151.60	255.255.0.0
M3151 Client				172.31.151.61	255.255.0.0
M3151 Client				172.31.151.62	255.255.0.0
M3151 Client				172.31.151.63	255.255.0.0
M3154 Server				172.31.221.7	255.255.0.0

**Table 8. Database System 8 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3169 Server				172.31.221.18	255.255.0.0
12-Lead ECG Management System					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
SNTP Time Source					

**Table 9. Database System 9 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3155				172.31.101.64	255.255.0.0
M3155				172.31.101.65	255.255.0.0
M3155				172.31.101.66	255.255.0.0
M3155				172.31.101.67	255.255.0.0
M3155				172.31.101.68	255.255.0.0
M3155				172.31.101.69	255.255.0.0
M3155				172.31.101.70	255.255.0.0
M3155				172.31.101.71	255.255.0.0
M3151 Client				172.31.151.64	255.255.0.0
M3151 Client				172.31.151.65	255.255.0.0
M3151 Client				172.31.151.66	255.255.0.0
M3151 Client				172.31.151.67	255.255.0.0
M3151 Client				172.31.151.68	255.255.0.0
M3151 Client				172.31.151.69	255.255.0.0
M3151 Client				172.31.151.70	255.255.0.0
M3151 Client				172.31.151.71	255.255.0.0
M3154 Server				172.31.221.8	255.255.0.0
M3169 Server				172.31.221.19	255.255.0.0
12-Lead ECG Management System					

**Table 9. Database System 9 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
HL7 Client					
SNTP Time Source					

**Table 10. Database System 10 - Device Names and Addresses**

Device Model	Host Name	Device Name	Location	IP Address	Subnet Mask
M3155				172.31.101.72	255.255.0.0
M3155				172.31.101.73	255.255.0.0
M3155				172.31.101.74	255.255.0.0
M3155				172.31.101.75	255.255.0.0
M3155				172.31.101.76	255.255.0.0
M3155				172.31.101.77	255.255.0.0
M3155				172.31.101.78	255.255.0.0
M3155				172.31.101.79	255.255.0.0
M3151 Client				172.31.151.72	255.255.0.0
M3151 Client				172.31.151.73	255.255.0.0
M3151 Client				172.31.151.74	255.255.0.0
M3151 Client				172.31.151.75	255.255.0.0
M3151 Client				172.31.151.76	255.255.0.0
M3151 Client				172.31.151.77	255.255.0.0
M3151 Client				172.31.151.78	255.255.0.0
M3151 Client				172.31.151.79	255.255.0.0
M3154 Server				172.31.221.9	255.255.0.0
M3169 Server				172.31.221.20	255.255.0.0
12-Lead ECG Management System					
HL7 Client					
HL7 Client					
HL7 Client					









- requirements for hospital LAN PCs:
  - industry standard web browsers  
**NetScape**, Release 4.7 or greater or,  
**Microsoft IE4**, Release 4.0 or greater
  - **TCP/IP and HTTP** networking protocols
- requirements for patient data access:
  - customer specified **User name(s), log-in, and password**
  - specification of **patient data access privileges** by Domain or IP Address range

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**Note**

Secure Sockets Layer (SSL) protocol for public-key and encryption is **not implemented** for access to patient data

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- limitations on patient data access:
  - **100 PCs maximum** can simultaneously access the Database Server
  - **8,096 KB/s maximum** Bandwidth Throttling for web access traffic on Internet Information Server (IIS)

**Passive Infrastructure Installation**

The following table specifies requirements for the passive hospital infrastructure installation:

Description	Completion Date	Comments
Installation of communication outlets near Database Server and connection to hospital LAN		Label faceplates <b>Information Center Web</b>
Installation of UTP patch cable from Server's Web NIC card to communication outlet		
Installation of in-wall cable run from Server to location of hospital LAN network device		

**TCP/IP Network Card Configuration**

The following table specifies address requirements for the TCP/IP network card:

Description	Answer	Comments
IP Address specified for Information Center Web Server		IP Address of <b>172.31.xxx.xxx</b> cannot be used because it is used by the Clinical Network  Managing IP Addresses by <b>DHCP</b> protocol is not supported - static IP Address required
Subnet Mask specified for Web Server		
Default Gateway specified for Web Server		

**Security Configuration**

The following table specifies requirements for customer password and domain name restrictions:

Description	Answer	Comments
<b>Web login information</b> for each New User: Username: Full Name: Description: Password:		
<b>Computer Access:</b> All computers? Yes/No		If <b>No</b> , answer one of the selections below Default = <b>Yes</b>
Single computer? IP Address required		
Group of computers? Network ID and Subnet Mask required		
Domain of computers? Domain Name required		

**Web Operation from Network PCs Verification**

After configuration of Web at the Database Server, the following performance verification should be performed:

Description	Completion Date	Comments
Ping IP Address of Web NIC from a PC on the hospital LAN		
For each PC on the hospital LAN:  - verify or load either Netscape Navigator (Revision 4.7 or later) or Microsoft Internet Explorer (Version 4.0 or later)  - connect to <b>IP Address</b> of Database Server Web NIC (http://xxx.xxx.xxx.xxx)  - log in to Database Server with proper <b>User Name</b> and <b>Password</b>		<b>IP Address of Database Server IC Web NIC =</b> http://xxx.xxx.xxx.xxx, where xxx.xxx.xxx.xxx is the IP Address of the server's Web NIC  <b>User Name:</b> <b>Password:</b>

**Web Users Notification**

Following Web verification, all potential users of Web should be notified of its availability and provided with log on instructions:

Description	Completion Date	Comments
Provide all Web users with: <ul style="list-style-type: none"> <li>• log on instructions</li> <li>• Web IP Address</li> <li>• User Name</li> <li>• Password</li> </ul>		<b>Web IP Address =</b> http://xxx.xxx.xxx.xxx, where xxx.xxx.xxx.xxx is the IP Address of the server's Web NIC  <b>User Name:</b> <b>Password:</b>

# Web Installation on the Database Server

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## Overview

**Appendix B** describes the procedure for installing web access capability option on the M3154 Database Server. This upgrade option provides access to Patient Data Review applications stored on the Server via the hospital's intranet. Up to 100 simultaneous users can view stored patient data (waves, alarms, events, ST segments, trends, viewable recording strip data) using standard web browsers, such as Internet Explorer and Netscape.

For web access to be installed with Software Release E.01, the following conditions must be met:

- **Information Center Software Release E.01** installed on the Database Server and all Information Centers and Clients on the Network.
- The **Patient Transfer/Web Server Option** must be purchased and enabled in the Purchased Options and Support Information application on the Database Server
- The **Network Interface Card (NIC)** must be installed in the appropriate slot of the Database Server.
- A **100 Mbit/s network connection** must be made between the Database Server's Web NIC and the hospital's intranet.
- The hospital's IT service must provide the following configuration information for the Database Server:
  - **IP Address**
  - **IP Subnet Mask**
  - **Default Gateway**
  - **DNS IP Address & Search Order**
  - **WINS IP Address**
- **Microsoft Internet Explorer® (Release 5.0 or higher)** web browser installed on hospital intranet PC's accessing the Information Center Web
- **Netscape® (Release 4.7 or higher)** web browser installed on hospital intranet PC's accessing the Information Center Web. Note that this does not support near real-time overview.
- **Windows NT, 2000 or XP** (or higher) installed on hospital intranet PC accessing the Information Center Web
- **TCP/IP and HTTP** networking protocol on hospital intranet PC's accessing the Database Server
- **Web Access User Logon** information including: logon name, password, patient access user rights (clinical unit permissions)

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**Note**

It is the responsibility of the hospital to manage the Web Access User Logon configuration, not Philips Medical Systems.

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## Procedure

The procedure for installing web access comprises 7 steps, which are described in the following sections.

- Installing the Web NIC
- Updating the Database Server BIOS
- Entering customer specified IP Address on the Web NIC
- Changing the default Web password to a customer specified password
- Testing web access to Database Server patient data

### Installing the Web NIC Card

The M3154 web access option includes a Web Network Interface Card (NIC) that must first be installed in the rear of the Database Server. The following steps describe how to install this card.

**Step 1. Shutdown the Database Server** using the **Shutdown Normal** application in the Shutdown menu of the Service window.

**Step 2. Turn off the power to the Database Server** and remove the power cord from its AC receptacle.

---

### Caution

**When opening the Database Server and handling the Web NIC (or any PC board), follow all proper ESD protection guidelines, including grounding the Database Server, the work surface, and yourself.**

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**Step 3.** Remove the front bezel and left side panel cover (Cover 1) of the Database Server.

---

### Note

Procedures for **Removing and Replacing Covers** on the Database Server are given in the **ML370 User Guide**.

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**Step 4.** Remove the I/O board clamp holding the PC boards in place.

**Step 5.** Insert the NIC into the **Slot 6** of the ML370 G2 Database Server or **Slot 3** of the ML370 G3 Database Server. Assure that the card is securely connected to the backplane. See Figure B-1.

**Step 6.** Secure the NIC to the backplane with the screw provided.

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### Note

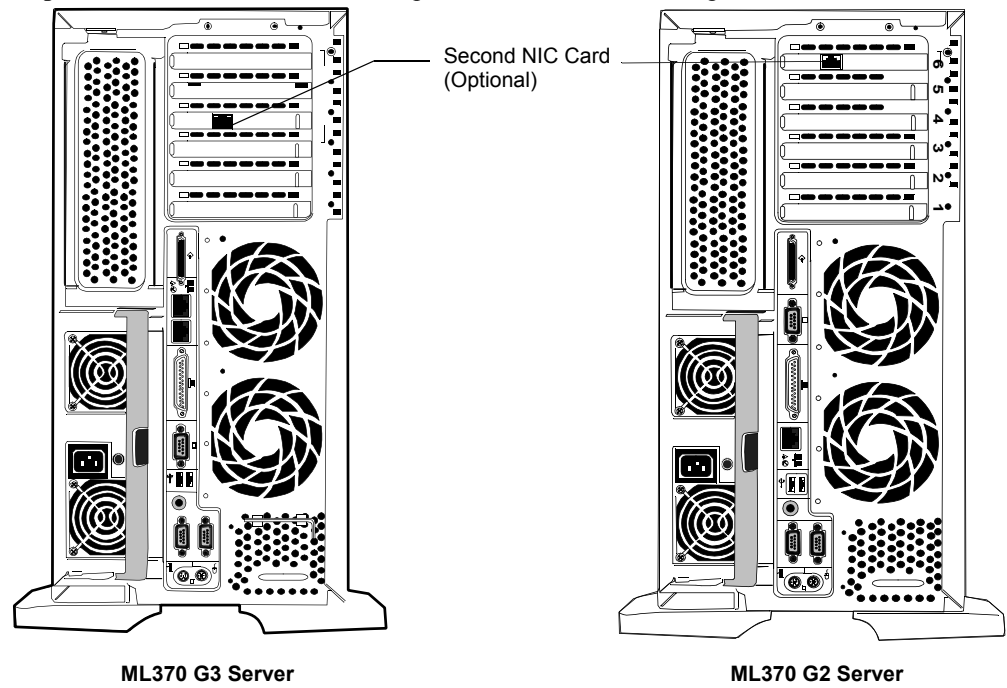
All cards in the backplane should be secured by a screw. If any are not, secure them with a screw.

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**Step 7.** Reinstall the I/O board clamp.

**Step 8.** Reattach the left side panel and front bezel.

**Step 9.** Reinsert the Database Server power cord into its AC receptacle.



**Figure B-1 ML370 Slot Placement for Cards**

**Note**

All Philips Patient Monitoring products that operate in a LAN environment undergo industry-standard virus checking as part of the product manufacturing process. If installed as specified, the Information Center will not introduce a virus onto the hospital LAN. In order to allow the level of access desired by users while ensuring viruses do not affect the operation of the Information Center product, it is imperative that hospitals are vigilant in maintaining a virus-free intranet. This is the responsibility of the hospital, not Philips Medical Systems.

## Entering the NIC IP Address

The following procedure describes how to enter the IP Address for the NIC. The IP Address should be provided by the hospital's IT department and be compatible with the hospital's intranet.

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### Note

If upgrading an existing Database Server with a 2nd NIC card, the OS must be reinstalled so the appropriate NIC drivers are installed. See “**Software Re-Installation Procedure**” on page 7-147.

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- Step 1.** Open **Network and Dial-Up Connections** by one of the following paths:
- from Windows Main Menu: **Start / Settings / Network and Dial-Up Connections**
  - from Service Menu: **Other Services / Control Panel / Network and Dial-Up Connections**
- Step 2.** Double-click on the **Network and Dial-Up Connections** icon.
- Step 3.** Select the icon for **Hospital LAN**. Right-click and select **Properties** from the drop down menu.
- Step 4.** Click in the circle preceding **Use the following IP address** and enter the following customer supplied information in the fields provided:
- IP Address**
  - Subnet Mask**
  - Default Gateway**

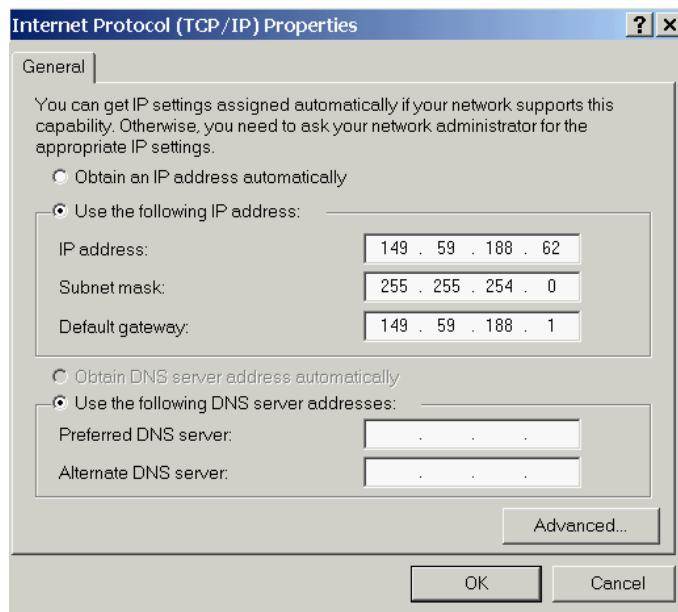
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### Note

If a customer supplied IP Address is not yet available, change the factory default IP Address to **172.30.221.0** until a customer address is supplied. **Do not use an IP Address of the form 172.31.xxx.x**, which is used for the primary Clinical Network. If the LAN portion of the web access card's IP Address is the same as that of the LAN card, **Web will not function**.

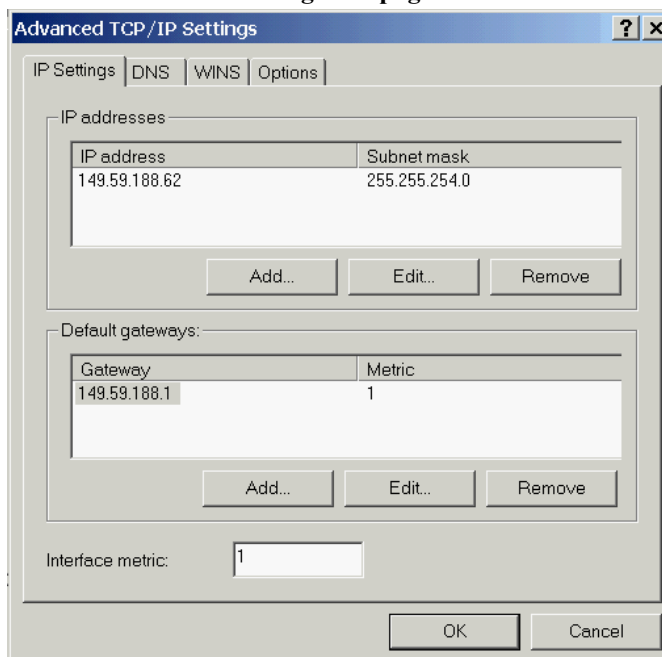
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**Figure B-2 Hospital LAN TCP/IP Settings**

**Step 5.** Click on the **Advanced** button. Click on the **DNS** and/or the **WINS** tab and configure the appropriate name and service information that is provided by the hospital. See “**Network Card and TCP/IP Settings**” on page 4-23.



**Figure B-3 Hospital LAN TCP/IP Advanced Settings**

**Step 6.** Click **OK** to close out of the **Hospital LAN** windows.

**Step 7.** Shutdown and restart the Database Server using the **Shutdown** application of the **Shutdown** menu in the **Service** window.

## Web User Access Config Tool

The Information Center Web User Access Config Tool is used by support users to setup users and their access privileges. It is recommended that at installation time, at least one user (defined by the hospital) is configured.

The Web Config Tool can be accessed from any PC connected to the intranet. Once the support user has logged onto the PC and has access to a supported web browser:

**Step 1.** Open the browser and enter the hostname of the M3154 Master Database Server in the following syntax: **http://hostname/**

**Step 2.** Once the connection is established, a login screen opens.

This window is used set the **Username** and **Password** for accessing patient data on the Server to ones specified by the customer. The following procedure describes how to add users.

---

### Note

The **default setting** for the Username is **ServiceUser**. The **default setting** for the password is **M3150**. **ServiceUser** does not have access to patient data.

It is the responsibility of the hospital to manage clinical web access and audit trail data.

---

**Step 1.** Login to the Information Center Web using the Username and password listed above.

**Step 2.** Click on the Clinician Management hyperlink in the left frame.

**Step 3.** Click on the Add Clinician hyperlink.

**Step 4.** In the Username field, type in a user name defined by the hospital.

**Step 5.** Type in the First Name of the user in the First Name field.

**Step 6.** Type in the Last Name of the user in the Last Name field.

**Step 7.** In the New Password field type in a password.

**Step 8.** Re-Enter the New Password.

**Step 9.** **Enable** the **Administrator** box if this person will manage the clinical web access and audit trail data.

**Step 10.** Select the **Update** button.

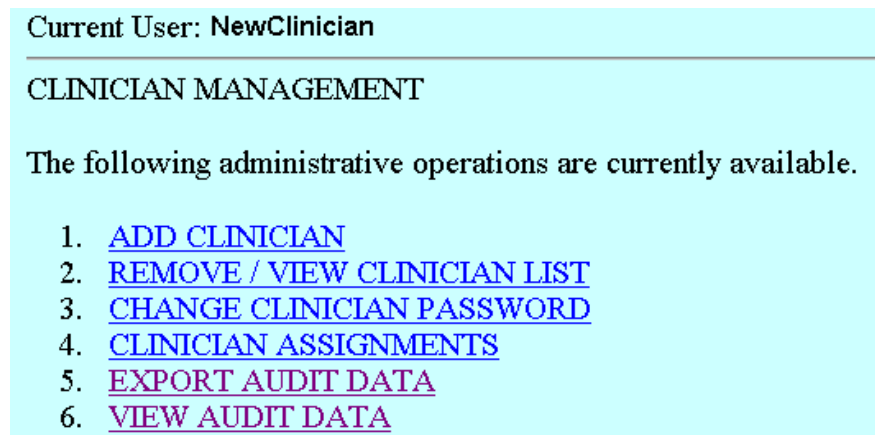
**Step 11.** Add another user using this procedure. Users are to be defined by the hospital. Clinical Operators with administrative privileges can add/remove Information Center Web clinicians and set up their access privileges. Clinical operators without administrative privileges can only change their password.

After login, a patient list window is presented. In this window, all beds from all clinical units that the clinician has access to are displayed. Each M3154 Database Server is listed, and the

Clinical Units configured to that Database Server are displayed. All beds are listed in alphabetical order. For details on the Web Access interface, refer to the Information Center Instructions for Use.

## Clinician Management

Upon initial entry to the Information Center Web, all beds that the logged in user has accessed to are displayed. From this window, the clinician can access the Clinician Management hyperlink in the left frame. This brings up the list shown in **Figure B-4**.



**Figure B-4 Clinician Management**

The Information Center Clinician Management tool is used for:

- Adding, removing, and assigning clinicians
- Exporting and viewing audit data

Only clinicians with administrative rights can grant administrative rights to other clinicians.

**Add Clinicians** A maximum of 1000 clinicians can be added. User names are checked for uniqueness by the Master Database Server. To add a clinician:

**Step 1.** Click on the **ADD CLINICIAN** link.

**Step 2.** Fill in the appropriate fields:

- User Name: limit of 20 alphanumeric characters
- First Name: Clinicians first name, limit of 20 alphanumeric characters (used in the Audit Trail function only)
- Last Name: Clinicians last name, limit of 20 alphanumeric characters (used in the Audit Trail function only)
- Password: associated with User Name login (5-20 alphanumeric characters)
- Administrator: enable this checkbox if clinician is to be an administrator

---

### Note

If the clinician needs administrator rights, the Administrator checkbox must be enabled.

---

**Step 3.** Click the **Update Information** button.

Current User: jsantana

**ADD CLINICIAN**

User Name:	<input type="text"/>
First Name:	<input type="text"/>
Last Name:	<input type="text"/>
New Password	<input type="text"/>
Re-Enter New Password	<input type="text"/>
Administrator	<input type="checkbox"/>

**Update Information**

To add a clinician, simply enter the data into the following fields and click on the update information button.

[Back to Clinician Management.](#)

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**Remove/View Clinician List** To remove a clinician:

**Step 1.** Click on the **REMOVE / VIEW CLINICIAN LIST** link.

**Step 2.** Select the clinician(s) for removal.

---

**Note** A blue arrow icon to the left of the User Name indicates that the clinician has administrator rights. A black arrow icon indicates that the clinician does not have administrator rights.

---

**Step 3.** Click the **Update Information** button.

Current User: user

To remove a clinician, simply click on the box next to the username and click on the update button.

<b>REMOVE / VIEW CLINICIAN LIST</b>		
User Name:	First Name:	Last Name:
<input type="checkbox"/> Administrator	Jennifer	Smith
<input checked="" type="checkbox"/> non-admin3	non-admin3	non-admin3
<input checked="" type="checkbox"/> Clinician_1	Jane	Doe

**Update Information**

[Back to Clinician Management.](#)

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**Change Clinician Password** To change the clinician password:

**Step 1.** Click on the **CHANGE CLINICIAN PASSWORD** link.

**Step 2.** Enter in the User Name, and the New Password.

**Step 3.** Click on the **Change Password** button.

**Viewing Clinician Assignments** To view clinician assignments:

**Step 1.** Click on the **CLINICIAN ASSIGNMENTS** link.

**Step 2.** View and modify (if necessary) the Clinical Unit to Clinician assignments.

Current User: Administrator

CLINICIAN ASSIGNMENTS			
HPANDFJ	<a href="#">UNIT_1</a>	<a href="#">UNIT_2</a>	
SDAND033	<a href="#">UNIT_1</a>	<a href="#">UNIT_2</a>	<a href="#">UNIT_3</a>

The following Server/Units are available for clinician assignments.

[Back to Clinician Management.](#)

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**View Audit Data** The View Audit Data feature allows clinicians with administrative privileges to view an audit trail of all clinical operations. The administrator can perform specific searches based on the criteria entered in the search boxes.

**Step 1.** Click on the **VIEW AUDIT DATA** link.

**Step 2.** (Optional) Type specific search criteria in the search boxes.

**Step 3.** Click on the **View Audit Data** button.

The Audit trail stores approximately 100,000 entries. When that level is reached, the entries are deleted using a First In, First Out (FIFO) approach.

**Export Audit Data** Audit Data can also be exported. The export file is an .xml file that is named with the date corresponding to the date with which it was exported. Audit files can only be exported to paths located on the Master Database Server.

**Step 1.** Click on the **EXPORT AUDIT DATA** link.

**Step 2.** Enter in the Export Path (e.g. A:\).

**Step 3.** Click on the **Export Data** button.

## Test and Inspection

After all of the configuration settings have been made, proper operation of the Information Center Web should be tested to verify that patient data can be accessed. The following procedure describes how to test the system. It is recommended that this test be run from a PC on the hospital's intranet; but it can also be run from the Database Server.

**Step 1.** Test LAN connectivity of the NIC by pinging its IP Address from a PC on the hospital's intranet or the Database Server as follows:

- open the **Command Prompt** window by one of the following:
  - from Windows Main Menu: **Start / Programs / Accessories / Command Prompt**
  - from Service Menu: **Diagnostics /IMS DOS Command Prompt.**
- Type **ping hostname**, where **hostname** is the computer name of the device with the 2nd NIC Card given in the **Installing the Web NIC Card** procedure.

If there is a reply from that hostname and can be resolved to the proper IP Address, the LAN connection has been made.

If the ping fails, the reason for the failure will be shown. Identify the problem, correct it, and repeat the process.

**Step 2.** Access patient data on the Database Server to verify that the Information Center Web is functioning properly. This should be done from a PC on the hospital's intranet, but it can be done from the Database Server.

---

**Note** At least one Information Center on the Network must be monitoring patients for patient data to be available for reviewing.

---

If accessing Server data from a **PC on the hospital's intranet**:

- Open the web browser to be used.
- Enter the following URL: **http://IP Address**, where IP Address is the IP Address of the NIC set in **Entering the NIC IP Address**, press **Enter**, and the **Information Center Web™ Login** window will display.
- Log in using the account that was added in **“Web User Access Config Tool” on page B-6**
- Assign a new user and password
- Log out and log back in using the new user
- Verify patient lists and data from all Database Servers are present

---

**Note** The URL can also be the **Host** name of the Server if the hospital LAN's DNS and/or WINS (Dynamic Name Server) is properly configured. However, if there are multiple Servers on the LAN, each Server's **Host** name must be unique.

---

If accessing Server data from the **Database Server**:

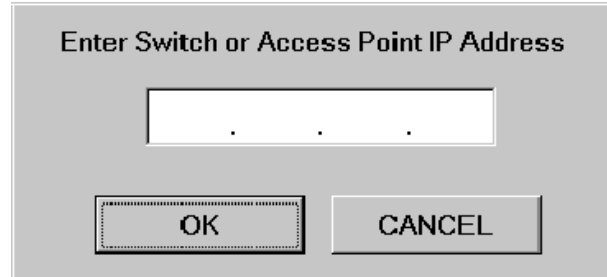
---

**Note** Accessing patient data from the Database Server should **only** be done for testing Information Center Web performance. It is **not supported under normal operating conditions**.

---

- Access the **Service** window.
- Click on **Network Statistics** in the Support Logs menu to open the **Network Statistics** window.

- Click on **Search by IP** in the upper row menu to open the **Enter Switch or Access Point IP Address** dialog box. The following figure shows this box for the Database Server.



- Enter the IP Address of the NIC set in **Entering the NIC IP Address** and click **OK** to display the **Information Center Web™ Login** window.
- Log in using the account that was added in “**Web User Access Config Tool**” on **page B-6**
- Assign a new user and password
- Log out and log back in using the new user
- Verify patient lists and data from all Database Servers are present

---

**Note**

To verify that the most recent patient data have been stored and can be accessed, the Information Center selected must be in monitoring mode.

---

- Close the **Web Main Menu** window to return to the **Service** window.

Procedure



# External Modem Installation

---

## Overview

**Appendix C** gives procedures for installing an external modem on the M3154 Database Server running Windows 2000. The external modem permits **Remote Access Services** (RAS) capability. Remote Access Services (RAS) provides for modem access to selected Windows applications only (e.g., Windows Explorer, Registry Editor, Performance, Event Viewer).

## External Modem

The external modem being connected is one that is specific to the country in which the DBS is located.

---

## Notes

For required **External Modem Specifications** see **Chapter 2** of this manual. To assure system security, remove the phone cable when not in use.

---

## RAS Software

All DBSs shipped from the factory have RAS already installed, whether a modem is installed or not. In cases where no modem is installed, the software for a null modem is installed to **COM1** as a place holder and RAS software is installed and configured to use it. Note that, since RAS is not started, no conflict with the UPS on COM1 occurs.

To connect an external modem to a DBS, the modem must first be installed and then RAS software reconfigured to use it instead of the null modem cable.

DBSs can support an internal (on LC2000 platform in North America only) or an external modem. Only an external modem is supported for use outside North America.

**COM2, 2F8** and **IRQ3** are the settings used for all internal modems that are installed via the automatic process. If an external modem is used, it is installed on **Serial Port B**, which will also be configured to use **COM2, 2F8** and **IRQ3**.

---

## Procedure

The following procedure describes how to install and configure an external modem on a M3154 Database Server. The procedure comprises 5 steps:

- Installing and configuring the modem
- Reconfiguring RAS
- Testing RAS
- Test and Inspection

### Installing and Configuring an External Serial Modem

**Step 1.** Shutdown the Database Server.

**Step 2.** Connect the RS232 cable from the external modem to the DBS **Serial Port B**.

**Step 3.** Connect power from the UPS to the external modem and power on the modem.

**Step 4.** Power on the Database Server

**Step 5.** The Database Server detects the external modem plugged into Serial Port B and initializes the hardware. If it cannot initialize it due to driver files missing, the **Add/Remove Hardware Wizard** opens.

**Step 6.** Sequence through the wizard and select **Have Disk** -> **A:\** (install modem appropriate driver) -> **OK** -> **OK**.

**Step 7.** Select **Next**

**Step 8.** Click **Finish**.

**Step 9.** Remove media and reboot the DBS.

**Step 10.** Verify that the port still exists (via **Control Panel** -> **Administrative Tools** -> **Device Manager** -> **Ports**). Click on COM2 to verify that there are no error messages.

At this point the external modem should be properly installed. If there are problems, troubleshooting can be accomplished by using the modem manufacturer's troubleshooting procedures or by accessing the Windows 2000 Server Troubleshooting Wizard (Control Panel -> Add/Remove Hardware).

### Reconfiguring RAS on Windows 2000 Server

This procedure reconfigures RAS for the installed modem.

**Step 1.** Open the Control Panel and double click on **Network and Dial-Up Connections**.

**Step 2.** Select **Make a New Connection** and press **Next**.

**Step 3.** Select **Accept incoming connections** and press **Next**.

**Step 4.** Select the applicable (e.g. US Robotics 56K) modem and press **Next** until the **Finish** button appears.

**Step 5.** Press **Finish**.

An **Incoming connections** icon is now in the Network and Dial-up Connections window.

**Step 6.** Right-click on this icon and select **Properties**.

**Step 7.** Verify the Modem, User, and Networking properties.

## Testing RAS

The following procedure describes how to test the RAS connection.

**Step 1.** Go to **Control Panel -> Administrative Tools -> Routing and Remote Access** and click on the Server Name in the left frame. Right click and select **All Tasks -> Start** or **Restart** to start the service.

If no errors, a window displays. Right-click on All Tasks. Verify the Start button is disabled, and the Stop button is active. To test it completely, a modem connection should be made to the machine.

**Step 2.** Connect a phone line to the external modem and follow the procedure in **Appendix D: Dial-In Procedure for Remote Access to Information Center Systems**.

When testing is complete:

**Step 3.** Stop RAS services and disconnect the Phone Line. Do NOT turn off the power to the modem.

---

### Note

When RAS is stopped, the **Incoming connections** icon is not displayed in the Network and Dial-up Connections window.

---

At this point RAS is installed and operating properly.

**Step 4.** If the **Incoming connections** icon is not displayed, restart RAS services by repeating step 1. Refresh the Network and Dial-up Connections window.

## Test and Inspection Procedures

Follow the **Test and Inspection** procedures given in **Chapter 8** of this manual.

---

### Note

These performance assurance procedures must be performed before using RAS.

---

Procedure

# Dial-In Procedure for Remote Access to Information Center Systems

---

## Overview

**Appendix D** describes the procedure for dialing into a remote Database Server from another PC running Windows using the **Remote Access Services** (RAS) capability.

RAS can be used to access the C:\STARDATE\Log drive of any networked Information Center or Client. Log files on the Information Center's C: drive can then be reviewed or copied to the accessing PC.

Examples of files that appear on the C: drive are:

- Run Time Error Log Files
- Exception Error Log Files
- Suspend Alarm Log Files

## Accessed Server Requirements

To utilize RAS, the remote Database Server being accessed must meet the following requirements:

- modem installed and turned on while the Database Server is booting up
- modem connected to a dedicated, direct, *inward* dial, telephone line
- RAS capability installed, configured, and enabled (started)

## Accessing PC Requirements

To access a remote Database Server that meets the above requirements, the Accessing PC must meet the following:

- modem installed and turned on
- modem connected to a dedicated, direct, *outward* dial, telephone line
- RAS capability installed, configured, and enabled.
- proper protocols installed.
  - **Protocols** for Information Centers are **TCP/IP** protocols
  - **RAS setup parameters** are **Network / Dial out Protocols / TCP/IP**

Additional information required to access a Database Server is:

- For DBSs its specific **computer server IP** (e.g. 172.31.221.0)
- **telephone number** of the DBS modem telephone line being accessed
- User Name (**ServiceUser**)
- Information Center access password (**M3150**)

If these conditions are met, the following procedure describes how to access the RAS of a remote Information Center PC.

---

## Dial Out Procedure

### Making the Remote Access Connection

The following procedure makes the remote access connection to a Database Server **with RAS enabled** and connected to an inward dial telephone line.

**Step 1.** Enter the **Service** Password

**Step 2.** Call the person whose remote Database Server is being dialed into and ask them to enable their RAS application.

Enabling RAS on a Philips DBS is accomplished by the following:

Select **Other Services** and **Remote Access Admin** of the Service application shell. or go to the **Control Panel -> Administrative Tools -> Routing and Remote Access**

Click to select the Server Name in the left frame of the Routing and Remote Access window

Right click and select **All Tasks -> Start** or **Restart** to start the service.

---

### Notes

The DBS IP Address is required to make the remote connection. In addition, other Philips devices may require remote Remote Access and these IP Addresses will also be required. These IP Addresses can be found by going to one of the Information Center or Client devices and:

- click on **All Controls**
- click on **Status Log**
- click **OK for English**
- record IP Address for DBS, Information Center, and Clients you may be connected to

Request and record the dial-in **Phone Number** for the remote DBS.

---

### Entering Name and Phone # on the Accessing PC

*Windows 2000 PCs*

**Step 1.** Open **Control Panel -> Network and Dial-up Connections**.

**Step 2.** Double click on **Make New Connection**.

**Step 3.** At the Welcome window, click **Next** to begin.

**Step 4.** In the Network Connection Type window, select **Dial-up to private network**.

**Step 5.** In the Phone Number to Dial window:

- enable **Use dialing rules**

- enter in the **Area Code** and **Phone number** of the DBS being accessed
- select the appropriate **Country/region code**
- click **Next**

**Step 6.** In the Connection Availability window, select **For all users** and click **next**.

**Step 7.** In the Completing the Network Connection Wizard window:

- enter a **Connection Name** (the name of the customer site or a default name)
- select whether a shortcut is desired on the desktop for this connection
- click **Finish**.

**Step 8.** In the **Connect Dial-up Connection** window:

- Enter **ServiceUser** in the User Name field
- Enter **M3150** in the Password field
- Enable **Save password** if desired

**Step 9.** Click **Dial** - The modem will then dial into the remote DBS.

*Windows NT PCs*

**Step 1.** Select (double click on) the **My Computer** icon.

**Step 2.** Select (double click on) **Dial-Up Networking** from the My Computer window and then click on **New**.

**Step 3.** Enter an **entry name** (the name of the customer site being accessed or a default name), **area code**, and **phone number**, and then click **Next** to return to the **Dial-up Network** window.

**Step 4.** Click **Dial**.

**Step 5.** Enter **ServiceUser** in the User Name field and then **M3150** in the Password field and then click **OK**. User Name and Password are case sensitive.

The modem will then dial into the remote DBS.

---

## Notes

If the protocol of the accessing PC (**TCP/IP**) is correctly matched to the software version of the remote PC, the connection should succeed. If both the **TCP/IP** and **Net BEUI** protocols are enabled on the accessing PC, one will succeed and the other will fail, depending on the software version of the remote PC.

---

When the connection has been made, the **Connection Complete Dialog** window may appear.

**Step 6.** Click **OK** in the **Connection Complete Dialog** window to close it.

## Mapping a Drive to the Remote PC

The final step is to map a drive letter on the accessing PC to the drive of the remote DBS.

**Step 1.** Open the **Windows Explorer** application on the accessing PC.

**Step 2.** Access the **Map Network Drive** window.

- For **Windows Explorer**, click on **Tools** in the top row menu and then **Map Network Drive**.

**Step 3.** Make the following entries in the **Map Network Drive** fields.

**Drive:** Select any unused Drive letter, e.g. **X**

**Path:** Enter **\\IP Address\Logs**, where IP Address number is the IP Address of the remote DBS; e.g., **\\172.31.221.0\Logs**

**Step 4.** Click **OK** and the drive mapping will occur.

The mapping process takes about a minute to complete.

The dial-in procedure is now complete and Log files can be retrieved from the remote DBS. Refer to the next section **Using RAS**.

#### **Connecting to Other Networked Devices Connected to the DBS**

The procedure for connecting other Philips PCs on the Network of the DBS is the same as that given above. Follow steps given above and substitute the proper IP Address of the Philips device you are connecting to.



---

## Using RAS

This section describes how to access files in the **Stardate\Log** directory of the remote DBS or Information Center PC available via RAS. The files are found in the **C:\Stardate\Logs** directory of the remote DBS or Information Center PC, which is now mapped to the drive letter selected in the previous section.

### Accessing the Remote Log Files

The following procedure describes how to access the Philips Log files. In addition to having easy access to the log files, any web browser support applications and utilities are available using this portal; e.g., for example the Switch and Access Point.

#### *Windows XP PCs*

**Step 1.** Once you have mapped the hospital's DBS drive to the Remote PC using Explorer, locate the **Stardate\Logs** directory and double click on the **NetDeviceLink.html** file.

**Step 2.** Click on the Information Center or Client IP Address links to view the log files for these devices.

If you want to store log files on a floppy disk, insert the disk into the A:\ drive:

**Step 3.** Click on (highlight) the files to be stored and click on **File -> Send to -> 3 1/2 Floppy** and the files will be stored on the disk.

#### *Windows 2000 PCs*

**Step 1.** Once you have mapped the hospital's DBS drive to the Remote PC using Explorer, locate the **Stardate\Logs** directory.

**Step 2.** Open Internet Explorer, and type file:///x:/NetDeviceLink.html (where x is the letter of the mapped drive).

**Step 3.** Click on the Information Center or Client IP Address links to view the log files for these devices.

If you want to store log files on a floppy disk, insert the disk into the A:\ drive:

**Step 4.** Click on (highlight) the files to be stored and click on **File -> Send to -> 3 1/2 Floppy** and the files will be stored on the disk.

#### *Windows NT PCs*

**Step 1.** Once you have mapped the hospital's DBS drive to the Remote PC using Explorer, locate the **Stardate\Logs** directory.

**Step 2.** Right-click on the **NetDeviceLink.html** file and select **Open in new window**.

**Step 3.** Click on the Information Center or Client IP Address links to view the log files for these devices.

If you want to store log files on a floppy disk, insert the disk into the A:\ drive:

**Step 4.** Click on (highlight) the files to be stored and click on **File -> Send to -> 3 1/2 Floppy** and the files will be stored on the disk.

## Accessing the Remote Event View System or Application Files

**Step 1.** Open the Event Viewer application of the accessing PC

**Step 2.** To select computer, enter in specific IP Address of machine you want to view or copy files from (e.g., \\172.31.221.0) by:

- **Log>Select Computer** on Windows NT
- **Action\Open Log File** on Windows 2000
- **Action\Connect to another Computer** on Windows XP

Click **OK**.

**Step 3.** View the file, selecting either **System** or **Application**, depending on log file type you want to review.

---

### Note

For the Accessing PC to review Event Log files, the **Event Log files must first be saved to the Database Server's C: drive**. This can be done using the **Save As** function in the **Log** menu of the Event Log.

---

**Step 4.** Save file. Select the Remote machine drive directory and enter local file name. Click on **Save**.

**Step 5.** Delete any Event Viewer file names (.evt) created in step 4. Do not delete any of the other existing .log files (.log).

## Disconnecting the Drives

After the files have been reviewed or copied, the following steps will disconnect the Accessing PC from the remote device network drive.

**Step 1.** Open the **Windows Explorer**

**Step 2.** Access **Tools -> Disconnect Network Drive**

- For **Windows Explorer**, click on **Tools** in the top row menu and then **Disconnect Network Drive**

**Step 3.** Click on the **Network Drive** letters created in the previous section of this document (mapped drives), select it, then **OK**, and the **Network Drive** mapping will be disconnected.

## Disconnecting RAS

The RAS telephone connection can be disconnected as follows.

**Step 1.** Open the network window:

- **Control Panel -> Network and Dial-up Connections** on Windows 2000
- **Control Panel -> Network Connections** on Windows XP
- **Control Panel -> Dial-Up Networking** on Windows NT

**Step 2.** Open the network connection to be disconnected.

**Step 3.** Select the **Disconnect** button.

---

**Note**

Failure to close the RAS connection will result in the inability to return to Monitoring Mode.

---

**Step 4.** Disconnect the Phone Line. Do **NOT** turn off the power to external modem.

**Test and  
Inspection  
Procedures**

Refer to the **Test and Inspection** procedures listed in **Chapter 8** of this manual.

**These performance assurance procedures must be performed.**

Using RAS

# Data Export - Installation on the Database Server

---

## Overview

**Appendix E** describes the procedure for installing and activating the Data Export options:

- Holter option - this feature provides the ability to export a patient's ECG waveform data stored on the Database Server to a Philips/Zymed Holter Scanner for Windows - Model 2010 for Holter analysis via the hospital's Network.
- 12-Lead option - this feature provides the ability to export 12-Lead ECG captured conventional 12-lead ECG to a configured receiving system

Data Export requires the following conditions:

- **Philips Application Software Release E.01** installed on the Database Server and all Information Centers and Clients on the Network.
- The **Holter Export** and/or **12-Lead Export** must be purchased and the interface configured on the Information Center to recognize the hospital's receiving system.
- The hospital's Holter System must be the **Philips/Zymed Holter Scanner for Windows - Model 2010 running Software Version 2.0 or higher on a Windows 98, ME or 2000 PC**. The hospital's Holter PC must also be enabled to receive the exported patient data from the Information Center/Database server - refer to the procedures for your specific operating system described at the end of this section.
- The hospital's **TraceMaster Server** must be the running software version **A.04 with Option 40**. The TraceMaster Server must also be enabled to receive the exported patient data from the Information Center/Database server - refer to the procedures described at the end of this section.
- A second **Network Interface Card (NIC)** must be installed.
- A **100 Mbit/s network connection** must be made between the Database Server's NIC and the hospital's LAN.
- The hospital must provide the following configuration information for the Database Server:
  - **IP Address**
  - **IP Subnet Mask**
  - **Default Gateway**
  - **Host Name(s)**
- **TCP/IP and HTTP** networking protocol on hospital LAN PC's accessing the Database Server
- Configuration of Host Name of the Holter System PC (configured via the Config Wizard)
- Configuration of Host Name of the TraceMaster server (configured via the Config Wizard)

---

## Procedure

The procedures for installing the Data Export feature are described in the following sections.

- Installing the NIC (if needed).
- Entering customer specified IP Address on the NIC.
- Enter the Host Name of Holter or 12-Lead ECG Management System in the Network Configuration (via !Config Wizard)
- Testing exporting patient ECG data via the hospital's LAN to the receiving system.

---

### Note

If your system already has the Web Option installed, the 2nd NIC is already installed then you don't need to install another NIC for the Data Export feature.

---

### Installing the 2nd NIC Card

These options includes a second Network Interface Card (NIC) that must first be installed in the rear of the Database Server. The following steps describe how to install this card.

**Step 1. Shutdown the Database Server** using the **Shutdown Normal** application in the Shutdown menu of the Service window.

**Step 2. Turn off the power to the Database Server** and remove the power cord from its AC receptacle.

---

### Caution

**When opening the Database Server and handling the NIC (or any PC board), follow all proper ESD protection guidelines, including grounding the Database Server, the work surface, and yourself.**

---

**Step 3.** Remove the **front bezel and left side panel cover** (Cover 1) of the Database Server. Lay the unit on its side to facilitate PC board installation.

---

### Note

Procedures for **Removing and Replacing Covers** on the Database Server are given in the **ML370 Installation Guide**.

---

**Step 4. Remove the I/O board clamp** holding the PC boards in place.

**Step 5. Insert the NIC into Slot 6** on the rear of the Database Server. Assure that the card is securely connected to the backplane. See **Figure E-1** on the following page.

**Step 6. Secure the NIC** to the backplane with the screw provided.

---

### Note

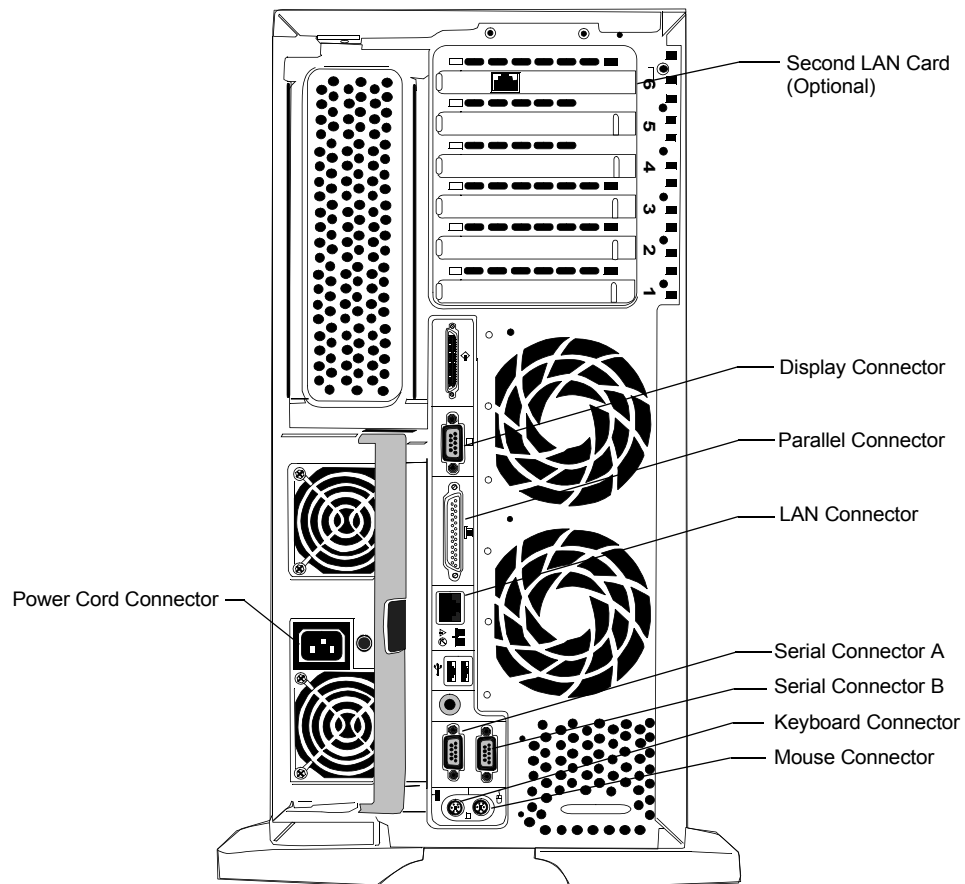
All cards in the backplane should be secured by a screw. If any are not, secure them with a screw.

---

**Step 7. Reinstall the I/O board clamp.**

**Step 8. Reattach the left side panel and front bezel.**

**Step 9. Reinsert the Database Server power cord into its AC receptacle.**



**Figure E-1 Slot Placement for Cards**

**Note**

All Philips Patient Monitoring products that operate in a LAN environment undergo industry-standard virus checking as part of the product manufacturing process. If installed as specified, the Information Center will not introduce a virus onto the hospital LAN. In order to allow the level of access desired by users while ensuring viruses do not affect the operation of the Information Center product, it is imperative that hospitals are vigilant in maintaining a virus-free intranet. This is the responsibility of the hospital, not Philips Medical Systems.

**Entering the NIC IP Address**

The following procedure describes how to enter the IP Address for the NIC. The IP Address should be provided by the hospital's IT department and be compatible with the hospital's intranet.

**Step 1.** Open **Network and Dial-Up Connections** by one of the following paths:

- from Windows Main Menu: **Start / Settings / Network and Dial-Up Connections**
- from Service Menu: **Other Services / Control Panel / Network and Dial-Up Connections**

**Step 2.** Double-click on the **Network and Dial-Up Connections** icon.

**Step 3.** Select the icon for **Hospital LAN**. Right-click and select **Properties** from the drop down menu.

**Step 4.** Click in the circle preceding **Use the following IP address** and enter the following customer supplied information in the fields provided:

**IP Address**  
**Subnet Mask**  
**Default Gateway**

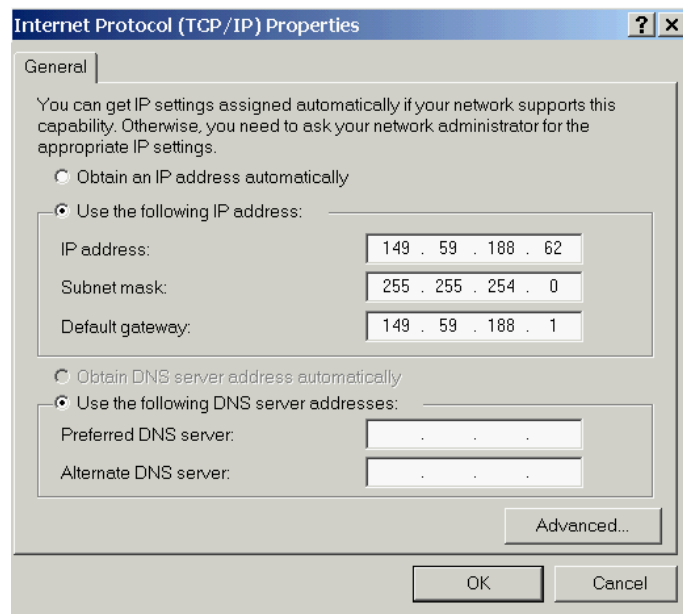
---

**Note**

If a customer supplied IP Address is not yet available, change the factory default IP Address to **172.30.221.0** until a customer address is supplied.

**Do not use an IP Address of the form 172.31.xxx.x**, which is used for the primary Clinical Network NIC card. If the LAN portion of the web access card's IP Address is the same as that of the Clinical Network NIC card, **Data Export will not function**.

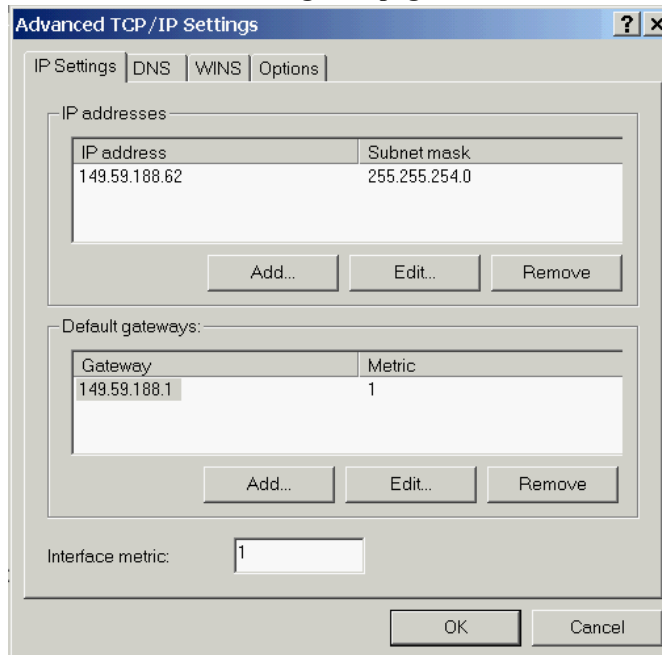
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**Figure E-2 Hospital LAN TCP/IP Settings**



**Step 5.** Click on the **Advanced** button. Click on the **DNS** and/or the **WINS** tab and configure the appropriate name and service information that is provided by the hospital. See “**Network Card and TCP/IP Settings**” on page 23.



**Figure E-3 Hospital LAN TCP/IP Advanced Settings**

**Step 6.** Click **OK** and close the window.

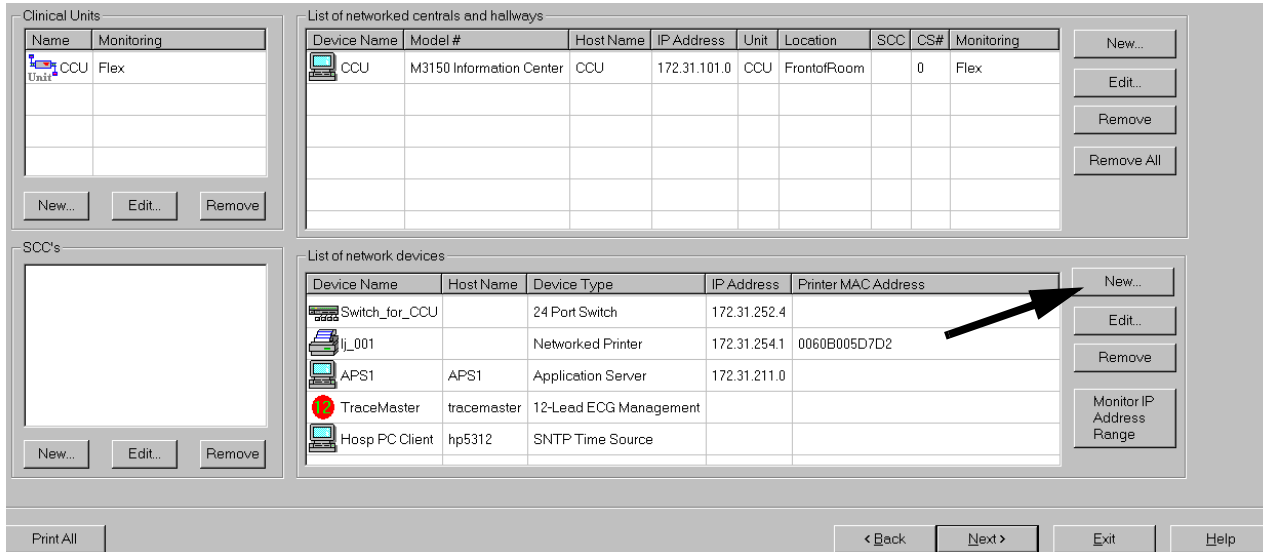
**Step 7.** Shutdown and restart the Database Server using the **Shutdown Normal** application of the **Shutdown** menu in the **Service** window.

## Configure Host Name

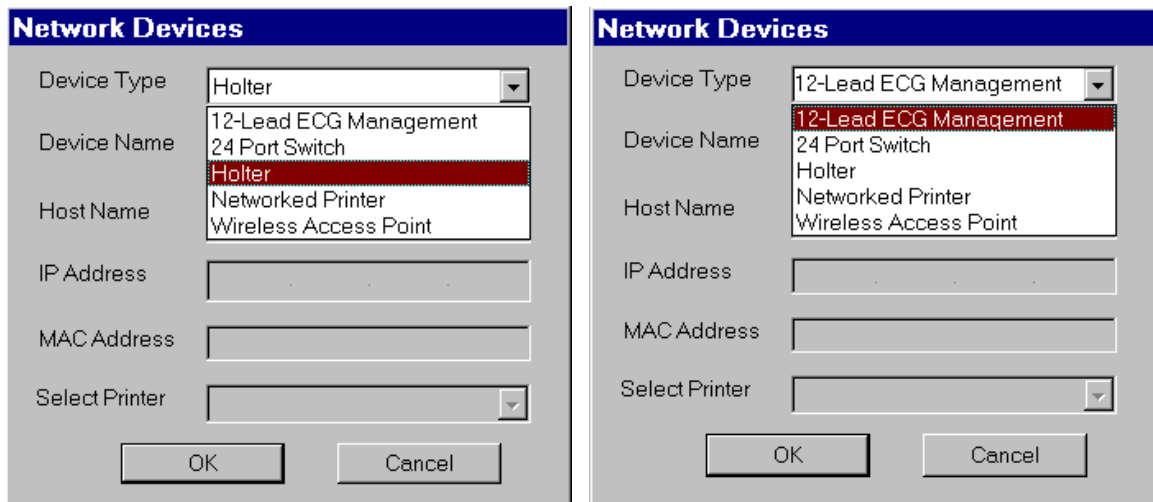
The host name of the hospital’s Holter System and 12-Lead ECG Management system is provided by the hospital’s IT service and must be configured in the NIC in order to export data via the hospital LAN. The following procedures describe how to configure the Host Name.

Procedure

**Step 1.** From the Config Wizard click on the **Next** key until the **Network Configuration** screen is displayed. In the List of Network Devices section, select the **New** key:

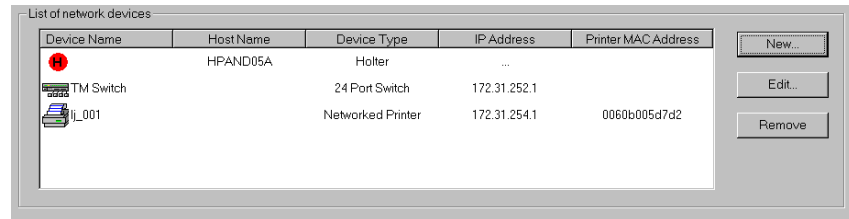


**Step 2.** From the **Add new network device to this domain** window, select **Holter** or **12-Lead ECG Management** from the Select Device type pull down menu



**Step 3.** In the **Host Name** field, type in the “*Host Name*” of the export system device provided by the customer.

**Step 4.** Click on the **OK** button and check to see if the host name appears in the **List of network devices**



## Test and Inspection

After all of the configuration settings have been made, proper operation of the data export should be tested to verify that patient data can be accessed. The following procedure describes how to test the system. It is recommended that this test be run from a PC on the hospital's intranet; but it can also be run from the Database Server.

**Step 1.** Test Network connectivity of the NIC by pinging its IP Address from the Database Server as follows:

- open the **MS DOS Command** window by one of the following:
  - from Windows Main Menu: **Start / Programs / Command Prompt**
  - from Philips Service Menu: **Diagnostics / MS-DOS Command Prompt.**
    - Type **ping IPAddress**, where IPAddress is the address given to the LAN NIC in the **Installing the 2nd NIC Card** procedure.

If there is a reply from that IP Address, the NIC card is working properly.

If the ping fails, the reason for the failure will be shown. If possible, identify the problem, correct it, and repeat the process. If the ping still fails, contact the hospital's IT department.

**Step 2.** Test the Network connectivity by pinging the Host Name of the Holter System PC on the hospital's intranet as follows:

- open the **Command Prompt** window by one of the following:
  - from Windows Main Menu: **Start / Programs / Accessories / Command Prompt**
  - from the Service Menu: **Diagnostics / MS-DOS Command Prompt.**
    - Type **ping Host Name**, where Host Name is the name of the Holter System PC NIC.

If there is a reply from that Host Name Address, the connection has been made.

If the ping fails, the reason for the failure will be shown. Notify the hospital IT department to determine cause of failure. When corrected, repeat the process.

Procedure

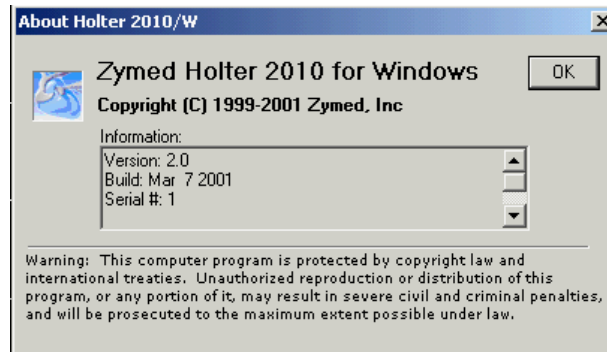
**Step 3.** Verify that the Philips/Zymed Holter Scanner for Windows - Model 2010 is running Software Version 2.0 or higher.

---

**Note** The hospital's Holter System must be the **Philips/Zymed Holter Scanner for Windows - Model 2010 running Software Version 2.0 or higher on a Windows 98, ME or 2000 PC.**

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From the Philips/Zymed Holter Scanner System PC select **Help -> About Holter.**



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## Enable the Receiving System to Receive Exported Data for Data Analysis

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**Note**

The configuration steps given in this section are to be performed at the Philips/Zymed Holter or 12-Lead ECG Management system, not at the Database Server. Determine the system's operating system (Windows NT, 2000, XP, 98, ME), and then follow the appropriate procedure.

---

For the receiving system to receive data exported from a Database Server, the computer needs to have network connectivity to the Information Center network. Follow the procedures described below.

### Windows NT

**Step 1.** Configure the receiving system with a Computer Name and an IP Address.

- a. Right mouse click on the "My Computer" icon on your desktop.
- b. Select "Properties"
- c. Select the "Identification" tab.
- d. Verify that you have a computer name. This is the name that will be used during the Information Center network device configuration as the "**Host Name**".
- e. Verify that your computer has a network interface card and that it has an IP address. Either static IP or DHCP can be used.

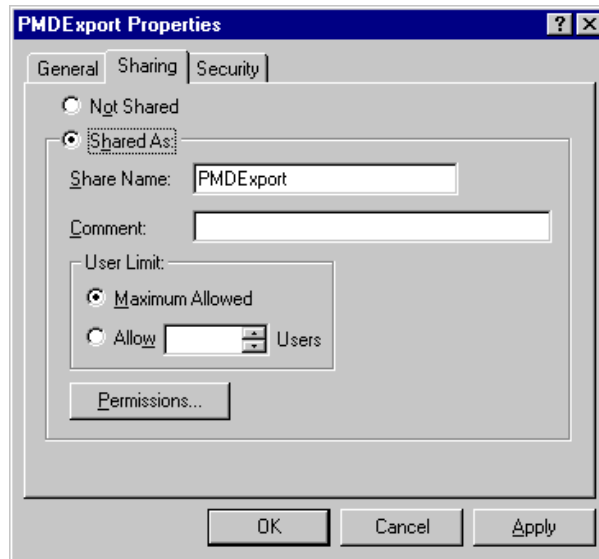
**Step 2.** Add "PMDEXport" user with "PMDEXport" password.

- a. From the Start Menu, choose "Settings" > "Administrative Tools" > "User Manager".
- b. Under "User" select "New User".
- c. Enter "PMDEXport" for the Username and Password and Confirm Password.
- d. Check "User cannot change password", and "Password never expires" checkboxes.
- e. Click **OK**

The screenshot shows the 'New User' dialog box in Windows NT. The 'Username' field is filled with 'PMDEXport'. The 'Password' and 'Confirm Password' fields are masked with asterisks. The 'User Cannot Change Password' and 'Password Never Expires' checkboxes are checked. The 'OK' button is highlighted.

**Step 3.** Create an **PMDEExport** folder, and make it sharable.

- a. Click on the **[My Computer]** icon on your desktop.\
- b. Double -click on the <C:> drive.
- c. Under the <File> menu, choose **New > Folder**
- d. Name the folder **PMDEExport**.
- e. Right mouse click on the **PMDEExport** folder, and select **Sharing**.
- f. Select the <Share this folder> control.
- g. Type **PMDEExport** in the **Share name**
- h. Press **OK**



**Windows  
2000**

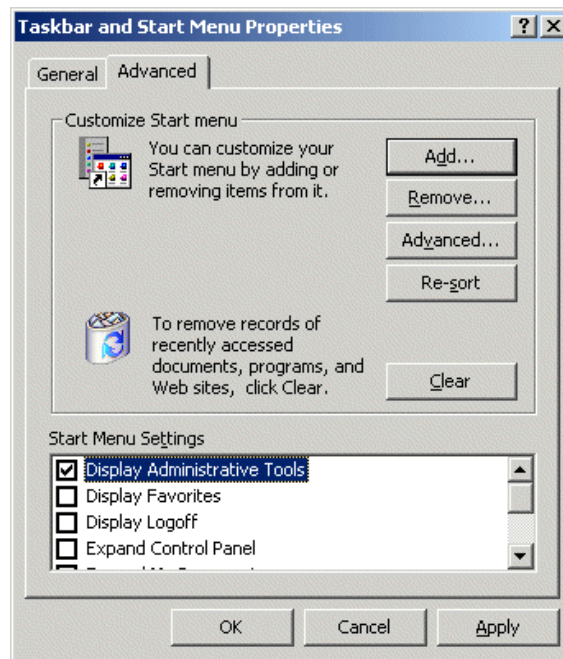
**Step 1.** Configure the receiving system with a Computer Name and an IP Address.

- a. Right mouse click on the "My Computer" icon on your desktop.
- b. Select the "Network Identification" tab.
- c. Click on the "Properties" button.
- d. Verify that you have a computer name. This is the name that will be used during the Information Center network device configuration as the **"Host Name"**.
- e. Verify that your computer has a network interface card and that it has an IP address. Either static IP or DHCP can be used.

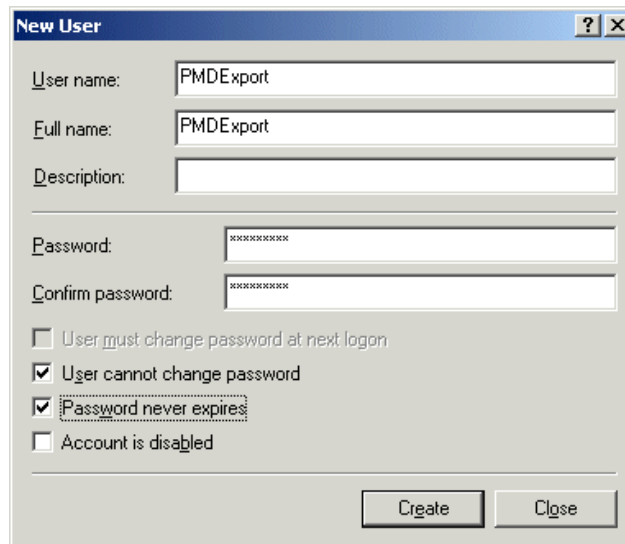
**Step 2.** Add "PMDEExport" user with "PMDEExport" password.

- a. From the Start Menu, choose **"Settings" > "Taskbar & Start Menu ..."**.
- b. Select the **"Advanced"** tab.
- c. Check **"Display Administrative Tools"** under **"Start Menu Settings"**.

- d. Press <OK>.

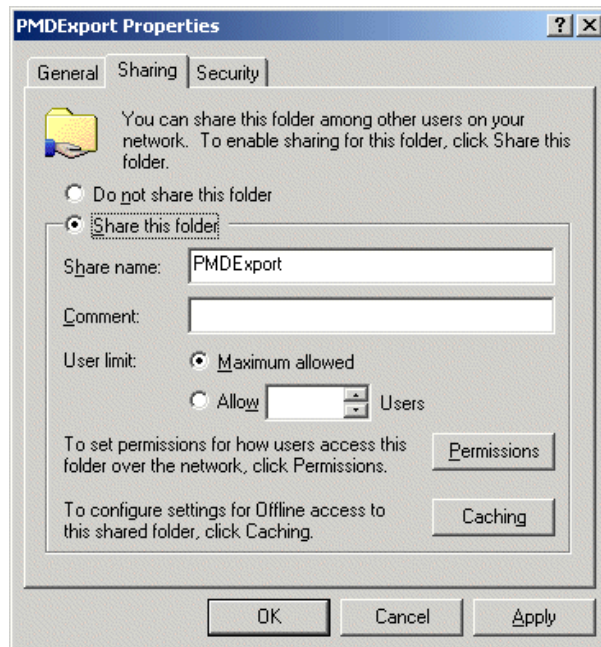


- e. Under Start Menu, choose “**Programs**” > “**Administrative Tools**” > “**Computer Management**”.
- f. Under “**Computer Management (Local)**”, choose “**System Tools**”, then “**Local Users and Groups**”, then “**Users**”.
- g. Under the “**Actions**” menu. Choose “**New User...**” .
- h. Fill the “**New User**” dialog as illustrated below:
- i. Under Password, enter “**PMDExport**”.
- j. Uncheck “**User must change password at next logon**” box.
- k. Check “**User cannot change password**”, and “**Password never expires**” checkboxes
- l. Press “**Create**”



**Step 3.** Create an **PMDEExport** folder, and make it sharable.

- a. Click on the **[My Computer]** icon on your desktop.\
- b. Double -click on the **<C:>** drive.
- c. Under the **<File>** menu, choose **New > Folder**
- d. Name your folder **PMDEExport**.
- e. Right mouse click on the **PMDEExport** folder, and Select **Properties**.
- f. Select the **Sharing** tab.
- g. Select the **<Share this folder>** control.
- h. Type **PMDEExport** in the **Share name**
- i. Press **<OK>**





## Windows XP

### Step 1. Enable Network Sharing on the PC

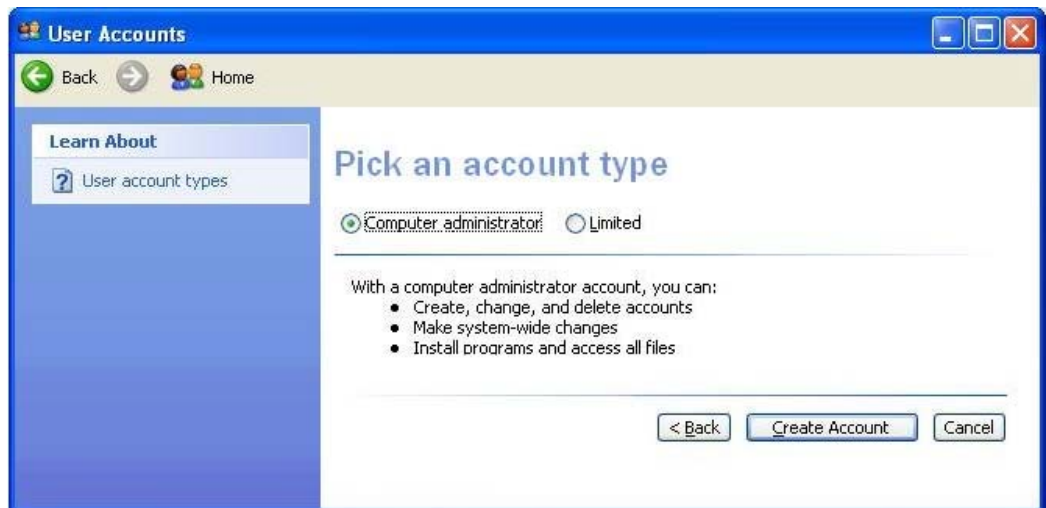
- a. Right mouse click on the “My Computer” icon on your desktop.
- b. Select “Properties”.
- c. Select the “Computer Name” tab.
- d. Verify that you have a computer name. This is the name that will be used during the Information Center network device configuration as the “**Host Name**”.
- e. Verify that your computer has a network interface card and that it has an IP address. Either static IP or DHCP can be used.

### Step 2. Add “PMDEExport User” user with “PMDEExport User” password.

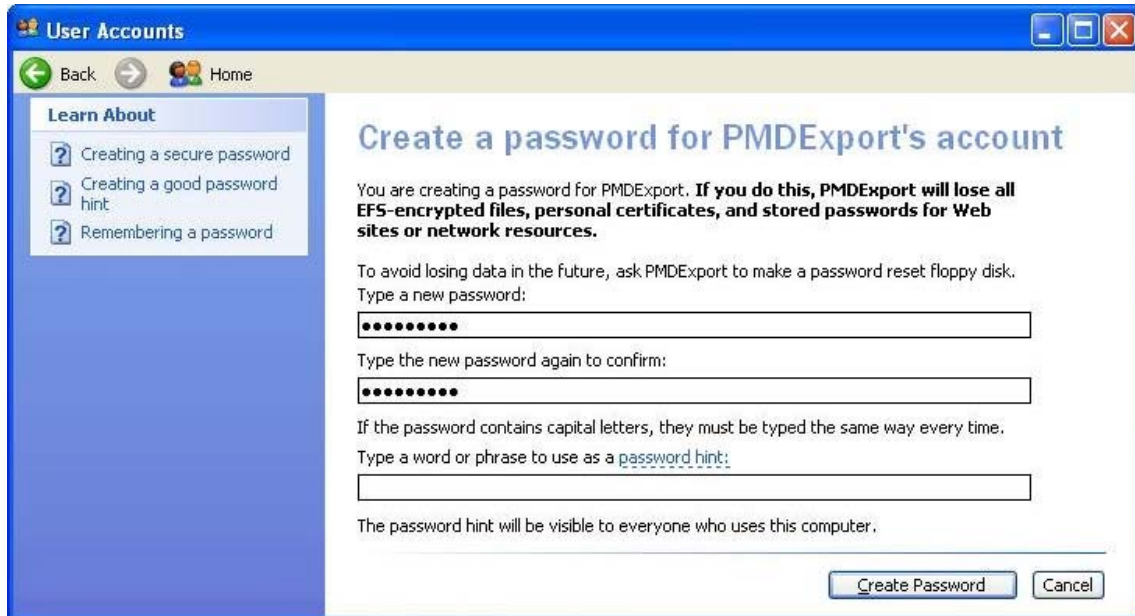
- a. From the Start Menu, choose “Settings” > “Control Panel” > “User Accounts”.
- b. Under “Pick a Task” click “Create a new account”
- c. Enter “PMDEExport” under “Type a name for the new account” and click “Next”.



- d. On the next screen, select “Computer Administrator” under account type and click “Create Account”.



- e. Click **“Change an account”**
- f. Click on **“PMDEExport”**
- g. Select **“Create a password”**
- h. Under **“Password”**, enter **“PMDEExport”**. Enter the same information under re-enter.



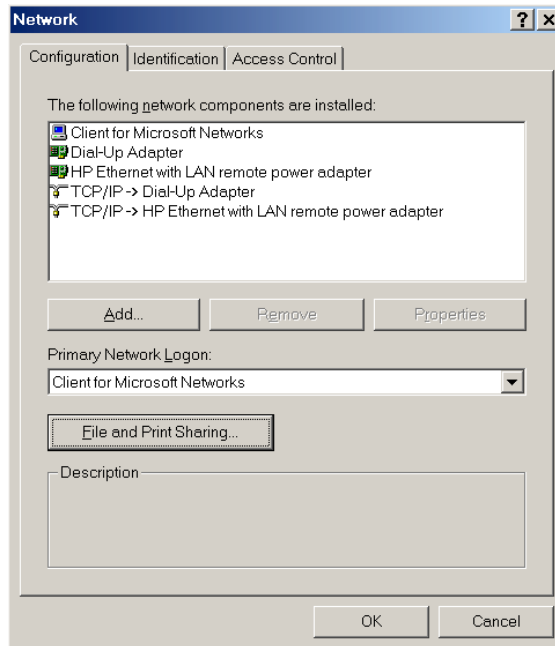
**Step 3.** Create an **PMDEExport** folder, and make it sharable.

- a. Click on the **[My Computer]** icon on your desktop.
- b. Double -click on the **<C:>** drive.
- c. Under the **<File>** menu, choose **“New ” > “Folder”**.
- d. Name your folder **“PMDEExport”**.
- e. Right mouse click on the **“PMDEExport”** folder, and select **“Properties”**.
- f. Select the **“Sharing”** Tab.
- g. Select the **<Share as>** control.
- h. Type **PMDEExport** in the **“Share Name”**.
- i. Under **“Access Type”** Select **“Full”**.
- j. Press **<OK>**.

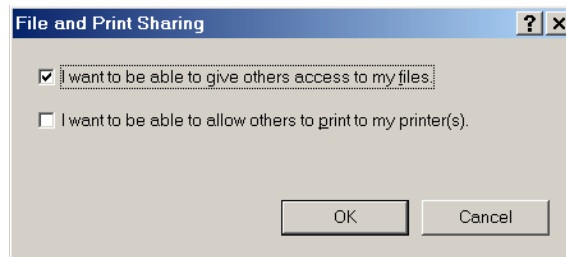
## Windows 98 and ME

### Step 1. Enable Network Sharing on the PC

- a. From the Start Menu, choose **Settings > Control Panel**.
- b. Invoke the **Network** applet.

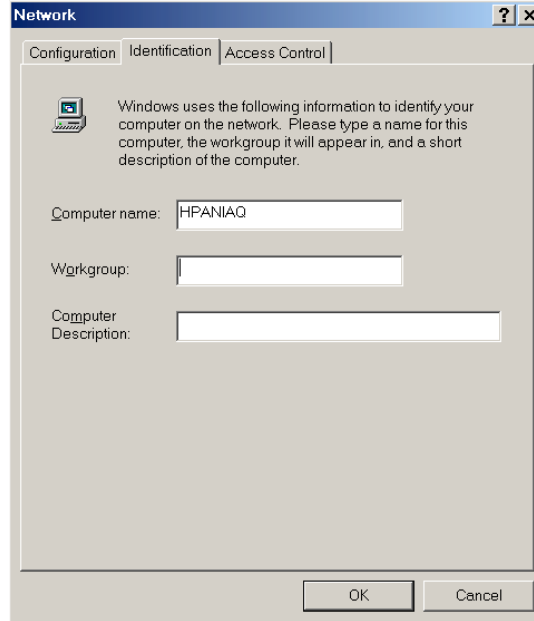


- c. Click on the **“File and Print Sharing”** button.
- d. Check the **“I want to be able to give access to my files”** checkbox.
- e. Press **<OK>**.

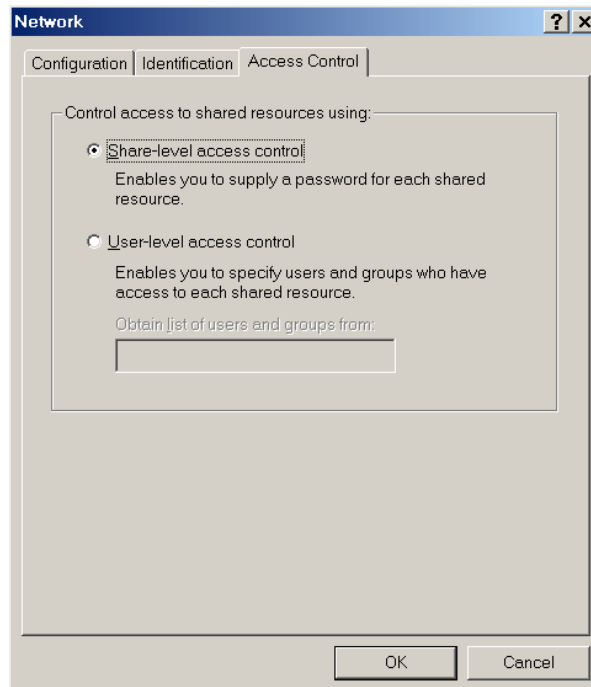


Enable the Receiving System to Receive Exported Data for Data Analysis

- f. Select the **“Identification”** tab, and type in the **“Computer name”**. This is the name that is used during the Information Center network device configuration as the **“Host Name”**.



- g. Select the **“Access Control”** tab and make sure that the **“Share-level access control”** is selected.
- h. Press **<OK>**.



**Step 2.** Create an **PMDEExport** folder, and make it sharable.

- a. Click on the **[My Computer]** icon on your desktop.

## Enable the Receiving System to Receive Exported Data for Data Analysis

- b. Double -click on the <C:> drive.
- c. Under the <File> menu, choose “New ” > “Folder”.
- d. Name your folder “**PMDEExport**”.
- e. Right mouse click on the **PMDEExport** folder, and Select “**Properties**”.
- f. Select the “**Sharing**” Tab.
- g. Select the <Share as> control.
- h. Type **PMDEExport** in the “**Share Name**”.
- i. Under “**Access Type**” Select “**Full**”.
- j. Press <OK>.

Enable the Receiving System to Receive Exported Data for Data Analysis

# Demo Mode Installation Procedure

## Overview

This appendix describes the procedure for installing the Demonstration Mode software of IntelliVue Information Center Release. The Demo Mode uses the software along with simulator patient data files. It is intended for use in training users on IntelliVue Information Center Release E.01 applications and permitting them to gain experience in manipulating and reviewing typical patient information. The installation of the IntelliVue information Center Application Software will copy these patient simulator files (only when requested to do so during installation “Yes” - factory default setting is “No”) to the hard drive, and also create a **Run Demo Icon** in the Windows screen. The **Host Name** must be set to **Demo** for Demo Mode to work properly.

## Notes

Demo Mode software is contained on the IntelliVue Information Center **Release E.01 Application Software CD-ROM**, which is provided with IntelliVue Information Center shipments.

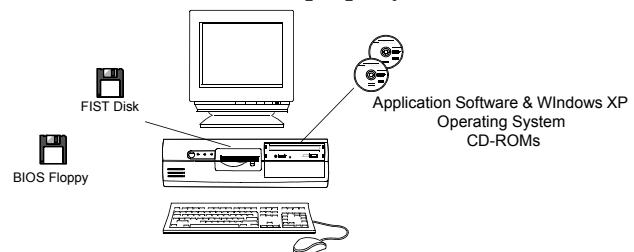
When the **Demo Mode** program is being used for training on the customer’s systems **you must reinstall the OS and then the Application Software before monitoring patients.**

During the installation of the IntelliVue Information Center **Release E.01 Application Software** you will be asked “*Do you want to install DEMO MODE and simulator patient files?*” Selecting **Yes** will install the **Demo Mode** and simulator files. The factory default is set to **No**.

## Installing Windows Operating System

Demo Mode software requires a PC workstation with a Windows XP operating system. This can be installed using the Release E.01 Operating System CD-ROM and Field Install Support Tool (FIST) floppy disk, which comes with IntelliVue Information Center systems. For installation instructions for a workstation, refer to Chapter 7.

**Step 1.** Install the **Operating System** on a PC workstation following procedures given in Chapter 7. Make sure the **Host Name** is set to **Demo** or the Demo Mode will not work properly.



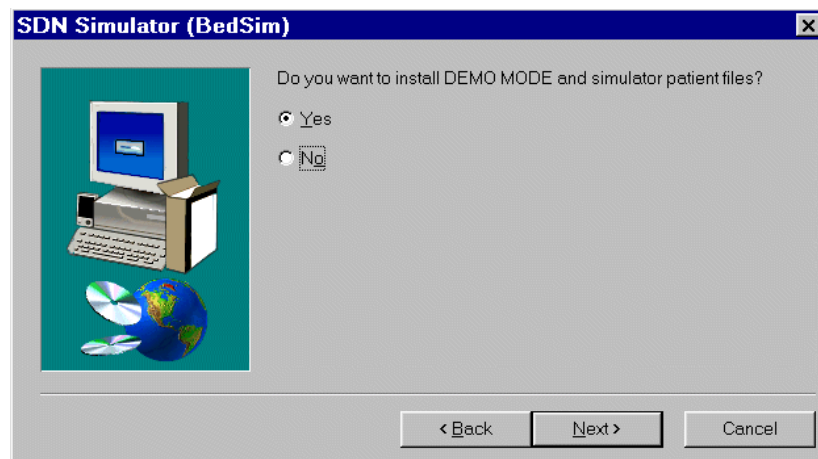
**Operating System Installation**

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## IntelliVue Information Center Demo Mode Software Installation

After the operating system has been installed, verify the **Host Name** is set to **Demo**. **Then, the** IntelliVue Information Center Application Software can be installed which contains the Demo Mode program. Install the Application Software on a PC workstation following procedures given in the “**Software Re-Installation Procedure**” on page 7-147

When the SDN Simulator (DemoModeSim) window appears (see below) click on the **Yes** button to install the Application Software and Demo Mode simulator files, and also create the Run Demo icon.



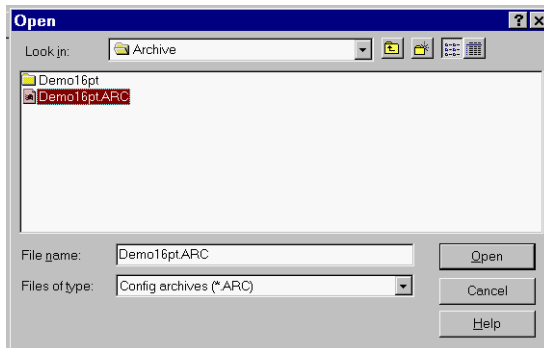
Then, the **Configuration Wizard** will run. When the **Archive Restore** screen appears, browse to the following archive file to restore the factory default demo mode settings from the hard drive. Note: if no floppy disk is inserted an **ERROR** message appears - press **Cancel** to proceed.



Open the screen and browse to the D: directory to find:

**D:\Stardate\BedSim\configs\Archive\Demo16pt.arc**





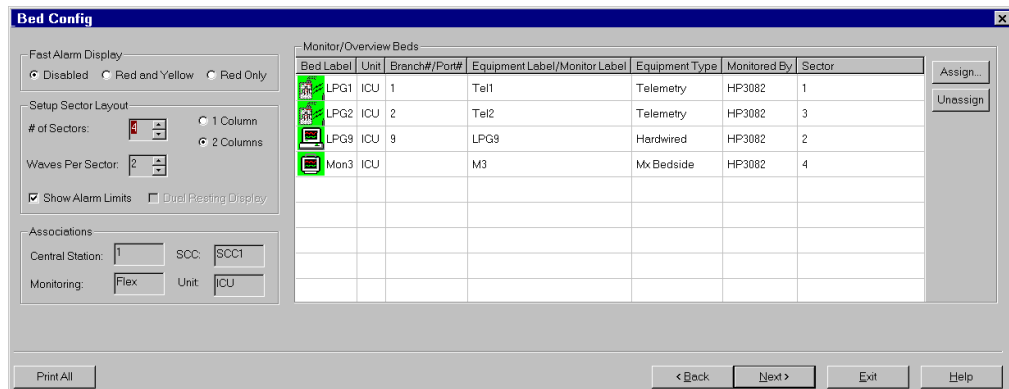
Your systems **host name** must be set to **DEMO** to use the configuration provided. This archive file uses friendly bed labels in a 16 patient 8x2 format (see sample screen).

Bed Label	Type of Bed/Simulator
TeleB1 - TeleB3	Telemetry
EASIB1 - EASIB3	EASI Telemetry
Alarm1 - Alarm2	SDN in Alarm with Alarm Review Data
Bed4 - Bed7	SDN
Bed11,12,14	SDN

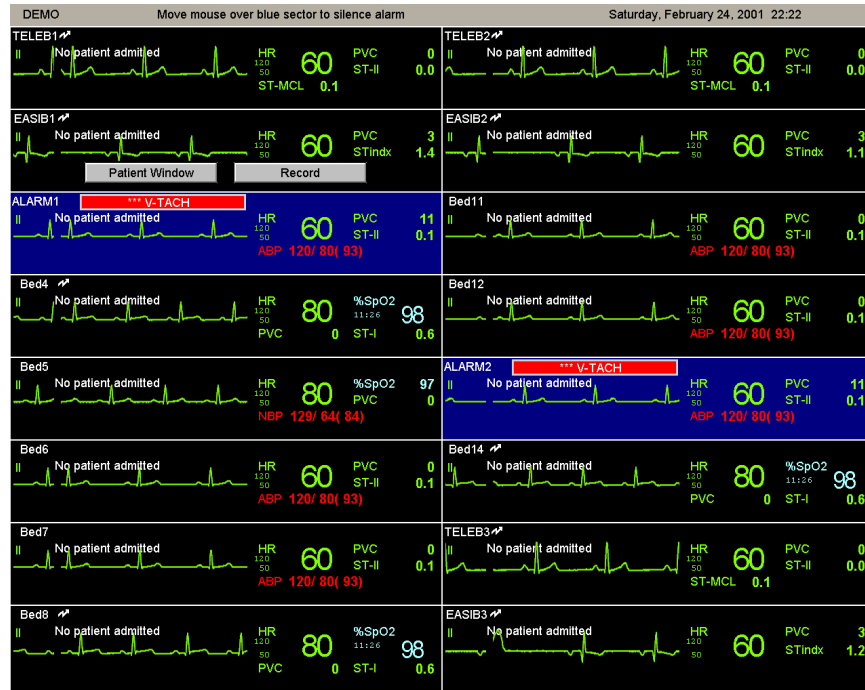
All systems have 24 hours of data for retrospective review applications. The two patient sectors (Archive 1 & 2) also have alarm review data.

**Note**

To change the number of beds being displayed in Demo Mode it is recommended not to change the number of patients! This will erase all the data and settings. Use the **Bed Config Setup Sector Layout - go to Bed Config and change the number of patients; e.g., from 16 to 12** (see sample screen below).



To run the Demo Mode simulator files, go to the Desktop window and double-click on the RunDemo icon which has been installed on the screen.



**Note**

When the **Demo Mode** program is being used for training on the customer's systems you must **reinstall the OS and then the IntelliVue Information Center Application Software** before monitoring patients.