CODONICS™ COLOR DYE SUBLIMATION PRINTERS
VER. 7.0
RELEASE DOCUMENT

**Features and operating instructions for
Codonics EP, NP, and Horizon Series Printers**

9215-0023G-ENG, Rev A   **12-2003**

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Caution: Federal Law restricts this device to sale by or on the order of a physician (or properly licensed practitioner).

TABLE OF CONTENTS

Introduction

The Codonics™ Printer Software Ver. 7.0 allows you to format and print images from Pegasys Display and Processing applications to an EP, NP, or Horizon series Codonics printer on the network. You can print images in color or greyscale, and you can use the **Print Preview** application to preview images before you print.

Note: In this document, the term Pegasys refers to Pegasys Ultra and Pegasys Blade systems, unless indicated otherwise.

Intended Audience

This manual is written for users of Pegasys workstations and for Philips field service engineers.

If you are a customer, please note that your Philips Nuclear Medicine field service engineer performs the initial installation procedure. However, make sure that you thoroughly read and completely understand the following sections of this manual:

- Release Notes
- Product Usage Notes
- Deviation Report
- Using Codonics Print Preview

If you are a Philips field service engineer, make sure that you thoroughly read and completely understand the following sections of this manual:

- Package Contents
- System Requirements
- Before Installing the Codonics Software
- Installing the Software
- Configuring Codonics Printers

Customer Support

If you have any questions or need additional assistance after reading the enclosed documentation, please contact our Philips Nuclear Medicine Customer Support Center at the following numbers:

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If you have comments or suggestions for improving the user documents provided with this software package, please send e-mail to:

`_1mls_doc_comments_am@philips.com`

Conventions Used in this Manual

The following conventions are used in this manual:

- **WARNING**   Messages that alert you to conditions that could result in death or serious injury.
- **CAUTION**   Messages that alert you to conditions that may result in one or more of the following:
  - ▫ Minor or moderate injury to you or the patient
  - ▫ Damage to the equipment or other property
  - ▫ Data loss
- **IMPORTANT**   Vital information that describes how to properly install, configure, or use the system.
- **Note**   Additional information that may help explain an action or procedure.
- **<RETURN>**   Press the RETURN key on the Pegasys image processing keyboard.
- Computer messages displayed on the screen are represented using the Courier font. For example, "`Press the F3 key to proceed.`"
- Keyboard entries that you type are represented by a boldface Courier font. For example, "At the login prompt, type **pegasys**."

Package Contents

Enclosed is the Codonics Color Dye Sublimation Printer package for use with Pegasys systems. Philips has added support for two new Codonics printers—the EP1000 and the Horizon. The printers are listed below. Each of these options can be configured for domestic and international use. Philips no longer sells the EP1650, EP1660, NP1660, or NP1600 printers.

The Codonics Printer Software package (9200-0348F-ENG) contains the following items:

- Codonics Setup Software 7.0 CD: 9104-0085C
- This release document: 9215-0023G-ENG, Rev A

The Codonics printers available for new customer purchases include the EP1000 and Horizon printers. Each of these printer packages contain the following items:

EP1000 Series

- EP1000 Color Dye-Sublimation Printer
- Color Media Starter Kit (A size cassette for domestic printers, A4 for international)

Horizon SF Series

- Horizon SF Color Dye-Sublimation Printer
- Color Media Starter Kit (A size cassette for domestic printers, A4 for international)
- Film Starter Kit (8 x 10 cassette)

See Appendix B for a list of Codonics distributors for international customers.

System Requirements

The Codonics digital printer Ver. 7.0 software is compatible with the following systems:

- Pegasys system: Pegasys Ultra1, Pegasys Ultra 60, Pegasys High Tier, Pegasys Blade
- Pegasys CPU memory: Pegasys Ultra: 256 Megabytes, Pegasys Blade: 512 Megabytes
- System hard disk size: Pegasys Ultra: 18-20 Gigabytes, Pegasys Blade: 40 Gigabytes
- Operating System Version: Solaris 8

The printer is configured as an Ethernet device that exists as a node on the Pegasys network.

Software installation requirements depend on the types of Pegasys systems in your Pegasys network.

IMPORTANT You must load Pegasys Ultra and Pegasys Blade systems with Pegasys software version 5.0.

Release Notes

Philips provides support for six Codonics printers; two of these printers are available for new customer orders.

Note: You can also add a DICOM 3.0 option to the Horizon printer as an add-on purchased option.

The EP1650, EP1660, NP1660, and NP1600M printers are supported, but are no longer available through Philips.

Media types available include:

- DirectVista high gloss paper — for color output
- DirectVista greyscale paper
- CV paper
- Blue based film
- Clear film

Product Features

The EP1000 & Horizon Printer products include the following product features:

- Print Preview - Ability to select, view, and position an image before printing
- Color Matching
- Color prints
- Printer configuration interface
- Image scaling to maximize available space on media
- Network capable with multiple printers on a given network

Additionally, the Horizon provides these features:

- Grayscale prints
- Film prints
- DICOM print capability
- PostScript print capability

Codonics Printer Specifications

The following table outlines the specification for each Codonics printer.

Printer Model	Print Technology	Output	Internal processor	Hard Disk	Media Supported	Resolution	Media Sizes	Interfaces (Ethernet)
EP1650	Dye diffusion	Color, Greyscale	No	No	CVP CV Transparency	300 dpi (11.8 pixels/ mm)	A, A4 and 8" x 10"	Single connect RJ-45 (10 base T) and BNC (10base2)
EP1660N	Dye diffusion and Direct Thermal	Color, Greyscale	No	No	CVP, CVT DVP DVF (both clear base and blue base)	300 dpi (11.8 pixels/ mm)	A, A4 and 8" x 10"	Single connect RJ-45 (10 base T) and BNC (10base2)
NP1600M	Dye diffusion	Color, Greyscale	An internal 60 MIPS SPARC Processor	2 GByte (1.9 GByte available for spooling)	CVP CV Transparency	300 dpi (11.8 pixels/ mm)	A, A4 and 8" x 10"	Unlimited connect AUI-15-pin connector

Printer Model	Print Technology	Output	Internal processor	Hard Disk	Media Supported	Resolution	Media Sizes	Interfaces (Ethernet)
NP1660M	Dye diffusion and Direct Thermal	Color Greyscale	An internal 60 MIPS SPARC Processor	2 GByte (1.9 GByte available for spooling)	CVP, CVT DVP DVF (both clear base and blue base)	300 dpi (11.8 pixels/ mm)	A, A4 and 8"x 10"	Unlimited connect RJ-45 (100 base T/10 base T)
EP1000	Dye sublimation	Color, Greyscale	No	No	CVP	314 dpi (12.36 pixels/mm)	A, A4	Centronics-type 36-pin connector (IEEE 1284) and USB 1.1
Horizon SF/Ci	Dye diffusion and Direct Thermal	Color, Greyscale	Intel	10 GByte (8 GByte available for spooling)	DVF, DVP, CVP	320 dpi (12.6 pixels/ mm)	A, A4, 8"x10", 14"x17" (Ci only)	10/100 Base-T Ethernet (RJ-45), Serial Diagnostic Port, UPS Monitor Port

DICOM 3.0 Option

DICOM 3.0 is an option available for the NP1600M, NP1660M, and Horizon printers. To order DICOM 3.0 for the NP1600M, NP1660M printers, use part number Q-HC-CODDCM. For the Horizon, use N-CODDCM.

IMPORTANT The Codonics NP1600M, NP1660M, and Horizon with the DICOM 3.0 option require the installation of Pegasys DICOM Version 4.24 software. In addition, you must obtain an activation key from Codonics before you can use the DICOM option.

PostScript Option

A PostScript option exists for the Horizon only. You must purchase the option (part number N-CODPOST) and obtain an activation key from Codonics. Also, this requires the Pegasys PostScript 2.0 software to be installed.

Product Usage Notes

The following information may be helpful when you are using a Codonics printer.

- To reselect patients or objects to format to your Codonics printer, you must first close the print preview window by clicking on the down arrow in the upper left corner of the screen. If you do not close the print preview window before formatting the reselected patients or objects, the print preview panel is overlaid in the image output by the Codonics printer.

- The only option in the **Formatting Control Panel** compatible with Codonics is the default printer.

- Philips recommends that you perform appropriate window levelling on an image (for brightness and contrast) before you print it.

Deviation Report

The following are known issues in this release:

- Occasionally, when printing to the EP1650 printer, the error "Could not identify the printer type" appears, and the print job does not print. If this happens, resubmit the print request.

- Color matching between the Pegasys display and the printed media is not identical. You may see some slight variations in color hues.

- Images may not print in the order in which they were sent to the printer.

Before Installing the Codonics Software

IMPORTANT Read the information in this section before proceeding with the software installation. This information is critical to a successful installation.

Connecting a Codonics Printer to a Pegasys Workstation

IMPORTANT Always connect the Codonics printer to the Pegasys network before you install the Codonics software.

You do not need to power down the Pegasys workstation hosting the printer to connect it.

◆ **To connect the printer to the Pegasys system:**

1. Connect one end of the ethernet cable included in the installation kit to the port on the back of the printer.

   See the *Codonics Printer Manual* for a diagram. If you are connecting directly to an NP1600M printer, you must connect the cable to a transceiver (included in the installation kit), and connect the transceiver to the printer port.

2. On a Pegasys Ultra system, connect the other end of the cable to the port labeled **TP (TRANSPORT PROTOCOL)**; on a Pegasys Blade system, connect to the port labelled <...>.

   You may also require a transceiver, depending upon the system and network connection.

3. Enter a new IP address, if necessary.

   Each Codonics printer must have a unique IP address. If this is the second (or more) Codonics printer connected to this Pegasys network or if this is a custom network, you cannot use the default IP address. Instead, you must assign a new IP address. To assign an IP address, use the front panel; for the EP1000, use the set-ep1000 utility instead of the front panel. For more information, see "Assigning an IP Address" on page 11.

4. Test the network connection.

   Follow the instructions in the *Codonics Printer Manual* to test the printer connection.

Installing the Software

Use the following procedure to install or update the Codonics Printer Software on a Pegasys system.

IMPORTANT Read the information in "Before Installing the Codonics Software" on page 7 before beginning the software installation. This information is critical to a successful install.

IMPORTANT If you have multiple Pegasys systems on the network, you must install the Codonics Printer Software on the master system. Each client on the network must be running. During the installation, the files required to print from each client machine are installed from the master.

Note: In the following procedure, the adac in the prompt is used for example purposes only. The prompt varies, depending on the hostname of your system.

◆ **To install the Codonics software on a Pegasys system:**

1. If you are logged in to the Pegasys system, log out: right-click on the desktop to display the **Pegasys Main Menu**, and then right-click on **SYSTEM MAINTENANCE - > EXITS -> LOGOUT.**

2. Log in as **root**.
   ```
   adac console login: root <RETURN>
   Password: adacsu <RETURN>
   Welcome to adac.
   PLEASE REMEMBER THAT YOU ARE SUPERUSER. BE CAREFUL!
   Continue?[y]:y <RETURN>
   Start X-Windowing system?[y]: n <RETURN>
   SUPERUSER@adac:#[1]
   ```

3. Verify the version of Pegasys software installed.
   ```
   SUPERUSER@adac:#[2] pegasys_version <RETURN>
   ```
   A message displaying the Pegasys version appears.

   IMPORTANT You can install this version of the Codonics Printer Software only on systems with Pegasys Ver. 5.0 software.

4. Insert the "Codonics Setup Software" CD into the CD drive.

5. Type the following command to start the installation.
   ```
   SUPERUSER@adac:#[3] setup3 <RETURN>
   ```

The following messages appear:

```
master installation
      Pegasys X or PegasysMD+ must be installed alone first.
 The machines must then be networked together. Once the network
is set, come back and install the options on a networked Pegasys.


You can reload or install Pegasys X or Options


Select the Software you want installed


type number1 <RETURN>
          [1] CodonicsPrint

Enter your selection numbers:
```

6. At the prompt, enter selection number 1.

```
Enter your selection numbers: 1 <RETURN>
```

7. Verify the selection.

```
You selected 1
Is this correct? yes, no or quit [y/n/q] : y <RETURN>
good...continuing
codonicsp
```

8. If you have a previous version of Codonics Printer Software installed, you see the following text; answer the prompts as shown:

```
The following software has already been installed:

codonicsprint
Do you want to reload any of the software already installed? [y/n]
 : y <RETURN>

Which Applications?

CodonicsPrint [y/n]: y <RETURN>
Okay, will reload that software.

Great, there is enough room in /usr/adac/pegx
codonicsp
 Extracting Codonics Print software...

 ..................................
/cdrom/cdrom0/install
..................................
Modifying the RootMenu
Modifying pegasys root menu
Starting Codonics print and Codonics preview daemons......
Sun Microsystems Inc.   SunOS 5.8      Generic Patch   October 2001
Welcome to adac.
Sun Microsystems Inc.   SunOS 5.8      Generic Patch   October 2001
```

```
Welcome to adac.
```

If there are installed clients, you see the additional messages below.

IMPORTANT During the installation, the software locates each client and loads it with the required files. If a client on the network has insufficient space for the installation, an error message appears stating how much space is available, and how much is required. You must ensure that there is at least 10 MB on the client in the directory /files/pat. If a client on the network is not running, you must first start it.

```
Enough space exits for codonics software in client
Enough space exits for codonics software in client

Modifying the RootMenu
Modifying pegasys root menu
Starting Codonics print and Codonics preview daemons......

Installing in client adac2...
Modifying pegasys root menu
Sun Microsystems Inc. SunOS 5.8 Generic Patch October 2001
Welcome to adac2.
Sun Microsystems Inc. SunOS 5.8 Generic Patch October 2001
Welcome to adac2.
Installation in client adac2 successful...

Installing in client adac1...
Modifying pegasys root menu
Sun Microsystems Inc. SunOS 5.8 Generic Patch October 2001
Welcome to adac1.
Sun Microsystems Inc. SunOS 5.8 Generic Patch October 2001
Welcome to adac1.
Installation in client adac1 successful...
```

When the installation is complete, you are asked to reboot. Answer the prompt as shown:

```
Exiting:  /cdrom/cdrom0/install/all.post.script
 finishing up
 Do you want to reboot? [y/n]: y <RETURN>
```

The CD is ejected from the CD drive.

9. Remove the Codonics CD from the tray, and store the CD in a safe place.

10. When the machine has rebooted, log in as **pegasys**:
    ```
    adac console login: pegasys <RETURN>
    ```

11. Do one of the following:
    - If this is a new Codonics Printer Software installation, go to the section "Configuring Codonics Printers" on page 13.

- If this is a software update, run the Codonics Printer Software Configuration application, select each configured printer, and then resave the settings.

Assigning an IP Address

The Codonics printers use TCP/IP (Transmission Control Protocol/Internet Protocol) to receive print requests from an Ethernet network. To use TCP/IP, each printer must have a unique IP address. Your Codonics printer is assigned a default IP address for the standard local network.

If you have more than one printer of the same model, or if the printers are on a custom network, you must assign a unique IP address for each printer. There are two parts to assigning a new IP address:

- You must enter the new IP address on the front of the printer. (If you have an EP-1000, which has no front panel, see the procedure below.) Follow the instructions in the *Codonics Printer Manual* for entering an IP address. Ensure that it is the same as the IP address you enter into the Pegasys system during software configuration.

- You must also enter the new IP address in the Pegasys host workstation. After the software installation, use the **ADD/DEL CODONICS PRINTER** menu on the Pegasys Master to configure the Pegasys host file. Refer to See "Adding or Deleting Codonics Printers" on page 14.

If you have an EP1000, you cannot enter the IP address using a front panel—it does not have one. Use the `set-ep1000` utility on the Pegasys to assign the IP address. Before using the utility, gather the following information:

- Ether address: This is printed on the rectangular black connector (converter) on the back of the printer.

- IP address: Unless a system administrator provides an IP address, you can use any number in the range 192.9.200.1 to 192.9.200.254 that is not currently in use. For example, if you have two printers, you could use 192.9.200.100 and 192.9.200.101.

- Subnet mask: Unless a system administrator provides this, leave it set to the default (255.255.255.0).

- Gateway: Unless a system administrator provides this, leave it set to the default (0.0.0.0).

◆ **To assign an IP address using `set-ep1000`:**

1. From a Unix command line prompt, type

   `pegasys@adac:#[1]` **`set-ep1000 <RETURN>`**

   The utility begins by asking if you would like help first. The help consists of a series of informational text messages about the network parameters to be set.

2. Type `y` to see the help, or `n` to skip it. The next prompt for user input is for the 12-digit Ethernet Address of the converter:

   `Enter new Ether Address [00-00-00-00-00-00] :`

3. Enter the Ethernet Address in the format shown.

    Letters can be upper or lower case. For example:

    ```
    Enter new Ether Address [00-00-00-00-00-00] : 00-40-17-1E-84-F5
    <RETURN>
    ```

    The next prompt is for the IP address, showing the current setting for the selected printer:

    ```
    Enter new IP Address [192.9.200.50] :
    ```

    In this example the Ethernet Interface is set to an IP address of 192.9.200.50, which is the factory default.

4. To accept this address, simply press **<RETURN>**. To change the IP address, type the new IP address, and then press **<RETURN>**.

    The utility prompts for new Subnet Mask and Gateway settings in similar fashion, for example:

    ```
    Enter new Subnet mask [255.255.255.0] :
    Enter new Gateway [0.0.0.0] :
    ```

5. To keep the current values, shown in brackets, press **<RETURN>**. To use a new value, type the value in, and then press **<RETURN>**.

    The utility then displays all the values, for example:

    ```
    Setting EP-1000 Imager network parameters:


        Ether Addr:   00-40-17-1E-84-BF
        IP Address:   192.9.200.154
        Subnet Mask: 255.255.255.0
        Gateway:      0.0.0.0
    ```

    The final prompt allows you to send a test print:

    ```
    Do you want to send a test print (Y or N) [Y]:
    ```

6. Press **<RETURN>** to send a test image to the EP-1000, verifying network setup and printer operation. To run the utility again to fix an incorrect setting, type **n** **<RETURN>**.

    When the utility has finished, it prints something like the following:

    ```
    EP-1000 Imager setup is complete for IP Address: 192.9.200.154
    done
    ```

    If the utility is unable to find the Interface or if there is an error programming the network settings:

    ▪   Make sure that the power to the interface is connected and the orange **Pwr** light is on.

    ▪   Make sure that the network connection to the printer is good, and that the yellow **Link** light is on (may be flashing). If 100Mb/s network, the green **100 base-T** light is also on.

    ▪   Run the `set-ep1000` utility again.

- If it still fails, depress the small **TEST/FACTORY** button. Hold it for 10 seconds without releasing it. Then release it and allow the interface to reboot. (Rebooting is complete when the **Link** light is back on.)
- Disconnect and reconnect power to the Network Interface.
- Run the `set-ep1000` utility again.

Make sure you enter the new IP address in the Pegasys host workstation. After the software installation, use the **ADD/DEL CODONICS PRINTER** menu on the Pegasys Master to configure the Pegasys host file. Refer to See "Adding or Deleting Codonics Printers" on page 14.

Configuring Codonics Printers

Using the **Codonics Configuration** application, you must configure all the Codonics printers on a network. For any printer, you can create multiple configurations. All configurations are stored in one file that resides on the master.

Where to Configure

The configuration file used by the **Codonics Configuration** application is shared between Pegasys systems in the Pegasys network. You can add or delete a printer only on the Pegasys master. However, you can configure a printer on any machine on the network.

IMPORTANT In a Pegasys network, you can add or delete Codonics printers only on the Pegasys master.

How to Configure

To define a configuration for a printer, follow these basic steps, which are explained in detail in subsequent sections.

- Add a Codonics printer to the Pegasys master host file using the **ADD/DEL PRINTER** utility.
- In the **Codonics Configuration** application, create a new entry.
- Set the appropriate configuration parameters.
- Save and exit the configuration application.
- Verify that you have done the appropriate configuration on the Codonics printer configured in the previous steps.

The Codonics printer is ready for use after you have performed these steps.

Adding or Deleting Codonics Printers

Before configuring a Codonics printer, you must add the printer to the Pegasys master host file using the **ADD/DEL PRINTER** utility.

Please refer to the Site Survey for specific configuration data for your site. If you are configuring a new connection that is not documented in the Site Survey, it is important that you fill out the appropriate tables in the Site Survey before you proceed with the configuration.

The parameters you use to set up Codonics communication are:

- **Printer Name**: This is a printer description (a name for you to refer to the printer), for example, film_horizon.

- **Node**: This is the DNS printer host name, used by the system to associate with an IP address, and appears in /etc/hosts.

- **TCP Port Number**: Codonics software communicates over TCP/IP. The function of a TCP port number is similar to that of a telephone number. The default port number is 104. The port number must be a positive number between 1 and 65536.

- **IP address (or Internet address)**: This identifies a host on the network. An example of an IP address is 192.9.200.1.

◆ **To add a printer:**

1. Open the **Add/Del** window: right-click on the desktop to display the **Pegasys Main Menu**, and then right-click on **PATIENT UTILITIES -> CODONICS UTILITIES -> ADD/DEL PRINTER**.

   A UNIX window appears.

   Note: To exit the **Add/Del** utility prior to completing a task, press **<CTRL-C>**.

2. Log in as Superuser.

   Password: **adacsu <RETURN>**

   Welcome to adac.

   PLEASE REMEMBER THAT YOU ARE SUPERUSER. BE CAREFUL!

   Continue?[y]:**y <RETURN>**

   The window displays a list of default parameters for codonics printers (Figure 1), followed by the prompt to add or delete a printer.

```
                    cmdtool – /usr/adac/pegx/scripts/addcodonics.shell
Password:
Sun Microsystems Inc.    SunOS 5.8        Generic Patch    October 2001
You have mail.

Welcome to code1.

PLEASE REMEMBER THAT YOU ARE THE SUPERUSER. BE CAREFUL!

Continue (y/n)? [y] ^C^@
--- This routine allows you to add or delete the hostname ---
--- and ip address of a Codonics printer.                 ---

--- This script must be run on the master and as root.    ---

  The following is a list of the suggested names and ip
  addresses for the different kinds of Codonics printers.

  Printer description  hostname           ip_address
  ===================  ===============    =============
  Codonics NP 1600     codonics_np1600     192.9.200.150
  Codonics NP 1660     codonics_np1660     192.9.200.151
  Codonics EP 1650     codonics_ep1650     192.9.200.152
  Codonics EP 1660     codonics_ep1660     192.9.200.153
  Codonics EP 1000     codonics_ep1000     192.9.200.154
  Codonics HORIZON SF  codonics_horizonsf 192.9.200.155
  Codonics HORIZON Ci  codonics_horizonci 192.9.200.156

Select your function on Codonics [add/del] ? :
```

Figure 1 The **Add**/**Delete** window

3. Type **add**, and press **<RETURN>**.

4. Enter the following parameters as prompted and press **<RETURN>** (Figure 2):

    ▪ The type of codonics printer.

    ▪ The hostname for the printer.

      The hostname must be unique for each configured printer and must begin with codonics. Use a hostname that describes the type of printer being configured so you can easily identify it.

    ▪ The IP address of the Codonics printer.

      If this is a new installation, you may have just assigned an IP address ("Assigning an IP Address" on page 11). Use the same address. If you need to determine the IP address, enter the appropriate commands on the front console of the codonics printer (except for the EP-1000, for which you must look at the /etc/hosts file for that printer). Refer to your Codonics documentation for information on obtaining the IP address.

    IMPORTANT Do not add preceding zeros to any digit of an IP address. For example, if the IP address is 192.9.200.<u>53</u>, do not enter it as 192.9.2.<u>053</u>.

```
┌─▽─────────────── cmdtool – /usr/adac/pegx/scripts/addcodonics.shell ──────────┐
│ --- This routine allows you to add or delete the hostname ---                 │
│ --- and ip address of a Codonics printer.             ---                     │
│                                                                               │
│ --- This script must be run on the master and as root.    ---                 │
│                                                                               │
│   The following is a list of the suggested names and ip                       │
│   addresses for the different kinds of Codonics printers.                     │
│                                                                               │
│   Printer description   hostname          ip_address                          │
│   ==================   ===============   =============                         │
│   Codonics NP 1600     codonics_np1600    192.9.200.150                        │
│   Codonics NP 1660     codonics_np1660    192.9.200.151                        │
│   Codonics EP 1650     codonics_ep1650    192.9.200.152                        │
│   Codonics EP 1660     codonics_ep1660    192.9.200.153                        │
│   Codonics EP 1000     codonics_ep1000    192.9.200.154                        │
│   Codonics HORIZON SF  codonics_horizonsf 192.9.200.155                        │
│   Codonics HORIZON Ci  codonics_horizonci 192.9.200.156                        │
│                                                                               │
│ Select your function on Codonics [add/del] ? :                                │
│ add                                                                           │
│ Select the type of Codonics printer                                           │
│ [np1600/np1660/ep1650/ep1660/ep1000/horizonsf] ? :                            │
│ np1660                                                                        │
│ Select a new hostname (default=codonics_np1660) ? :                           │
│ The hostname must start with 'codonics'                                        │
│                                                                               │
│ Select the IP address for codonics_np1660 (default=192.9.200.151) ? :         │
│                                                                               │
│ Printer's hostname is codonics_np1660                                          │
│ Printer's Internet Address is 192.9.200.151                                    │▲│
│ Location Description : Codonics printer on code1                               │▓│
│ codonics_np1660 exists on the net already.                                    │▓│
│  press <RETURN> to exit                                                       │▼│
│▲                                                                              │
└───────────────────────────────────────────────────────────────────────────────┘
```

Figure 2 Printer parameters

5. Press **<RETURN>** to exit the utility.

6. If you added a printer, verify the connection:

   ▪ Open a UNIX window by right-clicking on the desktop to display the **Pegasys Main Menu**, and then right-click on **SYSTEM MAINTENANCE ->SYSTEM UTILITIES ->UNIX WINDOW**.

   ▪ Type **ping *hostname*** (where hostname is the name you entered in step 4).

   If the printer was not found, an error message appears. Check all network cables; check the hostname and IP address. If the cables are secure and the hostname and IP address are correct, call your FSE (or tech support).

7. Proceed with the following section, "Using the Codonics Printer Configuration Application", to configure the Codonics printer.

◆ **To delete a printer:**

1. Open the **Add/Del** window: right-click the desktop to display the **Pegasys Main Menu**, and then right-click on **PATIENT UTILITIES -> CODONICS UTILITIES -> ADD/DEL PRINTER**.

   A UNIX window appears.

   Note: To exit the **Add/Del** utility prior to completing a task, press **<CTRL-C>**.

2. Log in as Superuser.

   Password: **adacsu <RETURN>**

   Welcome to adac.

   PLEASE REMEMBER THAT YOU ARE SUPERUSER. BE CAREFUL!

   Continue?[y]:**y <RETURN>**

The window displays a list of currently installed codonics printers (Figure 1), followed by the prompt to add or delete a printer.

3. Type **del** and press **<RETURN>**.

   A list of currently configured codonics printers appears.

4. Type the name of the printer you want to delete and press **<RETURN>**.

   The printer is deleted from the master. You can no longer use this printer from any Pegasys workstation on the network. Press **<RETURN>** to exit the utility.

   Note: With this utility, you can only add or delete printers whose hostname begins with codonics.

Using the Codonics Printer Configuration Application

Use the configuration application to add, delete, or modify the configuration entry of a remote or local Codonics printer.

IMPORTANT In a Pegasys network, you can configure Codonics printers from any Pegasys on the network. However, you must first add the Codonics printer to the host file of the Pegasys master (see "Adding or Deleting Codonics Printers" on page 14).

Note the following guidelines before you use the configuration application:

- Only certain media combinations are valid. Be sure to select a valid combination in the **Codonics Configuration** window. If you select an invalid combination, the print job will be discarded. For a list of valid combinations, see "Determining Media Combinations" on page 28.

- A Codonics printer is physically connected to the network, not to the serial or parallel port on the back of a Pegasys system. The printer functions as a node on the network and has a unique hostname and IP address.

- You can associate multiple Codonics printer configuration records with a single Codonics printer. For example, you may define one configuration to print in 2 X 2 format, another configuration to print in Single format, etc., all for the same printer.

Controls for the Printer Configuration Window

The following controls appear at the bottom of the configuration window:

Note: Use the **Add**, **Delete**, and **Reset** buttons to control only the **Codonics Printers** list on the left. Use the **Save**, **Cancel**, and **Save All & Exit** buttons to control the entire window.

- **Add**: This adds a new selection to the printer list.

- **Delete**: This removes a printer from the printer list.

- **Reset**: This restores the parameter values to the previously saved values.

- **Save**: This saves your changes.

- **Cancel**: This exits the application without saving changes.

■ **Save All & Exit**: This saves your changes and exits the application.

Adding a Codonics Printer Entry

◆ **To add a Codonics printer entry:**

1. Open the **Codonics Configuration** window: right-click on the desktop to display the **Pegasys Main Menu**, and then right-click on **PATIENT UTILITIES -> CODONICS UTILITIES -> CODONICS CONFIGURATION**. The **Philips Codonics Configuration** window appears:
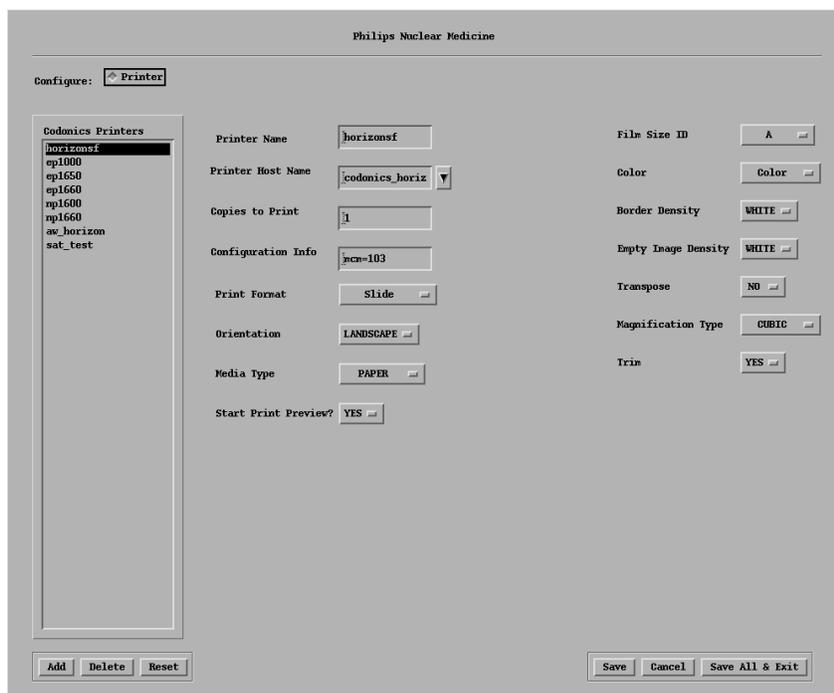

Figure 3 **Philips Codonics Configuration** window

2. Click on the **Add** button under the **Codonics Printers** list.

   A highlighted unTitled entry appears in the list.

3. Edit the **Printer Name** field: click on unTitled in the **Printer Name** field to highlight it, and then type the name of a new configuration.

   This name is a label that you use to identify the printer configuration from a list of previously defined configurations. The configuration name should not contain any spaces or tabs, for example, CODONICS_NP1.

   Note: Do not use a configuration name that is a subset of another configuration name. For example, do not assign two configurations with the names CODONICS and CODONICS_NP1.

4. Set the **Printer Host Name**: click on the down arrow button next to the **Printer Host Name** field to display the list of existing hostnames and IP addresses.

    If there are numerous hosts, scroll through the list vertically using the vertical slider, or click on the up and down arrows. To display the IP addresses, scroll horizontally using the horizontal slider, or click on the left and right arrows.

5. Set the **Start Print Preview** option.

    If you set the option to **Yes**, the **Codonics Print Preview** application automatically starts when you format an image. If you set the option to **No**, it does not start. Instead, the formatted image is sent directly to the printer.

6. Edit the default printer parameters.

    Refer to the following table to determine how to set the remaining values.

    Note: If you choose an option not supported by your printer, an error message appears.

Parameter	Options	Description
Copies to Print	Numeric value	Determines the number of copies to print.
Configuration Info	`MCM = [0,101,102,` `103,104]` `CONTRAST (-100 to +100)` `  Default: 0` `GAMMA (0.0 to 10.0)` `  Default: 1.0`	`MCM` specifies color correction for individual printers. `CONTRAST` affects the difference between the light and dark areas; `GAMMA` affects how light or dark the image is. See the **Configuration Info** explanation following this table for details.
Print Format	Menu list	Determines print layout. One image is printed with the `1,1` format, four images are printed (two down and two across) with the `2,2` format, etc. You can also select `slide` to print to slide media.
Orientation	`Landscape` `Portrait`	Determines image orientation on the media. **Note**: When toggling between `landscape` and `portrait`, the **Codonics Preview** screen resizes. If necessary, adjust the size of the **Codonics Preview** to display all buttons. Resizing does not affect the printed output.

Parameter	Options	Description
Media Type	Paper Blue Film Clear Film	Optimizes printing for the media you are using. You must select the media type used in the printer.
Film Size ID	A A4 8 x 10 in	Optimizes printing for various film sizes.
Color	Color Grayscale	Determines the color format.
Border Density	Black White	Sets the border density color.
Empty Image Density	Black White	Sets the empty image density color.
Transpose	Yes No	Toggles transposition on or off. If **Yes**, polarity is reversed. If **No**, polarity is unchanged.
Magnification Type	Bilinear Replicate Cubic None	Sets the magnification type. If Replicate, scaling is fast but the pixels are more visible. If Bilinear or Cubic, scaling is smooth. Philips recommends leaving this set to the default: Bilinear.
Trim	Yes No	Specifies whether a trim box is printed around each image on the film.

Configuration Info

There are three parts to the **Configuration Info** parameter: **MCM** (color matching), **Contrast**, and **Gamma**. You can control all three with one command in the type-in field, for example:

```
config_info = mcm=102\gamma=1.2\contrast=5
```

Or you can use fewer than three controls, for example:

```
config_info = gamma=1.4
```

MCM specifies color correction for individual printers. You must set this appropriately for your printer. If you do not, you cannot ensure that the printed colors accurately reflect the Pegasys output.

Note: For color correction to take place, you must set this value. This can only be one of 5 values. The list below specifies the color correction value for each printer:

▫ 0 applies no color correction to any printer.

▫ 101: NP1600

□ 102: EP1650, NP1660, EP1660

□ 103: Horizon

□ 104: EP1000

The color matching algoritm has been validated for the following color maps using the standarad Pegasys Blade CRT monitor and the flat panel monitor:

□ Thermal

□ Blue_Red_Yellow

□ PIXEF

□ Grey

□ Blue_Green_Red

□ Isocontour

□ Rainbow

□ 8-Color

□ Bullseye

□ CEqual

CONTRAST allows you to highlight important information within your images. The printer controls contrast by applying a "contrast curve" to the image before printing. The **CONTRAST** setting controls the shape of this curve. Increasing the Contrast number increases the differences between light and dark areas, making light areas lighter and dark areas darker. Decreasing it does the opposite. A setting of 0 does not change the image at all.

GAMMA allows you to adjust the overall lightness or darkness of images so they match more closely what you see on the monitor. Increasing **GAMMA** lightens the images, and decreasing it darkens them; a value of 1.0 produces no change.

Note: Philips recommends leaving **CONTRAST** and **GAMMA** set to the default.

7.   Do one of the following:

■   Click **Save All & Exit** to save your changes and exit the application. The `$DATABASE_PATH/Codonics/codonicsprint.cfg` file is updated. The following Pegasys printer configuration files are also updated:

`$DATABASE_PATH/formatcap`

`$DATABASE_PATH/formatcap_db`

`$DATABASE_PATH/periph.rsc`

■   Click **Save** to save your changes, and then select another configuration option.

Note: If you use more than one media type on the printer, you must create a unique configuration for each media type you use.

Note: If there are problems with the combination of settings selected, an error message appears. (Refer to the section "Determining Media Combinations" on page 28 for valid media combinations.)

8.   If necessary, define the default printer.

If you do not have a printer on the network, you must define this one as the default printer. Refer to "Setting the Codonics Printer as the Default" on page 22.

Now you are ready to print to the newly defined Codonics printer from the Pegasys processing and review applications.

Modifying a Codonics Printer Entry

◆ **To modify a printer entry:**

1. Open the **Codonics Configuration** window: right-click on the desktop to display the **Pegasys Main Menu**, and then right-click on **PATIENT UTILITIES -> CODONICS UTILITIES -> CODONICS CONFIGURATION.**

2. Click on an entry in the **Codonics Printers** list.

   The entry is highlighted and the edited fields are updated with parameter values.

3. Edit the appropriate fields.

   Refer to steps 3 through 8 on pages 18 through 21.

Deleting a Codonics Printer Entry

◆ **To delete a printer entry:**

   IMPORTANT The following procedures describe how to delete a printer configuration from the configuration utility only. This makes the printer inaccessible from the current Pegasys. To delete the Codonics printer from the network, use the **Add/Del** utility on the Pegasys master, described in the section See "Adding or Deleting Codonics Printers" on page 14.

1. Open the **Codonics Configuration** window: right-click on the desktop to display the **Pegasys Main Menu**, and then right-click on **PATIENT UTILITIES -> CODONICS UTILITIES -> CODONICS CONFIGURATION.**

2. Click on an entry in the **Codonics Printer** list.

   The entry is highlighted and the edited fields are updated with parameter values.

3. Click **Delete** under the **Codonics Printer** list.

   The entry disappears from the list.

   IMPORTANT You cannot undo the deletion. If you click **Delete** multiple times, you delete multiple printer configuration entries. It is import that you click only once.

Setting the Codonics Printer as the Default

Use the **SET DEFAULT DEVICES** application to set the Codonics printer as the default for all sessions.

◆ **To set the Codonics printer as the default printer:**

1. Select the Pegasys **Change Default Formatter** option: right-click on the desktop to display the **Pegasys Main Menu**, and then right-click on **SYSTEM MAINTENANCE -> SET DEFAULT DEVICES -> CHANGE DEFAULT SETTINGS -> CHANGE DEFAULT FORMATTER**.

    A list of available formatters appears. The list varies, depending on your network. The following list is an example:

    ```
    Choose a default Formatter:
    1: Device np1600 from host adac
    2: Device np1660 from host adac
    q: quit
    Choice:
    ```

    Note: If your printer does not appear in the Formatter list, you must add it to the **Printer Configuration** application (refer to "Adding a Codonics Printer Entry" on page 18).

2. Do one of the following:

    ■ Enter the appropriate option number and press **<RETURN>**.

    ■ Type **q** and press **<RETURN>** to quit without making any changes.

3. Press **<RETURN>** to exit the window.

Printing Images

To print images using Codonics print, format the images you want to print, and then use **Codonics Print Preview** to redefine the printing parameters and page layout.

Use the Pegasys **Format** icon to print displayed images from a Pegasys application. The **Format** icon appears on the right border of the Pegasys application window. Right-click on the **Format** icon to display a pop-up menu (Figure 4) with three options:

■ **Format Entire Canvas**

■ **Format the Area in a Box**

■ **Control Panel**

There are instructions for using each of the options in the following sections. See the *Pegasys User's Manual* for detailed information about using **Format**.
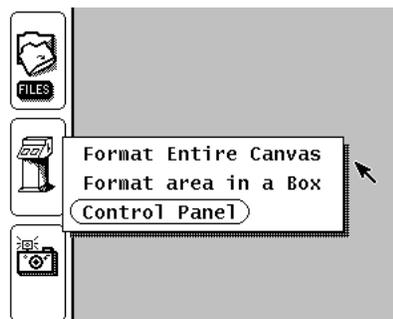
Figure 4 **Format** icon pop-up menu

Note: Depending on your network configuration, print times may vary.

Changing the Default Printer Using the Formatting Control Panel

You can change the printer on which to print images for a single session using the **Formatting Control Panel**.

◆ **To change the default printer:**

1. Display the **Formatting Control Panel** by right-clicking on the **Format** icon and selecting **Control Panel** from the pop-up menu (Figure 4).

   The **Formatting Control Panel** appears (Figure 5).

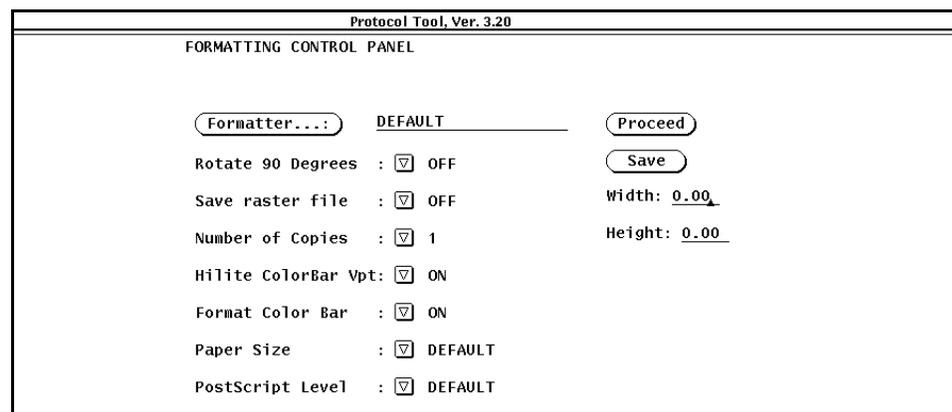**Figure 5** The **Formatting Control Panel**

2. Right-click on the **Formatter** button and selecting a Codonics printer from the pop-up menu.

3. Click **Proceed**.

   You can change the default printer for the current session, but after you exit the application, the default printer is the one you specify either with the **SET DEFAULT DEVICES** application or with the **Codonics Print Preview** application.

Note: You can use the **Codonics Print Preview** application to override other printer parameters also.

Formatting the Images

In Pegasys applications, you can use the **Format Entire Canvas** option to format the entire image displayed in the application window, or the **Format the Area in a Box** option to format an area that you define in the image displayed in the application window.

IMPORTANT Before you format and print images from multiple patient studies, make sure that the patient information labeling appears in the Pegasys application.

◆ **To format the entire canvas, do one of the following:**
   - Click on the **Format** icon, displayed on the right border of the application window. The entire canvas is automatically formatted.
   - Right-click on the **Format** icon and select **Format Entire Canvas** (Figure 4).

◆ **To format an area in a box:**

1. Right-click on the **Format** icon and select **Format Area in a Box** from the pop-up menu (Figure 4).

   Some editing controls appear. Click **Cancel** at any time to quit the formatting function.

2. Draw a box around the image:
   - Middle-click on the upper-left portion of the image and drag diagonally until the box encloses the image.
   - Release the mouse button to complete the rectangle.

3. If you need to delete the current box and draw a new one, click **Redraw**.

4. If you need to move the box to a different location, click **Drag**.

5. Click **Proceed** to format.

Adding a Pegasys Client to the Network

When you add a Pegasys client to the network, you must reinstall the Codonics software to transfer the Codonics configuration files to the new client. Note the following points when you add a client:
   - You do not need to uninstall the Codonics software before you add the client to the network and reinstall the new software.
   - Reinstalling or updating the software does not overwrite configuration files on existing Pegasys systems.

Deinstalling the Codonics Software

You may need to deinstall the Codonics software if the software becomes corrupt, if you want to have a clean system on which to install a new version, if you no longer want to have the Codonics software on a particular system, or if you need to remove the system from the network.

Deinstalling the Codonics Software from a specific Pegasys system

You can deinstall just the Codonics software from one or more Pegasys systems on the network. In this situation, you are not removing any of the printers from the network, you are simply deinstalling the Codonics software from the Pegasys system.

◆ **To deinstall the Codonics software from one or more Pegasys systems:**

1. Open a UNIX window on the machine on which you want to do the deinstallation by right-clicking on the Pegasys desktop to display the **Pegasys Main Menu**, and then right-clicking on **SYSTEM MAINTENANCE -> SYSTEM UTILITIES -> UNIX WINDOW**.

2. Run the deinstall script on each Pegasys system whose Codonics software you wish to deinstall:

   ▪ Type `cd $PEGXSCRIPTS <RETURN>` to change directories.

   ▪ Type `./codonics_deinstall.script <RETURN>` to run the de-install script.

   ▪ Type `y` at the prompt "Do you want to remove codonics software?"

3. Close the UNIX window.

4. Verify that the Codonics software has been de-installed.

   ▪ Right-click on the desktop to display the **Pegasys Main Menu,** and then right-click on **PATIENT UTILITES**.

   The **CODONICS UTILITIES** menu item does not appear.

Removing the Codonics Printer(s) and Software from the Pegasys network

You can remove both the Codonics printers and the associated software from the Pegasys network. Before deinstalling the software, you must back up some files on the master system and remove printer entries from the configuration file.

Note: Some of these procedures involve using vi to edit files. If you do not know how to use vi, call Philips Nuclear Medicine Customer Support.

Note: When you back up files and remove printer entries from the configuration file, you must do it on the Pegasys master.

◆ **To back up important files:**

1. On the Pegasys master, open a UNIX window by right-clicking on the Pegasys desktop to display the **Pegasys Main Menu**, and then right-clicking on **SYSTEM MAINTENANCE -> SYSTEM UTILITIES -> UNIX WINDOW**.

2. Type the following commands at the UNIX prompt:

   ```
   pegasys@adac:#[1] cd $DATABASE_PATH <RETURN>
   pegasys@adac:#[2] cp formatcap formatcap.orig <RETURN>
   pegasys@adac:#[3] cp formatcap_db formatcap_db.orig <RETURN>
   pegasys@adac:#[4] cp periph.rsc periph.rsc.orig <RETURN>
   pegasys@adac:#[5] cd Codonics <RETURN>
   pegasys@adac:#[6] cp codonicsprint.cfg codonicsprint.cfg.orig
   <RETURN>
   ```

◆ **To remove printer entries from the configuration file:**

1. On the Pegasys master, open the **Codonics Configuration** window: right-click on the desktop to display the **Pegasys Main Menu**, and then right-click on **PATIENT UTILITIES -> CODONICS UTILITIES -> CODONICS CONFIGURATION**.

   The **Codonics Configuration** utility appears.

2. Select the first printer in the list and then click **Delete**. This deletes the printer entry from the appropriate files on the Pegasys system.

3. Repeat step 2 for each printer listed until you have deleted all printer entries.

4. When you are done, click **Save** or **Save All & Exit**.

5. Delete each printer entry from the Add/Del utility as described in "Adding or Deleting Codonics Printers" on page 14.

   This removes all of the printers from the /etc/hosts file.

◆ **To deinstall the Codonics software:**

1. Open a UNIX window by right-clicking on the Pegasys desktop to display the **Pegasys Main Menu**, and then right-clicking on **SYSTEM MAINTENANCE -> SYSTEM UTILITIES -> UNIX WINDOW**.

2. Run the deinstall script on each Pegasys system whose Codonics software you wish to deinstall:
   - Type **cd $PEGXSCRIPTS <RETURN>** to change directories.
   - Type **./codonics_deinstall.script <RETURN>** to run the de-install script.
   - Type **y** at the prompt "Do you want to remove codonics software?"

3. Close the UNIX window.

4. Verify that the Codonics software has been de-installed.

   - Right-click on the desktop to display the **Pegasys Main Menu,** and then right-click on **PATIENT UTILITES**.

   The **CODONICS UTILITIES** menu item does not appear.

Using Codonics Print Preview

This section describes how to use **Codonics Print Preview** from a Pegasys application. Before you print from a Pegasys application, designate a printer or, if necessary, change the default printer. Then use the **Format** icon to choose the images to print.

After you format an image, if Print Preview is on, the **Codonics Print Preview** application starts. You can use this application to change many printer parameters before you send the image to the printer. If you format multiple images, you can also use it to change the display layout, or delete and replace images. If you want to print multiple images, minimize the application, load the new images, and format them. Depending on the current layout configuration, the **Codonics Print Preview** application displays up to 24 formatted images.

Note: If you close the preview window after pressing **Print**, then try to open the **Print Preview** icon, the preview window might not display properly. Do not try to correct this, but wait until the print process completes and the window exits.

IMPORTANT If the **Codonics Print Preview** window does not appear, try setting the **Start Codonics Preview** option in the Printer configuration window to **Yes**. See "Configuring Codonics Printers" on page 13 for information on changing this setting.

Determining Media Combinations

The tables in this section specify the parameters you can use in the **Print Preview** configuration file for each Codonics printer model, as well as the media you can use for a given set of parameters. If you select parameter combinations not in the list for a given printer, an error appears and the print job is discarded.

In addition to the information in the tables, the following rules also apply:

- If the media in the printer is different from the media you specify, you are prompted, and the image is formatted for the printer media.

- If target media does not support a Color setting of **color**, an error appears and the image will not print.

- If you select **Grayscale** as the Color, the target image is converted to grayscale.

EP-1000

Film Size	Type	Color	Valid Media
A	Paper	Grayscale	A-CVP, A4-CVP
A	Paper	Color	A-CVP, A4-CVP
A4	Paper	Grayscale	A-CVP, A4-CVP
A4	Paper	Color	A-CVP, A4-CVP

Horizon

Film Size	Type	Color	Valid Media
A	Paper	Grayscale	A-CVP, A-DVP
A	Paper	Color	A-CVP
A	Clear Film	Grayscale	A-CVF
A	Clear Film	Color	A-CVF
A4	Paper	Grayscale	A4-CVP, A4-DVP
A4	Paper	Color	A4-CVP
A4	Clear Film	Grayscale	A4-CVF
A4	Clear Film	Color	A4-CVF
8 X 10	Clear Film	Grayscale	8 x 10 DVF Clear
8 X 10	Blue Film	Grayscale	8 x 10 DVF Blue

EP-1650

Note: The EP-1650 cannot report the media loaded in the printer to the codonics_print driver. Therefore, images will print on whatever media is loaded, regardless of what you select.

Film Size	Type	Color	Valid Media
A	Paper	Grayscale	A-CVP, A-CVT, A4-CVP, A4-CVT
A	Paper	Color	A-CVP, A-CVT, A4-CVP, A4-CVT
A	Clear Film	Grayscale	A-CVP, A-CVT, A4-CVP, A4-DVT
A	Clear Film	Color	A-CVP, A-CVT, A4-CVP, A4-DVT
A4	Paper	Grayscale	A-CVP, A-CVT, A4-CVP, A4-DVT

Film Size	Type	Color	Valid Media
A4	Paper	Color	A-CVP, A-CVT, A4-CVP, A4-DVT
A4	Clear Film	Grayscale	A-CVP, A-CVT, A4-CVP, A4-DVT
A4	Clear Film	Color	A-CVP, A-CVT, A4-CVP, A4-DVT

NP-1600

Film Size	Type	Color	Valid Media
A	Paper	Grayscale	A-CVP
A	Paper	Color	A-CVP
A	Clear Film	Grayscale	A-CVT
A	Clear Film	Color	A-CVT
A4	Paper	Grayscale	A4-CVP
A4	Paper	Color	A4-CVP
A4	Clear Film	Grayscale	A4-CVT
A4	Clear Film	Color	A4-CVT

EP-1660N

Note: The EP-1660N cannot detect the difference between Clear Film and Blue Film. Therefore, 8 x 10 film prints will print on whatever film is loaded (Clear or Blue).

Film Size	Type	Color	Valid Media
A	Paper	Grayscale	A-CVP, A-DVP
A	Paper	Color	A-CVP
A	Clear Film	Grayscale	A-CVT
A	Clear Film	Color	A-CVT
A4	Paper	Grayscale	A4-CVP, A4-DVP
A4	Paper	Color	A4-CVP
A4	Clear Film	Grayscale	A4-CVT
A4	Clear Film	Color	A4-CVT
8 X 10	Clear Film	Grayscale	8x10-DVF
8 X 10	Blue Film	Grayscale	8x10-DVF

NP-1660

Note: The NP-1660 cannot detect the difference between Clear Film and Blue Film. Therefore, 8 x 10 film prints will print on whatever film is loaded (Clear or Blue).

Film Size	Type	Color	Valid Media
A	Paper	Grayscale	A-CVP, A-DVP
A	Paper	Color	A-CVP
A	Clear Film	Grayscale	A-CVT
A	Clear Film	Color	A-CVT
A4	Paper	Grayscale	A4-CVP, A4-DVP
A4	Paper	Color	A4-CVP
A4	Clear Film	Grayscale	A4-CVT
A4	Clear Film	Color	A4-CVT
8 X 10	Clear Film	Grayscale	8x10-DVF
8 X 10	Blue Film	Grayscale	8x10-DVF

Using the Codonics_preview Screen

◆ **To use Codonics Print Preview:**

1. If necessary, bring the **Codonics_preview** screen (Figure 6) to the front, by doing one of the following:

   - Click **Front** repeatedly until the **Codonics Print Preview** application is in front of other running applications.

   - Double-click on the icon of a **Codonics Print Preview** application.
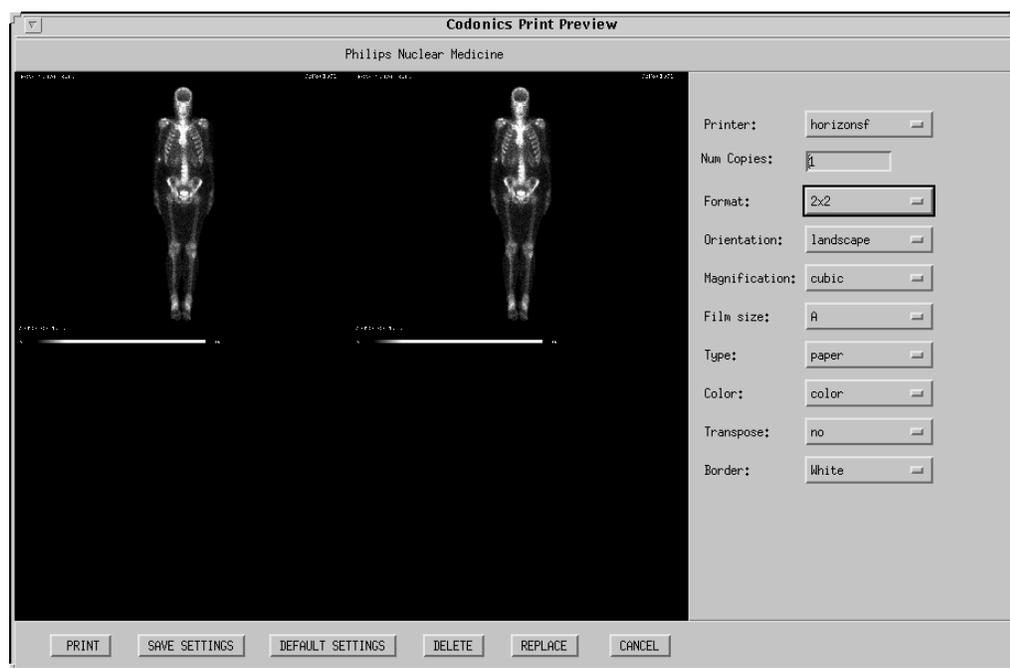
Figure 6 Codonics Preview application

2. Click **Printer** and select a printer.

3. Enter the number of copies to print.

4. Click **Format** and select a layout configuration. For example, Figure 6 displays a 2 × 2 layout.

5. Change the images displayed and image placement as appropriate.

   ■ To delete images from the current layout, click on the image, and then click on **Delete**.

   ■ To replace an image with another formatted image:
      □ Click on the image.
      □ Click **Replace**. The **Codonics_preview_popup** dialog box appears (Figure 7).
      □ Click on the image you want to substitute.

Figure 7 The **Codonics preview popup** screen

IMPORTANT Images print as they are displayed in the current Pegasys application, except that they appear in grayscale rather than in color. Depending on the layout configuration and current print parameters, the images may appear differently (stretched) in the **Codonics Print Preview** application. This application reflects the layout only, not the output image quality. For example, Figure 8 illustrates how the same image displays differently depending on whether you set printing for landscape or portrait orientation. The output is the same for both cases, and matches the image displayed in the original Pegasys application.

Image as displayed in **Codonics Preview** portrait mode

Image as displayed in **Codonics Preview** landscape mode
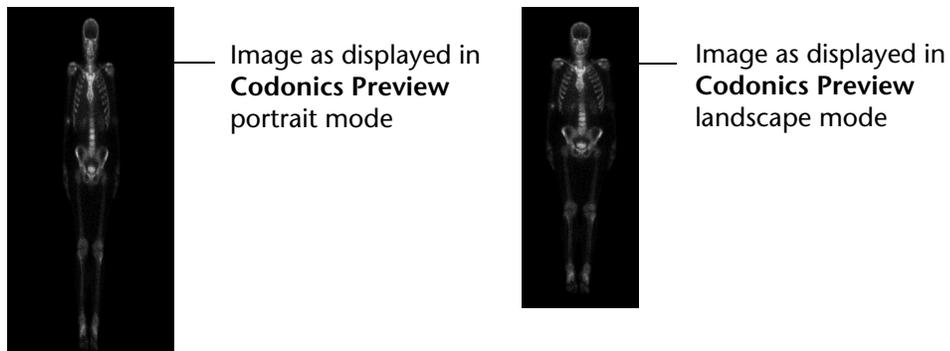
Figure 8 **Codonics Preview** image display variance

6. Change the print parameters as appropriate.

   Refer to the table on page 19 for detailed information on the available options.

   Note: Not all configuration options are available in the **Codonics_preview** screen. To change additional settings, use the configuration utility (see "Adding a Codonics Printer Entry" on page 18).

7. To reload the settings in the configuration file (the default settings), click **Default Settings**; to save the current settings as the new default, click on **Save Settings**.

   These settings are saved as the defaults for the current printer entry.

8.   Click **Print** to send the job to the printer.

> **IMPORTANT** If the number of formatted images is greater than the current layout configuration can display, the **Codonics Print Preview** screen appears again to verify whether you want to cancel the additional images or reformat the layout to display the rest of the formatted images. Once you format the initial images, they are deleted from the **Print Preview** window.

Restarting the Codonics Print Daemon

You must restart the Codonics Print daemon if you cannot print on the Codonics printer. To restart the Codonics Print daemon, right-click on the desktop to display the **Pegasys Main Menu**, and then right-click **PATIENT UTILITIES -> CODONICS UTILITIES -> RESTART CODONICS PRINT DAEMON**. The daemon restarts.

Using the Codonics Digital Printer

You can find most of the information you need to use your Codonics printer in your *Codonics Printer User's Manual*. However, some general information about choosing paper sizes and displaying system information also appears here.

There are also a few areas where the general operating instructions in the printer manual are not relevant for printers operating with Pegasys systems. These areas include methods of issuing print commands and assigning IP addresses, both of which are discussed in this section.

Selecting the Paper Size

Each Codonics printer comes equipped with a cassette that holds several paper lengths of a standard width. If you need more than one paper width, you must order different cassettes. Any of the following cassettes fit your Codonics printer:

- The A cassette is the standard cassette you use with models in the USA. It holds the following three paper sizes:
  - 8.5 x 11 in. (216 x 279 mm.)
  - 8.5 x 12 in. (216 x 305 mm.)
  - 8.5 x 14 in. (216 x 356 mm.)
- The A4 cassette is the standard cassette you use with international models. It holds the following three paper sizes:
  - 210 x 297 mm (8.3 x 11.7 in.)
  - 210 x 305 mm (8.3 x 12 in.)
  - 210 x 356 mm (8.3 x 14 in.)
- The Long Wide cassette can be ordered from Codonics. It holds one paper size:

  9.5 x 14 in. (241 x 356 mm)

- The 8 x 10 cassette is an option only for the Codonics NP1660M domestic and international printers. The 8 x 10 cassette is used with blue base film (dry film) and holds one film size:

  8 x 10 in. (203 x 254 mm)

- The Horizon SF holds the following media:
  - 203 x 254 mm film (8 x 10 in.)
  - 210 x 297 mm paper (8.3 x 11.7 in.)

A media-length indicator on the cassette adjusts the cassette for the different sizes and instructs the printer to use the selected size. No software adjustment is necessary on the Codonics printer to select different paper sizes, although you must set the **Codonics Configuration** correctly in order to print from different paper sizes.

Displaying System Information

You can display several kinds of system information from the front panel of the printer (except on the EP1000). You can also make many adjustments that have previously required software solutions from the front panel.

Information that you can access from the front panel includes:

- Firmware version
- Amount of image buffer memory
- Printer default settings
- Boot messages, operating messages, and fault messages

You can also make some adjustments from the front panel. These include:

- Gamma values (light and dark) and contrast settings
- True Color Rendering (TCR) and Medical Color Matching (MCM)
- Printer default settings
- Printer scaling method (NP1600M and NP1660M only)

No software commands are necessary to access this information or to make these adjustments. For more information, refer to the appropriate *Codonics Printer User's Manual*.

Printing 35 mm slides from a Codonics NP1660 Printer

Use the following procedure to set up the Codonics Configuration to print 35 mm slides on your Codonics NP 1660 printer.

Note: You must have **Codonics Print Preview** installed on your system.

◆ **To set up the Codonics Configuration to print 35 mm slides:**

1. For color or black and white slides (determined by color map displayed), place CV (Chroma Vista) transparency media in the CV color paper tray (notch to bottom right and ribbon installed). Optionally, for black and white slides only, place DV (Direct Vista) film media in the DV film tray (ribbon not installed). In step 4 below, use the settings that are in brackets.

2. Restart the **Codonics Print Daemon**:

   Right-click on the Pegasys desktop to display the **Pegasys Main Menu**, and then right-click on **PATIENT UTILITIES -> CODONICS UTILITES -> RESTART CODONICS PRINT DAEMON**.

3. Open the **Codonics Configuration** window:

   Right-click on the Pegasys desktop to display the **Pegasys Main Menu**, and then right-click on **PATIENT UTILITIES -> CODONICS UTILITES ->CODONICS CONFIGURA-TION.**

4. Set the print options to the following settings:

   ```
   Printer Name: Codonics

   Printer Host: codonics_np1660

   Copies to Print: 1

   Configuration Info: *

   Print Format: Slide

   Orientation: Landscape

   Media Type: Paper [Film]

   Start Print Preview: Yes

   Film Size ID A [8 x 10]

   Color: Color [Greyscale]

   Border Density: Black

   Empty Image Density: White

   Transpose: No

   Magnification Type: Replicate

   Trim: No
   ```

   Note: The Configuration Info field may be specific command line entries, but is not usually necessary. For example: mcm=101/gamma=-1.5.

5. Click **SAVE ALL & EXIT.**

6. Restart the **Codonics Print Daemon**:

   Right-click on the Pegasys desktop to display the **Pegasys Main Menu**, and then right-click on **PATIENT UTILITIES -> CODONICS UTILITES -> RESTART CODONICS PRINT DAEMON**.

7.   On the Pegasys, display an image or snapshot for the 35 mm slide with a colormap and background. Make sure that you do not have any closed icons of AutoSPECT Plus w/InStill, AutoQUANT, CardiaQ, 4D-MSPECT, or Image Fusion. These icons can interfere with the Pegasys program colormaps.

8.   Right-click on the formatter icon and select **CONTROL PANEL**. Make sure that the **Formatter** is set to **CODONICS**.

9.   Click **Proceed**.

10. Click **FORMAT**.

11. Wait for the **Print Preview** screen to appear.

     The formatted image displays on the Pegasys in the **Print Preview** viewport.

12. Close the **Print Preview** screen to an icon.

13. Repeat steps 7 through 10 as desired.

14. After each format, open the **Print Preview** icon to preview the formatted viewports.

15. Click **PRINT** when the **Print Preview** window contains the correct number of slides.

     Note: Click **PRINT** if you get the error message `Image may not be printed on correct media. Do you wish to:`.

16. Re-insert the tray used for regular printing after slide making is complete. Reset the Codonics Configuration if you do not enable **Print Preview**.

17. Insert the proper tray before you edit the **Codonics Configuration**.

18. Open the **Codonics Configuration** window:

     Right-click on the Pegasys desktop to display the **Pegasys Main Menu**, and then right-click on **PATIENT UTILITIES -> CODONICS UTILITES ->CODONICS CONFIGURA-TION**.

19. Change the configuration to the following:

     ```
     Print Format: Standard \1,1
     Media Type: Film
     Start Print Preview: No
     ```

20. Click **Save All & Exit**.

21. Cut and mount slide frames.

Codonics 1660 Settings with DirectVista Film

◆   **To print from your Codonics 1660 printer:**

1.   On the 1660 printer front panel, select **DV FILM** from the **IMAGE** submenu.

2. Adjust the GAMMA to 2.5 and contrast to about +10 (for either clear or blue based film).

   Do not modify any other settings.

   Note: CV FILM controls the color transparencies.

A *Codonics Print Troubleshooting*

This section contains a list of troubleshooting procedures for Codonics Print.

Note: Use these procedures with caution. Many of the procedures require you to use the `vi` editor. If you are unfamiliar with `vi`, call Philips Nuclear Medicine Customer Support for help.

Media Mismatch Error on Codonics EP1660 Panel

If you see the error message `Media Mismatch` on the front panel of your Codonics EP 1660 printer, use the procedure below to correct the error. This error message usually occurs when you print to DV (Direct Vista) media.

◆ **To correct a media mismatch error:**

1. Remove the ribbon from the printer if you print on DV media. Make sure that the blue slider on the side of the paper tray is set to the correct size.

2. If the ribbon is not in use, store it in its original packing, or contact Codonics Customer Support at 1-800-444-1198 to receive a ribbon holder.

Additional information can be found on the Codonics web site, http://www.codonics.com/tech/index.htm.

Testing Connectivity

If you are not sure whether there is a working connection to a printer, you can use the **ctest** utility to test the connection. Use this after assigning a printer's IP address (see "Assigning an IP Address" on page -11) and adding a printer (see "Adding or Deleting Codonics Printers" on page -14).

To use ctest, type **ctest**, followed by the name of the printer to test, for example:

```
pegasys@code1:/usr/adac/pegasys# ctest codonics_horizonsf <RETURN>
```

The utility prints the results of three connectivity tests:

```
Control Code: 5d
```

```
--Network Test--
  codonics_horizonsf: Connecting...
  codonics_horizonsf: Established connection

--Identification Test--
Identified Codonics imager model: HORIZON
Identified printer HORIZON
  Printer: HORIZON

--Print Test--
  Now printing Horizon grayscale image.
  Please wait - this process may take a few moments...

0.0u 2.0s 0:10 19% 0+0k 0+0io 0pf+0w
pegasys@code1:/usr/adac/pegasys#
```

At the end of the test, a test image is sent to the printer.

B *International Distributors for Codonics, Inc.*

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