

# **ClinicalExpress<sup>®</sup>** **Administrator's Guide**

**version 6.1**  
**for general radiography**  
**and mammography**

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- Installation and modifications are made by qualified personnel.
- The equipment is used in accordance with the instructions in this manual.
- No other software or hardware other than those sanctioned by VIDAR or distributed by VIDAR with ClinicalExpress are used on the ClinicalExpress workstation.



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# Intended Use

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ClinicalExpress is intended for forwarding a DICOM image from a medical image digitizer to either DICOM print class provider or a storage class provider. The target population is user's wishing to use a medical film digitizer to scan analog or transmissive films to a DICOM workstation using a traditional teleradiology approach and users wishing to make duplications of film prints using digital technology in DICOM and postscript protocols.

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# About this manual

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This manual provides step-by-step instructions for installing and using ClinicalExpress®. The manual is organized around these topics:

- **About ClinicalExpress** describes ClinicalExpress as part of a typical DICOM radiography or mammography system.
- **Installing ClinicalExpress** reviews system requirements and provides instructions for installing the software.

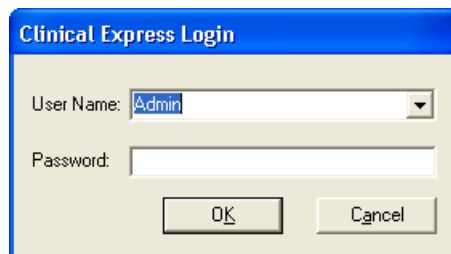
**Note:** Consult the DICOM Conformance Statement, a separate document, for connectivity information.

- **Configuring ClinicalExpress** shows how to configure the ClinicalExpress film capture and transmission systems, and discusses other topics of interest to those managing ClinicalExpress systems.

**Note:** Operating instructions are provided in a separate manual, the “ClinicalExpress operator’s guide.”

## Conventions used in this manual

- Special keys you press on the keyboard are shown using SMALL CAPITALS. For example, when you read the word ENTER in the text, press the corresponding key on your keyboard.
- Menu names and menu commands appear in **block letters**. For example, the **File** menu contains the **Install License** command. In this manual, commands are expressed in a shorthand notation. For instance, **File > Exit** means select the **Exit** command in the **File** menu.
- Windows, buttons, dialog boxes and other on-screen features are named in **bold type**. For example, the **ClinicalExpress Login** window (below) contains **User Name** and **Password** fields, and buttons labeled **OK** and **Cancel**.



# About ClinicalExpress®

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ClinicalExpress 6.1 is a Windows-based program that digitizes films and transmits film images. The program incorporates General Radiography and Mammography modes, and can be purchased for General Radiography only, for Mammography only, or for both modes.

**Digitizing.** Using a VIDAR film digitizer for input, ClinicalExpress displays film images and associates them with a patient and study. The program provides a set of controls for examining an image for quality control and adjusting its characteristics.

**Indications for use.** General radiology images digitized using ClinicalExpress meet or exceed the ACR and DICOM standards for use of secondary capture images for consultation, review and final interpretation.

Mammography images digitized using ClinicalExpress as DICOM MG are to be used as reference or comparison only, and not for primary diagnosis.

## Options

These options can be purchased separately:

**Modality Work List.** This option enables imaging modalities to download work list information about scheduled procedures and related data, present this information to the modality operator, and assure that DICOM images contain consistent descriptive data. Instructions for using the Modality Work List in ClinicalExpress are provided in this manual. Integration details are provided in the DICOM Conformance Statement.

**PDI.** This option includes the DICOM Media Import/Export (for reading and writing DICOM CDs), Flat Bed Paper Scanning and Patient Query (for searching patient information on storage devices).

## System overview

A typical ClinicalExpress film capture and transmission workstation consists of:

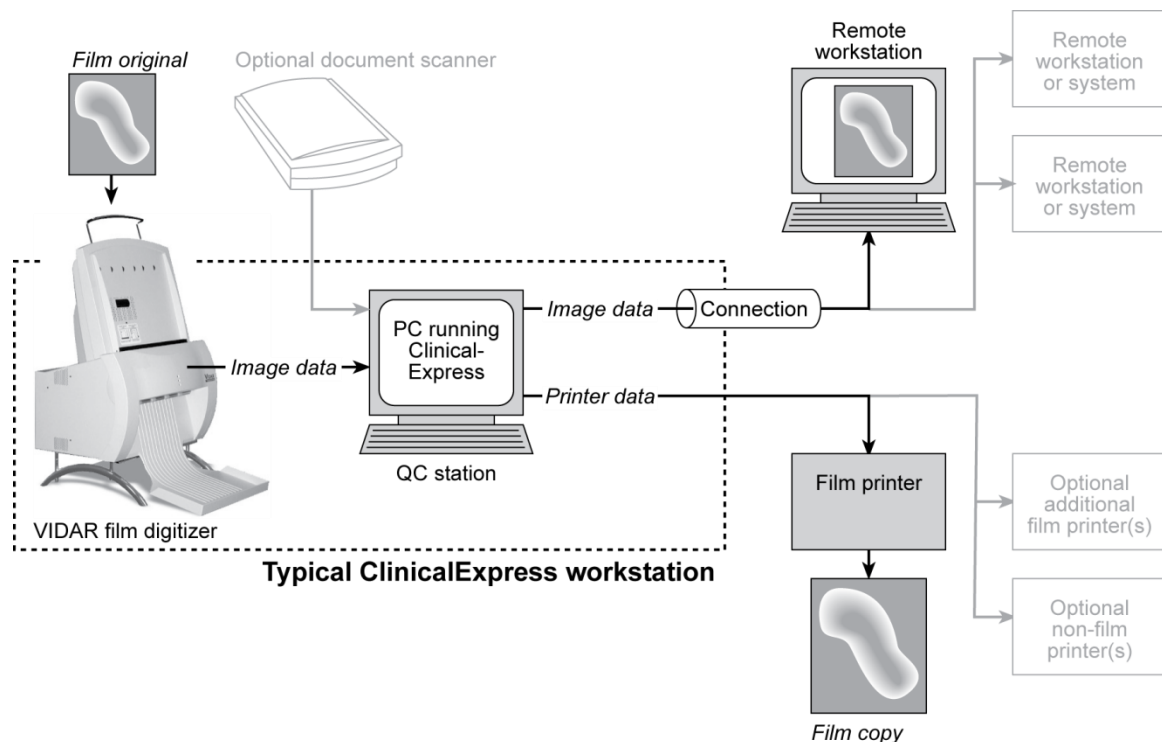
- **VIDAR film digitizer** to create digital images from films.
- **Windows® XP 32-bit or Windows 7 32- or 64-bit computer** running the ClinicalExpress program.

### Notes

- The ClinicalExpress workstation is **NOT** a diagnostic workstation. For diagnostic tasks, use an appropriate workstation (see diagnostic workstation's installation and operation guide for instructions).
- Mammography images digitized using ClinicalExpress shall be used only for reference and review, and must not be used for primary diagnosis.

## General Radiography Mode

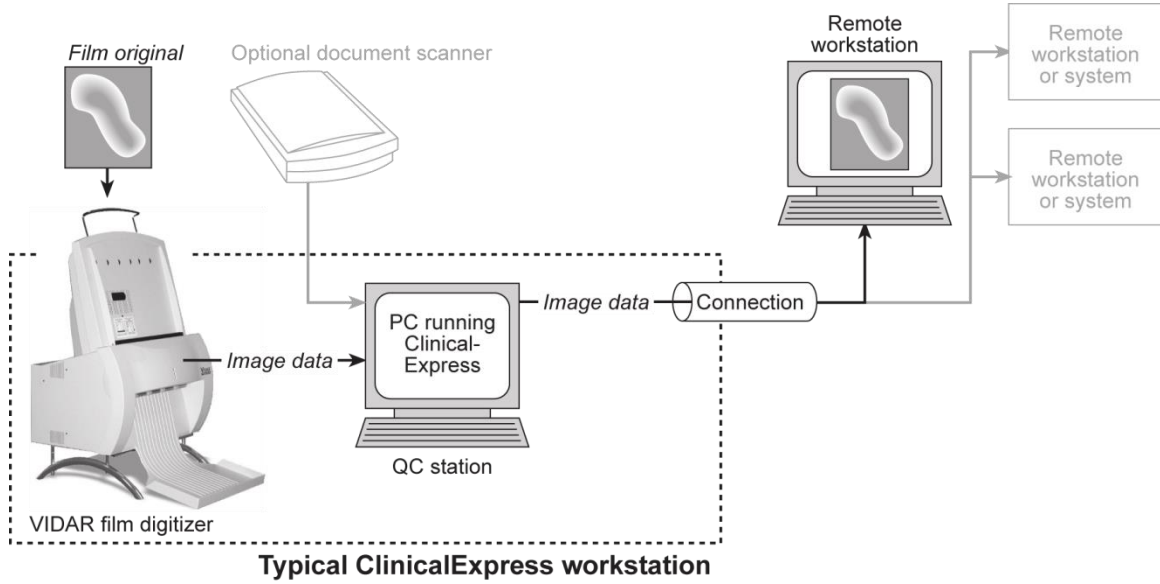
For image transmission, the workstation outputs to a data connection, which delivers image data to a remote workstation or system. For copying, the workstation connects to a film printer or non-film output device. Additional input can be provided by an optional document scanner.





## Mammography Mode

For image transmission, the workstation outputs to a data connection, which delivers image data to a remote workstation or system.



## What you can do with ClinicalExpress

ClinicalExpress 6.1 is your primary point of control for film capture, transmission and copying. With the program, you can:

- Digitize
  - Designate a patient and study, or create a new patient record and/or study.
  - Using the Modality Work List option (available separately) to pull in patient information from an external source (instead of typing patient data).
  - Set basic digitizing parameters: bit depth and resolution.
  - Digitize one or more films.
  - Perform quality check on the image created from the film before sending or copying it.
  - Manipulate the image: set window and level, rotate, flip, invert tonal values, split images, magnify a region of interest, zoom and redact sensitive information.
- Transmit
  - Select a remote workstation or system (the “target”).
  - Send digitized images to the selected target.
  - Digitize and send in one operation.
- Copy (General Radiography Mode only)
  - Select a printer (if multiple printers are connected to the system).
  - Set the number of copies to be made from each film original.
  - Initiate printing.
  - Combine multiple images on one film.
  - Digitize and print in one operation.
- Import from, and export to, DICOM standard CDs.

ClinicalExpress is licensed on a feature/function basis. All licenses include the digitizing function as well as DICOM Send (sending to DICOM Service Class Providers, workstations/PACS) and Copy (printing to DICOM printers and /or Postscript devices). Additionally, you can purchase licenses for:

- **Modality Work List.**
- **PDI.** CD burning from DICOM viewer to Media Export, Media Import/Export, Patient Query and Paper Document Scanner.

## New features in ClinicalExpress 6.1

- New date format options.
- DICOM mammography Derived/Primary tag support for compatibility with GE sites.
- Mammography tag date acquisition support for compatibility with Siemens sites.

# Installing ClinicalExpress®

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## System requirements

To digitize and transmit images using ClinicalExpress®, you will need to provide a computer system, a VIDAR film digitizer and a network connection.

### Computer

The *minimum* computer system for Windows XP 32-bit SP3 is:

- 3.0GHz Pentium 4 PC
- 2 GB of memory; more memory is required for large sets of high resolution images such as mammography
- 50GB of free space on hard drive

The *minimum* computer system for Windows 7 Professional 32-bit and 64-bit is:

- Dual Core 2 1.8GHz PC
- 4 GB of memory, more memory is required for large sets of high resolution images such as mammography
- 50GB of free space on hard drive

Video for all computers:

- Video card with 16MB memory, set to 1280x1024 resolution and 64,000 colors or higher color depth
- 20" display with 1280x1024 resolution

### Film digitizer

ClinicalExpress works with most VIDAR Medical Film Digitizers. Contact Medtech at [medtech@3Dsystems.com](mailto:medtech@3Dsystems.com) to determine if your digitizer is compatible.

ClinicalExpress does not work with film digitizers made by other manufacturers.

### Network connection

Suitable network connections include, but are not limited to, LAN, WAN, wireless and a variety of telephone-based services. TCP/IP is required for proper operation. Network connection details are beyond the scope of this manual.

## Optional document scanner

You can add a USB document scanner to your system. ClinicalExpress works with most TWAIN drivers. The ability to use a document scanner is a purchased option. Contact VIDAR Technical Support (see below) for a list of tested scanners.

## Installation scenarios

Review the scenarios below to determine your current status, and how you should perform the ClinicalExpress 6.1 installation.

### ■ If you are installing ClinicalExpress for the first time:

1. Run the *ClinicalExpress6.1.exe* file on the ClinicalExpress CD.
2. The software will run in a 30-day evaluation mode. To use the software beyond 30 days, you will need a license key (see “Obtain a ClinicalExpress license key,” later in this chapter).

### ■ If an earlier version of ClinicalExpress is currently installed:

- For installed versions 4.x and earlier, contact VIDAR Technical Support (see below) for upgrading instructions.
- For installed version 5.0 and later, you can install ClinicalExpress 6.1 but you must uninstall the previous version before installing the new version. You will need to request a new license after this installation is complete. (see “Obtain a ClinicalExpress license key,” later in this chapter).

**Contact VIDAR Technical Support** if you have any questions about installing ClinicalExpress software:

Phone: +1.800.471.SCAN (+1.800.471.7226)

+1.703.471.7070 outside the U.S.

E-mail: medtech@3Dsystems.com

## Installation overview

**Note:** You must be logged on as the Administrator to install and License ClinicalExpress and perform administrative functions. Users can have, but do not require, administrative rights to the PC

For instructions see:

- The “To add a member to a group” topic in the Windows XP Help and Support Center.
- The “Create a new user account” and “Modify a user account” topics in the help file for the Windows Computer Management window.

Installation involves five general steps:

- A. Install and configure the film digitizer.
- B. Set the display.
- C. Install ClinicalExpress software.
- D. Launch ClinicalExpress.
- E. Obtain a ClinicalExpress license key.

Details are provided in the following sections.

**Tip:** If you are building a new workstation, don't install all components at the same time. Instead, first install the film digitizer (according to instructions provided with the digitizer). Next, set the display (step B). Finally, install the ClinicalExpress software (step C), and assure the system is operating.

### A. Install and configure the film digitizer

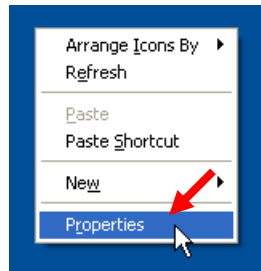
Install and configure the film digitizer and its software, according to instructions provided with the digitizer (details are beyond the scope of this manual).

**Note:** You can download VIDAR film digitizer installation and operation guides from the Customer Support section at [www.vidar.com](http://www.vidar.com). You can also request manuals by calling +1.800.471.7226 (+1.703.471.7070 outside the U.S.).

Windows 7 users will have to change their User Account Controls to allow for Auto Launch of ClinicalExpress upon boot up of your PC. This can be found under Start<Control Panel>User Accounts. Select Change User Account Control Setting and slide the bar to the Never position. Select OK.

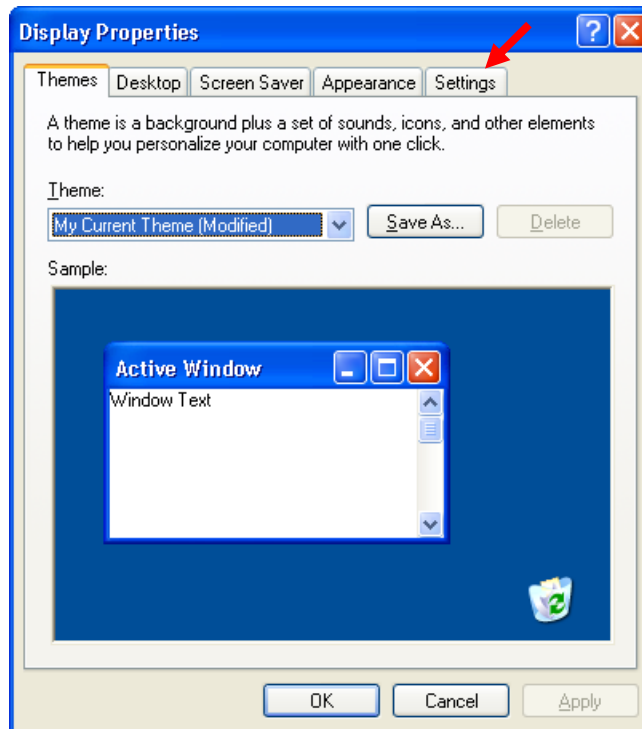
## B. Set the display

1. Right-click the desktop, then click **Properties** in the pop-up menu.

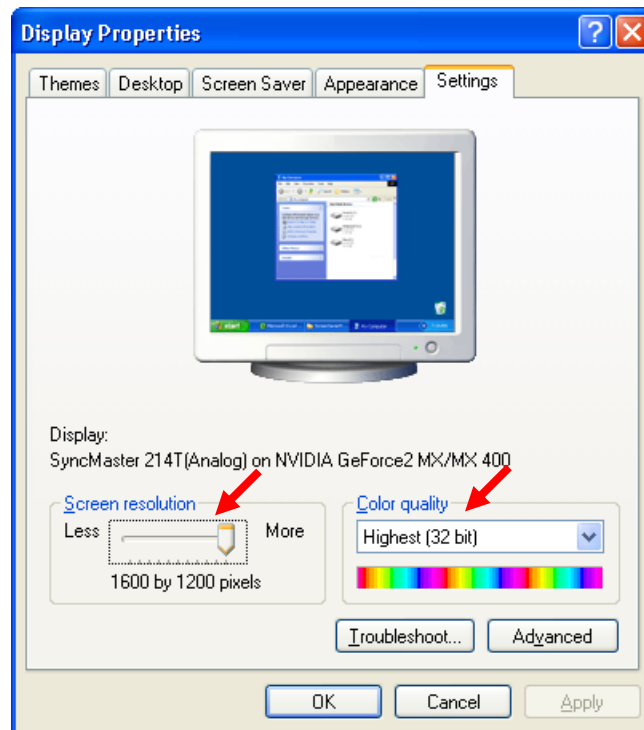


**Note:** On your system, a display adapter-specific command may be substituted for the **Properties** command. If so, click that command. The display properties dialog may be different, but the objective is the same: set the display resolution to 1280 x 1024 or higher, and set the color depth to 16-bit or higher.

2. In the **Display Properties** window, click the **Settings** tab.



3. Set **Screen Area** (or **Screen Resolution**) to 1280 by 1024 or higher, and set **Colors** (or **Color Quality**) to **High Color (16 bit)** or higher.



4. Click **OK**.

## C. Install ClinicalExpress software

**Note:** If you are upgrading from ClinicalExpress 4.x or earlier, contact VIDAR Technical Support at [medtech@3Dsystems.com](mailto:medtech@3Dsystems.com) for instructions.

**Note:** You can install ClinicalExpress without the film digitizer in the system. However, ClinicalExpress will not operate unless the film digitizer is connected to the computer, is turned on and is communicating with the computer.

1. Insert the ClinicalExpress CD into your computer's CD drive.
2. In **Windows Explorer**, navigate to the CD drive, then double-click *ClinicalExpress6.1.exe*.
3. Follow the instructions in the installer windows.

During the installation, you will be asked to select the default GUI—General Radiography or Mammography—that is displayed when ClinicalExpress is launched. Select the most appropriate GUI for your organization (this choice can be changed in ClinicalExpress's **Administration > Local** page).

4. After the installation is complete, remove the CD-ROM from the CD-ROM drive. (You will need the CD key from the CD label in step E.)

## Adding a flatbed paper scanner

You may install a flatbed paper scanner for use with ClinicalExpress. Follow the scanner manufacturer's installation instructions. VIDAR has tested typical USB 2.0 scanners with TWAIN drivers and found them to be compatible with ClinicalExpress.

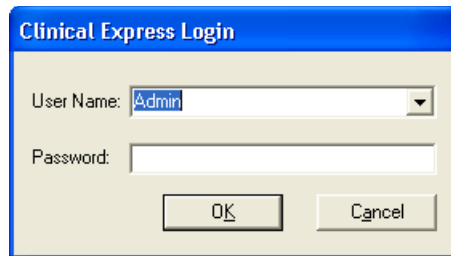
**Note:** Only the flatbed scanner's TWAIN driver should be installed on the ClinicalExpress workstation. Presence of any other TWAIN drivers may interfere with the operation of ClinicalExpress. Contact VIDAR Technical Support at [medtech@3Dsystems.com](mailto:medtech@3Dsystems.com) for a list of tested scanners.



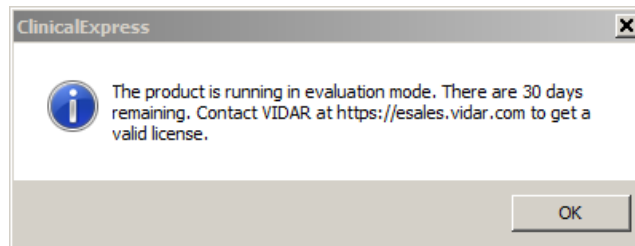
## D. Launch ClinicalExpress

**Note:** If this is a New installation ClinicalExpress will operate for 30 days without a license key. To continue using ClinicalExpress beyond this period, contact VIDAR Systems Corporation to obtain a license key (instructions are provided in the next section). If this is an upgrade you may be required to obtain a new license after installation to use the

1. Double-click the ClinicalExpress icon on the desktop.  
or  
**Start > All Programs > ClinicalExpress.**
2. The **User Login** window will appear:



3. Use the default Administrator name/password:
  - a. Leave the **User Name** as **Admin**.
  - b. Leave the **Password** blank.
  - c. Click **OK**.
4. If the digitizer is on and properly connected, the message below will appear. Click **OK**.



5. ClinicalExpress will launch.

**Note:** You cannot digitize films until at least one valid target is defined. See "Configuring ClinicalExpress," the next chapter in this manual.

## E. Obtain a ClinicalExpress license key

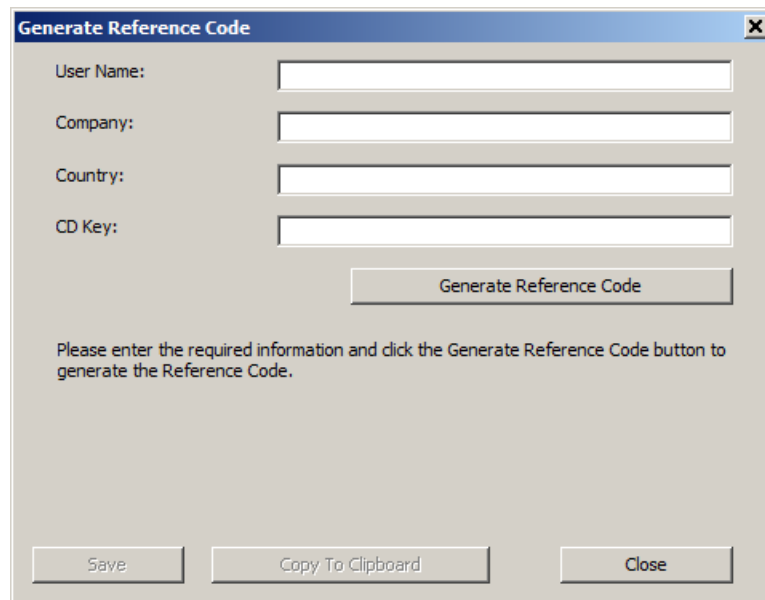
**Note:** You cannot obtain a license key by faxing the Clinical-Express license agreement. You must follow the instructions in this section to obtain a license key by e-mail.

Obtain a license key as follows:

1. Generate a reference code and send it to VIDAR:

**Note:** You can only generate a reference code if the Clinical-Express computer is connected to a VIDAR film digitizer.

- a. In the ClinicalExpress main window, **File > Generate Reference Code**.
- b. In the **Generate Reference Code** dialog:
  - Enter or change **User Name**, **Company** and **Country**.
  - Enter the **CD Key** written on the label of the ClinicalExpress installation CD.



**Generate Reference Code**

User Name:

Company:

Country:

CD Key:

Please enter the required information and click the Generate Reference Code button to generate the Reference Code.

- c. Click the **Generate Reference Code** button.

**Generate Reference Code**

User Name:

Company:

Country:

CD Key:

Reference Code has been successfully generated.

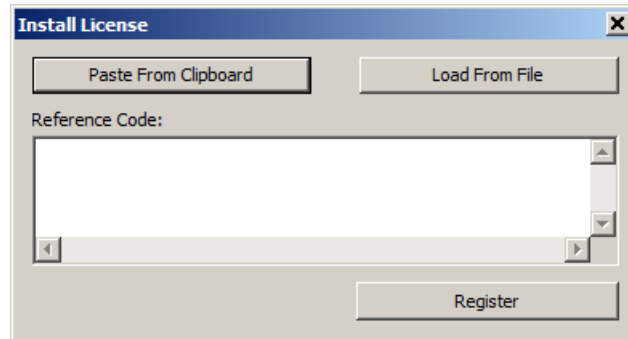
Please select Copy to Clipboard and follow instructions at <https://esales.vidar.com> for immediate online licensing or Save the Reference Code to a file and then email the file to <mailto:medtech@vidar.com> to get a license key.  
Note: The Reference code is valid only for 14 days.

**Note:** The reference code is valid for 15 days.

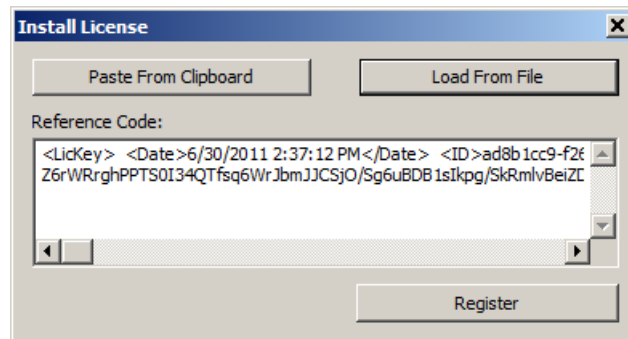
- d. Click the **Save** button to save the reference code as a file on the local hard drive. Save the file to a location you can easily remember.
- e. Click the **Close** button.
- f. Start a new e-mail message.
- g. In the message's **To** field, enter `medtech@3dsystems.com`.
- h. Then:
- Locate the file (it will have the *.ref* extension) you saved in step d above and attach it to the message.
- i. Send the message.

**Note:** While you are waiting for your license key, you can use ClinicalExpress in evaluation mode without a key for up to 30 days. All features are enabled during the 30-day evaluation period. Upgrades may or may not have the 30-day evaluation period.

2. After you receive your license key by e-mail from VIDAR:
  - a. Save the attachment (with extension *.key*) on your desk top.
  - b. Log in to ClinicalExpress as an Administrator.
  - c. In the ClinicalExpress main window, **File > Install License**.

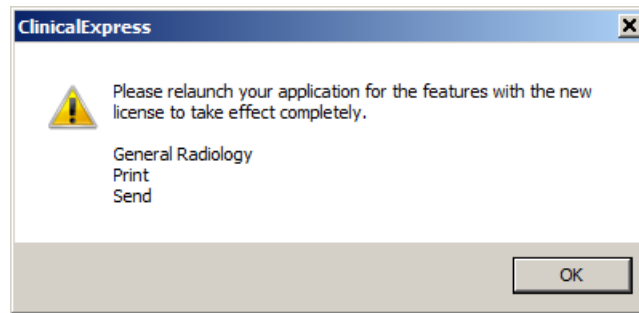


- d. In the **Install License** dialog:
  - Click the **Load From File** button, then locate and open the license key file (with extension *.key*).



- e. Click the **Register** button.

- f. If the license key is accepted, the window below will appear. Click **OK**.



- g. **File > Exit**.
- h. Launch ClinicalExpress again by double-clicking the ClinicalExpress icon on the desktop.
- i. *To verify your license:* **Help > About**. Your license will be at the top of the page. If you are licensed for both General Radiography and Mammography, you should verify in both applications.

3. Go to “Configuring ClinicalExpress,” next in this manual, to configure the program.

or

If you need to configure ClinicalExpress for printing, please review the instructions for setting up printers validated for use with ClinicalExpress, in the *Printer Specific* directory on the ClinicalExpress installation CD.

# Configuring ClinicalExpress®

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## Introduction

This chapter describes administrative operations that can be carried out within ClinicalExpress:

- Logging in to the **Administration** window.
- Setting local workstation parameters.
- Setting display parameters.
- Setting digitizer resolutions.
- Setting image processing options.
- Defining mammography views.
- Designating mandatory data entry fields.
- Managing users accounts.
- Selecting data fields for anonymizing.
- Backing up and restoring the license.
- Defining targets.
- Reviewing the film digitizer's configuration.
- Checking Modality Work List availability.
- Reviewing and managing the log file.
- Calibrating the film digitizer.

Additionally, this chapter provides basic instructions for calibrating a workstation monitor.

If you are setting up ClinicalExpress for the first time, you should proceed through all sections in this chapter and perform all operations that apply to your licensed ClinicalExpress functions and system configuration.

**Note:** You must be logged in as an administrator for the local computer before you can access and make changes in the ClinicalExpress **Administration** window.

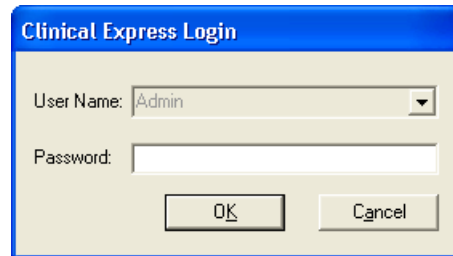
**Note:** You cannot digitize films until at least one valid target is defined. See "Defining targets," later in this chapter.

## Logging in to the Administration window

The ClinicalExpress **Administration** window is password protected.

### 1. **Options > Administration.**

If you are already logged into ClinicalExpress as the administrator, you will see the **Administration** window and you can skip step 2. Otherwise, you will see the login window:



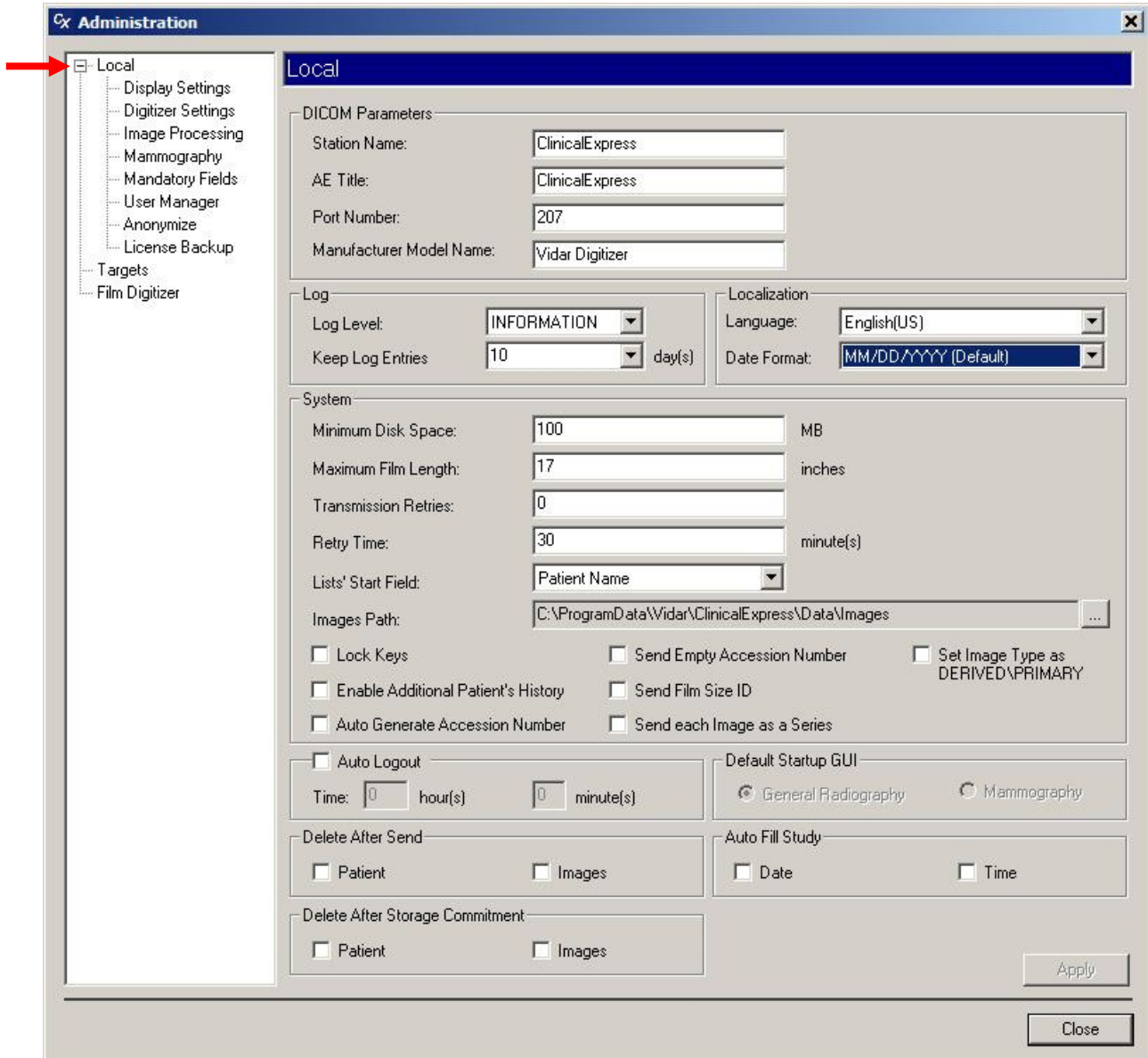
The screenshot shows a dialog box titled "Clinical Express Login". It has a blue title bar. Below the title bar, there are two input fields: "User Name:" with a dropdown menu showing "Admin" and a small downward arrow, and "Password:" with an empty text box. At the bottom of the dialog, there are two buttons: "OK" and "Cancel".

**Tip:** The default name is *Admin* (case sensitive) and the default password is no password (i.e., leave the password field empty).

### 2. Enter the administrator **Password**, then click **OK**.

## Setting local workstation parameters

Set local workstation parameters in the **Local** branch of the **Administration** tree.





## DICOM Parameters

The Application Entity (AE) Title is the name other software applications use to identify this application.

1. Enter the Application Entity Title for this DICOM device (by default, “ClinicalExpress” is entered in this field). The AE Title is case sensitive.
2. Enter the **Port Number** for this DICOM device (by default, “207” is entered in this field).
3. Click the **Apply** button.

## Log

1. Change log settings as required:
  - **Log Level:** Specifies the types of information viewable in the **Error Log** window:
    - **INFORMATION** displays DICOM information and ClinicalExpress information.
    - **WARNING** displays errors and warnings only.
    - **ERROR** displays errors only.

ClinicalExpress automatically captures all errors and information. (To view the entire error log, open the file *clx.log* in a text editor.)

**Note:** The **Error Log** window is not a full DICOM diagnostic tool, as it does not capture full DICOM transmissions. It is primarily for software troubleshooting.

- **Keep Log Entries:** Entries in the log file will be deleted after this number of days. (See “Reviewing and managing the log file,” later in this chapter.)
2. Click the **Apply** button.

## Localization

1. Select the **Language** that will be used in the application's user interface.
2. Select the **Date Format** to be used in the application.
3. Click the **Apply** button.
4. Exit ClinicalExpress and re-launch it to complete the change.

## System

1. Change settings as required (default settings are shown above):
  - **Minimum Disk Space:** When the free disk space falls below this value, ClinicalExpress will automatically delete files, starting with the oldest studies that have been successfully sent. If the program cannot free enough disk space to reach the **Minimum Disk Space** value, it will prevent the user from digitizing additional films until adequate space is available.
  - **Maximum Film Length:** Normally set for 17 inch film length, this value can be changed to accommodate longer films.

**Note:** Only increase **Max Film Length** to a value greater than 17 inches if a DIAGNOSTICPRO® Plus or DIAGNOSTICPRO® Advantage film digitizer is attached. Refer to the corresponding film digitizer operation guide for information about digitizing films longer than 17 inches.

**Note:** Since the system uses an auto sizing routine to determine film length, it may not be possible to digitize perforated films.

- **Transmission Retries:** Sets the number of times ClinicalExpress will attempt to send a study to a target. ClinicalExpress handles unsuccessful study transmissions as follows:
  - If other studies are in the transmission queue, an unsuccessfully sent study is placed at the end of the queue and an attempt will be made to send the study later—subject to the number of transmission retries and retry time (see below).
  - If no other studies are in the transmission queue, ClinicalExpress immediately attempts to resend the study—subject to the number of transmission retries and retry time (see below).
  - If the study cannot be sent after the set number of transmission retries, the study is listed in the **Acquired Studies** window (**View > Acquired Studies**), where you can manually initiate a transmission.
  - A study that cannot be sent will have a status of “failed” until it is successfully sent.
  
- **Retry Time:** Sets the amount of time (in minutes) ClinicalExpress will wait before attempting to send a study to a target if the previous attempt failed.
  
- **Lists’ Start Field:** Controls whether **Patient Name** or **ID** is first column in Acquired Studies list and Work List Procedures list.
  
- **Images Path:** If desired, change the default local image storage directory. Do this, for example, if you want to store images on a larger-capacity drive or partition. To change the path, click the ... button, then select a new path.
  
- **Lock Keys:** When activated, ClinicalExpress disables keys (e.g., ALT-TAB) that would allow a user to switch between ClinicalExpress and other open programs.
  
- **Enable Additional Patient’s History:** When activated, ClinicalExpress displays the **Additional Patient History** field at the bottom of the **Study Information** window.

This screenshot shows the 'Patient/Study/Series Information' window. It is divided into three main sections: 'Patient Information', 'Study Information', and 'Series Information'. The 'Study Information' section includes fields for ID, Date/Time, Modality, Accession Number, Institution Name, Admitting Diagnosis Description, Description, Referring Physician (Last Name, First Name, Middle Name), Performed Protocol Code (Code Value, Coding Scheme Designator, Code Meaning), and Procedure Code (Code Value, Coding Scheme Designator, Code Meaning). The 'Additional Patient History' field is not visible at the bottom of the window.

**Patient/Study/Series Information** window without **Additional Patient History**

This screenshot shows the 'Patient/Study/Series Information' window, identical to the previous one but with the 'Additional Patient History' field visible at the bottom. A red arrow points to this field, which is currently empty.

**Patient/Study/Series Information** window with **Additional Patient History**

- **Auto Generate Accession Number:** When activated, ClinicalExpress automatically inserts the next sequential accession number in the **Study Information** window when the user initiates a new study. The inserted accession number can be edited.
- **Send Empty Accession Number:** When activated, ClinicalExpress does not send accession numbers to targets.
- **Send Film Size ID:** When activated, ClinicalExpress sends film dimensions to targets.
- **Send each image as a Series:** When activated, a each image is sent as a series. When deactivated, a series can include multiple images.
- **Set Image Type as DERIVED\PRIMARY:** When activated, each image will be tagged for use in GE mammography systems.

2. Click the **Apply** button.

### Auto Logout

When activated, ClinicalExpress automatically closes if it detects no user activity (keyboard or mouse) after the time indicated.

After changing, click the **Apply** button.

### Delete After Send

When activated, ClinicalExpress deletes patients and/or images about 10 minutes after they have been successfully transmitted to the target. Considerations:

- When activated, these options will help prevent the workstation's disk from filling to capacity with image files. However, studies sent immediately after acquisition, then deleted, will not be listed in the **Acquired Studies** window, and thus cannot be sent to the same or other targets at a later time.
- When deactivated, these options enable studies to be listed in the **Acquired Studies** window, and they can be sent to other targets at a later time. However, studies will accumulate on the workstation's disk, and may eventually fill the disk to capacity.

- The ClinicalExpress database is limited to 10GB. If it reaches this limit, you must delete images and patients to continue digitizing films.

After changing, click the **Apply** button.

### Delete After Storage Commitment

When activated, ClinicalExpress deletes patients and/or images only after receiving a Storage Commitment message from a target. The message confirms that the target has not only received, but also stored, the transmission. (See “Delete After Send,” above, for considerations.)

After changing, click the **Apply** button.

### Default Startup GUI

This option specifies the mode display when ClinicalExpress is launched. If licenses for both General Radiography and Mammography have been purchased, users can switch between modes.

After changing, click the **Apply** button.

### Auto Fill Study

When activated, the current date and/or time is automatically entered in a new study.

After changing, click the **Apply** button.



- To create a new display setting:
  - a. Click the **New** button.
  - b. Click in the **Modality** field, then type the modality.  
or  
Select an existing modality from the list.
  - c. Click in the **View** field, then type the view.  
or  
Select an existing view from the list.
  - d. Enter window data and level data for one bit depth. ClinicalExpress automatically calculates and fills in corresponding values for the two other bit depths.

Create, Edit and Delete Display Settings

Modality	Body Part	View	8 Bit	12 Bit	16 Bit
DEFAULT	DEFAULT	DEFAULT	174, 155	2800, 2495	44810, 39929
MG	BREAST	LCC	255, 127	4095, 2047	65535, 32767

Window      Level

Film Type	Digitizer Type	8 Bit	12 Bit	16 Bit
Clear Film	Any Digitizer	174, 155	2800, 2495	44810, 39929
Clear Film	TeleRad PRO Digitizer	218, 100	3500, 1600	56013, 25606
Blue Film	Any Digitizer	125, 221	2000, 3550	32007, 56813
Blue Film	TeleRad PRO Digitizer	199, 125	3200, 2000	51212, 32007

Window      Level

- e. Click the **Save** button.

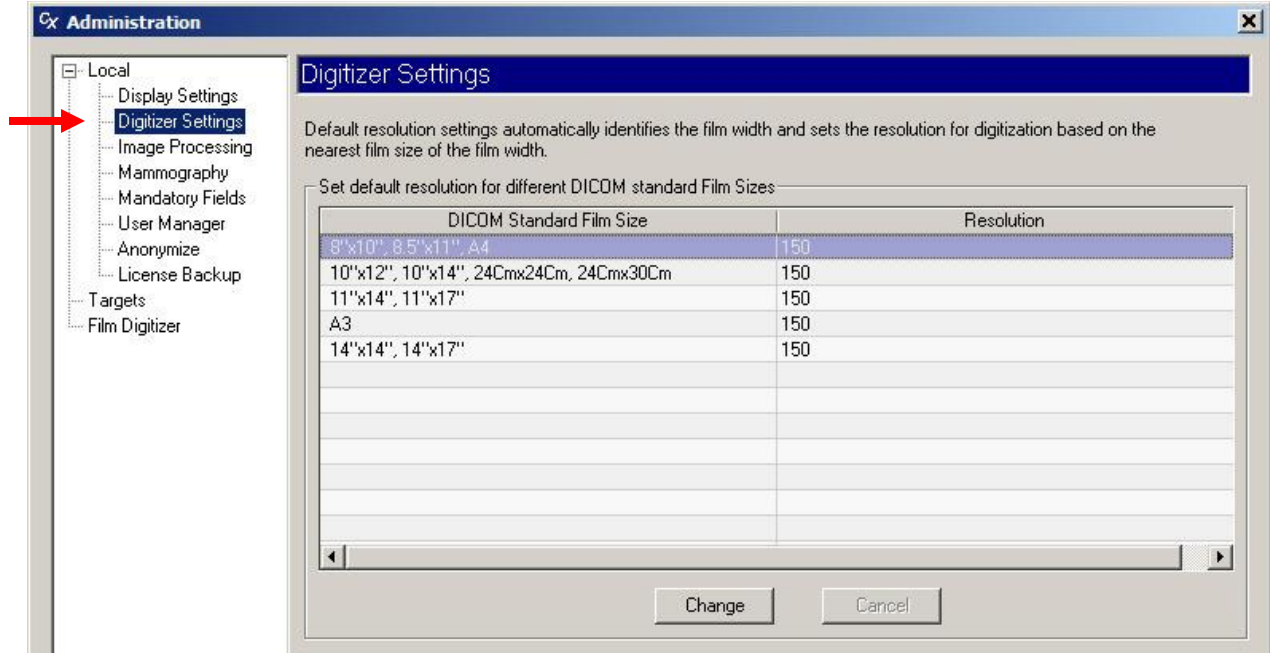
**Note:** ClinicalExpress has pre-calculated window and level settings for **Body Part** = DEFAULT and **Modality** = DEFAULT. These settings are initially applied to images. The user can override the settings with the mouse-driven window level tool, or by entering values in the **Window** and **Level** boxes in the main window, or by using preset window/level values. The administrator can change the default settings (listed at left) as described below.

- *To change the window and level values for an existing display setting:*
  - a. Click the row you want to change.
  - b. Click the **Edit** button.
  - c. Edit window data (left field) and/or level data (right field) for one bit depth. ClinicalExpress automatically calculates and fills in corresponding values for the two other bit depths.
  - d. Click the **Save** button.
  
- *To delete an existing display setting:*
  - a. Click the row you want to delete.
  - b. Click the **Delete** button.
  
- *To automatically apply window and level adjustments based on film size and image resolution:* Activate the **Enable Auto Window/Level**



## Setting digitizer resolutions

Set digitizer resolutions in the **Local | Digitizer Settings** branch of the **Administration** tree.

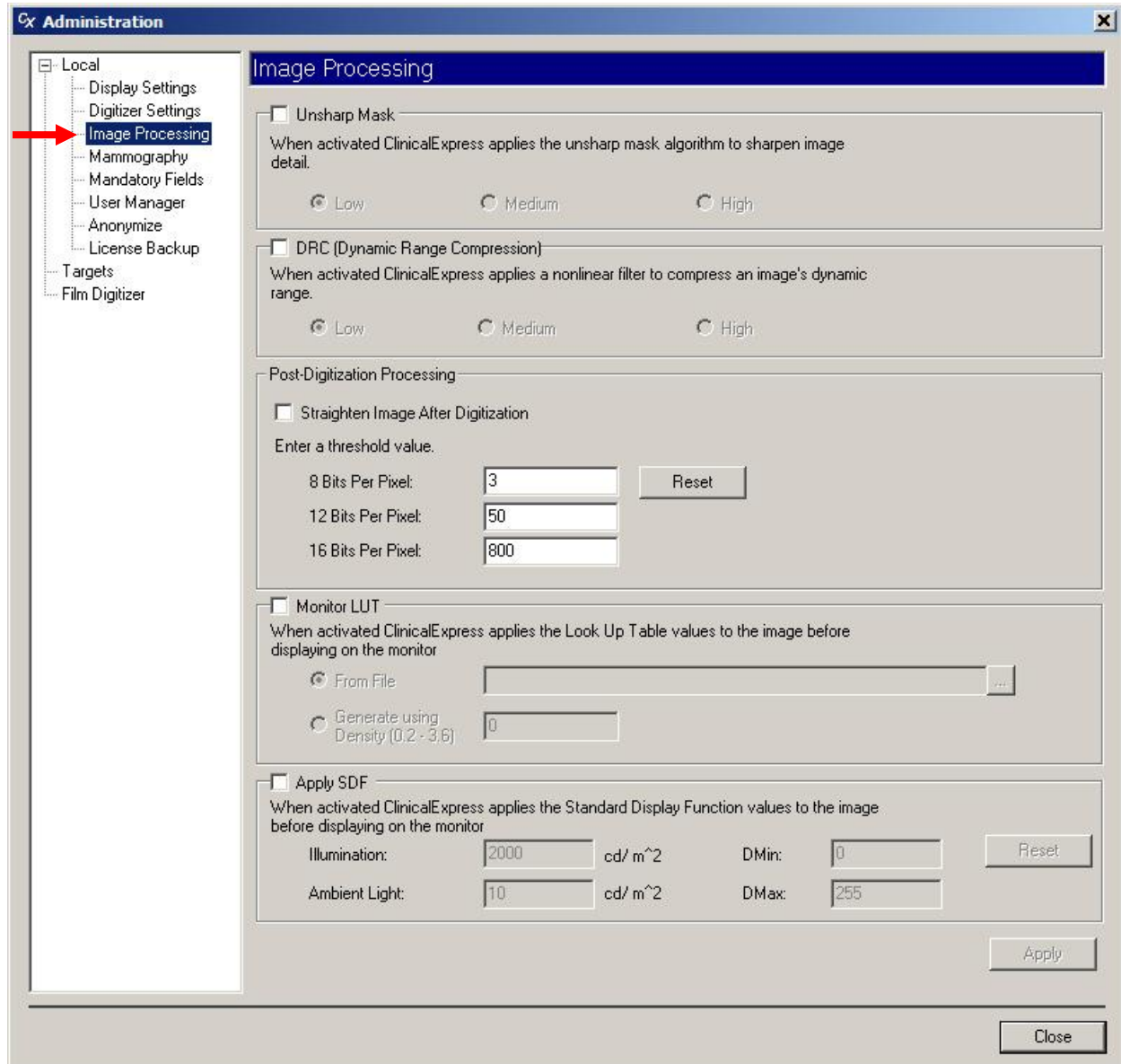


Digitizer settings automatically set the image resolution based on film width.

- *To change a resolution:*
  - a. Click the row containing the film size you want to change.
  - b. Double-click in that row's **Resolution** column.
  - c. Select the desired resolution.
  - d. Click the **Save** button.

## Setting image processing options

Set image processing options in the **Local | Image Processing** branch of the **Administration** tree.



**Note:** Default settings in the **Image Processing** window are Off (that is, not activated).

**Note:** ClinicalExpress automatically and permanently applies the checked image processing operations to each image immediately after it is acquired from the digitizer (and thus, before it is displayed or sent). Users cannot remove the results of image processing. If images do not need image processing, the administrator must uncheck the options in the **Image Processing** page, then the user must redigitize the films to produce new images.

1. Set image processing options as required:

- **Unsharp Mask:** When activated, ClinicalExpress applies the unsharp mask algorithm to sharpen image detail. Select **Low**, **Medium** or **High** to control the amount of sharpening.
- **DRC (Dynamic Range Compression):** When activated, ClinicalExpress applies a nonlinear filter to compress an image’s dynamic range. Select **Low**, **Medium** or **High** to control the amount of compression.
- **Post-Digitization Processing:**
  - **Straighten Image After Digitization:** When activated, images exceeding the **Threshold Value** are automatically straightened after capture. When deactivated, the user can straighten images in the ClinicalExpress window.
  - **Threshold Value:** Image must be rotated more than this value to qualify for automatic straightening.
  - **Reset:** Click to restore default threshold values.

**Note:** Automatic image straightening assumes film edges are straight and at right angles. Uncheck this option if films have been cut.

- **Monitor LUT:** When activated, ClinicalExpress applies Look Up Table values to the image before it is displayed.
  - **From File:** Choose this option if the Look Up Table is available as a file. Enter the path and file name, or click the browse button to designate the file.
  - **Generate Using Density:** Choose this option to have ClinicalExpress generate a Look Up Table based on the specified density value.
- **Apply SDF:** When activated, ClinicalExpress applies Standard Display Function values to the image before it is displayed, using the specified **Illumination**, **Ambient Light**, **DMin** (digitizer’s minimum density) and **DMax** (digitizer’s maximum density) values.

**Default DICOM SDF values**

Illumination	2000 cd/m <sup>2</sup>
Ambient Light	10 cd/m <sup>2</sup>
DMin	0
DMax	255

2. Click the **Apply** button.

## Defining mammography views

Views provide ClinicalExpress users with hanging protocols for assembling separate mammography images into composites. ClinicalExpress comes with a default 2x2 protocol. You can define other views as needed.

**Note:** The option to perform document scanning for mammography was added to ClinicalExpress 6.1. If you don't have the PDI option, you must add it to be able to scan documents using a flat bed scanner. You must also define a layout in which the **Film View** is set to **PAPER**.

Define views in the **Local | Mammography** branch of the **Administration** tree.

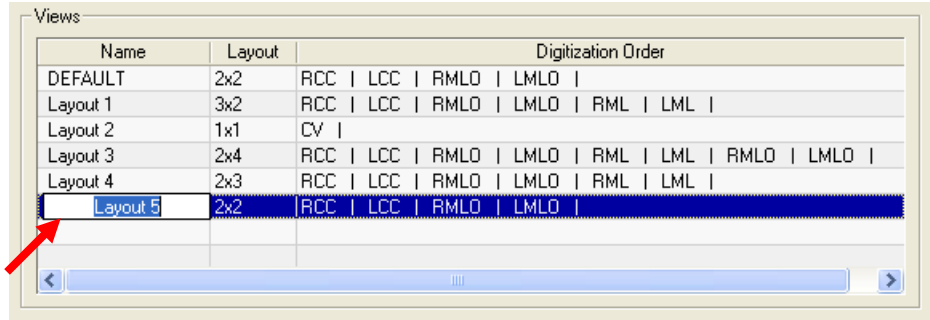
The screenshot shows the 'Administration' window with the 'Local' tree on the left. The 'Mammography' folder is selected and highlighted with a red arrow. The main window displays the 'Mammography' configuration page, which includes:

- Views Table:** A table with columns 'Name', 'Layout', and 'Digitization Order'. The first row is 'DEFAULT' with layout '2x2' and digitization order 'RCC | LCC | RMLD | LMLD'.
- Layout:** A dropdown menu currently set to '2x2'.
- Layout Preview:** A 2x2 grid of boxes labeled 'RCC', 'LCC', 'RMLD', and 'LMLD'.
- View Order Table:** A table with columns 'Row', 'Column', 'Film View', and 'Patient Orientation'.
 

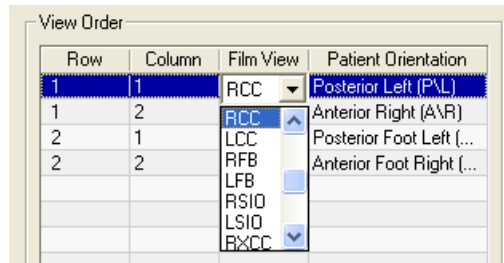
Row	Column	Film View	Patient Orientation
1	1	RCC	Posterior Left (PL)
1	2	LCC	Anterior Right (A/R)
2	1	RMLD	Posterior Foot Left (...)
2	2	LMLD	Anterior Foot Right (...)
- Buttons:** 'Customize', 'New', 'Edit', 'Delete', and 'Close'.

**Note:** Only the Film View and the Patient Orientation in the View Order can be changed when editing. For other changes create a new layout.

1. Click the **New** button.
2. In the **Views** list, click in the **Name** column, type a name for the layout, then press ENTER.



3. Open the **Layout** list, then click the desired **row x column** layout.
4. In the **View Order** list, set the **Film View** for each cell. The **Layout Preview** shows how film views are assigned to cells.



**Note:** To scan documents, set **Film View** to **PAPER**.

**Note:** **Patient Orientation** is automatically set when you select a **Film View**, and should not be changed.

**Note:** Users can override the default **Patient Orientation** set here.

- *To delete a view:*
  - a. In the **Views** list, click the view, then click the **Delete** button.
  - b. Confirm the deletion.

- *To edit a view:*
  - a. In the **Views** list, click the view, then click the **Edit** button.
  - b. In the **Views** list, click the **Name**, then type a new name.
  - c. In the **View Order** list, change **Film View** and **Patient Orientation** as needed.
  - d. Click the **Save** button.

**Note:** A view can be deleted or edited only if it is not referenced by a study.

## Understanding views and patient orientations

The following example shows the relationships between views, images and patient orientations.

Suppose you define two views as follows:

### View A

Row	Column	Film View	Patient Orientation
1	1	RCC	PF
1	2	LCC	AF
2	1	RLMO	AFL
2	2	LMLO	PFL

### View B

Row	Column	Film View	Patient Orientation
1	1	RCC	FL
1	2	LCC	PF
2	1	RLMO	PFL
2	2	LMLO	FR

Images placed into cells receive the default patient orientations. Assume View A is in effect. The image placed in row 1, column 1 (RCC), will have the default PF orientation.

Suppose the user right-clicks an image, changes its orientation to PF, then drags the image to row 2, column 2 (LMLO). This image overrides the default PFL orientation and retains the user-assigned PF orientation.

Now suppose the user selects View B for this same study. This action applies View B's default patient orientations to the images. The image in RCC, for example, now has patient orientation FL.

Let's say the user closes the study. Then you (the administrator) edit View B, changing the RCC patient orientation to AF. If the study is reopened, the RCC image has patient orientation FL (saved with the study when it was closed), not AF (the new default RCC orientation AF). However, if a new image is added to the RCC cell, its patient orientation will be the default AF.

## Creating custom view codes and custom view modifier codes

You can create custom view codes, which will appear in the drop-down list in the **Film View** column of the **View Order** list in the **Local | Mammography** branch of the **Administration** tree (described earlier in this section). You can also create custom view modifier codes that are associated with custom view codes.

**Note:** When this manual was published, custom view codes and custom view code modifiers were not defined by DICOM or IHE. Development, use and reliability of custom view codes and view code modifiers is the sole responsibility of the ClinicalExpress user.

- *To create a custom view code:*
  1. In the **Local | Mammography** branch of the **Administration** tree, click the **Custom** button. This opens the **Customize Mammography Views** window (see next page).
  2. In the **Custom View Codes** section, click the **New** button.
  3. Click in each column, then fill in the associated information.
  4. Click **Save**.
- *To edit a custom view code:*
  1. In the **Custom View Codes** section, click the view code you want to edit.
  2. Click **Edit**.
  3. Change the information as needed.
  4. Click **Save**.
- *To delete a custom view code:* Click the view code you want to delete, then click **Delete**.

**Note:** A custom view code can be edited or deleted only if it is not referenced by a view layout.

- *To create a custom view modifier code:*
  1. In the **Custom View Modifier Code** section, click the **New** button.
  2. Click in each column, then fill in associated information.
  3. Click **Save**.
- *To edit a custom view modifier code:*
  1. In the **Custom View Modifier Codes** section, click the view modifier code you want to edit.
  2. Click **Edit**.
  3. Change the information as needed.
  4. Click **Save**.
- *To delete a custom view modifier code:* Click the view modifier code you want to delete, then click **Delete**.

**Note:** A custom view modifier code can be edited or deleted only if it is not referenced by a custom view code.

**Note:** During DICOM Store and Export, custom view codes are added to the DICOM image header as View Code Sequence (0054, 0222). All view modifier codes are sent as View Modifier Code Sequence (0054, 0220) which is part of View Code Sequence.

Customize Mammography Views

Custom View Codes

Name	Code Value	Code Meaning	Coding Scheme Designator	Patient Orientation	View Modifier Code
EXAMPLE	ABC		DEF	PF	

View Modifier Codes

- RM
- RI
- RS
- ID
- M
- S
- SAMPLE

Custom View Modifier Codes

Name	Code Value	Code Meaning	Coding Scheme Designator
SAMPLE	GHI		JKL

View Order

Row	Column	Film View	Patient Orientation
1	1	RCC	Posterior Left (P\L)
1	2	LCC	Anterior Right (A\R)
1	3	RMLD	Posterior Foot Left (...)
2	1	LMLD	Anterior Foot Right (...)
2	2	RML	Posterior Foot (P\F)
2	3	LML	Anterior Foot (A\F)

Dropdown menu for LML:

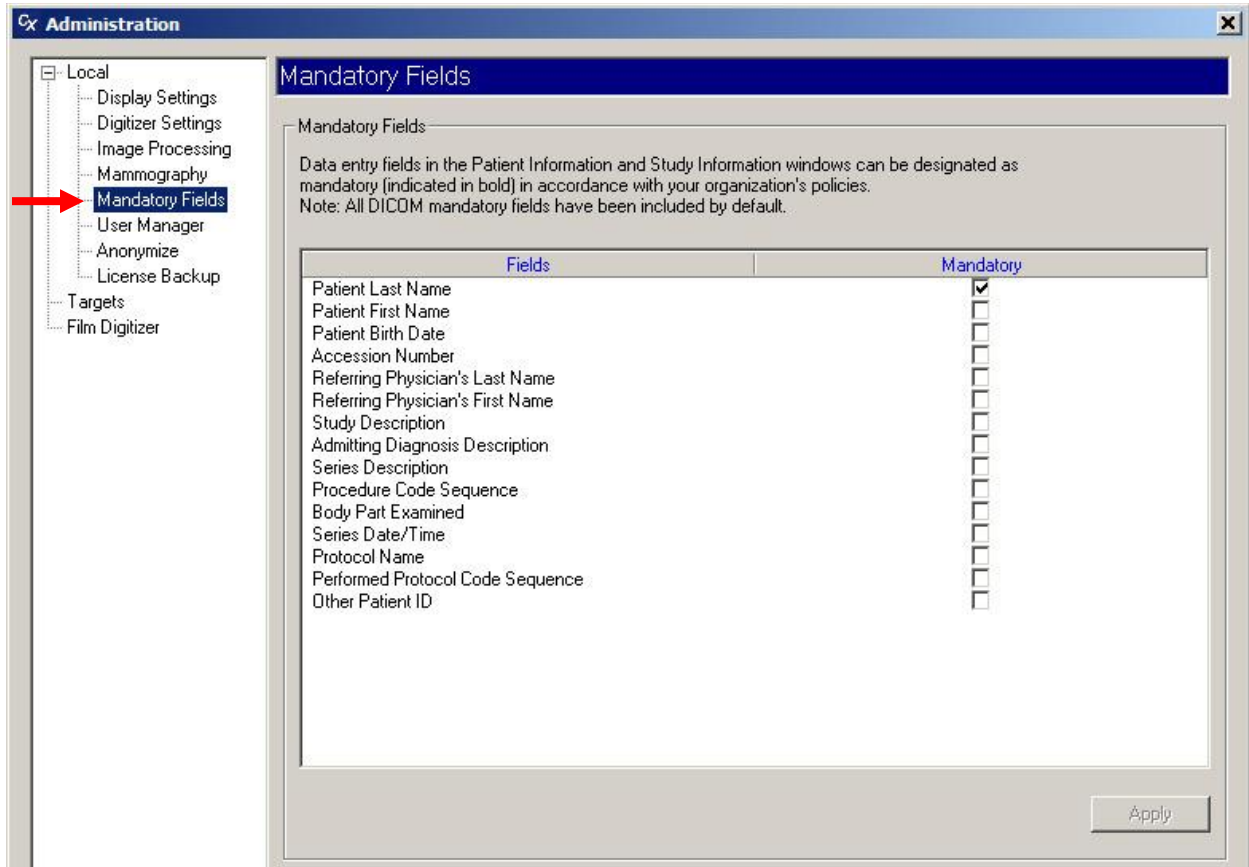
- RXCCL
- LXCCL
- RXCCLM
- LXCCLM
- CV
- EXAMP



## Designating mandatory data entry fields

Data entry fields in the **Patient Information** and **Study Information** windows can be designated as mandatory (indicated by bold field names) in accordance with your organization's policies.

Set mandatory data fields in the **Local | Mandatory Fields** branch of the **Administration** tree.



1. Set mandatory fields as required:

- *To require the user to fill in a field:* Check the box in the **Mandatory** column.
- *To make a field optional:* Uncheck the box in the **Mandatory** window.

2. Click the **Apply** button.



- *To add a user account:*
  - a. Click the **Add** button. This opens the **User Information** window.

The screenshot shows a dialog box titled "User Information" with a blue header. It contains five input fields: "User Name:", "Full Name:", "Description:", "Password:", and "Confirm Password:". At the bottom right, there are two buttons: "Create" and "Cancel".

- b. For the new user, enter the **User Name** (i.e., the login name), **Full Name** and **Description** (e.g., job title). Enter a **Password** for the user, then enter the password again in **Confirm Password**.
- c. Click **Create**.

- *To change a user's full name, description or password:*

- a. In the user list, click the user account row.
- b. Click the **Edit** button.

The screenshot shows the "User Information" dialog box in edit mode. The "User Name" field contains "Bill", "Full Name" contains "William Alvarez", and "Description" contains "Primary ClinicalExpress Operator". The "Password" and "Confirm Password" fields are masked with asterisks. At the bottom right, there are two buttons: "Save" and "Cancel".

- c. Change information as needed.
- d. Click **Save**.

**Note:** You cannot change the user's login name (**User Name**). To change a user name, delete that user account and create a new user account as described earlier in this section.

**Note:** The Administrator's *password* can be changed, but the Administrator's *user name* cannot be changed. Keep the Administrator's password in a secure location.

- *To remove a user account:*
  - a. In the user list, click the user account row.
  - b. Click the **Remove** button.

**Note:** The "Admin" user account cannot be deleted.

Passwords cannot be recovered. If a user forgets their password, you must delete the user's account, then create a new account for the user.

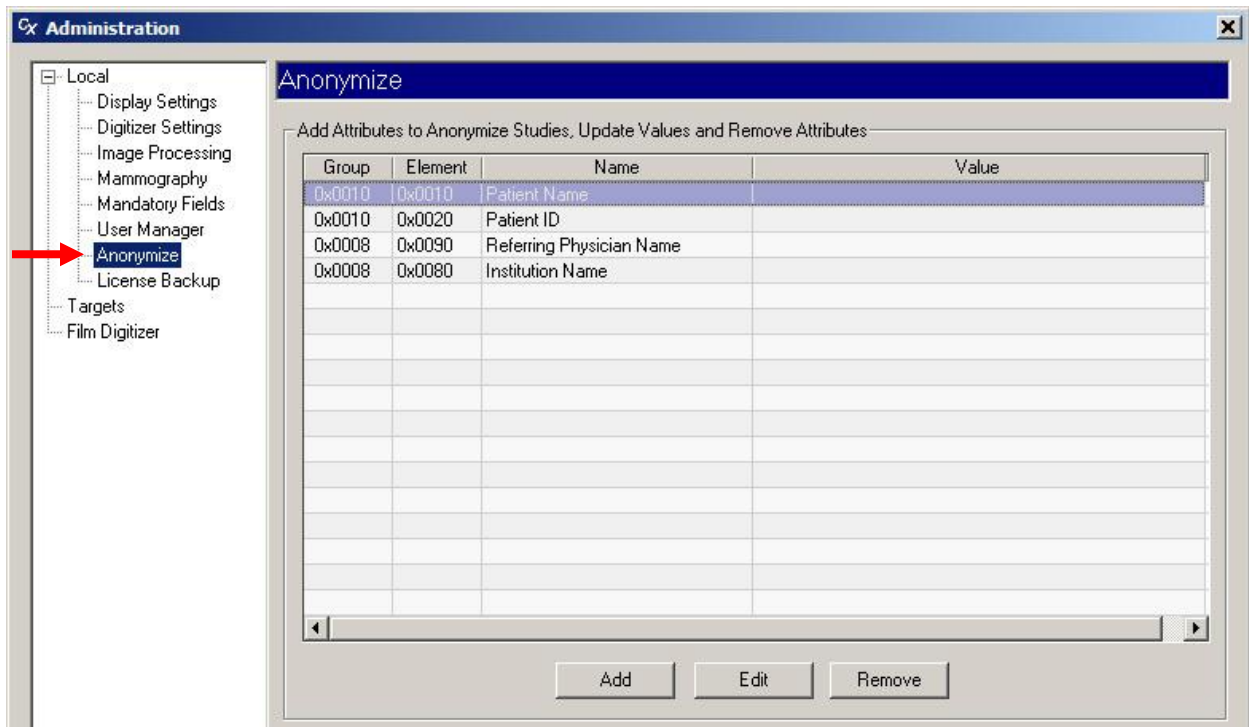
## Selecting data fields for anonymizing

To preserve patient privacy, data in selected fields can be *anonymized* (removed or replaced with fixed values) when studies are sent to a target. Original data stored in the ClinicalExpress database is not changed when anonymizing is applied to it during transmission.

Setting up to anonymize data involves two steps:

1. Designating fields to be anonymized, described in this section.
2. Activating the **Anonymize** option for targets, described in “Defining targets,” the next section in this chapter.

Add, change or remove anonymous fields in the **Local | Anonymize** section of the **Administration** window.



■ *To designate a field for anonymizing:*

- a. Click the **Add** button. This opens the **Anonymizer Element Information** window.

- b. Open the **Name** list and click the field to be anonymized. You can anonymize these fields:

- |                      |                                   |
|----------------------|-----------------------------------|
| ● Patient Name       | ● Admitting Diagnosis Description |
| ● Patient ID         | ● Referring Physician Name        |
| ● Birth Date         | ● Institution Name                |
| ● Patient Sex        | ● Modality                        |
| ● Accession Number   | ● Manufacturer                    |
| ● Study Date         | ● Study ID                        |
| ● Study Time         | ● Series Number                   |
| ● Study Description  | ● Instance Number                 |
| ● Series Description | ● Conversion Type                 |
|                      | ● Body Part Examined              |

- c. Optional: Enter a **Value** to replace patient data. If no value is entered, the field be blank when anonymized.
- d. Click **OK**.

■ *To edit the anonymizing values for a field:*

- a. Click the row for the field to be changed.
- b. Click the **Edit** button.
- c. In the **Anonymizer Element Information** window, change the **Value**.
- d. Click **OK**.

■ *To remove anonymizing for a field:*

- a. Click the row to be removed.
- b. Click the **Remove** button.

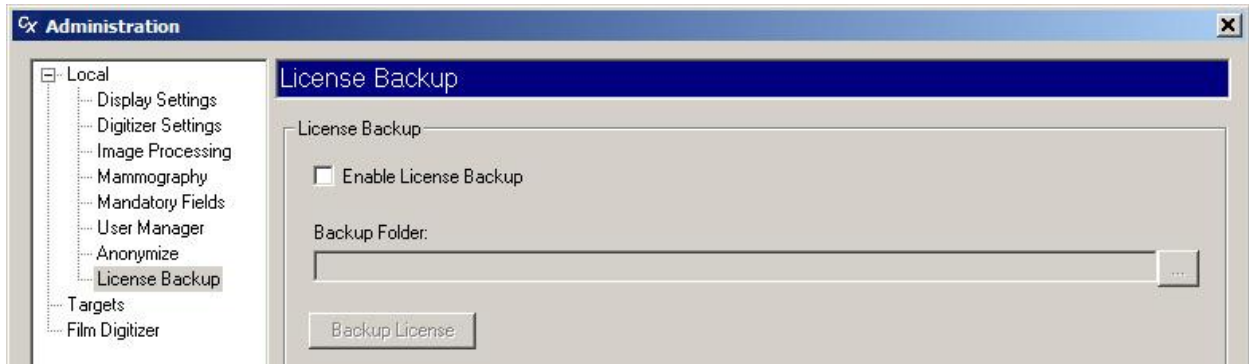
## Backing up and restoring the license

License backup is provided for ClinicalExpress installations. This function should be set up shortly after installing ClinicalExpress. It enables you to save the license key in a secure location—such as a network directory, or on a flash drive (USB memory stick)—to enable you to restore the license should there be a computer hardware or software problem.


The license backup file records the number of scans remaining and the time limit for the license. This file is recreated with the latest scan and time data every 24 hours by overwriting the previous copy (for that reason, you cannot back up to a CD or DVD). If ClinicalExpress isn't running when a backup is scheduled, the backup will occur the next time the application is launched.

### Backup up the license

Back up the license in the **Local | License Backup** section of the **Administration** window.



#### ■ To back up the license:

- a. Activate the **Enable License Backup** option.
- b. Click the **More** button , then select the location where you want to save the license.

**Note:** Do not select a location on the local computer. Select a location such as a network directory, or a flash drive that is constantly plugged into the computer, that will not be affected if the local computer has a problem or must be replaced.

- c. Click the **Backup License** button.

## Restoring the license

If there is a hardware or software problem on the computer running ClinicalExpress, and if you activated the License Backup option (described on the previous page), VIDAR can restore your license.

1. Start a new e-mail message.
2. In the message's **To** field, enter `medtech@3dsystems.com`.
3. Locate the license backup file (it will have a *.ref* extension) and attach it to the message.
4. In the message body, describe the situation and request restoration of your license.
5. Send the message.
6. When you receive a reply with the restored license, install the license as described in step 2 of section "E. Obtain a ClinicalExpress license key" in the "Installing ClinicalExpress" chapter of this manual.

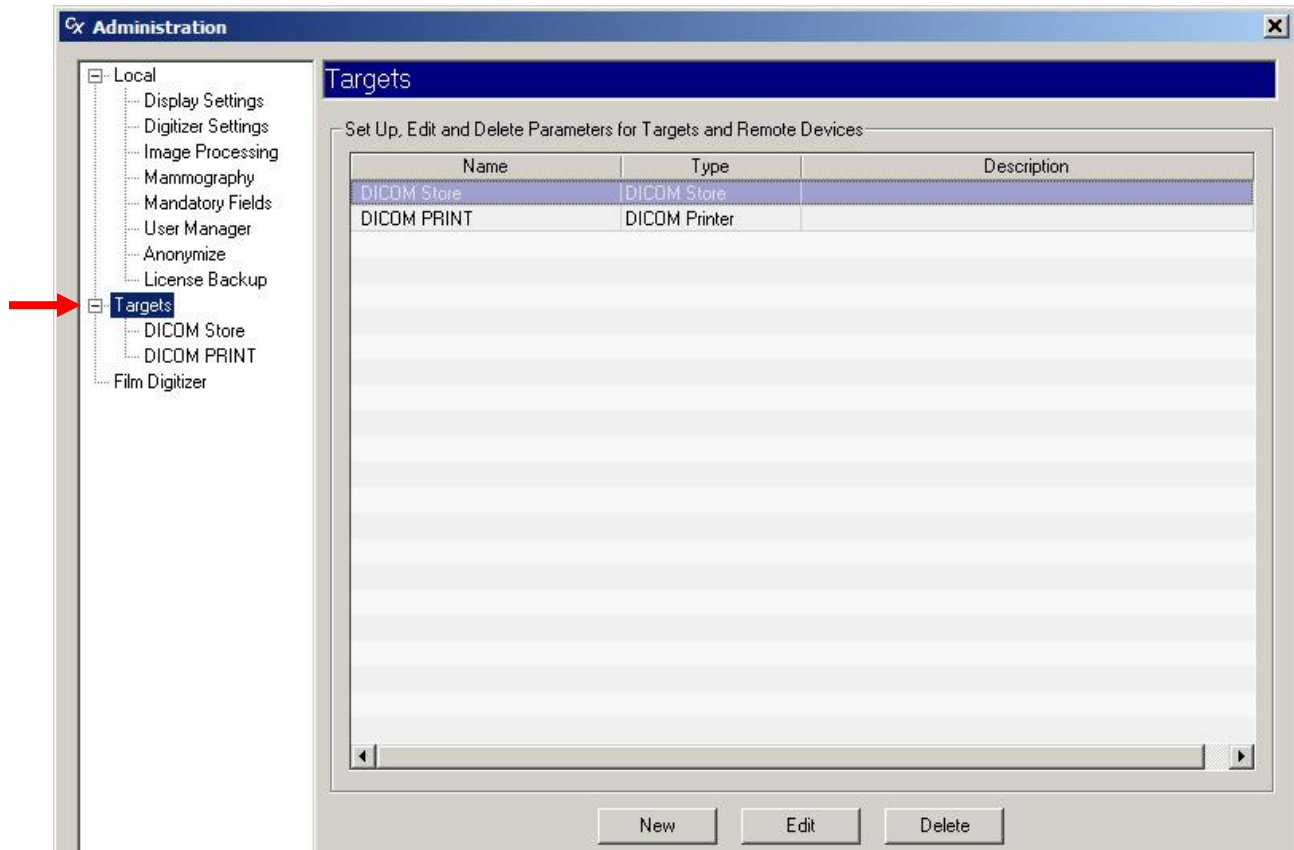
If you cannot provide a copy of your license, you will have to purchase a new license.



## Defining targets

Administrators can set up, edit and delete parameters for targets and remote devices. A *target* is a destination for studies and/or a source for Modality Work List data (Modality Work List can be purchased separately).

Work with targets in the **Targets** branch of the **Administration** tree.



## Creating a new target

1. Click the **New** button. This displays the **New Target** page.

2. In the **Target** section:

- a. Enter the target's **Name**. This should be a clear, short name, such as "Clinic" or "Dr. Gale". Choose names that users will not confuse.

**Note:** After the name is entered and the target is saved, the name cannot be changed. To change the name, you must delete the target and create a new one.

- b. Select the target **Type**. Choices are:
- DICOM STORE
  - STORAGE COMMITMENT
  - MODALITY PERFORMED PROCEDURE STEP
  - DICOM PRINTER
  - POSTSCRIPT PRINTER
  - DICOM CD
  - MODALITY WORK LIST
  - DICOM PATIENT QUERY

**Note:** The **Type** field controls which fields can be changed in the left set of sections of the **New Target** window, and controls fields displayed in the right section (**Configuration**).

- c. (Optional) Enter a **Description** for the target.
- d. *To designate this target as the default:* Activate the **Default** option. Information from the default target appears in the **Target** section of the ClinicalExpress main window when the program is started and when the user clicks the **Default Target** button.

**Tip:** If this workstation will be sending studies to only one target, or if one target will be the destination most of the time, set that target as the default.

- e. *To anonymize data sent to this target:* Activate the **Anonymize** option. Fields selected for anonymizing in the **Local | Anonymize** window (see “Selecting data fields for anonymizing,” the previous section in this chapter).
- f. *To allow baseline JPEG lossless compression for this target:* Activate **Allow Lossless Compression**.

3. In the **Communication** section:

- a. Enter the remote destination's **AE Title** (Application Entity Title). AE Titles are case sensitive.
- b. Enter the target's **PDU Size** (Protocol Data Unit size) in bytes. This specifies the maximum block size the target can receive from ClinicalExpress.

**Note:** **AE Title** and **PDU Size** are normally defined by the receiving program.

- c. Enter the required **Response Timeout** in minutes. This is the amount of time ClinicalExpress will wait for a response after sending a communication to the target. Heavy network traffic will slow ClinicalExpress operation. Maximum value is 5 minutes. To specify an infinite timeout, enter 0.
- d. Enter the receiving application's **Port** number (e.g., 104, 4006).
- e. Enter the receiving application's **Host Name** or IP address.
- f. If the target will be accessed over a dial-up connection, activate **Dial-up**, and enter the required information.

4. The **Digitizer** section enables you to set the default bit depth and resolution, and to control whether users can override the defaults. The default **Bit Depth** is 16 and **Resolution** is 570. In the **Digitizer** section:

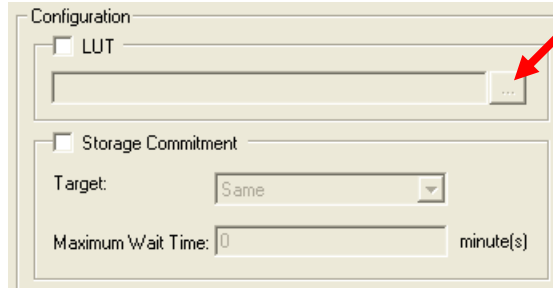
The image shows a software configuration window titled "Digitizer". It contains two unchecked checkboxes: "Set Film Size Based Resolution" and "Enable Bit Depth and Resolution". Below these are two dropdown menus: "Bit Depth" is set to "16" and "Resolution" is set to "570".

- a. *To enable the film size to set resolution:* Activate the **Set Film Size Based Resolution** option.
- b. *To change the default bit depth and resolution:* Activate the **Enable Bit Depth and Resolution** option, then set **Bit Depth** and **Resolution** to the required values. (Available values depend on the attached digitizer.)
- c. *To enable users to override the default bit depth and resolution:* Activate (or leave activated) the **Enable Bit Depth and Resolution** option.  
 Considerations:
  - Deactivate the **Enable Bit Depth and Resolution** option if the target should receive images captured at a specific bit depth and a specific resolution. This is the recommended configuration if you are not using the **Set Film Size Based Resolution** option.
  - Activate the **Enable Bit Depth and Resolution** option if the target can receive images captured at any available bit depth and resolution, *and* if ClinicalExpress user(s) are trained to select settings appropriate for the study and target.

**Note:** Each facility is responsible for assuring that bit depth and resolution are clinically appropriate for the images and studies for which ClinicalExpress is used.

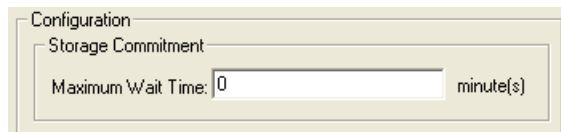
5. Options in the **Configuration** section depend on the selected target **Type**. Follow instructions for selected target **Type**:

- For target **Type** DICOM STORE:



- a. If a Look-Up Table is available for the target, activate **LUT**, then click the **...** button (see arrow) to select the LUT file.
- b. If ClinicalExpress is to respond to storage commitment messages from a target:
  - Activate **Storage Commitment**.
  - Select a **Target**, or select **Same** for this option to apply to the current target.
  - Enter a **Maximum Wait Time**. ClinicalExpress will not take action unless it receives a storage commitment confirmation within this time.

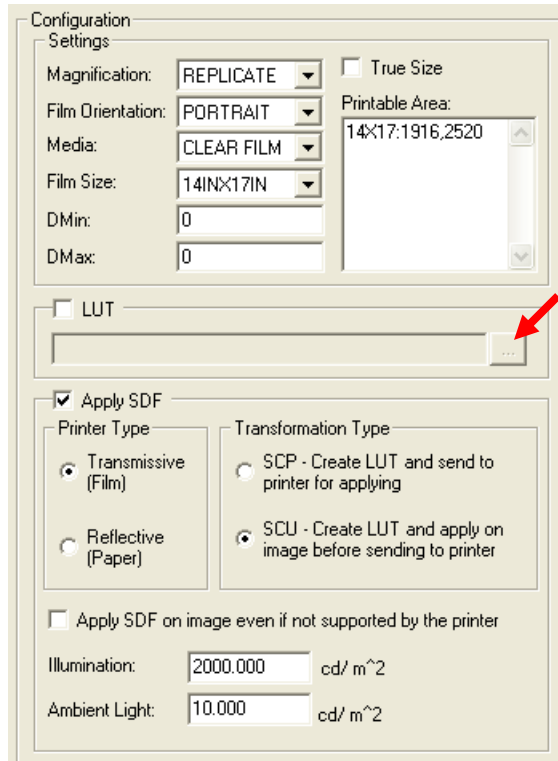
- For target **Type** STORAGE COMMITMENT:



Enter a **Maximum Wait Time**. ClinicalExpress will not take action unless it receives a storage commitment confirmation within this time.

- For target **Type** MODALITY PERFORMED PROCEDURE STEP, there are no configuration options.

■ For target **Type** DICOM PRINTER:



- a. If a Look-Up Table *is* available for the printer, activate **LUT**, then click the ... button (see arrow) to select the LUT file. Available LUTs are in the printer-specific directory on the ClinicalExpress installation CD.
- b. If a Look-Up Table *is not* available for the printer, activate **Apply SDF** (Standard Display Function), then:
  - Set **Printer Type** to match the DICOM printer.
  - Set **Transformation Type** to **SCP** (printer applies SDF to image) or **SCU** (ClinicalExpress applies SDF to image). For the **Transformation Type** to be valid, the DICOM Printer should support the Presentation LUT SOP Class (check printer's manual for details); this will be negotiated by the software during the association phase.
  - If **Apply SDF on image even if not supported by printer** is activated, and the printer does not support Presentation SOP Class (check printer's manual), ClinicalExpress generates the SDF values (based on **Illumination** and **Ambient Light** fields) and applies a LUT to the image before sending it to the printer.

- Enter **Illumination** (luminance due to illumination) and **Ambient Light** (luminance due to ambient light) values to be used in the SDF calculation. DICOM default values are:

	Transmissive media (film)	Reflective media (paper)
<b>Illumination</b>	2000 cd/m <sup>2</sup>	150 cd/m <sup>2</sup>
<b>Ambient Light</b>	10 cd/m <sup>2</sup>	0 cd/m <sup>2</sup>

- c. In the **Settings** section:
- Set **Magnification** as required. Options are:
    - ◆ **Replicate** (each printer pixel represents one image pixel).
    - ◆ **None** (fits image to printer medium size without resampling).
    - ◆ **Bilinear** (fits image to printer medium size using bilinear resampling).
    - ◆ **Cubic** (fits image to printer medium size using cubic resampling).
  - Set **Film Orientation** to **Portrait** (long edge is vertical) or **Landscape** (long edge is horizontal).
  - Select the target's media: **Blue Film**, **Clear Film** or **Paper**.
  - Set the target's **Film Size** in inches.
  - Set **DMin** (minimum film opacity) and **DMax** (maximum film opacity).
  - Activate **True Size** to print at the exact aspect ratio of the original film. If not activated, the image's aspect ratio will be altered to fit the printable area.
  - **Printable Area** specifies the printable area that will be used to crop the image if the requested output size is larger than the printer's printable area.

### More about Printable Area

A duplicate film typically has a smaller printed area than the original film of the same overall size.

- When printing an image on media the same size as the original film, expect some shrinking or cropping to occur (depending on settings in the **Configuration** section of the DICOM PRINTER target, and available options provide by the server and printer.)
- When printing an image smaller than the printer's printable area (which is usually 14" x 17"), the resulting image will be the same size as the original.

Example: Suppose the printable area is 13.5" x 16.5" and the resolution is 150 pixels per inch. The **Printable Area** would be

14X17:2025,2475

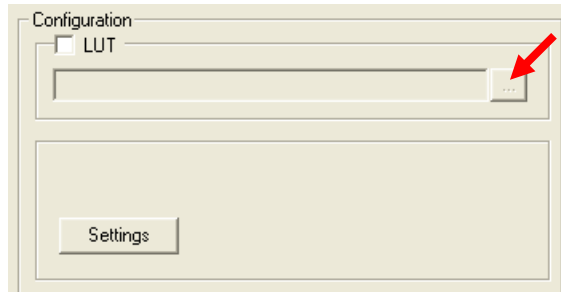
where 14X17: is the original film size (must include uppercase "X")

2025 is the printable width in pixels (13.5 inches x 150 pixels per inch)

2475 is the printable length in pixels (16.5 inches x 150 pixels per inch)



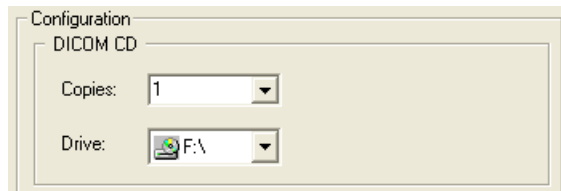
■ For target **Type** POSTSCRIPT PRINTER:



- a. If a Look-Up Table is available for the target, activate **LUT**, then click the **...** button (see arrow) to select the LUT file. Available LUTs are in the printer-specific directory on the ClinicalExpress installation CD.
- b. Click **Settings** to open the standard **Print Setup** window. In this window, you can select a printer and change its properties.

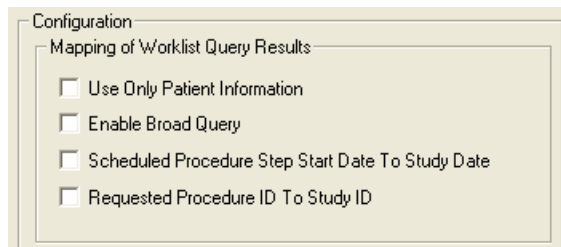
**Note:** Postscript printer drivers must be installed to support this target type. See printer manual for driver information.

■ For target **Type** DICOM CD:



- a. Set the number of **Copies** to be created.
- b. Select the CD **Drive**.

■ For target **Type** MODALITY WORK LIST:

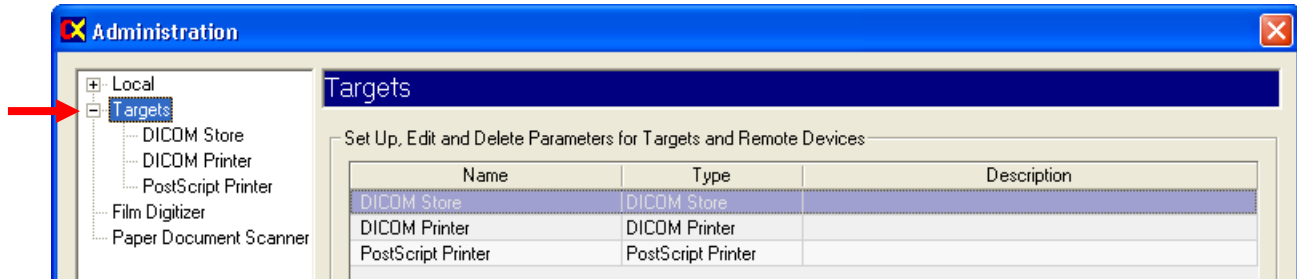


- a. Activate **Use Only Patient Information** to import only basic patient information from a Modality Work List query.

- b. Activate **Enable Broad Query** if the system can access multiple Modality Work Lists and you want the user to be able to search all MWLs with a single query.
  - c. Activate **Scheduled Procedure Step Start Date to Study Date** to map procedure date to study date when creating a new patient account by querying the MWL server.
  - d. Activate **Requested Procedure ID to Study ID** to map a requested procedure ID to a study ID.
- For target **Type** DICOM PATIENT QUERY, there are no configuration options.
6. When all target information has been entered, click the **Save** button. The new target will appear in the **Targets** section of the **Administration** window.

## Managing target information

- *To list existing targets:* Click **Targets** in the Administration tree.



- *To view a target's settings:* Click the target's name below **Targets** in the Administration tree.
- *To edit a target's information:*
  - Click the target's name below **Targets** in the Administration tree.  
or  
Click the target's name in the target summary list.
  - Click the **Edit** button. Fields become active and can be edited.
  - When done, click the **Save** button.
- *To delete a target:*
  - Click the target's name below **Targets** in the Administration tree.  
or  
Click the target's name in the target summary list.
  - Click the **Delete** button.

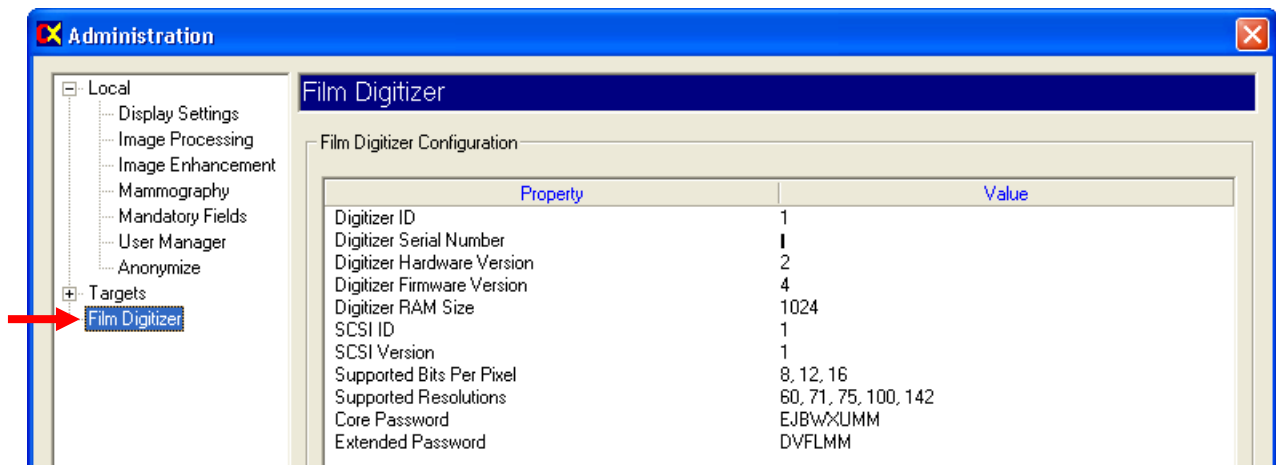
## Verifying communication

After defining a target, it's recommended that you test communication between ClinicalExpress and the target or MWL broker (the ClinicalExpress MWL feature can be purchased separately). You can, of course, test at any other time.

1. In the main ClinicalExpress window, **File > Generate Test Pattern > SMPTE**. This uses a special acquired study that exists strictly for testing purposes.
2. Open the **Target** list and click the target to be tested.
3. In the **Target** section, click the **Verify** button (just below the target drop-down list).
4. Wait for ClinicalExpress to respond. It will display one of two messages:
  - “Target – [target name]. Verification request succeeded.” indicates the target successfully responded to the DICOM Echo command from ClinicalExpress.
  - “Target – [target name]. Verification request failed.” means that the target has not responded to the Echo command. If you see this message, check the target configuration details in ClinicalExpress, then make sure the network is operating correctly.

## Reviewing the film digitizer's configuration

View digitizer configuration in the **Digitizer** branch of the **Administration** tree.

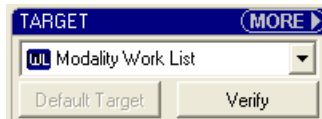


## Checking Modality Work List availability

**Note:** The ClinicalExpress Modality Work List option can be purchased separately. Your copy of ClinicalExpress must be licensed for Modality Work List before this feature will be available.

**Note:** The instructions in this section assume that the administrator completed the instructions for creating a new Modality Work List target (see “Defining targets” section, earlier in this chapter).

- *To determine whether the Modality Work List option is installed:*
  - a. In the main window, **View > Acquired Studies**.
  - b. In the **Studies Information** window, check the **Targets** list:
    - If at least one target is in the list, the Modality Work List option is installed and has been already set up for one Modality Work List target.
    - If the list is empty, the Modality Work List option is not installed.
  - c. In the **Studies Information** window, click **Close**.
  
- *To verify that the ClinicalExpress workstation is connected to a Modality Work List source:*
  - a. In the main window, open the **Target** list, then click a Modality Work List target.



- b. Click **Verify**.
- c. A message window will tell you whether the connection is operating.

**Note:** For complete instructions on using Modality Work List, see “Import existing patient data using Modality Work List” in the “ClinicalExpress operation guide.”

## Reviewing and managing the log file

The log file—a text file stored in the program directory—contains a record of the actions carried out by ClinicalExpress. Use the log file to review and analyze user and program activities for troubleshooting purposes. ClinicalExpress provides a window for viewing and managing the log file.

Date/Time	Severity	Description
04/25/2007 11:04:02 AM	Information	Clinical Express Launched
04/25/2007 11:04:05 AM	Information	User Admin logged in.
04/25/2007 11:04:07 AM	Information	Initializing Film Digitizer...
04/25/2007 11:04:07 AM	Information	Film Digitizer error 1793.
04/25/2007 11:04:08 AM	Information	Initialized network for storage commitment event reports receiving.
04/25/2007 11:04:18 AM	Information	Hot key combinations were disabled.
04/25/2007 02:31:45 PM	Information	Hot key combinations were enabled.
04/25/2007 04:36:01 PM	Information	Target Dicom Store of type DICOM Store created.
04/25/2007 04:37:32 PM	Information	Target Modality Work List of type Modality Work List created.

Buttons: Clear Log, Refresh, Close

- *To view the log file:* **View > Log File.**
- *To remove data from the log file:* Click the **Clear Log** button.
- *To read new data into the log file:* Click the **Refresh** button.

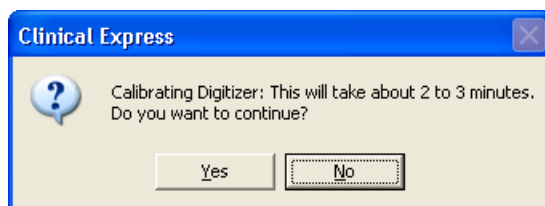
**Note:** Set log options in the **Local** administration page (see “Log” in the “Setting local workstation parameters” section, earlier in this chapter).

## Calibrating the film digitizer

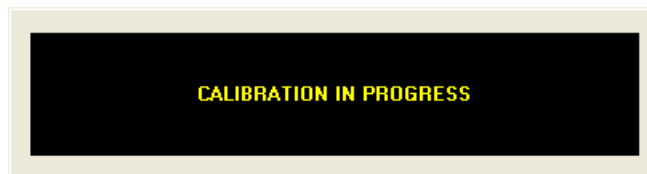
Calibrate the film digitizer as recommended by the film digitizer's operation manual.

**Note:** Calibration will take several minutes, during which you will not be able to use the digitizer or ClinicalExpress.

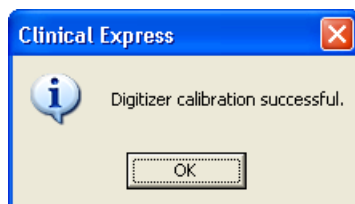
- *To calibrate the digitizer:*
  - a. **Options > Calibrate Scanner.**
  - b. Confirm that you want to initiate a calibration.



- c. Wait while the film digitizer calibrates.



- d. When the calibration is complete, click **Yes**.



## Calibrating your display

Good image quality depends on proper display output. When your display accurately presents an image, you can effectively evaluate image quality and successfully optimize the image. Even if the film was properly digitized, the image may appear to have poor quality on an uncalibrated display. Two easy methods for calibrating a display are provided in this section.

Report display problems to the medical physicist in charge of display QC. Display problems should be investigated by more in-depth evaluations and followed up by readjustment, service, repair, or replacement of the device.

For more rigorous display calibration, VIDAR recommends VeriLUM products, available from:

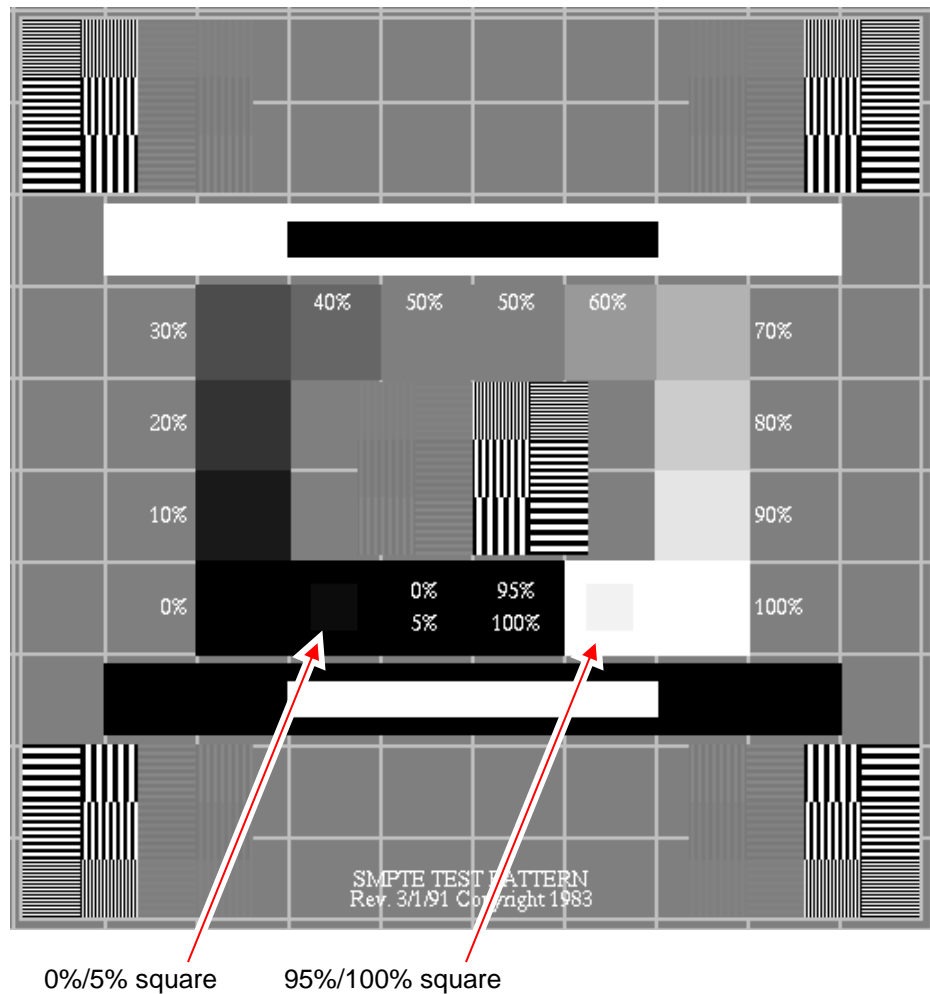
IMAGE Smiths, Inc.  
P.O. Box 30928  
Bethesda, MD 20824

Voice: (240) 395-1600  
Web [www.image-smiths.com](http://www.image-smiths.com)



## Calibrating with the SMPTE test pattern

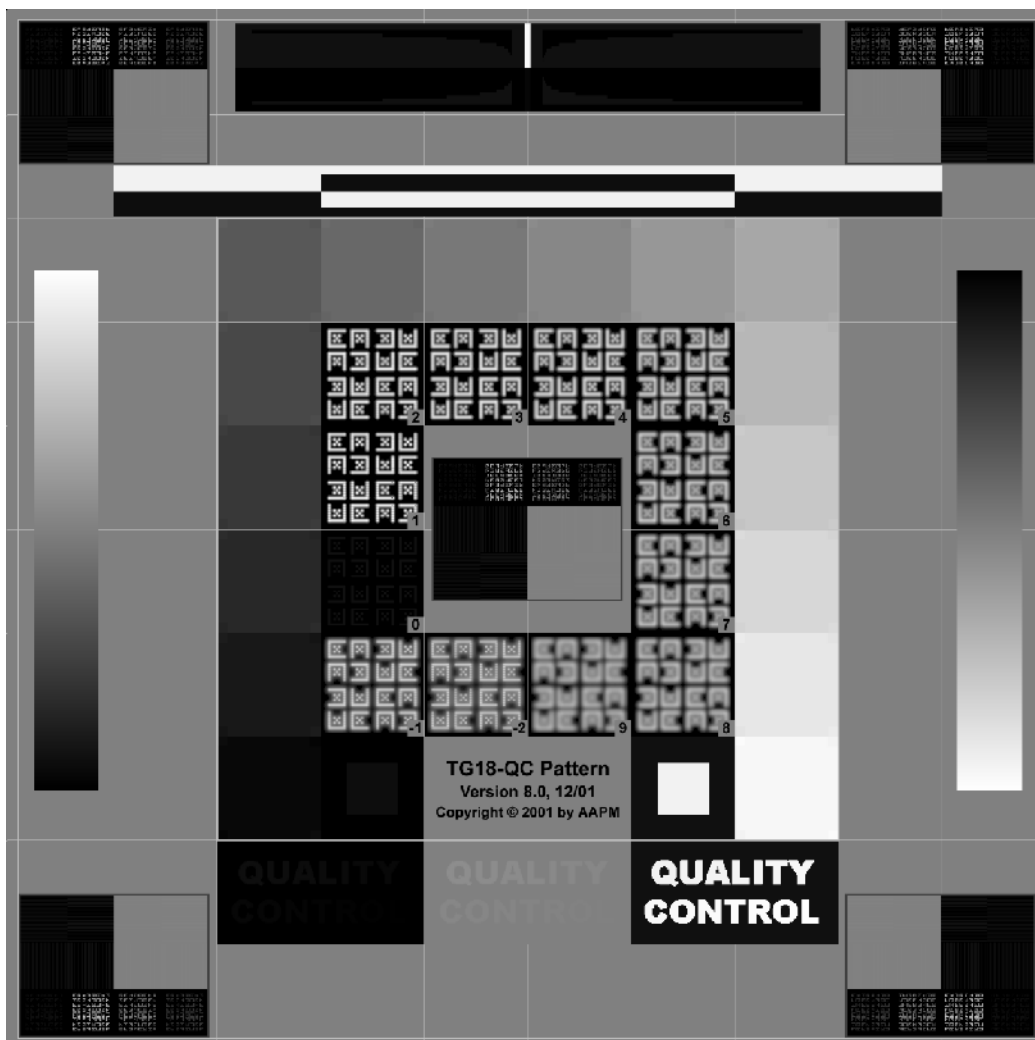
1. **File > Generate Test Pattern > SMPTE** to open the SMPTE pattern image (shown below).
2. Minimize the display's contrast and brightness controls.
3. Increase the brightness until you just see the bars in the corners.
4. Increase the contrast to about 80% or greater until you can see the 0%/5% and 95%/100% squares on the image as clearly as possible.



**Note:** If you are viewing an electronic copy of this document on a display and you can't see either the 0%/5% square or the 95%/100% square on this page (indicated by the arrows), then your display needs to be calibrated.

## Calibrating with the TG18-QG test pattern

1. **File > Generate Test Pattern > TG18-QC** to open the TG18-QC pattern image (shown below).



2. Visually inspect the following characteristics:
  - a. Geometrical distortion: Verify that the borders and lines of the pattern are visible and straight, and that the pattern is centered within the active area of the display device.
  - b. General image quality and artifacts: Evaluate the overall appearance of the pattern. Note any non-uniformities or artifacts, especially at black-to-white and white-to-black transitions. Verify that the ramp areas appear continuous without any contouring artifacts.

- c. Luminance, reflection, and noise: Verify that all 16 luminance patches are distinctly visible. Verify that the 5% and 95% patches are visible. Evaluate the appearance of low-contrast letters and confirm the visibility of targets at the corners of all luminance patches.
- d. Resolution: Evaluate the appearance of Cx targets at the center and the corners of the pattern and score them compared with the reference. The scores should be <5 for primary displays and <7 for secondary ones. Also, verify the visibility of the line-pair patterns at Nyquist frequency at the center and corners of the pattern.\*

**Contact VIDAR Technical Support** if you have any questions about configuring ClinicalExpress software:

Phone: +1.800.471.SCAN (+1.800.471.7226)

+1.703.471.7070 outside the U.S.

E-mail: medtech@3dsystems.com

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\* Steps 2a through 2d reprinted by permission from “New Developments in Display Quality Control,” by Ehsan Samei, in *Quality Assurance and Quality Control in the Digital Imaging Department*, Eds. E. Siegel, B. Reiner, J. Carrino, SCAR Premier Series, Society for Computer Applications in Radiology, Great Falls, VA, 2002, pp. 71-82.

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