

Graphic Imaging System 4250 Software

Version 3



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MCS
Graphic Imaging System 4250 Software
Version 3.0

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Chapter 1: About this Guide

The Graphic Imaging System (GIS 4250) software is a Windows-based software application that provides the ability to lay out and print direct mail.

In This Chapter

- Intended Audience
- Conventions
- Getting Help

Intended Audience

This guide is intended for use by MCS equipment operators. Basic knowledge of the Microsoft Windows® operating system and some experience with printing equipment is assumed.

Conventions

The following conventions are used in this guide.

Convention	Description
Bold	Actions you should take such as text or data to be typed exactly or items to click.
<i>Italics</i>	Items to type in which you must supply a value.

Getting Help



A complete on-line help system is available in the GIS 4250 interface by selecting the Help item in the Menu bar or the Help icon on the toolbar.

If you need further assistance, please contact MCS via e-mail at technicalsupport@mcspro.com or call 877.MCS.PROZ (877.627.7769). Telephone support for MCS Inc. sold equipment is available 8:30am to 6:30pm EST Monday through Friday and is free of charge.

Note: To locate your program location and version you can look in your Help>About window or select Ctrl-Alt-1 and Ctrl-Alt-2 while in the Job Log window.



Chapter 2: Getting Started

The Graphic Imaging System (GIS) 4250 is a software application that allows you to lay out direct mail pieces and print them. Although most of the work you do to create and print direct mail pieces is performed through the application interface, you may also have to make some physical adjustments to the printing equipment in order for your run to print correctly.

GIS 4250 has three main sections: the job, the template, and data. You create the job and the template, but you have the ability to only manipulate data. Data files are supplied to you or by you.

The general steps to producing direct mail through GIS 4250 are:

1. Import Data. See “Importing Data” on page 4-1.
You must obtain data files.
2. Perform Print Setup.
See “Print Setup” on page 7-1.
3. Create a Template. See “Using Templates” on page 5-1.
A template is the actual layout of the material you wish to print.
4. Create a Job. See “Creating Jobs” on page 6-1.
The job consists of data, a template, and system settings. See “System Setup” on page 6-3 to create and enter system settings.
5. Print the Job. See “Printing Jobs” on page 7-1.
Print test runs and make physical adjustments as necessary to ensure print quality.

Software Installation

The first installation of GIS 4250 is done by an MCS technician at your facility. After that, you are responsible for system upgrades.

Minimum system requirements to perform upgrades are:

- Pentium processor
- Windows XP
- 1 GB RAM
- CD ROM drive

In This Chapter

- Software Installation
- Dongle Installation
- First-time Installation of Device Driver
- System Power Up

Getting Started

There is no way to manually install or uninstall the software on a PC by deleting or copying files. You must run **Setup.exe** to install the software.

Note: Although not required, it is good practice to backup existing GIS 4250 files.

To install/upgrade the software:

1. Uninstall any currently installed version using the Windows Remove Programs mechanism for doing so.

Access this window by selecting **Start>Control Panel>Add or Remove Programs** and then select the Array Software. Then click **Remove**.

The following files will remain in the installation folder after the Uninstall completes:

PenInfo.ini

Pen ink-level and warming information.

Setup.cfg

User-specific setup options.

System.dat

User interface defaults information.

Any or all of these files can be manually deleted or left as is so the new installation will use them. All of them will be automatically recreated by the application (with default values) if they are not present.

Note: Later versions may have added settings to Setup.cfg. The only way to see those new settings after the new install is by deleting the current setup.cfg, which will force the application to create a new “default” setup.cfg the next time it runs.

The uninstall script also removes our device driver from the system:

C:\WINNT\System32\drivers\AT1394.sys

Note that you can right-click on AT1394.sys in “My Computer” or “Windows Explorer” to see its version.

2. Disable any anti-virus applications.

You can usually do this by right-clicking the application’s icon in your system tray.

After GIS 4250 software installation is complete, be sure to enable your virus protection.

3. Run **Setup.exe** for the version you would like to install.

If you are starting with a zip file, unzip it first to the local hard drive and make sure you specify that folders in the zip file be honored when unzipping. Locate the setup.exe file and double-click it.

The installation puts the device driver for that version in

C:\WINNT\System32\drivers\AT1394.sys

and will overwrite any existing device driver. This is desired because if you are going back one or more versions the “old” device driver is required.

4. Follow the setup wizard.
5. Verify firmware.



Dongle Installation

GIS 4250 requires a hardware dongle. Neither the equipment nor the software will work properly without the dongle. A dongle is a hardware device that communicates with the MCS software to allow its use. If you attempt to use the software without the dongle installed, it will not function. You will receive an error stating “Printer Setup Error.”

To install the dongle:

1. From the installing CD, double-click the file **DongleInstallation/Hdd32.exe**.
This executable installs the drivers to operate the dongle.
2. Follow the instructions.
3. Double-click the file **DongleInstallation/DongleReader.exe**.
This program verifies driver installation and proper operation.
4. Insert the dongle into a USB port.
The dongle operates in any USB port; however, an internal port is recommended for added security.

First-time Installation of Device Driver

Although the device driver is installed to the Drivers folder by the Installation script, the operating system does not yet know that the driver should be loaded when the controller is plugged in for the first time. Plug-N-Play is used to associate that driver with our device. The first time the unit is connected to the PC via firewire and powered-on, a New Hardware Found window is displayed by the Operating System. The following instructions show how to associate our driver with our device (they depend slightly on the Operating System and/or Service Pack):

1. At the Welcome to the Found New Hardware Wizard window select **Install from a list or specific location (Advanced)** and click **Next**.
You will need to specify where the driver install file is rather than have the Operating System try to locate an existing driver. The system needs to access our AT1394.inf file to determine how to associate the driver. That file is installed to the application’s folder.
2. Click the **Browse** button and navigate to select the following folder:
C:\Program Files\PrintMail WideArray\PrintMail WideArray
or
C:\Program Files\MCS\Array_Software_name
And click **OK**.
3. Click **Finish**.
The wizard installs the driver and indicates it completed successfully.
You may verify the driver is installed by locating the “IEEE 1394 Printer” “Array Technologies AT-2500 Printer” in the Device Manager (see “Wizard aborted” on page 2-4 for instructions on getting to the Device Manager).

Note: The unit must be powered-on and connected.



If the “New Hardware Found” wizard is aborted before it completes, it will not appear again on further add/removals of the device! Note that someone else may have already aborted the wizard without your knowledge before you did. The wizard is the only way the driver can be installed. If the system is in the state where the wizard was aborted then nothing appears in the application's log when the system is connected to the PC.

Therefore, the unit should not be connected to the PC before the software is installed or before an operator is ready to complete the wizard.

Wizard aborted

If the wizard was aborted you can cause it to reappear the next time the system is connected by following these steps:

1. Leave the system on and plugged into the PC.
2. Go to the Device Manager.
Start>Control Panel>System
3. Click the **Hardware** tab.
4. Click on the **Device Manager** button to open the Device Manager.
5. Locate Array Technologies Inc. AT-2500 Printer in the list of devices.
It should be under the Other devices node and have a question mark icon with an exclamation point beside it.
6. Delete the entry from the list by highlighting it and pressing the **Delete** key.
7. Select **Yes** or **OK** from the Confirm Device Removal dialog prompt.
8. Turn the system off.
9. Turn the system on.
10. The New Hardware Found dialog wizard should appear and you can follow the directions in “First-time Installation of Device Driver ” on page 2-3 above to associate our driver with the device.

System Power Up

Although this manual describes operation of the GIS 4250 software, certain power up operations must take place on the hardware for the software to properly read and display information about the equipment.

To view ink and other information in the software:

1. Power up the PC operating the software.
2. Power up the controller.
3. Wait until the blue light blinks.
4. Check the ink supply bladders and make sure the indicator light is green.
Yellow indicates you are close to empty, red is empty, and green indicates ink is available.

Note: You must purchase ink through MCS in order for the software to display information about it. Smart chip technology is built into MCS ink bladders.



- Note:** You can switch bladders while the system is running as long as one bladder remains. The system will automatically switch where it draws ink if a bladder is removed.
5. Check to make sure all head lights are green.
Once opened, the software will also tell you if the heads are not properly functioning.
 6. Open the GIS 4250 Software as described in “Opening the Application” on page 3-1.

Powering Down the Controller

It recommended that you use the Controller settings window to power down the controller. See “Controller Settings” on page 8-7 for more information.





Chapter 3: Understanding the Interface

GIS 4250 is a Microsoft Windows-style application. It is important to understand how the interface works so that you may use the interface most effectively.

Opening the Application

GIS 4250 is a standard Windows application and can be opened in many ways, one of which is described here.

To open the application:

1. Double click the **GIS 4250** icon on your desktop.

The application opens and a splash screen appears.



After a few seconds the splash screen disappears and the Main window remains open.

Note: You may open the application using other Windows standard techniques.

In This Chapter

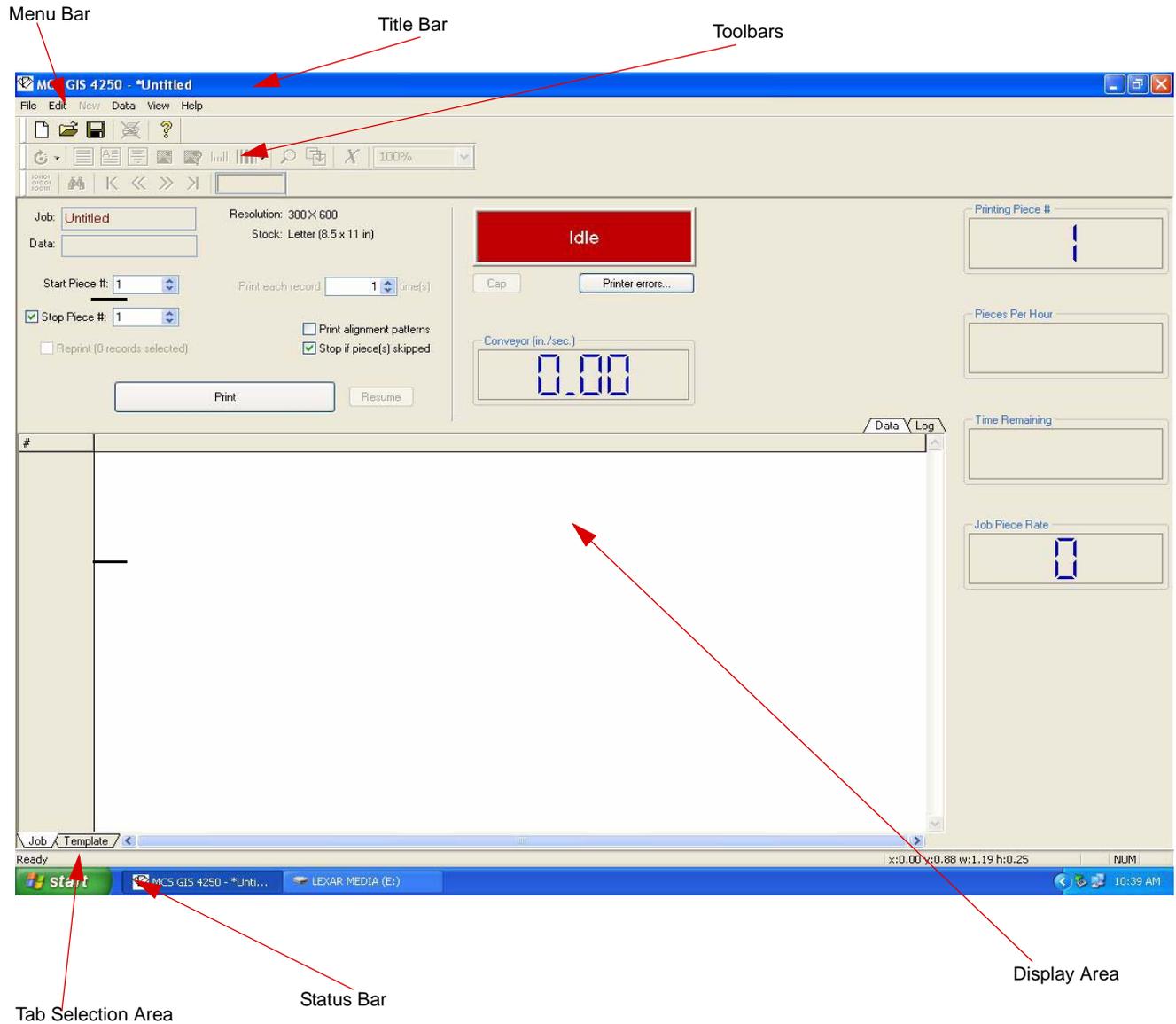
- Opening the Application
- The Main Window
- Title Bar
- Menu Bar
- Toolbar
- Display Area
- Tab Selection Area
- Status Bar
- View Menu

The Main Window

Understanding the Interface

The Main Window

The Main Window is the primary point of entry for all tasks. This window is broken down into many areas as annotated below. Each area is described in the sections that follow.



Title Bar

The Title bar displays the name of the program, a minimize button, a maximize/restore button, and a close button.



Menu Bar

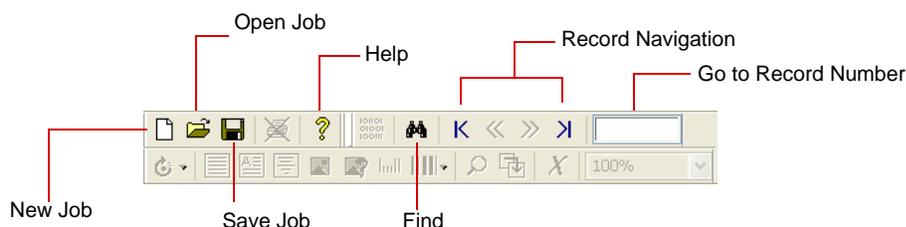
This standard Windows feature contains pulldown menus to select functions. Functions which cannot be used appear dimmed (gray). Items in the Menu Bar are interactive. They change as tabs are selected in the tab selection area.



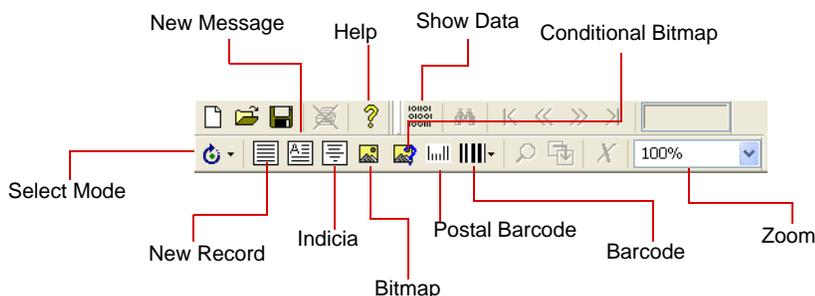
Toolbar

The Toolbar contains rows of iconic buttons that provide additional functions applicable to the displayed window. Icons in the toolbar are interactive. They change as tabs are selected in the tab selection area. You can customize the icons displayed in the toolbar as described in “Customize” on page 3-6. Default values are shown here for commonly used toolbars.

Job and Data Tab



Template Tab



Display Area

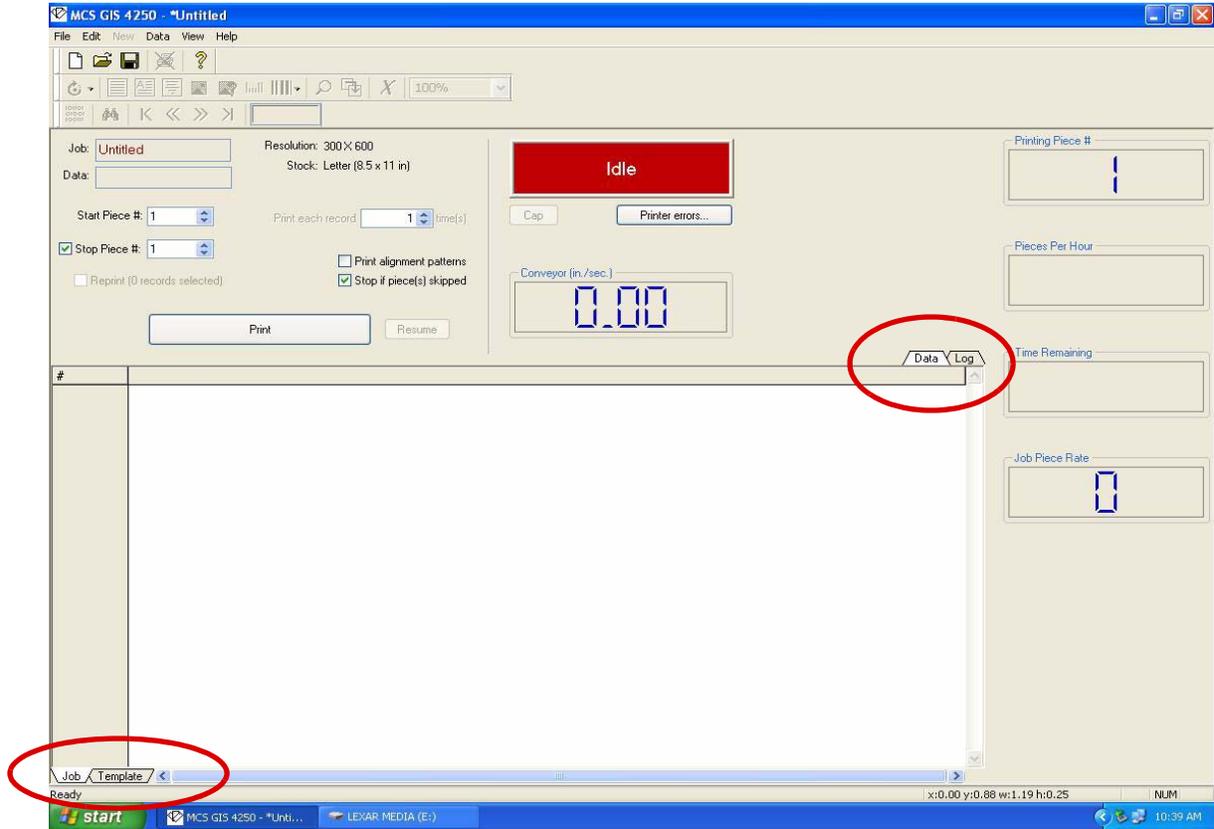
The display area is the area in which functions appear. When you select a tab in the tab selection area, the display area is repopulated with that information. You then work within the display area to execute your tasks.

Tab Selection Area

Understanding the Interface

Tab Selection Area

The tab selection area contains two tabs. The Job and Template tabs provide the major functionality for GIS 4250. Selecting a tab changes the display area and changes the options available via the menu bar and toolbar. In addition, the Job tab has two sub-tabs, Log and Data, which change the display area within the Job window.



Status Bar

Located at the bottom of the application window, the Status Bar shows a variety of status information.



View Menu



The View menu contains items that change the way items are displayed on screen. These changes apply to all windows in the application.

Data Entry Font

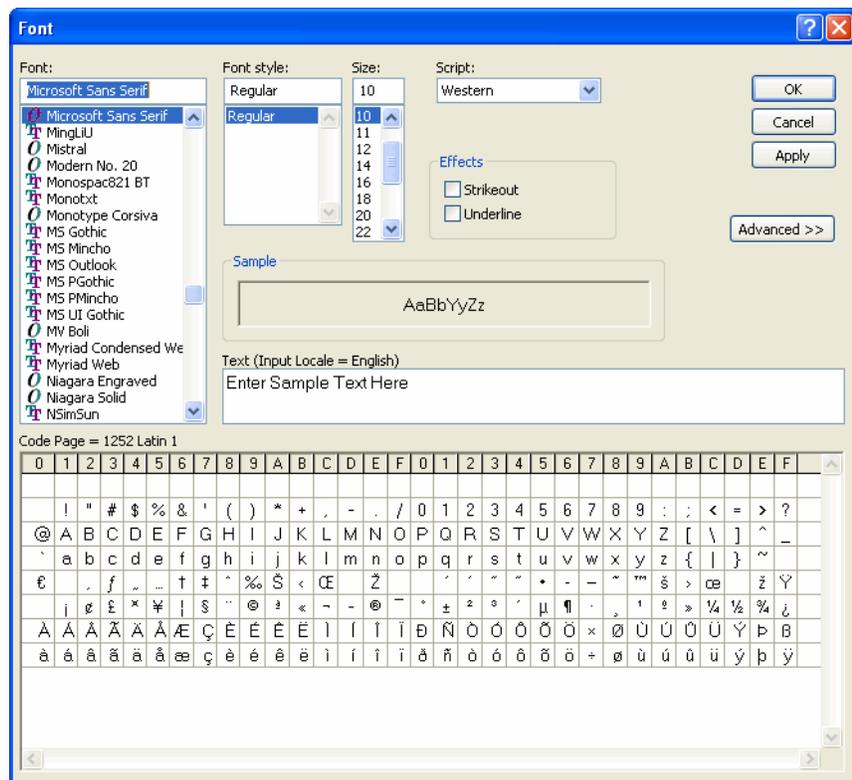
The data entry font selection allows you change the font in which data is displayed on screen in application windows. This has no effect on how data is printed.

Note: Only Open Type fonts with True Type outlines may be used in GIS 4250. See “Unrecognized Fonts” on page 8-3 for details.

To change the data entry font:

1. Select **Data Entry Font** from the **View** menu.

The Font menu appears.



2. Change the font criteria as desired.
3. Click **OK**.

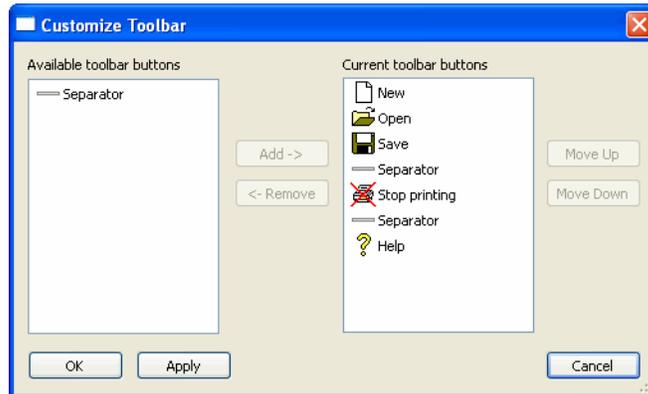


Customize

The customize option allows you select which icons are shown in the toolbars.

To change icons displayed in toolbars:

1. Select **Customize** from the **View** menu and select the desired toolbar to change.
The toolbar window appears.



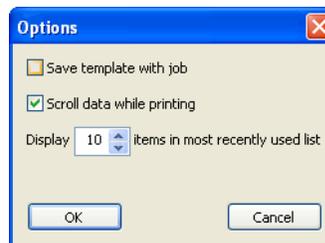
2. Use the Add and Remove arrow buttons to change the icons displayed.
3. Click **OK**.

Options

The Options item allows you specify some general preferences.

To specify preferences:

1. Select **Options** from the **View** menu.
The Options window appears.



2. Check the box if you wish to save the template with the job and select the number of names to show in the recent files list.
3. Click **OK**.

Chapter 4: Importing Data

Data files are supplied by customers. Operators cannot change data content but can peruse and select data as needed. It is important to set data file options so that data is accurately imported and printed.

Data File Options

Data file options allow you specify how you want imported data to be handled in the application.

Note: Data file options must be set prior to opening data files.

To enter data file options:

1. Select **Data File Options** from the **File** menu.

The File Format Detail window appears.

2. Select the desired file format from the Defined File Types pulldown.

In This Chapter

- Data File Options
- Opening Data Files
- Viewing Records
- Finding Records
- Validating Postal Barcodes
- Setting Start and Stop Records
- Changing the Data Font
- Field Header

You can provide detail for a variety of file formats including:

File Type	Description
Custom	Allows you specify custom file format details. All fields are available in this format as described in “Custom Data Files” on page 4-2 below.
1 Up format	Postal Barcode and Code Page fields are available as described in steps 6 and 8 below.
Text I	Postal Barcode and Code Page fields are available as described in steps 6 and 8 below. You can also enter a fixed number of fields in the Record description.
Text II	Postal barcode and Code Page fields are available as described in steps 6 and 8 below.
CSV	Comma Separated Value formats. These files are typically exported from spreadsheet programs like Microsoft Excel [®] . Postal Barcode and Code Page fields are available as described in steps 6 and 8 below.
SCITEX	The SCITEX proprietary file format. Postal Barcode and Code Page fields are available as described in steps 6 and 8 below. You can also enter a fixed number of fields in the Record Description and enter the field description as described in step 5 below.
Database	Files exported from database programs such as Microsoft Access [®] . Postal Barcode and Code Page fields are available as described in steps 6 and 8 below. You can also enter Database Parameters as described in step 3.
Variable	Enter variable record and field descriptions as shown in steps 4 and 5 below. Postal Barcode and Code Page fields are available as described in steps 6 and 8 below.

3. Enter the remaining parameters for each data file type as indicated above.
4. Click **OK** to save your settings.

Custom Data Files

Custom data files require the most configuration because ImagePro800 does not assume anything about the file type. Every available data file option is described in this section.

To enter custom data file options:

1. Select **Data File Options** from the **File** menu.
The File Format Detail window appears.
2. Select **Custom** from the Defined File Types pulldown.

The window is repopulated with available fields.

3. Click the radio button for the data source type.

You can choose either file/text, variable, or database. Select variable or database only if you know this file is of that type.

For database file types, enter the Database Parameters Selection Statement only if your database has multiple tables and go to step 6. For file/text and variable go to step 4.

Note: The Database Selection Statement is rarely used and you must have knowledge of SQL to use it. It requires the SQL statement **select * from name**.

4. Enter the Record Description.

For File/text select the end-of-record marker or fixed number of fields.

If you select end-of-record marker, select the end-of-line marker or enter the End-of-Record delimiter. An End-of-Line marker will be a carriage return (CR) or line feed (LF). A record delimiter is the hexadecimal value for a specific character such as a comma. The value for comma (,) is U002C. A pipe (|) is U007C. If you do not know the hexadecimal value for your character, see a data processing professional or the internet for assistance.

For Variable select the end-of-record marker or fixed length characters and enter the Number Of Starting Records to skip.

5. Enter the Field Description

For File/Text select the end-of-record marker or fixed number of fields.

If you select End-of-Record marker, select the End-of-Line marker or enter the end-of-record delimiter. An End-of-Line marker will be a carriage return (CR) or line feed (LF). A record delimiter is the hexadecimal value for a specific character such as a



Importing Data

comma. The value for comma (,) is U002C. A pipe (|) is U007C. If you do not know the hexadecimal value for your character see a data processing professional or the internet for assistance.

For Variable, use the Add/Modify field definition button to add field level definitions. Enter the Field number, starting and ending positions, and field length for each field and click OK. The data populates the field description table.

6. Enter the Postal Barcode Description.

Postal barcodes are 12 digits long. They include the zip code plus four, delivery point, and a check digit. This area tells the application where to look for this value and to verify if it is correct. If you select None, the software will not look for this value. If you choose Select From Data, the software looks at all fields for this data. You may also specify a field number or the field number along with a specific amount of characters to look at. You may also enter postal barcode information as described in “Postal Barcode” on page 5-16.

Note: If you specify fields to search and there are no postal barcodes in those fields, the application will delete data in that field. Specify fields only when you are sure they contain postal barcodes.

7. Select the Code Page from the pulldown.

These options select the standard used to display text. ANSI-Latin is most often used for the American alphabet, but you may need to change this setting.

Note: This field is not applicable to database file types.

8. Click **OK** to save your settings.

Opening Data Files

Data files must be opened and reviewed as well as attached to jobs. Data files are not created in GIS 4250. They are supplied by the printing client and can be of a variety of formats. See “Data File Options” on page 4-1 for data file format information.

Note: Path information is saved in jobs. When opening jobs with data files that have previously been attached, you may receive error messages if the file no longer resides at the same path. If this happens, accept the error messages and open the file from its new location.

To open the data files:

1. Click the **Data** tab.

You can open Data files with or without the Data tab selected, but you must click the Data tab to view the data.

Note: Make sure you have selected the desired Data File Type in the Data File Options window prior to attempting to open a data file. See “Data File Options” on page 4-1.

2. Select **Open Data Files** from the **File** menu.

The Open Data File window appears.

3. Navigate to the file's location and click **Open**.

The file is opened and now populates the display area of the Data tab.

Viewing Records

You can use the Data menu options First Record, Previous Record, Next Record, Last Record, and Go To Record to navigate throughout the data file. You may also use the record navigation icons on the Toolbar.



Finding Records

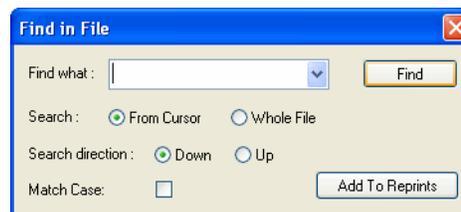
You can find specific records using the Find function.

To find records:



1. Select the **Job** tab and then the **Data** tab.
2. Select Find from the **Data** menu.

The Find window appears.



3. Enter the desired criteria.

Enter a value to find such as a number or name. Select to search from the current cursor location or the whole file and indicate whether to search up or down. If desired, check the box to match the case (upper, lower, or mixed) as you typed it.

4. Click **Find**.

The row is highlighted. You can use the Find Next option in the data menu to find the next occurrence of this search criteria.

If you are printing and searched for this item to add to reprints list, click the Add To Reprints button. See “Reprints” on page 7-19 for more information on reprints.



Validating Postal Barcodes

If the data file contains postal barcodes and you have placed postal barcodes in the template, you can check that the codes are valid in the imported file. The system reviews the field specified in the database options window. If the data does not validate, errors are listed in the job window.

To validate postal barcodes:

1. Make sure the data file contains postal barcodes.
2. Specify the field in the field containing the barcode in the Data file options window. You can also highlight the column containing the field.
3. Select the **Job** tab and then the **Data** tab.
4. Select **Validate** from the **Edit** menu.
Success or failure messages will display in the error log area of the Job window.

Setting Start and Stop Records

You can specify the start and stop records for printing a job.

To set start or stop records:

1. Select the **Data** tab.
2. Highlight the desired row for the stop or start record.
3. Right-click the desired row and select **Start Record** or **Stop Record**.

#	Field 1	Field 2	Field 3	Field 4	Field 5
1	1	Mr. Cosmo Carbone	125 Oak St.	Lebanon CT 06249-2567	
2	2	M. Monroe	1210 Burnham Road	Lebanon CT 06249-2954	
3	3	Arthur McConnely	12 Valley St.	Lebanon CT 06249-6738	
4	4	Michael Madsen	Suite 239	1562 Worthington Lane	Lebanon CT 06249
5	5	Eileen Klien	483 Stoney Brook Driv	Lebanon CT 06249-5252 45	
6	6	Homer J. Magaldi	367 Hog Hill Road	Lebanon CT 06249-963	
7	7	David Fay	8 Pond View Drive	Lebanon CT 06249-364	
8	8	Allan Hines	Apt C	Coventry CT 06238	
9	9	J Foster	72 Salomn Brook Rd	Lebanon CT 06249-5027	
10	10	Dina Xue	115 South Mill Dr	Lebanon CT 06249-4512	
11	11	Carl Brown	25 Lake Blvd.	Columbia CT 06237-2844 62	
12	12	.Inseph P .Jenkins	77 Tolland Take	Columbia CT 06237-1623	

The row number is displayed in the Job window.

Changing the Data Font

You can change the font used to print data. The font change is reflected on screen in the data table as well as in print.

Note: Only Open Type fonts with True Type outlines may be used in GIS 4250. See “Unrecognized Fonts” on page 8-3 for details.

To change the data font:

1. Select **Data Font** from the **View** menu.

The Font window appears. This same window is used for Data Entry font as well.

2. Select the desired criteria.

You can select the font, font size, and weight from the scrolling lists. You can also choose a strikeout and underline effect. Leave the script as Western unless you know specifically that you need one of the other languages listed. If so, you can click the Advanced button for other language options. A sample of the font is displayed in the sample box and you can enter specific text in the text box to see how it looks in the font. The full character set is displayed in the code page table.

3. Click **OK**.

Field Header

For data file types with field headers, you can specify what actions to take on field headers.





Chapter 5: Using Templates

GIS 4250 allows you to create templates which are the basic design of your print piece. The template contains all of the layout information for your piece.

Note: Print Setup as described in “Print Setup” on page 7-1 should be performed prior to laying out your template.

Creating and Saving Templates

You can create a new template from scratch, open an existing template, and save a template. Template file names are displayed in the job window, but are not editable there. Template file names appear in red if they have changes that have not been saved. An asterisk (*) also appears in the title bar if you have unsaved changes.

Opening Existing Templates

If you wish to print a template that has already been created or make modifications to a template, you must open that template.

To open an existing saved template:

1. Click the **Template** tab.
2. Select **Open template** from the **File** menu.

When you save a template its path information is saved; therefore, when you try to open a template and its path information cannot be found, you will see a series of error messages. You can accept these messages and navigate to the location where the template file is now stored. This happens when you share template files on different computers. Click Yes on error dialogs and indicate the new file path.

The template contains system settings. If you load the Data file and Template separately, you may not get all settings associated with the template, such as print settings.

Templates have the .ptl extension.

3. Locate the desired file using Windows navigation methods.
4. Click **Open**.

In This Chapter

- Creating and Saving Templates
- Template Setup
- Understanding the Template Display Area
- Placing New Items
- Editing Options
- Viewing Options
- Print Proof

The template is opened in the display area. The template name, data file, and template file are listed. There is a print button and a variety of status and log information.

Note: You can use the Save As feature to save this template under a new name. All of its characteristics are saved and you can use this as a basis for a new template.

Creating New Templates

A new template provides a blank sheet for you to lay out direct mail items.

To open a new template:

1. Click the **Template** tab.
2. Select **New template** from the **File** menu.

If an existing template is open, you may receive a message to save that template. The template tab's display area is repopulated and the new template's title is Untitled.

3. Import Data as described in "Importing Data" on page 4-1, create a template as described in "Creating and Saving Templates" on page 5-1, and specify system and print settings as specified in "System Setup" on page 6-3 and "Print Setup" on page 7-1, respectively.
4. Save the template by selecting **Save template** from the **File** menu.
5. Provide a new template name and click **Save**.

Saving templates

You can save a template that has been opened and modified or that is new.

To save a new template:

1. Click the **Template** tab.
2. Open an existing template or create a new template.
3. Make any changes.
4. Save the template by selecting **Save template** from the **File** menu.
5. Click **Save**.

Note: You can use the Save As feature to save this template under a new name. All of its characteristics are saved and you can use this as a basis for a new template.

Template Setup

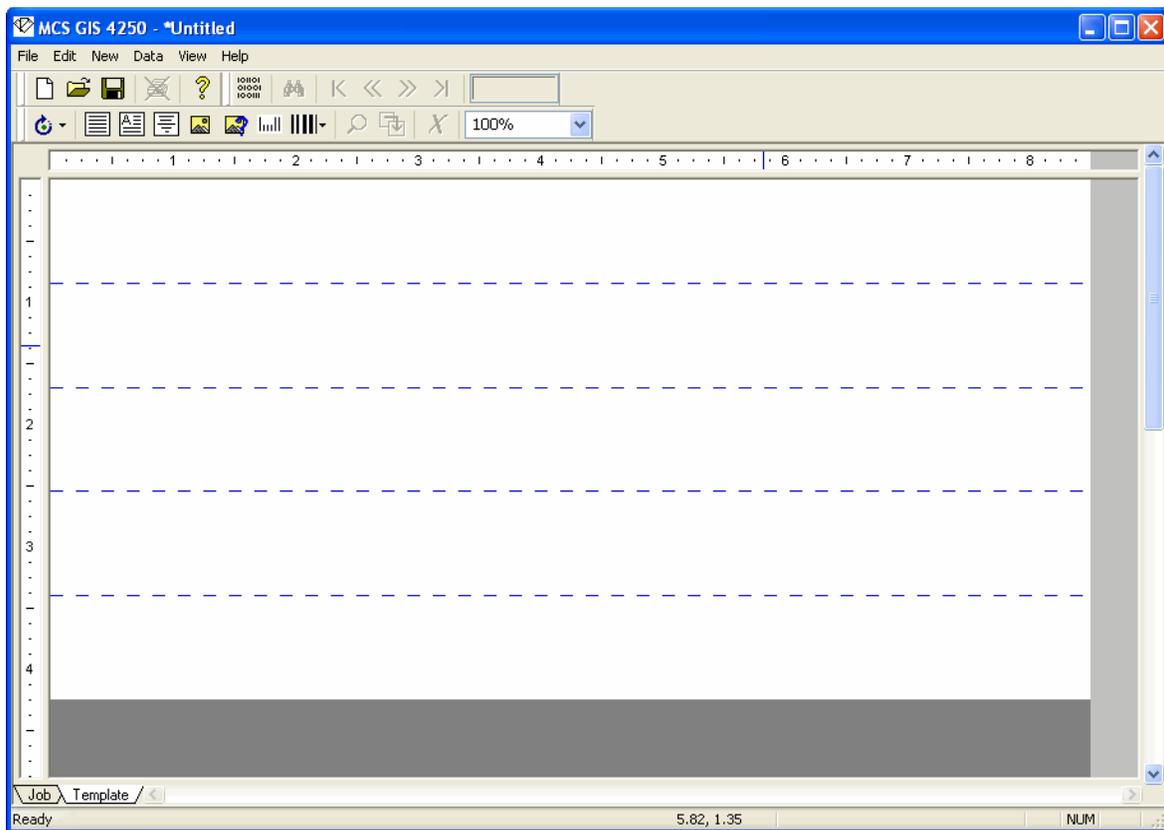
Make sure you have set clocks, time stamps, shift definitions, and user inserts before you enter items in templates. See "Print Setup" on page 7-1.



Understanding the Template Display Area

The template display area shows each head board, pen board, and distance between head boards. It is important to understand the template so that you can appropriately place text and objects.

Head boards are 4 1/4 inches and pen boards are 7/8 inch. There are five pen boards to each 2 inch head board. Each pen board contains a single color ink.



Note: If the items placed in the template do not print as expected, you may need to address calibration issues. See “Printing Alignment Test Pages” on page 7-16 and “Printer Calibration” on page 6-4.

Placing New Items

You can place a variety of items in your template. Once an item has been placed it can be edited as described in “Editing Options” on page 5-21. The following section describes how to place new items.

Record Blocks

Record blocks are groups of text generated from your data. Data should be imported prior to placing record blocks. Each field of data is a separate line in the block. Field numbers are shown when the record block is placed.

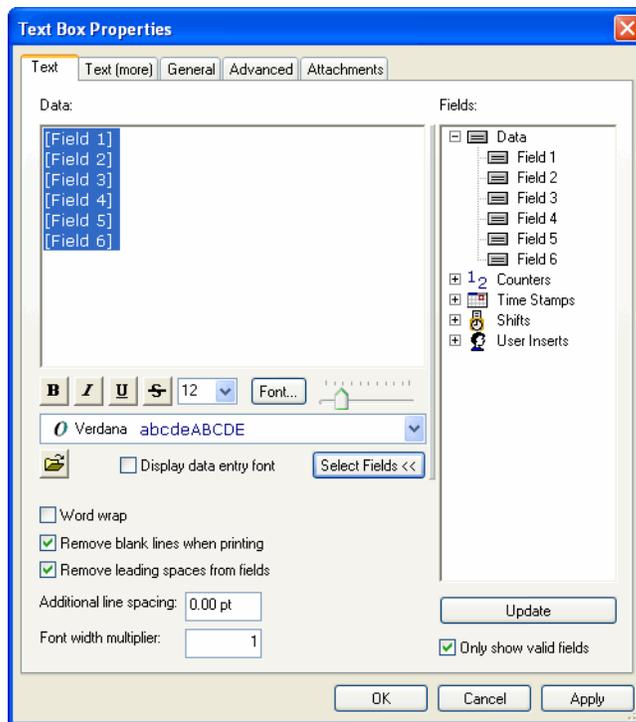
If you wish to see the actual data, click the Show record data icon  .

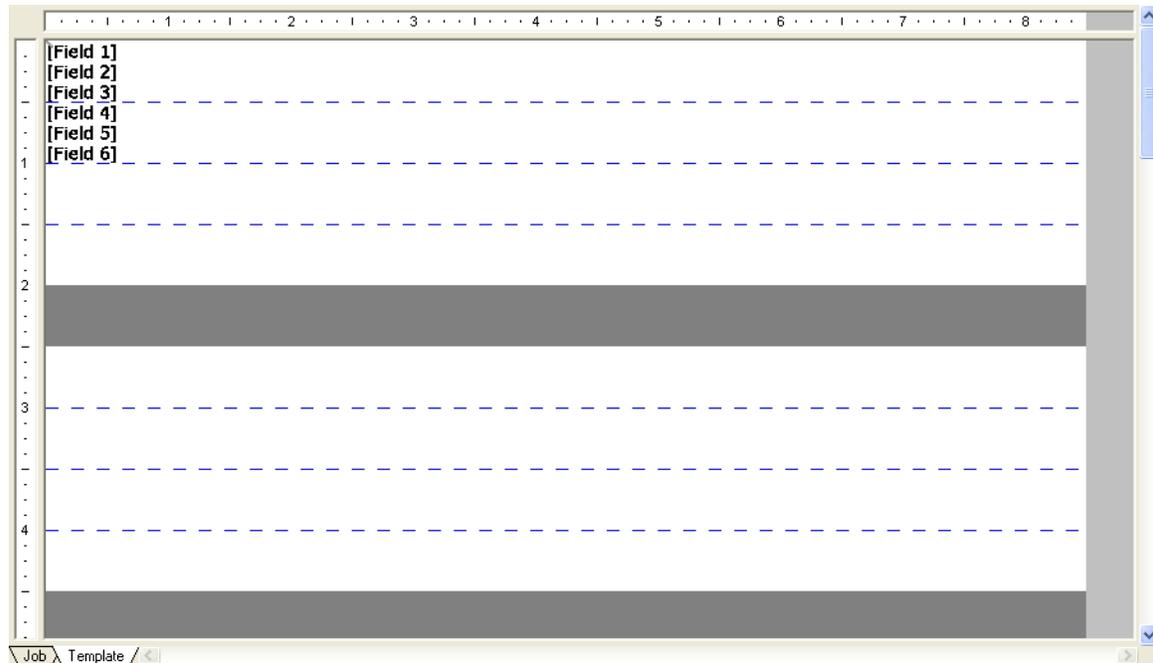
To place a record block:



1. Click the **Template** tab.
2. Select **New Record Block** from the **New** menu.

The text properties box appears with the text tab on top and the full record is placed in the template.





Refine the data on the Text tab.

You can delete fields listed in the data display by clicking them.

You can add fields from the field list by clicking the field name. Fields are added where your cursor is placed in the data display. If the field names are not visible, click the Select the Fields button to show them. You can also add counters, time stamps, shifts, and user inserts by scrolling to the bottom of the field lists and clicking the desired item. Click the expansion symbol (+) to reveal the items under each category.

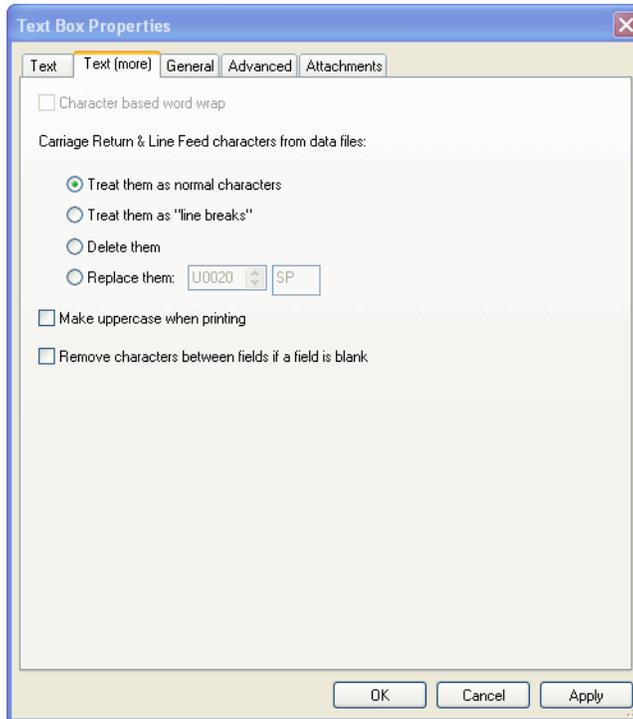
Note: Counters, time stamps, shifts, and user inserts must be created in Print Setup, as described in “Print Setup” on page 7-1, prior to invoking this window.

You can highlight fields in the data display and apply text effects such as bold, italic, strike through, size, and font.

You can word wrap, remove blank lines when printing, remove leading spaces from fields, add additional line spacing, or spread the spacing within the font (Font Width multiplier).

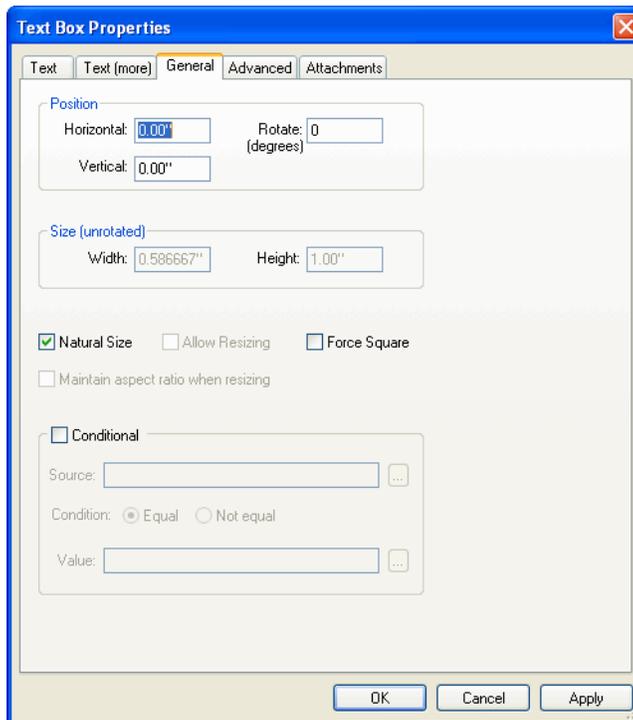


3. Click the **Text (more)** tab and enter the desired criteria.



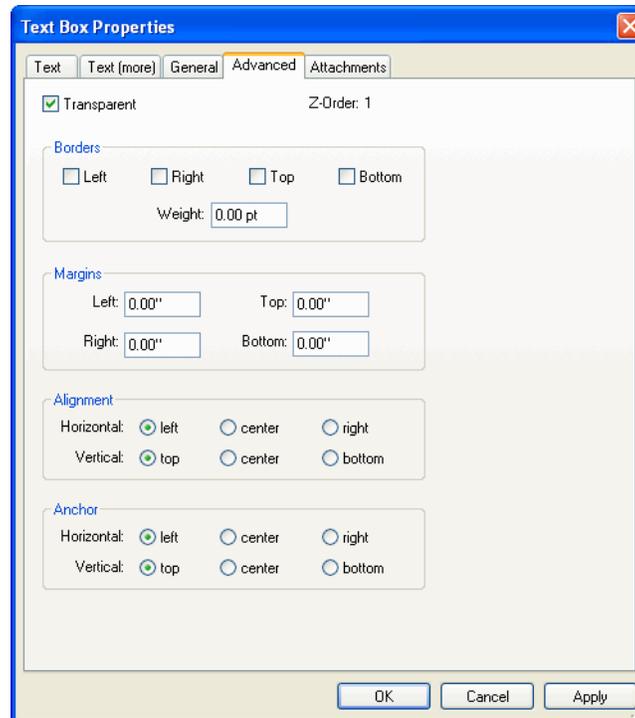
If word wrap was selected in the Text tab, you can select character-based word wrap. Specify how to treat carriage returns and line feeds. Decide whether you want to make letters uppercase when printing and remove characters between fields if a field is blank.

4. Click the **General** tab and enter the desired criteria.



Enter position and size values. Decide if you want to allow resizing, keep natural size, or force square. Most resizing keeps the image constrained to its original proportions. Forced square makes the image fit in a perfect square regardless of its original proportions. This can be useful if you wish the object to fit inside another square object.

5. Click the **Advanced** tab and enter the desired criteria.

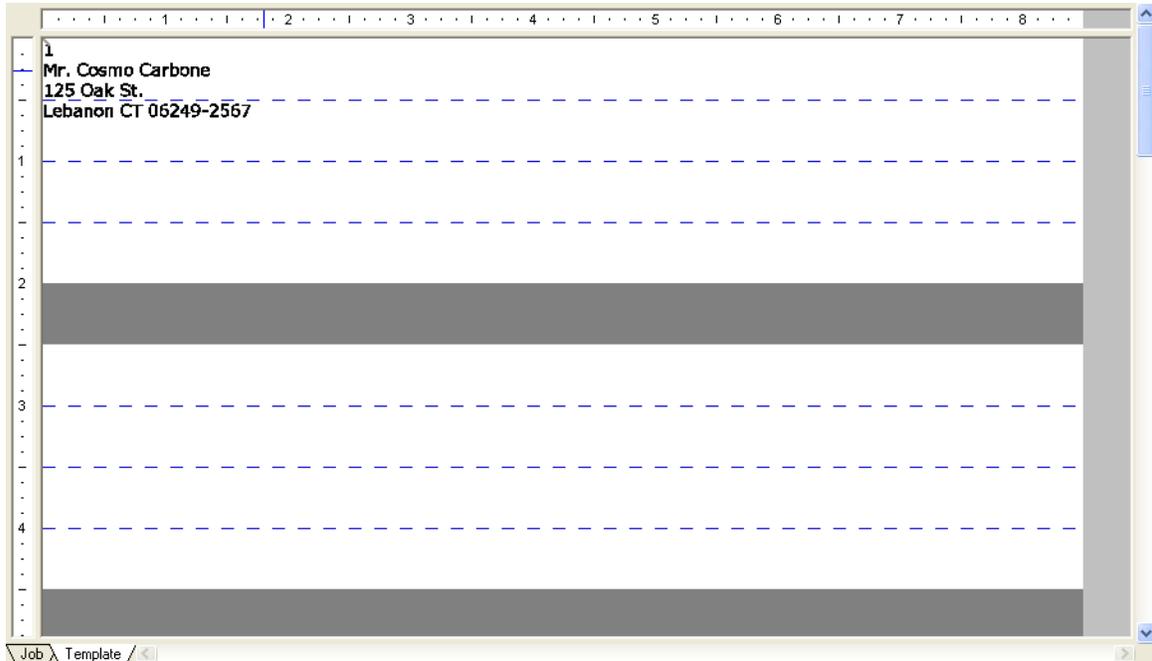


Click Transparent to make the text transparent. This is selected by default and allows you to layer objects. Transparency allows you to see through to the objects below in the stack. Enter borders, margins, alignment, and anchor position for the record block.

6. Click **OK**.
7. Move the item to the desired location via editing techniques as described in "Editing Options" on page 5-21.



If you choose to show data, the record block is populated with data from the data file.

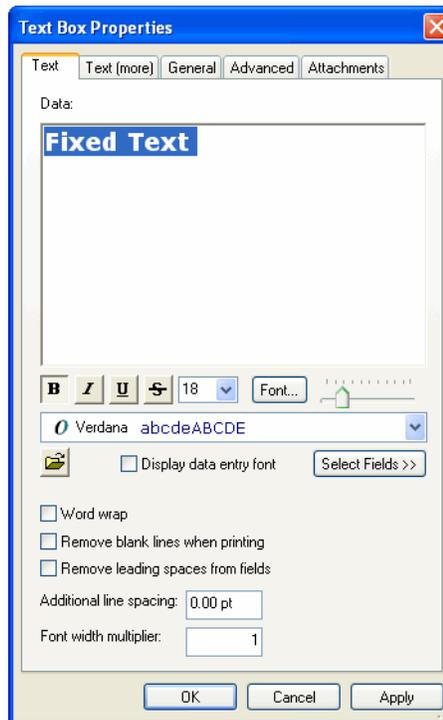


Message Lines



Message lines use the same text entry techniques as record blocks. See “Record Blocks” on page 5-4. Instead of the record being displayed in the Data Display box, the words

Fixed Text are displayed. Highlight this text and replace it with your desired text. You can add record fields to this text to personalize the message.



Conditional Message Lines

Message lines can be conditional. Individual messages can be printed based on the conditions you set. For example, if you want a different message printed based on the state listed in a particular record field, you must create a message line for each message desired. The key to proper conditional message line operation is identical location placement and set up of individual messages.

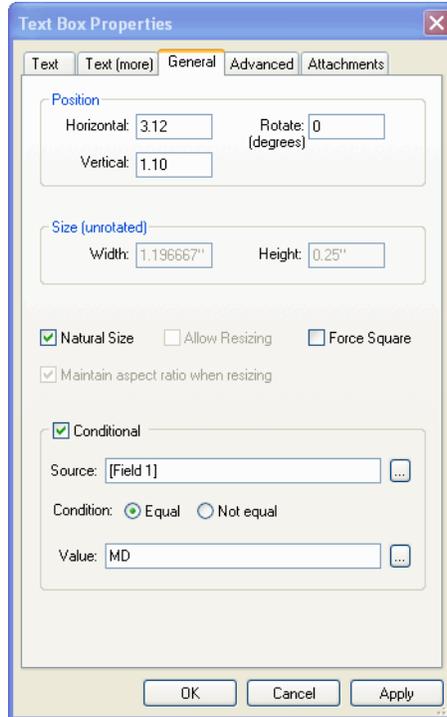
To create conditional messages:

1. Enter the desired text for the message line as described above.
2. Click the **General** tab.
3. Physically enter the position of the text.

Note: The position data must match exactly for each text line entered.



- 4. Enter the conditional text settings.



You must enter the position. Click the Conditional check box and enter the source field and the specific condition for which you want this data displayed. If you select the **Equal** radio button, the specific condition will always be used if the value is found. If the value is not found, no text is displayed. If you select the **Not Equal** radio button, the text is displayed only if the source does not match the value displayed. For example, if you wish to send a general message such as “Friend,” select the Not Equal function, unless you actually have a name value in the field. In either case, conditional items must be placed on top of each other in exactly the same position and the Transparent checkbox in the Advanced tab must be enabled.

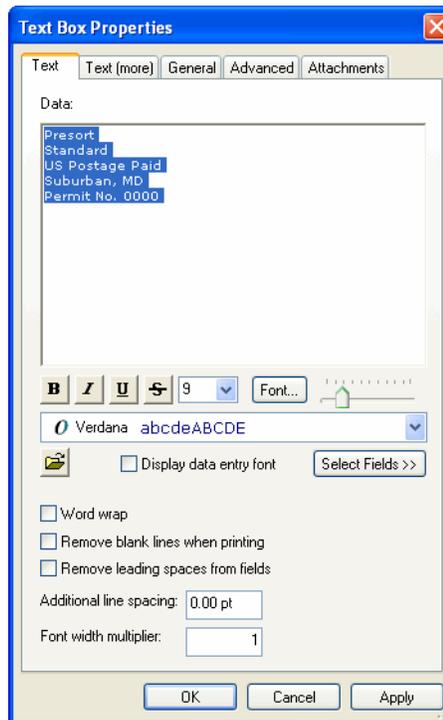
Note: An empty text box is needed for a blank space.

Indicia



Indicia uses the same text entry techniques as record blocks. See “Record Blocks” on page 5-4. Instead of the record being displayed in the Data Display box, the standard

Indicia is displayed. You highlight this text and replace it with your desired text. You can add record fields to this text to personalize the message.



Bitmaps

Bitmaps are graphics files. The only type of graphics that can be imported into GIS 4250 are monochrome (one color) bitmaps (BMP). You must convert other graphic file formats to monochrome BMP prior to importing. You can import unconditional or conditional bitmaps.

Unconditional



Unconditional bitmaps are imported and may be resized using the editing tools as described in “Editing Options” on page 5-21.

To import an unconditional bitmap:

1. Click the **Template** tab.
2. Select **Bitmap** from the **New** menu.
The open dialog appears.
3. Locate and select the desired file by traditional Windows means.
4. Click **Open**.
The file is placed in the template and the Bitmap Properties window appears.
5. Make any changes to the bitmap properties by entering information in the tabs.



The remaining tabs contain the same information described in “Record Blocks” on page 5-4.

6. Click the **General** tab.
7. Enter the desired criteria.

You can enter position and size information which dictates how the bitmap are placed.

8. Click the **Advanced** tab.
9. Enter the desired criteria.

You can enter information about borders and alignment and indicate whether the graphic is transparent.

10. Click the **Attachments** tab.
11. Enter the desired criteria.

If this item has been attached via the attachment options described in “Docking and Attaching” on page 5-24, you can modify attachment options. If the item is not attached, the items in this tab are not active.

12. Click **OK**.

Conditional



Conditional bitmaps are several bitmaps associated with a numeric field value in a data file. You specify the bitmap to be used, depending on the value in the data file. For example, the data file can have a field that indicates a different bitmap for each of 50 states, depending on where the resident lives. The field value would be 0 to 50. Map the field values to the bitmap so that when the job is run, the correct bitmap is printed, based on the state.

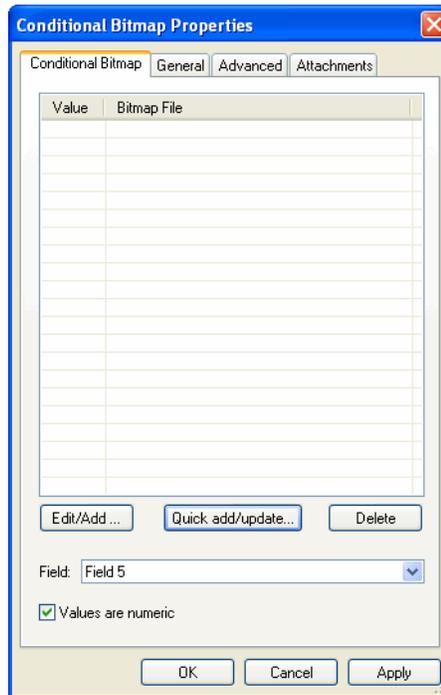
Note: The data file must have a field containing conditional bitmap values to use this feature.

Note: A large amount of conditional bitmaps can strain your memory resources. If you have a large amount of conditions (e.g., 1000 bitmaps) it is recommended that you operate on a machine with increased RAM. An additional 1 GB of RAM is recommended for this example, bringing the recommended RAM specification to 2 GB.

To import a conditional bitmap:

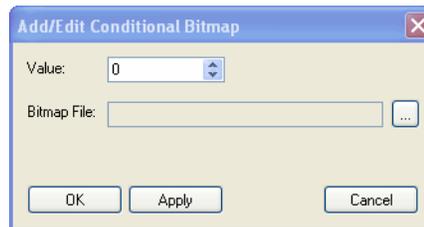
1. Click the **Template** tab.
2. Select **Conditional Bitmap** from the **New** menu.

The Conditional Bitmap Properties dialog appears with the Conditional Bitmap tab on top.



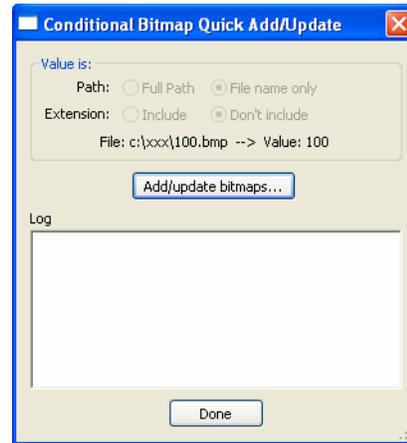
3. Click **Edit/Add** or **Quick Add/Update**.

Edit/Add should be used when you have bitmaps with alphanumeric names or numeric names that are not in ascending numeric sequence. You must enter each bitmap individually. A new window appears.



Enter the Bitmap numeric value or browse to select the filename. Click **OK**. The files are added to the table. Click **OK**.

Quick Add/Update is used when all bitmap files have a numeric value in ascending order; for example, if you have a number for each state. A new window appears.



Click **Add/Update** and navigate to select all the numbered files. Click **Open**. Values are shortcuts specified for the path to the files. Click **Done**. The files are added in the table. The system does the work to match the numbers to the conditions.

4. In both cases, on the Conditional Bitmap tab, check the box if values are numeric and select the field in the data file that contains the bitmap number.
The remaining tabs contain the same information described in “Record Blocks” on page 5-4.
5. Click the **General** tab.
6. Enter the desired criteria.
You can enter position and size information which dictates how the bitmap will be placed.
7. Click the **Advanced** tab.
8. Enter the desired criteria.
You can enter information about borders and alignment and indicate whether the graphic is transparent.
9. Click the **Attachments** tab.
10. Enter the desired criteria.
If this item has been attached via the attachment options described in “Docking and Attaching” on page 5-24, you can modify attachment options. If the item is not attached, the items in this tab are not active.
11. Click **OK**.
The file is placed in the template and can be edited as described in “Editing Options” on page 5-21.

Barcodes

Postal or standard barcodes may be placed in your template. All barcodes are limited to multiples of 90 degree rotation.



Standard Barcode

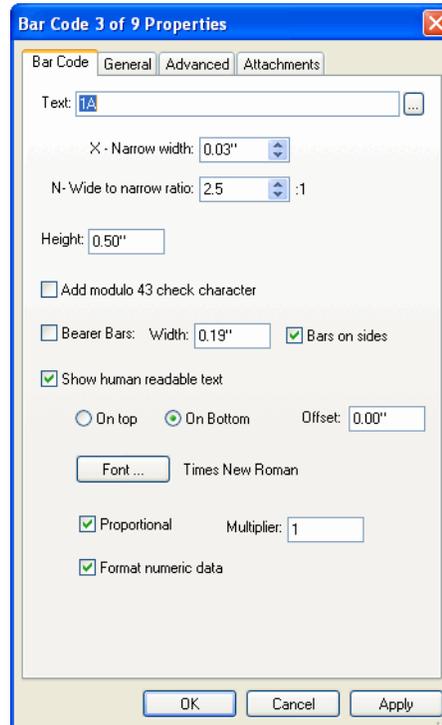
You can choose from a variety of standard bar codes.

To insert standard barcodes:

1. Click the **Template** tab.
2. Select **Barcode** and then type of barcode you wish to insert from the **New** menu.



The Bar Code window appears with the Bar Code tab on top.



Note: The OneCode selection can be selected and configured for any GIS 4250 installation; however, it can be printed only if you have the 3.0 (or higher) dongle (hardware key). OneCode is the new USPS standard effective 2008.

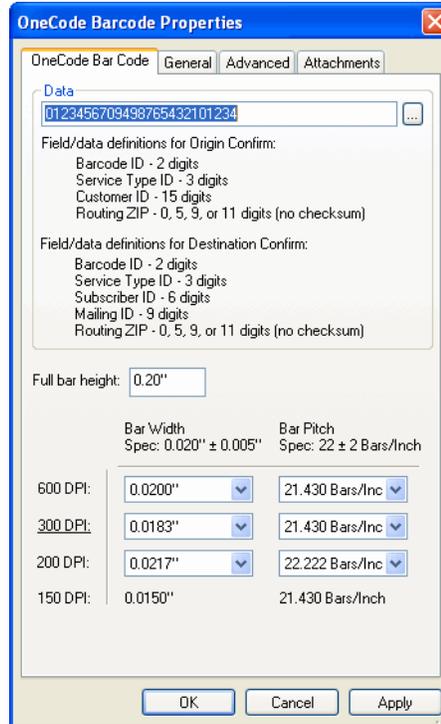
3. Enter the desired properties for your bar code.

Click the ellipse button to select the text and field for the bar code. Click **OK**.

Enter sizing, check, and bar information. Check the show human characters box, if desired, and enter the desired properties.



The OneCode window is unique.



The remaining tabs contain the same information described in “Record Blocks” on page 5-4.

4. Click the **General** tab.
5. Enter the desired criteria.

You can enter position and size information which dictates how the bitmap will be placed.

6. Click the **Advanced** tab.
7. Enter the desired criteria.

You can enter information about borders and alignment and indicate whether the graphic is transparent.

8. Click the **Attachments** tab.
9. Enter the desired criteria.

If this item has been attached via the attachment options described in “Docking and Attaching” on page 5-24, you can modify attachment options. If the item is not attached, the items in this tab are not active.

10. Click **OK**.

Postal Barcode

You can define the properties for Postal barcodes. Postal barcodes are graphical representations of a numeric zip code. You may want to keep barcodes within pen boundaries as shown in “Avoiding Pen Boundaries” on page 5-23.

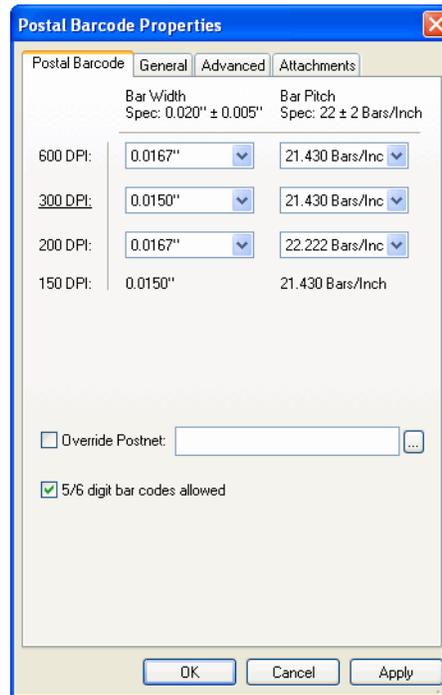
Note: If you rotate Postal barcodes, make sure the bars do not lay on pen boundaries. Use “Avoiding Pen Boundaries” on page 5-23.



To insert standard barcodes:

1. Click the **Template** tab.
2. Select **Postal Barcode** from the **New** menu.

The Postal Barcode window appears with the Barcode tab on top.



3. Enter the desired properties for your barcode.

Enter the desired dots per inch (dpi) to pitch properties. If you run a bar code’s bars over pen boundaries see “Avoiding Pen Boundaries” on page 5-23. You can also try to adjust the pitch to 20 bars per inch to avoid pen boundaries.

You can override standard postnet settings by clicking the ellipse button of the postnet override. Decide whether you want to allow 5/6 digit codes.

The remaining tabs contain the same information described in “Record Blocks” on page 5-4.

4. Click the **General** tab.
5. Enter the desired criteria.

You can enter position and size information which dictates how the bitmap will be placed.

6. Click the **Advanced** tab.
7. Enter the desired criteria.

You can enter information about borders and alignment and indicate whether the graphic is transparent.

8. Click the **Attachments** tab.
9. Enter the desired criteria.

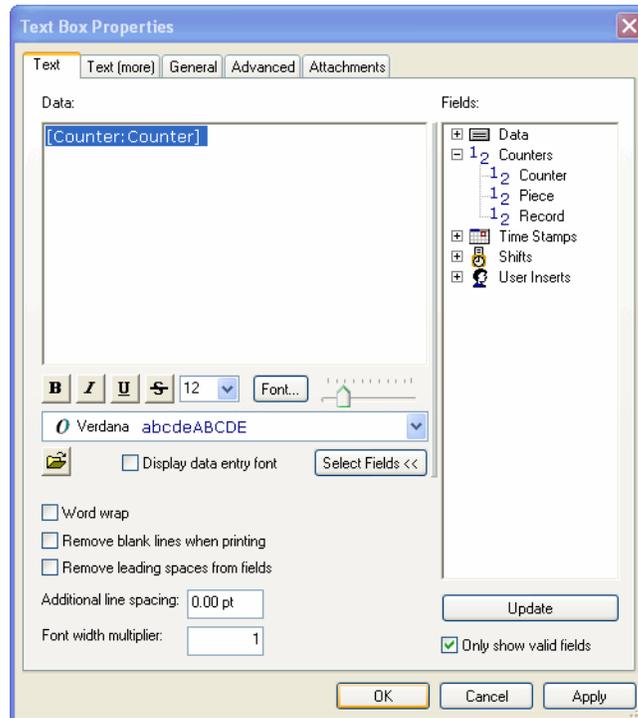


If this item has been attached via the attachment options described in “Docking and Attaching” on page 5-24, you can modify attachment options. If the item is not attached, the items in this tab are not active.

- 10. Click **OK**.

Counter

Counters use the same text entry techniques as record blocks. See “Record Blocks” on page 5-4. Instead of the record being displayed in the Data Display box the words Counter:Counter are displayed. Double-click the desired counter field in the field list to the left to select it.

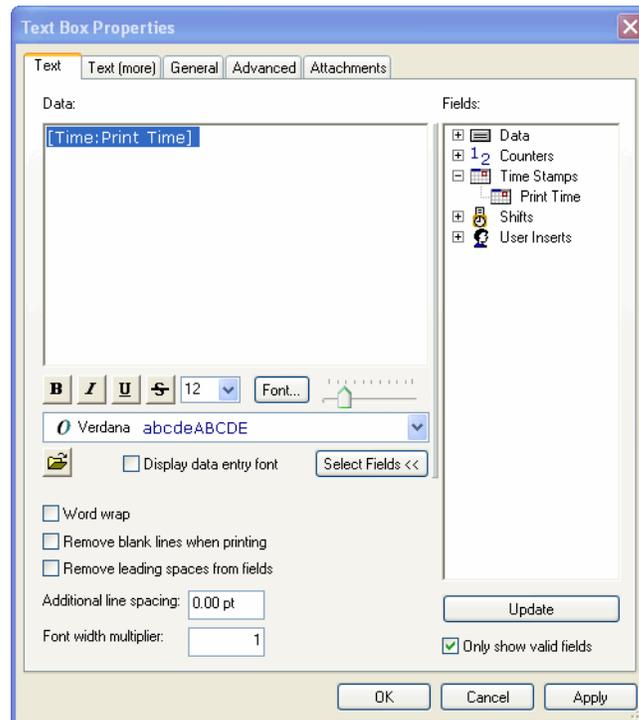


Note: Counters, time stamps, shift codes, and user inserts must be created before invoking this item. See “Print Setup” on page 7-1 for details.

Time Stamp

Time Stamps use the same text entry techniques as record blocks. See “Record Blocks” on page 5-4. Instead of the record being displayed in the Data Display box the time

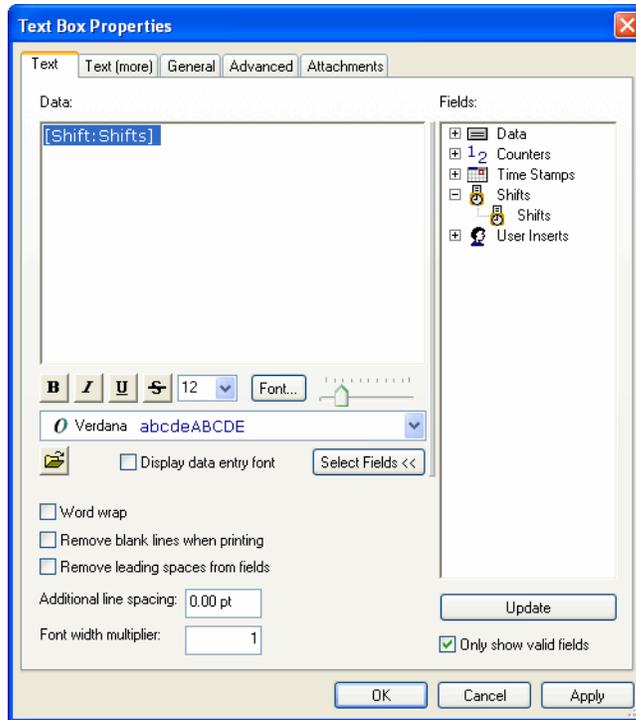
stamp is displayed. Double-click the desired time stamp field in the field list to the left to select it.



Note: Counters, time stamps, shift codes, and user inserts must be created before invoking this item. See “Print Setup” on page 7-1 for details.

Shift Code

Shift codes use the same text entry techniques as record blocks. See “Record Blocks” on page 5-4. Instead of the record being displayed in the Data Display box the shift code is displayed. Double-click the desired shift code field in the field list to the left to select it.



Note: Counters, time stamps, shift codes, and user inserts must be created before invoking this item. See “Print Setup” on page 7-1 for details.

User Insert

User Inserts use the same text entry techniques as record blocks. See “Record Blocks” on page 5-4. Instead of the record being displayed in the Data Display box the user

inserts are displayed. Double-click the desired user insert field in the field list to the left to select it.



Note: Counters, time stamps, shift codes, and user inserts must be created before invoking this item. See “Print Setup” on page 7-1 for details.

Editing Options

You can edit placed objects in a variety of ways.

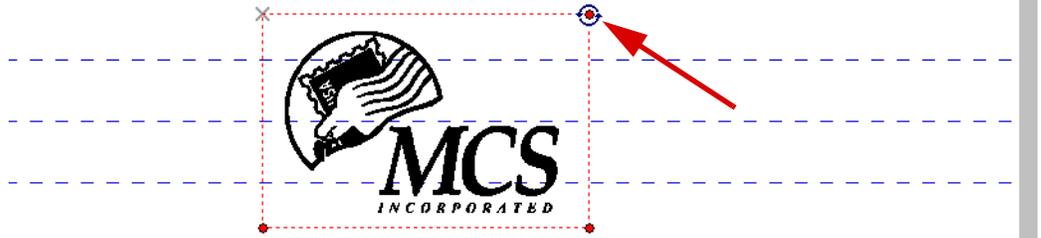
Selecting Objects

You can select objects by clicking them. You can Ctrl-click to select multiple objects. Use Edit>Select All to select all of the objects in the template. Invert Selection will select all items not currently selected and deselect those items that are selected.



Moving and Rotating

You can select objects and then move and rotate them. You can move a selected object by holding down the left mouse button and moving the mouse. You rotate objects by placing the cursor over a corner handle of an object until the rotate symbol appears.



Once this symbol appears left-click and drag to the desired angle. You can also rotate and move objects based on setting in the object's properties dialog as described in "Object Properties" on page 5-22.

Note: Some features no longer apply after rotation.

Object Properties



When a single object is selected, you can change a variety of properties for that object by selecting Edit>Properties. This is the same properties windows used to place the object. See the placement section for each object type for details on each tab on its properties window.

Duplicating and Deleting



You can select an object and make an exact copy of it using the Edit>Duplicate selection. Click an object and select Edit>Delete to delete the object.

Aligning Objects

You can align objects so that they line up perfectly with respect to each other.

To align objects:

1. Click the **Template** tab.
2. Ctrl-click to select the objects you wish to align.
3. Select **Align** and then the desired *alignment type* from the **Edit** menu.

Alignment types include top, bottom, left, right, abut top to bottom, and more. The objects are moved to the alignment specified.

Avoiding Pen Boundaries

In certain cases, it is not recommended to have objects lay on the blue line pen boundaries. This feature moves objects so that they avoid these lines. For example, a barcode that lays on a pen boundary may not print the correct width of the bars that lay on the boundary. This could cause the code to scan incorrectly.

Note: You can also try adjusting the pitch of the barcode to 20 bars as described in “Postal Barcode” on page 5-16.

To avoid pen boundaries:

1. Click the **Template** tab.
2. Click the desired object(s).
3. Select **Avoid Pen Boundaries** from the **Edit** menu.

The object is moved to avoid pen boundaries.

Move to Print Area

You can select objects and have them moved to different print areas. Print areas are separated by the gray areas that are created by adding distance from top. Each print area represents a board or group of boards. The areas are numbered from the top of the template to the bottom.

To move objects to a different print area:

1. Click the **Template** tab.
2. Click the desired object(s).
3. Select **Move to Print Area** from the **Edit** menu.

A new window appears.



4. Select the desired print area from the pulldown.
5. Click **OK**.

The object is moved as specified.



Docking and Attaching

It is often easier to move objects around in the template when they are grouped together. Docking and attaching objects helps you move objects relationally.

Docking

Docking objects moves the objects together and groups them. They now act as one object and can not be moved independently.

To dock objects:

1. Click the **Template** tab.
2. Ctrl-click the desired objects.
3. Select **Dock** from the **Edit** menu.

The items are moved together and can now be moved around as one object.

Attaching

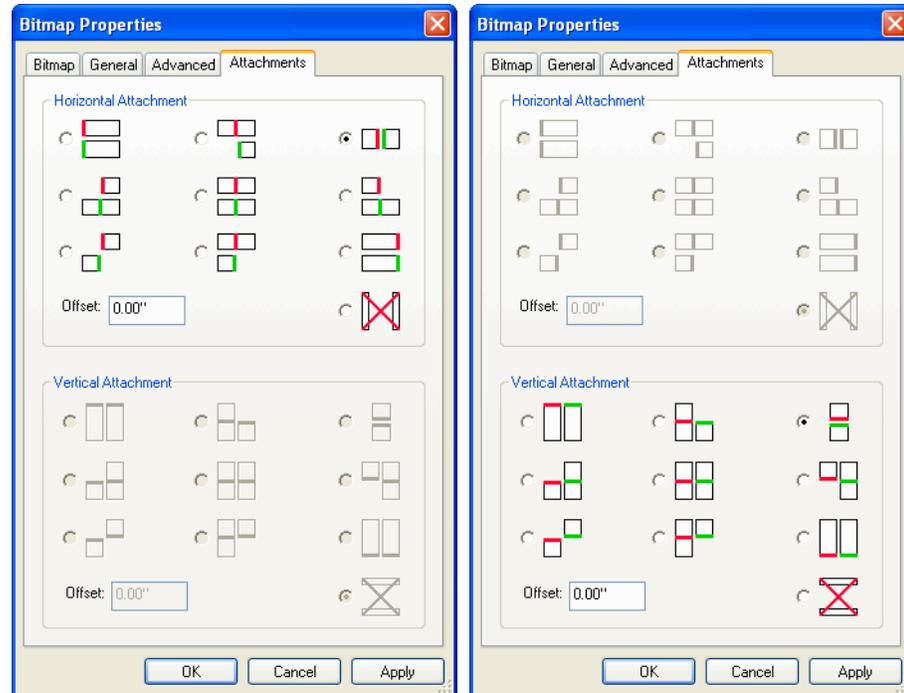
Attaching objects allows you move each object independently but with regard to the relationship specified. The objects are not moved together.

To attach objects:

1. Click the **Template** tab.
2. Ctrl-click the desired objects.
3. Select **Attach** (*attachment type*) from the **Edit** menu.

The object properties window appears for the first type of item you clicked. The attachment properties are recorded with the first object clicked. When objects are attached, their attachments tab becomes active in the object's properties window.

- Select the desired type of attachment and specify an offset if desired.



- Click **OK**.
The object is moved as specified.

Layering Objects

Objects may be laid on top of each other to achieve a desired look. The layering of objects results in their Z-order.

Note: When using these features, make sure the transparent box is checked in the object's advanced tab properties.

Move to Front/Push to Back

You can move objects to the front and back of a stack as if objects were in a deck of cards.

To move objects front or back:

- Click the **Template** tab.
- Click the desired object(s).
- Select the move option from the **Edit** menu.
The objects are moved.



Move Up/Down

Once objects are placed in a stack, you can move them up and down within the stack.

To move objects up or down:

1. Click the **Template** tab.
2. Click the desired object(s).
3. Select the move option from the **Edit** menu.

The objects are moved.

Set Background

It may be helpful to lay out your template with the actual printed piece as the background of your template. When you set a background, the original printed piece is placed at the back of the stack of objects but is not editable. It is unclickable. Background files can be bitmap (BMP), JPG, or GIF.

To set the background:

1. Click the **Template** tab.
2. Select **Set Background** from the **Edit** menu.
3. Navigate to and select the desired file by traditional Windows means.
4. Click Open.

The file is placed in the background.

5. Select **Show Background Image** from the **View** menu to see the image.

Scanning Data

It is useful to scan data for the longest or largest field content. This will help you to provide adequate spacing for the largest content.

To scan for longest content:

1. Click the **Template** tab.
2. Click the desired record block.

Note: Make sure the show record data button is clicked on the toolbar.

3. Select **Scan Data** from the **Edit** menu.

The longest record is displayed in the record block.

Viewing Options

A variety of options under the View menu allows you to see gridlines and colors that can assist during layout. You can set the zoom level, show anchor points, show Z-order (layered order of objects), show attachments and dock markers, show pen colors (spot color editing), and set a grid. For a grid, you can specify whether objects snap to the grid and the distance between the vertical lines in the grid.

Print Proof

You can print to a regular office printer to review the template layout. This does not reflect any job settings, just the layout of the template.

To print a template proof:

1. Click the Template tab.
2. Select **Print proof** from the **Edit** menu.
3. Enter the desired printing characteristics.
4. Click **Print**.
5. Select the desired printer.
6. Click **OK**.





Chapter 6: Creating Jobs

GIS 4250 jobs are the control center for printing. The Job window shows a variety of status information and allows you to print the job. A job consists of data, a template, and all print and system settings. The creation of jobs and system settings is described in this chapter; however, job printing and print status are described in “Printing Jobs” on page 7-1.

In This Chapter

- Creating and Saving Jobs
- System Setup

Creating and Saving Jobs

You can create a new job from scratch, open an existing job, and save a job. Job file names are displayed in the job window, but are not editable there. Job file names appear in red if they have changes that have not been saved. An asterisk (*) appears in the title bar if you have unsaved changes.

Opening Existing Jobs

If you wish to print a job that has already been created or make modifications to a job, you must open that job.

To open an existing saved job:



1. Click the **Job** tab.
2. Select **Open Job** from the **File** menu.

When you save a job its path information is saved; therefore, when you try to open a job and its path information cannot be found, you will receive a series of error messages. You can accept these messages and navigate to the location where the job file is now stored. This happens when you share job files on different computers. Click Yes on error dialogs and indicate the new file path.

The Job contains system settings. If you load the Data file and Template separately, all settings associated with the job, such as print settings may not be included.

Note: You can adjust settings in the setup.cfg file to allow for portable job settings. See “File Control Settings” on page 8-3.

3. Locate the desired file using Windows navigation methods.
4. Click **Open**.

Creating Jobs

The job is opened in the display area. The Job name, data file, and template file are listed. There is a print button and a variety of status and log information.

Note: You can use the Save As feature to save this job under a new name. All of its characteristics are saved and you can use this as a basis for a new job.

Creating New Jobs

You can create new jobs from scratch.

To open a new job:



1. Click the **Job** tab.
2. Select **New Job** from the **File** menu.

If an existing Job is open, you may receive a message to save that job. The Job tab's display area is repopulated and the new Job's title is Untitled.

3. Import Data as described in "Importing Data" on page 4-1, create a template as described in "Using Templates" on page 5-1, and specify system and print settings as specified in "System Setup" on page 6-3 and "Print Setup" on page 7-1, respectively.
4. Save the job by selecting **Save Job** from the **File** menu.

You may also click  to save Jobs.

5. Provide a new job name and click **Save**.
6. You may now print the job as described in "Printing Jobs" on page 7-1.

Note: You can use the Save As feature to save this job under a new name. All of its characteristics are saved and you can use this as a basis for a new job.

Saving Jobs

You can save a job that has been opened and modified or one that is new.

To save a new job:



1. Click the **Job** tab.
2. Open an existing job or create a new job.
3. Make any changes.
4. Save the job by selecting **Save Job** from the **File** menu.
5. Click Save.

Note: You can use the Save As feature to save this job under a new name. All of its characteristics are saved and you can use this as a basis for a new job.

System Setup

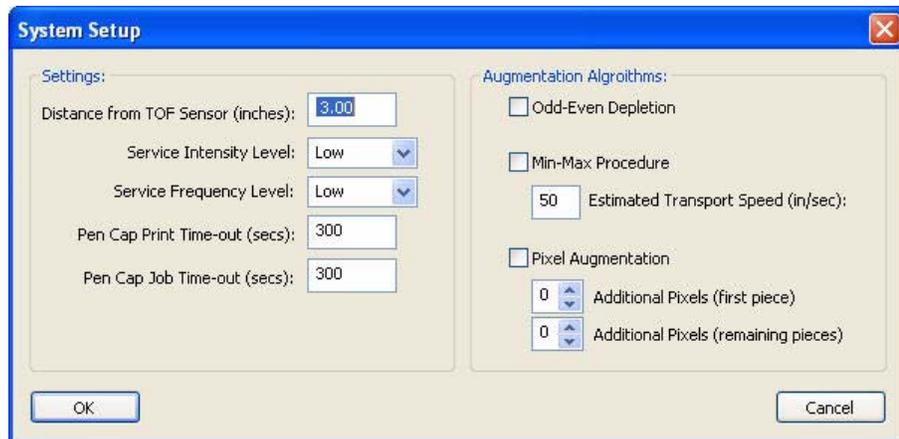
System setup is saved when the job is saved and specifies important information about how the template relates to the physical setup of the boards.

Note: Changing system setup after completion of a template may delete objects on the template.

To perform system setup:

1. Select **System Setup** from the **File** menu.

The System Setup window appears.



2. Enter the **Distance From Sensor** for each board.

Note: The distance from sensor is an exact measurement of each board from the physical sensor on the table top. When the first piece hits the sensor, the system needs to know how far away from the sensor to print on each board. You use this distance plus the conveyer speed to print on the specified head. You should use alignment boxes as shown in “Printing Alignment Test Pages” on page 7-16 to verify these calculations. These distances must be correct for the job to print without error.

Note: Make sure your head boards are perfectly perpendicular to the paper before setting the distance from sensor.

3. Enter the **Service Intensity Level** and **Service Frequency Level**.

These levels specify the degree of head cleaning maintenance performed.

4. Enter the **Pen Cap Print Timeout** and **Pen Cap Job Timeout**.

These levels specify the number of seconds that the heads stay down without printing before the head caps itself.

5. Enter the Augmentation Algorithms.

These settings specify how the ink is sprayed from the heads. It adds a number of pixels immediately preceding the first pixel. Pixel Augmentation is used when the ink is dry on the heads, possible after sitting without use for a period of time. You can increase the amount of pixels sprayed to avoid dry spots. It adds the specified number of pixels immediately preceding the first pixel on the first piece or other pieces as specified.

Note: A setting of 7 may leave a dark line to the left side.



The Odd/Even Depletion affects the odd and even spray capacity after the initial augmentation setting. It can smooth jaggedness in an image, which is especially useful in barcodes. For example, if the substrate is particularly absorbent causing ink to bleed out from the initial format.

The Min-Max Procedure option forces the imager to print at the optimum transport speed (firing frequency) for the specified print speed. In general keep the transport speed of the printheads as close to 36 kHz as possible.

To calculate the correct Min-Max transport speed use the initial speed times a higher dpi to increase the transport speed. For example, a speed of 175 FPM (35 in./sec) and 600 dpi output produces the corresponding transport speed of 21 kHz, which provides less than optimal performance. To compensate, a 900 dpi is used in the calculation to achieve a firing frequency (transport speed). So $35 \times 900 = 31.5$, which is closer to the optimal value of 36.

6. Click **OK**.

Printer Calibration

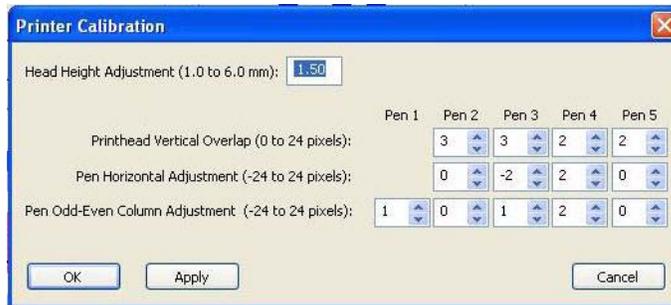
The Printer Calibration window allows you to specify printer and pen settings.

Note: It is recommended that you use the Print Alignment Patterns button on the Job page to verify the adjustments made in this window. The numbers on the item that appears correctly aligned may be entered in this window. See “Printing Alignment Test Pages” on page 7-16.

To view and change system pen setup:

1. Select **Printer Calibration** from the **File** menu.

The Printer Calibration window appears.



2. Enter the Head Height Adjustment.

This specifies the height of the head from the deck.

3. Specify pen settings.

For each pen you can specify the printhead vertical overlap, pen horizontal adjustments, and pen odd-even column adjustments. See “Printing Alignment Test Pages” on page 7-16 to use alignment plots to find the correct values needed.

Chapter 7: Printing Jobs

Once the Job is completely set up you can print it. It is recommended that you do some test printing before doing the complete run. It is especially important to check head alignment as described in “Printing Alignment Test Pages” on page 7-16.

Print Setup

It is important that the job print setup be completed prior to printing. System setup should also be completed. See “System Setup” on page 6-3. Print setup should be done prior to template creation. There are settings in print setup that can be used in the template design.

Print Setup Tab

The print setup tab allows you to change the setup of the paper. These changes are reflected in the template tab.

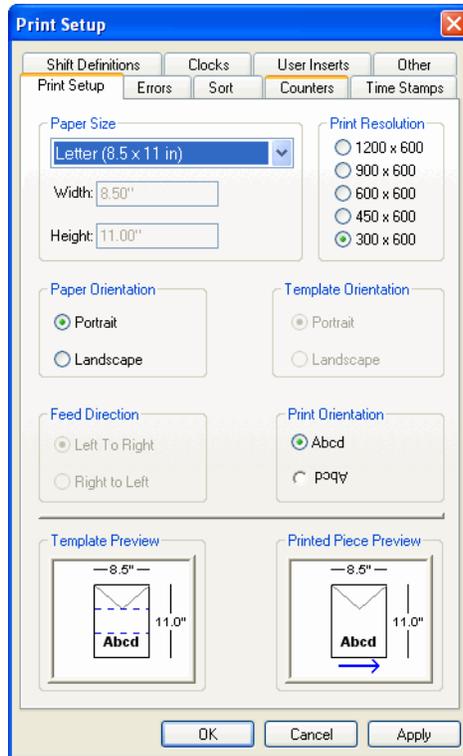
To apply print settings:

1. Click the Template tab.
2. Select **Print Setup** from the **File** menu.

In This Chapter

- Print Setup
- Checking Ink Levels
- Printing From the Job Tab
- Checking Print Status
- Reprints

3. Click the **Print Setup** tab.



4. Select the Paper Size and Paper Orientation.
Height information is needed only if you use landscape orientation.
5. Select the Print Resolution.
1200 x 600 is the highest quality resolution available.
6. Enter the Template Orientation.
The Template Orientation should be the same as the Paper Orientation.

Note: Feed Direction and Template Orientation are always disabled. This feature is not available on the 4250.

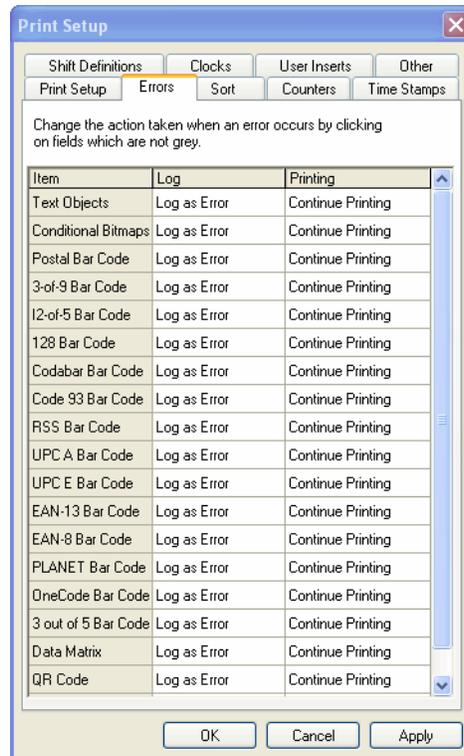
7. Verify your changes in the Template and Printed Piece Preview boxes.
8. Click **OK**.

Errors Tab

The Errors tab allows you to define how errors are reported and logged.

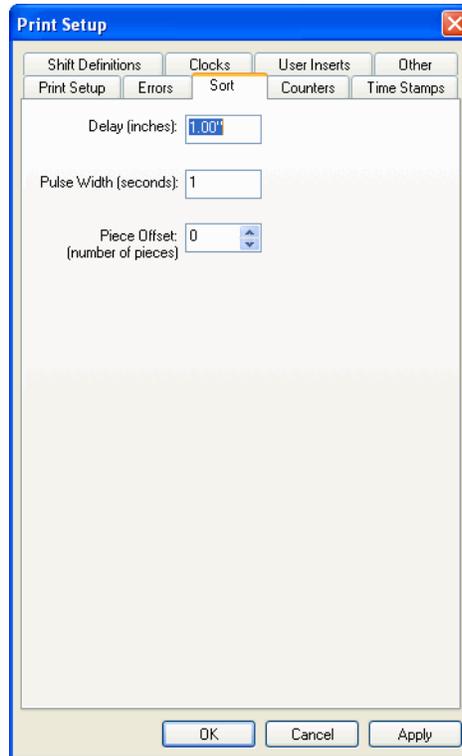
To specify error settings:

1. Click the Template tab.
2. Select **Print Setup** from the **File** menu.
3. Click the **Errors** tab.



4. Enter the desired settings for each type of error.
Each error has a pulldown where you can select to log problems as errors, warnings, or information, or not to log them at all. You can also click the Stop Printing checkbox if you wish to stop printing when this type of problem occurs.
5. Click **OK**.

Counters Tab

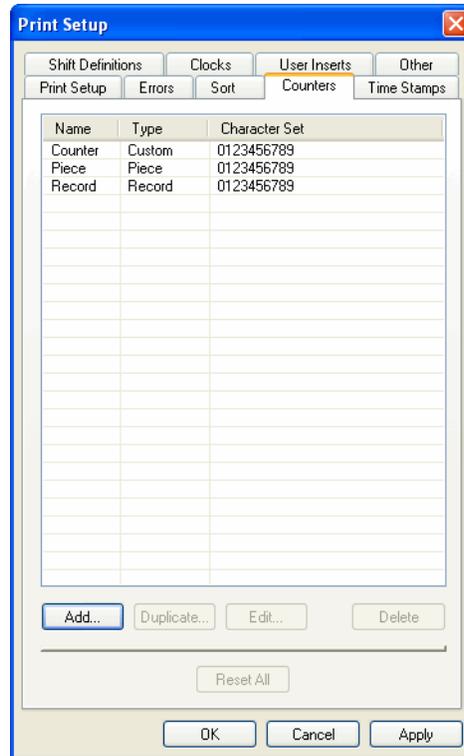


The Counters tab allows you to create the Counters that are applied in text properties. See “Counter” on page 5-18.

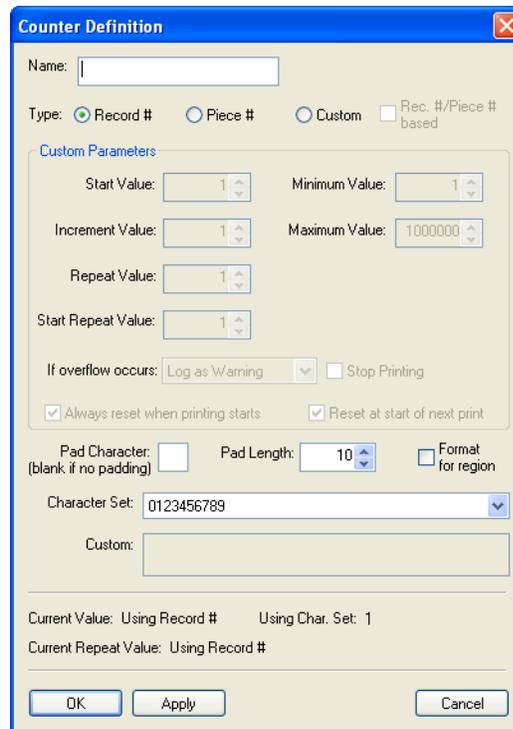
To specify counters:

1. Click the Template tab.
2. Select **Print Setup** from the **File** menu.

3. Click the **Counters** tab.



4. Click the **Add** button.
The Counter Definition window appears.



The Time Stamp window appears.



5. Enter the counter Name and description.
6. Select the Clock.
Clocks are created via the Clocks tab. Clocks must be created before Time Stamps.
7. Select the type of time stamp to insert and click **Insert**.
The definition field is populated. You may change the definition if desired.
8. Click **OK**.
The counter is added to the counters table.

Shift Definitions Tab

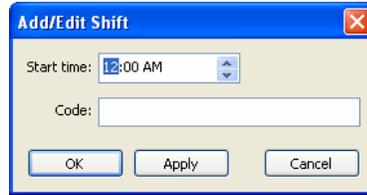
The Shift Definitions tab allows you to create the shift definitions that are applied in text properties. See “Shift Code” on page 5-20.

Note: Clocks should be defined prior to creating Shift Definitions.

To specify shift definitions:

1. Click the Template tab.
2. Select **Print Setup** from the **File** menu.

A new window appears.



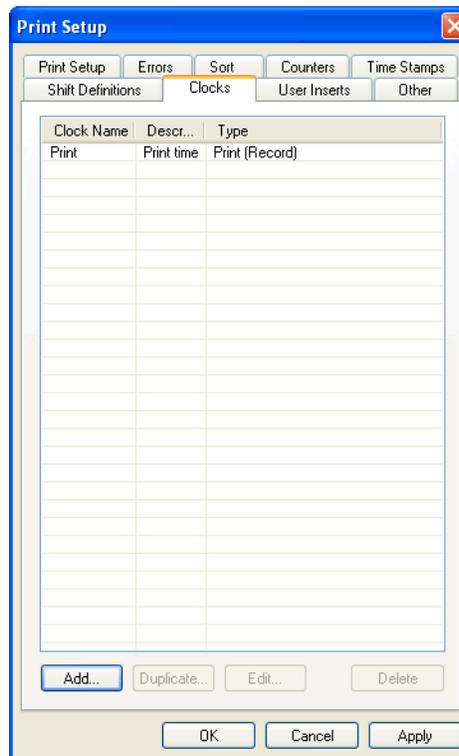
8. Enter the start time and code for the shift.
9. Click **OK**.
These are entered in the shifts table.
10. Click **OK**.
The shift is added to the shift definitions table.

Clocks Tab

The Clocks tab allows you to create the Clocks that are applied in text properties as well as used to create time stamps and shift definitions.

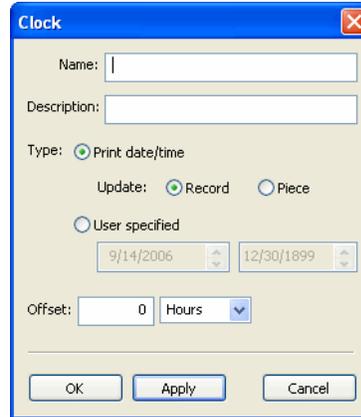
To specify clocks:

1. Click the Template tab.
2. Select **Print Setup** from the **File** menu.
3. Click the **Clocks** tab.



4. Click the **Add** button.

The Clock window appears.



5. Enter the clock name and description.
6. Select the clock type.
You can choose to print the current date/time on the record or piece or specify dates.
7. Enter the offset time.
8. Click **OK**.
The clock is added to the counters table.

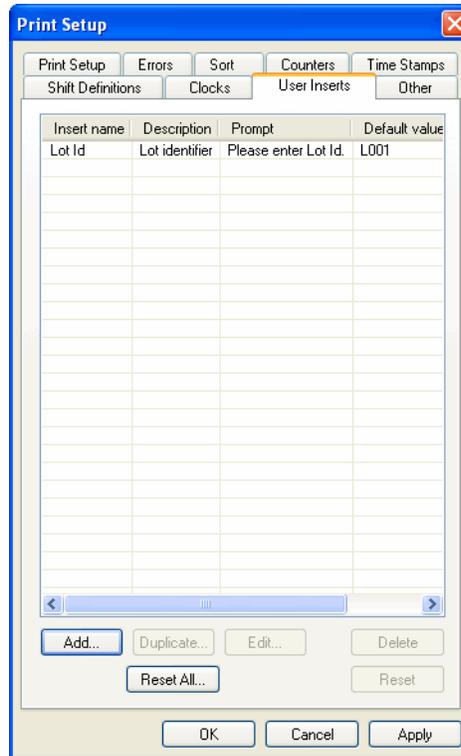
User Inserts Tab

The User Inserts tab allows you to create the textual inserts that are applied in text properties. See “User Insert” on page 5-20.

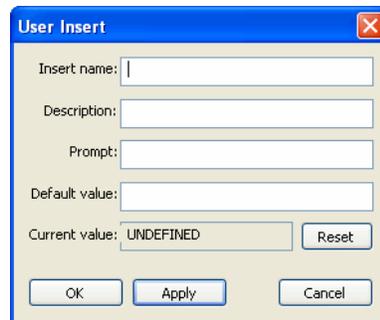
To specify user inserts:

1. Click the Template tab.
2. Select **Print Setup** from the **File** menu.

3. Click the **User Inserts** tab.



4. Click the **Add** button.
The User Insert Definition window appears.



5. Enter the insert name and description.
6. Enter the prompt that users will see to enter this insert.
7. Enter the default value.
8. Click **OK**.

The insert is added to the inserts table.

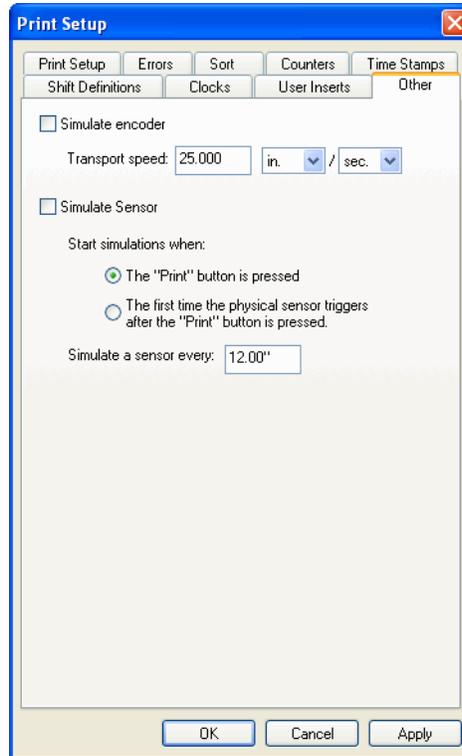
Other

The Other tab is used for troubleshooting. It simulates the encoder or sensor to help identify encoder or sensor problems.

Printing Jobs

To simulate the encoder or sensor:

1. Click the **Template** tab.
2. Select **Print Setup** from the **File** menu.
3. Click the **Other** tab.



4. Check the boxes to simulate the encoder and/or sensor.
5. Enter the desired simulation parameters.
6. Click **OK**.

Checking Ink Levels

It is advisable to check ink levels before and during printing. You can also look at ink usage statistics.

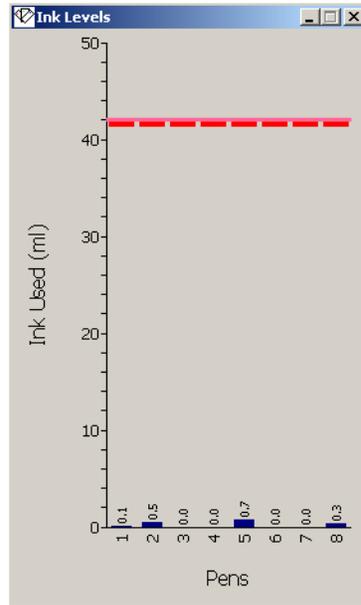
Note: You must purchase ink through MCS in order for the software to display information about it. There is smart chip technology built into MCS ink bladders. See “Ink Replacement” on page 8-8.

Note: You can switch bladders while the system is running as long as one bladder remains. The system will automatically switch to another bladder if a bladder is removed.

To check ink levels:

1. Click the **Template** tab.

2. Select **Ink Levels** from the **View** menu.



3. View the levels.
4. Click the exit icon (X) on your window to close it.

To check ink usage:

1. Click the Template tab.
2. Select **Ink Usage** from the **View** menu.
3. View the levels.
4. Click the exit icon (X) on your window to close it.

Printing From the Job Tab

After the following items have been completed you are ready to print the job:

- Data imported
- Template
- Print Setup
- System Setup
- Physical table top alignment

To print the job:

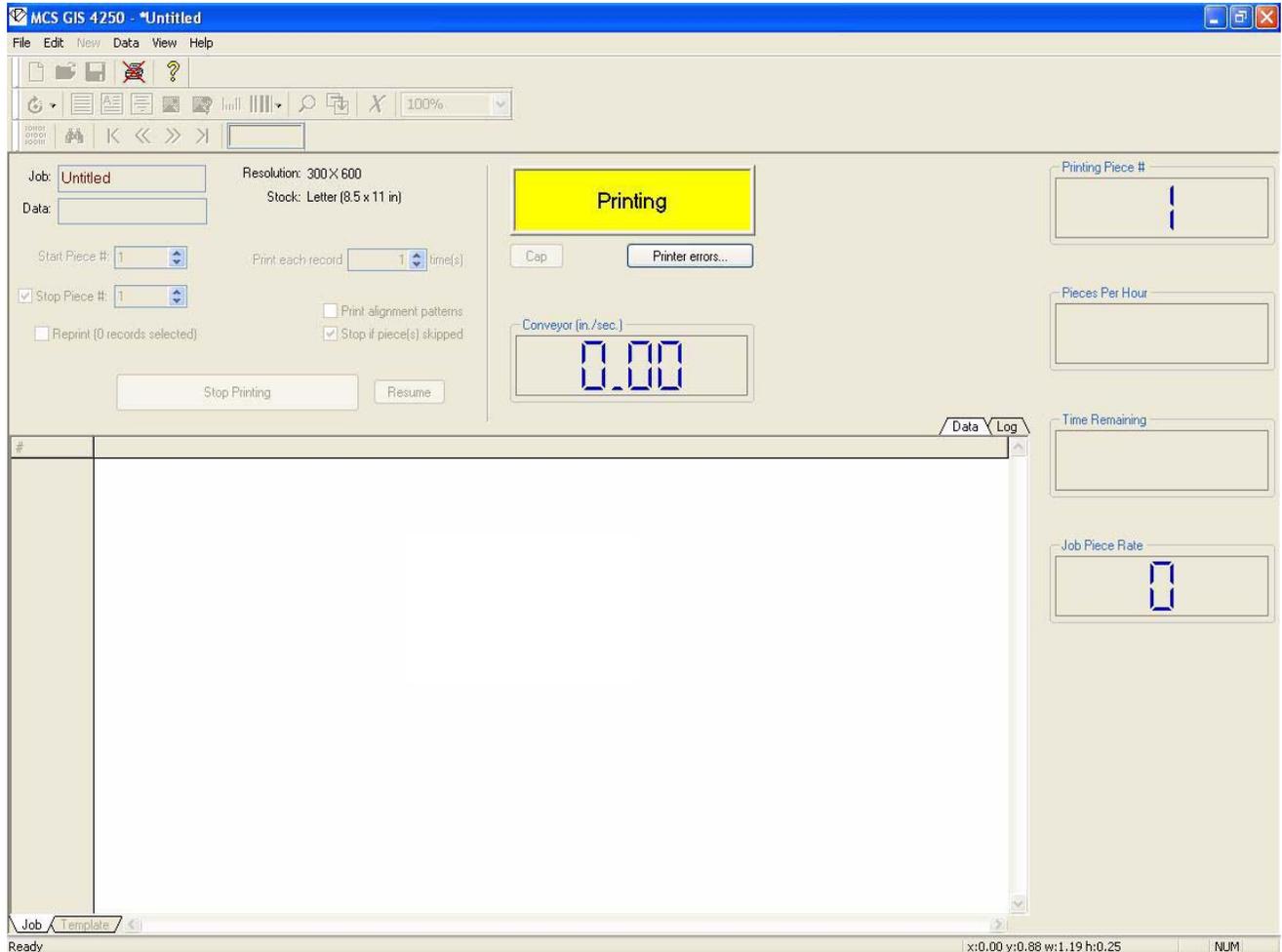
1. Click the Job tab.
2. Enter the print parameters.



Printing Jobs

These include start piece and stop piece numbers, how many times you want each record printed, and whether you want to print alignment test patterns first (recommended). You can also specify to drop if pages are skipped. If the sensor does not see a gap, an error displays. Use the Cap option to manually adjust head position. See “Manual Head Adjustment” on page 8-4 for details.

3. Click **Print**.



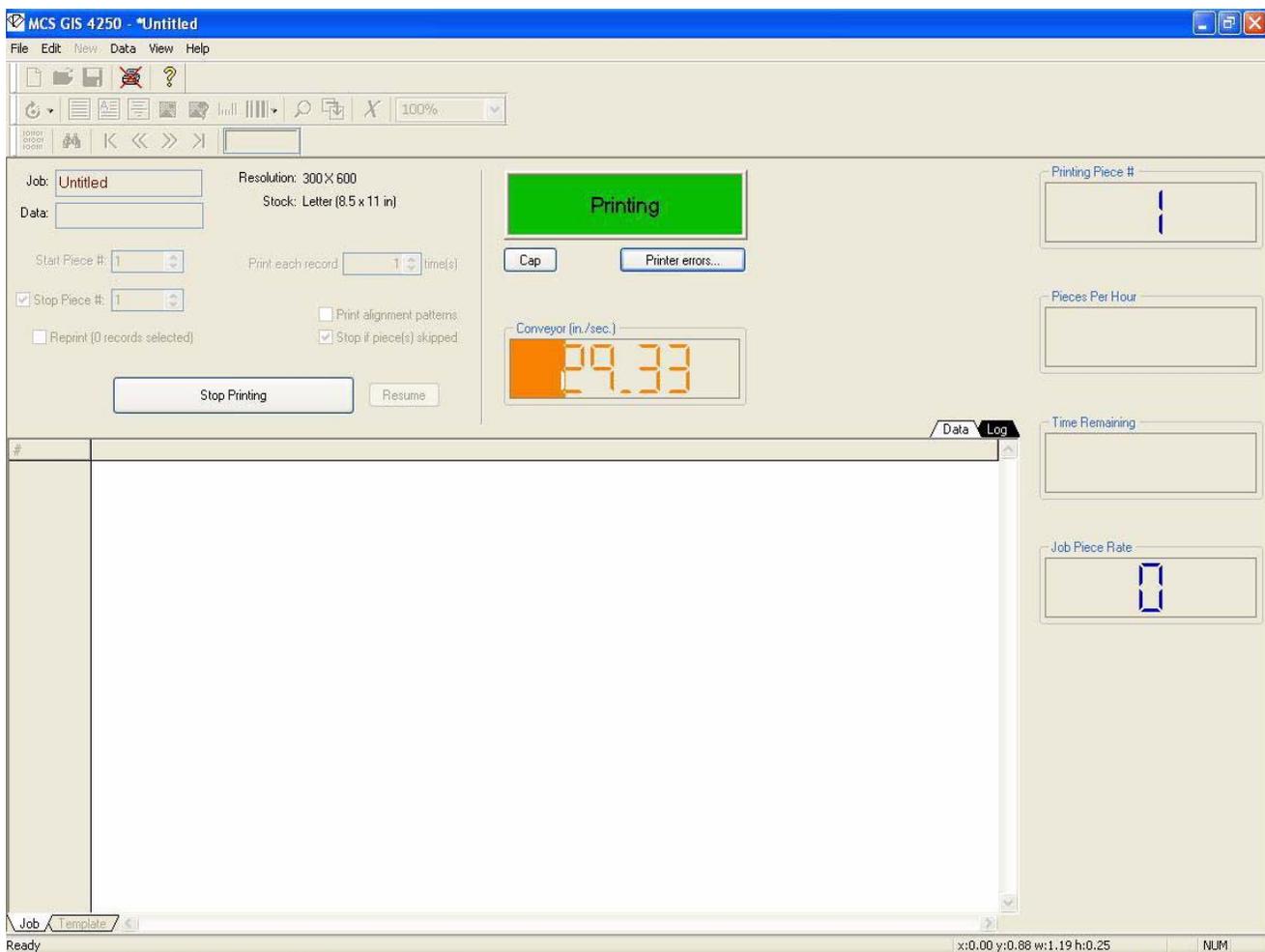
Note: When you are printing a job, all items in all menus become unavailable except Stop Printing.

The status box displays red when connected but idle, yellow when printing, and green when a job has printed successfully.

Checking Print Status

The Job window displays a variety of print status information. You can see the current record number being printed, how many pieces per hour are printing, the conveyor speed, and log information. Log information is displayed in the log window and is color coded:

Color	Definition
Black	Information only
Blue	Warning
Red	Error



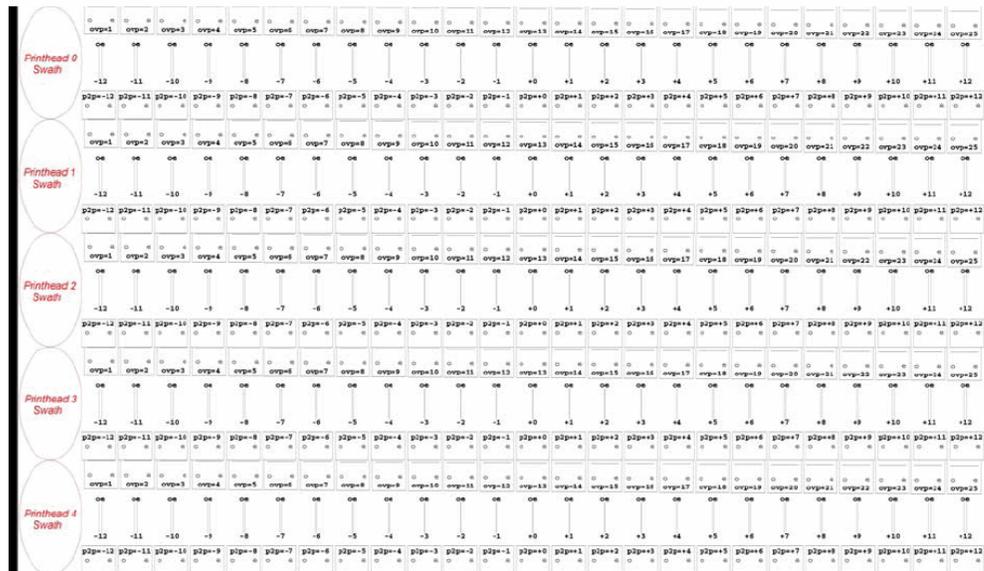
Printing Alignment Test Pages

It is important to print alignment test pages to ensure that the printhead is properly aligned. This is especially important after a printhead replacement, but should be performed with some frequency as the printheads may drift out of alignment over time.

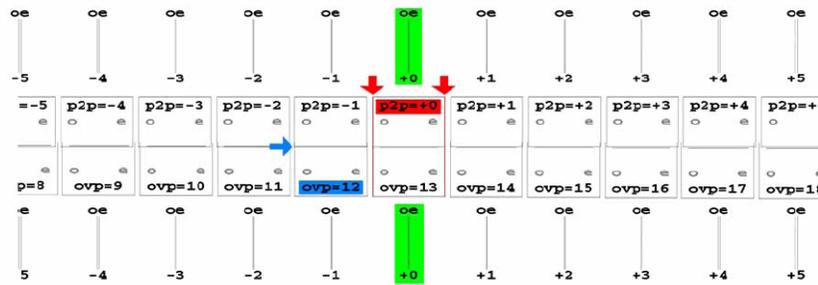
To print alignment pages:

1. Click the **Print Alignment Patterns** checkbox on the job page.
2. Review the page to locate the align pattern that is perfect and enter that information in the Printer calibration window. See "Printer Calibration" on page 6-4.

The alignment plot prints a series of aligned information. You must carefully review each box to locate the plot that is perfectly aligned; that is, the lines appear to be one single line. A sample plot is shown below:



Two printheads that are perfectly aligned produce a plot as shown below:



Notice that the boxes are side-to-side alignment at $p2p=0$, top-to-bottom alignment at $ovp=12$ and the dual columns converge to a single line at $oe=0$ (for both printheads). In this case your Printer calibration settings would need to set the vertical overlap to 12 for pen 4 and horizontal and odd-even adjustments to 0 for pens 3 and 4. The printhead vertical overlap is $ovp=12$. The pen horizontal adjustment is $p2p=+0$ and the pen odd-even column is $ovp=13$.

Note: Taking the average results from multiple alignment plots (three is suggested) generally produces better results than a single plot.

Note: It may be useful to use a magnifier light to review aligned plots.

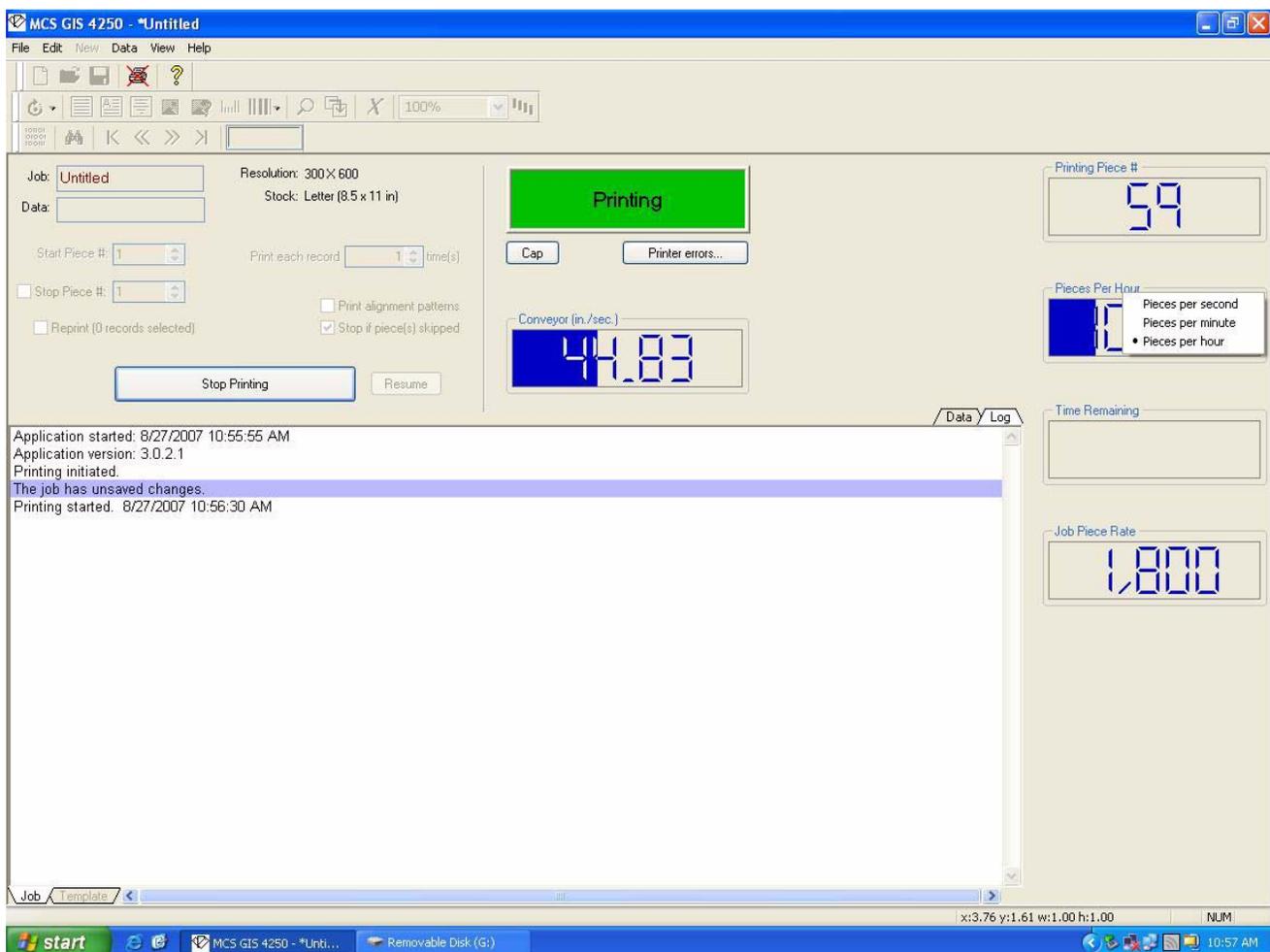
Changing Print Status Display

This window displays current printing status in the Print Status pane. It displays the conveyer speed in the status bar. In both cases you can click on the type of information displayed.

To change print status displayed:

1. Click the Job tab.
2. Click the type of status displayed in the Print Status pane.

For example, if the status currently displays pieces per hour, click this to change to seconds or minutes. You can toggle through the selections.



Checking Print Status

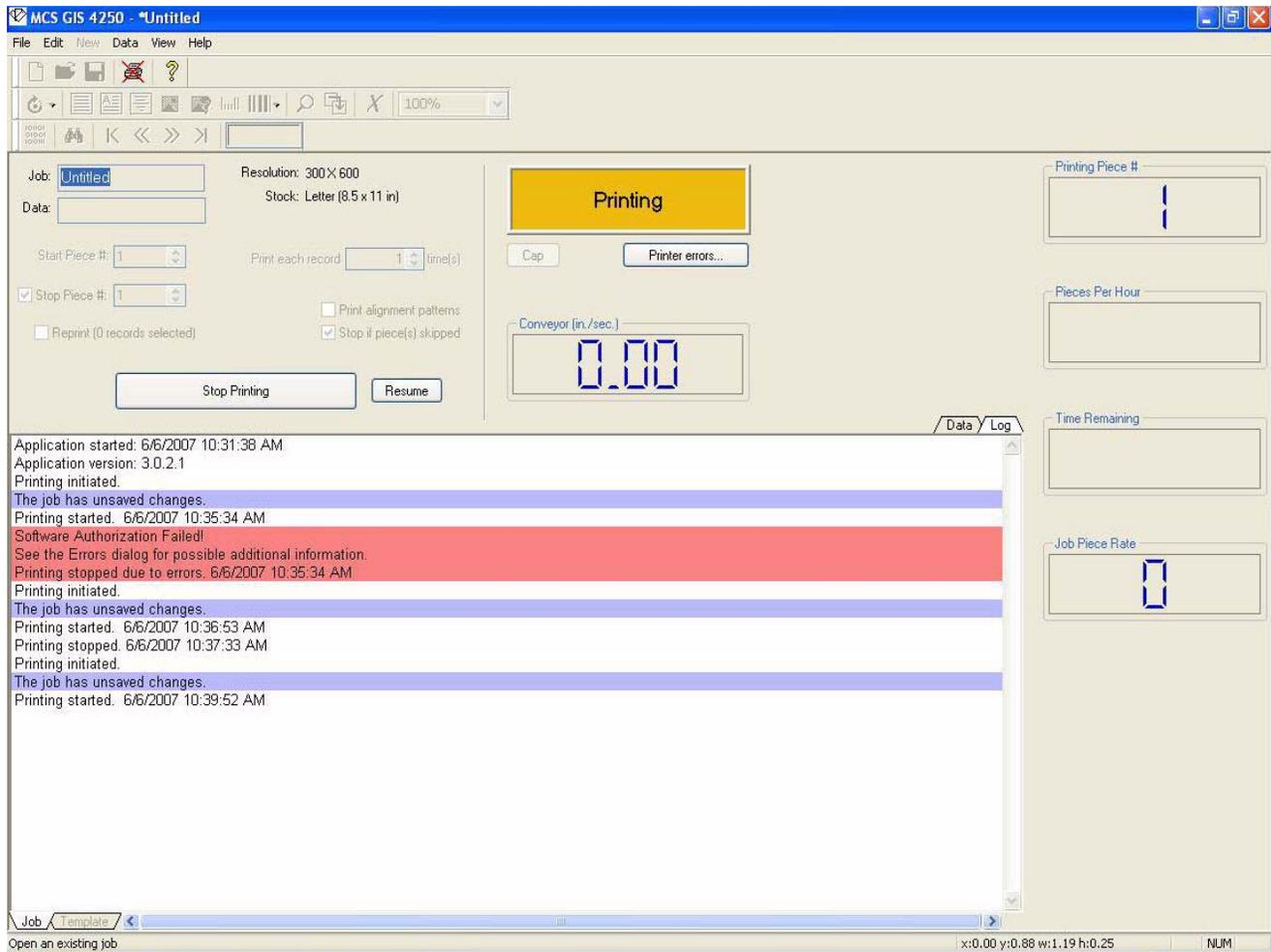
Printing Jobs

To change conveyer status displayed:

1. Click the Job tab.
2. Click the type of conveyer status displayed in the status bar.

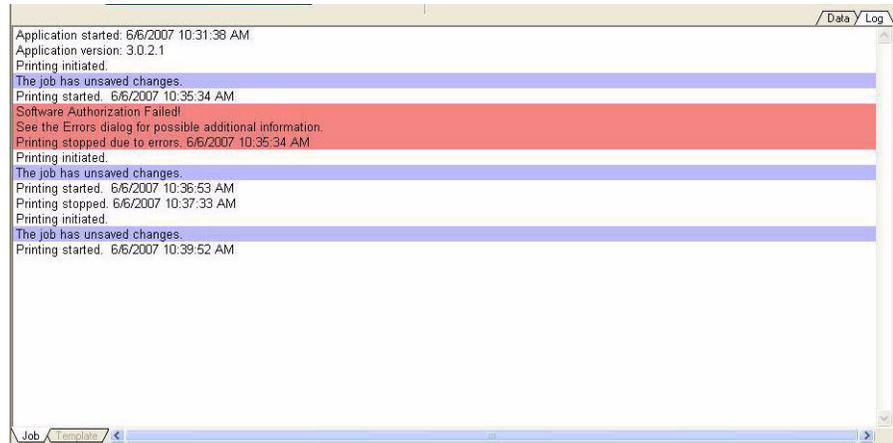
For example, if the status currently displays ft./hour, click this to change to seconds or minutes or even centimeters. You can toggle through the selections.

Note: If the conveyer speed becomes too fast, the status turns orange until the appropriate speed is reached and then blue. If you manually adjust the speed, monitor these settings to verify that the appropriate speed has been reached.



Viewing the Job Log

The job log displays a variety of information while the job prints. Error are shown in red and described in “Error Codes” on page 9-1. Blue items indicate warnings and black is informational.



Reprints

While you are printing you may notice errors. When you notice errors, you can use the find options in the data fields to locate records which need to be reprinted.

To locate and reprint records:

1. Click the **Data** tab.
2. Use the **Find** feature to locate the desired record.
See “Finding Records” on page 4-5.
3. Right-click the row and select **Add to Reprints**.

#	Field 1	Field 2	Field 3	Field 4	Field 5
1	1	Mr. Cosmo Carbone	125 Oak St.	Lebanon CT 06249-2567	
2	2	M. Monroe	1210 Burnham Road	Lebanon CT 06249-2954	
3	3	Arthur McConnely	12 Valley St.	Lebanon CT 06249-6738	
4	4	Michael Madsen	Suite 239	1562 Worthington Lane	Lebanon CT 06249
5	5	Eileen Klien	483 Stoney Brook Drive	Lebanon CT 06249-5252-45	
6	6	Homer J. Magaldi	367 Hog Hill Road		963
7	7	David Fay	8 Pond View Drive		364
8	8	Allan Hines	Apt C		Coventry CT 06238
9	9	J Foster	72 Salomn Brook Rd		3027
10	10	Dina Xue	115 South Mill Dr		4512
11	11	Carl Brown	25 Lake Blvd.	Columbia CT 06237-2844 62	
12	12	.Insenh P. Jenkins	77 Tolland Take	Columbia CT 06237-1623	

You can also click the Add to Reprints button in the Find window. The selected rows are highlighted green.

#	Field 1	Field 2	Field 3	Field 4	Field 5
1	1	Mr. Cosmo Carbone	125 Oak St.	Lebanon CT 06249-2567	
2	2	M. Monroe	1210 Burnham Road	Lebanon CT 06249-2954	
3	3	Arthur McConnely	12 Valley St.	Lebanon CT 06249-6738	
4	4	Michael Madsen	Suite 239	1562 Worthington Lane	Lebanon CT 06249
5*	5	Eileen Klien	483 Stony Brook Drive	Lebanon CT 06249-5252 45	
6	6	Homer J. Magaldi	367 Hog Hill Road	Coventry CT 06238-2963	
7*	7	David Fay	8 Pond View Drive	Coventry CT 06238-0364	
8	8	Allan Hines	Apt C	102 Highwood Road	Coventry CT 06238
9	9	J Foster	72 Salomn Brook Rd	Columbia CT 06237-5027	
10*	10	Dina Xue	115 South Mill Dr	Columbia CT 06237-4512	
11	11	Carl Brown	25 Lake Blvd.	Columbia CT 06237-2844 62	
12	12	.Insenh P. Jenkins	77 Tolland Take	Columbia CT 06237-1623	

- Repeat steps 2 and 3 until all reprints are marked.
- Click the **Job** tab.
- Check the **Reprint** box.

Stop Record: 75 Print 1 test pattern(s) first

Reprint (3 records selected)

Print

#	Field 1	Field 2	Field 3	Field 4
1	1	Mr. Cosmo Carbone	125 Oak St.	Lebanon
2	2	M. Monroe	1210 Burnham Road	Lebanon
3	3	Arthur McConnely	12 Valley St.	Lebanon
4	4	Michael Madsen	Suite 239	1562 W
5*	5	Eileen Klien	483 Stony Brook Drive	Lebanon
6	6	Homer J. Magaldi	367 Hog Hill Road	Coventry

- Click **Print**.
The records are reprinted.
- Click the **Data** tab.
- Right-click anywhere in the data table and select **Clear Reprints**.
- Click the **Job** tab.
- Uncheck the **Reprint** box.

Chapter 8: Troubleshooting and Maintenance

The following sections can help you troubleshoot printing problems. The troubleshooting tables below can help you identify common problems.

General Troubleshooting

Problem	Possible Cause	Action
Blank pages printing	Paper size doesn't match print size	See "Printing Blank Pages" on page 8-3.
Files created on another machine unable to open	Files settings need adjustment	See "File Control Settings" on page 8-3.
Fonts not printing or font error message	Fonts are unrecognized	See "Unrecognized Fonts" on page 8-3.
Gaps	Calibration errors	Print an alignment page and change Printer Calibration settings. See "Printing Alignment Test Pages" on page 7-16 and "Printer Calibration" on page 6-4.
Head stays in position when stop printing	Head needs manual adjustment	See "Manual Head Adjustment" on page 8-4.
Items not aligned	Calibration errors	Print an alignment page and change Printer Calibration settings. See "Printing Alignment Test Pages" on page 7-16 and "Printer Calibration" on page 6-4.
Overlaps	Calibration errors	Print an alignment page and change Printer Calibration settings. See "Printing Alignment Test Pages" on page 7-16 and "Printer Calibration" on page 6-4.
Path not recognized	Files settings need adjustment	See "File Control Settings" on page 8-3.

In This Chapter

- General troubleshooting
- Print Blank Pages
- Unrecognized Fonts
- File Control Settings
- Manual Head Adjustment
- Print Errors
- Printer Maintenance
- Controller Settings
- Ink Replacement
- Error Codes

Print Quality Troubleshooting

Symptom	System Area	Action Performed
Random Banding, Nozzles out, or misdirected nozzles	Print Quality	<ol style="list-style-type: none"> 1. Initiate LOW Print Head Recovery through Print Maintenance Screen. 2. Initiate HIGH Print Head Recovery through Print Maintenance Screen. 3. Perform Manual Print Head Clean (moist Tek-wipe). 4. Call Service.
Garbled print image	Print Quality	<ol style="list-style-type: none"> 1. Cancel and restart print job. 2. Reboot the Controller. 3. Call Service.
Nozzles and/or image fading in and out during printing	Print Quality	<ol style="list-style-type: none"> 1. Check ink supply status (Click View – then click Ink Levels). If “Life Remaining” Levels are 5% or less, call service to replace ink pen. 2. Call Service
Smeared print	Print Quality	<ol style="list-style-type: none"> 1. Identify the first place that the smeared print appears – (after 4250 Print Head, after Meter Station, after Divert Station). 2. If smeared print appears immediately after the 4250 Imager Head, then adjust height of head to avoid contact with the passing material. You may need to wipe/clean the skid plate from a build-up of dried ink. Optimal distance from pen to material is 1 to 1.5 mm. 3. If smeared print appears immediately after the Meter Station or Divert Station, then adjust appropriate rollers that are rolling over print. 4. Verify that 4250 Imager Head is level.
Light or faded print (on lead edge) when first character(s) are printed	Print Quality	Use Pixel Augmentation (Click File – then System Setup). Add pixels for first piece and/or remaining pieces.
Blurry print	Print Quality	<ol style="list-style-type: none"> 1. Verify the head height, in relation to the material. Optimal distance of pen to material is 1 to 1.5 mm. If distance from material is too great, then adjust the ratchet handle to raise or lower the entire Imager head. 2. Adjust the PPS (Print head to Paper Spacing); click File – then click Printer Calibration – adjust the value for <i>Head Height Adjustment</i> (1.0 to 6.0 mm).

Printing Blank Pages

If your paper size does not match the actual piece size, you may see extra blank pages print or assume that every other page is printing. Make sure that the Paper Size setting in your Print Setup matches the actual size of the piece or less than how often your sensor triggers occur. If the page size is larger, the sensor will be missed and extra pages will print. This happens most often in a continuous form, but can also happen on a cut sheet job.

Unrecognized Fonts

GIS 4250 recognizes only Open Type fonts with TrueType Outlines. You can add new fonts to your Windows system by placing them in the Windows>Fonts folder. To check if the font will be recognized, right click the font and select Open. The information circled in the diagram below should be shown in the window that appears.



File Control Settings

The setup.cfg file contains settings that are used to control how job files are read when they have been created on machines other than the machine you are currently running. By default machine specific information is retained in your files. If you want to use settings from jobs created on different machines on your current machine you can change the following lines for each board. To allow system level information to be portable from different machines change the 0 to a 1 for SensorMargin.source. This information includes path, margins, and distance from sensor. You can also change the feed direction.

```
[Board1.Settings]
SensorMargin.Source=0 (0-Job, 1-System)
```

Manual Head Adjustment

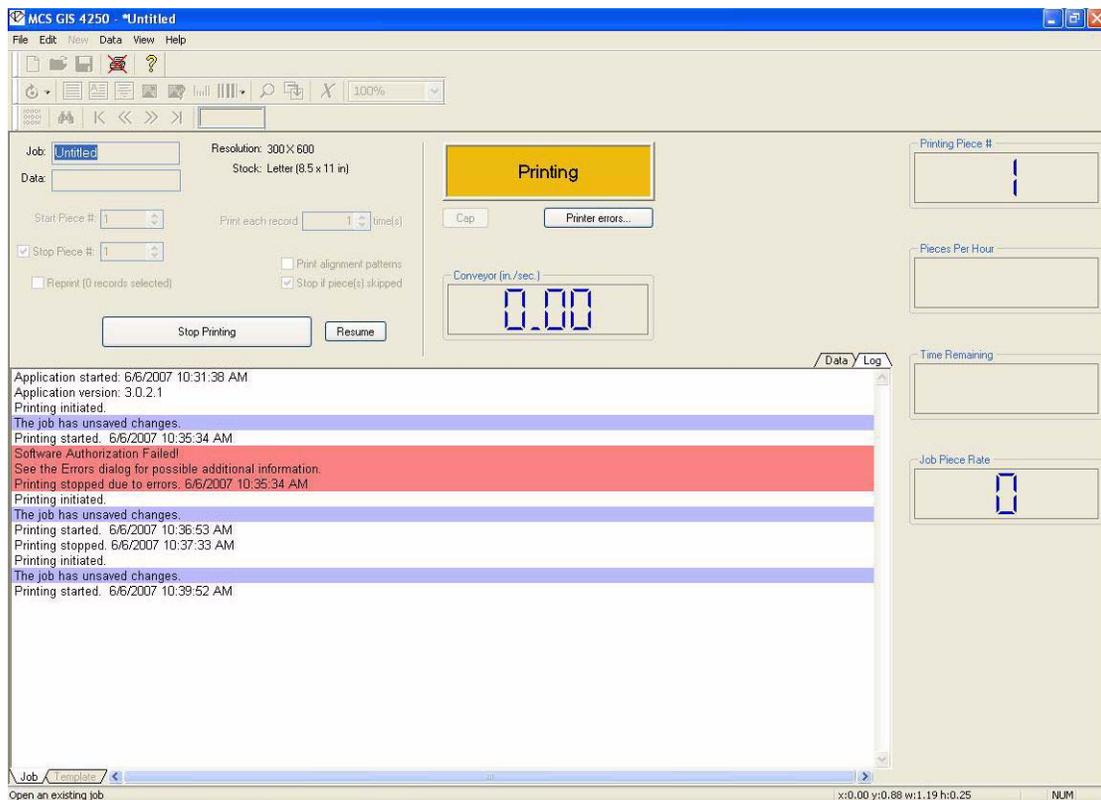
Troubleshooting and Maintenance

```
SensorMargin.System=0.000000  
FeedDirection.Source=0 (0-Job, 1-System)  
FeedDirection.System=LeftToRight (LeftToRight, RightToLeft)
```

Manual Head Adjustment

The Cap option on the Job printing window allows you to manually adjust the heads. When you print and then stop printing the heads stay in position. This option is active only when you press the Stop Printing button, also on the Job window or when printing has successfully completed.

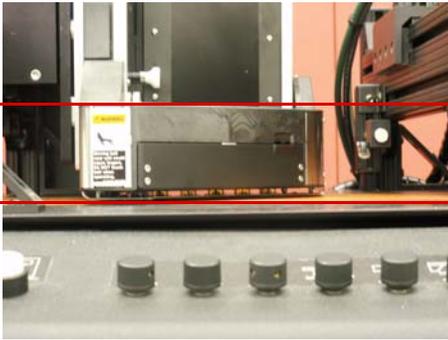
Note: If you press Cap and printing is not stopped, status will turn orange and you must press Resume (only active in this scenario) to start printing again. You must lower the head for printing to resume correctly.



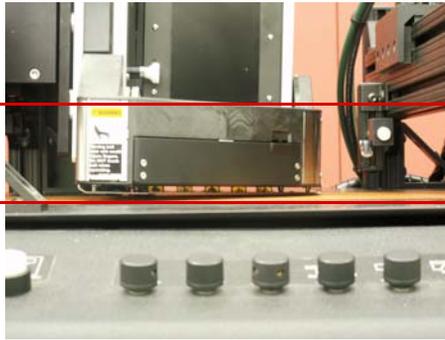
Head Tilt

If the heads are even slightly tilted, ink will not be dispersed in an even manner. Ink may be dispersed heavier on one side of the head and lighter on the other. Make sure that when manual head adjustments take place, the head is returned to a straight position. The pictures below show a straight and tilted head and the mechanisms used to adjust the angle of the head.

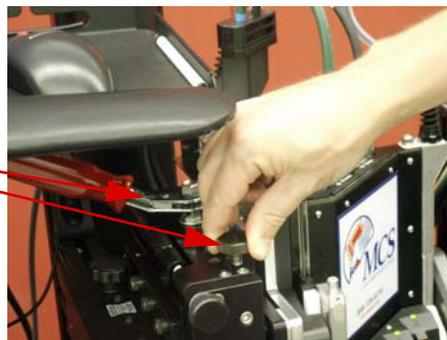
Straight



Tilted

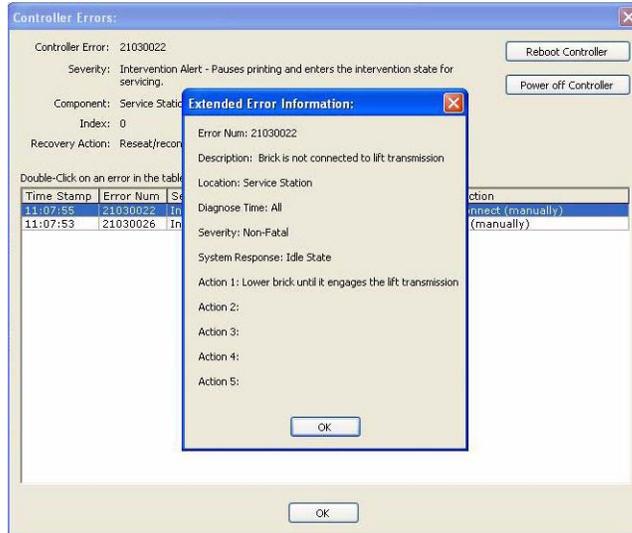


Adjustment
Mechanisms



Print Errors

The Print Errors options on the Job window invokes a screen that lists errors. Double-click the error to view its details.



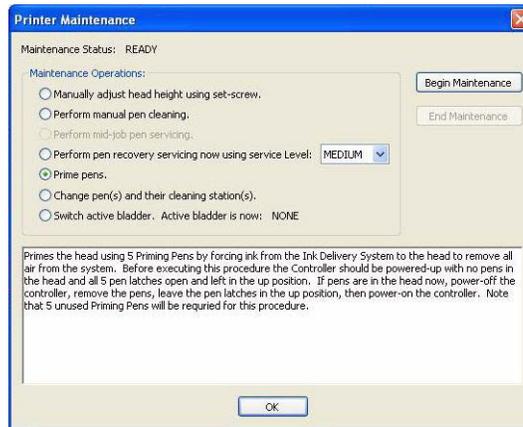
Note: If errors are not fixed, the timestamp in the Controller errors window remains unchanged. This stamp is updated when the fix has occurred.

Printer Maintenance

The Printer Maintenance option allows you to perform a variety of manual and automatic maintenance on the GIS 4250 equipment.

To perform printer maintenance:

1. Select **Printer Maintenance** from the File menu.
The Printer Maintenance window appears.



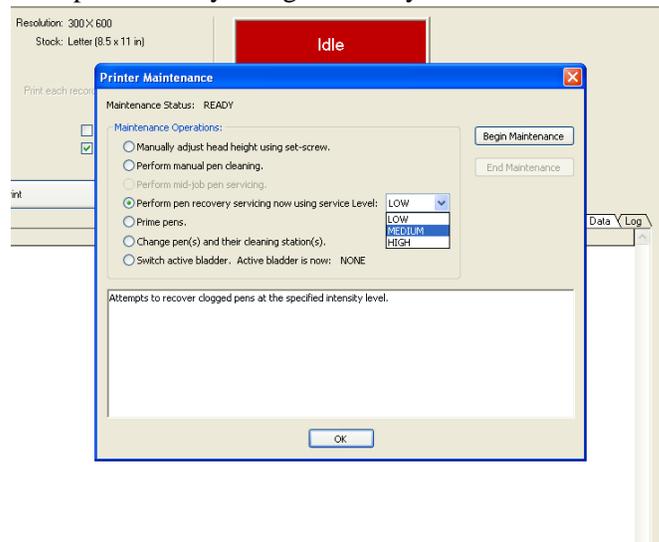
2. Select the desired operation.

3. Follow the instructions provided in the instruction window.
4. Click **OK**.

Note: Manual pen cleaning should be performed with a moist, lint-free cloth.

Pen Recovery

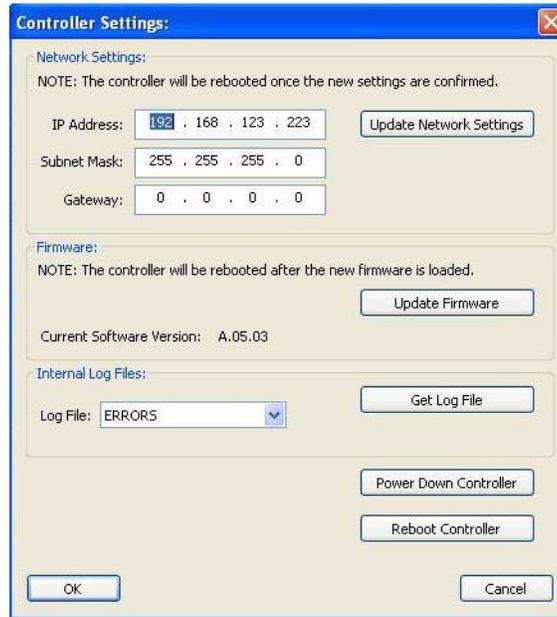
You can select High or Low intensity pen recovery. Low should always be used first to recover clogged nozzles. If the results of a low intensity pen recovery are insufficient, then attempt another pen recovery at high intensity.



Controller Settings

The Controller Settings window provides a variety of information about your system including network address, firmware version, log file access, and power down. This window is also used to update firmware as needed or instructed by MCS personnel.

Note: It is recommended that you use the Power Down Controller and Reboot Controller options from this window to perform these actions rather than using the actual buttons on the controller.



Ink Replacement

Smart Chip technology exists for both the print head and ink bladder. They are nonvolatile memory devices that allow storage and retrieval of proprietary information about the status of the print heads and ink cartridges in the integrated printing system. The smart chip:

- Identifies the print head and ink supply
- Reads print head or ink supply specific parameters
- Stores print head or ink supply specific data such as drops ejected or ink level



Ink must be purchased from MCS in order for this technology to be detected. The 4250 will not print without ink from MCS. If other ink is inserted into the device an error is displayed and the equipment does not function.



Error Codes

When calling MCS for help, please note the error code numbers you receive. These are helpful to us in tracking and evaluating your error.

System Status Error	System Area	Recovery Action - Level 1	Recovery Action - Level 2	Recovery Action - Level 3	Recovery Action - Level 4	Recovery Action - Level 5	Recovery Action - Level 6
11010009: Controller software active LED is broken or not installed	Controller	Replace Imager Controller					
11010081: TOF rejection during printing	Controller	Check if pre-printed media is being used with a reflective-type TOF sensor. If so, this is a normally occurring warning.	Check that the media length specified in the job configuration matches the actual media length	Check that the TOF sensor trigger level is correct	Check that the media feeder is not double-picking		
11010082: Media moving too fast for the set print resolution	Controller	Media transport running too fast: slowly decrease the paper transport speed until the warning disappears and printing resumes	Check that the media speed returned by the imager matches the real media transport speed	Check that the output resolution was set up correctly in the job specification for the desired print speed			
11010083: Page skip during printing	Controller	Check that the TOF-to-printhead distance configuration is set correctly	Check if media was sent while imager was unable to print (overspeed or in intervention state)	If unexplained page skips are appearing for every job, contact MCS			
11010084: Image lost due to intervention warning	Controller						
11010109: Controller power LED is broken or not installed	Controller	Replace Imager Controller					
11010181: TOF timeout warning during printing	Controller	Must feed new page within 30 seconds of last page	Check if related to unresolved warning 11010082	Run TOF diagnostic to determine if TOF signals are arriving correctly			
11010209: Controller hard drive activity LED is broken or not installed	Controller	Replace Imager Controller					
11011045: Engine PCA temperature is above the warning limit	Controller	At the earliest opportunity, check the air flow to the controller box. All fans should be operating normally, free from obstruction.	Change Fan Filter_2494	Hot environment? Reduce the environmental temperature if possible			
11012045: Interconnect PCA temperature is above the warning limit	Controller	See 11011045					

System Status Error	System Area	Recovery Action - Level 1	Recovery Action - Level 2	Recovery Action - Level 3	Recovery Action - Level 4	Recovery Action - Level 5	Recovery Action - Level 6
3101007: Failure to detect TOF signal	Controller	Check TOF sensor output and trigger level - replace TOF if necessary	Test Engine PCI card using simulated TOF signal - If fail, replace engine PCI card	Reseat engine to INTC cable	Replace Interconnect PCA	Replace Engine to INTC cable	
3101008: OEM GPIO broken	Controller	Reseat engine to INTC cable	Replace Interconnect PCA	Replace Engine PCA			
3101080: Encoder/paper moving in wrong direction or encoder phases swapped	Controller	Swap encoder A and B input signals to the Interconnect PCA.					
3101017: Failure to detect paper encoder signal	Controller	Check paper encoder output - replace or repair encoder if necessary	Test Engine PCI card using simulated encoder signal - If fail, replace engine PCI card	Reseat engine PCA card to INTC PCA cable	Replace Interconnect PCA	Replace Interconnect PCA	
31011002: Engine PCA memory error	Controller		Replace Engine PCA				
31011043: Engine PCA internal communication error	Controller	Reseat engine PCI card in adjacent PCI slot	Replace Engine PCA	Replace Formatter PCA			
31011045: Engine PCA temperature is over the severe limit	Controller	Check the air flow to the controller box. All fans should be operating normally, free from obstruction.	Hot environment? Reduce environmental temperature	Replace Engine PCA			
31012045: Interconnect PCA temperature is over the severe limit	Controller	Check the air flow to the controller box. All fans should be operating normally, free from obstruction.	Hot environment? Reduce environmental temperature	Replace Engine PCA			
31017002: Controller hard drive failure	Controller	Replace Hard Disk Drive					
41011045: Engine PCA temperature is over the severe limit	Controller	See 31011045					
41012045: Interconnect PCA temperature is over the severe limit	Controller	See 31012045					
11021009: Carriage PCA LED broken	Imaging Module	Replace Printhead Connect PCA					
11022X09: PH Connect PCA printhead X LED broken	Imaging Module	Replace Printhead Connect PCA					
11022809: PH Connect PCA power LED broken	Imaging Module	Replace Printhead Connect PCA					
1102300B: Printhead ink type unknown or unsupported	Imaging Module	One or more printheads are of an unrecognized ink type. Replace the incorrect printheads.					





System Status Error	System Area	Recovery Action - Level 1	Recovery Action - Level 2	Recovery Action - Level 3	Recovery Action - Level 4	Recovery Action - Level 5	Recovery Action - Level 6
11023X45: Printhead X temperature above warning limit	Imaging Module	Pause printing. Take one of the following actions before resume >	Increase spacing between media sheets if possible	Reduce print speed if possible	Restart job with reduced output resolution	Reduce environmental temperature if possible	
11023X4B: Dummy printhead X ink empty	Imaging Module	Perform ink tube priming and initiate printhead change to replace with operational printheads.					
11023Y4B: Dummy printhead X ink full, where Y = X+8	Imaging Module	Initiate printhead change and replace with operational printheads					
21023X02: Printhead X communication failure	Imaging Module	Reseat Printhead X	Clean electrical contacts on Printhead X and Stall X	Replace Printhead X	Replace PH Interconnect Assembly	Replace Carriage PCA	Replace Printhead Connect PCA
2102300A: Printhead ink type mismatch	Imaging Module	One or more printheads are of different ink types. Replace the incorrect printheads.					
21023X04: Printhead X wrong model	Imaging Module	Check that Printhead X is correct model for printer.	Replace Printhead X				
21023X10: Printhead X missing	Imaging Module	If only some printheads listed as missing, reseal those printheads. If all printheads are listed as missing, check for Carriage/PH Connect PCA misalignment error and reseal Carriage PCA	Clean electrical contacts on Printhead X and Stall X	Replace Printhead X	Replace PH Interconnect Assembly	Replace Carriage PCA	Replace Printhead Connect PCA
21023X43: Printhead X continuity failure	Imaging Module	Reseat Printhead X	Clean electrical contacts on Printhead X and Stall X	Replace Printhead X	Replace PH Interconnect Assembly	Replace Carriage PCA	Replace Printhead Connect PCA
21023X44: Printhead X smart chip access failure or invalid information	Imaging Module	Check that Printhead X is correct model for printer.	Reseat Printhead X	Clean electrical contacts on Printhead X and Stall X.	Replace Printhead X	Replace PH Interconnect Assembly	Replace Carriage PCA
21023X45: Printhead X temperature above safety threshold	Imaging Module	Restart system, then try the following actions >	Increase spacing between media sheets if possible	Reduce print speed if possible	Restart job with reduced output resolution	Replace Printhead X	Reduce environmental temperature if possible
21023046: Printhead 0 Replaced without following proper procedure	Imaging Module	Go through the pen replace procedure and reseat pen 0	Reboot the system				
21023146: Printhead 1 Replaced without following proper procedure	Imaging Module	Go through the pen replace procedure and reseat pen 1	Reboot the system				

System Status Error	System Area	Recovery Action - Level 1	Recovery Action - Level 2	Recovery Action - Level 3	Recovery Action - Level 4	Recovery Action - Level 5	Recovery Action - Level 6
21023246: Printhead 2 Replaced without following proper procedure	Imaging Module	Go through the pen replace procedure and re-seat pen 2	Reboot the system				
21023346: Printhead 3 Replaced without following proper procedure	Imaging Module	Go through the pen replace procedure and re-seat pen 3	Reboot the system				
21023446: Printhead 4 Replaced without following proper procedure	Imaging Module	Go through the pen replace procedure and re-seat pen 4	Reboot the system				
31020X02: Printhead X flex broken or not properly connected	Imaging Module	Reseat Printhead X flex circuit into Printhead Connect PCA	Replace PH Interconnect Assembly	Replace Printhead Connect PCA	Replace Carriage PCA		
31020X48: Carriage PCA printhead X power supply failure	Imaging Module	Clean electrical contacts on Printhead X and Stall X.	Replace printhead X	Check for 24V at 24V PSU - If out of range, replace 24V Aux PSU AC-DC	Check for 24V at INTC outputs. If out of range, replace Interconnect PCA	Replace Carriage PCA	Replace IH Power Cable
31021003: Carriage PCA component damaged	Imaging Module	Replace Carriage PCA					
31021005: Carriage PCA revision invalid	Imaging Module	Replace Carriage PCA					
31021007: Carriage PCA sensor failure	Imaging Module	Replace Carriage PCA					
31021022: Carriage PCA not correctly seated into PH Connect PCA	Imaging Module	Replace Carriage PCA					
31021043: Carriage PCA communication failure	Imaging Module	Reseat Carriage PCA power and data cables	Check Carriage PCA power LED. If LED ON - Replace Carriage PCA Replace IH data cable	Check Carriage PCA power LED. If LED OFF ->	Check for 24V at INTC PCA output. If there is voltage, check for 24V at Carriage PCA. If voltage present, replace Carriage PCA, else replace IH power cable.	If no voltage at INTC PCA output, check 24V PSU output. If 24V at 24V PSU outputs, replace Interconnect board. If no 24V at PSU outputs, replace 24V Aux PSU AC-DC	
31021047: Carriage PCA current out of range	Imaging Module						
31021048: Carriage PCA voltage out of range	Imaging Module	Check for 24V at 24V PSU - If out of range, replace 24V Aux PSU AC-DC	Check for 24V at INTC outputs. If out of range, replace Interconnect PCA	Replace Carriage PCA	Replace IH power cable		
31021X4D: Printhead X current out of range (possible ink short)	Imaging Module	Clean electrical contacts on Printhead X and Stall X	Replace Printhead X	Replace PH Interconnect Assembly	Replace Carriage PCA	Replace Printhead Connect PCA	





System Status Error	System Area	Recovery Action - Level 1	Recovery Action - Level 2	Recovery Action - Level 3	Recovery Action - Level 4	Recovery Action - Level 5	Recovery Action - Level 6
31021X4E: Printhead X voltage out of range (possible ink short)	Imaging Module	See 31021048					
31022004: PH Connect PCA type invalid	Imaging Module	Replace Printhead Connect PCA					
31024002: IH power cable is not connected or broken	Imaging Module	Reseat IH power cable	Reseat IH power cable	Replace Interconnect PCA	Replace Carriage PCA		
31025002: IH data cable is not connected or broken	Imaging Module	Reseat IH power cable	Reseat IH power cable	Replace Interconnect PCA	Replace Carriage PCA		
11030027: SVS middle job service request, printheads need to be cleaned	Service Station	Issue mid job service command					
11030X4C: SVS cleaner X ink full	Service Station	Replace printhead cleaner X					
11031009: Service Station PCA LED broken	Service Station	Replace Servo PCA					
21030022: Brick is not connected to lift transmission	Service Station	Lower brick until it engages the lift transmission	Brick present/inside sensor is malfunctioning. Replace service station assembly.				
21030026: Printhead cleaner door open	Service Station	Verify printhead cleaners are properly inserted and close printhead cleaner door					
31030008: SVS lift motor broken or jammed	Service Station	Check the lift motor mech to make sure it is not jammed and can move smoothly. Then reboot.					
31030108: SVS service motor broken or jammed	Service Station	Check the cleaner motor mech to make sure it is not jammed and can move smoothly. Then reboot.					
31031002: Servo PCA has major function damage	Service Station	Replace Servo PCA					
31031003: Internal Servo PCA Error	Service Station	Replace Servo PCA	Replace Service Station Assembly				
31031023: Servo PCA fails to calibrate digital sensors	Service Station	Replace Servo PCA					
31031043: Failure to Communicate with Servo PCA	Service Station	Reseat Service Station cable	Check 24V outputs - replace 24V PSU if needed	No power at INTC outputs? Replace INTC PCA	Replace Service Station Cable, Replace Engine to INTC cable	Replace Servo PCA	Replace Engine PCA

System Status Error	System Area	Recovery Action - Level 1	Recovery Action - Level 2	Recovery Action - Level 3	Recovery Action - Level 4	Recovery Action - Level 5	Recovery Action - Level 6
31031045: Servo PCA temperature above safety threshold	Service Station	Verify printhead cleaners are properly inserted and close printhead cleaner door	Verify printhead cleaner scroll is not jammed or excessively dirty	Replace Servo PCA			
31031047: Servo PCA failure due to out of operation current limit	Service Station	Replace Servo PCA					
31031048: Servo PCA failure due to out of operation voltage range	Service Station	Replace Servo PCA					
31031147: Servo PCA service motor current out of severe limit	Service Station	Replace Servo PCA					
31032002: Service Station cable failure	Service Station	Check the connection of the SVS cable	Replace the Service Station cable				
11040002: IDS failure to depressurize, may be due to faulty valve	IDS	Replace the IDS Pressure Control Module	Replace IDS PCA	Replace IDS			
11041X09: Ink supply X LED broken or not installed	IDS	Replace IDS PCA	Replace IDS				
11042X06: Ink supply X smart chip has invalid information	IDS	Replace ink supply X					
11042X4A: Ink supply X ink level low or very low	IDS	Prepare ink supply X					
2104000A: Printhead and supply ink type mismatch	IDS	The set of installed ink supplies does not match the set of installed printheads. Check which set is not correct and replace.					
21042X02: Ink Leak detected in Supply X	IDS	Replace Ink Supply X	Replace IDS PCA	Replace IDS Stall Assembly	Replace IDS		
21042X03: Ink supply X continuity failure	IDS	Replace ink supply X	Replace IDS PCA	Replace IDS Stall Assembly	Replace IDS		
21042X04: Ink supply X wrong model or mismatch	IDS	Replace Ink Supply X with the correct model					
21042X06: Ink supply 0 has invalid smart chip content and needs to be replaced	IDS	Replace Ink Supply X					
21042X08: Ink supply X has invalid smart chip content	IDS	Check that Ink Supply X is the correct model for printer	Replace Ink Supply X				





System Status Error	System Area	Recovery Action - Level 1	Recovery Action - Level 2	Recovery Action - Level 3	Recovery Action - Level 4	Recovery Action - Level 5	Recovery Action - Level 6
2104200A: Ink supply ink type mismatch between supplies	IDS	The two ink supply ink types do not match. Replace the incorrect supply.					
21042X07: Ink supply X bad sensor or ILS error	IDS	Replace Ink Supply X					
21042X10: Supply X Not Detected	IDS	Reseat Ink Supply X	Replace Ink Supply X	Replace IDS PCA	Replace IDS Stall Assembly	Replace IDS	
21042X22: Ink supply X bad contact	IDS	Reseat Ink Supply X	Replace Ink Supply X	Replace IDS Stall Assembly	Replace IDS		
21042X44: Failure to read/write Supply X smart chip	IDS	Check that Ink Supply X is the correct model for printer	Reseat Ink Supply X	Replace Ink Supply X	Replace IDS PCA	Replace IDS Stall Assembly	Replace IDS
21042X4A: Ink supply X empty	IDS	Replace Ink Supply X					
31040002: Severe IDS error due to failure to control air pressure	IDS	Reseat Ink Supply X	Check IDS whether there is leak in the air or ink tubing; reboot	Replace IDS Pressure Control Module	Replace IDS Tube Ink Flow Assembly	Replace IDS	
31040045: IDS temperature out of severe limit or its sensor not connected	IDS	Replace IDS PCA	Replace IDS				
31040049: IDS air pressure out of operation range	IDS	Replace IDS Pressure Control Module	Replace IDS PCA	Replace IDS			
31041002: IDS PCA damaged	IDS	Reseat Ink Supply X	Replace Ink Supply X	Replace Ink Supply X	Replace IDS Stall Assembly	Replace IDS	
31041002: IDS PCA has severe damage	IDS	Replace IDS PCA	Replace IDS				
31041003: Internal IDS PCA damage	IDS	Replace IDS PCA	Replace IDS				
31041043: IDS PCA communication failure	IDS	Verify IDS PCA cable is connected	Verify the IDS LEDs are green	Replace IDS PCA	Replace IDS		
31043002: IDS cable broken	IDS	Replace the IDS cable					
31044010: IDS pump missing or damaged	IDS	Replace IDS Pressure Control Module	Replace IDS				
31045X02: IDS valve X damaged	IDS	Replace IDS Pressure Control Module					
31045X10: IDS valve X missing or damaged	IDS	Replace IDS Pressure Control Module	Replace IDS				
31046002: IDS ink stall assembly damaged	IDS	Replace the IDS stall Assembly	Replace IDS				
31047002: IDS ink tube broken	IDS	Replace the IDS Tube Ink Flow Assembly	Replace IDS				

System Status Error	System Area	Recovery Action - Level 1	Recovery Action - Level 2	Recovery Action - Level 3	Recovery Action - Level 4	Recovery Action - Level 5	Recovery Action - Level 6
1000000: Unknown information event	Software	Contact MCS					
110F0041: LAN communication warning error	Software	Check integrity of LAN connection	Contact MCS				
11000000: System has an unknown warning or unexpected event	Software	Contact MCS					
110F0042: RS232 COM communication error	Software	Check that client RS232 settings are correct	Contact MCS				
110F0084: Job image file configuration error	Software	Check that job configuration settings are correct/valid					
110F0086: Invalid system setting	Software	Check that TOF-to-printhead setting is non-zero.	Contact MCS				
110F00A0: Test module warning	Software	Contact MCS					
110F00A1: Controller OS warning	Software	Contact MCS					
110FF0A2: Test module invalid parameter	Software	Contact MCS					
110F00A3: Software upgrade error	Software	Check that the software update file is valid	Try sending software update with FORCE option	Contact MCS			
210000FF: System has an unknown intervention alert	Software	Contact MCS					
310000FF: System has an unknown severe error	Software	Contact MCS					
310F0041: LAN communication severe error	Software	Check integrity of LAN connection	Contact MCS				
310F00A0: Software assertion error	Software	Check imager log file for software debug information, contact MCS					
310F00A1: Controller OS error	Software	Check imager log file for software debug information, contact MCS					
310F00A2: Software internal error	Software	Check imager log file for software debug information, contact MCS					
410000FF: System has an unknown emergency error	Software	Contact MCS					







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