NETWORK SOFTWARE DOCUMENTATION

IJ4000

Ink Jet System

5765-383N   Rev A

Section 1: Overview

This document covers the normal operation of the Ink Jet Network Software, and assumes the reader has a working knowledge of the ink jet controller user interface. All examples shown assume that the software was installed to **c:\InkJet**. The Network Software communicates with the database via an ODBC (Open Database Connectivity).

Who should use this software?

Consider using the Ink Jet Network Software if:

- You have a large number of print messages (greater than 100).
- You have multiple ink jet controllers across several packaging lines.
- You currently use, or plan to use, a database to manage your print data.

With the Ink Jet Network Software you can:

- Monitor and control multiple ink jet controllers across an Ethernet network.
- Manage and store a large number of print messages.
- Print data retrieved from a database, including:
    - Bar codes
    - Expiration dates
    - Text
    - Logos
- Edit, add and delete database records

The Ink Jet Network Software does **not** do database management. Ink Jet Network Software cannot be used to create or modify a database or data table. To manage your database use Microsoft® Access or a database management program that can read Access files.
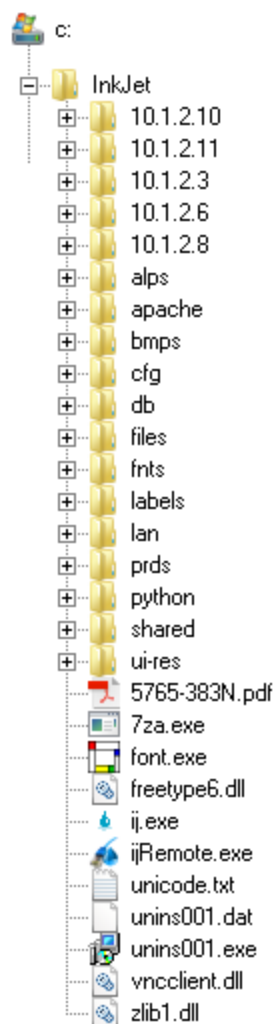
System Requirements:

Operating system: Windows® XP, 7, 8 10

Hard disk: 100 MB of free space

Software Installation

Insert the USB flash drive into a USB port on your computer. Open the drive, open the **Software** folder, and double-click the **full.exe** file. An installation wizard will start, giving step by step instructions for installing the software.

File Structure:

When installed in the default location, the Network Software and its associated files and folders are put in:

c:\InkJet (see illustration at left).

File Storage:

Folder	Files
alps	Label applicator data files
bmps	Logo files
prds	Print message files
fnts	Print fonts
cfg	Network Software configuration files
lan	System language files (English, Spanish, etc.)
db	Print database files
10.1.2.10	The folder name is the IP address of a corres-
10.1.2.11	ponding ink jet controller. These folders store the
10.1.2.3	print message, logo, label applicator, and system
10.1.2.6	configuration files for the individual controllers on
etc.	the network. They are created as controllers are added to the network.

5765-383N.pdf is the PDF file for this manual.
ij.exe is the Network Software program.
ijRemote.exe is the ijRemote program.
unins001.exe is the un-install program.

File Storage Options

Print message, logo, and label applicator files can be stored in common folders accessible by all ink jet controllers on the network, or in the individual controller folders accessible only by a folder's corresponding controller. Where the files are stored is determined by the **Common Folders** option on the **Controller** menu.

Save and Delete Operations:

Files saved or deleted at the PC using Network Software are saved or deleted on the controller and in the controller's corresponding folder on the PC. Files saved or deleted at the controller are saved or deleted at the controller only; the PC files are not affected.

Outline of the IJ4000 Software Setup

If not yet been done, install the Network Software on the host PC. See *Software Installation* on page 2.

Set up the controllers.
1. Complete the physical installation of the IJ4000 controllers, print heads, and ink systems per the **IJ4000 Operations Manual**, 5765-016.
2. Perform the controller setup (configure the print heads, encoder, task options, and serial ports) for each controller per the **IJ4000 Operations Manual**. Do not enable or set any system passwords at this time. If passwords are to be used, they should be set through the Network Software after the installation of all controllers and the Network Software is complete.
3. Connect the controllers to the network. Each controller requires two network drops, one for the Connection Hub and one for the HMI. Also required is an RJ45 CAT5E inline crossover coupler, Diagraph part No. 5765-379 or equivalent. To connect a controller to the network:

    o   Turn off the controller and unplug it from its power source.
    o   Remove the cover from the Connection Hub.
    o   Locate the Ethernet cable that goes to the HMI, unplug it from the CPU board, and plug it into one side of the crossover coupler (see the photos below).
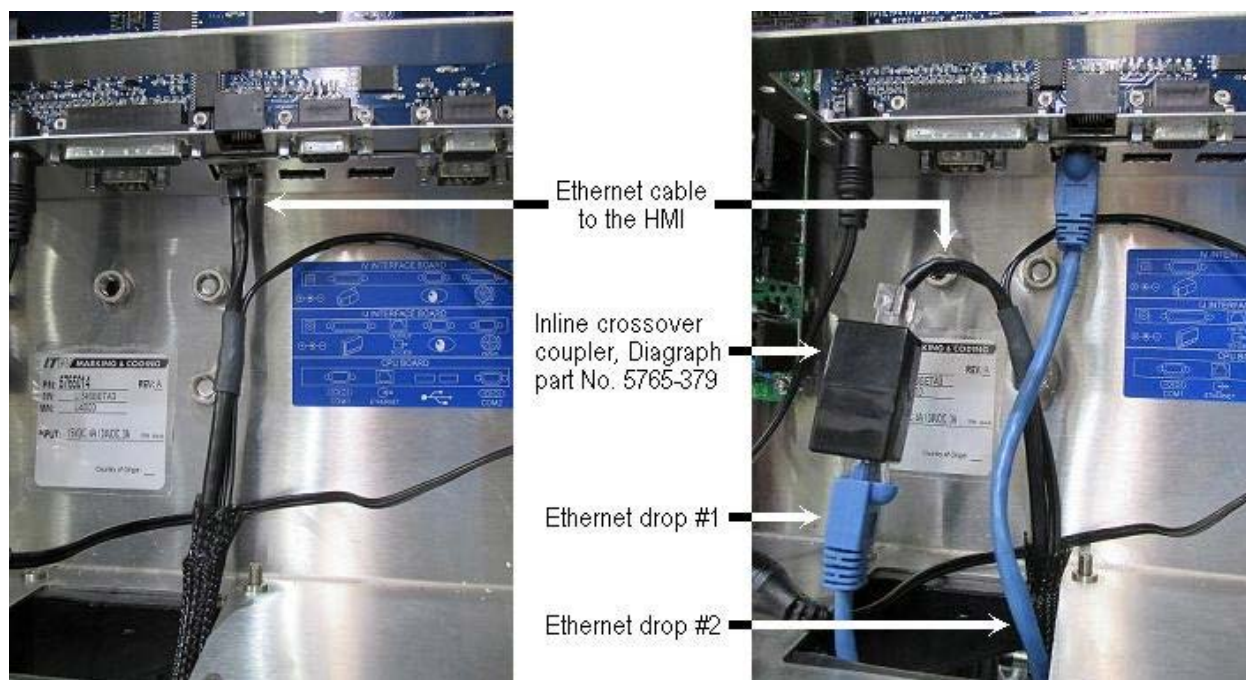
Ethernet connection for normal operation   Ethernet connections for network operation

o   Feed cable from the two Ethernet drops into the Connection Hub's cabinet through its strain relief. Plug one cable into the crossover coupler, and the other into the CPU board.
o   Replace the cover on the Connection Hub, plug it into its power source, and turn it on.

4. Set the controller's IP address:
    o   On the HMI, navigate to the Network Screen, then go to the IP Address tab and record the controller's MAC address. In the example at right, the MAC address is 00:06:B3:00:38:48.
    o   Click **Cancel** to close the Network Screen.

On the PC on which Network Software is installed, start the ijRemote program. (ijRemote is not necessary for Network Software operation, but it has a feature that allows setting or changing the IP address of a controller.)
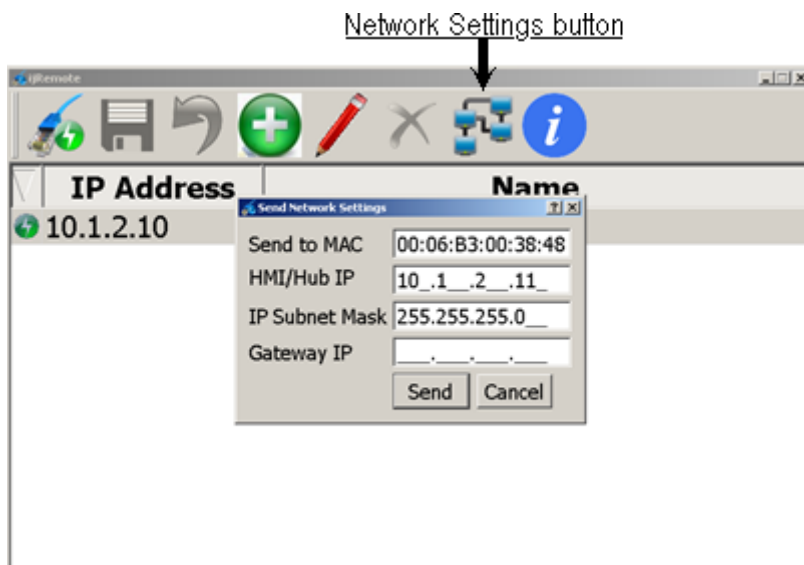
- o   Click the Network Settings button to open the **Send Network Settings** dialog box.

    On the **Send to MAC** line enter the previously recorded MAC address.

    On the **HMI/Hub IP** line enter the desired IP address. It's suggested that you DO NOT use 10.1.2.3, as this is the address all controllers are set to before they leave the factory.

    On the **IP Subnet Mask** line enter 255.255.255.0.

    Click the **Send** button.
- o   Return to the controller, open the Network Screen, and verify that the IP address was changed.
- o   Repeat steps 3 and 4 for each controller on the network.

5.   If using a database to manage your print data go to the controller and open the Network Screen. On the **Map Network Devices** page select the **Network** radio button, and set the **Message list URL** to:

http://X.X.X.X/cgi-bin/getprd.py?key=

where **X.X.X.X** is the IP address of the PC on which Network Software is installed. (URL stands for Uniform Resource Locator, a standard way of locating objects on the internet. It's an abbreviated way of saying "internet address".)

A filter can be used to limit the print messages, or keys, shown on a controller to those meant just for that controller. To apply a filter, change the URL to:

http://X.X.X.X/cgi-bin/getprd.py?filter=ZZZ&key=

where **ZZZ** is the first three letters (or four Zs for four letters, five Zs for five letters, etc.) of the template names meant for a particular controller. This assumes that all templates meant for that particular controller begin with the same three (or four or five, etc.) letters. For example, the templates for "packaging line 60" might all begin with "PKR60".

A large number of keys can slow the response to a controller's request for a list of print messages. To decrease the response times, add a "split" argument to the URL:

http://X.X.X.X/cgi-bin/getprd.py?split=25&key=

In the URL above, the split argument divides the message list into groups of 25 messages. Use the "previous" and "next" items added to the beginning and end of each group, respectively, to go from group to group.

When using **Common Folders**, the URL will be

http://X.X.X.X/cgi-bin/getprd.py?static=1&key=

6. If using a label printer, set the **Message attachment URL** to:

    http://X.X.X/cgi-bin/getalp.py?key=

    When using Common Folders, set it to:

    http://X.X.X/cgi-bin/alp.py?static=1&key=

7. Set up the Network Software.
    o   Install the software.
    o   Add Lines (applicable only if there is more than one controller on a production line).
    o   Add IJ4000 Controllers.
   o   Set the password for each controller and enable password protection, if applicable.

NOTE: Controller passwords should be set, and password protection should be enabled, from the PC through the Network Software. Password operations should never be done at the controller when using Network Software:
    o   Passwords set at the controller are not transmitted to the Network Software. Without the password, the Network Software cannot access the controller.
    o   When password protection is enabled at the controller, the Network Software is not made aware of it, it does not sent the password when attempting to access the controller, and access is denied.

•   Set up message templates.
    o   Create a new template.
    o   Create keys for the template.
    o   Edit the template.
    o   Repeat as necessary.

Section 2: Menu Options

Main Screen

This is the Network Software's main screen. The Name or IP Address and a status summary of all ink jet controllers on the network are listed in the large window.
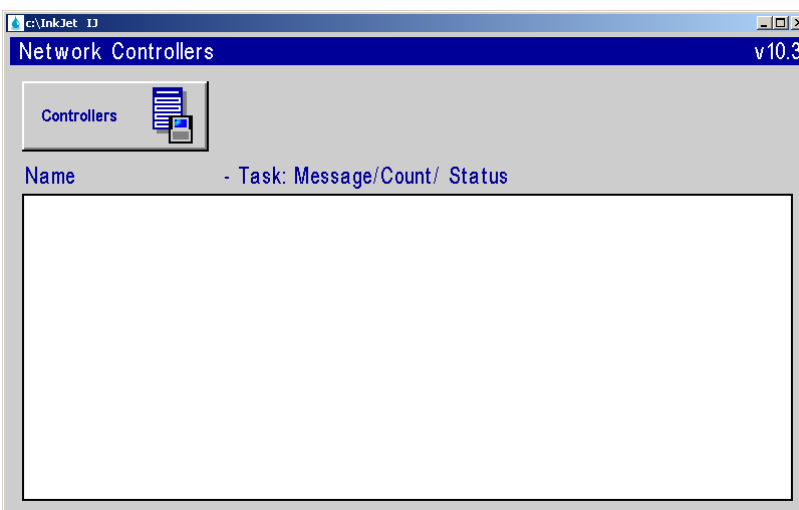
Main Menu

Click the **Controllers** button to display the main menu. From the main menu you can:

- Open (gain access) to a controller.
- Add and remove controllers to and from the network.
- Edit a controller's Name or IP Address.
- Copy files to and from a controller and the PC. (Used to synchronize files between the PC and controller; this does not copy individual files.)
- Add/remove a Line. (Used when there are multiple ink jet controllers on a production line.)
- Create new, and edit existing, message templates and key data.
- Set print message storage location.
- Enable and disable password protection; set the password. (Used for controlling access to the Networking Software. Controller access is covered elsewhere.)
- Disconnect from the network. Useful for working offline. (When disconnected, the **Disconnect** menu item changes to **Connect**.)
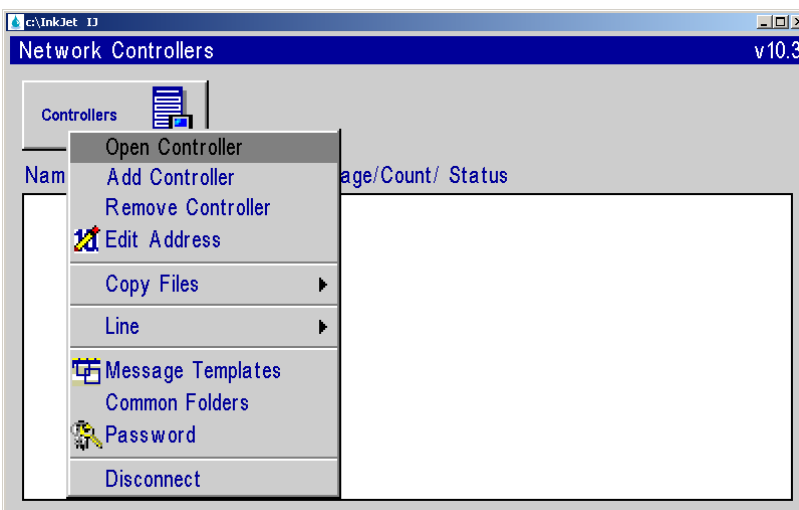
Menu - Open Controller

To open (gain access to) a controller on the network, select the controller, open the **Controllers** menu, and click **Open Controller**. After a brief delay, the Home Screen of the controller being accessed is displayed. (Keyboard shortcut: Select the controller and press **Enter**.)

NOTE: When controller settings are changed, or print messages created or edited at the physical controller, the Network Software needs to be synchronized with the controller. To do this, open the **Controllers** menu and select **Copy Files, Controller to PC**. (See *"*
Menu - Copy Files, Controller to PC " on page 11 for more information.)

Using screens identical to those on the controller, the Home Screen grants access to all of the controller's controls and functions, with a few exceptions:

On the Home Screen
- The **Print/Pause** button(s): The icon displayed on the button changes as print is paused or resumed at the controller, but the button does nothing when clicked. Print cannot be paused or resumed from the PC.
- Printing a message: Selecting a message to print prints the message on the open controller only. This matters only if the controller is part of a "Line" grouping.
- The **More…** Menu: There is no **Purge** button. Print heads cannot be purged from the PC.
- The More… Menu: The **Turn Off** button is replaced by a **Back** button. Click **Back** to close the controller and return to the Network Software main screen. (Keyboard shortcut: press **ESC**.)

On the Edit Screen
- Message Menu: There is no **Test Print** button.
- A print message that is created or edited on the PC and saved is saved on the PC's hard drive, and also on the controller itself. A message created or edited on the controller and saved is saved on the controller only.

Other
- Setting or changing the controller's IP address cannot be done from the Network Screen (opened from the **Apps** screen).
- The **Restore default configuration**, **Test touch screen**, and **Calibrate touch screen** utilities are not available on the Utilities Screen (opened from the **Apps** screen).

Menu - Add Controller

To add a controller to the network, click **Add Controller**. When prompted, enter a name for the controller and the controller's IP address, and click **OK**. There will be a delay while the controller's data files are transferred to the PC. The **Controller Address** dialog will close when the data transfer is complete (it may take a few minutes), and the new controller is added to the bottom of the controller list. Using a controller name is optional. If the **Name** box is left blank, the controller's IP address is used as its name.
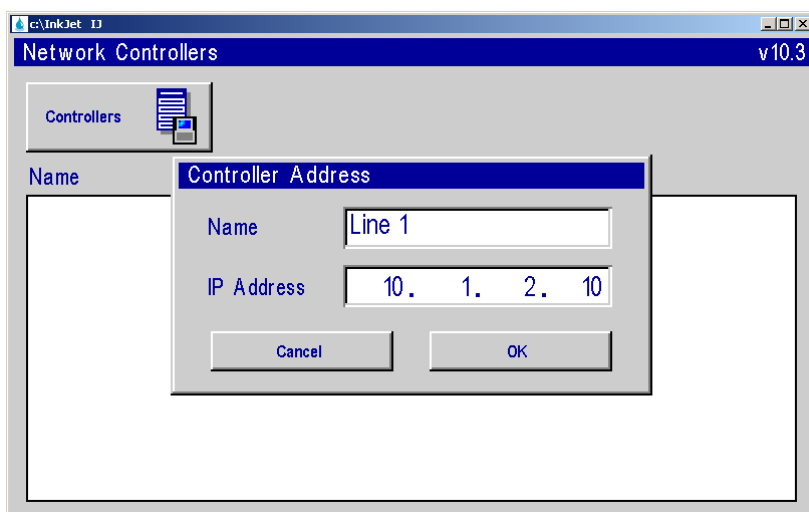
The controller list shows the controller's **Name**, its **Task** numbers, the name of the **Message** currently being printed on each task, the overall product **Count** for each task, and the current printing **Status**: Printing, Paused, or Stopped.
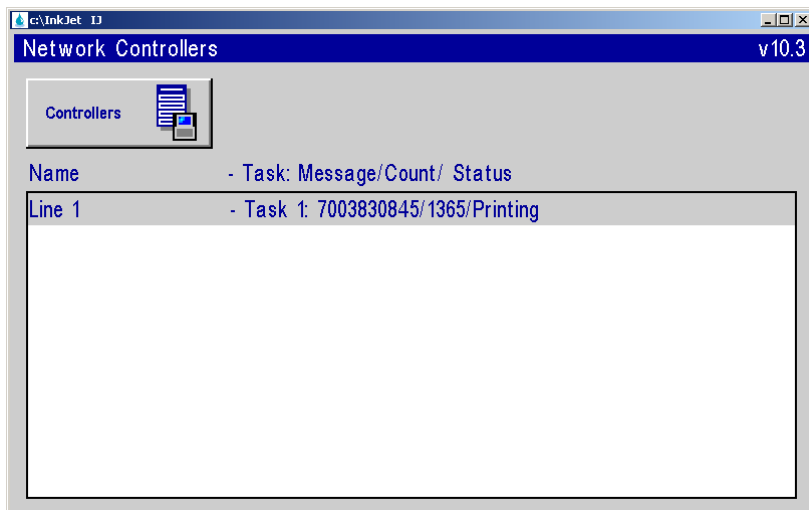
NOTE: The controller needs to initially be in "open access" (set at the controller) to be added to the networking software. If a controller's access needs to be restricted after it is added to the network, it should be done from within the networking software. Open the controller, and when the Home Screen is displayed, select **More…\Apps\User Access**.

When a controller is added to the network, the Network Software creates a new folder on the PC's hard drive at:

c:\InkJet\x.x.x.x

where x.x.x.x is the controller's IP address. The controller's configuration (.cfg) files are copied into the folder, as are the print message (.prd), logo (.bmp) and label (.alp) files. If **Common Folders** is selected, the print message, logo and label files are stored in common folders accessible to all controllers on the network instead of the individual controller's folder. (See *"Menu - Common Folders" on page 14*.)

Menu - Remove Controller

To remove a controller from the network, select the controller, open the **Controllers** menu and click **Remove Controller**. When removing a controller, a dialog box gives the option of deleting the controller's corresponding folder, and all of the data it contains, from the PC's hard drive. When asked, click **Yes** to delete the folder, or **No** to retain it. Any controller files that may be in the common folders are not deleted.

Menu - Edit Address

To change a controller's name or IP address, select the controller, open the **Controllers** menu, and click **Edit Address**; the **Controller Address** dialog box is displayed.

Change the controller's name and/or IP address as desired and click **OK**.

If the **Name** box is left blank, the controller's IP address is used as its name.

Controller name changes take effect almost instantly. IP address changes take about 25 seconds, as the controller must reboot for the change to take effect. (Reboot takes place automatically.)
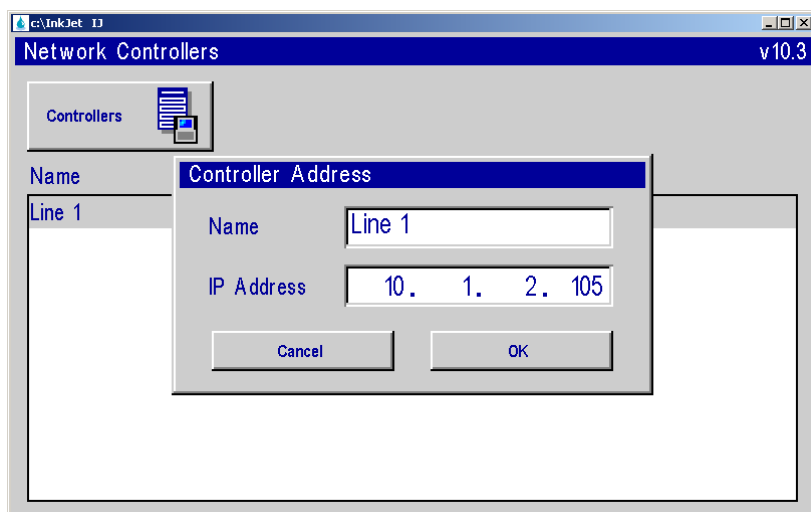
Menu - Copy Files, Controller to PC

To back up a controller's print message (.prd), logo (.bmp), label (.alp) and system configuration (.cfg) files to the PC, select the controller, open the **Controllers** menu, and click **Copy Files, Controller to PC**. Configuration files are always stored in the controller's corresponding folder on the hard drive (c:\Program Files\InkJet\x.x.x.x, where x.x.x.x is the controller's IP address). Where the controller's print message, logo, and label files are stored is determined by the **Common Folders** menu item (see *"Menu - Common Folders" on page 14*). When **Common Folders** is checked, the files are stored in the common folders; when not checked, they are stored in the controller's folder.

As the Network Software has no knowledge of changes made at the controller, use **Copy Files, Controller to PC** to synchronize the controller and PC after print messages are created or edited, or any system settings are changed at the controller.

NOTE: Print messages deleted at the controller are not deleted from the PC, even when the PC and controller are synchronized. The corresponding PC files will have to be deleted at the PC by opening the controller in the Network Software, clicking the **Messages** button on the Home Screen and deleting the message from the Messages Dialog.

Menu - Copy Files, PC to Controller

To restore previously backed up print message, logo, label and system configuration files to a controller, select the controller, open the **Controllers** menu and click **Copy Files, PC to Controller**. The configuration files are uploaded from the controller's folder on the hard drive (c:\Program Files\InkJet\x.x.x.x, where x.x.x.x is the controller's IP address); the **Common Folders** menu item (see below) determines the source of the print message, logo, and files that are uploaded. When **Common Folders** is checked, the files are uploaded from the common folders; when not checked, they are uploaded from the controller's folder.

Menu - Line, Add Line

The Network Software has a feature whereby multiple controllers on a single production line can be grouped together. Grouping controllers in a "line" simplifies product changeover by making it possible to load all the print messages associated with a product into their respective controllers in a single operation, and from any of the controllers on that line. Possible applications include four-sided coding (printing is done on two sides of a carton by one controller, the carton is turned, and a second controller prints on the other two sides), and printing on the primary and secondary packaging of a product. An example of a "line" is illustrated below.

32 oz Can Line

Controller #1 prints on
primary packaging.

Controller #2 prints on
secondary packaging.
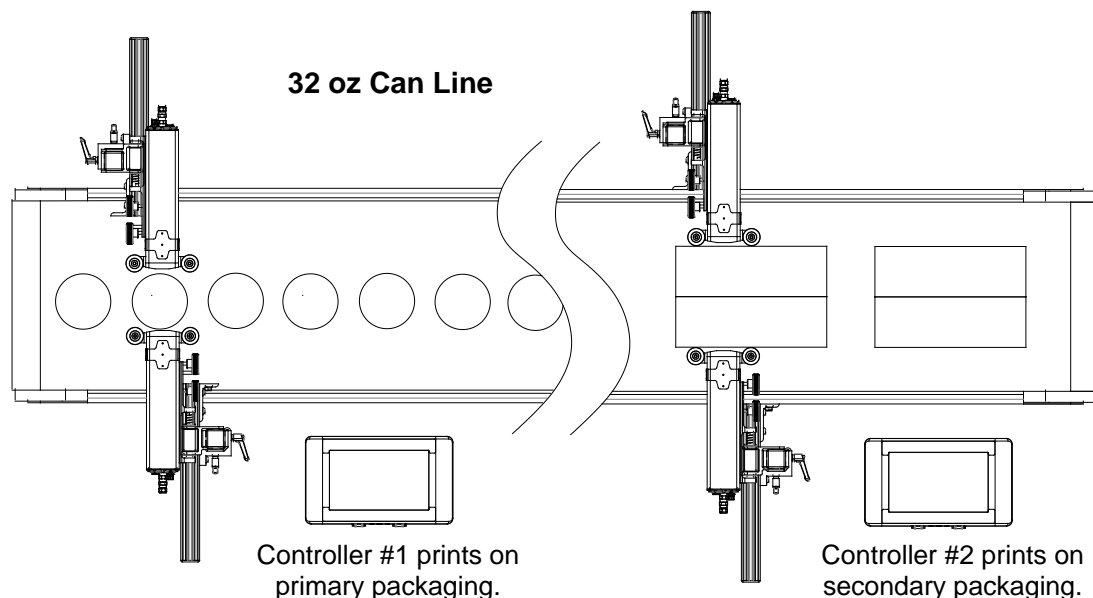
NOTE: When using Lines, add the lines to the network first, and then add the controllers. Controllers already on the network cannot be added to newly added lines.

To create a new line grouping, click **Line, Add Line**. When prompted, enter a name for the line (for example, "32 oz Cans") and click **OK**.
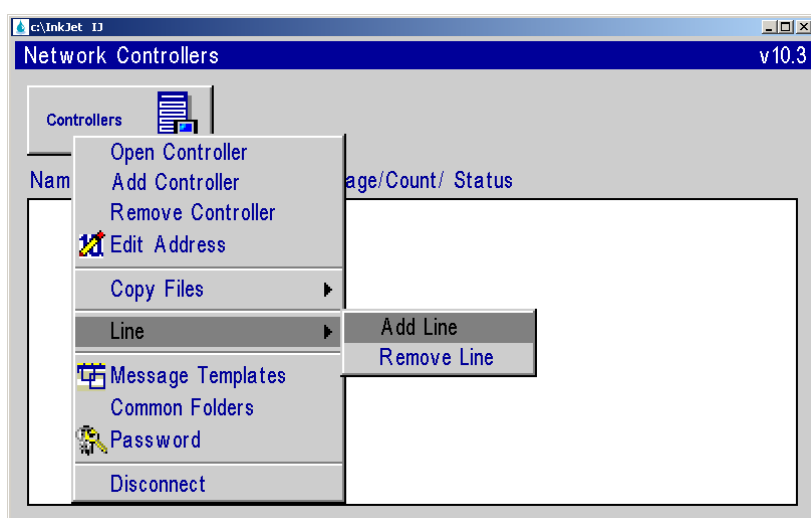
When the first line is created, a **Combo Box** control appears at the top center of the Network Controllers window. Open the combo box and you will see two items: "All" (the current selection) and the name of the line just created. Click on the name of the line just created.

Add controllers to the line as described in **Menu - Open Controller** on page **10**.

As additional lines are created, their names are added to the bottom of the combo box list.
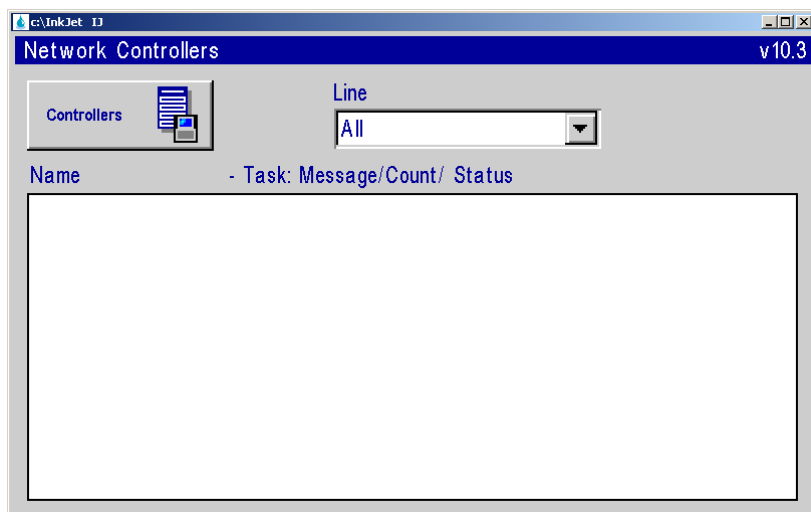
Use the combo box to select which controllers are displayed on the controller list. Select an individual line to display the controllers on that line; select "All" to display all controllers across all lines, including those not associated with any line.

NOTE: When controllers are added to the network, they are added to the line whose name is displayed in the **Line** combo box. A controller that is not a part of any line should be added to "All".

When an individual line is selected, **Up/Down Arrow** buttons appear in the upper right corner of the Network Controllers window. Use these buttons to change the order in which the controllers on the selected line are listed:

- Select a controller.
- Click the **Up Arrow** button to move the selected controller up one position on the list.
- Click the **Down Arrow** button to move the selected controller down one position on the list.
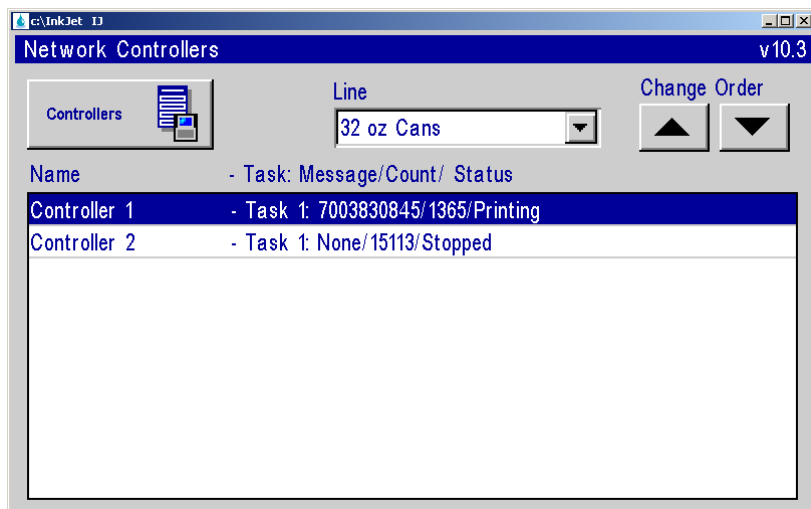
NOTE: The controller order may be changed at any time prior to templates being created. Once templates are created, the order should be considered locked, as the controller order determines the controller-template relationship.

Menu - Line, Remove Line

To remove a line, select the line, open the **Controllers** menu and click **Line, Remove Line**. When the last line is removed, the **Line** combo box disappears.

Controllers should be removed from a line before the line is removed. Any controllers remaining on a line when the line is removed are moved to "All", but the operation of these controllers through the Network Software is not guaranteed.

Menu - Message Templates

To create new, or edit existing, templates and keys, select the target controller, open the **Controllers** menu, and click **Message Templates**. The Message Template Screen is displayed.

See **Section 3: Message Templates** for a complete description of templates and keys.
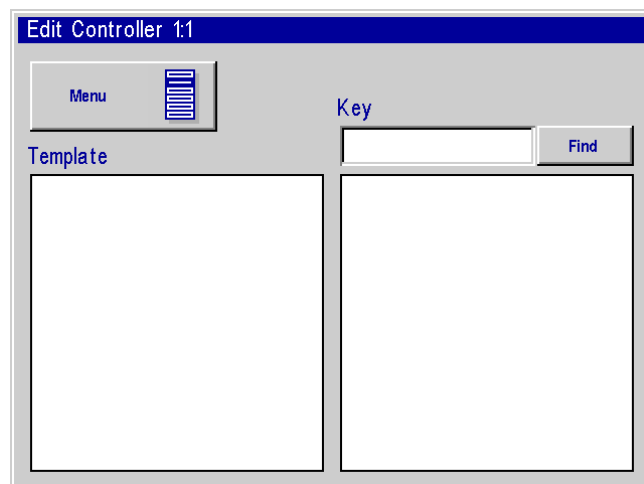
Menu - Common Folders

Common Folders determines where the network controller's print message (.prd), logo (.bmp) and label applicator (.alp) files are stored. When **Common Folders** is selected, the files are stored in common folders accessible by all controllers on the network. When not selected, the files from each controller are stored in their corresponding folder, and accessible only by that controller.
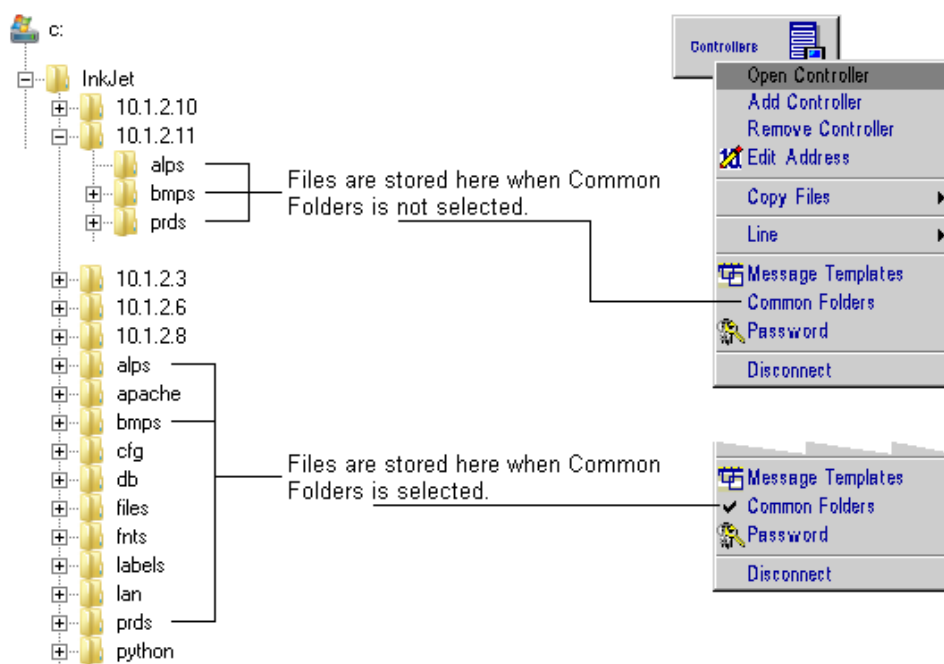
Clicking on **Common Folders** toggles it between selected and not selected. A checkmark to its left indicates that **Common Folders** is selected.

Menu - Password

To restrict access to the Network Software and its functions, the **Controllers** menu may be password protected; that is, a password must be entered to open the menu. This password is separate from those that may be used to protect the individual controllers on the network.

To password protect the **Controllers** menu, open the menu and click **Password**. When the User Access dialog box is displayed, click the **Restricted access** radio button.

Click the **Change Password** button to change the password. The factory set default password is **Manager**. Passwords are case sensitive ("Manager" and "manager" are different passwords).

When all changes are made, click the **OK** button.
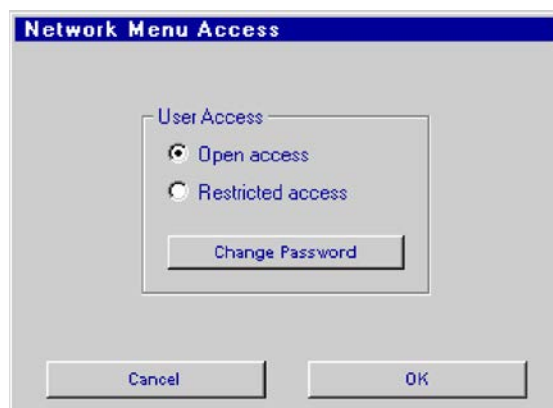
Menu – Disconnect/Connect

Disconnect/Connect is a toggle function. When connected, the menu displays the **Disconnect** item; when disconnected, the **Connect** item is displayed.

Select **Disconnect** to work off-line, disconnected from the controllers on the network. When disconnected, all Network Software initiated communications with the controllers ceases, speeding up certain software operations. Controller initiated communications, such as print message requests, are not affected and continue uninhibited.

Select **Connect** to enable Network Software initiated communications with the controllers on the network, allowing periodic status updates and all other functions directed towards the controllers.

Section 3: Message Templates

(See **Appendix A: Database Flow Diagrams** on page **Error! Bookmark not defined.** for data flow diagrams.)

Overview

For the following discussion, a Template refers to a print message that can retrieve data from a database to supply the text for a variable field, or the data for a bar code or label applicator field, or the file name for a logo, contained within that template.

A key - a name or number, often a UPC - identifies the record in the database from which data is retrieved for printing on a specific product. While many keys may use a single template, a single key may be assigned to only one template, and no two keys may be identical, no matter which template they are assigned to. Key length is governed by the database; the default maximum length is 11 characters.

Message Template Screen

To create new, or edit existing, templates and keys, select the target controller, open the **Controllers** menu, and click **Message Templates**. The Message Template Screen is displayed.
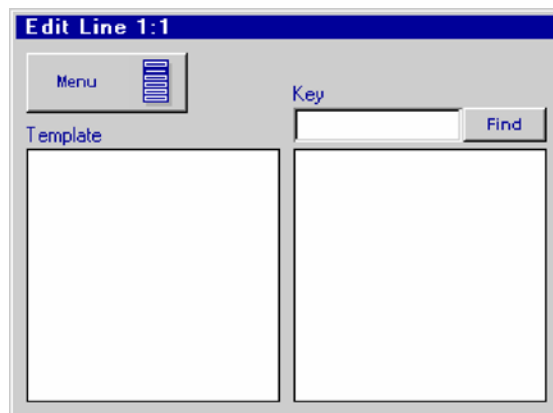
The Message Template Screen contains:

1. A **Menu** which has buttons for all template and key functions
2. A **Template** window which lists all current templates
3. A **Key** window which lists all of the keys that use the currently selected template
4. A **Find** box and button for quickly locating a particular key.
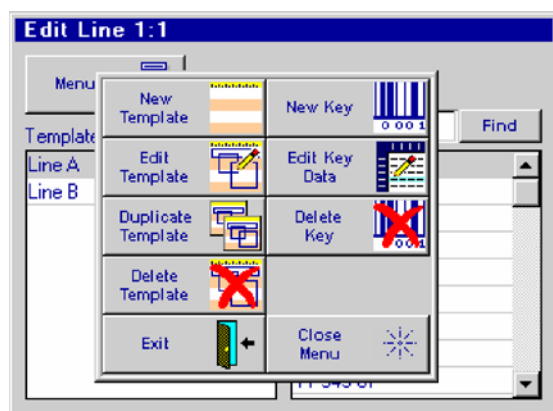
Creating a New Template

1. To create a new template, open the menu and click on the **New Template** button. When prompted, enter a name for the template and click **OK**. A blank template is created and its name is added to the template list in alphabetical order.

2. A key needs to be created before print fields can be added to the new template. Select the template just created from the template list, open the menu, and click on the **New Key** button. The New Key dialog box is displayed.

   Click the **Key–Data** box and type in the key. The key is a name or number (often a UPC) used to uniquely identify the data (Manufacturer, Company, Description, Bar Code, etc.) in the rest of the key's data boxes, and to call up the data for printing later. The key field cannot be left blank.

   If known, enter the Manufacturer, Company, Bar Code, etc., data as needed by the template. For example, if the template is to have a variable field for printing a company name, type that name in the **Company–Data** box. If there is a bar code field, enter the bar code data in the **Barcode–Data** box. Information that is not known may be entered later by editing the key. (Keyboard shortcut: to edit, select the key and press F5.)

   A special note about logos: The data stored in the database for printing logos are not the logos themselves, but the logo file names. To print a logo from the database, the following two requirements must be met:
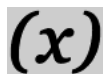
   - The logo file name entered into the key must include the dot-bmp extension, and "bmp" must be in lower case letters. Example: **Mylogo.bmp**

   - A copy of the logo's .bmp file must be stored on the controller from which it will print, and also in the **bmps** folder for that controller on the host PC; or if **Common Folders** is selected, in the common **bmps** folder. If the logo file is not on the controller, it will not print; if it is not on the PC, it won't be displayed on the template Edit Screen if it's added to a template.

   When finished entering all data, click the **OK** button. The key is added to the key list in alphabetical order.

3. Select the key just created, open the menu again, and click on the **Edit Template** button (Keyboard shortcut: Select the key and press **Enter**.), the Edit Screen is displayed. Insert text, time codes, and counts into the template as you would a regular print message. Variable, Barcode, date code, and logo fields are treated a little differently, as noted below.
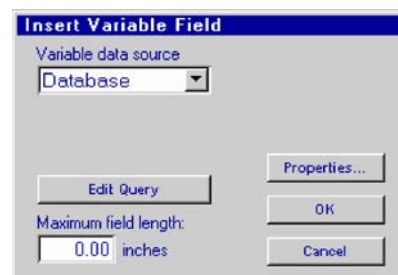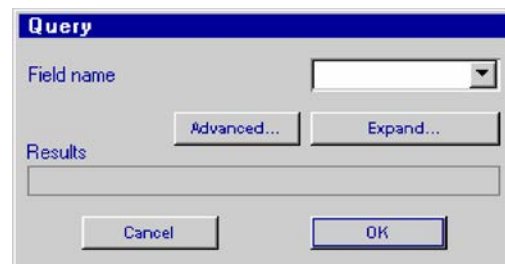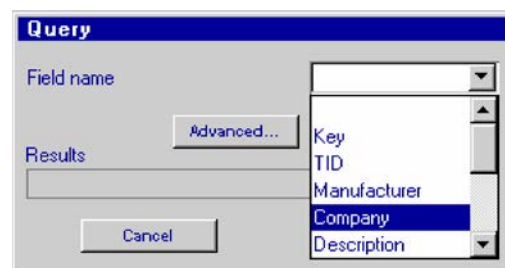
Variable Fields

The Variable Field dialog has an additional choice for the source of the variable data: **Database**. When **Database** is selected, the **Field Name** box is replaced with an **Edit Query** button.

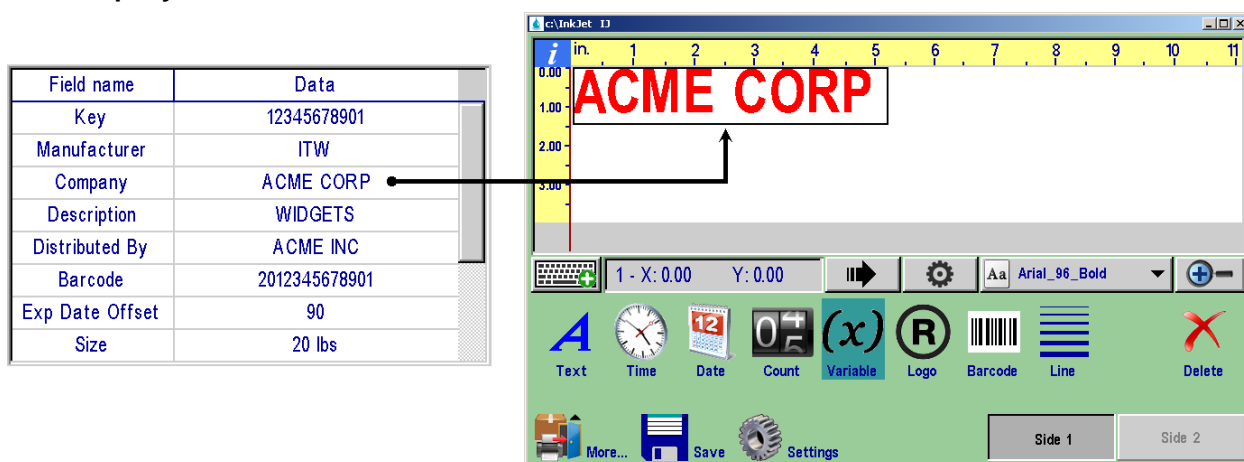Click the **Edit Query** button to display the Query dialog.

The data to be printed in the variable field is selected from the list in the **Field name** combo box. For example, if the company name is to be printed, open the combo box, select **Company**, and click **OK**.

NOTE: The **Advanced...** button is intended for users who understand databases and want to construct their own queries. If in doubt, it is best to use the existing default settings.

When the variable field is added to the template, it shows the company name retrieved from the key's **Company–Data** box.
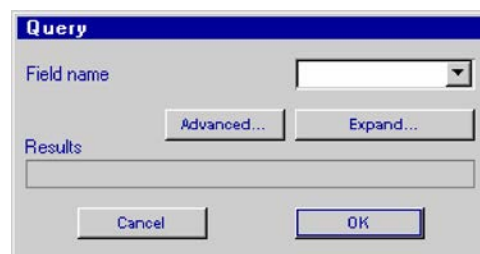
| Field name	Data
Key	12345678901
Manufacturer	ITW
Company	ACME CORP
Description	WIDGETS
Distributed By	ACME INC
Barcode	2012345678901
Exp Date Offset	90
Size	20 lbs

Barcode Fields

The Bar Code dialog has an additional option: **Database**. Select **Database** from the **Data source** list and an **Edit Query** button appears in the upper right hand corner of the dialog.
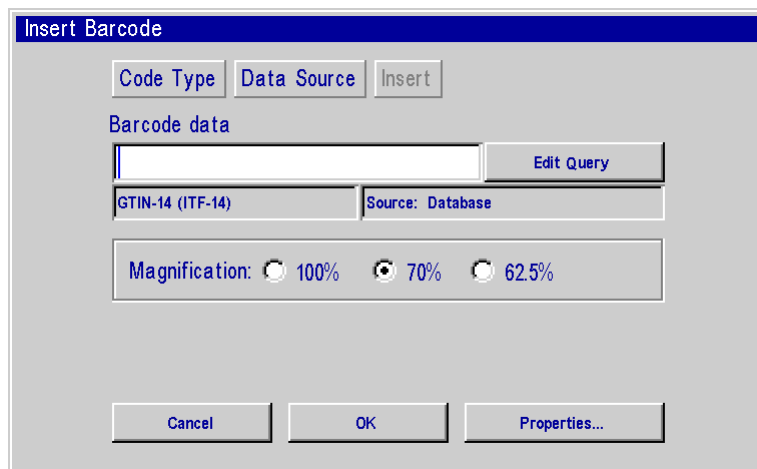
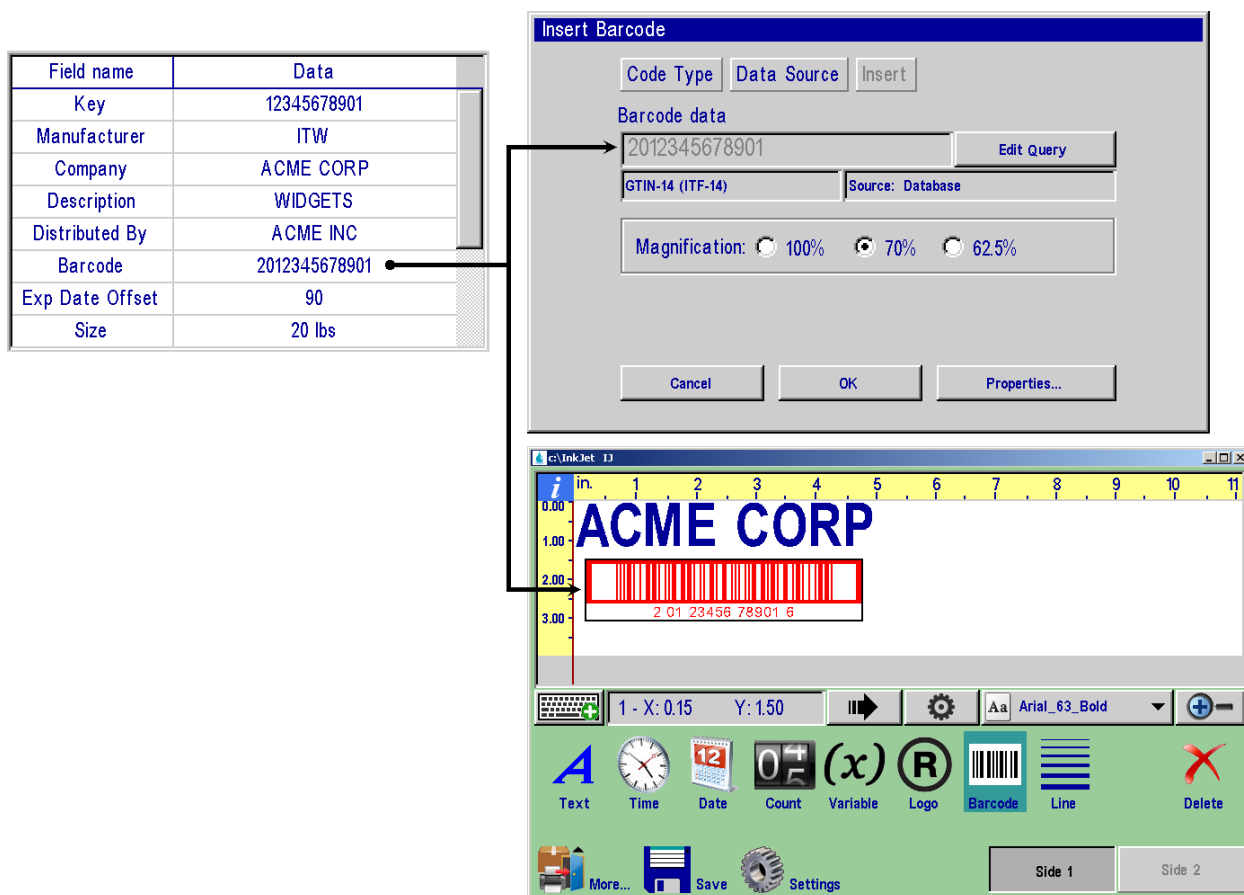Click the **Edit Query** button to display the Query dialog.

The bar code data to be printed is selected from the **Field name** combo box. For example, open the combo box, select **Barcode**, and click **OK**.
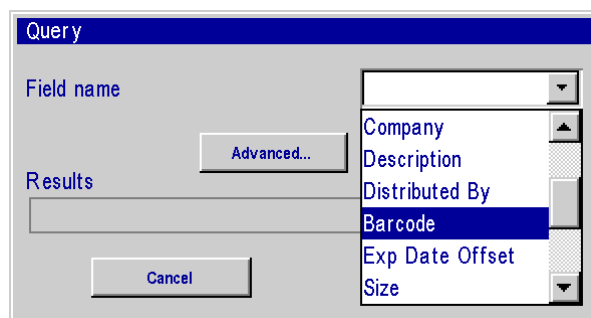
NOTE: The **Advanced...** button is intended for users who understand databases and want to construct their own queries. If in doubt, it is best to use the existing default settings.

The data from the key's **Barcode** box is inserted into the **Barcode Data** box on the Barcode dialog (to the left of the Edit Query button), and displayed on the Edit Screen when the bar code field is added to the template.

Date Code Fields

The **Date offset** box at the upper right corner of the Date Code dialog (it appears when the Date offset combo box is clicked) has a **Database** checkbox. When **Database** is checked, the **Edit Query** button becomes active and the offset value box becomes inactive.


Click the **Edit Query** button to display the Query dialog.

The date to be printed is calculated using the offset selected from the **Field name** combo box. For example, open the combo box, select **Exp Date Offset**, and click **OK**.

NOTE: The **Advanced…** button is intended for users who understand databases and want to construct their own queries. If in doubt, it is best to use the existing default settings

The data from the key's **Exp Date Offset** box is inserted into the offset value box on the Date Code dialog, and the date (in this example, March 24, 2016) plus offset is displayed on the Edit Screen when the date code field is added to the template. (March 24 + 90 days = June 22)
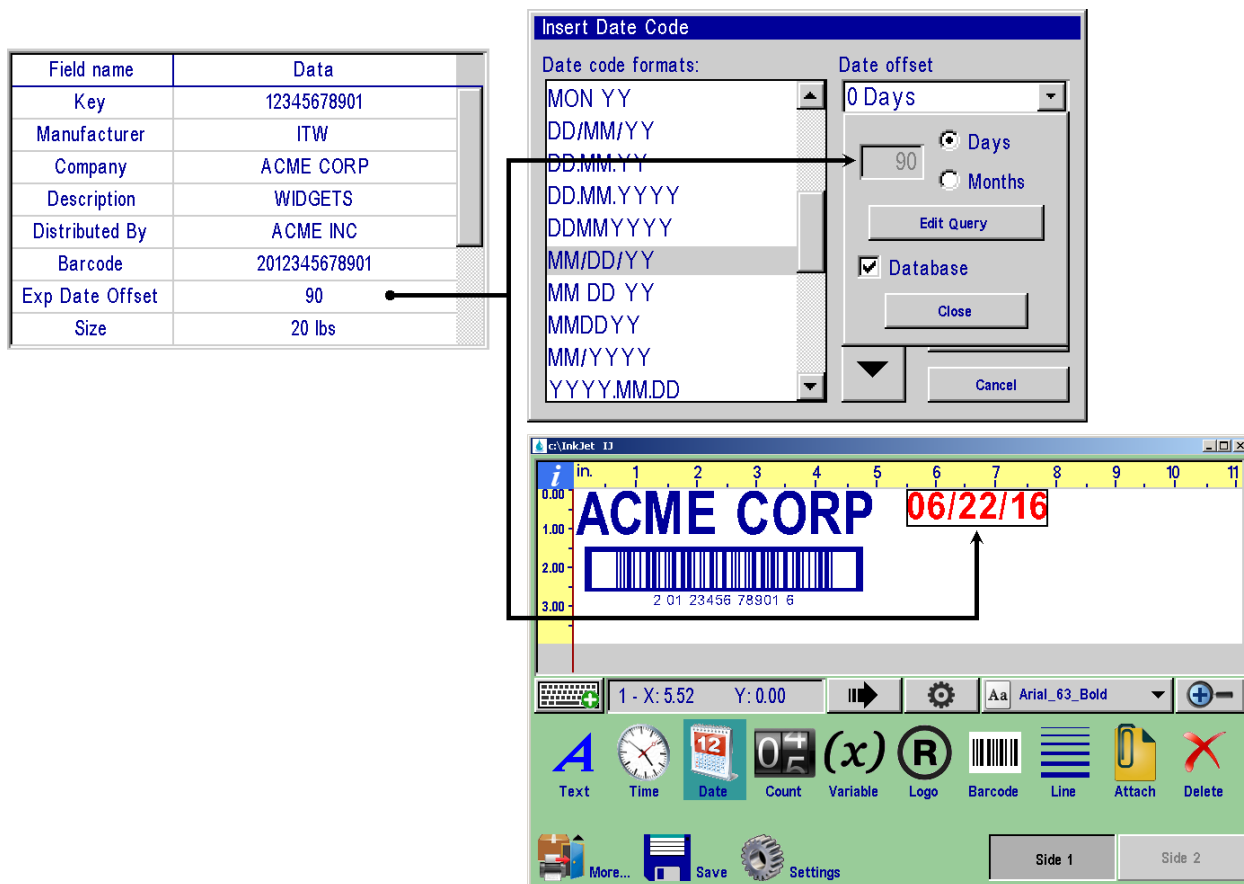
Logo Fields

A special note about logos: The data stored in the database for printing logos are not the logos themselves, but the logo file names. To print a logo from the database, the following two requirements must be met:

- The logo file name entered into the key is case sensitive, it must include the dot-bmp extension, and "bmp" must be in lower case letters. Example: **Mylogo.bmp**

- A copy of the logo's .bmp file must be stored on the controller from which it will print, and also in the **bmps** folder for that controller on the host PC; or if **Common Folders** is selected, in the common **bmps** folder. If the logo file is not on the controller, it will not print; if it is not on the PC, it won't be displayed on the template Edit Screen if it's added to a template.

The Insert Logo dialog has a **Database** checkbox just above the **Cancel** button. When **Database** is checked, the **Select Logo…** button becomes an **Edit Query** button.
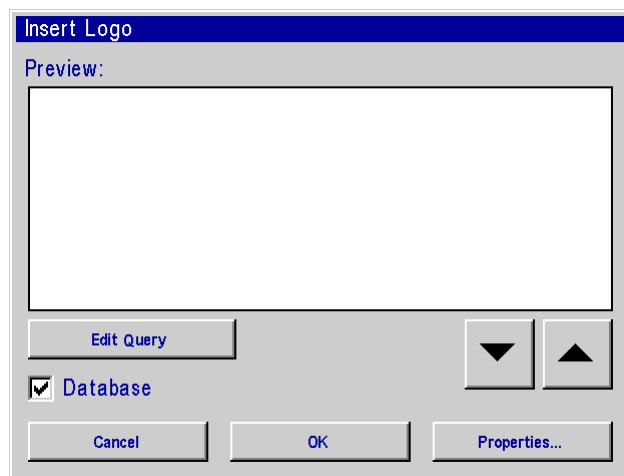
Click the **Edit Query** button to display the Query dialog.
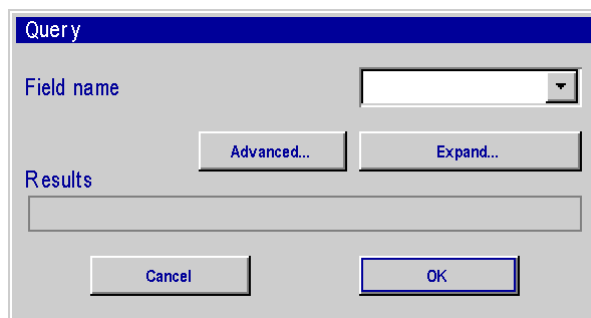
The logo to be printed is selected from the **Field name** combo box. For example, open the combo box, select **BmpFile**, and click **OK**.

NOTE: The **Advanced…** button on the Query dialog is intended for users who understand databases and want to construct their own queries. If in doubt, it is best to use the existing default settings.
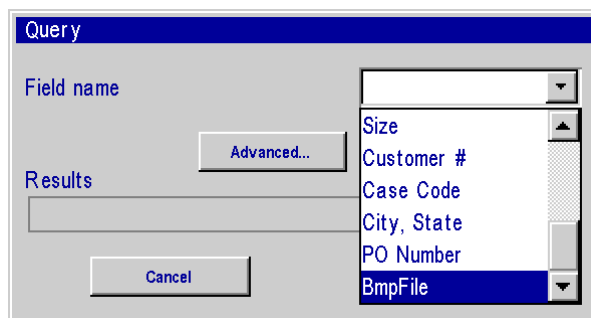
Using the file name taken from the key's **BmpFile** box, the logo is looked up and inserted into the preview window on the Insert Logo dialog, and displayed on the Edit Screen when the logo field is added to the template.
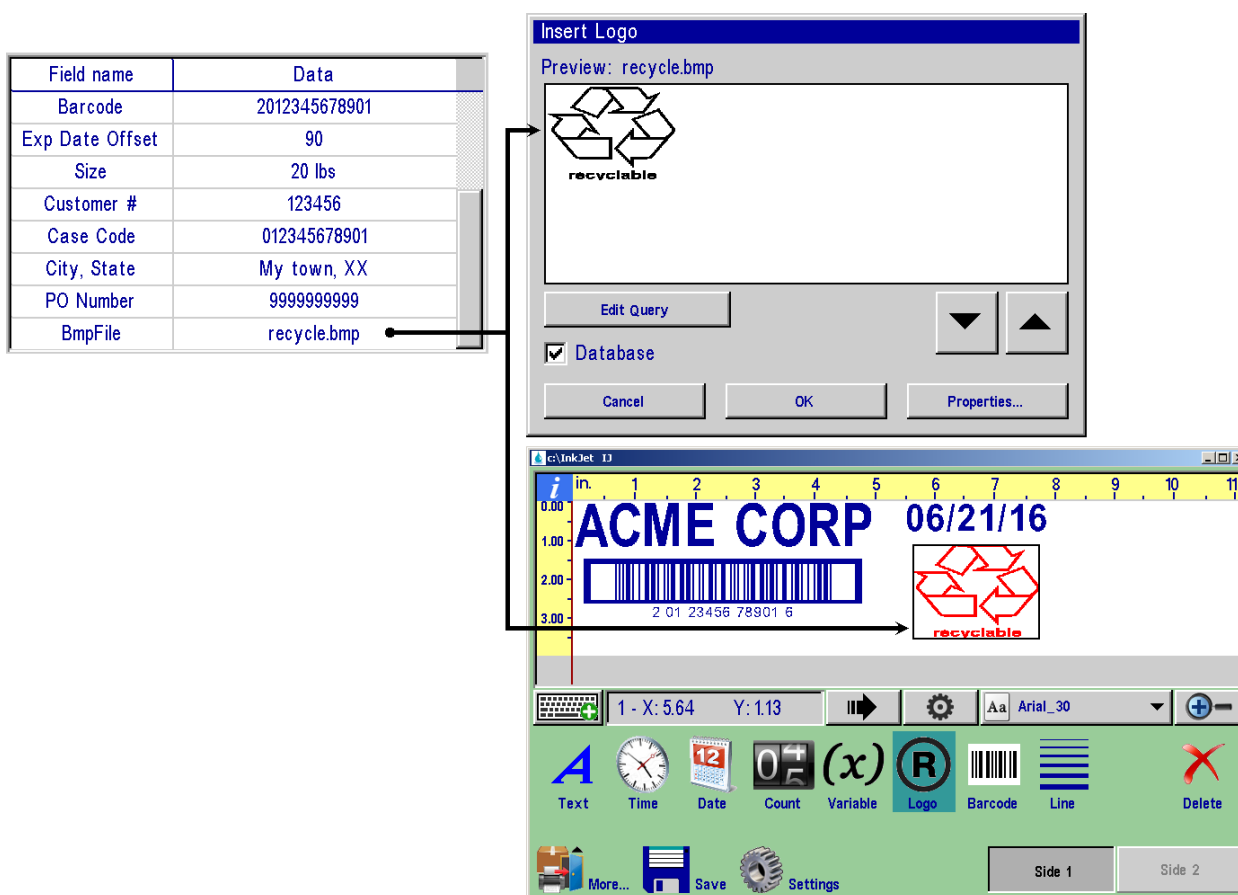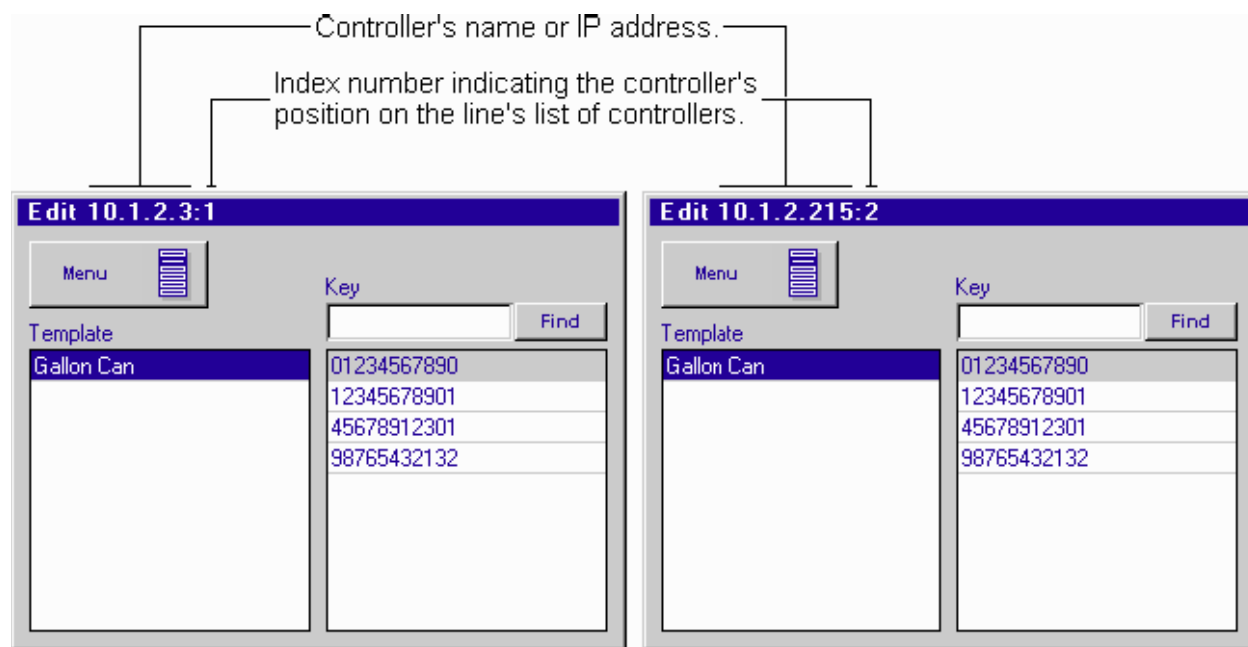
Templates for "Lines"

A template created for a controller that is part of a line grouping has a section for each controller on the line. For example, assume **Template A** is created for **Controller 1** using **Key 0511**. Also assume **Controller 1** is part of a 3-controller line grouping which includes **Controller 2** and **Controller 3**. In such a case, **Template A** is a 3-part template with sections for **Controller 1**, **Controller 2**, and **Controller 3**. To complete the creation of **Template A**, the **Template A:Key 0511** combination also has to be edited for **Controller 2** and **Controller 3**.

To do this:

1. After creating **Template A** for **Controller 1**, return to the Network Controllers Screen.
2. Select **Controller 2** from the controller list.
3. Open the **Controllers** menu and click the **Message Templates** button.
4. On the Template Screen, select **Template A** and **Key 0511**.
5. Open the menu and click the **Edit Template** button.
6. Create the template for **Controller 2**, save it, and exit the Edit Screen.
7. Repeat steps 1 – 6 for **Controller 3**.

Hint: An index number on the Template Screen title bar indicates which controller on the line the templates are for. See below.

Edit Key Data

To edit the data in an existing key, select the template the key uses, select the key, open the menu, and click the **Edit Key Data** button. (Keyboard shortcut: select the key and press F5.) Make changes as desired and click **OK**.


Delete Key

To delete a key, select a template, select a key, open the menu and click the **Delete Key** button. When prompted to verify that the key is to be deleted, click **Yes** to delete the key, or **No** to leave it intact.

Edit Template

To edit an existing template, select the template and select a key. (The key supplies reference data for any variable fields or bar codes in the template. The actual key data cannot be changed while editing a template.) Open the menu and click the **Edit Template** button. The template can be edited in the same manner as a print message.
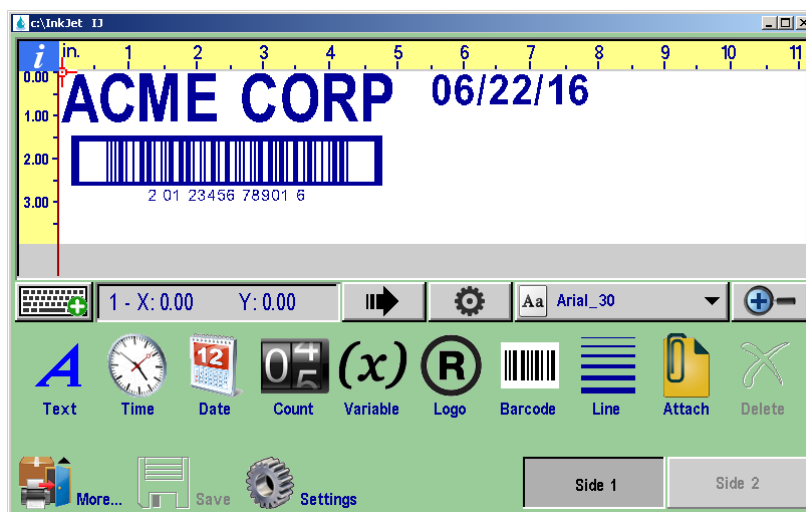
Duplicate Template

To make a copy of a template, select the template, open the menu, and click the **Duplicate Template** button. When prompted, enter a name for the duplicate template and click **OK**.

Delete Template

When a template is deleted, all of its keys become of no use - they are associated with that template only - and are also deleted.

To delete a template, select the template, open the menu, and click the **Delete Template** button. When prompted to delete the template's keys, click **Cancel** to abort the deletion and return to the Template Screen, or **OK** to delete the keys and continue. When prompted to delete the Template, click **Yes** to delete it or **No** to leave it intact. In either case, the keys will have been deleted.

Section 4: Reports and Data Records

Reports

Reports can be accessed by opening a web browser (i.e. Microsoft® Internet Explorer or Firefox), going to http://**localhost/**, and clicking on **Reports**.
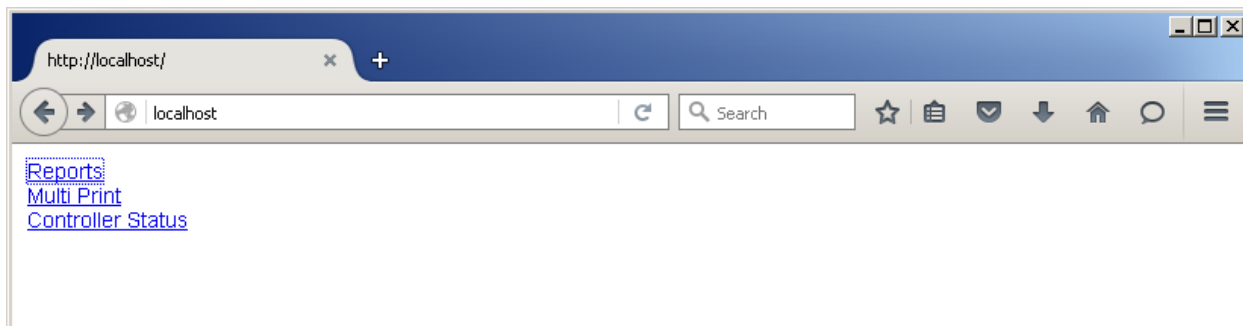
This will initially show an empty list. After print requests have been received by the PC, it will show a table like the one below. Each row in the table represents a request that was sent to the PC from a controller for a product to be printed. The record is not completed until the next item is selected for print. (Note: The controller needs to be in Network mode.)

Referrer	Interface	Start	End	Name	Count
10.1.2.10	1	24/Mar/2016:13:32:22	24/Mar/2016:13:33:35	01234567890	13
10.1.2.10	1	24/Mar/2016:13:33:35	24/Mar/2016:13:34:21	12345678901	8
10.1.2.10	1	24/Mar/2016:13:34:21	24/Mar/2016:13:36:17	45678912301	4
10.1.2.10	1	24/Mar/2016:13:36:17	24/Mar/2016:13:37:30	45678912301	22
10.1.2.10	1	24/Mar/2016:13:37:30	24/Mar/2016:13:39:53	98765432132	33

csv prd

The **Referer** and **Interface** columns show which controller and task number the request originated from. The **Start** column shows when the item was originally requested for print, and **End** is when the following item was selected for print. **Name** is the name of the message that was printed. **Count** is the product count difference reported at the beginning and end for that interface.

Click **"csv"** for a comma-separated value text file containing the contents of the report described above. The file can be downloaded to the PC and manipulated to suit the user's needs. To download, click **"csv"**. When the file is displayed, right-click the page to display the popup menu, and select **View Source**. The file will open in a Notepad window.

Click **"prd"** for a report on all print messages in the common folder:

      c:\Program Files\InkJet\prds

The following information is reported for each message: the message name, the date and time the message was last modified, and the contents of the message.

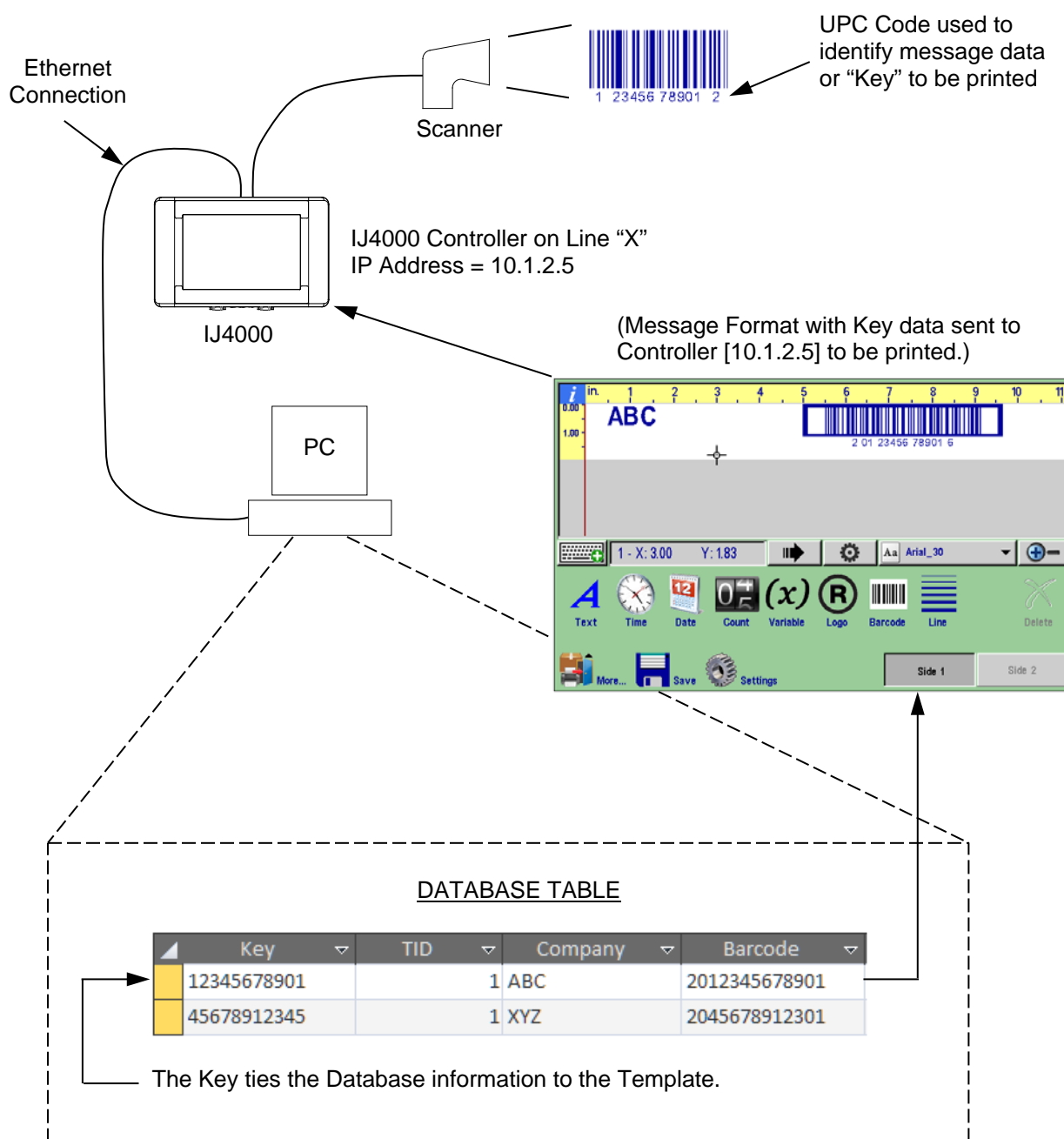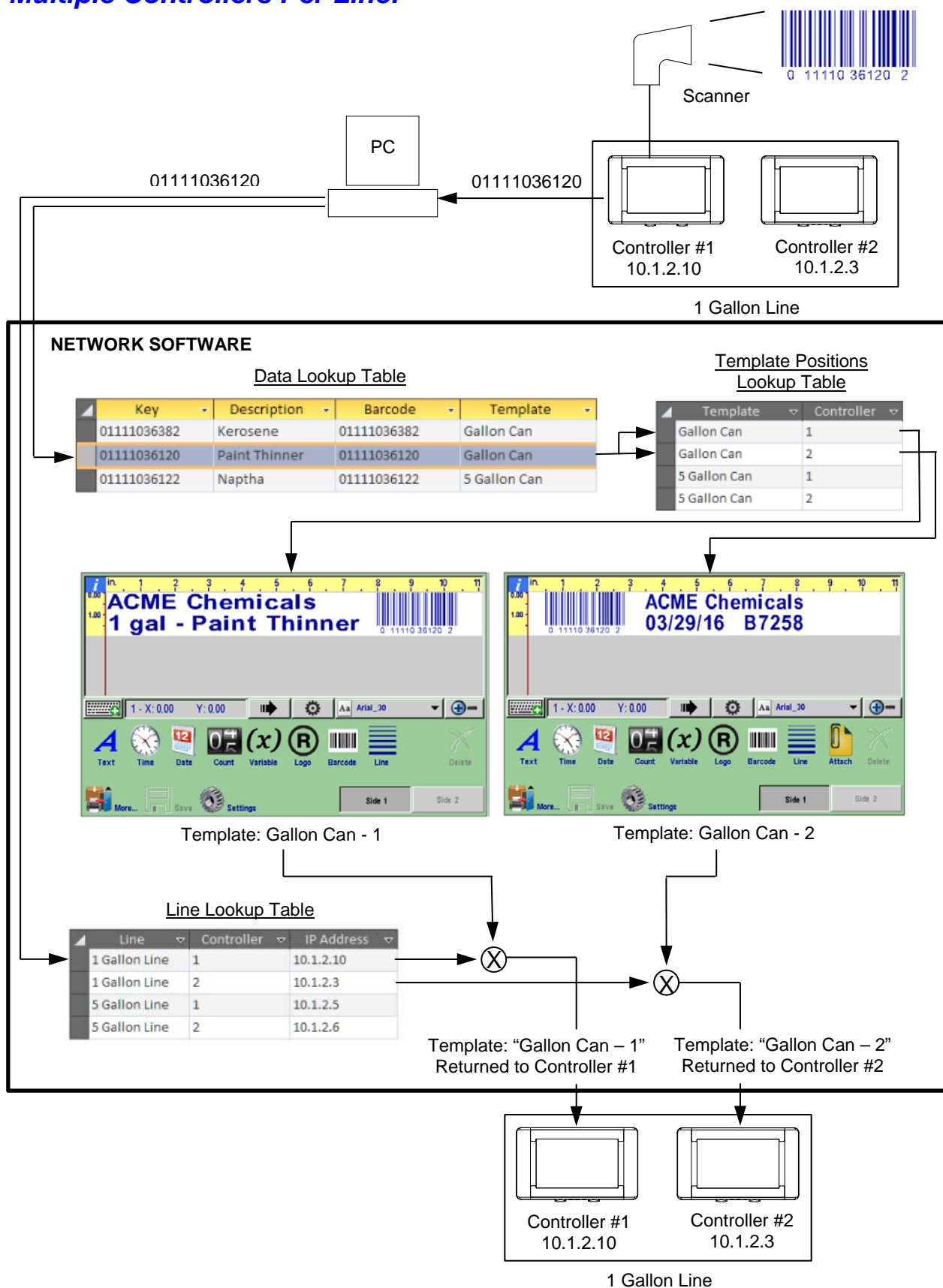| File Name	Last Modified Date	Contents

07003830845.prd	Wed Mar 23 09:18:38 2016	`<product len='6600'  margin='25'  margin2='50'  mirror='1' charwidth='3' hspc='200'  name='07003830845'>`
		`<text indent='776' startDot='0' cspc='6' fnt='Arial_48.gfnt'>`
		`BEST  CHOICE`
		`</text>`
		`<count cnt='     1' start='1' stop='999999' inc='1' zeros='0' pallet='0' psize='50' picnt='    1' indent=`
		`<text indent='440' startDot='80' cspc='6' fnt='Arial_48.gfnt'>`
		`ORIGINAL  BARBECUE  SAUCE`
		`</text>`
		`<text indent='116' startDot='6' cspc='6' fnt='Arial_30.gfnt'>`
		`Exp:`
		`</text>`
		`<date fmt='5' offset='731' indent='272' startDot='6' cspc='6' fnt='Arial_30.gfnt' txt='03/04/18'/>`
		`<text indent='116' startDot='80' cspc='6' fnt='Arial_48.gfnt'>`
		`8`
		`</text>`
		`<date fmt='2' offset='0' indent='176' startDot='80' cspc='6' fnt='Arial_48.gfnt' txt='063'/>`
		`</product>`

07003830846.prd	Wed Mar 23 09:18:39 2016	`<product len='12000'  margin='25'  margin2='50' charwidth='3' hspc='200'  pwr='0' speed='0' name='0700383D`
		`<logo bmp='Maulls.bmp' indent='1724' startDot='1' cspc='0' hspc='300' />`
		`<count cnt='     1' start='1' stop='999999' inc='1' zeros='0' pallet='0' psize='50' picnt='    1' indent=`
		`<text indent='548' startDot='80' cspc='6' hspc='150' fnt='Arial_48.gfnt'>`
		`Hickory  Barbecue  Sauce`
		`</text>`
		`<text indent='116' startDot='6' cspc='6' fnt='Arial_30.gfnt'>`
		`Exp:`
		`</text>`
		`<date fmt='5' offset='731' indent='272' startDot='6' cspc='6' fnt='Arial_30.gfnt' txt='01/01/02'/>`
		`<text indent='116' startDot='80' cspc='6' fnt='Arial_48.gfnt'>`
		`8`
		`</text>`
		`<date fmt='2' offset='0' indent='176' startDot='80' cspc='6' fnt='Arial_48.gfnt' txt='001'/>`
		`<text indent='674' startDot='0' cspc='6' hspc='150' fnt='Arial_48.gfnt'>`
		`Best  Choice`
		`</text>`
		`</product>`

GrannySmith.prd	Wed Mar 23 09:18:44 2016	`<product len='4200'  contprnt='1' charwidth='3' hspc='200'  pwr='0' speed='0' name='GrannySmith'>`
		`<logo bmp='armata 384.bmp' indent='108' startDot='0' cspc='0' hspc='300' />`
		`<text indent='148' startDot='12' cspc='1' fnt='Arial_15.gfnt'>`
		`Granny Smith`
		`     Apples`
		`</text>`
		`</product>`

Multi Print

Multi Print will print the message from the database to more than one controller. The text entry box will replace the text within the first bar code in the message before sending the message to the controller.

Appendix A: Database Flow Diagrams

Single Controller Per Line:

UPC Code used to identify message data or "Key" to be printed

Ethernet Connection

Scanner

IJ4000 Controller on Line "X"
IP Address = 10.1.2.5

IJ4000

(Message Format with Key data sent to Controller [10.1.2.5] to be printed.)

PC

DATABASE TABLE

Key	TID	Company	Barcode
12345678901	1	ABC	2012345678901
45678912345	1	XYZ	2045678912301

The Key ties the Database information to the Template.

Multiple Controllers Per Line:

Scanner

0 11110 36120 2

PC

01111036120   01111036120

Controller #1   Controller #2
10.1.2.10   10.1.2.3

1 Gallon Line

NETWORK SOFTWARE

Data Lookup Table

Key	Description	Barcode	Template
01111036382	Kerosene	01111036382	Gallon Can
01111036120	Paint Thinner	01111036120	Gallon Can
01111036122	Naptha	01111036122	5 Gallon Can

Template Positions
Lookup Table

Template	Controller
Gallon Can	1
Gallon Can	2
5 Gallon Can	1
5 Gallon Can	2

Template: Gallon Can - 1

Template: Gallon Can - 2

Line Lookup Table

Line	Controller	IP Address
1 Gallon Line	1	10.1.2.10
1 Gallon Line	2	10.1.2.3
5 Gallon Line	1	10.1.2.5
5 Gallon Line	2	10.1.2.6

Template: "Gallon Can – 1"   Template: "Gallon Can – 2"
Returned to Controller #1   Returned to Controller #2

Controller #1   Controller #2
10.1.2.10   10.1.2.3

1 Gallon Line

Appendix B: Database Conversion

Use this procedure to import and modify an external database for use with the Ink Jet Network Software.
To link an external database, rather than import it, see your local database administrator.

1. Open the default database found in **c:\InkJet\db\ij.mdb**.

2. Delete the existing **data** table: Right-click the **data** table and select **Delete** from the popup menu.
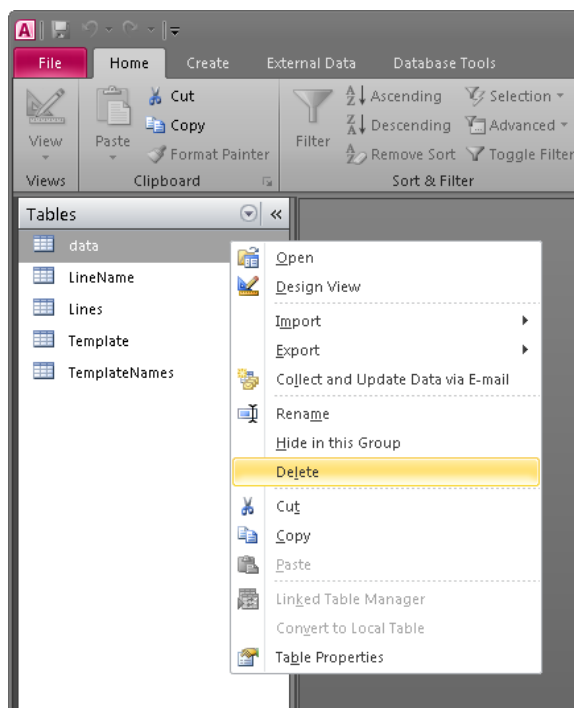
When asked to verify that **data** is to be deleted, click **Yes**.
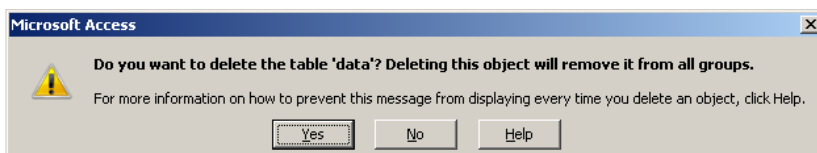
When asked if the relationships the table data has with other tables should be deleted, click **Yes.**
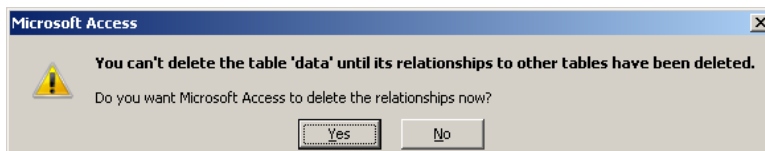
3. Import external data, naming it **data**: Select the **External Data** tab at the top of the Access window, and then click the appropriate button for the type of data being imported. For this example, the **Access** button is clicked.
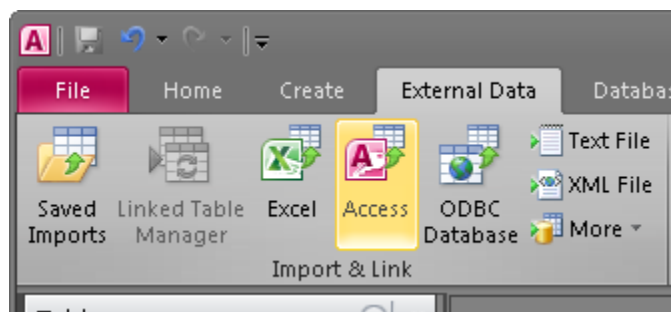
When the **Get External Data** dialog is displayed, click the **Browse…** button and navigate to the file being imported. Click the **OK** button.
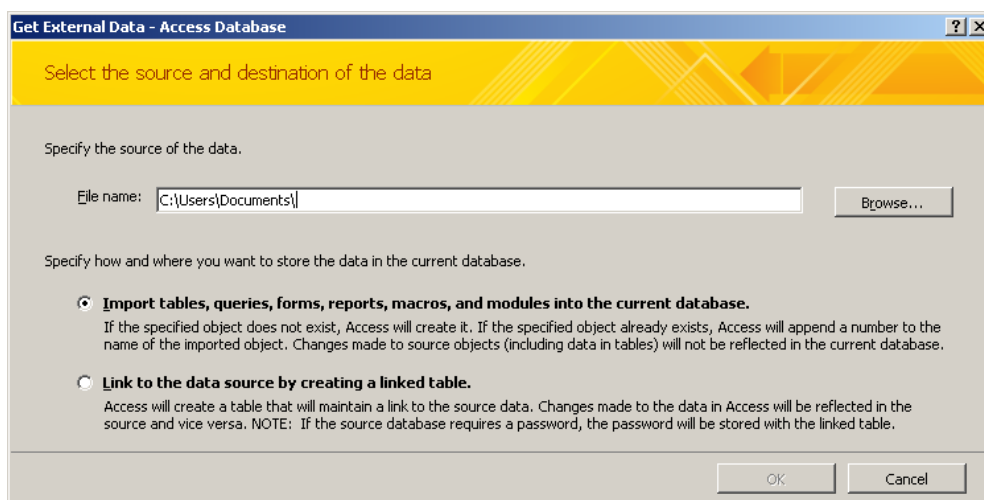
An **Import Objects** dialog appears.

From the **Tables** tab click on the data table to be imported, in this example, **Products**, and click the **OK** button. The table is added to the ij.mdb database.
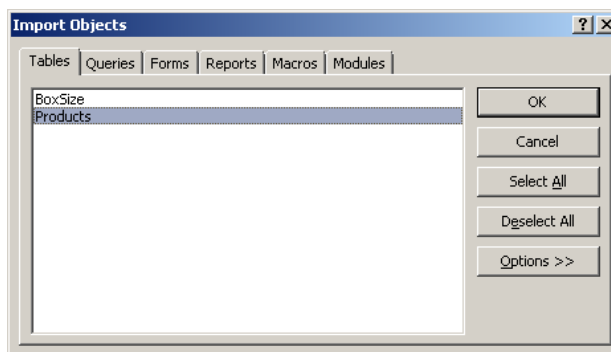
Right-click on the data table just imported (**Products**), select **Rename** from the popup menu, and change the name of the table to **data.**
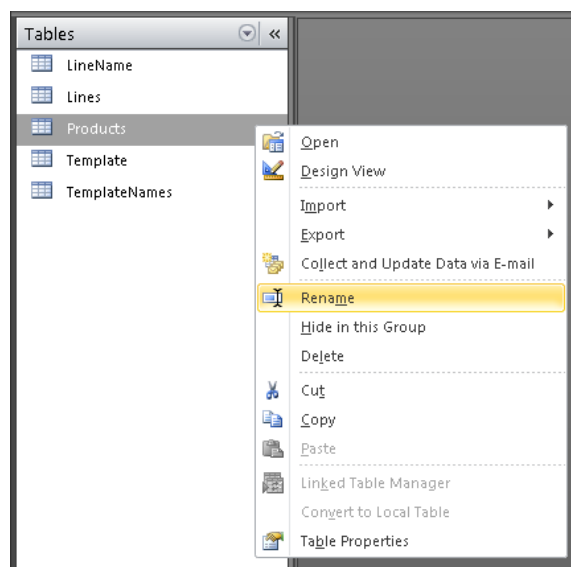
4. Change the name of your lookup field to "**Key**": Right-click the **data** table and select **Design View** from the popup menu. The table opens in a design view window:
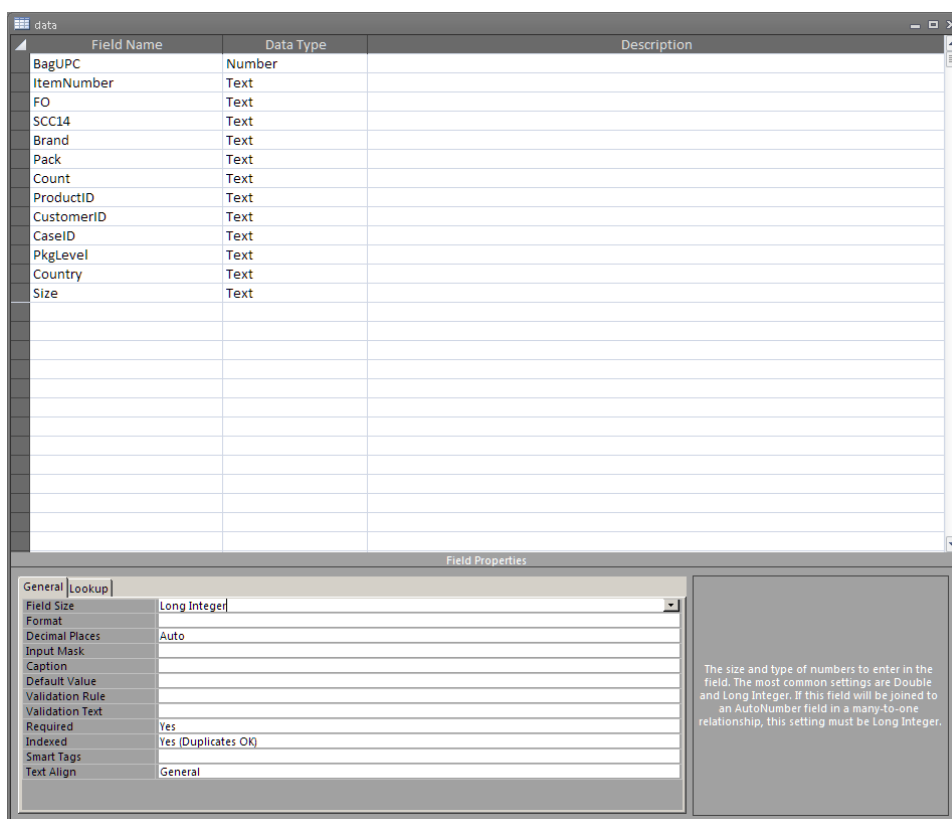
In this example, the lookup field is **BagUPC**. Double-click on the **BagUPC** cell and type in **Key**.

Click on the **Key** field's **Data Type** cell; an arrow appears. Click the arrow to display the date type list and select **Text** from the list.

Field Name	Data Type
Key	Number
TID	Text
ItemNumber	Memo
FO	Number
SCC14	Date/Time
Brand	Currency
Pack	AutoNumber
Count	Yes/No
ProductID	OLE Object
CustomerID	Hyperlink
CaseID	Lookup Wizard...
PkgLevel	Text

Click on and set of the **Key** field property as follows:

Field Size: To suit

Required: Yes

Allow Zero Length: No

Indexed: Yes (No Duplicates)

General	Lookup	
Field Size	13	
Format		
Input Mask		
Caption		
Default Value		
Validation Rule		
Validation Text		
Required	Yes	
Allow Zero Length	No	
Indexed	Yes (No Duplicates)	
Unicode Compression	No	
IME Mode	No Control	
IME Sentence Mode	None	
Smart Tags		

5. Add a **TID** field: Right-click anywhere on the second row of the data table (in this example, the **ItemNumber** field) and select **Insert Rows** from the popup menu. Click on the **Field Name** cell of the new row and type in "**TID**". Set the row's **Data Type** to **Number**.

data		
Field Name	**Data Type**	
Key	Text	
TID	Number	
ItemNumber	Text	
FO	Text	
SCC14	Text	

Data table after TID field inserted

Set the **TID** field properties as follows:

Field Size: Long Integer

Decimal Places: 0

Default Value: 0

Required: No

Indexed: Yes (Duplicates OK)

Save, and then close the data table.

6. **NOTE:** In this step, all of the keys in the database are assigned to message template #1. In the sample database installed with the software, template #1 is the template named Sample IV. When running the network software, select **Sample IV** to see the keys in the converted database.
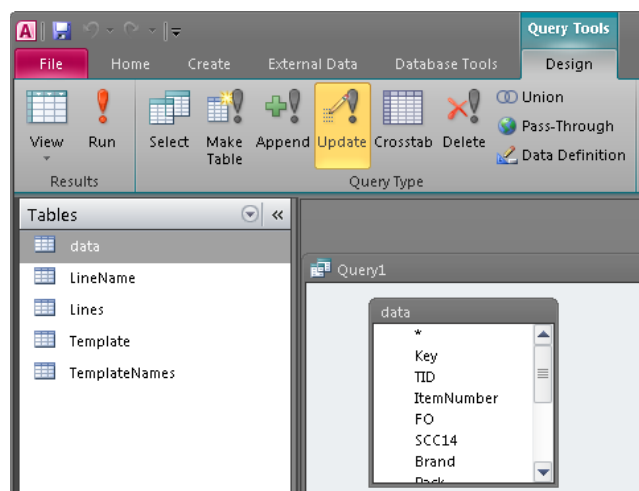
Select the **Create** tab and click the **Query Design** button.
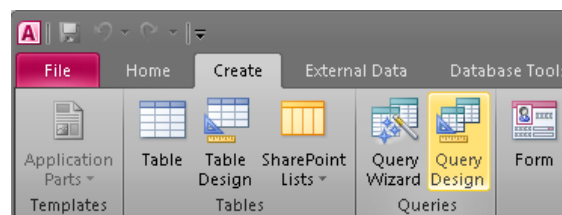
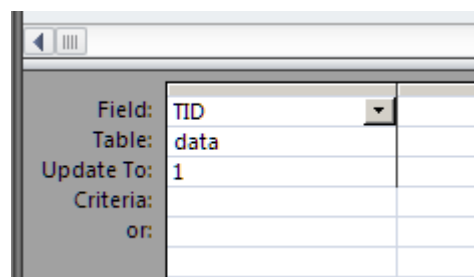In the **Show Table** dialog, select **data** from the **Tables** tab, click **Add,** and then click **Close**.
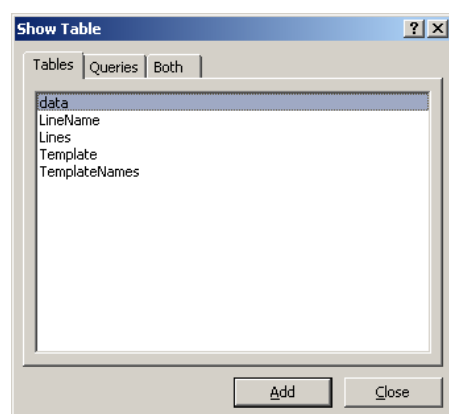
Click the **Update** button on the tool bar at the top of the Access window.

In the lower section of the Query1 window, click the small down arrow button in the **Field** cell and select **TID**.

Click anywhere in the **Update To** cell and enter a **1**.

Click the **Run** button on the tool bar at the top of the Access window. When prompted to verify the update, click **Yes**.

Close the **Query1** window. When prompted to save the changes, click **No**.
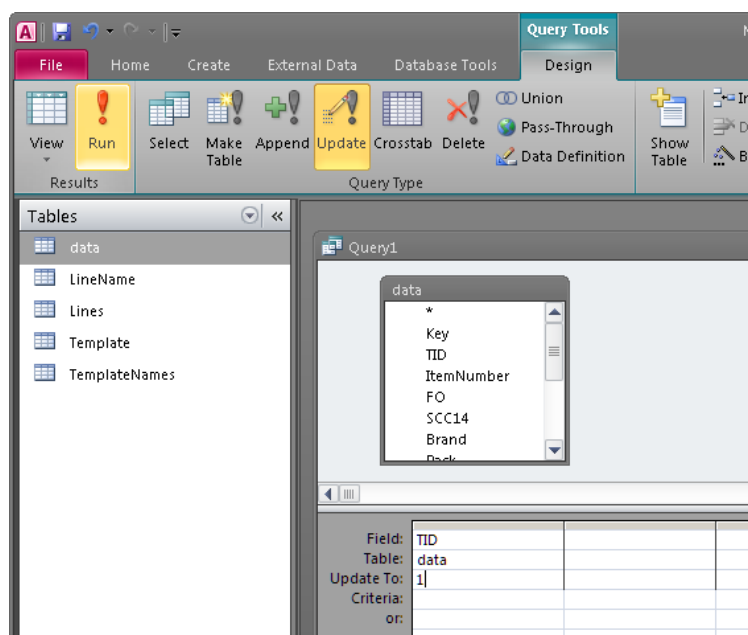
7. Designate the key fields: In the **Tables** list, right-click the **data** table and select **Design View** from the popup menu. Select both the **Key** and **TID** rows by clicking just to the left of the **Key** row, press and hold the **shift** key, and click the button to the left of the **TID** row.
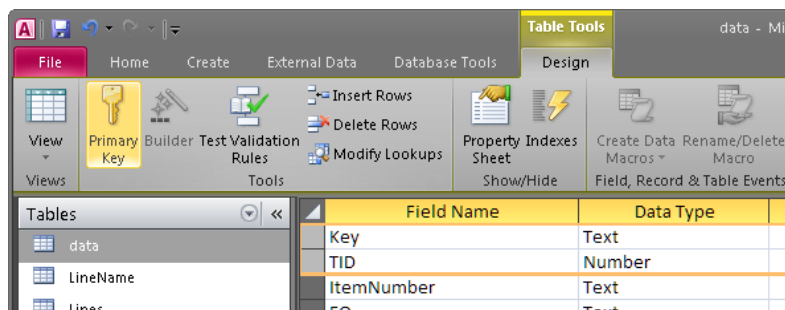
On the Access toolbar click the **Primary Key** icon; small key icons appear to the left of the Key and TID rows.

8. Change the data type of all fields except the TID field to **Text**. Fields must be of data type **Text** to be visible when creating or editing Key data.

9. Click the **Save** icon on the Access toolbar to save the changes. If a dialog is displayed warning of a Null error or a duplicate error, there are one or more blank **Key** fields, or **Key** fields with duplicate data. Close the data table; when prompted to save the changes click **No**. Double-click the **data** table to open it in Datasheet View. Delete or edit records with duplicate **Key** information or blank **Key** fields, close the data table, and then repeat the procedure from step 6.

Delete any unneeded fields: Fields containing message formatting information such as fonts, character width, character spacing, print lines or print head numbers may be deleted. Except for expiration date offsets (90 days, 6 months, etc.), fields containing auto codes or auto code formatting may also be deleted. This information is all specified in message templates.

Click the **Save** icon on the Access toolbar to save the changes, and then close the data table.

Database conversion is complete; close Access.

Appendix C: Modifying the Sample Database

Use this procedure to modify the sample database installed with the Ink Jet Network Software for use in your application.

1. Open the sample database found in **c:\InkJet\db\ij.mdb**.

2. Delete existing keys.

   - In the Tables list, double click the **data** table.
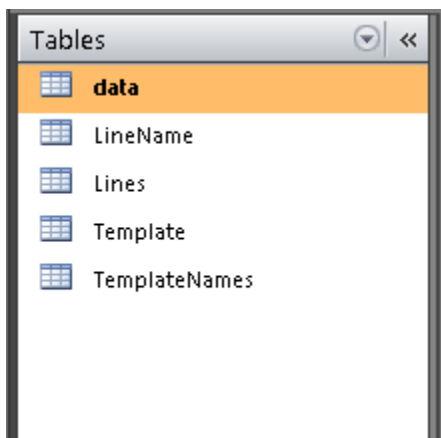
   The **data** table is displayed in Datasheet View format:

 | Key | TID | Manufacture | Company | Description | Distributed I |
   |-----|-----|-------------|---------|-------------|---------------|
   | 01234567890 | 2 | | DEF | | |
   | 12345678901 | 1 | Diagraph | ABC | apples | Diagraph |
   | 45678912301 | 1 | | GHI | | |
   | 98765432132 | 3 | XYZ | XYZ Corp. | Something | XYZ |
   | | 0 | | | | |

   - Click in the yellow area just to the left of the top item in the **Key** column of the table (in this example, the 01234567890); then, while pressing the **Shift** key, right-click the gray area just to the left of the last item in the **Key** column (the 98765432132). Select **Delete Record** from the popup menu.

Key	TID	Manufacture	Company	Description	Distributed I
01234567890	2		DEF		
12345678901	1	Diagraph	ABC	apples	Diagraph
45678912301	1		GHI		
	3	XYZ	XYZ Corp.	Something	XYZ
	0				

   New Record
   Delete Record
   Cut
   Copy
   Paste
   Row Height...

When asked to confirm that the four records are to be deleted, click **Yes**. The table should now look like this:

3. Rename, delete, and add fields as needed.

   • In the Tables list, right-click the data table and select **Design View** from the popup menu.
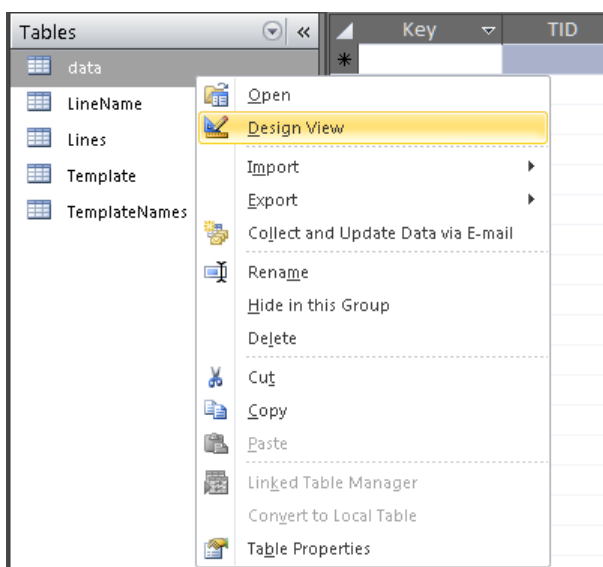

The data table now looks like this:

- Rename, delete, and add fields as needed to meet your requirements.

NOTE: The **Key** and **TID** fields are required and cannot be deleted or renamed.

- To rename a field ,double-click the existing field name, and then type in the new name. The new name replaces the old.
- To delete a field, right-click anywhere on the field and select **Delete Rows** from the popup menu.

| Field Name	Data Type
Key	Text
TID	Number
Manufacturer	Text
Company	
Description	
Distributed By	
Bar Code	
Size	
Customer #	
Case Code	
City, State	
PO Number	
BmpFile	Text

(popup menu: Primary Key, Cut, Copy, Paste, Insert Rows, Delete Rows, Properties)
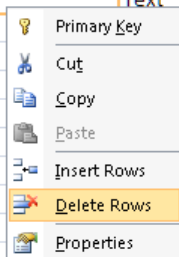
- To add a field, click in the **Field Name** box of the first blank row. Type in the field's name and press **Enter**. When **Enter** is pressed, the field's **Data Type** is automatically set to **Text**; do not change it.
- To insert a field, that is, add a new field between two existing fields, right-click anywhere on the row of the field that is to follow the new field, and then select **Insert Rows** from the popup menu; a blank row is inserted into the table.

Field Name	Data Type		Field Name	Data Type
Key	Text		Key	Text
TID	Number		TID	Number
Manufacturer	Text		Manufacturer	Text
Company	Text		Company	Text
Description	Text			
Distributed By			Description	Text
Bar Code			Distributed By	Text
Size			Bar Code	Text
Customer #			Size	Text
Case Code			Customer #	Text
City, State			Case Code	Text
PO Number			City, State	Text
BmpFile			PO Number	Text
			BmpFile	Text

(popup menu: Primary Key, Cut, Copy, Paste, Insert Rows, Delete Rows, Properties)

Type the field's name into the **Field Name** box and press **Enter**. When **Enter** is pressed, the field's **Data Type** is automatically set to **Text**; do not change it.

- Save the changes and close the data table.

4. Delete existing templates and template names.

- In the **Tables** list, double-click the **Template** table.

Tables
- data
- LineName
- Lines
- Template
- TemplateNames
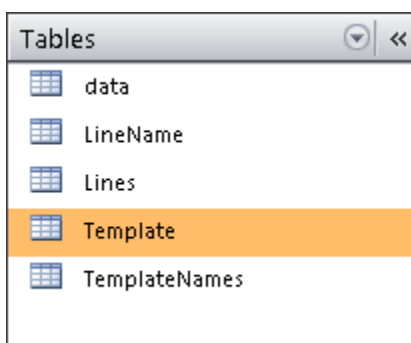
The **Template** table is displayed in Datasheet View format.

TIC	node	data	Click to Add
1	1	`<product len='1200' charwidth='3' name='$key-1'><var length='600' src='3' indent='0' startDot='0' cspc='6' txt='db:select [Company] from [data] where [Key]='$key'' fnt='18b.fnt'/><text indent='0' startDot='18' cspc='6' txt='SAMPLE IV' fnt='18b.fnt'/></product>`	
2	1	`<product len='7200' charwidth='3' name='$key-1'><var length='2400' src='3' indent='396' startDot='0' cspc='6' txt='db:select [Company] from [data] where [Key]='$key'' fnt='Arial_15.pfnt'/><text indent='0' startDot='15' cspc='6' txt='SAMPLE IJ-UJII' fnt='Arial_15.pfnt'/></product>`	

3	1	`<product len='7200' charwidth='3' name='$key'>`
		`<var length='2400' src='3' indent='396' startDot='0' cspc='6' fnt='Arial_15.pfnt' txt='db:select [Company] from [data] where [Key]='$key''/>`
		`<text indent='0' startDot='30' cspc='6' fnt='Arial_15.pfnt'>`
		`SAMPLE GRAPHICS`
		`</text>`	

* 0	0		

- Click the yellow area at the left end of the top row of the table; then, while pressing the **Shift** key, right-click the gray area on the left end of the second to last row. Select **Delete Record** from the popup menu.

When asked to confirm that the three records are to be deleted, click **Yes**. The table should now look like this:


Close the **Template** table.

Repeat the procedure for the **TemplateNames** table.

Modification is complete. Close Access.

Appendix D: ij.mdb Database File Relocation

1. Move the **ij.mdb** file to the desired location.

2. Change the Apache account log on if necessary:

   - Open the **Start** menu; select **Control Panel**, and then **Administrative Tools**.
   - In the **Administrative Tools** window, double-click on **Services**.
   - In the **Services** window, right-click on **Apache2** and select **Properties** from the popup menu.
   - When the **Properties** window appears (see illustration at right), click the **Log On** tab, and then click the **This account** radio button.
   - Enter a valid user name and password and click the **OK** button.
   - A dialog box appears advising that the new logon name will not take effect until the service is stopped and restarted. Click **OK** to close the dialog box.
   - Return to the Services window and click the **Restart** (the service) link.
   - After Apache restarts, close the **Services** window.
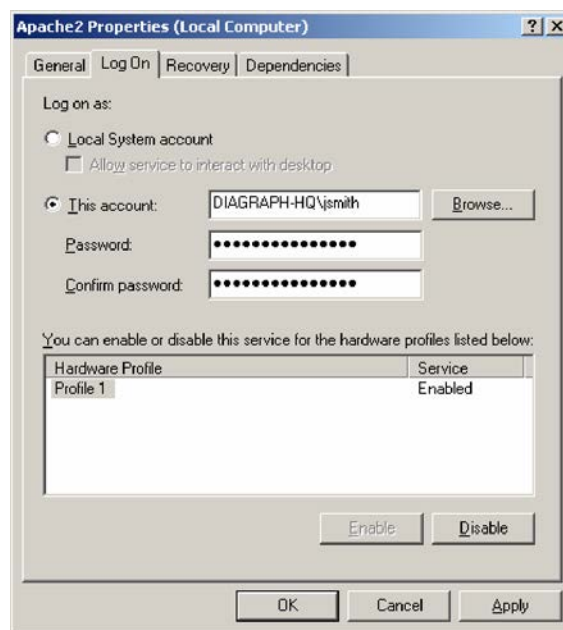
3. Tell the system where to find the **ij.mdb** database file:

   - Using Windows® Explorer, navigate to **c:\Windows\SysWOW64**, then locate and double-click the **odbcad32.exe** file to open the **ODBC Data Source Administrator** dialog. Select the **System DSN** tab.
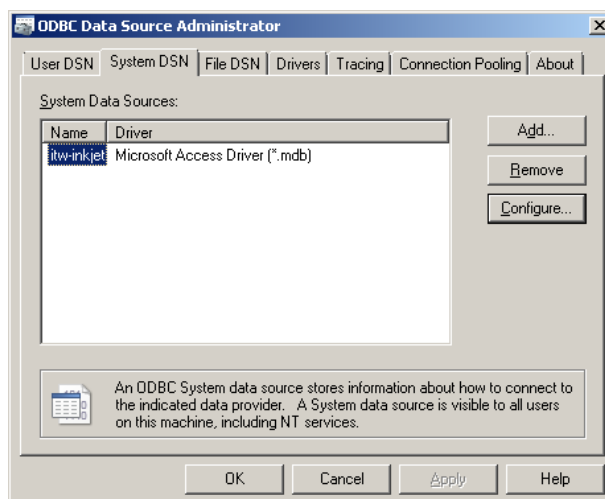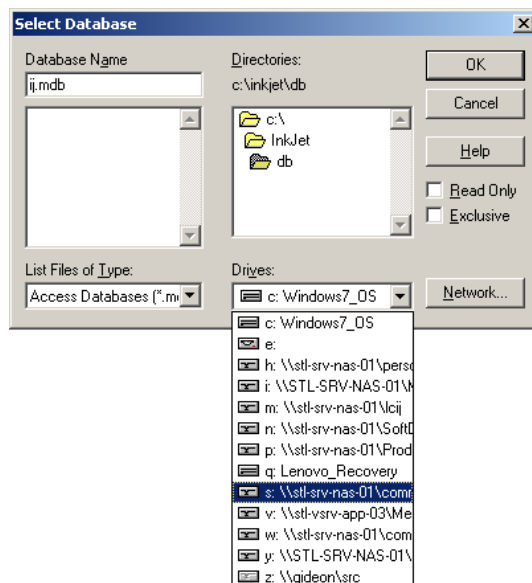
- On the **ODBC Data Source Administrator** dialog select the **itw-inkjet** data source and click the **Configure…** button; the **ODBC Microsoft Access Setup** dialog is displayed.
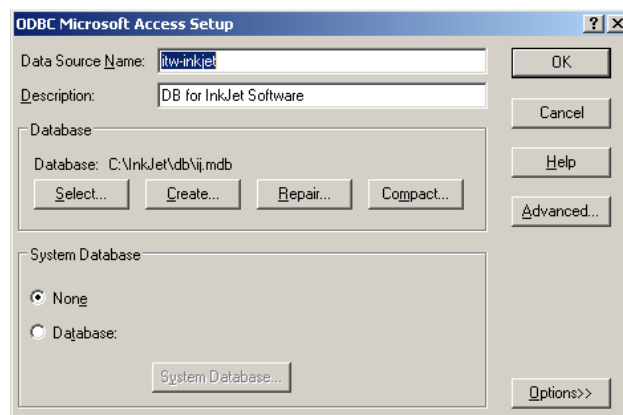
- On the **ODBC Microsoft Access Setup** dialog click the Select… button; the **Select Database** dialog is displayed.
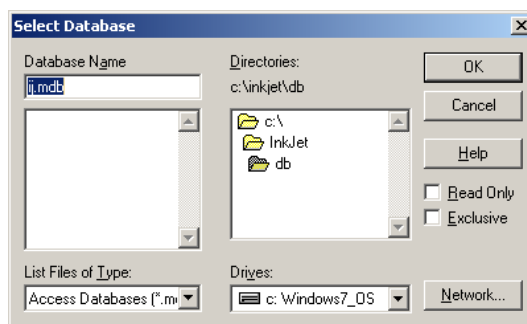
- Open the **Drives** combo box and select the network drive to which the **ij.mdb** file was moved.

- In the **Directories** box, navigate to the folder in which the **ij.mdb** file was placed and double-click the folder; the **ij.mdb** file should appear in the box to the left.
- Click **OK** to close the **Select Database** dialog.
- Click **OK** to close the **ODBC Microsoft Access Setup** dialog.
- Click **OK** to close the **ODBC Data Source Administrator** dialog; **ij.mdb** relocation is complete.