Wanco® Message Graphics

User's Manual

July 2013

WANCO® The industry leader.

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1   Introduction

1.1   About this manual

This manual describes how to use the Wanco® Message Graphics software program to create custom messages for Wanco full-matrix variable message signs. For ease of use, a basic understanding of how to use a computer is required.

This manual does not include any information about using the message sign. See the message sign owner's manual.

1.2   Where to obtain service

Before calling for service, please have the software version number ready. Locate the version number by choosing Help > About.

Contact our service department using the following information:

Wanco Inc.
5870 Tennyson Street
Arvada, Colorado 80003

303-427-5700
fax 303-427-5725

www.wanco.com
info@wanco.com

2   Before You Begin

2.1   System requirements

The Wanco Message Graphics program may be installed on any computer running Microsoft® Windows® XP, Vista, 7, 8 or later.

The message sign for which you will be designing messages must be a Wanco matrix message sign.

2.2   Installation

The Wanco Message Graphics program is available for download at www.wanco.com. Contact the Wanco service department for access (see Section 1.2, "Where to obtain service," page 1).

After downloading the program and saving it to your computer, install it by opening the file and following the on-screen instructions.

2.3   Running the program

To run the program, click the Wanco icon on your Windows Desktop, or choose Wanco Message Graphics from your Start menu.

3 Using the Program

3.1 Overview

Using the program to create custom messages involves three general steps:

1. **Create a new message or edit an existing message**

   See Section 3.2 for an overview of the program windows. More details are presented in Sections 3.4 and 3.5.

2. **Save the message**

   See Section 3.3 for an explanation of file types.

3. **Transfer messages to the message sign computer**

   See Section 4 to learn how to transfer messages to the sign.

3.2 Program windows

The Wanco Message Graphics program has three main windows:

- The Message window (Figure 3-1) displays the message you are creating, and lets you position the objects you create with drawing tools.

- The Tools window (Figure 3-2) lets you choose drawing tools for creating your custom messages.

- The Background Editor window lets you import an external image file (Figure 3-3) to use as a background for a message, and edit an imported background image (Figure 3-4).

   If a window is too small to show everything in the window, you may resize it by clicking and dragging the lower-right corner of the window. (The elements in the window will not change size.)

Figure 3-1. Message window

1 Button Bar
gives you access to common tasks

2 Sign Model
shows the model number and pixel size
of the message sign for which you are
creating or editing your message

3 Selected Page
indicates the number of the selected
page of the message

4 Cursor Coordinates
indicates the cursor position, in pixels, in
the message area

5 Message Area
is where you create your message by
clicking to insert and select shapes and
text

6 Magnification
allows you to zoom the message area in
or out

7 Color Intensity
lets you choose the brightness of each
LED color in a color message
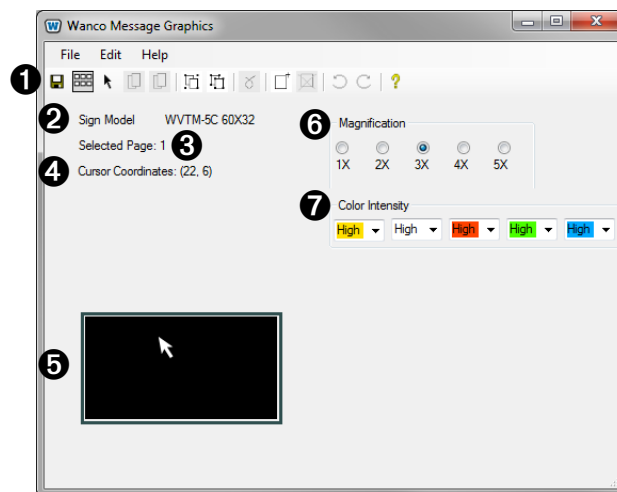
Figure 3-2. Tools window

1 Drawing Tools
let you draw shapes and insert
templates in your message

2 Color Selector
lets you choose the color for text or a
shape, and indicates the selected color

3 Test Tools
let preview your message

4 Shape Tools
let you format a shape

5 Text Tools
let you enter and format text

6 Page Times
defines how long each page of a
message flashes on and off

7 Background Image
lets you create and copy a background
image, and convert shapes and text into
background images
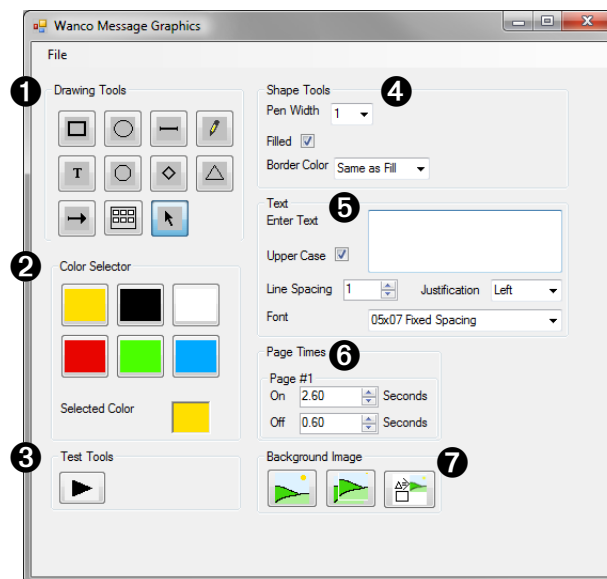
Figure 3-3. Background Editor window in image-import mode

❶ Cropped Image
shows the selected portion of the imported image

❷ Original Image
shows the entire imported image

❸ Mapped to Sign
shows the image as it will appear on the message sign, with colors converted

❹ Magnification
allows you to zoom the cropped and mapped images

❺ Edit Bitmap Button
enters the bitmap editing mode (see Figure 3-4)

❻ Scale Slider
makes the imported image larger or smaller

❼ Contrast Slider
lets you change the thresholds for recognizing different colors in the imported image

❽ Accept Button
accepts your changes to the background image and closes the Editor window

❾ Cancel Button
cancels your changes to the background image and closes the Editor window
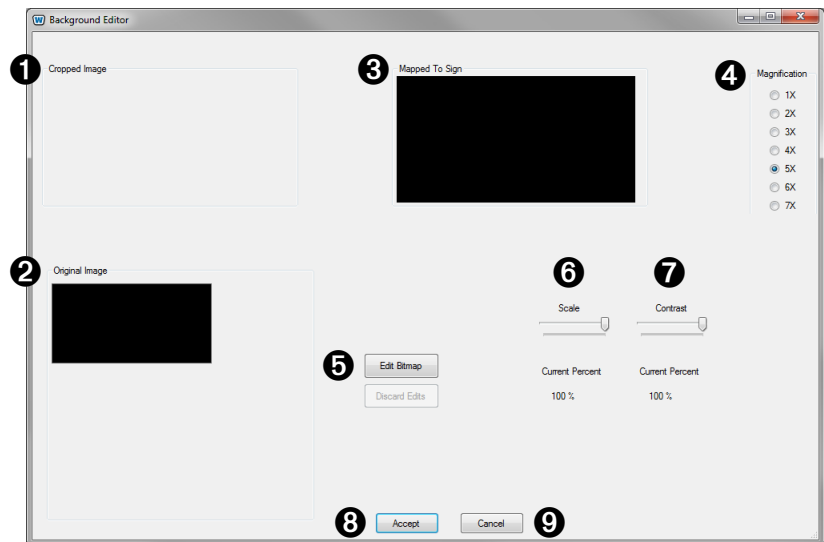
Figure 3-4. Background Editor window in bitmap-edit mode

❶ Editing Area
in the editing mode, allows you to modify the bitmap image

❷ Editing Tools
give you options for modifying the message in the editing area

❸ Color Selector
lets you choose the color for the drawing and fill tools

❹ Discard Edits Button
cancels your changes to the bitmap editing and returns to the image import mode
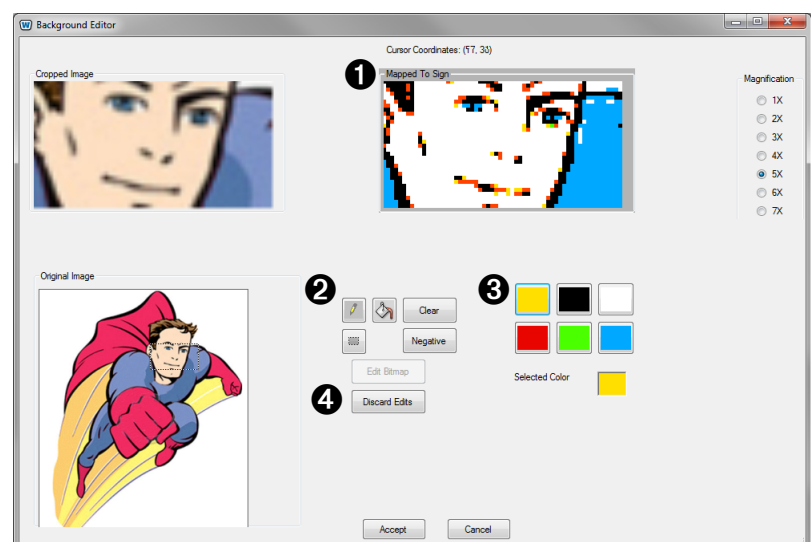
3.3　Getting started

3.3.1　Overview

When you create a new message, you begin by selecting the message sign model, then you use tools and options to create your message. When you are done, you must export your message as a file that can later be transferred to the message sign computer.

The program saves messages in a proprietary file format that can later be opened and edited, if desired. See below for descriptions of file types and how to use them.

You can open more than one Message window at a time, creating multiple messages for one sign model or various models.

3.3.2　Creating a new file

Before you can create a new file, you must first choose the message sign model for which you will be designing your message. Each model has a specific number of pixels; a message you create for one model may not work on another model.

To choose the message sign model, choose File > New, and then select the desired model.

After you select a message sign model, the model number and pixel dimensions (width by height) are displayed in the Message window (see Figure 3-1).

3.3.3　Saving message files

After creating a message, you should save it as a file that can later be opened and edited in the Message Graphics program.

■　To save a file, press the **Save** button 💾 in the Message window.

■　To save an existing file with a new file name, choose File > Save As.

3.3.4　Saving templates

You can save shape and text objects as templates that can be placed into a message. Template objects can be modified after you place them. You cannot save backgrounds as templates.

■　To create a template, use the Selection tool ▶ in the Message window to select the objects you want to save, then click the **Create Template** button ▦.

■　To select more than one object, press and hold the **Ctrl** key while clicking with the Selection tool. To select all objects, choose Edit > Select All in the Message window.

3.3.5　Opening files

When you open a Message Graphics (.wgr) file, all the components of the message—the background, all objects, and all pages—are available for editing.

■　To open a file, choose File > Open or press **Ctrl-O**.

■　To open a recently used file, choose File > Recent Files in the Tools window.

3.3.6   Importing files

Message files

Message sign messages are saved as NTCIP-compatible MULTI* (.multi) files that the Message Graphics program can import.

When you import a MULTI file, the message is imported as a bitmap image, which can be edited using the Background Editor window. To add new objects to the message, use the drawing tools in the Tools window.

■ To import a MULTI file, use the Message window and choose File > Import from .multi. When importing multi-page messages, all pages are imported.

■ To edit an imported message, click the Add/Edit Background ![icon] button in the Tools window.

Background images

You can import an image file into your message to use as a background. To import a background image, see Section 3.5.5, page 15.

3.3.7   Exporting files

When you are ready to transfer your message to a message sign (see Section 4, page 19), you must export your message — either as an NTCIP-compatible MULTI file on your computer, or directly to the message sign if your computer is connected to it.

Export to MULTI file

To export your message to a MULTI file:

1. Use the Message window and choose File > Export > Export to File.

2. Check or uncheck the Export as Cxxx.multi check box.

   ■ When checked, the program automatically saves the file with a file name that the message sign will recognize as a custom-message number.

   ■ You can overwrite the automatic file name with your own, for saving it on your computer; but it will then be necessary to configure the message number when you transfer the file to the sign.

3. If the check box was checked, choose or enter a message number from 1 to 150. Your message will be saved with a file name that includes the message number you choose (e.g., C001.multi, C035.multi).

4. Choose whether you would also like to save your message as a JPEG image file.

   You might want to save a JPEG image for reference, so you can view it in an image viewer without opening the Remote Graphics program. This can be particularly useful when you have a collection of messages.

5. Click OK.

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*MULTI (Mark-Up Language for Transportation Information) is a language (not an object) used to convey a Message (Text and Message Attributes) between two entities. (NTCIP 1203 v03.04, §6.1. May 2011.)

Export to message sign

When exporting your message directly to a Wanco message sign, your computer must be connected to the sign—wirelessly, using an Internet connection and a cellular modem at the sign; or directly, using an Ethernet cable connected to the message sign computer.

To export your message directly to a message sign, see Section 4.2.1, page 19.

3.4 Message window

3.4.1 Sign model

Before you create or edit a message, you should ensure that the sign model is correct.

When creating a new message, you must first choose a message sign model, because each model's display has a specific number of pixels. A message you create for one model may not work on another model.

The Sign Model area in the Message window lists the message sign model number and pixel size (width by height) for the message you are creating or editing. The sign model is saved with the Message Graphics file so that, if you open the file for editing, the program can show the correct model.

3.4.2 Message area

Create or edit your message in the message area, using tools in the Tools window. When using a tool, you select it, then click in the message area to use it.

If the message has multiple pages (see Section 3.4.4), click in the message area for the page you want to change. The selected page is indicated with a black border.

The Cursor Coordinates indicator shows you where your cursor is located in the selected page, so that you can accurately position drawing and text objects.

3.4.3 Magnification

The magnification area allows you to zoom the message area in or out.

Each pixel in the message area represents a pixel on the message sign display. Because a pixel on your computer screen is very small (approximately 1/72 inch), it is helpful to be able to make the message area larger, so you can see what you are doing.

3.4.4 Message pages

A message can appear all at once or on multiple "pages," alternating between two pages (for example, 1,2,1,2…) or sequencing between more than two pages (for example, 1,2,3,1,2,3…).

You can select any page by clicking on it. The Selected Page indicator in the Message window shows the number of the currently selected page. Additionally, a black border appears around the selected page in the message preview area.

Adding and deleting pages

By default, a new message has one page. You can add up to 9, for a total of 10. New pages are added after the last page. When you open the file for a multi-page message, all pages will be shown.

■ To add pages to the end of your message, click the **Add Page** ⬜ button.

■ To delete a page, click on it in the message area, then click the **Delete Page** ⊠ button.

Copying objects from one page to another

You can copy and paste objects from one page to another. When pasted on a new page, a copied object is positioned in the same location.

To copy and paste objects:

1. Use the Selection tool ▸ in the Message window to select the objects you want to copy.

■ To select more than one object, press and hold the **Ctrl** key while clicking with the Selection tool.

■ To select all objects, choose Edit > Select All in the Message window.

2. Copy the selected objects by choosing Edit > Copy or pressing **Ctrl-C**.

3. Click on the page you want to paste the objects into, then choose Edit > Paste or press **Ctrl-V**.

4. Repeat Step 3 for each page you want to paste the objects into.

3.4.5 Color intensity

When creating or editing a message for a color message sign, the Color Intensity area is visible in the Message window. Use the Color Intensity drop-down menus choose the intensity for each color in the message.

The intensity is significant, because some color combinations have less contrast than desired when viewed on the message sign display. For example, if blue and white pixels appear next to each other on the sign, and they are both set to full (High) intensity, they may be indistinguishable; therefore, you might choose to set the blue intensity to Low, which will make the white stand out by comparison.

Colors set to low- and medium-intensity appear muted in the message area.

> **IMPORTANT!**
>
> Do not confuse the color intensity setting in the Message Graphics program with display brightness on the message sign.
>
> Wanco message signs are designed to get brighter and dimmer depending on ambient light. The less ambient light, the dimmer the sign, which conserves energy and improves performance.
>
> Because the color intensity you choose for each color is relative to the other colors, and the brightness of the message on the sign is relative to ambient light, it is possible to choose High intensity and have it displayed on the sign at less than 100% brightness. This is intentional, not a flaw.
>
> Because some color combinations have low contrast, it is important to choose color intensity without regard for display brightness. If designed with proper intensity settings, your message will be displayed equally well at low and high brightness.

3.4.6   Edit menu

The Edit menu has options to make creating and editing a message easier, including some that are also in the button bar:

Select All	Selects all objects on the active message page
Unselect All	Deselects all objects on the active message page
Delete	Permanently removes the selected objects
Delete All	Permanently removes all objects on the active message page
Move to Front	Moves the selected objects in front of all other objects on the active message page
Move to Back	Moves the selected objects behind all other objects on the active message page
Group	Combines the selected objects into a single grouped object so they can be treated as a single unit
Ungroup	Separates the selected group into individual objects so that they can be handled one at a time
Copy	Copies the selected objects
Cut	Copies and removes the selected objects
Paste	Inserts the copied objects in the active message page
Add Page	Adds a new blank page to the end of the message
Delete Page	Permanently removes the active message page

3.4.7   Button bar

The button bar provides easy access to commonly used options, including some that are also in the Edit menu:

	Save	Saves the message as a fully editable Message Graphics (.wgr) file
	Create Template	Saves the selected objects as a fully editable template (.wgt) file
	Select	Activates the selection tool for selecting objects in the message area
	Move to Front	Moves the selected objects in front of all other objects on the active message page
	Move to Back	Moves the selected objects behind all other objects on the active message page
	Group	Combines the selected objects into a single grouped object so they can be treated as a single unit
	Ungroup	Separates the selected group into individual objects so that they can be handled one at a time
	Delete	Permanently removes the selected objects
	Add Page	Adds a new blank page to the end of the message
	Delete Page	Permanently removes the active message page
	Undo	Lets you undo previous operations
	Redo	Lets you redo operations you have undone

3.5   Tools window

3.5.1   Drawing and shape tools

Select drawing tools in the Tools window and use them to place objects in your message by clicking in the message area in the Message window.

Most tools can be configured using the shape tools and color selector in the Tools window. You can configure a tool before using it to create an object; but you can also reconfigure an object after creating it, by selecting it in the message area and then changing the options with the shape or text tools.

Tips for using drawing tools

■ To keep a shape's proportions before you draw, select the tool, then hold down the **Shift** key before clicking and dragging with the tool in the message area of the Message window. Release the **Shift** key after drawing the object. Thus a rectangle becomes a square, and ellipse becomes a circle, and so on.

- To keep a shape's proportions when resizing it, select the object, then hold down the **Shift** key before clicking and dragging one of the object's corner anchor points. Release the **Shift** key after resizing the object.

- To draw a horizontal or vertical line or arrow, or a 45-degree arrow, select the tool, then hold down the shift key before clicking and dragging with the tool in the message area of the Message window.

- When drawing a shape, you can choose a pen width with the shape tools. Pen width is the number of pixels the shape will have as a border on the message sign. You can also choose the border color.

- When drawing a triangle, you can choose whether the triangle points down or up.

- When drawing an arrow, you can choose a size for the arrowhead.

Drawing tool buttons

☐	Rectangle	Lets you draw a rectangle or square
○	Ellipse	Lets you draw an ellipse or circle
▬	Line	Lets you draw a straight line
✎	Polygon	Lets you draw a free-form polygon shape
T	Text	Lets you insert text into your message
		To use the text tool, first select the tool, then click in the message area of the Message window, then return to the Tools window and type your text in the Enter Text box.
		When using the text tool, you can use the text tools to configure line spacing, justification, and the font. You can also choose whether your text should be all upper-case letters.
○	Octagon	Lets you draw an octagon
◇	Diamond	Lets you draw a diamond shape
△	Triangle	Lets you draw a triangle
→	Arrow	Lets you draw an arrow shape
▦	Template object	Opens the Template Selection window, which lets you insert previously saved objects into your message
		The Template Selection window displays icons for each template you have saved (see "Saving templates," page 8). You can also choose the file folder where these templates are saved.
		Click an icon to insert the template into your message.
▶	Select	Activates the selection tool for selecting objects in the message area of the Message window

3.5.2   Color selector

The color selector lets you choose the fill color for an shape or text object. The border color is determined based on the choices you make with the shape tools.

When creating or editing a message for a color message sign, all the colors are available; otherwise, only amber and black are available.

To change the color of an object you have already created, select it in the message area and then click a color in the color selector.

3.5.3   Test tools

The test tool is a **Play** ▶ button that lets you preview an animated multi-page message. Click in the Message window before clicking the **Play** button.

After you click the **Play** button, the Playback window opens. You can click the **Play** button in that window to animate your message, or click **Forward** ▶▏ or **Reverse** ▕◀ to browse through your message pages one at a time. An indicator at the top of the window tells you which page is being displayed. Click **Stop** ■ to end the animation.

3.5.4   Page times

You can configure page times for multi-page messages. Using the settings in the Page Times area, you can set both the page-on and page-off times.

When setting page times, note the page number indicated in the Page Times area. Each page of a multi-page message can be configured individually.

Ensure that your settings are appropriate for your message and the intended application of the message sign.

3.5.5   Background image

You can create a background for your message using an image file, such as a photograph, logo, or other graphic image. Simple images work best, because the message sign can only display a limited number of colors.

You can also edit an existing background, copy a background from one message page to another, and convert shape and text objects to a background.

A background is a bitmap image* that can only be modified using the editing tools in the Background Editor window.
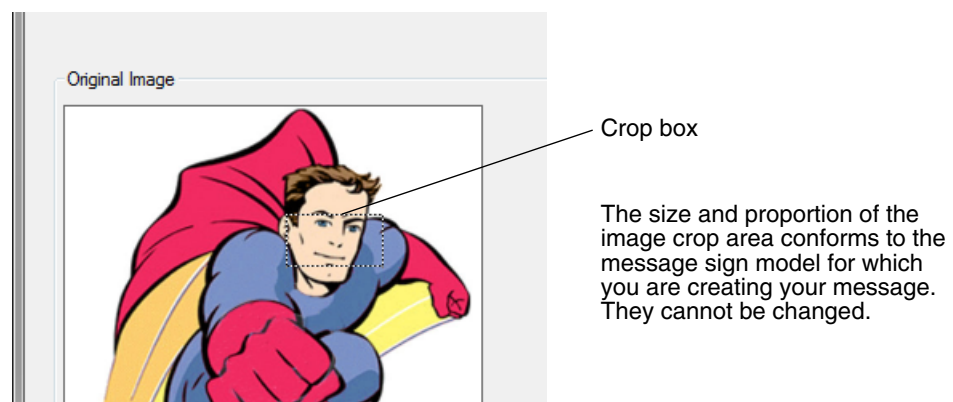
---

*A bitmap image consists of an array of dots, each filled with a solid color. In the Message Graphics program, each dot represents a pixel on the message sign.

Add a background image

To add a background image to your message:

1. Click the **Add/Edit Background** ⊳ button in the Tools window to open the Background Editor window. Use the Background Editor for the rest of this procedure.

2. Insert an image into the Original Image area using one of the following methods:

   ■ Locate the image file on your computer, then click and drag it into the Original Image area.

   ■ Open the image file in any appropriate program on your computer, and copy it to the clipboard. Then, click anywhere in the Background Editor and paste the image by pressing **Ctrl-V**.

3. Size and crop the image:

   a. Use the Scale slider to resize the image in the Original Image area, so that the desired portion of the image fits the crop box (Figure 3-5).

   b. Click and drag the crop box until the desired portion of the image appears in the Cropped Image area.

4. Make adjustments:

   a. To achieve the background you desire, use the Scale and Contrast sliders, and move the crop box, until the Mapped To Sign preview shows what you want it to show. Use the Magnification options to enlarge or reduce the preview for a better look at your image.

   b. If desired, click the **Edit Bitmap** button to make changes to the image using the editing tools (see "Background Editor tools," page 17).

5. When you are done creating your background, click the **Accept** button. To exit the Background Editor without saving your background, click the **Cancel** button.

Figure 3-5. Image crop area

Crop box

The size and proportion of the image crop area conforms to the message sign model for which you are creating your message. They cannot be changed.

Edit a background image

To edit a background image:

1. Click the **Add/Edit Background** ▶ button in the Tools window to open the Background Editor window.

2. To replace your background with a new image, use the "Add a background image" procedure, above.

3. To edit your background, click the **Edit Bitmap** button and use the editing tools (see below).

Background Editor tools

✎	Draw	Draws a single pixel of the selected color
▧	Fill	Fills the area you click with the selected color
▦	Select Area	Lets you choose an area to copy
		Click and drag the area you want to copy, then press **Ctrl-C** to copy it.
		After copying, press **Ctrl-V** to paste. The copied portion of the background will be pasted wherever you click.
		Click repeatedly to create a pattern. If you make a mistake, press **Ctrl-Z** to undo, then click again to continue pasting.
		Exit the paste mode by pressing **Esc** on your keyboard.
	Clear	Erases the entire background
	Negative	Converts all colors to their opposites
	Discard Edits	Reverts to the background you started with
		If you revert by accident, you can recover your last change if you click the **Edit Bitmap** button before you click anything else, and then press **Ctrl-Z**.

Copy a background image

You can copy a background from one page to others in a multi-page message. To copy a background:

1. In the Message window, select the message page with the background you want to copy.

2. In the Tools window, click the **Copy Background** ▦ button.

3. In the Message window, click the page or pages you want to copy the background into.

4. Exit the copy-and-paste mode by clicking the **Copy Background** button, or by pressing the **Esc** key, or by selecting another tool.

Convert foreground objects to background image

After creating part of a message, you may want to convert it to a background.

The objects you create are fully editable — that is, they can be resized and moved, their fill and border colors can be changed, etc. Note, however, that a background is a bitmap image, and your ability to edit the background is limited.

IMPORTANT!

After you convert a message to a background, you cannot undo the conversion.

To convert a message to a background:

1. In the Message window, select the message page you want to convert.

2. In the Tools window, click the **Convert to Background** button.

4 Transferring messages to the sign

4.1 Overview

Before you can transfer your message to a message sign, you must either connect your computer to the sign or export your message as an NTCIP-compatible MULTI file.

■ If your computer is connected to the message sign—wirelessly, using an Internet connection and a cellular modem at the sign; or directly, using an Ethernet cable connected to the message sign computer:

❑ You can export your message directly from the Message Graphics program to the sign (see Section 4.2.1).

❑ You can use the Wanco Remote Control program to transfer your message to the sign (see Section 4.2.2).

■ If your computer is not connected to the message sign, you can transfer the file to the message sign computer using a USB flash drive (see Section 4.2.3).

4.2 File transfer

4.2.1 Export to sign

The Message Graphics program can transfer a message directly to a Wanco message sign if your computer is connected to the sign (see Section 4.1).

IMPORTANT!

When you upload messages to the sign, messages already on the sign that have the same message numbers as your new messages will be replaced and cannot be recovered.

To export your message directly to a message sign:

1. Ensure your computer is connected to the message sign computer—wirelessly, through a cellular modem; or directly, with an Ethernet cable.

2. Use the Message window and choose File > Export > Export via IP.

3. Enter the message sign IP address.

4. Change the port only if necessary.

5. Enter the numerical portion of the custom-message number (i.e., do not enter the "C").

6. If you want the message to be activated on the sign as soon as it is exported, ensure the Activate Message check box is checked.

7. Click **Send**.

4.2.2   Transfer with Wanco Remote Control

The Wanco Remote Control program lets you interact with a Wanco message sign using a personal computer, an Internet connection, and a cellular modem installed at the sign.

One function of the program is to upload messages from your computer to the sign's control system. Before you can upload your message to the sign, you must export it as a MULTI file (see Section 3.3.7, page 9).
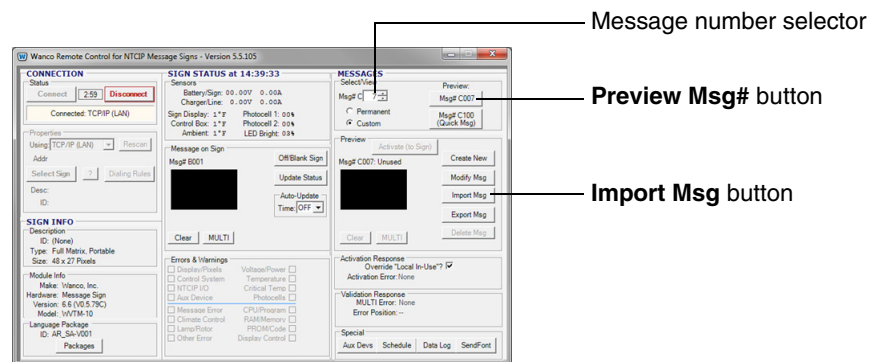
IMPORTANT!

When you upload messages to the sign, messages already on the sign that have the same message numbers as your new messages will be replaced and cannot be recovered.

To transfer a message to the sign:

1. Run the Remote Control program and connect to the message sign.

2. Choose a message number using the selector (see Figure 4-1). The number you choose will be the number of the custom message for your imported message (C001, C002, C003, … through C150).

3. Click the **Preview Msg#** button.

4. Click the **Import Msg** button.

5. Locate the file you want to import from your computer.

6. Click **OK**. The message will be imported as the message number you chose in Step 2.

After importing your message, you can choose to activate the message on the sign, import another message, or perform other tasks.

Figure 4-1. Wanco Remote Control program

Message number selector

Preview Msg# button

Import Msg button

4.2.3 Transfer from USB flash drive

You can choose to transfer one or many messages to a message sign using a USB flash drive. When transferring files using this method, the file names must be in the format Cxxx.multi, where "xxx" is the custom-message number (C001.multi, C035.multi, etc.). Before you can upload messages to the sign, you must export them as MULTI files (see Section 3.3.7, page 9).

IMPORTANT!

When you upload messages to the sign, messages already on the sign that have the same message numbers as your new messages will be replaced and cannot be recovered.

To transfer messages to the sign, follow the procedure described below.

1. At your computer:

   a. Download the MessageTransfer.zip file from www.wanco.com. Contact the Wanco service department for access to the file (see Section 1.2, "Where to obtain service," page 1).

   b. Unzip the files contained in MessageTransfer.zip to the root directory on your flash drive. You should see two files on the flash drive: autorun.sh and installCMessages.sh (see Figure 4-2).

   c. Copy one or more MULTI files from your computer and paste them into the root directory on your flash drive (see Figure 4-3). Copy and paste all of the MULTI files you want to transfer to the message sign.

   d. Eject the flash drive and remove it from your PC.

Figure 4-2. Example: Flash drive root directory with message-transfer files

Two message-transfer files
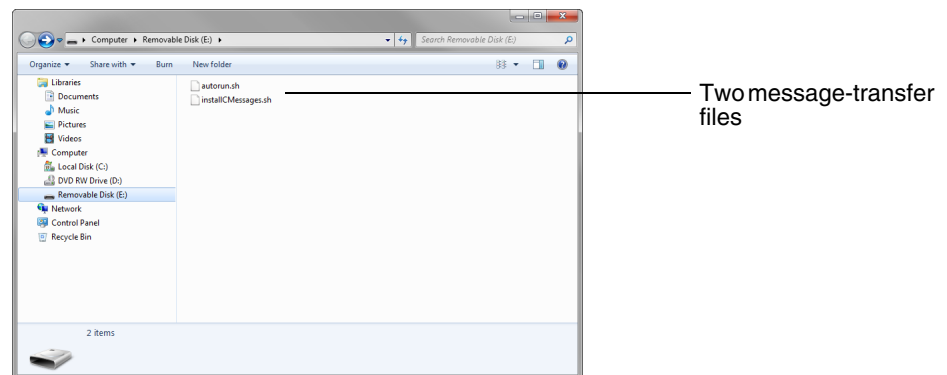
Figure 4-3. Example: Flash drive root directory with all files

Message-transfer files

MULTI files

Your files may have different file names
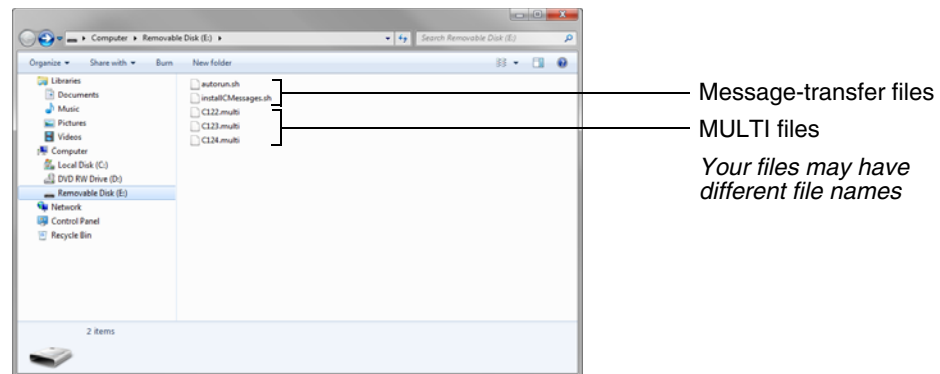
2. At the message sign:

   a. Configure the sign to show a message. Choose any message. This is so you can see when the sign restarts later in the procedure.

   b. Insert the flash drive into the USB port on the sign's computer box. This port could be located on front of the black box located inside the sign's battery box or (for truck-mounted signs) behind the seat in a vehicle cab, or on the right side of the control panel inside the sign's control box.

   c. When the flash drive is inserted into the USB port, the file transfer will begin. The sign's computer will load the new messages and then restart the sign. This process should take less than two minutes.

   d. After the sign restarts and the message you chose appears on the display, then remove the flash drive from the USB port.

   After the sign restarts, your new messages will be available for immediate use.

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