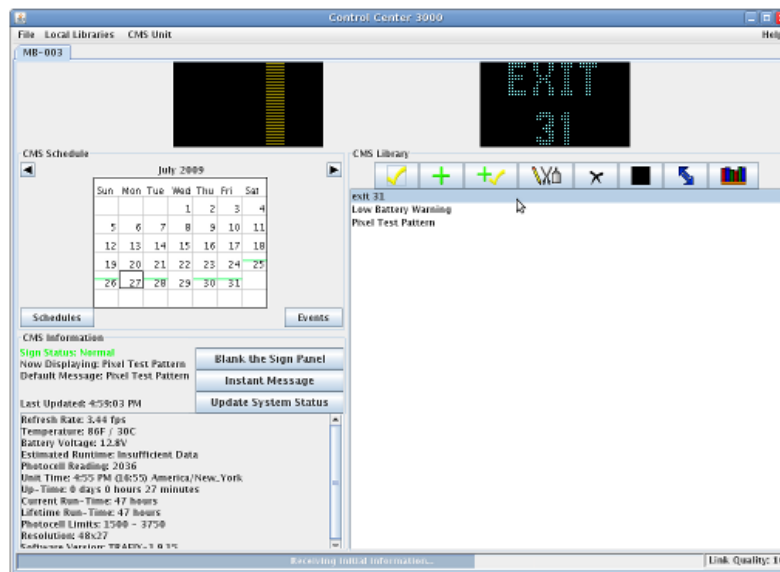**Operations Manual**

for

Control Center 3000

Version 1.9

Software for the remote control of SolarTech® Silent Messenger CMS equipped with the *MegaTech©* control console and *TRAFIX©* operating system.

Introduction

Control Center 3000© is a program that runs on your computer (Windows, Linux, or Mac) and allows you to update messages on your CMS units, as well as other useful tasks like checking the battery voltage or copying messages from one sign to another. You can do almost anything in Control Center 3000© that you can do standing at the sign's console – but from the comfort of your office or vehicle.

You can also control your CMS units from a web-enabled mobile device, such as a BlackBerry or iPhone, by turning on the web interface (see page 74 to learn how).

After installing Java on your desktop or laptop computer, you can install Control Center 3000© and begin managing your CMS units. We'll walk you through connecting to your sign and get you started with the tasks you need to do, like creating and changing messages. With Control Center 3000© you can even create your own graphics and animations.

If you manage several CMS units, Control Center 3000© gives you a way to share messages between them, as you'll learn in the section on Message Libraries.

From Control Center 3000© you'll also be able to check on the status of your units – like whether the battery voltage is getting low and what message is currently being displayed on the sign panel. You'll be able to adjust settings, like the sign's brightness in different light levels. And you can even perform maintenance tasks like clearing debris from the solar panel (if your unit supports it) and testing the sign panel modules in case of a problem.

Read on to learn how to get the most out of your CMS units from the convenience of your laptop or desktop computer! In the table of contents, you'll see walk-throughs highlighted in **bold text**–skip to these for a quick start on common tasks.

Table of Contents

Chapter 1

Installation & Setup

You must have Java installed on your computer to run *Control Center 3000©.* (Instructions for installing Java are given below.)

System Requirements

Control Center 3000© requires the latest version of Java (6.0 or greater). Java supports a variety of platforms, including Windows 2000, Windows XP, Windows Vista, Linux, and Apple OS X.

If your CMS unit communicates via circuit-switched cellular modem, you will need a modem attached to a serial port on your Windows or Linux computer.

Walk-through: Installing Java

Apple (Mac OS X) supplies their own version of Java. Use the Software Update feature to install or update Java on your Mac.

1. Visit Solar Technology's website at www.solartechnology.com to get Java and the latest version of *Control Center 3000©.*

2. Mouse over the **Product Support** menu and select **Software Upgrades**. Next, click on the *MegaTech©* **controller**, and scroll down to the bottom of the software upgrades page (see the window below).
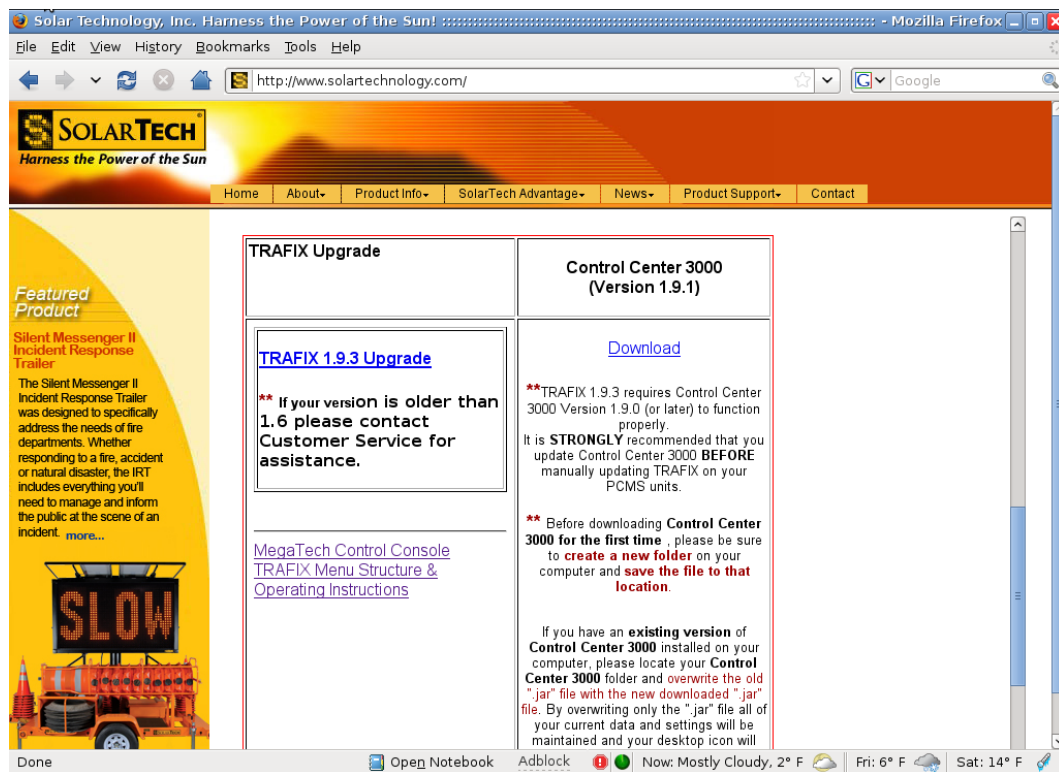
3. Scroll down and click on **Get Java here** to install Java on your computer. On the next screen click on Free Java Download.

4. Follow the on-screen instructions carefully until the process is complete.

Walk-through: Installing Control Center 3000

> These instructions are for Windows 2000 or greater. Contact your computer administrator for help installing *Control Center 3000* on other systems such as Macintosh or Linux.

1. Create a new folder on your C-Drive (or your "Default Drive") and name it "Control Center 3000" .

2. Go to www.solartechnology.com and mouse over the **Product Support** menu and select **Software Upgrades**. Next, click on the *MegaTech© controller*, and scroll down to the bottom of the software upgrades page to the current version of *Control Center 3000*. (This was the same page where you clicked the Get Java here link.)

3. Under the Control Center3000 section click on **Download**. On the next window click on **Save**.

4. Select the folder you just created (Control Center 3000) and then click Save.
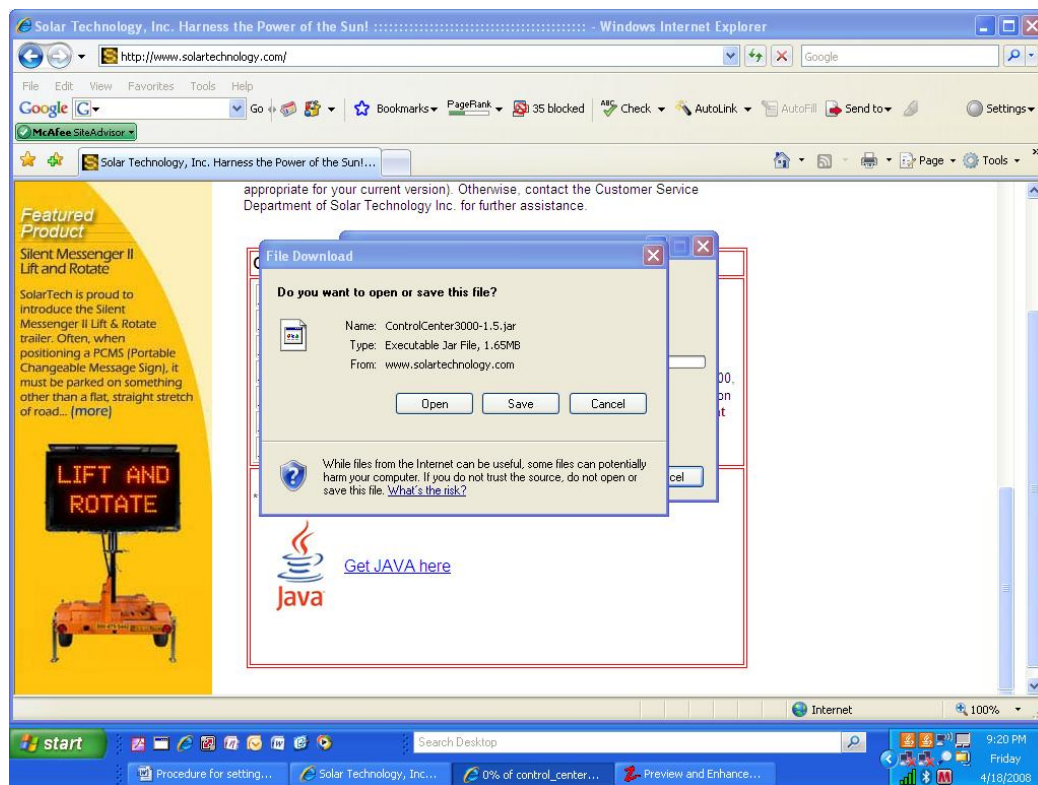
5. When the download is complete, click on **Open folder**. In the folder, right-click on the file named **Control Center3000 Executable Jar File**, and select **Send to Desktop**. Installation is now complete.

6. To launch *Control Center 3000,* simply double-click on the **Control Center 3000** Icon on your desktop. (Refer to the next section to configure your CMS unit to communicate with *Control Center 3000).*

Connecting to a CMS Unit

Before you use *Control Center 3000©* to control a CMS unit for the first time, you will need to establish a connection between your computer and the unit. Then you will be able to add a CMS Unit entry in *Control Center 3000©* with the connection information for that unit.
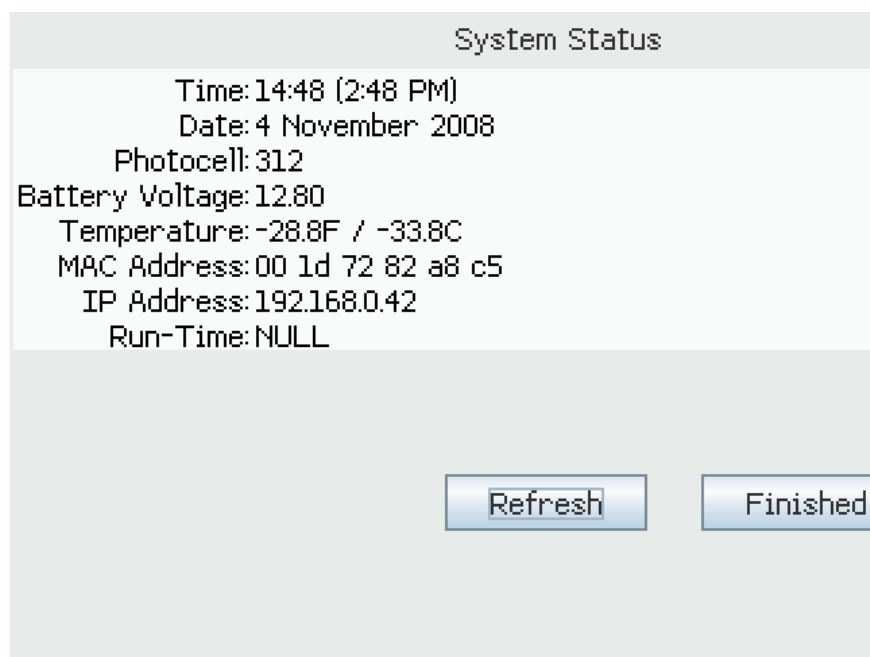
- If your CMS unit has an IP addressable (Packet Switched Data) cellular modem, you can connect from any computer that has access to the Internet. This is the most common setup. See page 11.

- If your CMS unit has a digital dial-up CSD (Circuit Switched Data) cellular modem, you can connect from any computer that has a standard modem connected to a standard (POTS) phone line. See page 12.

- If your CMS unit has a wireless router or access point, you can access the sign from a wireless-enabled computer. You will need to be near the unit (for example, parked in a truck nearby). See page 12.

- If your CMS unit is equipped for direct Ethernet connection, you will need to connect your computer to the unit with an Ethernet cable. See page 15.

Finding the IP Address of your CMS unit

To communicate with your CMS unit, you will need to know its IP address. Follow the instructions for your version of *TRAFIX©*:

Finding the IP Address on *TRAFIX© 1.9* or earlier

1. Log in to the CMS unit, powering it on first if necessary. (The main power switch is located on the Energy Management System.)

2. Touch the **Main Menu** button. If Password Security has been enabled, enter a valid User, Supervisor or an Administrator Password and touch the **OK** button.

3. Once presented with the Main Menu, select the User Menu by touching the **User Menu block**. Then touch the **View System Status** button.

```
                          System Status

               Time: 14:48 (2:48 PM)
               Date: 4 November 2008
          Photocell: 312
   Battery Voltage: 12.80
       Temperature: -28.8F / -33.8C
       MAC Address: 00 1d 72 82 a8 c5
        IP Address: 192.168.0.42
          Run-Time: NULL



                              [ Refresh ]        [ Finished ]
```

4. Under **System Status**, locate the IP Address assigned to the unit. This will include four numbers separated by dots (example: 192.168.0.42). You will need this IP Address to set up the CMS Unit in *Control Center 3000* on your desktop computer. When finished, touch the **Finished** button to return to the User Menu and then touch the **Log Out** button.

Finding the IP Address on *TRAFIX© 2.0* or later

1. Log in to the CMS unit, powering it on first if necessary. (The main power switch is located on the Energy Management System.) Touch the **Information** button at the bottom of the screen.

2. On the **Information screen** (shown above), locate the IP Address assigned to the unit. This will include four numbers separated by dots (example: 192.168.1.2). You will need this IP Address to set up the CMS Unit in *Control Center 3000* on your desktop computer. When finished, touch the **Log Out** button.

Walk-through: Connecting via Internet (CMS unit equipped with IP addressable cellular modem)

> The computer on which you have installed Java and *Control Center 3000 must be connected to the internet* to connect to a remote Silent Messenger CMS equipped with an IP addressable cellular modem.

1. Find the IP Address of your CMS unit using the procedure on page 9 (*TRAFIX 1.9*) or page 10 (*TRAFIX 2.0*).

2. Follow the directions for connecting to your CMS unit starting on page 21.

Walk-through: Connecting via Dial-up Modem (CMS unit equipped with digital dial-up cellular modem)

> The computer on which you have installed Java and *Control Center 3000* must be connected to a standard POTS phone line with a standard modem to connect to a CMS unit equipped with a digital dial-up cellular modem.

1. Determine the phone number of the CMS unit you wish to control. You will need this information the first time you connect to the unit with *Control Center 3000*. (Your cellular provider should have given you this information during activation.)

2. Follow the manufacturer's directions to configure the modem that is attached to your computer, if necessary. You may need to specify your modem's COM port in Device Manager. Consult the factory if you have trouble setting up your modem.

3. Follow the directions for connecting to your CMS unit starting on page 21.

Walk-through: Connecting via Wireless Router

Computer requirements

- Operating system: Microsoft® Windows: Vista®; Xp®; 2000® or Linux®

- Hardware: Computer must have an 802.11.b/g wireless network card installed (Internal, USB or PCMCIA).

- The following information is required to connect the computer to the wireless router installed in the CMS unit:

    - **Network SSID** (Name given to the wireless router installed in the CMS unit)
    - **Network key** (Security password for wireless router)

Note: This procedure is based on the Microsoft® Windows XP® operating system, which is very similar to Windows 2000® and Vista®; however, there may be slight differences on the windows screens and within the procedure. Please contact your company's network administrator for assistance if you have any problems.

Connecting your computer to the wireless router

1. Right-click on the wireless card icon and select OPEN UTILITY. A window similar to that shown below will appear. (Note: window appearance will depend on the wireless utility available on your computer.)
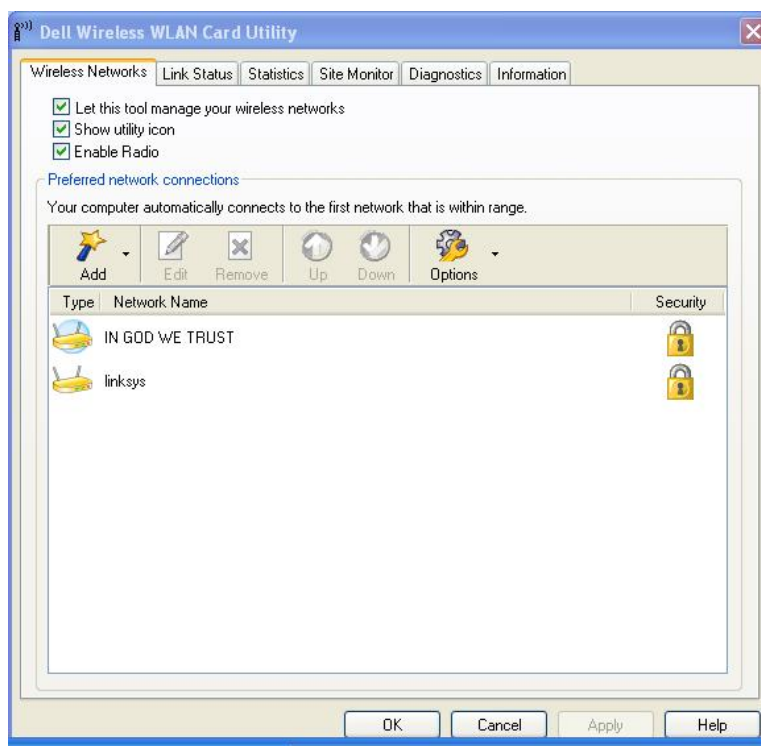
2. Click on Site Monitor to scan for available network within range and the following window will appear:
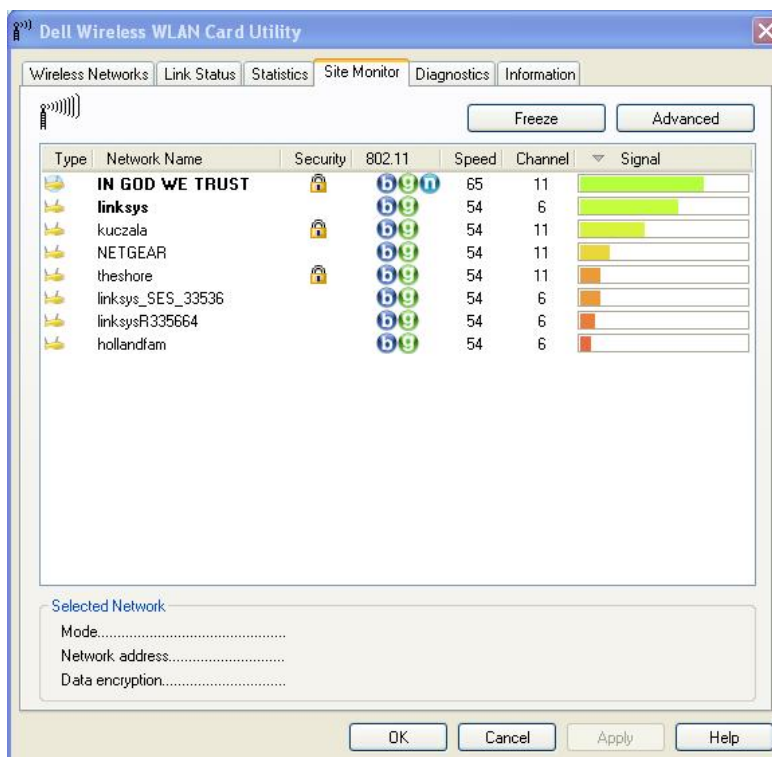
3. Identify the wireless network (Network name) for the CMS you wish to connect to and control. Double-click on the selected network name and the following window will appear:
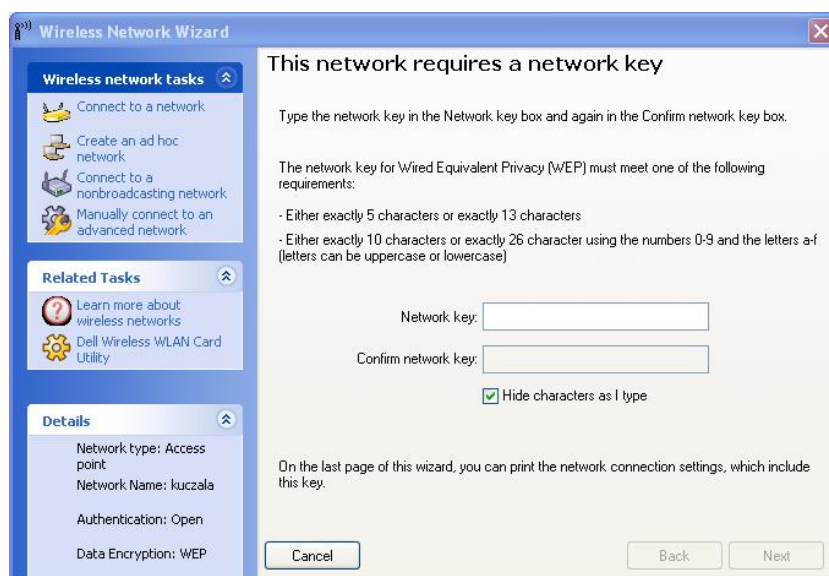
4. Enter the Network key (password) for the wireless router and then click Next. The window will close and your network card status will indicate connected. This means you have successfully connected to the wireless router.

5. Find the IP Address of your CMS unit using the procedure on page 9 (*TRAFIX* 1.9) or page 10 (*TRAFIX* 2.0).

6. Follow the directions for connecting to your CMS unit starting on page 21.

# Walk-through: Connecting via Direct Ethernet

Computer requirements:

- Operating system: Microsoft® Windows: Windows 7**®**; Vista®; Xp®; 2000® or Linux®

- Hardware: Computer must have an Ethernet port and you will need an Ethernet Cable.

This procedure is for connecting your computer directly to the *MegaTech©* Control Console to enable control via *Control Center 3000©* using an Ethernet cable.

1. Connect one end of the Ethernet cable to the control console Ethernet port and the other end to your computer Ethernet port.

2. Check the splash screen of the CMS unit to see which version of *TRAFIX©* it is running, and follow the directions below to set its IP address.

Configuring the IP Address on *TRAFIX©* 1.9 or earlier

> The CMS unit's power must remain on at all times for *Control Center 3000* to communicate with the remote CMS.

1. Turn on the main power to the CMS (main power switch is located on Energy Management System).

2. After logging in, touch the **Main Menu** button. If Password Security has been enabled, enter a valid Administrator Password and touch the **OK** button.

3. Select the Administrator Menu by touching the **Administrator Menu block**. From the Administrator Menu touch the **Configure IP Address** button.

4. Touch the radio button next to **Assign Static IP Address**.

5. Enter the following information:

IP Address	192.168.1.2
Gateway	192.168.1.1
Netmask	255.255.255.0

You may select any valid IP address, as long as the control console and your computer are in the same network and have different IP addresses.

Configuring the IP Address on *TRAFIX©* 2.0 or later

> The CMS unit's power must remain on at all times for *Control Center 3000* to communicate with the remote CMS.

1. Turn on the main power to the CMS (main power switch is located on Energy Management System).

2. After logging in, touch the **Settings** button at the bottom of the screen.

3. Touch **IP Address**.

4. Touch the radio button next to **Assign Static IP Address**.

5. Enter the following information:

IP Address	192.168.1.2
Gateway	192.168.1.1
Netmask	255.255.255.0

You may select any valid IP address, as long as the control console and your computer are in the same network and have different IP addresses.

Completing your configuration for a direct ethernet connection
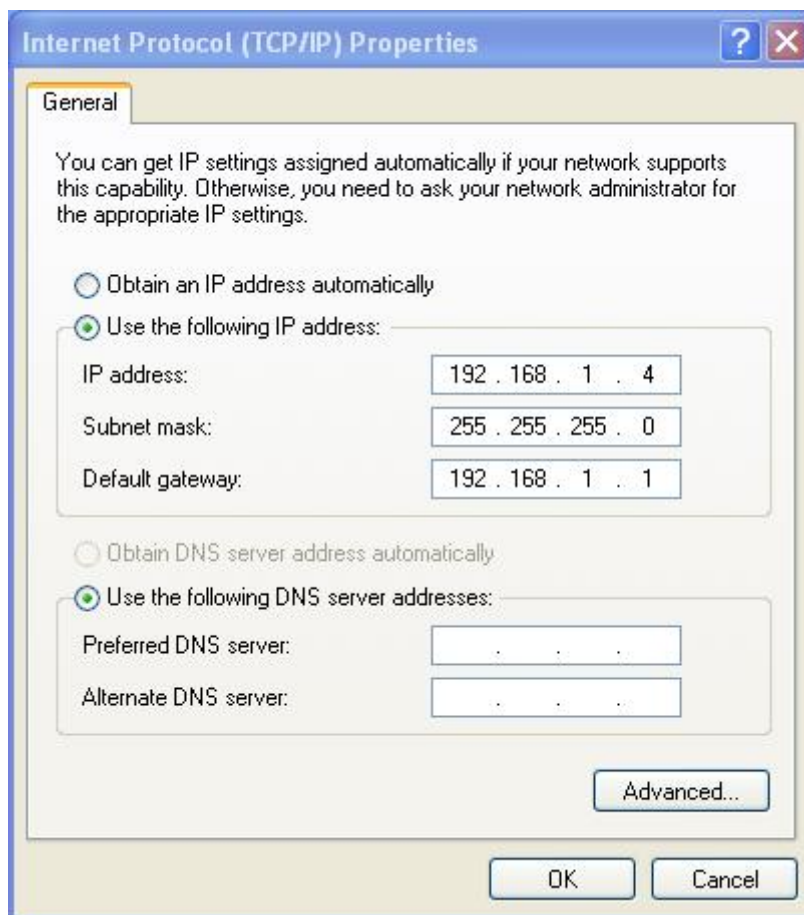
1. At the computer, click on the **Start** button and select **Settings** and then **Network Connections**. (This procedure will depend on the personal settings on the computer – i.e. Start Menu or Classic Start Menu)

2. Right-click on **Local Area Connection Adaptor** and select **Properties**. The following screen will appear:
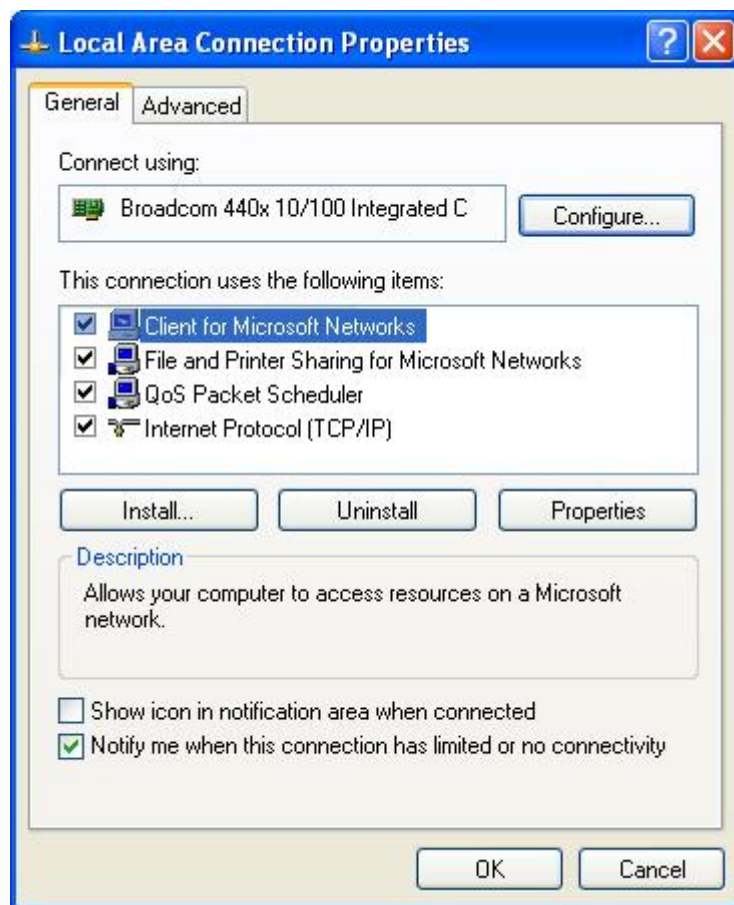
3. Click on the **Internet Protocol (TCP/IP)** then **Properties.** The following window will appear:
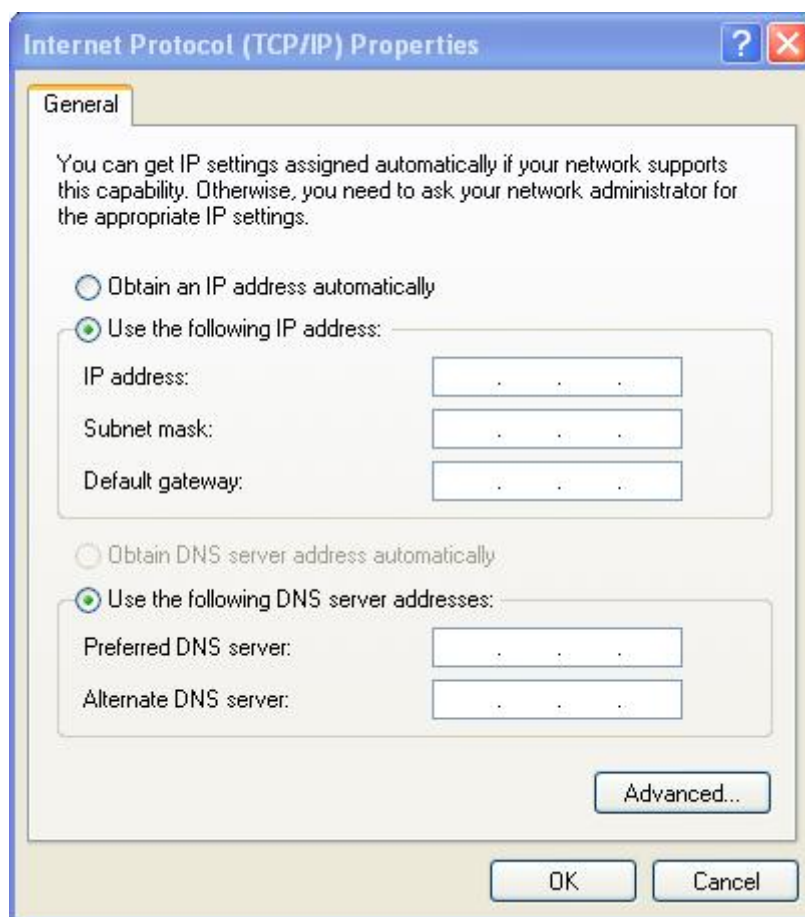
4. Select **Use the following IP address**. Enter the data as shown below. Remember that the computer and CMS unit must have different IP addresses in the same network.

5. When complete – click on **OK** and close all windows.

The control console and your computer must have different IP addresses in order for the two to communicate properly.

Chapter 2

Control Center Operation

Launch *Control Center 3000* using the **Control Center 3000** shortcut you created. The starting screen looks like this:

Walk-through: Adding a CMS Unit

Follow these instructions to allow *Control Center 3000* to communicate with the CMS unit(s) you configured in the previous section.

> The CMS unit's power must remain on at all times for *Control Center 3000* to communicate with the remote CMS.

1. Click the **Add Unit** icon. A window like this will appear:

2. In the **ID** field, enter a name that will describe the CMS unit that you are setting up, such as a serial number or nickname.

3. In the **Connection Type** field, select the appropriate connection type. (Refer to the instructions you were given when the unit was installed.)
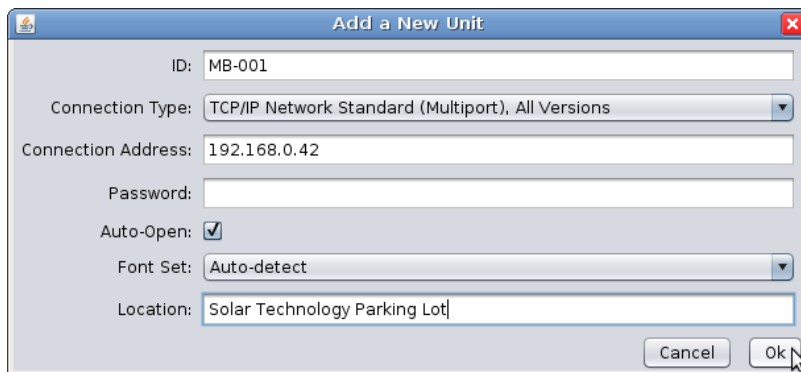
Use...	For connection...
TCP/IP Network Standard (Multiport)	All IP connections except where single-port is required.
TCP/IP Network Enhanced (Single Port)	IP connections where Multiport is not supported (such as through a VPN), or when indicated by technical support. Requires TRAFIX© 1.9.0 or later.
Point-to-Point Serial Dial-Up	Connection to units equipped with digital dial-up CSD modems. Requires TRAFIX© 1.9.0 or later.

> If you are using a serial digital dial-up connection you will have to configure the COM port to that of the modem on your computer by selecting **Settings > Set Serial Modem Port**.

4. In the **Connection Address** field, enter the IP address that you copied from the Control Console, or the phone number of the CSD digital dial-up modem.

5. If your CMS unit requires a password for access, enter that password in the **Password** field. (If your unit does not use a password, leave this field blank.) Once connected, you can set or change a password under **CMS Unit > Set the Unit's Communications Password**.

6. The **Auto-open** option will automatically open this CMS unit when you start up the *Control Console 3000* program. Only check this option if the unit will always be available to your computer.

7. In the **Font Set** field, keep the setting at **Auto-detect** unless otherwise directed by SolarTech technical support staff.

8. In the **Location** field, describe the unit's location for easy identification. No computer program will read this field; it is just for your convenience.

9. An example configuration is shown below. Click the **OK** button to finish.

10. Repeat these steps to add additional CMS units.

Working with your CMS unit

All of the CMS units you have added will be available on the **CMS Units tab** of *Control Center 3000*:

The screen above shows the **icon view**. If you have many units, you may find the **list view** more convenient. Click **list view** at the top right of the screen to switch to this view:

In whichever view you use, each EMC unit has its own icon. To work with a unit, click its icon. A new tab will appear for that unit (visible at the top of the screen) and the screen will look like the one shown in "Getting Started" on page 26.

To change the connection settings for a unit, click the **green wrench** next to its icon.

To delete a unit, click the **red X** next to its icon.

If you do not see a screen like the one in "Getting Started", below, check the **Connection Address** or **Phone Number** for accuracy and verify that your internet connection is working or your modem and phone line are operational. (Test your internet connection by using your browser to connect to a favorite website. Or, test your modem by connecting to another dial-up modem.) If you experience problems with your internet connection, contact your network administrator.

Getting Started

Clicking a unit's icon, or selecting its tab, will show the main screen for managing that unit. This screen has the following features:
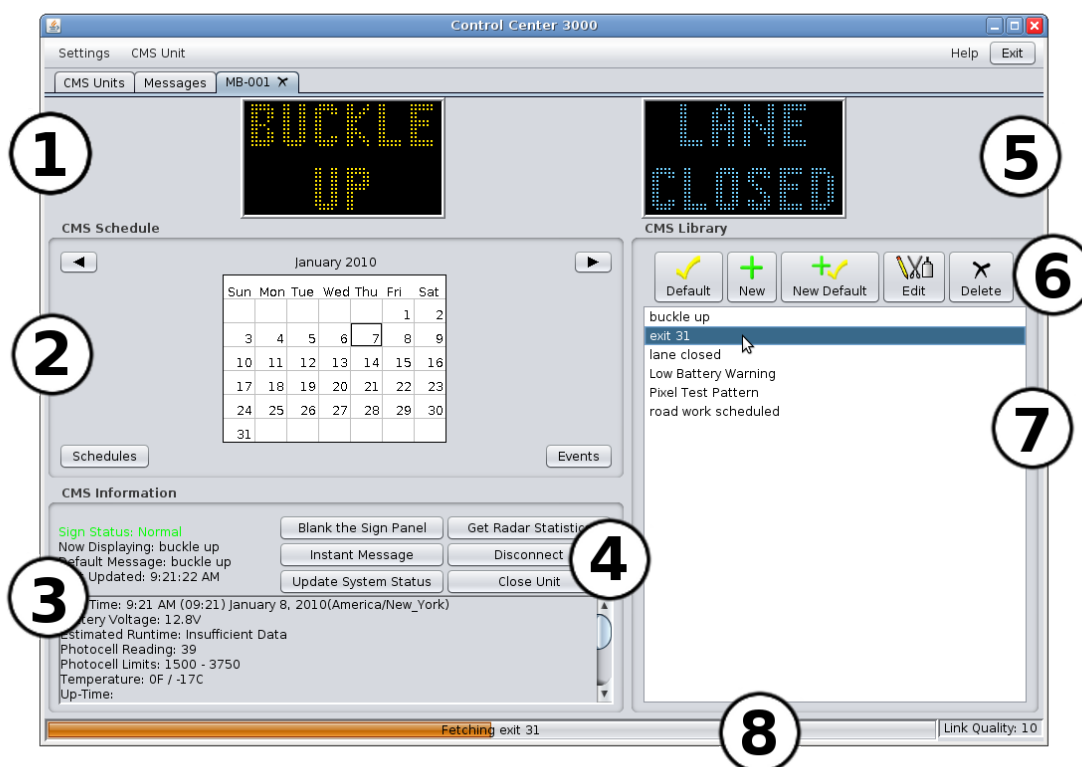
Features of the CMS Unit Screen

1. **Current Message Screen** – shows the message that is currently displayed on the CMS Unit's sign panel (amber color).

2. **CMS Schedule** – calendar for scheduling messages. Create time-based or event-based schedules with the tools in this section. (page 43)

3. **CMS Information and tools** – provides information about the CMS unit, including status of hardware components, and version of software.

4. **Quick Functions** – buttons for common actions. (page 27)

5. **Preview Message Screen** – shows messages in the library as you select them (blue color).

6. **CMS Library Toolbar** – use this to select, create, and edit messages (page 29)

7. **CMS Library** – shows all messages available in the CMS unit's Working Library (page 53)

8. Status bar – shows progress of operations (left) and link quality (right). A link quality of 10 is ideal. Lower link qualities indicate a slower connection between your computer and the sign (but the connection will still work).

CMS unit status information

In the lower left hand corner of the CMS unit screen (item 3, above), status information is available. This information may be useful in managing and monitoring the unit.
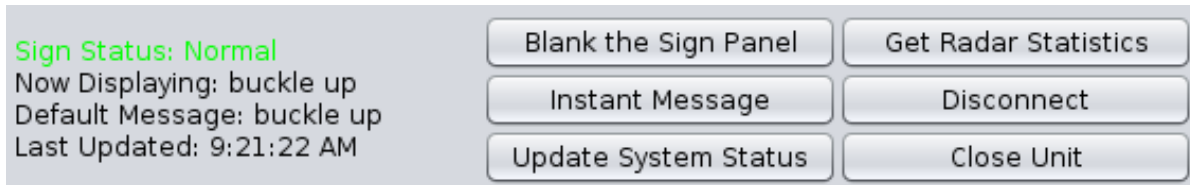
Sign Status – Whether the sign is running properly. This notification appears in *green* if the sign status is Normal, *orange* for Sign Panel Blanked, and *red* for serious errors, such as an LED module failure. The status is updated every 60 seconds.

Now Displaying – the name of the message that is currently being displayed on the unit's sign panel. This information is updated whenever the message changes.

Default Message – the name of the Default Message. This is the message that will be displayed when no schedules or events are in effect. This information is updated whenever the Default Message changes.

Last Updated – the time the information on this screen was last updated. Click the **Update System Status** button to update the information.

Quick Functions

Blank the Sign Panel – Blanks the sign panel.

Instant Message – Creates a new message and sets it as the Default Message. (Same as **Create New Message as Default Message** button in the library toolbar.) When you create a message with this button, it will be named "Instant Message."

Update System Status – Updates the system status information shown on this screen.

Get Radar Statistics – Provides comma-separated values (CSV) files of recorded radar statistics. Save these CSV files to your hard drive, and open them in a spreadsheet program (or with an appropriate analysis software package such as Houston Radar's Stats Analyzer) to read and analyze the data.

Disconnect – Disconnects from this unit.

Close Unit – Closes the tab for this unit, returning to the main CMS Units tab.

Clear Override Message – If an Override Message is in effect, use this button to remove the Override Message. This button is only visible when an Override Message is in effect. See "About the Default Message and Override Mode" on page 30.

System information

> The following information is only updated when you click the **Update System Status** button (described above). The time of the last refresh is shown in the **Last Updated** field near the button.

```
Unit Time: 9:21 AM (09:21) January 8, 2010(America/New_York)
Battery Voltage: 12.8V
Estimated Runtime: Insufficient Data
Photocell Reading: 39
Photocell Limits: 1500 - 3750
Temperature: 0F / -17C
Up-Time:
```

Unit Time & Date – The current time and date, as set on the unit. This should be the same as the current time in its time zone, for accurate scheduling. You can set the unit's date and time from the **CMS Unit menu** (see page 64).

Battery Voltage – Indicates the voltage of the battery bank on the CMS unit. Refer to the information that came with your CMS unit for the normal operating voltage of its batteries.

Estimated Runtime – An estimate of how much longer the CMS unit can continue to run. If the battery bank consistently drains more at night than it charges during the day, this time may be limited. Otherwise, the estimated runtime will appear as infinity (∞). For the first several days that the CMS unit is in operation, there is not yet enough information to calculate the estimated runtime. In this case, the field will read "Insufficient data."

Photocell Reading – The current photocell reading, indicating ambient light level. Photocell readings fall between 0 and 4000.

Photocell Limits - The limits for photocell readings. Refer to page 64 for more information on these limits, and how to set them.

Temperature - The current temperature. This is read from the external sensor if one is available; otherwise the temperature from the internal sensor is used.

Up-Time – The amount of time this unit has operated continuously since its last reboot.

Current Run-Time – The number of hours that the unit has been in operation, since the last time this field was reset.

Lifetime Run-Time – The total number of hours that the unit has been in operation.

Refresh Rate - How fast the CMS unit can update the message displayed on the sign panel. This is given in frames per second (fps).

Resolution – The width and height, in pixels, of the CMS unit's display area.

GPS Location – The location coordinates of the CMS unit, if the unit is equipped with a GPS receiver.

Sign Panel Heading – The direction the CMS unit's sign panel is facing, if the unit is equipped with a compass. (Note that the compass offset must be properly calibrated on-site. Refer to the *TRAFIX©* manual for this procedure.) The direction is given as a number in the range 0-360, where 0 and 360 are both North, 90 is East, 180 is South, and 270 is West.

Software Version – The version of *TRAFIX©* that is running on the CMS unit.

CMS library tools

This section includes tools to select, create, edit, and delete messages.
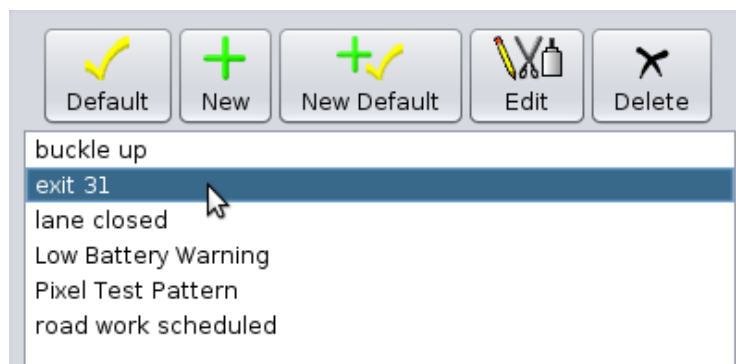
 Set message as Default Message – Select a message from the list and click this button to make the selected message the Default Message.

 Create a New Message – Click this button to begin creating a new message.

Create a new message as Default Message – Click this button to begin creating a new message. When the message is complete, it will be set as the Default Message.

Edit Message – Select a message from the list and click this button to begin editing the selected message.

Delete Message – Select a message from the list and click this button to delete the selected message.

About the Default Message and Override Mode

The Default Message is the message that will be displayed on the sign *when nothing else is scheduled*. If a schedule is currently in effect, the Default Message will *not* be displayed, on the sign panel or on the Current Message Screen, until the schedule has completed.

If a schedule is in effect when you set a message as the Default Message (either with the check-plus button, the check button, or the Instant Message button), you will see this dialog:
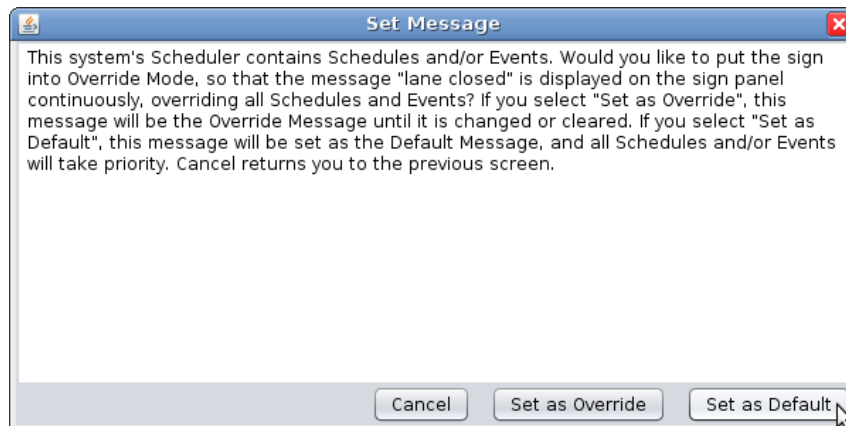
To display the message in place of any scheduled messages, click **Set as Override**. To allow the schedules to continue, and have the new message as a Default Message only, click **Set as Default**.

Common Tasks

Previewing a message   To preview a message in *Control Center 3000* without displaying it on the sign, select the message from the message list. It will display, in blue, on the Preview Message Screen.

Changing the message that displays on the CMS unit   Select the message from the message list, and click the **Default** button (yellow checkmark). The message will be set as the Default Message and as long as no schedule is in effect, the message will be displayed on the CMS unit's sign panel and on the Current Message Screen.

Creating and displaying a new message   Click the **Create a new message as Default Message** button (checkmark/plus) to begin creating a new message (see page 35). When the message is created, it will become the Default Message and as long as no schedule is in effect, the message will be displayed on the CMS unit's sign panel and on the Current Message Screen.

Deleting a message   To delete a message, select the message from the message list and click the **Delete** button (black X). You will see this warning:
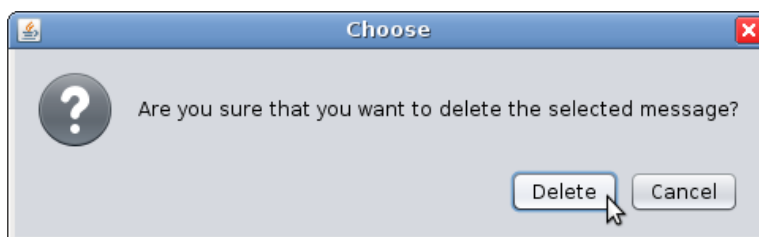
Click the **Delete** button to confirm the deletion.

Creating a new message   To create a new message, click the **New** button (green plus sign). Then follow the directions in *Creating and Editing Messages* (page 31).

Changing a message that already exists   To change or edit a message, click the **Edit** button (pencil, scissors, and glue). Then follow the directions in *Creating and Editing Messages* (page 31).

Creating and Editing Messages

Creating messages

To create a new message, click the **new message button** (green plus sign). The following window will appear:
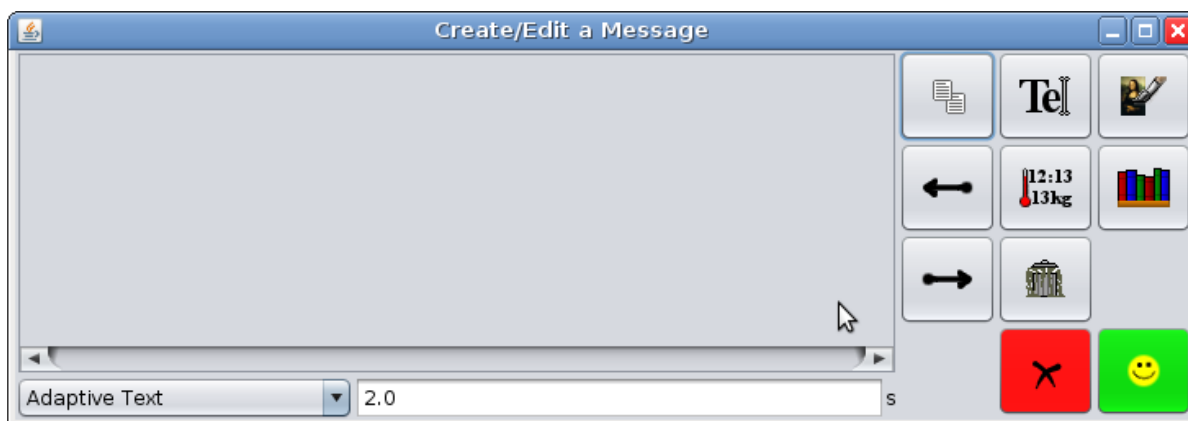
Message Creation/Editing Tools

Copy – Creates a duplicate of the current page.

Insert text page – Inserts a new text page in the message.

Create graphic page – Allows you to create a graphic image and insert that image as a page into the message. See page 35.

Insert dynamic data page – Inserts a page with dynamic data such as temperature, time, radar, etc. See page 39.

Insert message from library – Inserts a message from another library. See page 39.

Delete page from message – Deletes the current page (selected with red border) from the message.

Move page left – Moves the currently selected page to the left (earlier in the message).

Move page right – Moves the currently selected page to the right (later in the message).

Cancel – Aborts creation of the message.

OK – Finish, name and confirm creation of the new message.

Page display time

Change the amount of time the message page is displayed by typing the number of seconds into this input area at the bottom of the screen:

In this example, the selected message page will be displayed for two seconds.

| 2.0 | seconds |

Font size

The drop-down menu at the bottom of this screen selects the font size to be used in text pages. The recommended setting is **Adaptive Text**.

As typed text gets longer, the Adaptive Text feature will change the font size to fit on the page, as shown:

Adaptive text is the recommended setting, but if you need a particular size of font, choose it from the menu at the bottom of the screen:
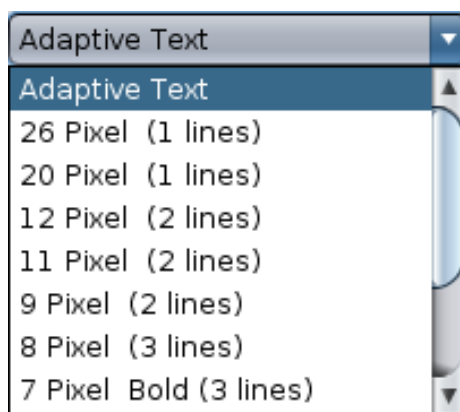
Walk-through: Creating a new message

1. Click the **Create New Message** button (green plus sign).

2. When the **Message Creation Window** appears (as shown above), click the **Insert Text Page** button. A blank text page will appear, with a cursor in the middle, as shown:
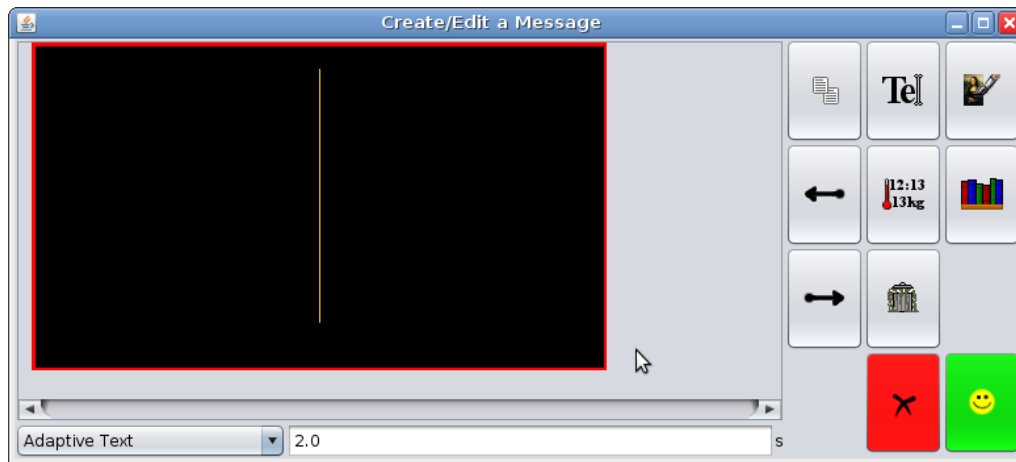
As you add pages to your message, note that the page you are currently working on is always highlighted with a *red border*.

1. Type the text you want to appear in this page of the message.

2. To add another text page, click the **Insert Text Page** button again.

3. To add a graphic, click the **Create Graphic Page** button.

4. To add dynamic data such as time or temperature, click the **Insert Dynamic Data Page** button.

5. Click the **OK** (smiley face button) when finished. After naming and saving the new message, it will be available in the CMS Library screen.

Creating a graphic

To create a graphic in your message, click the **Create Graphic Page** button within the **Message Creation Screen**. A window like the following will appear.
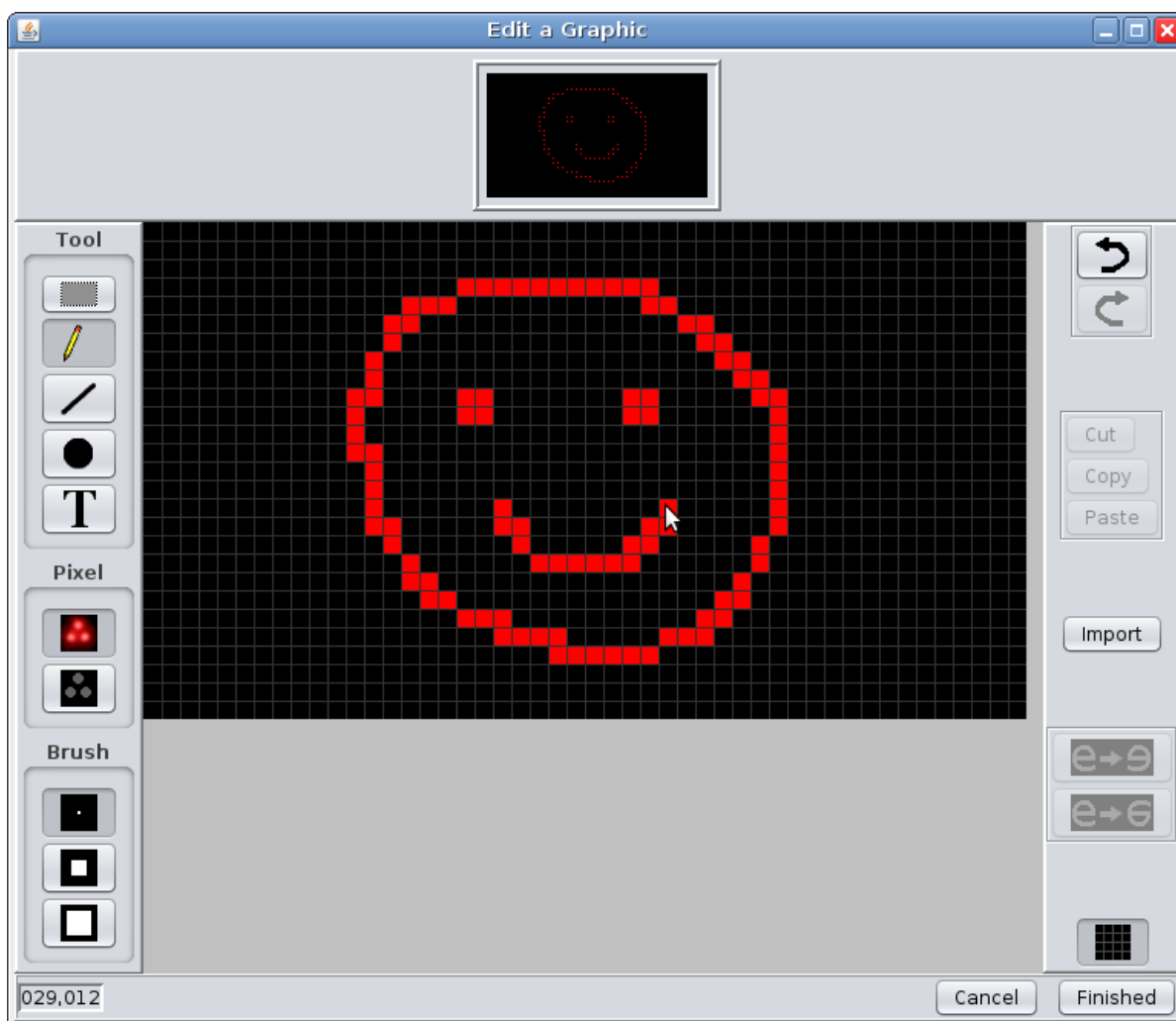
The box at the top of the graphics editing screen shows a smaller version of your graphic – as it might look from a distance.

Graphics Editing Tools

Selection tool – allows you to make rectangular selections. Use this with the **Cut, Copy,** and **Paste** tools, or the **Flip** tools (see below). To stop selecting an area, click anywhere outside the selection.

Pencil tool – use this to draw freehand. Holding down the **Shift** key on your keyboard allows you to quickly draw lines with this tool.

Line tool – To draw lines, click at the position you would like to start, then select the **Line** tool. A white guideline will appear starting at the position of your last click. Click again at the desired endpoint to create the line.

Circle tool – To draw circles, select the **Circle** tool and click where you would like the center of your circle to be. Hold the mouse button down. As you drag the pointer away from the center, a guide circle will appear. Release the mouse button when the circle is the desired size.

Text tool – To add text to your graphic, select the **Text** tool and then click where you would like the text to begin. Type the text, select the desired font size, and click **Draw**. The text will be added to the graphic, inside of a rectangular selection that can be dragged into place.

Pixel Selection – The default behavior is to draw **lit** pixels. To erase, change to **dark** pixels. All of the above tools work with dark as well as lit pixels.
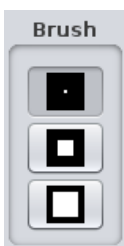
Brush Selection – Select the desired size to draw thin, medium, or thick sized lines with the **Pencil** or **Line** tools.

Undo and **Redo** – After completing an action (such as drawing a line), the **Undo** button, shown here at top, will become available. Click **Undo** to undo an action.

After you have undone an action, the **Redo** button will be available, should you choose to redo that action.

Cut, **Copy**, and **Paste** – To use these tools, make a selection with the **Selection** tool (described above).
Cut removes the selected area.
Copy does not remove the selected area, but does make it available for the **Paste** tool.
Paste reproduces an area that has been **Cut** or **Copied**.
By clicking on the **Import** button, you can import an image (JPG, GIF, PNG, or BMP) from a folder on your computer.
For best results, the image should be black and white (no gray) and the same size as the sign (for example, 48x27 pixels if your CMS unit is also 48x27 pixels).
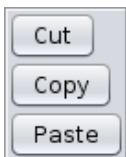Upon importing, white or light colored pixels will become lit pixels, and dark pixels will be unlit. (If your image has a white background, it will be converted into lit pixels on a dark background.)
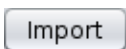
Flip tools – The top button is **Horizontal flip**, and will flip the selection left-to-right (making a mirror image).
The lower button, **Vertical flip**, flips the image top-to-bottom.

Grid Lines button – click this button to show or hide the faint gray grid lines on dark areas of the graphic.

Walk-through: Creating a graphic

1. From the **Message Creation Screen**, click the **New Graphic Page** button.

2. Begin drawing your graphic. The pencil tool is selected by default; see above to use other tools.

3. When you are done, click the **Finished** button (in the lower right) to complete creation of the graphic.

4. The graphic is now created as a page in your new message.

If you would like to use a graphic more than once, create a message containing the graphic as its only page. Then, save this message in a local library (see page 62 to learn more about local libraries). You can then insert the graphic page into other messages with the **Insert message from library** button (see below).

Insert Message from Library

With this feature, you can insert a message from another library. This feature is commonly used to insert graphics and animations from the "reference" library that comes with *Control Center 3000*, but you can also insert messages you have created. If you expect to use a message on many units, remember to save it in the local library (which stays on your computer) and not just the CMS unit's library, which is only available on that unit. See page 62 to learn about local libraries.

To add a message from a library, after clicking the **Create a New Message** button to bring up the message creation screen, click the **Insert Message from Library** button (bookshelf icon), which will bring up the following window:
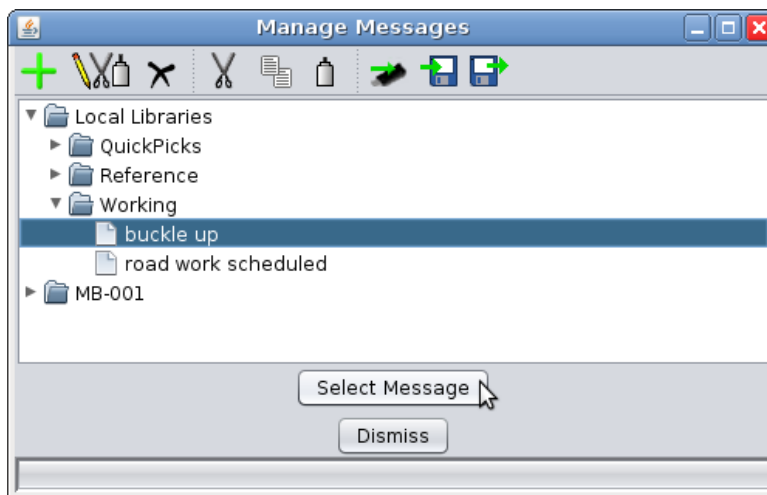
Click on a folder to open that folder; click on a message to select it. Click **Select Message** to insert the selected message.

Dynamic Data Pages

Dynamic data includes such things as time, temperature, and radar readings. The dynamic data sources available to you will vary with the equipment available on your CMS unit.

A dynamic data page can include both text and dynamic data. For example, a page displaying the time might include the words "The time is", followed by the time. In the **Edit a Dynamic Page Screen** (shown below), use the **Insert Source** and **Insert Text** buttons to build the message.

The current appearance of the page is shown at the top of the screen; below is the list of message components (text and data sources).
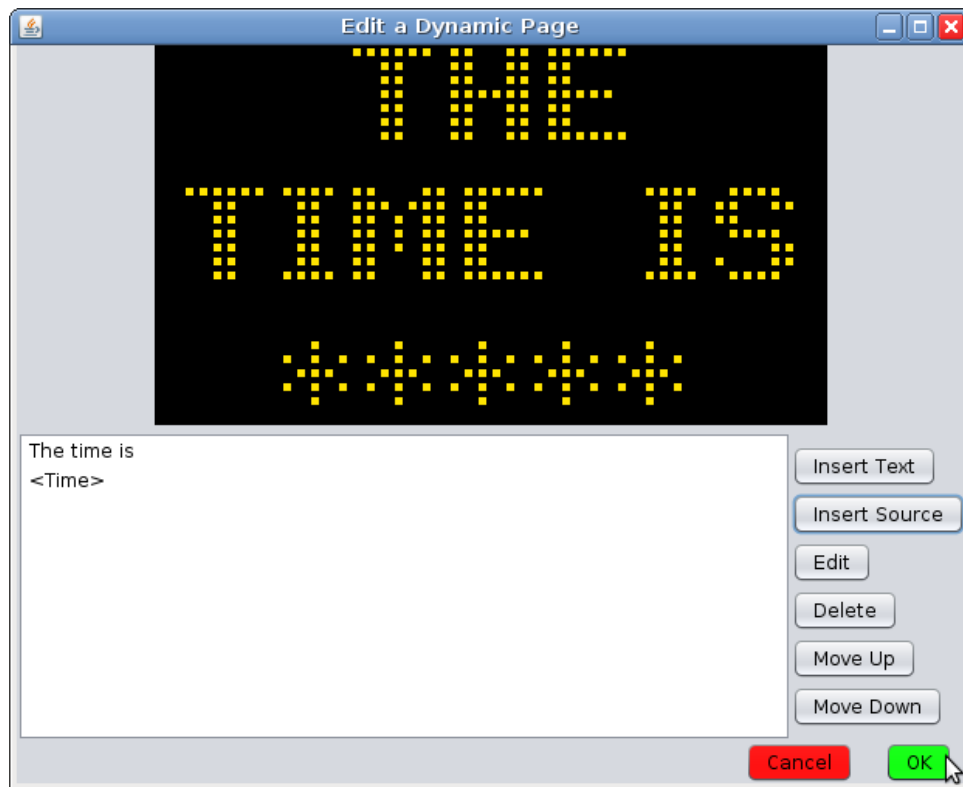
Use the buttons on the right side of the screen to add and arrange the portions of the dynamic message.

Insert Text – insert plain text (non dynamic – for example, "The time is ").

Insert Source – choose and insert a data source (see below).

Edit – edit the selected text or source.

Delete – delete the selected text or source.

Move up – move the selected text or source up (this can be used to change the order of portions of a dynamic message).

Move down – move the selected text or source down.

Data source parameters

A few data sources take parameters, which are described on the data source screen. One example is shown here:

The data sources that take parameters are the following:

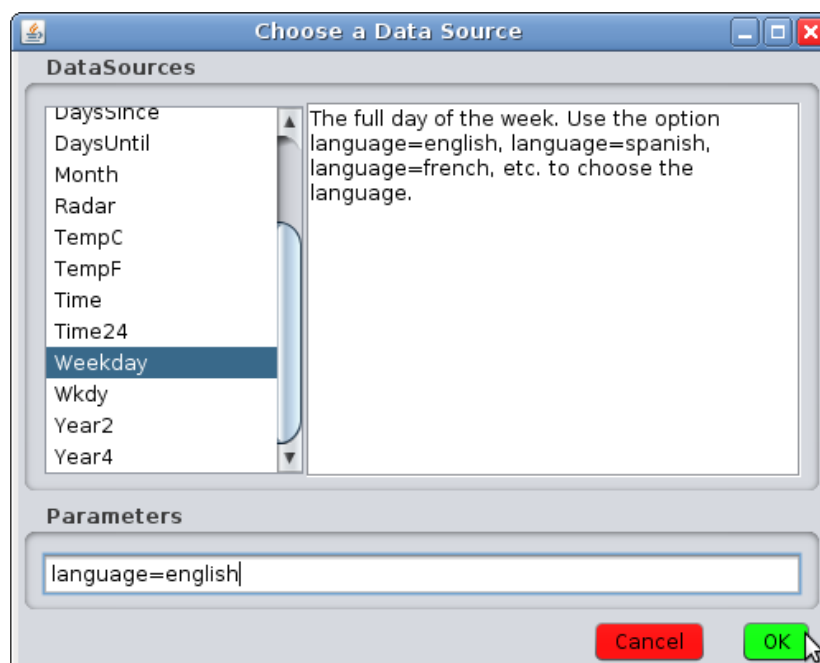**CountdownDays** – Like DaysUntil, but counts down to a specific date in the format `DATE=MM/DD/YYYY:hh:mm`. Designed to be used with CountdownHours and CountdownMinutes (see example below).

CountdownHours – Counts down the hours until a given time. Designed to be used with CountdownDays, and uses the same date format.

CountdownMinutes – Counts down the minutes until a given time. Designed to be used with CountdownDays and CountdownHours, and uses the same date format.

Example: To count down to a fireworks display on July 4, 2011, at 9:00pm, use **CountdownDays**, **CountdownHours**, and **CountdownMinutes** all with a parameter of `DATE=07/04/2011:21:00`.

At noon on July 3, your example message might read "Fireworks begin in 1 day 9 hours and 0 minutes."

DaysSince – Counts the number of days since a specified date. (Example use: "It has been __ days since the last accident"). To provide the date, enter it in the parameters field in the format `DATE=MM/DD/YYYY`. In our example, if the last accident was on December 3, 2009, the parameter would be `DATE=12/03/2009`.

DaysUntil – Counts the number of days until a specified date. (Example use: "Road work begins in __ days"). Use the same date format as above.

Weekday – Displays the current weekday, but requires a parameter for the language. To display the weekday in French, for example, set this parameter to *language=french*.

Wkdy – Displays an abbreviation for the name of the weekday (for example, "Mon" for Monday). It takes a language parameter as above.

Walk-through: Dynamic data example

1. From the **Message Creation Screen**, click the **Insert Dynamic Data Page** button (thermometer image).

2. To add text to the message, click **Insert Text**. The following window will appear.
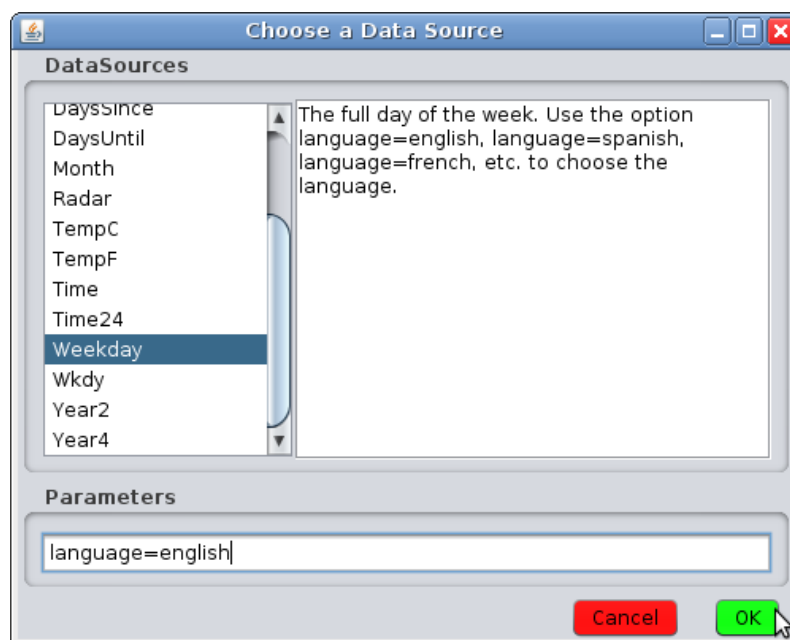

3. Type the desired text, as shown above. When you are finished, click **OK**.

Remember to include an extra space after your text, so that the text and data reading will not be squished together.

4. To insert dynamic data, click **Insert Source**. A window like the following will appear.

5. Select the data source you would like to use. The available data sources may be different from those shown here.

6. Include an alternate message to be shown if the data source is unavailable (Here, we use the word "unknown"). If the source requires parameters (see above), remember to include them.

7. Click **OK** to finish adding the data source.

8. Back at the **Edit a Dynamic Page Screen**, use the buttons on the right side to arrange and edit the text and data as desired. When you are finished, click **OK** to complete creation of the dynamic data page.

Schedules and Events

Schedules can be used to display a message at a particular date and time. Similarly, a data-driven event can be used to display a message when a certain event occurs (for example, a radar reading above a certain speed).

The calendar on the left side of the main screen shows the current date along with any time-based schedules that may be in effect. In the example below, the current date is the 24th and there is a schedule in effect part of each day from today until Sunday.

Areas of **green shading** indicate that a message is scheduled for that time. The current date is **outlined**.

Click the **right or left arrows** (top) to view other months on the calendar.

Click **Schedules** to create a new time-based schedule.

Click **Events** to create a new data-driven event.

A Data-Driven Event will show a message on a trigger of your choice, such as low battery voltage or a reading from the radar gun.

Schedules can be one-time or repeating. An example of a repeating schedule might be "every weekday in July from 9:00am to 5:00pm." An example of a one-time schedule might be "From August 28 at noon to August 29 at noon." After a one-time schedule is finished, it will not display again.

About data sources for events

Battery Voltage – in tenths of a volt. A reading below 110 (11.0 volts) typically indicates very low battery power. Your particular battery may vary. See page 64 to set a battery voltage offset if your battery's reading consistently appears too low as compared to that indicated on the unit's EMS (Energy Management System).

ExtTempC, ExtTempF – If your CMS unit is equipped with an external temperature sensor, these sources will provide readings from it in degrees Celsius (**ExtTempC**) or Fahrenheit (**ExtTempF**). The external sensor is typically more accurate than an internal sensor. See also the **TempC** and **TempF** sources.

IntTempC, IntTempF – Temperature readings from the internal sensor.

TempC, TempF – These sources read the temperature from an external sensor if one is available, and from the internal sensor if it is not.

PhotoCell – The raw photocell reading, which may range from 0-4000. In typical conditions, this reading is below 400 at night and above 3000 during the day. Location, light pollution, and other conditions may all affect this reading.

Radar – The radar gun reading. This may be in miles per hour (MPH) or kilometers per hour (KPH) depending on how your radar gun is configured. To change the units, go to the **CMS Unit** menu from the main screen and select **Set Radar Units**.

SwitchClosure1 – **SwitchClosure6** – Use these sources for custom-built equipment. (See the *TRAFIX©* manual for information on connecting and using this type of equipment). The source will read "1" when the switch is closed and "0" when it is open. To display a message when the switch is closed, for example, set both the maximum and minimum values to 1. There may be up to six switches available.

Walk-through: Repeating schedule example

1. From the main screen, click the **Schedules** button. A window like the following will appear.
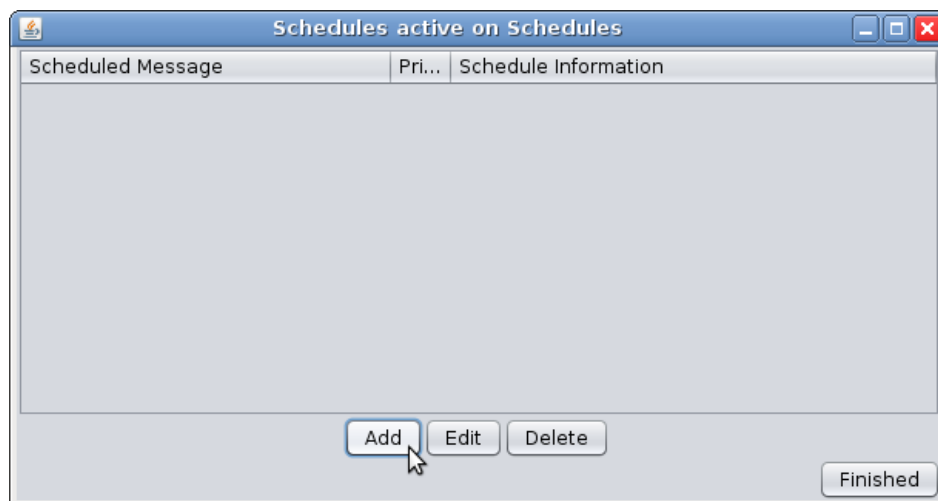
2. Click the **Add** button to add a new schedule. The following window will appear. Select **Repeating Schedule** and then click **Next**.
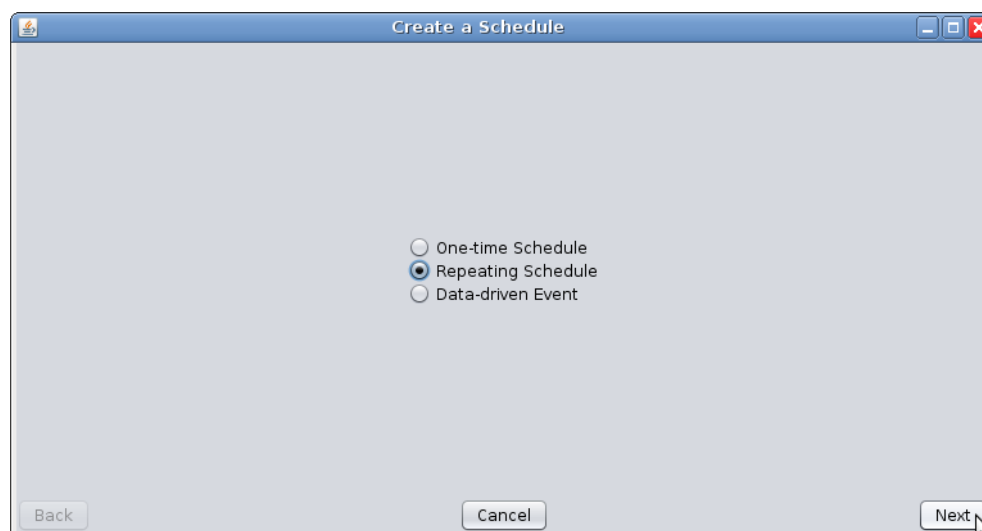
3. In the next screen, indicate when you would like the message to be displayed. Indicate the time at the top of the screen, the type of repeat (daily, weekly, or monthly) at left, and any desired details in the center. In this example, the message will be displayed from 7:00 am until 5:00 pm, Monday through Friday.
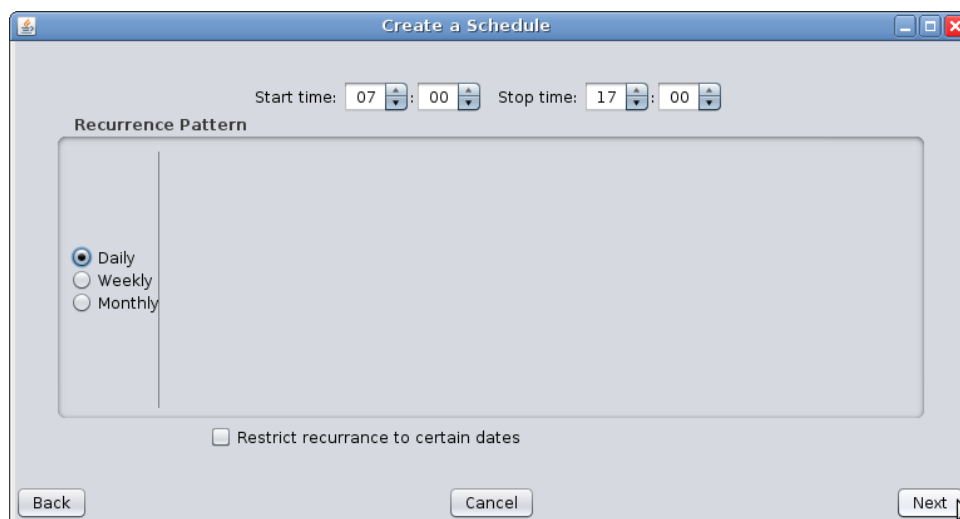
4. Click **Next** to confirm the schedule. If you select **Restrict recurrence to certain dates**, the following screen will appear. (If you do not wish to restrict recurrence, skip to step 6.)
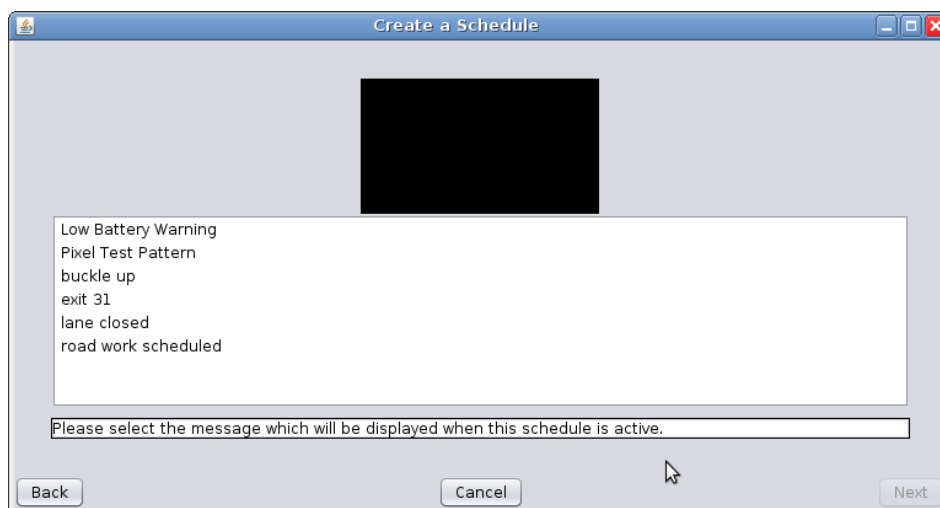
5. In this screen, indicate when you would like the message to be displayed. In this example, the schedule will begin on 7:00 am February 24 and be in effect until 5:00 pm on February 28. When you are finished, click **Next**. The following screen will appear:

6. Select the message you would like to display, and then click **Next**. The final screen will appear:
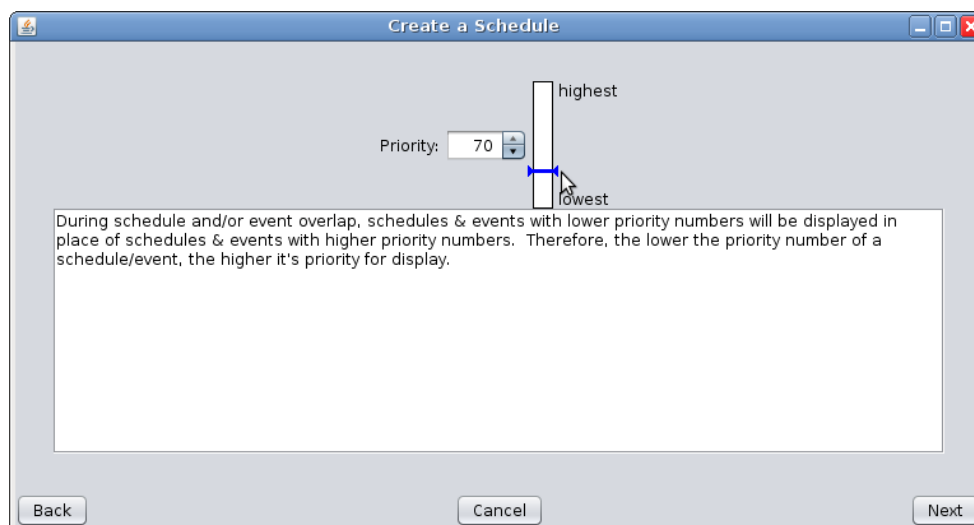
7. Here, assign a **priority** to the schedule. If two schedules or events apply at the same time, the one with the higher priority will take effect. Two schedules or events may not have the same priority if they display at the same time (one of them must higher priority than the other).

8. Click **Next**, and then **Finished.**

Walk-through: One-time schedule example

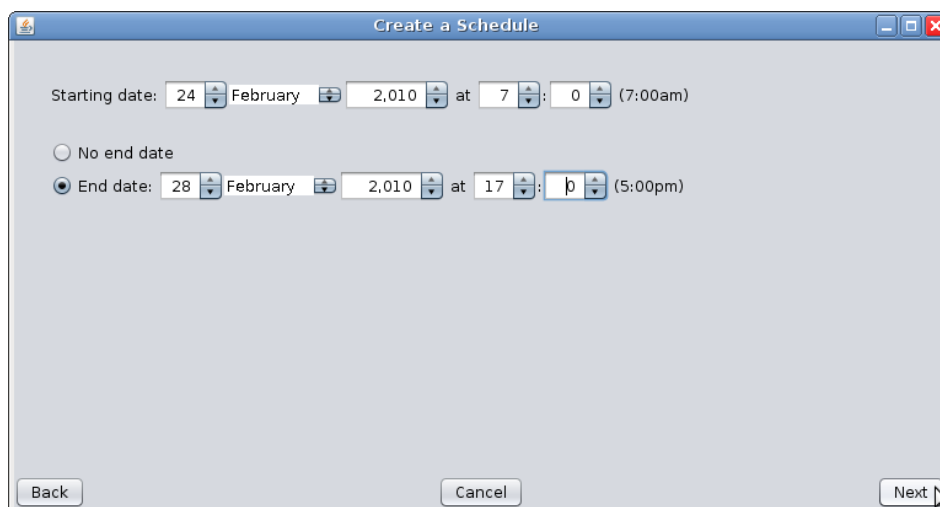1. From the main screen, click the **Schedules** button. A window like the following will appear.
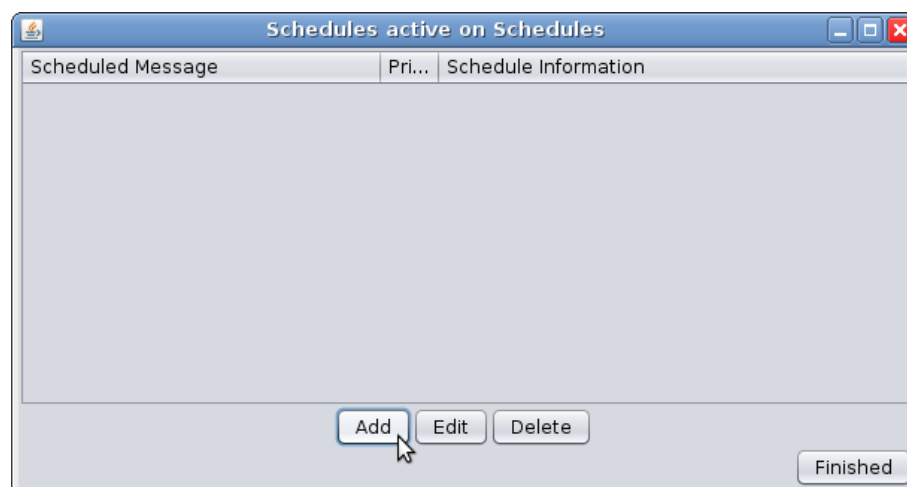
2. Click the **Add** button to add a new schedule. The following window will appear. Select **One-time schedule** and then click **Next**.
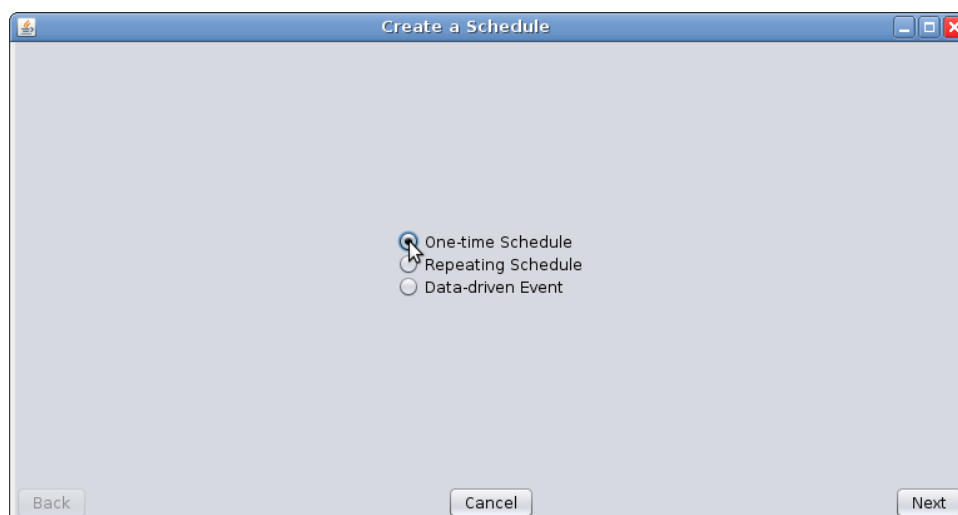
3. In the next screen, indicate when you would like the message to be displayed. In this example, the message will be displayed from 7:00 am November 14 until 5:00 pm on November 20.
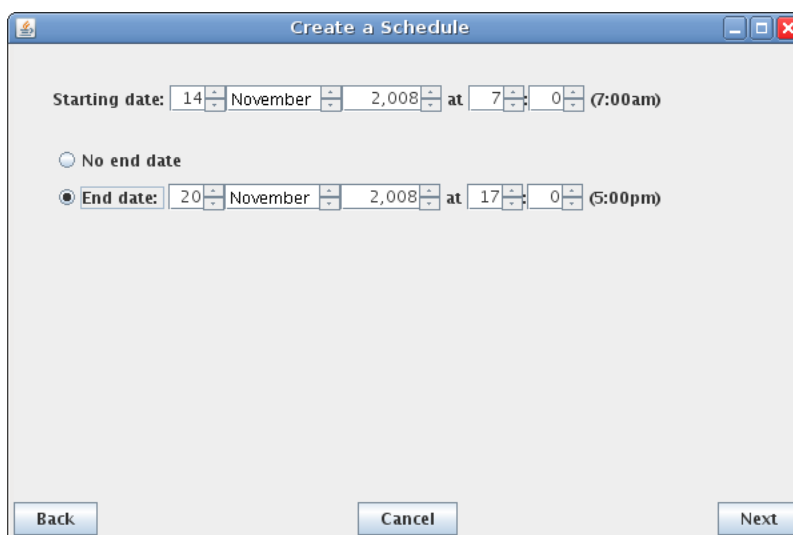
4. Click **Next** to confirm the schedule. The following screen will appear:
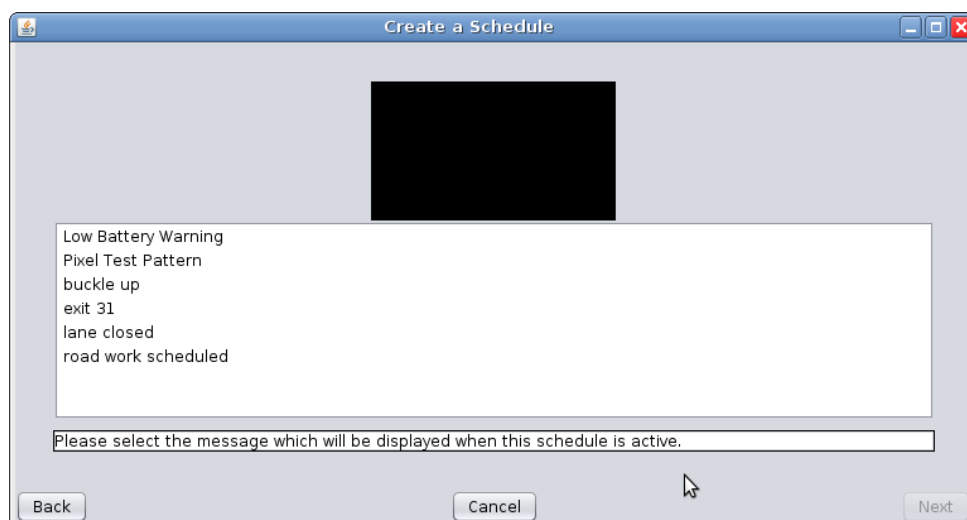
5. Select the message you would like to display, and then click **Next**. The final screen will appear:
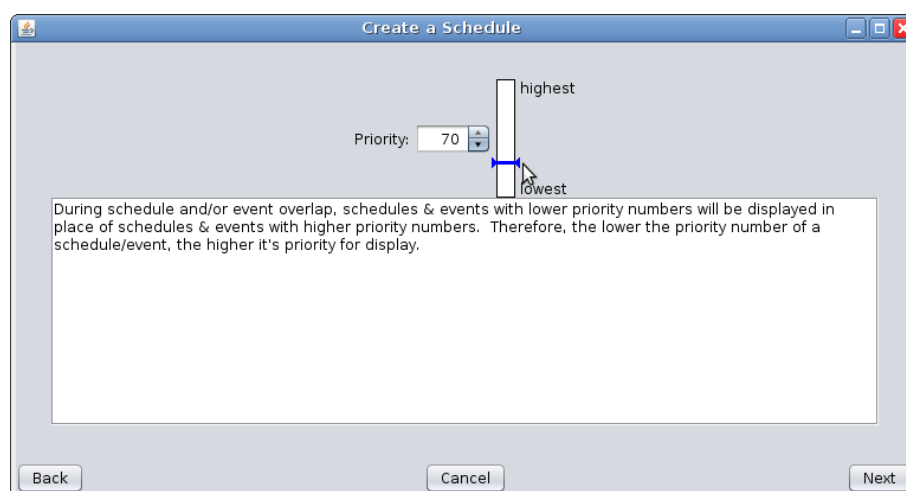
6. Here, assign a **priority** to the schedule. If two schedules or events apply at the same time, the one with the higher priority will take effect. Two schedules or events may not have the same priority if they display at the same time (one of them must higher priority than the other).

7. Click **Next**, and then **Finished.**

Walk-through: Data-driven event example

1. From the main screen, click the **Events** button. The following window will appear:
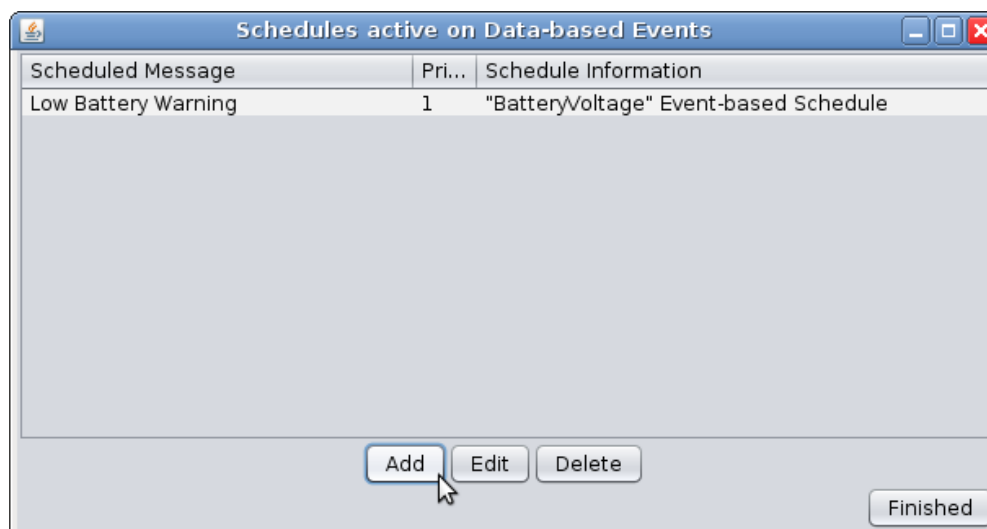
2. Click **Add** to add a new data-driven event. The following window will appear:
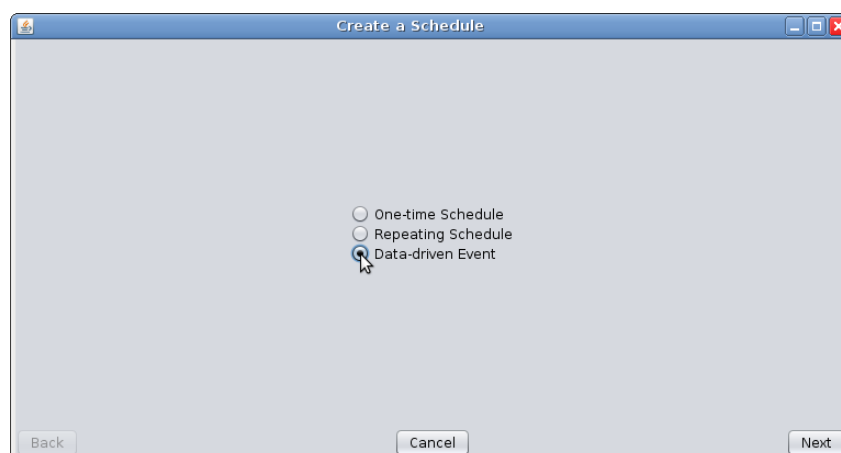
3. Select **Data-driven Event** and click **Next**. A window like the following will appear:
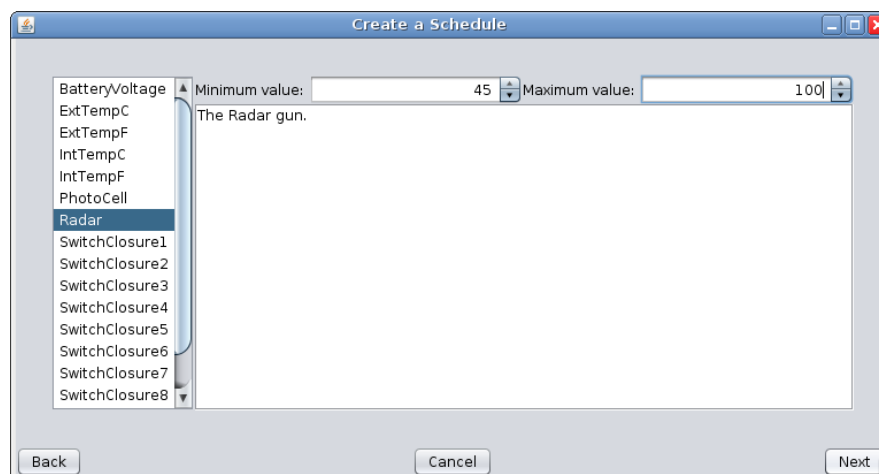
4. Select the desired data source on the left side of the screen. Select the minimum and maximum values for that source using the controls at the top of the screen. In this example, the message will be displayed when the radar reading is between 45 and 100 mph.

5. Click **Next** to continue. The following screen will appear:
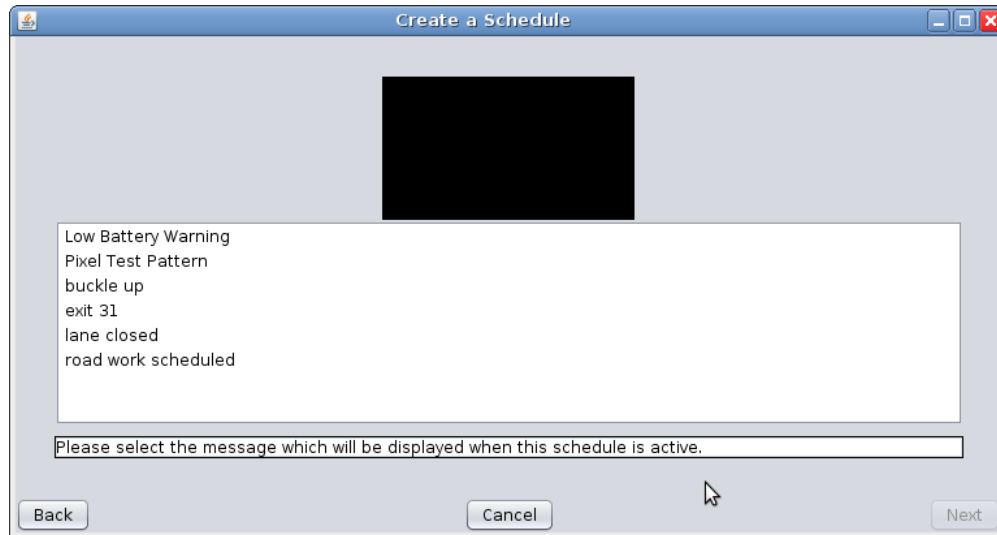
6. Select the message you would like to display, and then click **Next**. The final screen will appear:
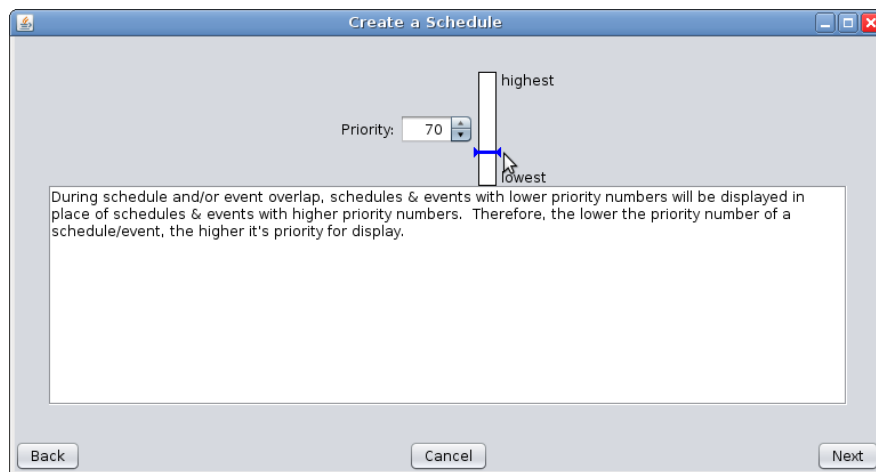
7. Here, assign a **priority** to the schedule. If two schedules or events apply at the same time, the one with the higher priority will take effect. Two schedules or events may not have the same priority if they display at the same time (one of them must have a higher priority than the other).

8. Click **Next**, and then **Finished**.

Message Libraries

A library is a collection of messages. A CMS unit may have many libraries, but only messages from the *Working* library (and a special library called *Quick Picks*) are available for use on the CMS unit.

From the main screen, click the **Messages tab** to see the libraries available to you, both on your computer (shown as the folder *Control Center 3000*) and on all CMS units to which you are currently connected.

Click the name of a CMS unit to open it and view the libraries available on that unit. In the example below, the unit called *MB-001* has the two standard libraries: *Reference*, containing messages shipped with the unit, and *Working*, for messages that you create.
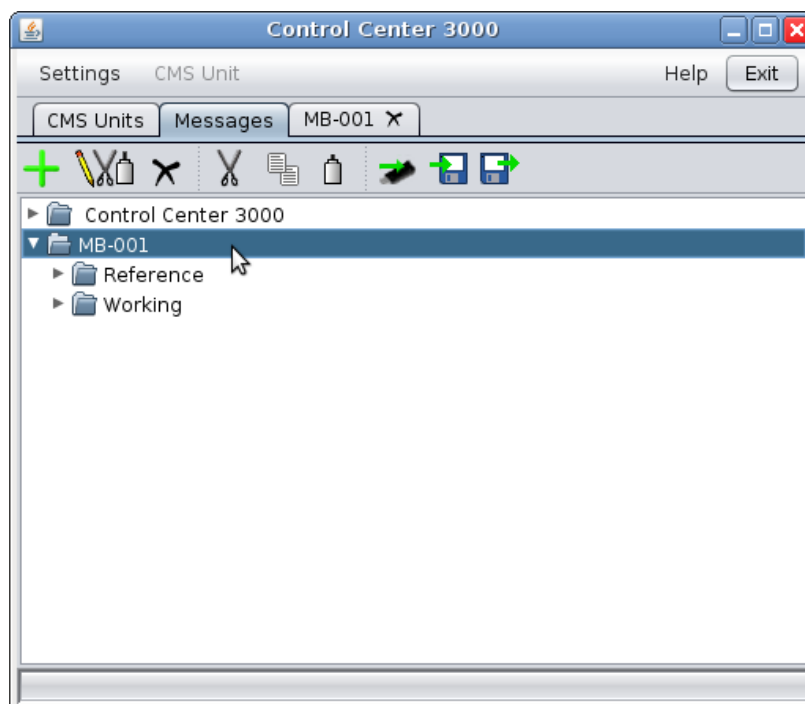
Click a library to view the messages inside that library.
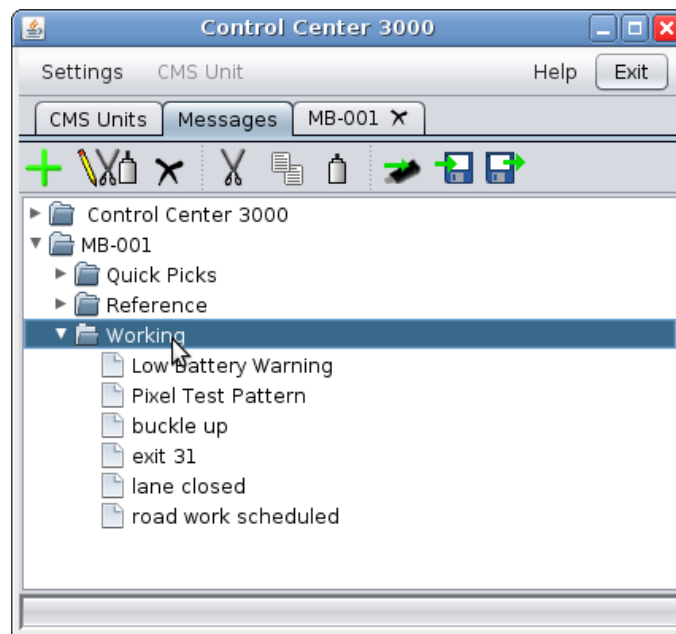
To preview a message, hold the cursor over its name for a few seconds. A small animated preview of the message will appear:
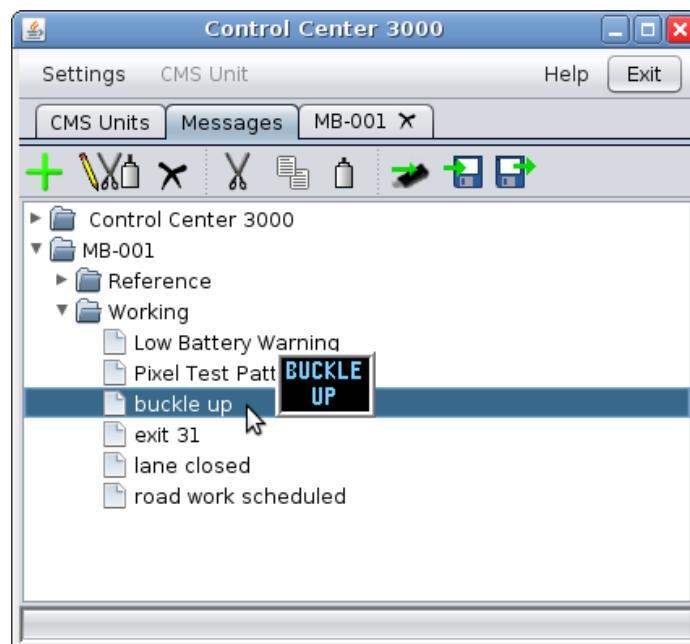
Tools available in the Messages tab

These tools are also available by right-clicking anywhere in the **Messages** tab.

Add message – adds a message to the selected library.

Edit message – edits the selected message (see page 31 for information about editing messages).

Delete message – deletes the selected message.

Cut – removes the selected message and allows it to be pasted elsewhere.

Copy – allows the selected message to be pasted elsewhere.

Paste – inserts a message that has been cut or copied into the selected library.

Export to file – saves one or more messages to disk. Use this to share or back up your messages.

Import from file – loads messages into the selected library from a file on disk. Use this to restore backed-up messages or to begin using messages that others have shared with you.

Creating, Deleting, and Renaming Libraries

To perform operations on a library, **right-click** on the desired library. The following menu will appear.
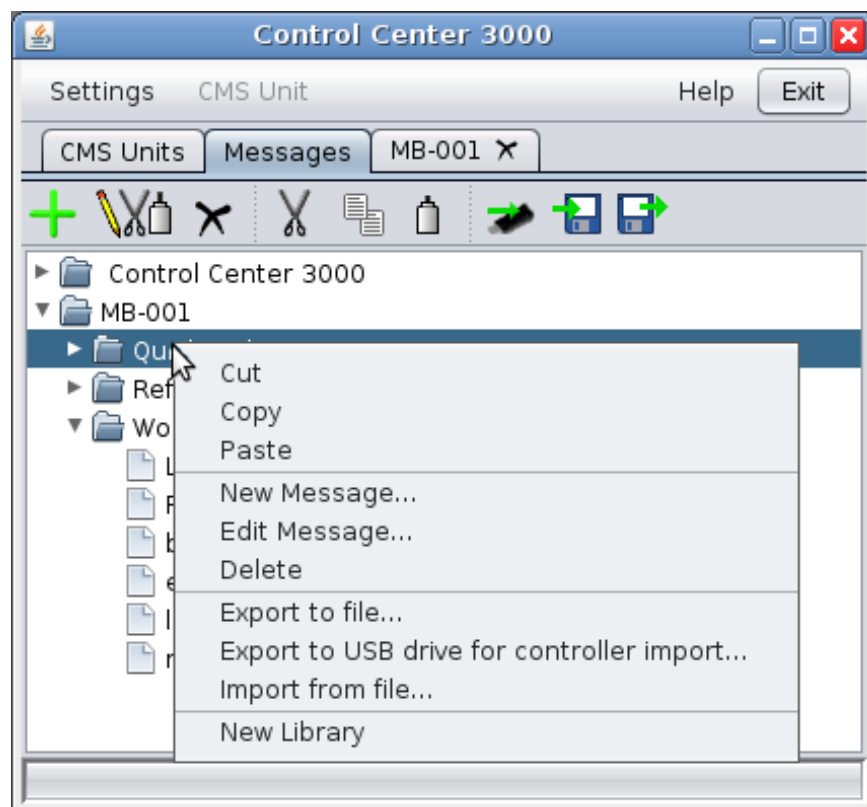
Creating a new library

To create a new library in a CMS unit called *MB-001*, **right-click** on any library within *MB-001*, and select **New Library** from this menu. You will be prompted to enter the name of the new library.
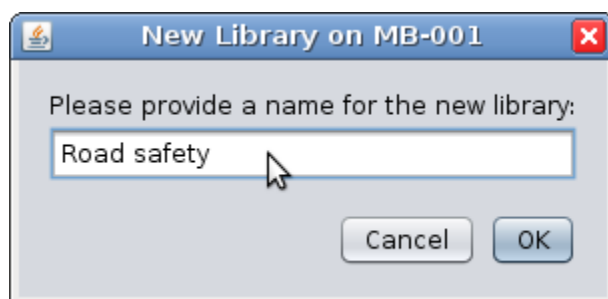
Click **OK**. The library will be created, and you will see it in the list of libraries.

Deleting a library

To delete a library, **right-click** on the library and select **Delete**. The following windows may appear. Click **Yes** if you are sure you are ready to delete the library.

Renaming a library

To rename a library, click on the library's name, and then click on it a second time. The library's name will change to an editable text box.
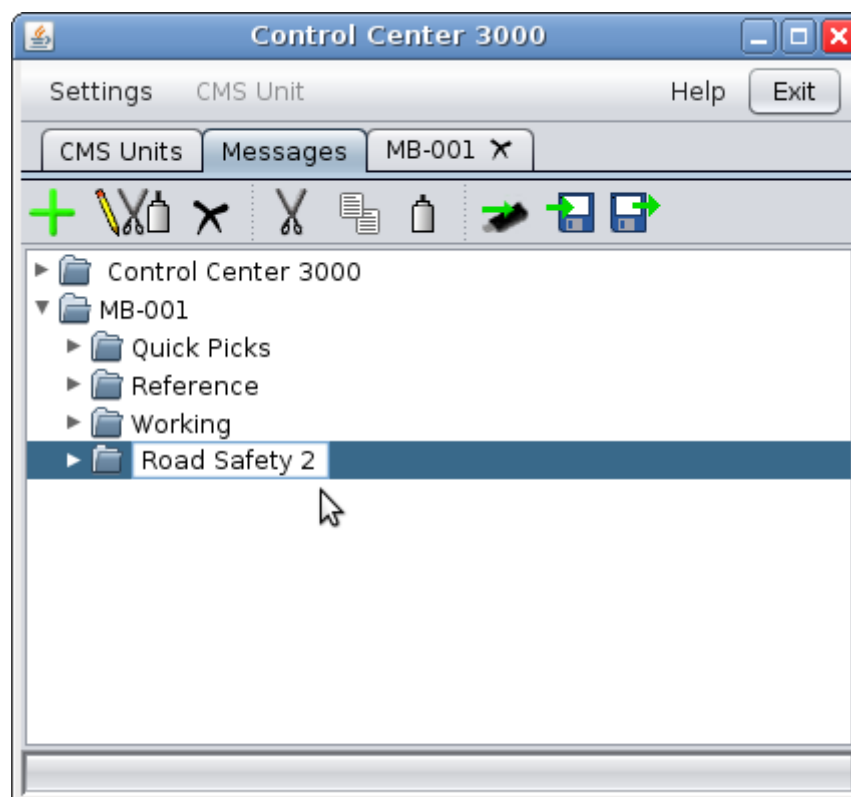
Type the library's new name in this box, and then click outside of the box (in any blank space on the screen) to finish the renaming process.

Walk-through: Moving a message

The *Manage Messages* screen also allows you to move messages and libraries between CMS units. In this example, we will copy a message called *"buckle up"* from a *Control Center 3000* Library to the *Working* Library on the CMS unit called *MB-001*.

> When copying or moving messages between CMS units of different sizes, messages will be resized to fit the new CMS unit if possible. Be sure to preview the messages after copying to be sure they display the way you expect.

1. First, **right-click** on the message you would like to copy, and select **Copy**.

2. Then, **right-click** on the library you would like to copy the message to, and select **Paste.**
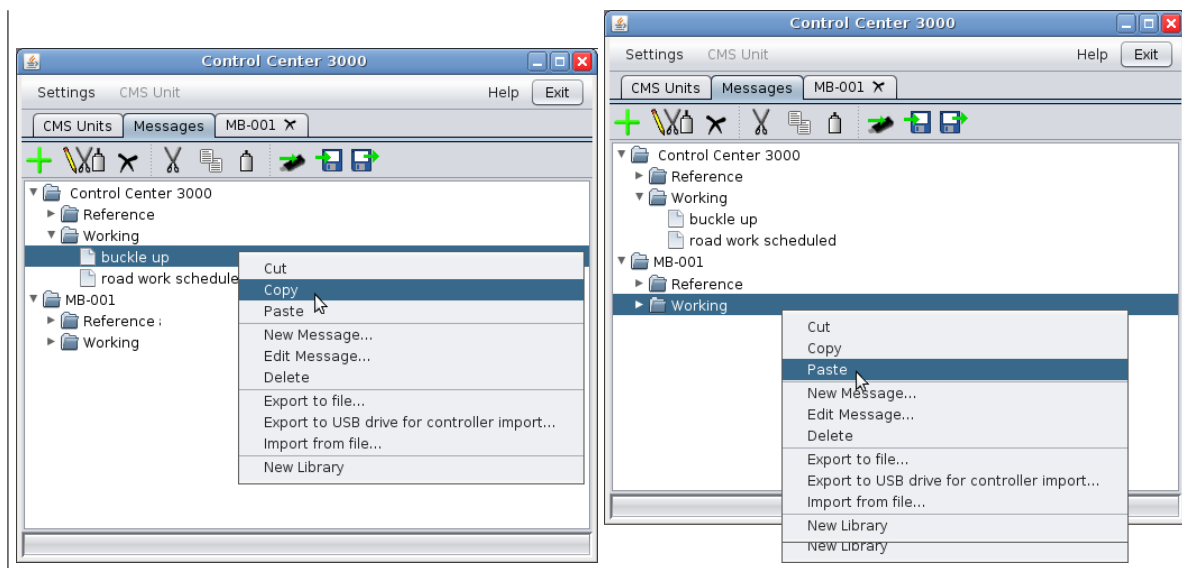
3. To copy the message into other libraries (for example, on multiple CMS units), **Copy** the message once and **Paste** it into each of the destination libraries.

4. To move a message without duplicating it, simply **Cut** the message and then **Paste** it into the destination library.

Exporting and Importing Messages

Messages can be exported (saved to a file) and can be imported into *Control Center 3000*. This can be useful to share or back up your messages.

Exporting

To export a message (save a message to a file on your computer), select the desired messages and **Copy** them with the button or menu. Then right-click and select **Export to File...**
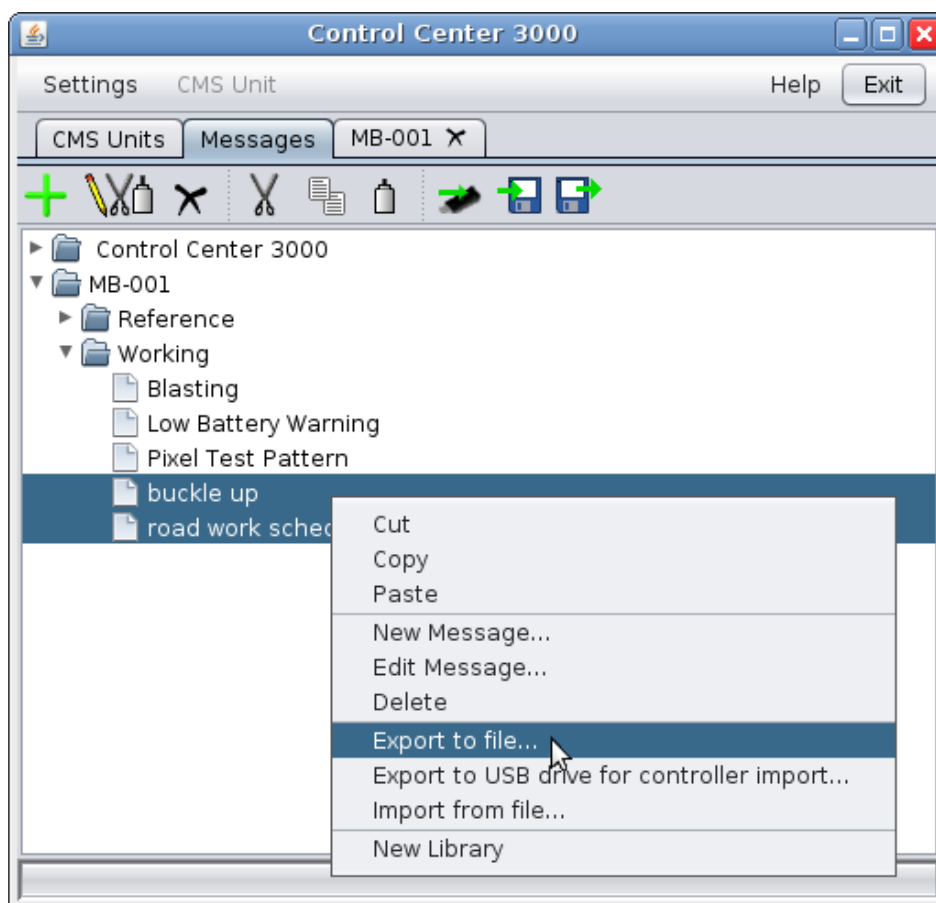
Or, **Copy** the messages and click the **Export to File button**.

A window like the following will appear. Choose a folder, type in a name for the file, and click **Save**.
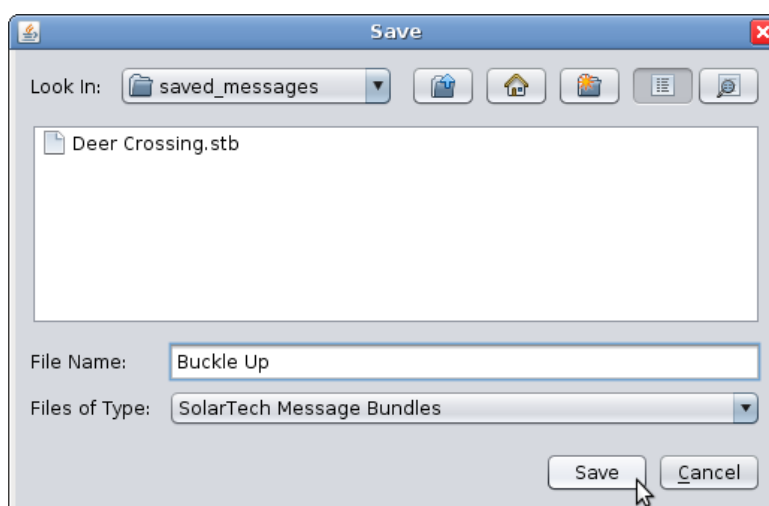
In the example above, the file is being named "Buckle Up" in the "saved_messages" folder. The folder already contains another message called "Deer Crossing".

The file will be saved as the type "SolarTech Message Bundle" with the extension **.stb**. This file can be used by any other user of *Control Center 3000.*

> You can save several messages in the same bundle. Hold down the **Ctrl** key while clicking on the messages to copy them. The saved file will then contain all of the messages.

Exporting to a USB drive

To export messages to a USB drive, plug your USB drive into your computer and then select and copy the desired messages as above. Right-click on the messages and select **Export to USB drive for controller import...**.

In the file save dialog, select your USB drive. The file will be saved with the name messages.stb. You can then plug your USB drive into the controller to import the messages.

Importing Messages

To import a message from a file, right-click on the desired library in the **Messages tab**, and select **Import from File...**.
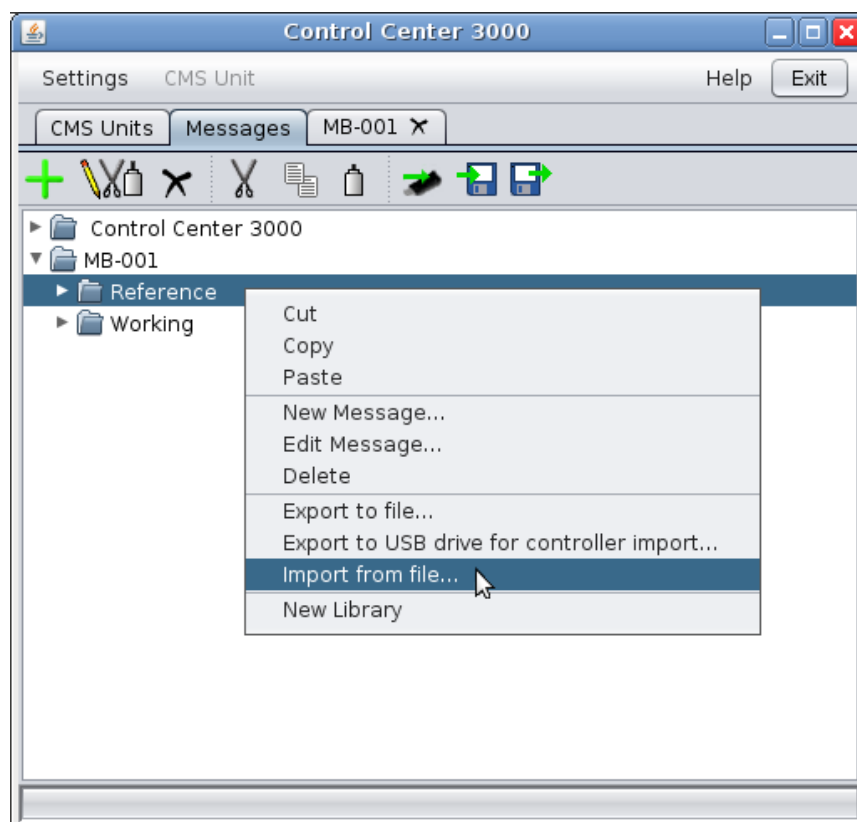
(Or, click the **Import From File button**.)

A window like the following will appear:
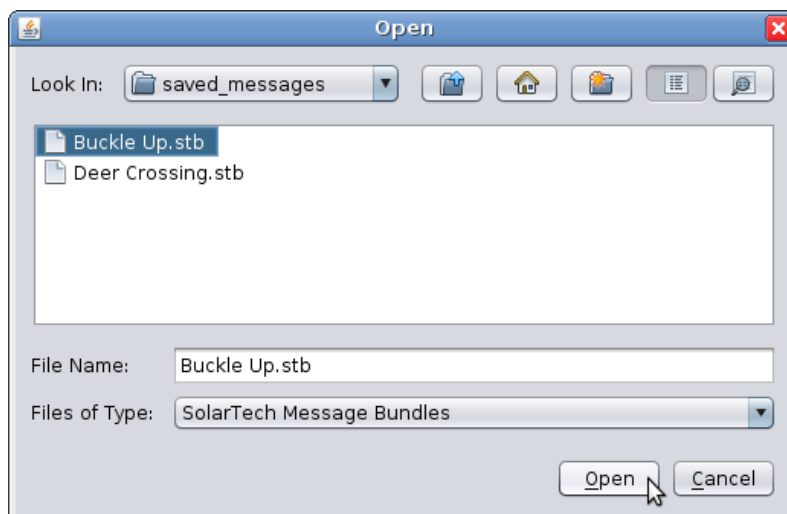
Select the message you would like to import, and click **Open**. The message will now be available in the library.

Local Libraries

Control Center 3000 can keep messages locally (on your computer). This can be helpful if you administer many CMS units and want to create messages that you can transfer to some or all of them.

Creating a message in a local library

To create a message in a local library, you do not need to be connected to a CMS unit. Right-click on the desired library under the *Control Center 3000* folder and select **New Message...** (or click the **New Message button**).

Refer to page 31 for more information on creating and editing messages. You can also copy messages from the local library to CMS units with the **Copy** and **Paste** functions.
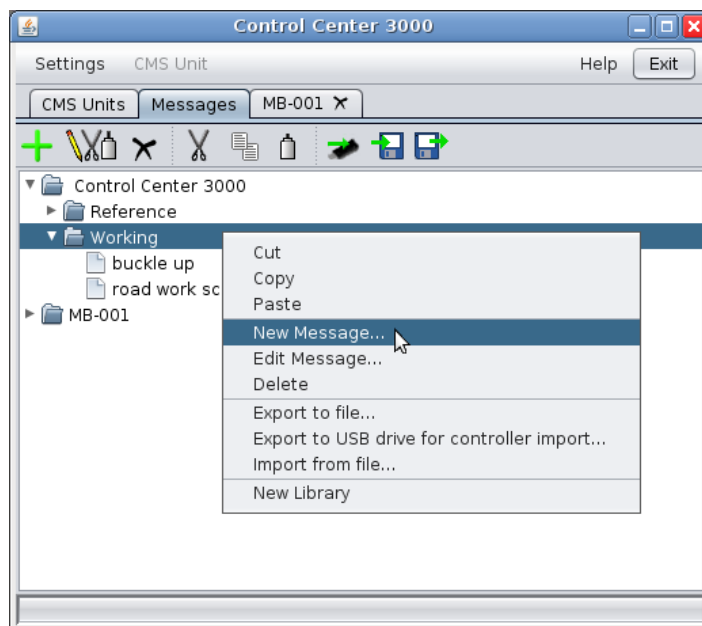
Working with local libraries

Two important settings for local libraries can be found under the **Settings** menu.

Configure simulated sign for local library – Messages created in the local library are considered to belong to a simulated CMS unit. For best results, your simulated sign should be the same size and have the same module type as the CMS units you administer.
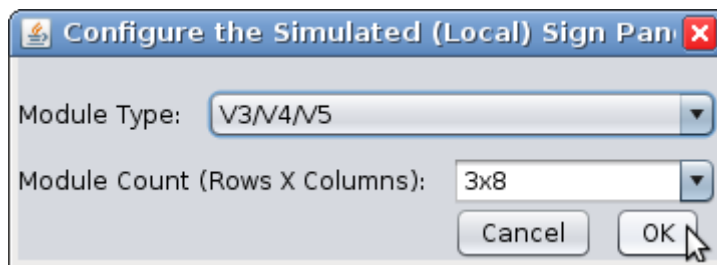
To correctly set your module type and count, refer to the information provided with your CMS unit.

Choose Local Font-Set – Use this feature to change the font set used by the local simulated sign. This should be set to the same font set used by the CMS units you manage.
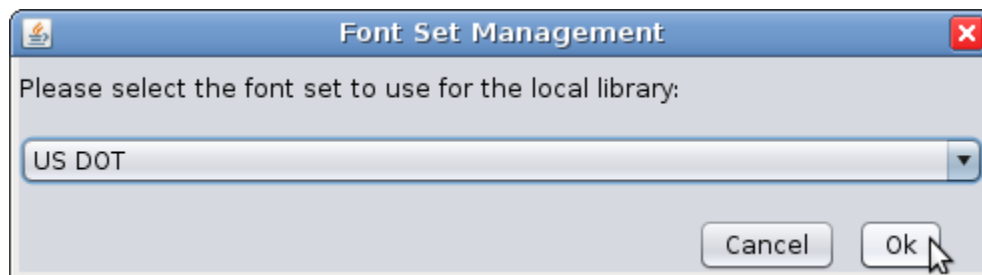
Managing your CMS unit

Unit Location (GPS)

If your unit is equipped with a GPS receiver, you can view the location of the unit in the **CMS Information** area of the main screen (see page 28).

Click the **map it** link to open a map showing the unit's location in your web browser. Click on the location (shown by a pushpin) to view more information about it.
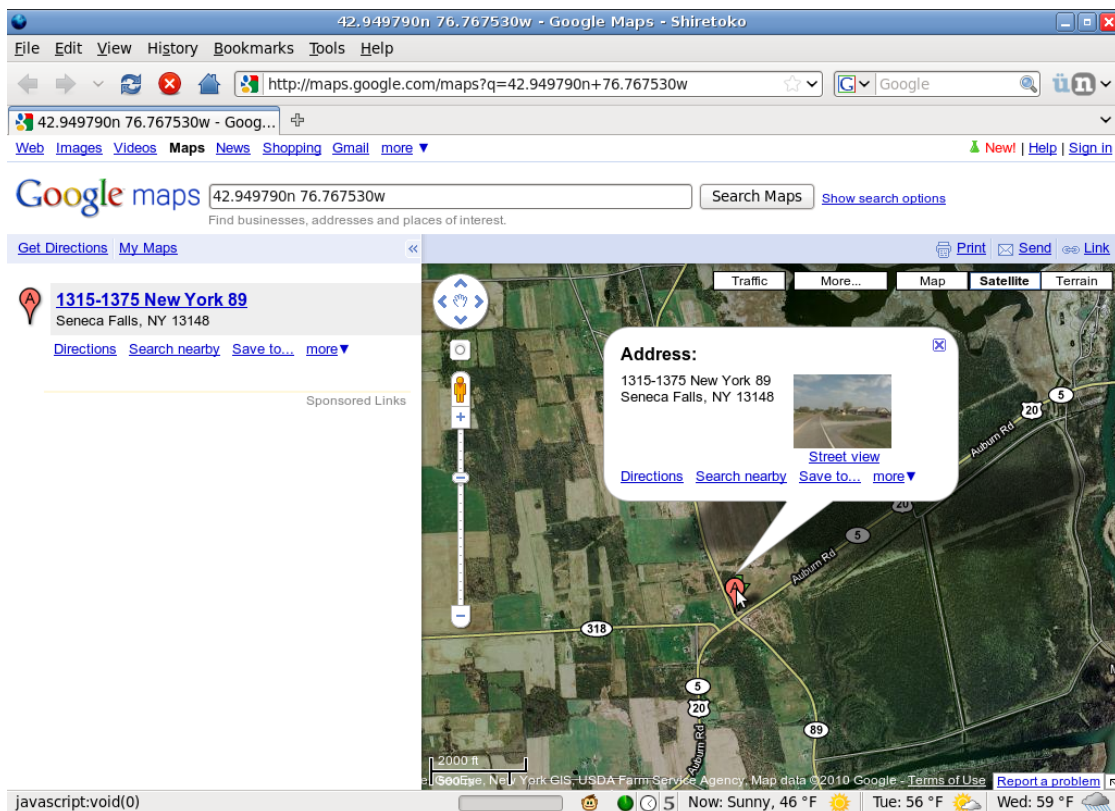
From this page, you can use any features of Google Maps, such as zooming in and out, or getting driving directions to the unit.

CMS Unit Menu

Under the **CMS Unit** menu, there are several features that allow you to manage the unit:

Manage Quick Picks – On the CMS unit, a "Quick Picks" menu may contain up to six messages for easy access. Use **Manage Quick Picks** to add messages from the active library to Quick Picks, as shown:
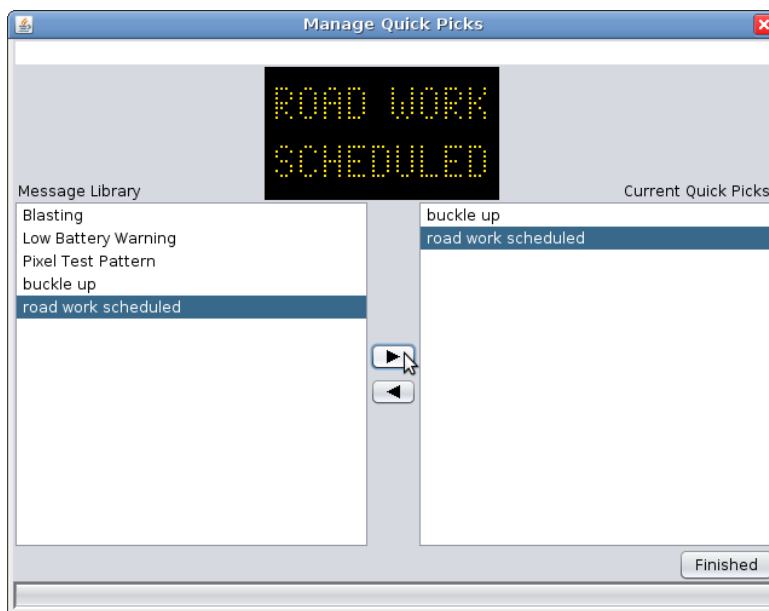
To move a message into Quick Picks, select the message in the list on the left, and click the right arrow button to move it into the Quick Picks list. To remove a message from Quick Picks, select the message in Quick Picks and click the left arrow button.

Set Date/Time – allows you to set the date and time on your CMS unit.

The location listed at the top (here, "America/New_York") is a simple way to indicate the time zone; just choose the city nearest you.

Or avoid setting the time entirely by clicking **Set Time From This Computer's Clock**. This will set the CMS unit's clock to match the local time on your computer.

Set Photocell Limits – Photocell limits govern how bright the sign is in response to ambient light level. If the display is not bright enough, lowering the limits may help. If the sign is too bright,

raising the limits may help. For most signs, the default setting of 1500-3750 works well. *Warning: altering these limits can dramatically affect the CMS unit's run-time. Do not alter these limits without consulting with the factory!*
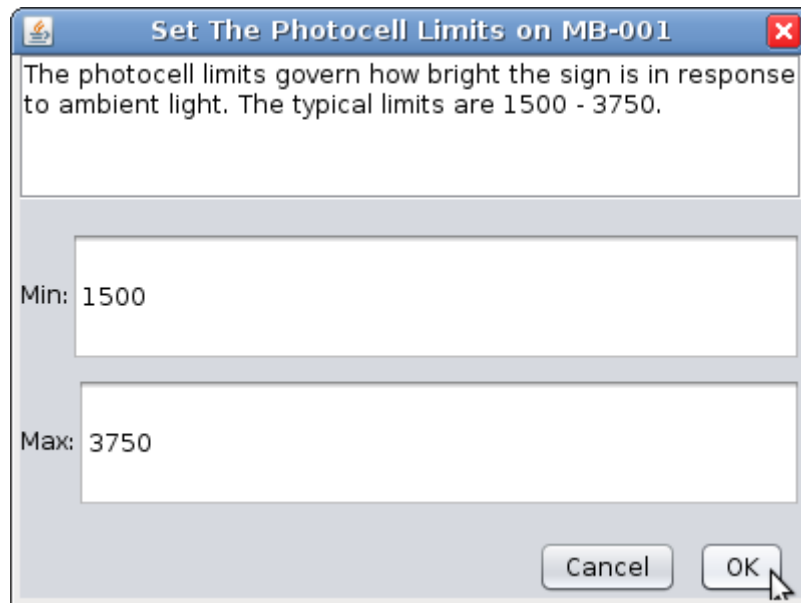
Set Module Intensity Curve – For closer control over the sign's brightness, CMS units with newer module types (V3 HD, V4 HD, and V6) can respond to an intensity curve. *Control Center 3000©* comes with several curves programmed in; you can also create a custom curve. *Warning: altering these limits can dramatically affect the CMS unit's run-time. Do not alter these limits without consulting with the factory!*

To use a programmed curve, select it from the menu at the top of the window. **Solar Powered**, the default, is appropriate for most installations. **Line Powered** options are available for high and low light pollution areas, as well as indoor installations.

To create a custom curve, select **Custom** from the menu. A window like the following will appear.
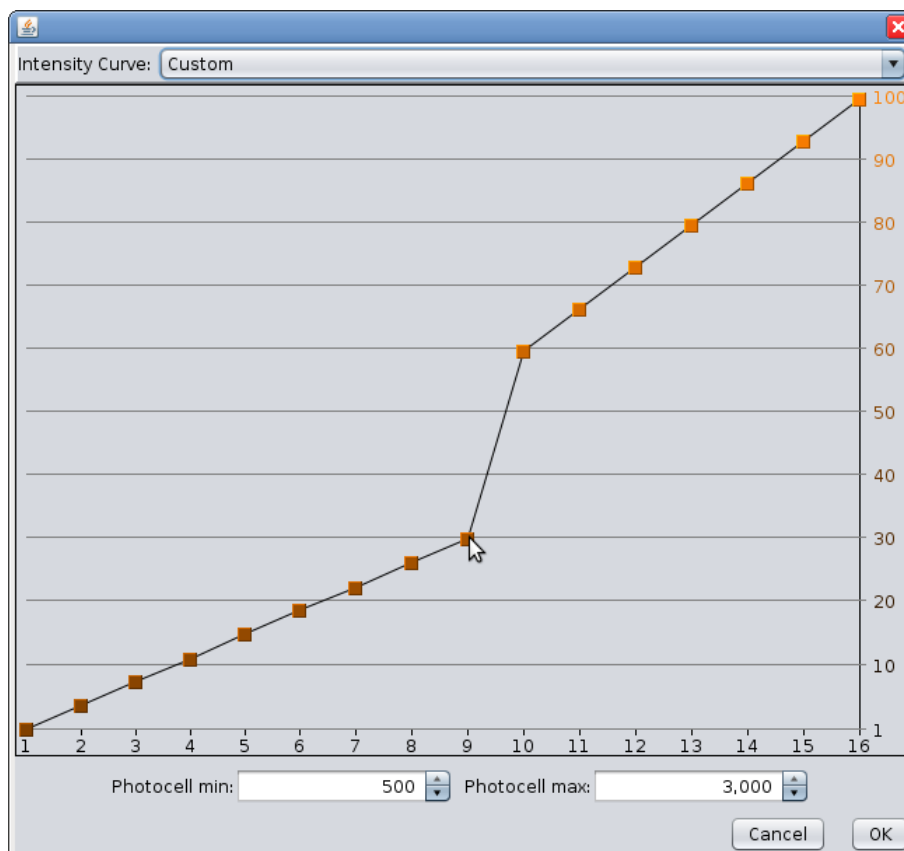
Drag the points of the curve as desired. The numbers along the bottom of the chart represent intensity levels from the photocell, from 1 to 16. The numbers along the side represent LED brightness, as a percentage of maximum brightness. The higher a point, the brighter the sign will be at the given intensity. In the example above, at a photocell intensity of 9, the LEDs will operate at 30% brightness.

Solar Array Debris Clearing – This feature, available on some CMS units, will attempt to lower the solar panel into a vertical position to remove debris such as snow, leaves, or dust. Read the on-screen information to learn more about this feature.

Click the **Lower** button to lower the panel into cleaning position, and the **Raise** button to raise it for normal operation. The expected current position of the panel is reported just above the Raise and Lower buttons.

Battery Voltage Offset – Use this if long power cables result in a battery reading that is lower than the battery's actual voltage due to line drop. If the unit displays a low battery warning when the battery is charged, adjusting this offset may fix the problem.

Click the arrows to change the battery voltage offset, as shown below.
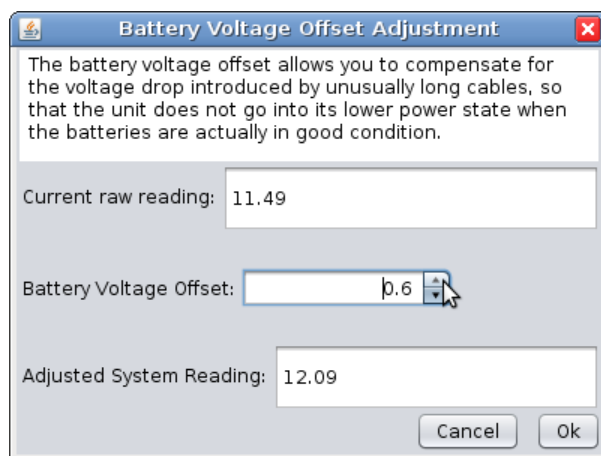
Temperature Offset – If your temperature probe is known to read too high or too low, the temperature offset can be adjusted to provide a correct reading. Click the arrows to change the temperature offset, as shown below.
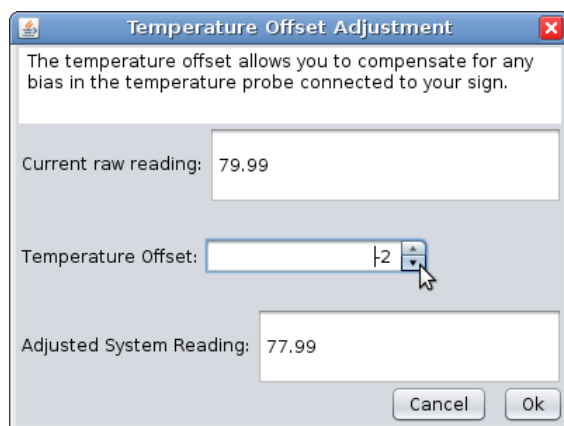
Test Sign Panel – These two tests will light up the LED Display Modules on the CMS unit's sign panel so you can determine, by looking at the sign, whether any modules or pixels are defective.

A single module test will automatically start. This test lights all of the pixels on a single module. Use the arrow buttons at the bottom of the screen to change which module's pixels are being tested. You will need to be able to see the CMS unit to detect any failures; do not perform this test remotely.
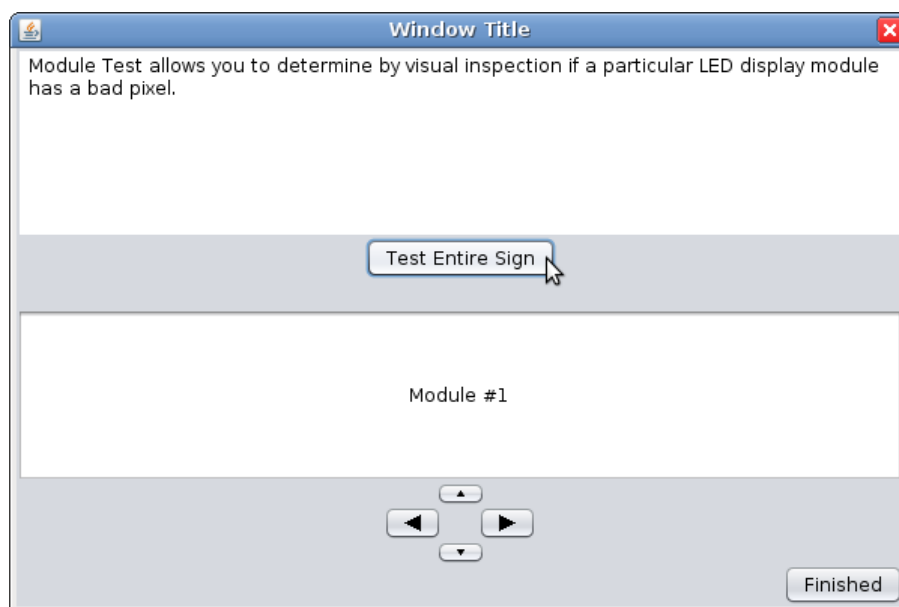
To test the entire sign for failed modules, click the **Test Entire Sign** button. This begins an entire sign panel module test.

> In the case of a module failure, the sign will likely be blank and the console will display a module display failure message. In *Control Center 3000©,* the sign status will read "LED Module Failure" in red. Click **Test Entire Sign** and read the on-screen instructions to perform the test.

Sign Panel Management – Use this dialog to set the module type (V3, V4, etc) for informational use by NTCIP and UTMC. This setting overrides the system's Automatic Sign Panel Detection and Configuration algorithm and is used for set-up of Dual Sign Panel installations. *Warning: altering these settings may render the sign panel inoperable. Please consult the factory for assistance prior to changing any of these settings.*

Power Conservation – This brings up a dialog with two options for saving power.

To conserve the most power, select "Both" to engage both a more economical font set and the Adaptive Blanking feature. You can also choose to engage just Adaptive Blanking. (To change only the font set, see the **Font Set** menu item.)

```
┌─────────────────────────────────────────────────────────────────┐
│ 🖳                    Conserving Power                       ❌ │
├─────────────────────────────────────────────────────────────────┤
│ There are two main ways to conserve power on a Solar Technology  │
│ DMS unit:                                                         │
│                                                                   │
│ 1. Switch to the US DOT 3-Line font set.                          │
│    A full matrix DMS achieves its improved legibility at the      │
│ expense of higher power consumption than a 3-line board.          │
│ 2. Enable Adaptive Blanking                                       │
│    Adaptive blanking inserts blanks between every page displayed  │
│ in order to save power, based on the current battery condition.   │
│ If the batteries are in good health, no blanks are added. If the  │
│ batteries are in poor health, blanks up to three quarters of a    │
│ second are added.                                                 │
│                                                                   │
│ The "Both" button will enable both 3-Line mode and Adaptive       │
│ Blanking. The "Adaptive Blanking" button will enably ONLY         │
│ Adaptive Blanking. The Cancel button will close this dialog       │
│ without changing anything.                                        │
│                                                                   │
│   ┌──────────┐    ┌────────────────────┐    ┌──────────┐          │
│   │   Both   │    │  Adaptive Blanking │    │  Cancel  │          │
│   └──────────┘    └────────────────────┘    └──────────┘          │
└─────────────────────────────────────────────────────────────────┘
```

Font Set – Use this menu item to change the font set used by the CMS unit.

NTCIP Control – If this is set to **Disabled**, NTCIP Central Command cannot be used with this CMS unit. When this field is set to **Enabled** and **Central**, the unit will communicate with NTCIP Central Command and not be usable with *Control Center 3000©*. When the field is set to **Enabled** and **Local**, *Control Center 3000©* can be used, but NTCIP Central Command will be able to take over communication with the sign. It is only possible to use either *Control Center 3000©* or NTCIP Central Command to control the CMS unit at a given time. For more information on using NTCIP with a SolarTech CMS unit see the *SolarTech NTCIP Integration Guide.*

Blanking Between Pages – When set to **Automatic**, the CMS unit will insert short blanks (less than 1 second) between message pages if needed to save battery life. When set to **On**, blanks of 300ms will always be added. When set to **Off**, no blanks will be added.

Set Radar Units – Use this menu item to set your radar gun reading to miles per hour (MPH) or kilometers per hour (KPH).

System Reset – The options in this sub-menu will erase certain settings from your CMS unit. Use with caution; this cannot be undone.

- **Run-Time Counter** – Resets the run-time counter (the "Current Run-Time" field in CMS Information). Like a trip odometer, this may be reset at any time. Lifetime Run-Time readings are not affected.

- **Sign Type** – Reset the sign type when the console is being used with a different sign, or if the physical size of the sign changes. After resetting the sign type, remember to reboot the controller.

- **Message Library** – Erases all messages from the CMS unit's library. The Low Battery Warning and Pixel Test Pattern will be re-created.

- **Schedules** – Erases all calendar and event-based schedules. The Low Battery Warning event will be re-created.

- **Restore Factory Settings** – Resets all other settings, such as photocell limits, radar units, communications passwords, etc. Sign type is not reset.

- **Master Reset** – Resets all settings and erases all messages and schedules. Equivalent to selecting all of the reset options above.

Retrieve Radar Statistics – Provides a comma-separated values (CSV) file of radar statistics. Save this CSV file to your hard drive, and open it in a spreadsheet program to read and analyze the data.

There are three kinds of radar statistics:

- Statistical Data File, `radar_statistics.csv` - This file includes all readings, taken every 250ms while tracking a target. (Year, Month, Day, Time, Number of Detections/Readings, Mean, Median, Mode, Standard Deviation, Lowest Reading, Highest Reading)

- Histogram Data File, `radar_histogram.csv` - Only available for Houston radar guns. (Year, Month, Day, Time, Total Number of Vehicles Detected and Number of Vehicles Detected within Each Speed Bin in 5 MPH intervals)

- Houston Stats Analyzer File, `hr_analyzer.csv` - Suitable for analysis using Houston Stats Analyzer. Only available for Houston Radar Guns. (Year, Month, Day, Time, Total Number of Vehicles Detected and Number of Vehicles Detected within Each Speed Bin in 5 MPH intervals

Choosing "All" will save all three files (if available) to the folder you select.

After saving the radar statistics, you can choose to clear the existing statistics from the CMS unit:
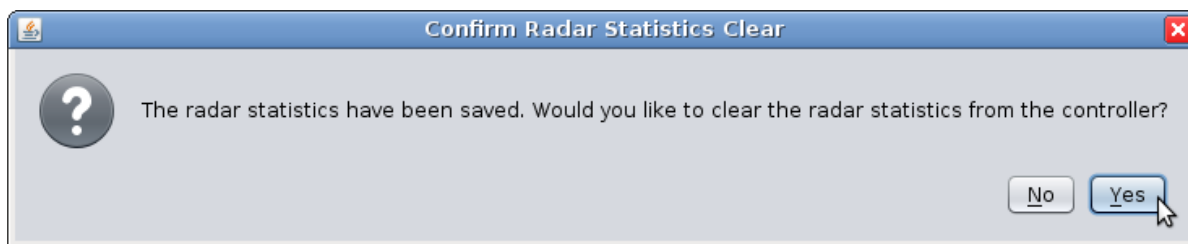
If you click Yes, the radar statistics will be cleared from the CMS unit. If you are unsure, it is safe to click No.

Set the Unit's Communications Password – Set the password that authorizes communication with *Control Center 3000©.* Your saved password (under **File > Manage CMS Units**) will be updated to match.

Set the Unit's Web Interface Password – Set the password that authorizes a user to communicate with the web interface. If the username and password are blank, the web interface is disabled. See page 74 for more information on the web interface.

Set the Unit's NTCIP/UTMC Password – Set the NTCIP Password for the CMS unit. For more information on using NTCIP with a SolarTech CMS unit see the *SolarTech NTCIP Integration Guide.*

Manage Touch-Tone Control – Enable Touch-Tone Control, or change the unit's Message Board Number. When Touch-Tone Control is enabled, you can control the unit by telephone by calling

the phone number listed (+1 866 439 4522), entering the Message Board Number, and following the prompts. Available functions are:

- Check battery status and projected runtime

- Find out what message is currently being displayed

- Display a message from the Quick Picks menu

Touch-Tone Control is not available on units that use a dial-up modem.

Check for Updates – Check for available updates to the software (*TRAFIX*) on your CMS unit. Control Center will also automatically check for updates when you connect to the unit.

Apply Upgrade – Manually upgrade *TRAFIX* with a file on your computer. Use this only if directed by product support.

Disconnect – Selecting this option disconnects your computer from the CMS unit.

When disconnected, the screen for this unit will show in gray, as shown below. Click the screen again to reconnect.
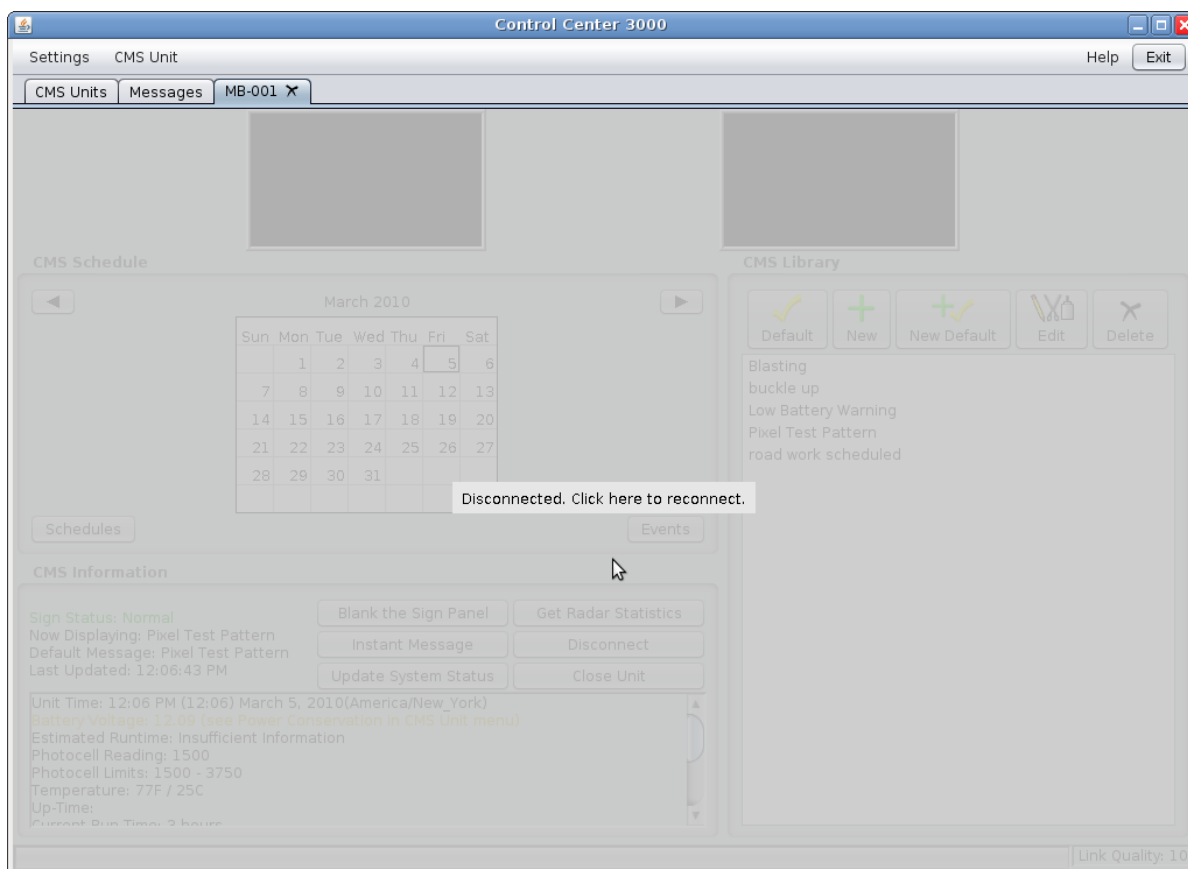
Close – Select this option to close this unit's tab while leaving other tabs available. *Control Center 3000* will continue running.

Reboot Unit – Use this command to restart the CMS unit. Click **Yes** to confirm you are ready to reboot.

You can reboot a unit even if you are not already connected to it. *Control Center 3000©* will connect just long enough to send the reboot command.

After confirming, your screen on *Control Center 3000©* will turn gray, indicating a disconnect (shown below). It will reconnect automatically once the sign has rebooted, which takes a few minutes.
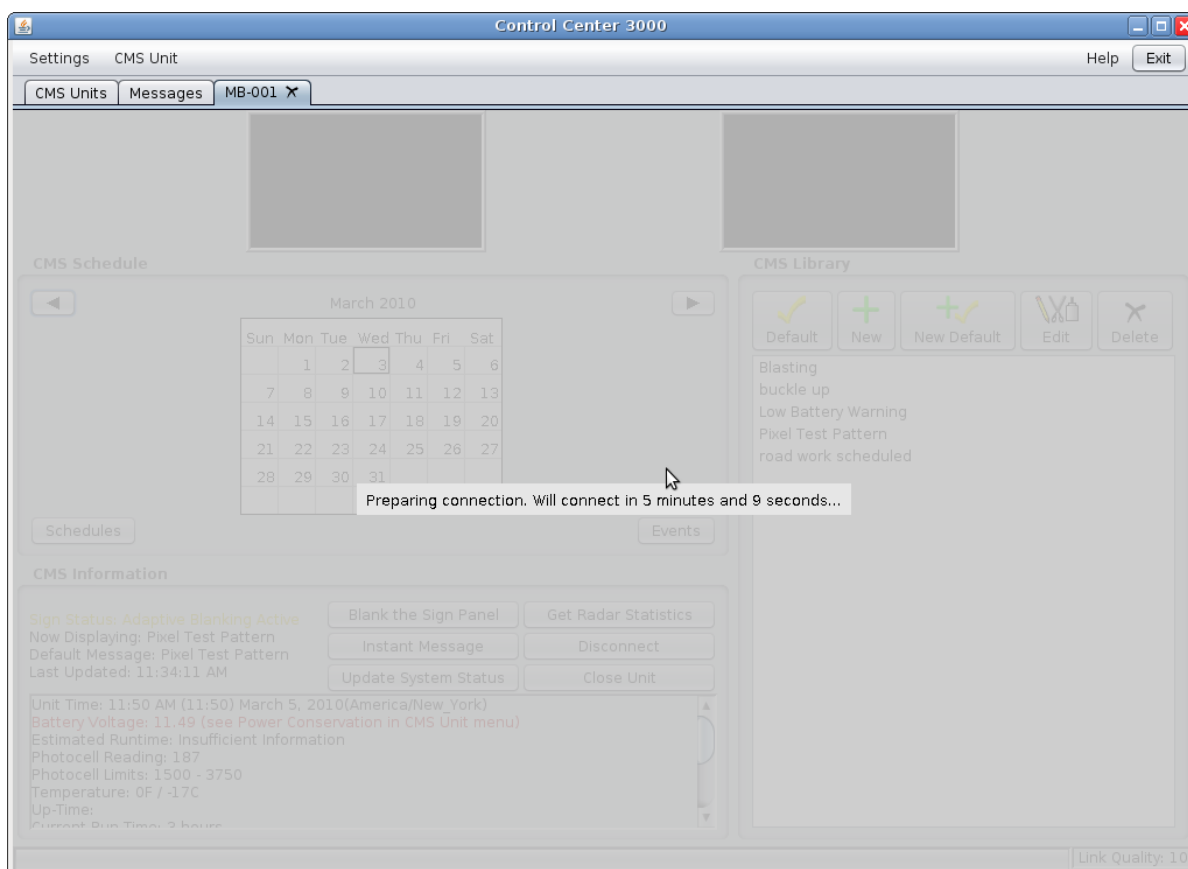
Chapter 3

The Web Interface

To control your CMS unit from a device like an iPhone or BlackBerry, or from a computer without *Control Center 3000©* installed, you can use the web interface. This allows you to work with your CMS unit from any web browser.

The web interface supports common tasks, like checking system status and changing messages, but for full functionality you will need to use *Control Center 3000©*.
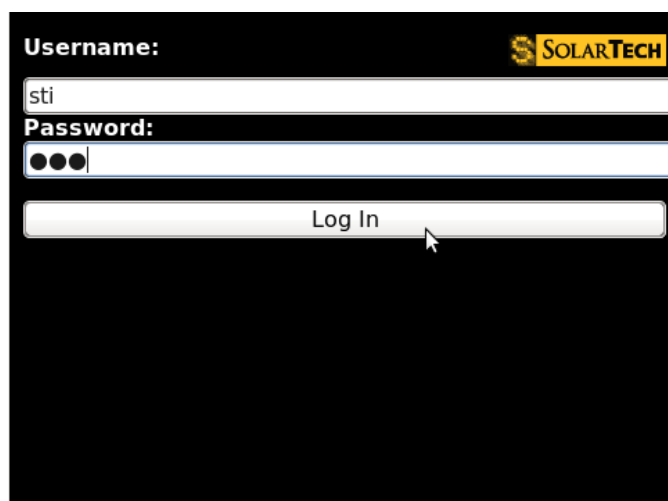
> You will need to know the IP address of your CMS unit. Refer to page 11 to find your CMS unit's address.

To enable the web interface for your CMS unit, first connect to the unit via *Control Center 3000©* and set a password under **CMS Unit > Set The Unit's Web Interface Password**. A username and password must be set for the web interface to function.

To begin using the web interface, enter your CMS unit's IP address into your web browser. It may look something like this:

http://192.168.0.42
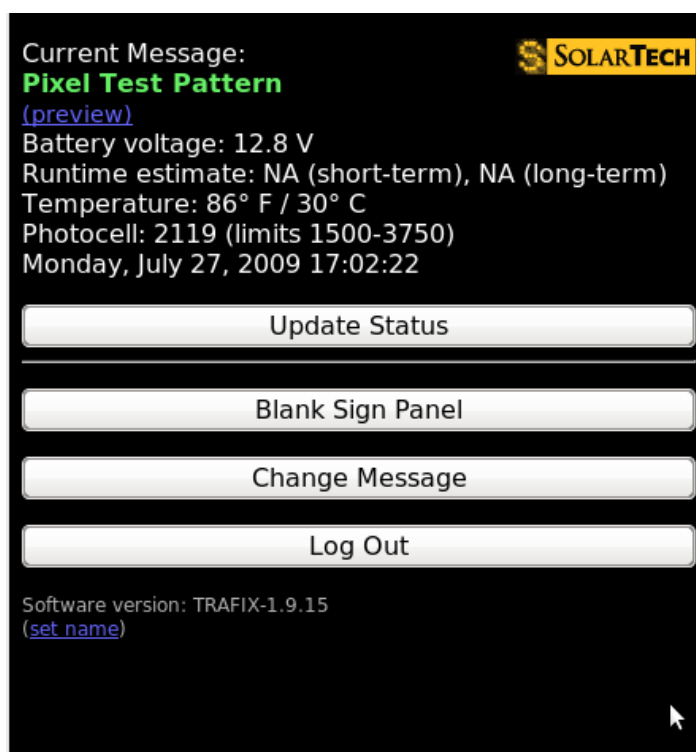
The first thing you will see is a login screen. Type the username and password, and click **Log In**.

You will now be able to see the home screen:

Current Message – In normal conditions, this shows the title of the message being displayed, in green. The status may also be Sign Panel Blanked (in orange) or an error message (in red).

Preview – Click this link for a preview of the message that is currently being displayed on the sign panel.

CMS Unit Information – The displayed battery voltage, runtime, etc, are as described on page 27. Click the **Update Status** button to refresh this information.

Blank Sign Panel – Use this button to turn off the sign panel and display a blank message as the Default Message.

Change Message – Use this button to choose a new message to display on the sign panel.

Log Out – Use this button to log out of the web interface when you are done.

Changing the Default Message

Click the **Change Message** button to view a list of available messages:
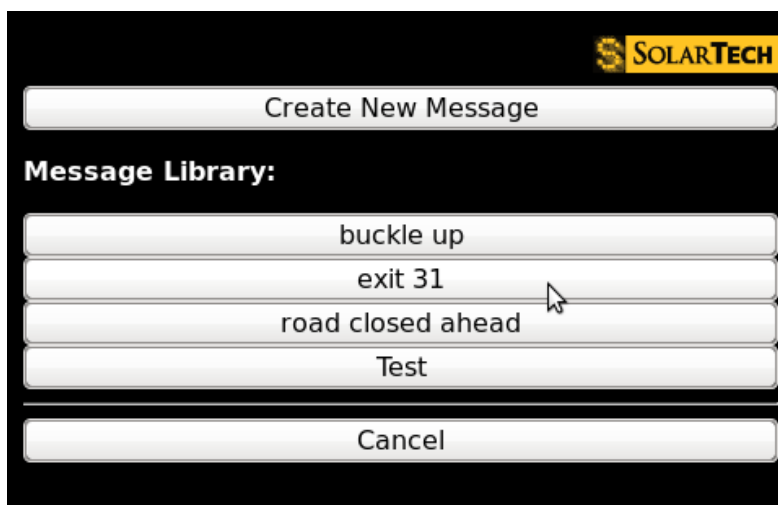
Selecting an existing message from the library will bring you to a preview screen for that message:
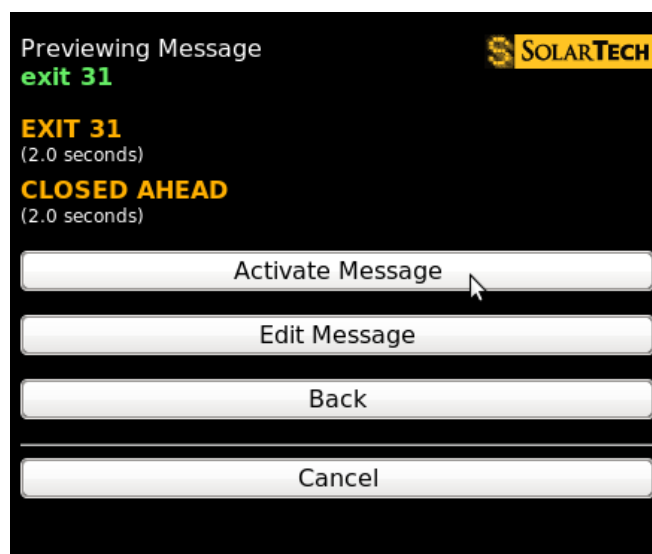
Each page of the message is displayed in amber along with the amount of time that page is displayed. Animations or graphics are indicated as the word "(graphic)".

From this screen, **Activate Message** will set the message you are previewing as the Default Message (it will be displayed on the CMS unit, assuming no schedules are in effect). **Edit Message** will allow you to edit the message (if it is made of only text pages).

> You cannot view or edit graphics from the web interface. For that functionality, please use *Control Center 3000©*

Creating a new message

From the **Change Message** screen, click **Create New Message**. You will see a screen like this one:

Enter the text you would like to display, along with the time for the text to be displayed (2.0 seconds is a typical display time). Pages set to "Skip" will not be displayed.

At the bottom of this page, enter a name for the new message and click **Save and Activate Message** to begin displaying this message, or click **Save Message** to add the message to the library without displaying it now.

Setting the web name

The web name is an identifier for the CMS Unit. You can set this to be anything you like, such as a serial number or nickname. From the home screen, click **Set name** at the bottom of the screen. The following screen will appear:

Enter a name and click **Set Web Name**. This name will now be displayed in the title bar of your browser window, and also at the bottom of the home screen:

As before, click **set name** if you would like to change the name.

Appendix A

License Agreement

SOLAR TECHNOLOGY, INC.

CONTROL CENTER 3000

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The light bulb icon used in this manual was created by Kitae Kim.

Appendix B

Menu Structure

Settings

  Set Password for Control Center 3000

  Set Serial Modem Port...

  Configure Simulated Sign for Local Messages

  Choose Local Font-Set

  Set Language

CMS Unit

  Manage Quick Picks

  Set Date/Time...

  Set Photocell Limits...

  Set Module Intensity Curve...

  Solar Array Debris Clearing...

  Battery Voltage Offset...

  Temperature Offset...

  Test Sign Panel...

  Sign Panel Management...

  Power Conservation...

  Font Set

  NTCIP Control

  Blanking Between Pages

  Set Radar Units

System Reset

Retrieve Radar Statistics...

  Radar Reading Statistics

  Vehicle Histogram

  Houston Radar Analyzer Data

  All

Set the Unit's Communications Password...

Set the Unit's Web Interface Password...

Set the Unit's NTCIP/UTMC Password...

Manage Touch-Tone Control...

Disconnect

Close

Reboot Unit

Appendix C

Definitions

Automatic Blanking – a power-saving feature that inserts short blanks between the pages of a message. The blanks are all less than one second long (300-750 milliseconds), depending on battery status and on the battery's health as measured by nighttime voltage. If the battery is healthy and near capacity, no blanks will be added. Blanking can also be set to **On** or **Off**.

Adaptive Text – a setting that will automatically choose the right size of font to display your message.

Animation – a series of graphic pages that will be displayed one after another, to give the appearance of motion. For example, an animation might show an arrow moving across the screen, or a construction worker waving a flag.

CMS Unit – Your sign, the device that *Control Center 3000©* controls. CMS stands for Changeable Message Sign.

Communications Password – Authorization to connect to the CMS unit via *Control Center 3000©*. If this password is blank, or the unit has never been communicated with, no password is required to connect.

Data-Driven Event – see Event.

Default Message – the message that is displayed when no schedules or events are in effect. If a schedule is in effect, the Default Message will be displayed as soon as the schedule ends.

Dynamic Data – data received from equipment attached to the CMS unit. Temperature, battery voltage, and radar gun readings are examples of dynamic data.

Event or **Event-Based Schedule** – Displays a pre-determined message, instead of the Default Message, when certain conditions are met. For example, the Low Battery Warning Event is activated when the battery voltage is low.

Font – Letters of a certain size and appearance. For example, a 12-pixel font is larger than a 9-pixel font. The Adaptive Text setting chooses a font size for you.

Font Set – A group of fonts that are available to you. For example, a French font set may have fonts with accented letters available, while the US DOT font set includes only fonts that have been approved for use on US highways.

Graphic – a message page that contains a picture.

IP-Addressable – refers to a CMS unit that can be assigned an IP address. This includes all units *except* those that are equipped with a dial-up modem.

Java – software that is required to run *Control Center 3000©*. See page 6 to learn how to install Java.

Library – a collection of messages. Libraries are stored on CMS units or on your local computer.

Local Libraries – libraries that are stored on your computer (rather than on a CMS unit). If you store messages in your local library, you can easily transfer them to one or more CMS units. The *Messages* tab allows you to see and work with all available libraries. See page 53 for information on working with libraries.

Message – a series of pages (text, graphics, or both) that can be displayed on the CMS unit. See page 35 to learn how to create a message.

Module – a block of LEDs making up part of your sign panel.

Override Message – A message, usually temporary, that is displayed instead of the normally scheduled message. (See page 30 for more information about Override Messages.) Use the **Clear Override Message** button to return to the scheduled message.

Page – a component of a message. A page is the text or graphic that is displayed on the sign panel for a period of time.

Pixel – a dot making up part of a letter, number, picture, etc. Pixels may be on (lit LEDs) or off (dark).

Quick Picks – up to six messages that are available from the "Quick Picks" button on the CMS unit.

Schedule – A schedule specifies that a certain message will be displayed at certain times, instead of the Default Message. A **One-time Schedule** has a start time and end time; after the end time, that schedule will not be displayed again. A **Repeating Schedule** also has a start and end time, but can be repeated, for example every weekday or on a certain day of the month. If you need to display a temporary message while a schedule is in effect, see **Override Message**.

Touch-Tone Control – a way of interacting with your CMS unit by telephone. This feature is available for any IP-addressable unit by calling +1 866 439 4522 and entering your Message Board Number. See page 71.

Working Library – the main library of messages on your CMS unit.

Reference Library – an additional library that typically contains graphics and other useful messages. To use these messages, you will need to move them to the Working library.

TRAFIX© – The software running inside your CMS unit.

Web interface – Allows you to connect to your CMS unit from a web browser (rather than *Control Center 3000©*) to perform basic functions such as retrieving system status and changing messages. The web interface can be used from web-enabled cell phones.

Web Interface Password – Authorization to connect to the CMS unit via the web interface. If the password is blank, the web interface is disabled.