

User's Guide

Command Center Enterprise

From Solar Technology, Inc

Version 1.0

Tip: Use **Ctrl-F** to search this document.

Tip: For a gentle introduction to Command Center without all the gory details, check out the [Tutorial](#).

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About Command Center

Command Center is software that runs on your computer, and lets you manage your fleet of road safety equipment. Command Center currently supports:

- SolarTech message boards (running TRAFIX© 2.0 or later)
- SolarTech arrow boards
- SolarTech traffic cameras
- A variety of message board add-ons such as radar guns and debris clearing units

Install & Setup

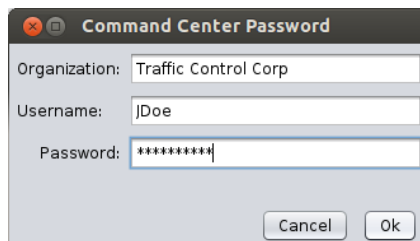
How do I get started?

1. Make sure you have Java installed, version 7.0 or later. (If you're not sure, go to java.com).
2. Download Command Center for Windows from solartechnology.com. (If you need to run Command Center on an Apple or Linux computer, contact customer service.)
3. Open the installer and follow the prompts.
4. Proceed to [Running Command Center for the first time](#).

Tip: Supported assets include SolarTech arrow boards, traffic cameras, and message boards that run TRAFIX 2.7.3 or later.

Running Command Center for the first time

Start Command Center, and log in with the credentials you were given. This will include an organization, username, and password:



A dialog box titled "Command Center Password" with a close button (X) in the top left corner. It contains three input fields: "Organization:" with the text "Traffic Control Corp", "Username:" with the text "JDoe", and "Password:" with a masked password "*****". At the bottom right are "Cancel" and "Ok" buttons.

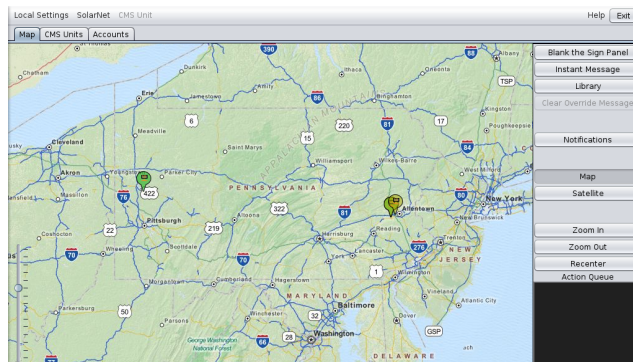
Logging in

Check the box to remember this login for next time, if desired.

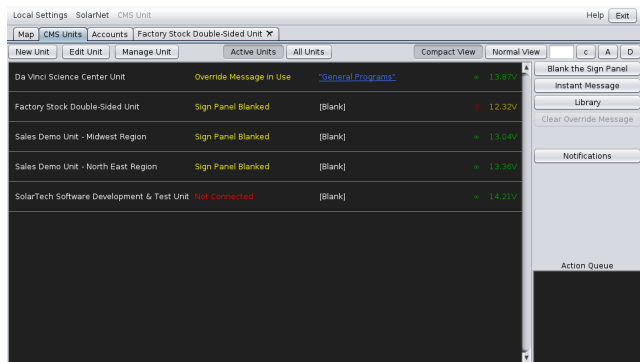
Getting around

Command Center opens in **Map** view. Click the tabs near the top to change to an Asset view such as **CMS Units** view, or to manage accounts.

Tabs for individual units will appear at the top if you select **Advanced Control** for a unit.



Map view



CMS Units view, one type of Asset view

Adding New Assets

Your Command Center account needs to know about your assets (CMS units, arrow boards, etc) to be able to manage them. All SolarTech assets purchased after January 1, 2014 will be added automatically. If you have other assets that do not appear when you start the Command Center software, follow these directions to add the new assets to your account.

Adding a CMS Unit

In the CMS Units view, click **Manage Units** and then **New**.

Adding a new unit

1. In the **ID** field, enter a name for the unit.
2. In the **Connection Type** field, select the appropriate connection type. **TCP/IP Network Secure** is recommended for most units. If in doubt, use the table below, or refer to the instructions you were given when the unit was first installed.

Use...	For connection...
TCP/IP Network Secure	All IP connections. Requires TRAFIX© 2.1.0 or newer. Choose this unless you have been directed otherwise.
TCP/IP Network Standard (Multiport)	IP connections to units running older versions of TRAFIX©
TCP/IP Network Enhanced (Single Port)	IP connections to older versions of TRAFIX© where Multiport is not supported (such as through a VPN), or when indicated by technical support. Requires TRAFIX© 1.9.0 or later.

3. In the **Connection Address** field, enter the unit's IP address.

Tip: If needed, refer to the instructions below, [How do I find a CMS unit's IP address?](#)

4. If your 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 Units Communications Passphrase**.

5. In the **Description** field, describe the unit for easy identification. This field is searchable, so choose a description that will help you as you are managing units, such as its location or purpose.
6. If the unit is in a permanent location, you can set it here (for example, a sign that is installed on a bridge or building.) Otherwise, leave **Location** unchecked, and the unit's GPS will keep its location up to date.
7. Click **OK** to finish. Repeat these steps to add additional units.

How do I find a CMS Unit's IP Address?

Note: You'll need physical access to the unit.

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.

Version: TRAFIX-2.0.1
Time: 16:00 (4:00 PM)
Date: 3 September 2010
Photocell: 2021 (1500 - 3750)
Battery Voltage: 11.49
Temperature: 80.3F / 26.8C
IP Address: 192.168.1.2
MAC Address: 48 5b 39 09 c0 39
Up-Time: NULL
Current Run-Time: 25 hours
Lifetime Run-Time: 25 hours
Serial Modem Type: N/A
Signal Strength: N/A
Signal Quality: N/A
GPS Position: N/A
Compass Reading: N/A

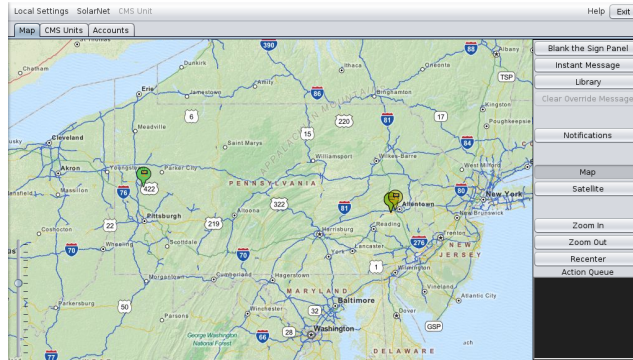
Refresh
Help
Comm. Passwords
Log Out

Display **Information** Tools Settings

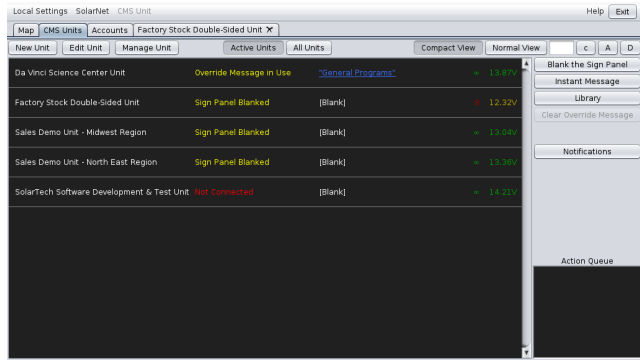
2. On the **Information screen** (shown above), locate the IP Address assigned to the unit. This will include four numbers separated by dots (example: 192.168.1.2). You will need this IP Address to add a new unit in Command Center. When finished, touch the **Log Out** button.

Managing Your Fleet

You can view your units on the **Map** view or Asset views. Click the tabs at the top of the screen to change which view you are using.



Map view



CMS Units view, one type of Asset view

Map View

Navigating the Map

When you start Command Center, all your units will be visible on the map. Some tips for navigation:

- **Drag** the map to view different areas. **Double click** to zoom in (or use the **Zoom In** and **Zoom Out** buttons).
- **Click** a unit to view details; **click again** to select it (it will turn blue).
- **Shift-drag** to select units next to each other (a blue box will appear).
- Click **Recenter** to return to the original map with all units visible.

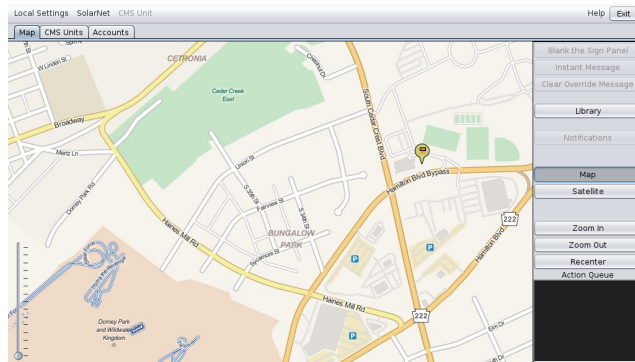


Selected units are indicated in blue.

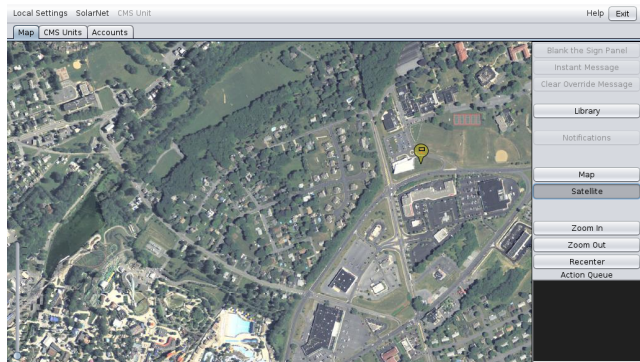
When you select a unit on the map, it will remain selected when you switch to an asset view, and vice-versa. Use this feature to find units depending on their location (in map view) and their description (in asset view).

Selected units (including those you've selected in another view, such as CMS Units view) are shown in blue. Otherwise, the color of each asset on the map indicates its status: green for normal operations, yellow for a warning or if an **override message** is in effect, red for a problem, and gray if the sign is blank.

The **Map** and **Satellite** buttons toggle between a traditional map, with features like roads drawn in and color coded, and a satellite view that provides an image of what the area actually looks like. Especially when zooming in, Satellite view can help by showing features that may not show up on a map, such as buildings, parking areas, or other recognizable terrain.



Map

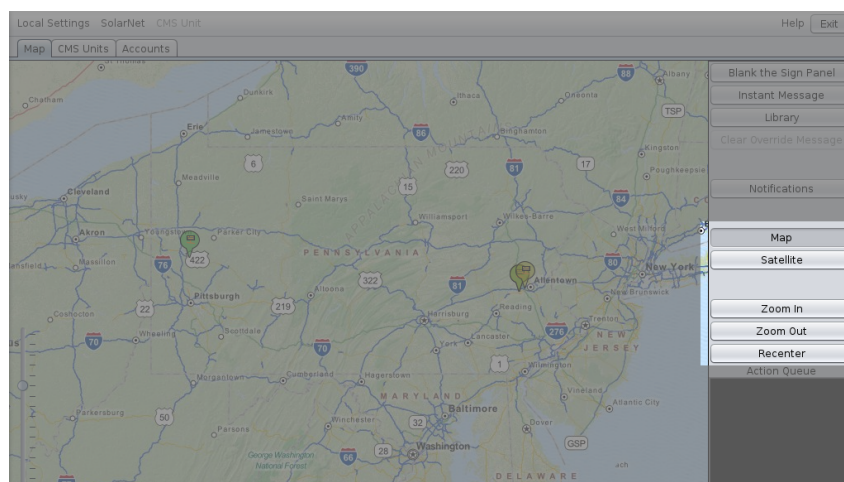


Satellite

Power user navigation

There are some power-user functions to navigate the map more efficiently:

- **Ctrl-drag** for a green rectangle; when you release, the screen will zoom to show only the area in the rectangle.
- **Scroll** your mouse wheel or touch pad (if you have one) to zoom in and out.
- **Use the Recenter button** to bring all of your units into view, zooming out and re-centering the map as needed.



Navigation buttons, at right

Selecting units

You can select units with the map, using the following actions. (If you want to select units by other criteria, such as their description, consider using **CMS Unit** view instead, or use the techniques in

How do I find a missing unit?)



Selected units are indicated in blue

- **Click a unit** to view a pop-up with details about that unit. Click again to select that unit.



Click a unit for details

- **Double-click a unit** to individually manage that unit with **Advanced Control**.
- **Shift-drag** for a blue rectangle; when you release, any units in the rectangle will be selected.

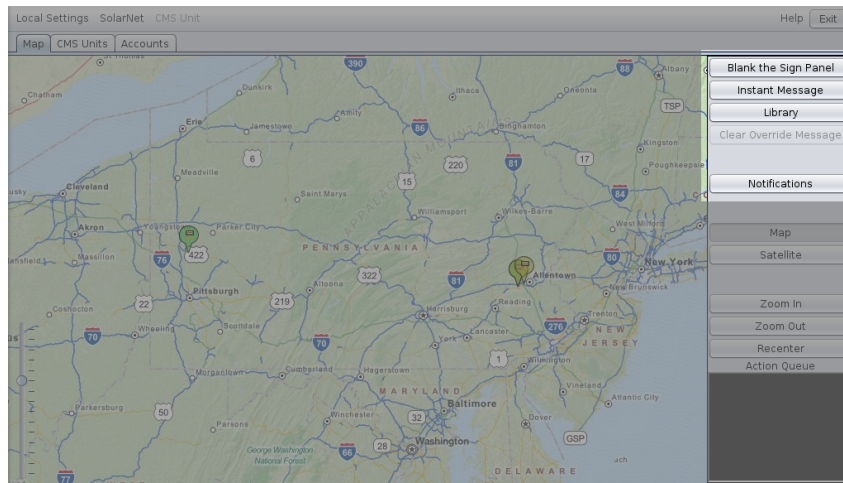
Once you have selected units, in either view, you can apply actions to the group of them - for example, sending a new message to all selected units.

Tip: When you select units in Map view, those units will remain selected when you switch to an Asset view and vice-versa.

How do I find a missing unit?

1. Go to the **CMS Units view** to select the unit (or the arrow board view if you are looking for an arrow board, etc).
2. If you don't see it right away, use the search function to find its listing. Don't forget that you can choose to view active or inactive units, or both.
3. Once you've found the unit's listing, select it by clicking on it.
4. Switch to **Map View**. The unit will be selected in blue.

Applying Actions to Units



Action buttons, at top right

The following actions, available from the buttons on the right-hand side of the map screen, will apply to any units you have selected. (If no units are selected, the action will apply to all units visible on the map.)

Blank the Sign Panel - Blanks the sign panel on all selected units

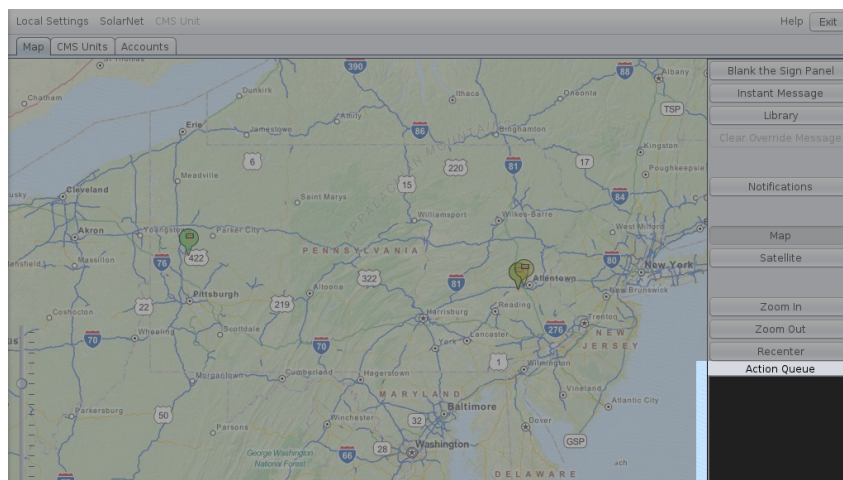
Instant Message - Sends a message to all selected units. (You will be asked if you want to set this message as the *Default Message* or *Override Message*.)

Library - Shows the Library window.

Clear Override Message - If an *Override Message* is in effect, clears the override message to allow scheduled and default messages to display as usual.

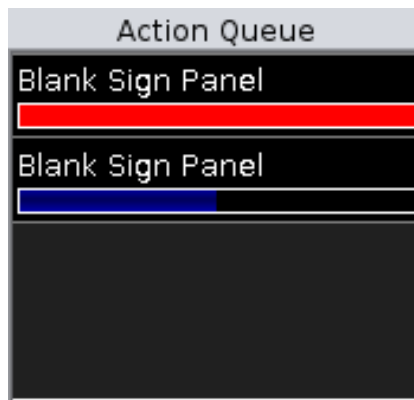
Notifications - Opens the Notifications window.

Action Queue



Action Queue, at bottom right

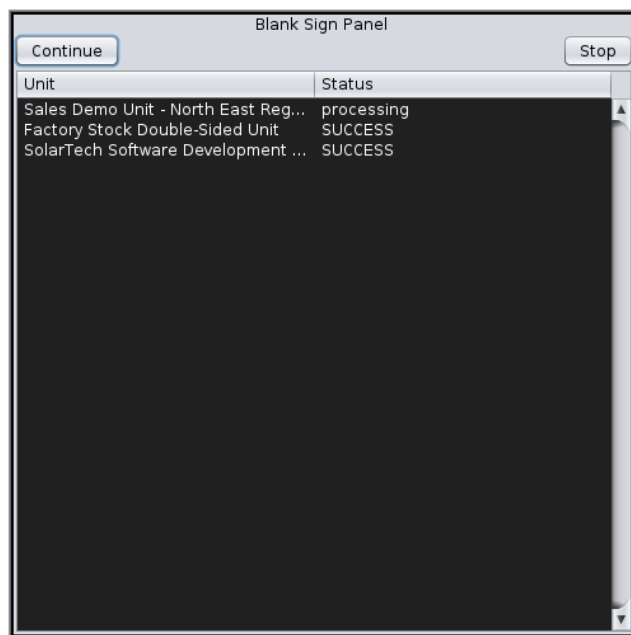
When you apply an action to one or more units, a progress bar for the action appears here. Actions will disappear from the queue when they finish successfully. Failed actions will remain in the queue so you can see that there was a problem.



The queue shows actions in progress (blue), and those that have failed (red). Successful actions appear briefly in green, and then disappear.

Action Detail Window

Click an action in the queue to view the Action Detail Window for details on whether the action has succeeded, failed, or is in progress on each unit:



*Action detail window, showing **Continue** and **Stop** buttons.*

Depending on the status of the action, the following buttons may be available:

- Click **Stop** to stop the action (available if the action is still in progress).
- Click **Retry** to retry the action (available if the action has failed on any units).
- Click **Clear** to clear the action from the queue (available when the action has finished on all units).
- Click **Continue** to close this window while leaving the action in progress.

Asset Views

There is a view for each type of asset in your fleet, such as CMS units, arrow boards, etc. (All

types of asset are visible in the **Map View**). Each asset view contains actions and settings that make sense for that type of asset.

CMS Units

The CMS Units tab includes features and functions for managing changeable message signs ("message boards").

Compact vs Expanded Views

How much detail would you like to see about each message board? To keep it short and sweet, choose **Compact View**. For more information, choose **Expanded View**. (You can toggle between them with the buttons at the top of the screen.) Here is the difference:

Compact and Expanded View

MB-000013	Not Connected		
MB-000014 - EJZ Office	Normal	"Pixel Test Pattern"	∞ 14.04V

Compact view

MB-000013	Not Connected		
SolarNet Serial Number MB-000013			
MB-000014 - EJZ Office	Normal	"Pixel Test Pattern"	∞ 14.04V
SolarNet Serial Number MB-000014	0 (1500 - 3750)	64F / 18C	24 days 1:40 up 862 hours

Expanded view

Both views show:

- The unit's name
- Unit status (shown in green for normal, yellow when warnings or special conditions are in effect, and red if there is a problem)
- Title of the message currently showing (hover your mouse here for a preview)
- Battery voltage, color coded (green for normal, yellow when low, red when critical)

Expanded view shows everything in Compact View, plus an extra row of information:

- Description of board (under name)
- Photocell readings and temperature (under status)
- Uptime (time since unit was last rebooted, given in days)
- Runtime (total number of hours the unit has been in operation, since the run timer was last

reset)

- "Sparkline" showing battery voltage over time. Some variation is normal, but you don't want to see a downward trend.

Selecting and Filtering CMS Units

As in **Map View**, actions apply to selected units, or if no units are selected, they apply to all units that you can see on your screen.

Click a unit to select it.

Control-click to select multiple units.

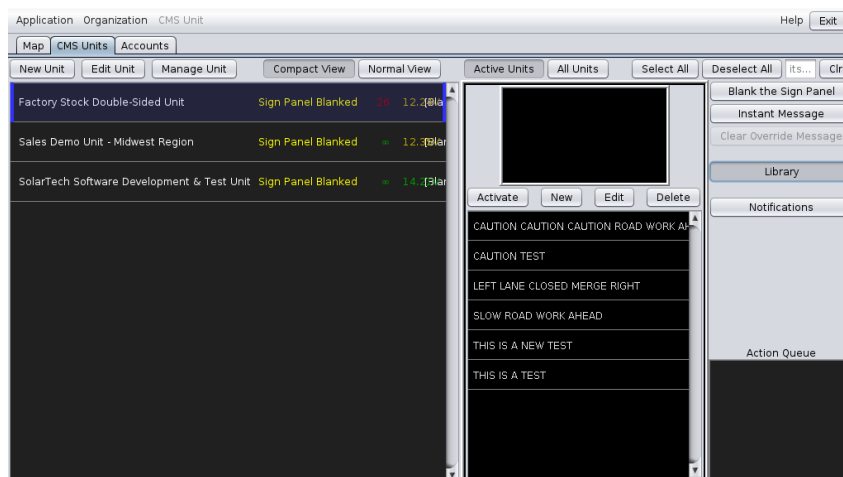
Active and Inactive Units

Active units are the ones that your organization currently uses; inactive units are ones that have been retired, sold, or otherwise are not in use. Command Center still remembers them for history and logging purposes.

In an Asset view, only Active units are shown by default; click the **All Units** button to see inactive units as well.

Library

The Library window shows the messages in your organization's Library. Click the **Library** button (on the right-hand side of any Asset or Map view) to open and close the Library window.



The library window shows messages in your organization's library, while also leaving units visible.

Click a message to select it. A preview of the message appears at the top of the library window. (You can only select one message at a time.)



Selecting messages in the Library window

Activate

sends that message to all selected units (or to all units currently visible on your screen, if none are selected). You will be asked if you want to set this message as the Default Message or **Override Message**.

New

creates a new message.

Edit

opens the selected message for editing.

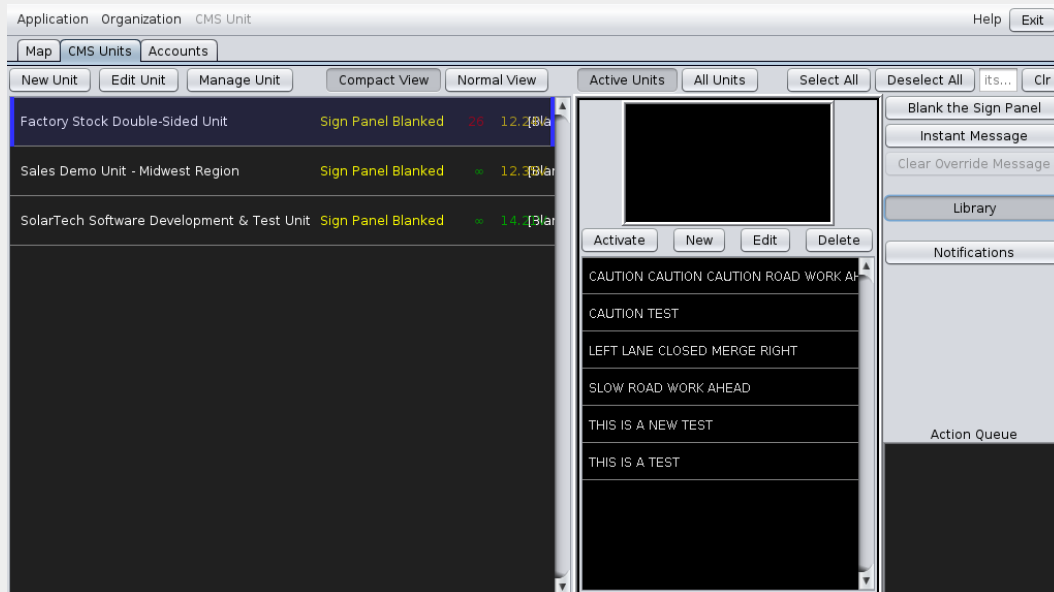
Delete

deletes the selected message.

How do I change the message on a board?

Using an existing message

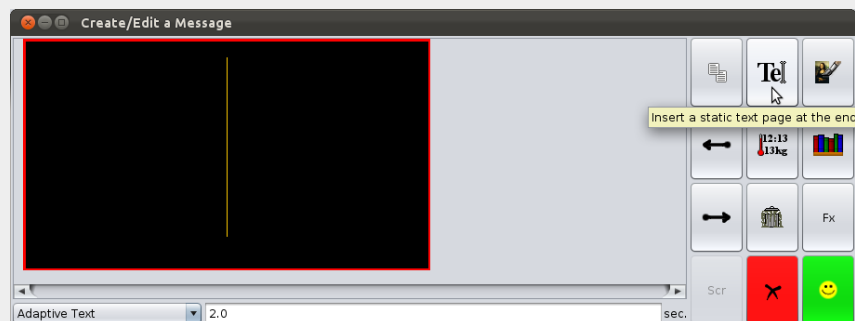
1. Select the unit(s) you want to display the new message.
2. Click the **Library** button.
3. In the Library pane, select the message you'd like to display.
4. Click **Activate**.



Clicking the **Library** button shows available messages for selected units, which you can preview and activate.

Creating a new message in a hurry (text only)

1. Select the unit(s) you want to display the new message.
2. Click the **Instant Message** button.
3. Type to create the new message. When you're done, click the green smiley face.
4. Decide if you want to set this as the **Override** message (it will display no matter what) or as a **Default** message (to be displayed only when, for example, previously scheduled messages aren't in effect.)



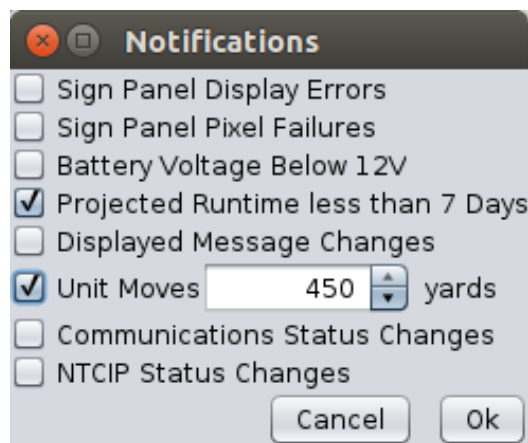
Creating a new message.
Each black rectangle is one page of the message.

Notifications

Notifications can be sent whenever some aspect of a unit's status changes: for example, when the unit is moved, or when an error is detected. Notifications are sent to your email address, which you can set or change in the [Accounts](#) tab.

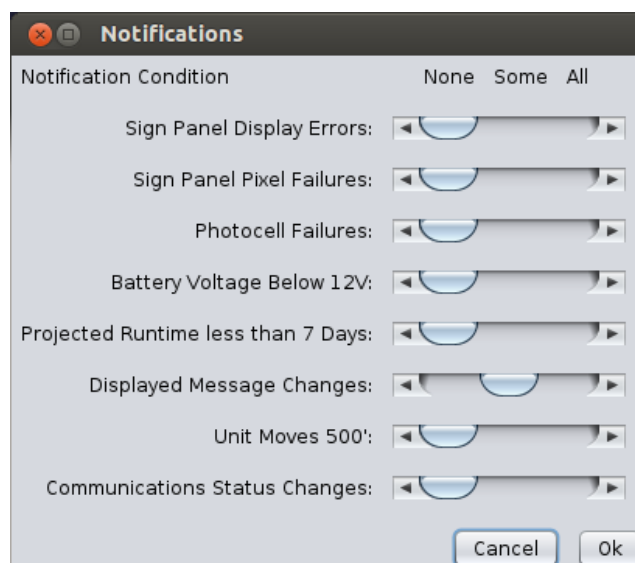
All Units Notifications

Use this button to configure notifications **for all units**. You can select which events you want to receive notifications for:



Notifications for specific units

Click the **Notifications** button (on the right-hand side of any Asset or Map view) to open and close the Notifications window.



Sliders show notification settings at a glance.

This window shows whether notifications apply to the boards that are selected (or all visible boards if none are selected). You can switch between On/Off using the slider; if the slider is set at "Some" it means that notifications are currently on for some of the units you have selected, but off for others.

Accounts and Permissions

Different people at your organization can have different permissions - for example, some users may only be allowed to change messages on certain boards, while others may be able to add new accounts and change others' permissions.

You can authorize other people to manage some or all of your organization's assets. You'll do this from the **Accounts** tab.

Changing users' permissions or information

Tip: You can only change others' permissions if your own account is authorized for **Manage Units & Accounts**

In the Accounts tab, you can change users' information (name, email, etc) just by clicking on the field you want to change. The **Permissions** field will become a dropdown when you click on it. If a user has limited permissions (Manage Units, Create Messages, or Change Messages Only) then the last field will have a link. Click on it to restrict them to certain units. (Users who have permission to Manage Units & Accounts cannot be restricted.) Make sure to click the **Save Changes** button after making changes.

Users' other information, such as their name, can also be changed from this screen. Don't forget to click **Save Changes**.

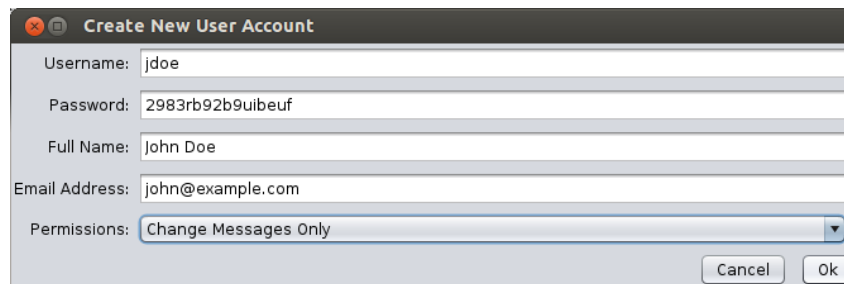
How do I change the email address that gets notifications?

1. Go to the **Accounts** tab.
2. Find the line with your own account information, and click on the email address.
3. Change the email address.

Tip: The settings you choose for notifications (for example, from the CMS Units screen) apply only to your account. Each user can set their own email address and notification preferences.

Creating a New User

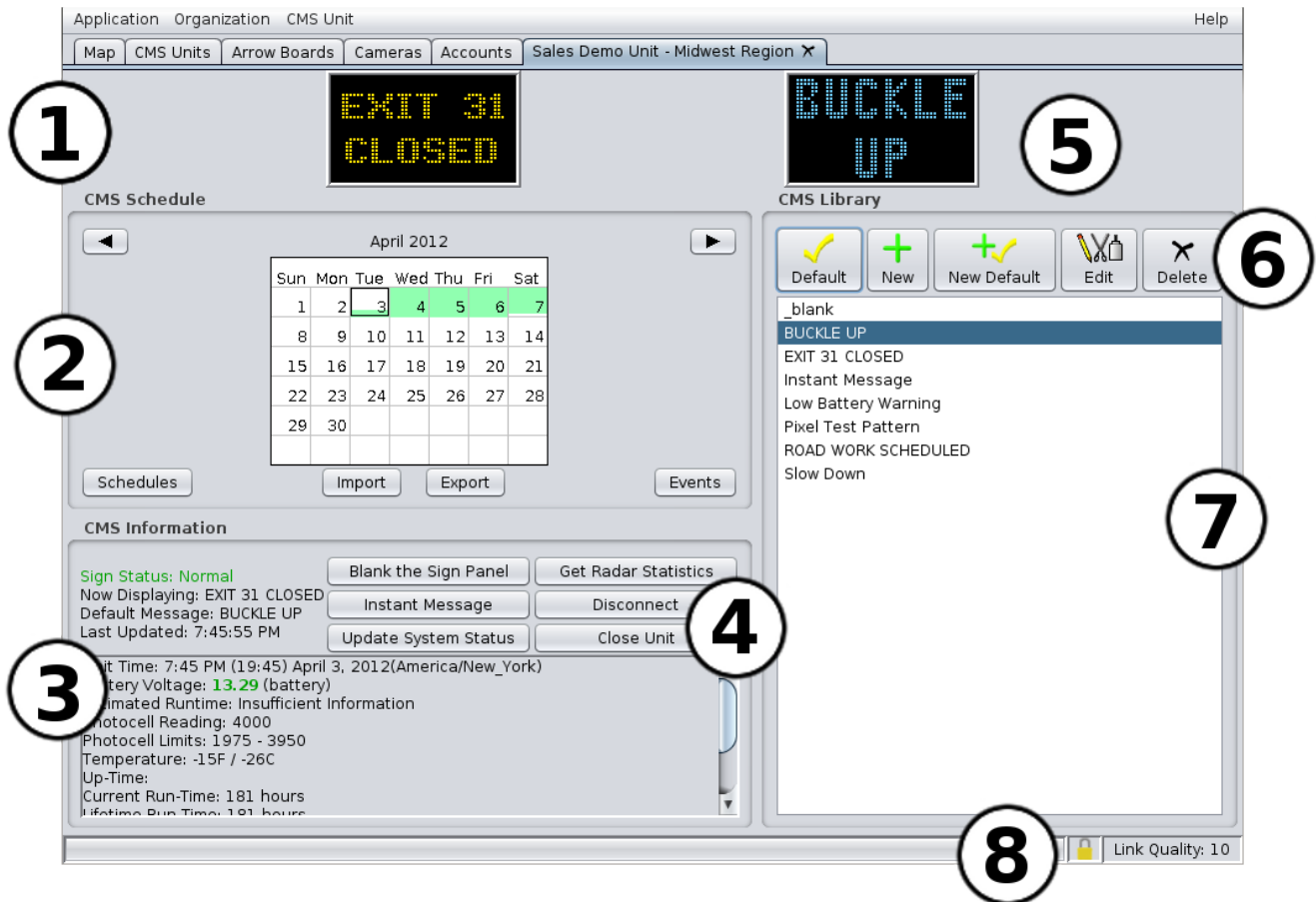
Click the **Create New** button. Here's the information you'll need to provide:



Creating a new user

- **Username and Password:** The user will use these to log in, along with your organization name.
- **Full Name:** So you remember who this is.
- **Email address:** Where they will receive notifications.
- **Permissions:** What they are allowed to do:
 - **Manage Units & Accounts:** All permissions (including deleting accounts such as your own!) This is obviously for trusted users only.
 - **Manage Units:** Users with this permission can do all unit management tasks (including everything in Advanced Control).
 - **Create Messages:** Users with this permission can change and create messages, but won't be able to change settings or other advanced tasks.
 - **Change Messages Only:** This is the lowest level of permissions; these users can change a sign's message to another message in the library, but can't create their own messages.

Advanced Control for CMS Units



Features of the Advanced Control 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.

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

If your unit includes an intelligent Energy Management System, there will be a link here to view advanced Energy Management Data

If your unit includes a GPS, there will be a map_it link here to view the unit's location in your browser. (However, you can also view this unit in Map View without leaving Command Center.)

4. Quick Functions - buttons for common actions. Read about Quick Functions.

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

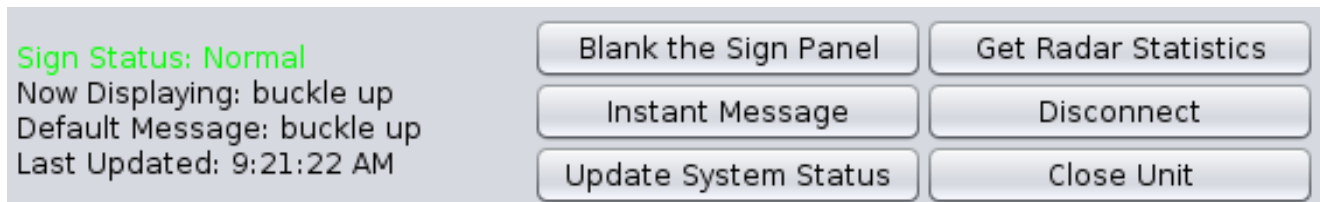
6. CMS Library Toolbar - use this to select, create, and edit messages.

7. CMS Library - shows all messages available in the CMS unit's Working Library

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). If you are using a secure connection, a padlock icon will be shown in the status bar.

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 units 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.

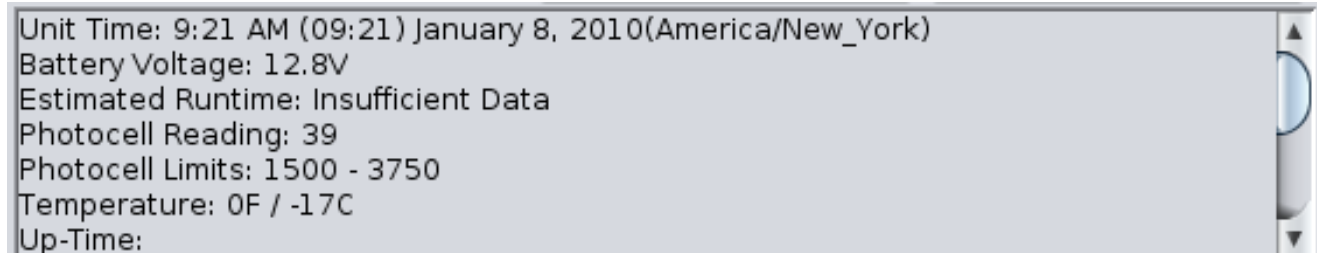
Disconnect - Disconnects from this unit.

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.

System information

Reminder: You'll find this info in the lower left corner of the Advanced Control screen.



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 units date and time from the [CMS Unit menu](#).

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. This status is color-coded: green for a healthy voltage, yellow if the voltage has declined significantly, and red if voltage is critically low.

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.

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 units display area.

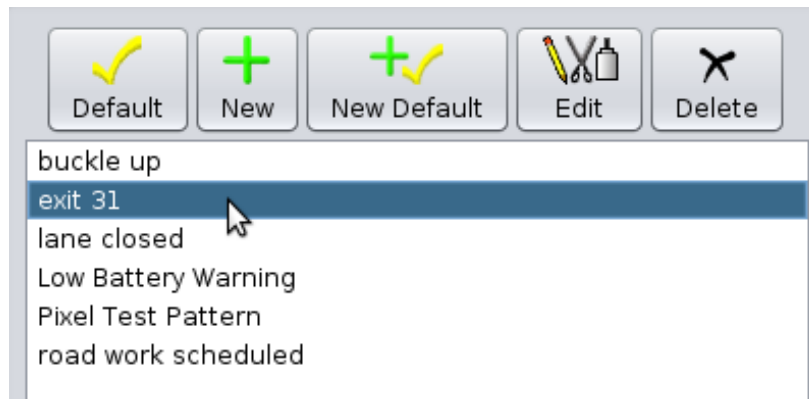
GPS Location - The location coordinates of the CMS unit, if the unit is equipped with a GPS receiver.

Sign Panel Heading - The direction the CMS units 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.



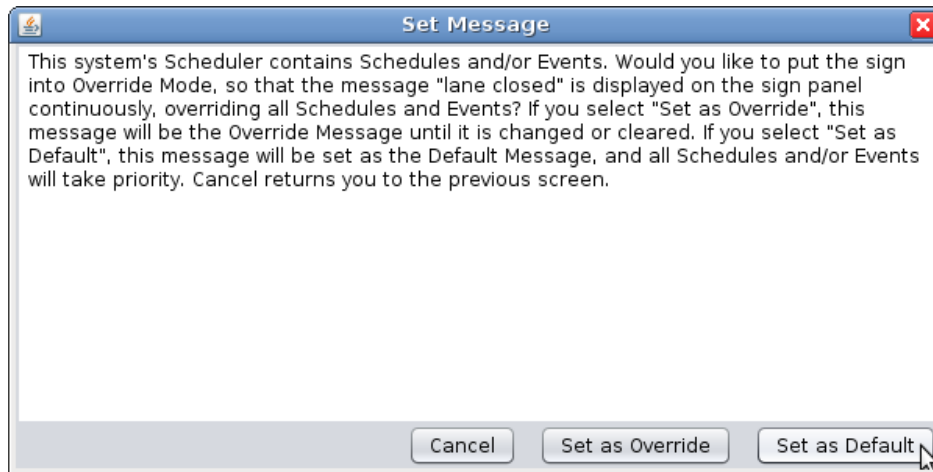
Delete Message - Select a message from the list and click this button to delete the selected message.

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**.

For more information on scheduling messages, see [Schedules and Events](#).

Common Tasks

Previewing a message

To preview a message 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

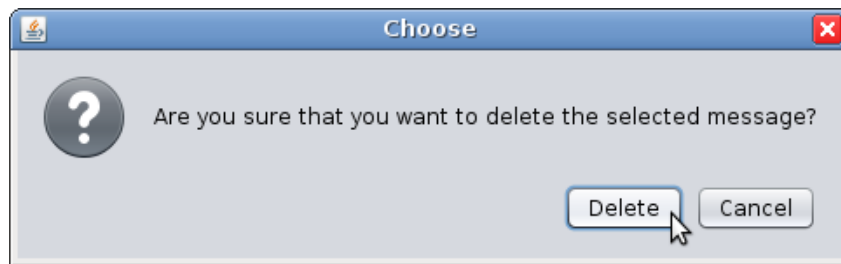
Select the message from the message list, and click the **Default** button (yellow checkmark). The message will be set as the Default Message and as long as no schedule is in effect, the message will be displayed on the CMS unit's sign panel and on the Current Message Screen.

Creating and displaying a new message

Click the **Create a new message as Default Message** button (checkmark/plus) to begin [creating a new message](#). 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](#).

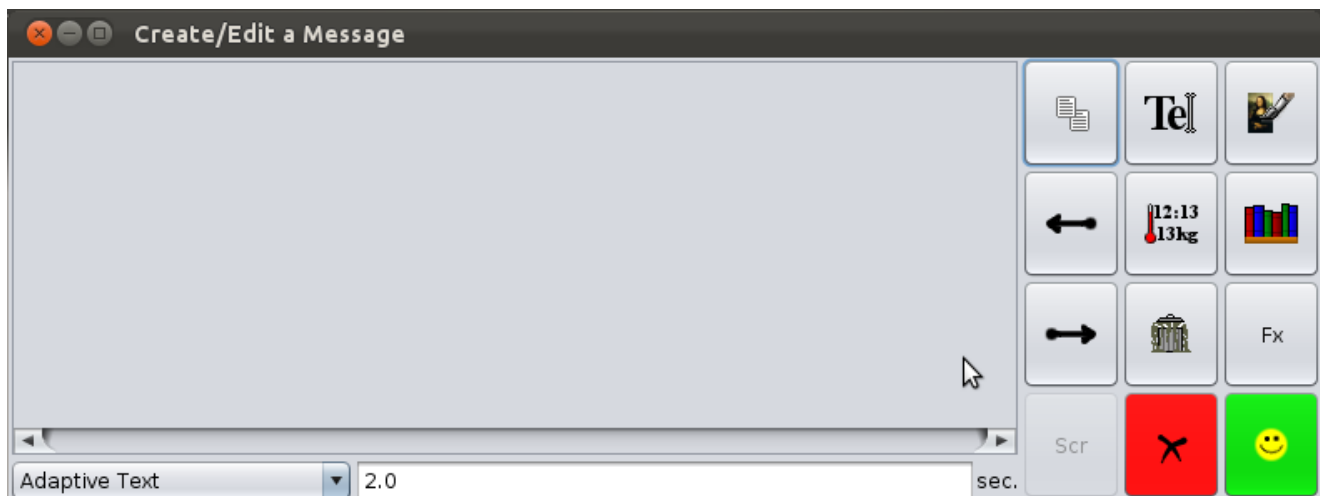
Changing a message that already exists

To change or edit a message, click the **Edit** button (pencil, scissors, and glue). Then follow the directions in [Creating and Editing Messages](#).

Creating and Editing Messages

Creating messages

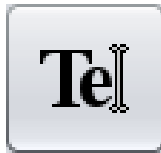
To create a new message, click the **new message button** (green plus sign). The following window will appear:



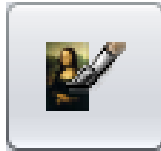
Message Creation/Editing Tools



Copy - Creates a duplicate of the current page.



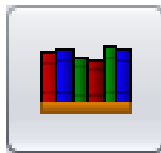
Insert text page - Inserts a new text page in the message.



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



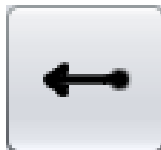
Insert dynamic data page - Inserts a page with dynamic data such as temperature, time, radar, etc.



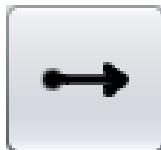
Insert message from library - Inserts a message from another library.



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).



Fx - Special effects: activate signal lights, flash page, or apply line effects such as moving arrows and chevrons.



Scr - Scrolling (Not recommended for road safety applications) - enter a scrolling 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.

 seconds

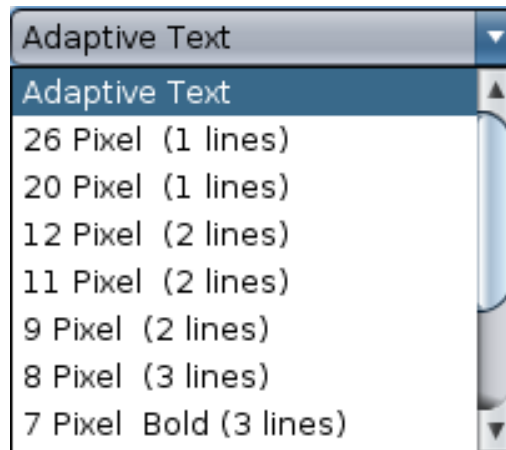
Font size

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:

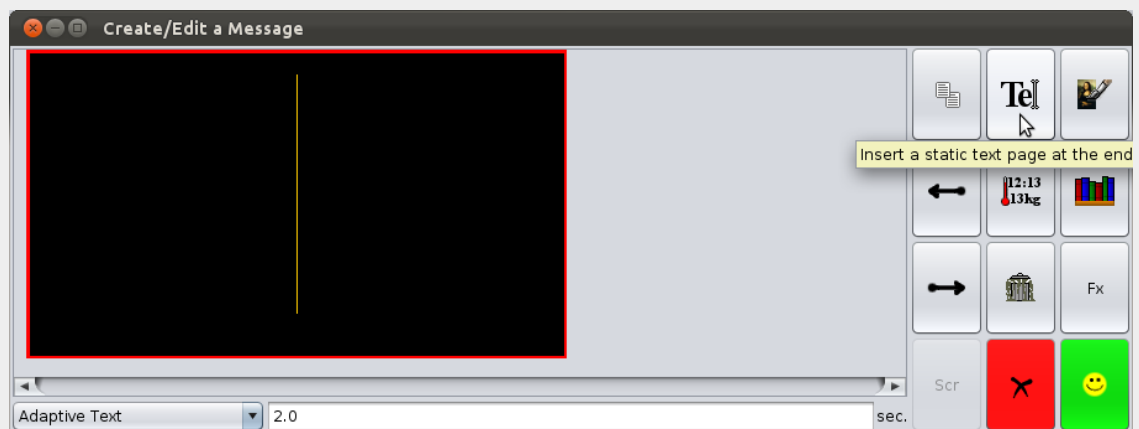


Adaptive Text is the recommended setting, but if you need a particular size of font, choose it from the menu at the bottom of the screen:



How do I create 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:



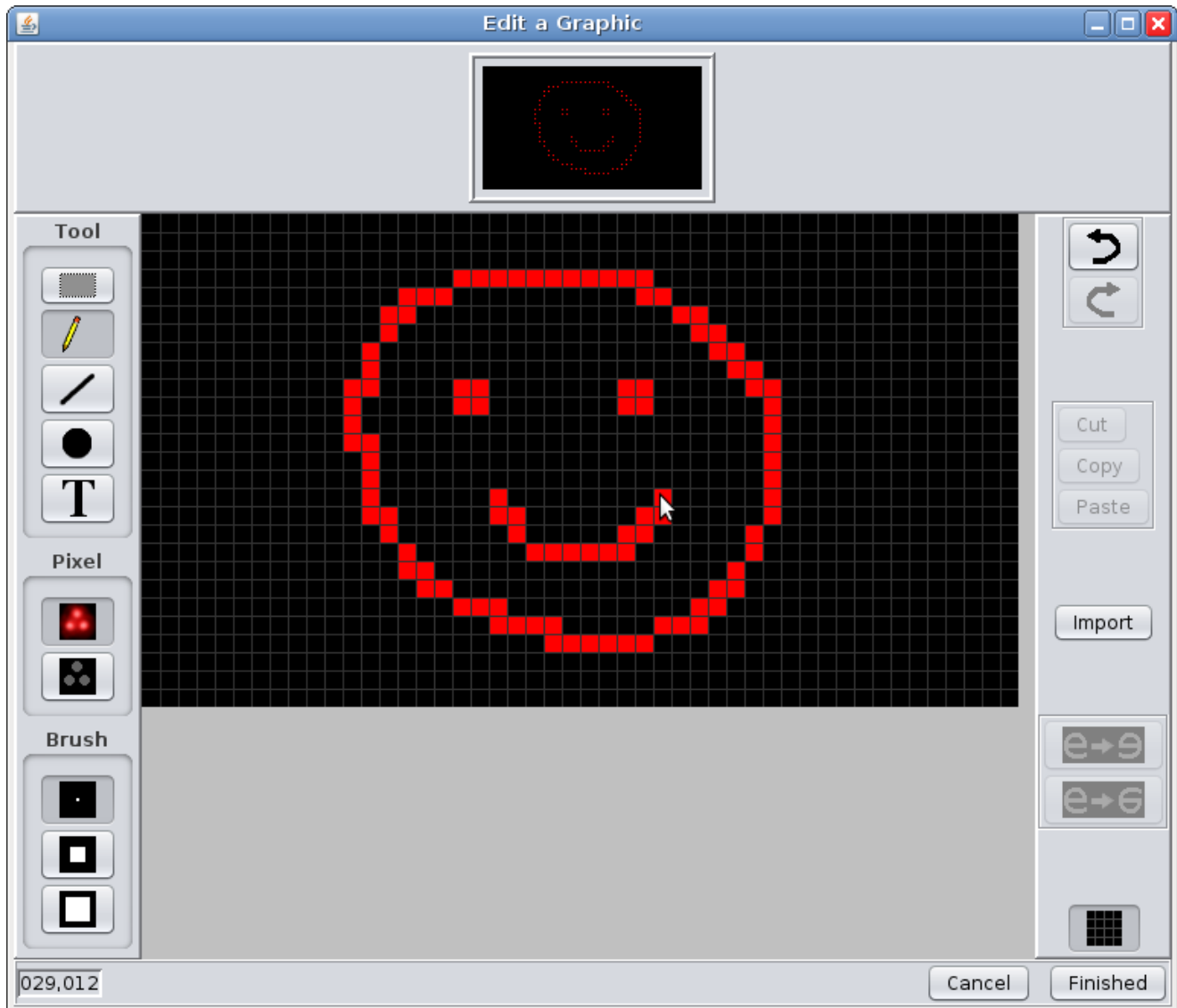
Note: The page you are working on is outlined in red.

3. Type the text you want to appear in this page of the message.
4. To add another text page, click the **Insert Text Page** button again.
5. To add a graphic, click the **Create Graphic Page** button.
6. To add dynamic data such as time or temperature, click the **Insert Dynamic Data Page** button.
7. 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.



Tip: The box at the top of the graphics editing screen shows a smaller version of your graphic (as it would 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.



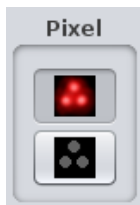
Line tool - To draw lines, click at the position you would like to start, then select the Line tool. A white guideline will appear starting at the position of your last click. Click again at the desired endpoint to create the line.



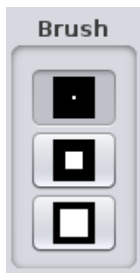
Circle tool - To draw circles, select the Circle tool and click where you would like the center of your circle to be. Hold the mouse button down. As you drag the pointer away from the center, a guide circle will appear. Release the mouse button when the circle is the desired size.



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.



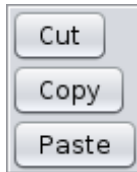
Brush Selection - Select the desired size to draw thin, medium, or thick sized lines with the Pencil or Line tools.



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.

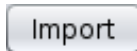
Cut, Copy, and Paste - To use these tools, make a selection with the Selection tool (described above).



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.

How do I create 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, but you can 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.

Tip: 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. You can then insert

the graphic page into other messages with the **Insert message from library** button.

Special Effects (Fx button)

The special effects include:

Activate Signal Lights - turns on the signal lights while this message is being displayed. Signal lights, present on some CMS units, are extra lights attached to the sides of the message board to draw attention to the message.

Flash Page - flashes the page

Line Effects - When using a fixed font (not compatible with Adaptive Text) you can apply effects to each line of a message: flashing the line, arrows, moving arrows, and chevrons. Arrows and chevrons replace any text you have entered for that line.

-> is a static (non-moving) arrow that points to the right.

-> -> is a moving arrow that points to the right.

> > > > is a series of chevrons pointing to the right. The chevrons appear one-by-one.

(Left-pointing arrows and chevrons are also available.)

The example below shows a three line message. The first two lines are text, and use a flashing effect; the third line is a moving right arrow.

Line Effects

Line Effects allow you to add special effects to individual lines of a page. Available graphics are static arrows, moving arrows, and chevrons.

Line Effects

Line 1. ☒ Flash
☒ Text ☐ <-> ☐ <-> -> ☐ <-> -> -> ☐ <-> -> -> -> ☐ <-> -> -> -> ->

Line 2. ☒ Flash
☒ Text ☐ <-> ☐ <-> -> ☐ <-> -> -> ☐ <-> -> -> -> ☐ <-> -> -> -> ->

Line 3. ☐ Flash
☐ Text ☐ <-> ☐ <-> -> ☒ <-> -> -> ☐ <-> -> -> -> ☐ <-> -> -> -> ->

Cancel Ok

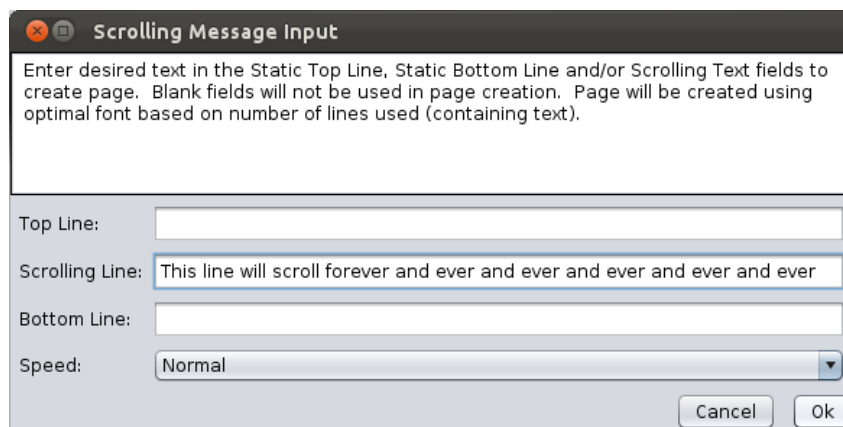


Scrolling

WARNING: The use of scrolling text for the management and/or control of traffic is typically prohibited, not recommended, and may create extremely dangerous and/or hazardous conditions for motorists. The owner(s) and/or operator(s) of this sign assume all responsibility and liability for any and all accidents, injuries and/or deaths caused by this sign when displaying scrolling text. Solar Technology, Inc. assumes no liability whatsoever for any and all accidents, injuries and/or deaths caused by this sign when used to display scrolling text.

With scrolling enabled, use the **Scr** button to enter a line of text that will scroll across the screen.

If only the center line is specified (as below), the message will display a single scrolling line. Use the top or bottom lines to add non-scrolling text above or below the scrolling line.

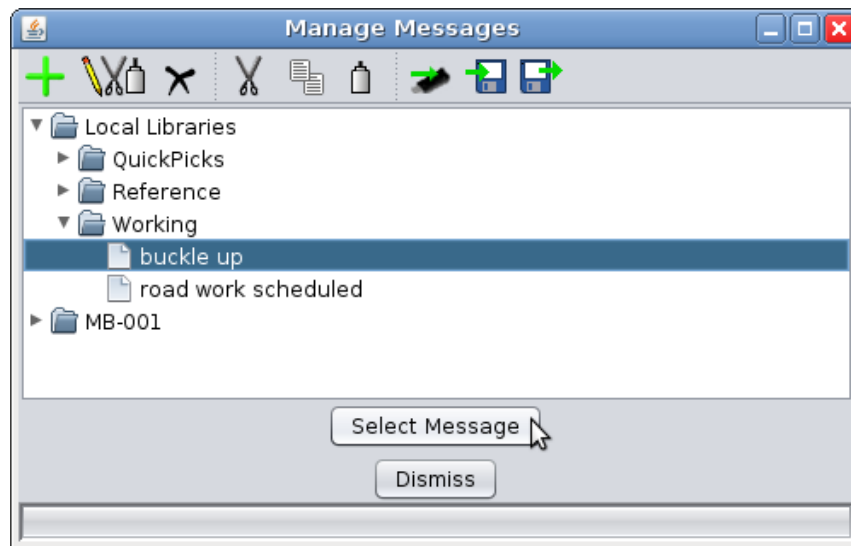


The image shows a dialog box titled "Scrolling Message Input". It contains a text area with instructions: "Enter desired text in the Static Top Line, Static Bottom Line and/or Scrolling Text fields to create page. Blank fields will not be used in page creation. Page will be created using optimal font based on number of lines used (containing text)." Below the text area are four input fields: "Top Line:", "Scrolling Line:", "Bottom Line:", and "Speed:". The "Scrolling Line:" field is highlighted and contains the text "This line will scroll forever and ever and ever and ever and ever and ever". The "Speed:" field is a dropdown menu set to "Normal". At the bottom right are "Cancel" and "Ok" buttons.

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 Command Center, 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 units library, which is only available on that unit.

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.

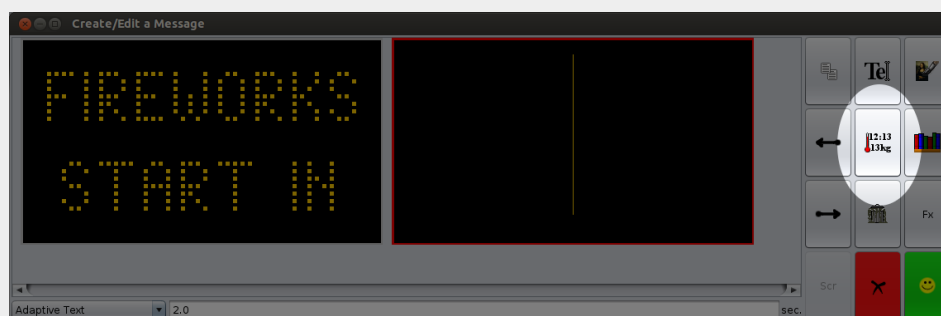
Dynamic Data Pages

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.

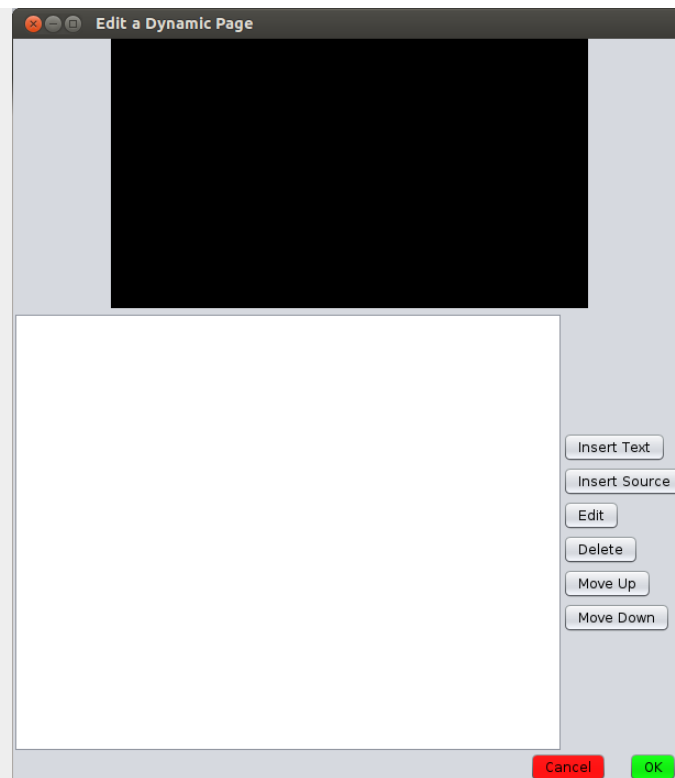
A dynamic data page can include both text and dynamic data. For example, a page displaying the time might include the words "The time is ", followed by the time. When editing a dynamic page, use the **Insert Source** and **Insert Text** buttons to build the message.

How do I use dynamic data in a message?

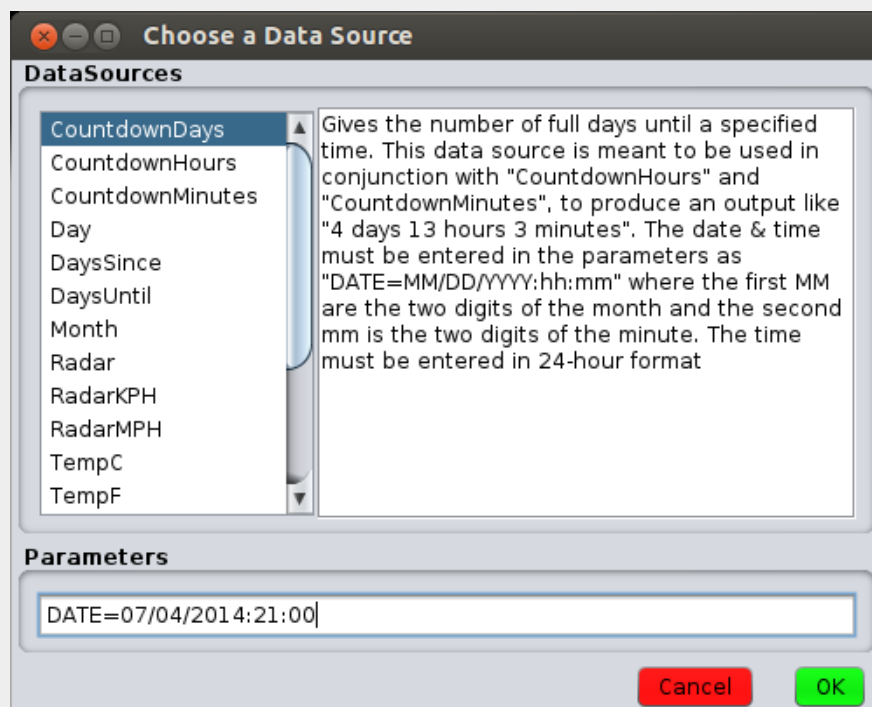
1. When creating a message, click the Insert Dynamic Data Page button (thermometer image).



2. You'll see the **Edit a Dynamic Page** screen:



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



4. Select the data source you would like to use. (The available data sources may be different from those shown here.)
5. Enter parameters, if necessary. In this example, since we are counting down to a date, we use a parameter to say what that date is (July 4, 2014, at 9pm.)
6. Continue building the page using text and/or data sources. To add text, click **Insert Text**.

Tip: Remember to include spaces before and after your text, so that the text and data reading will not be squished together. ("10 days", not "10days")

7. 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.

Buttons in the Edit a Dynamic Page screen

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.

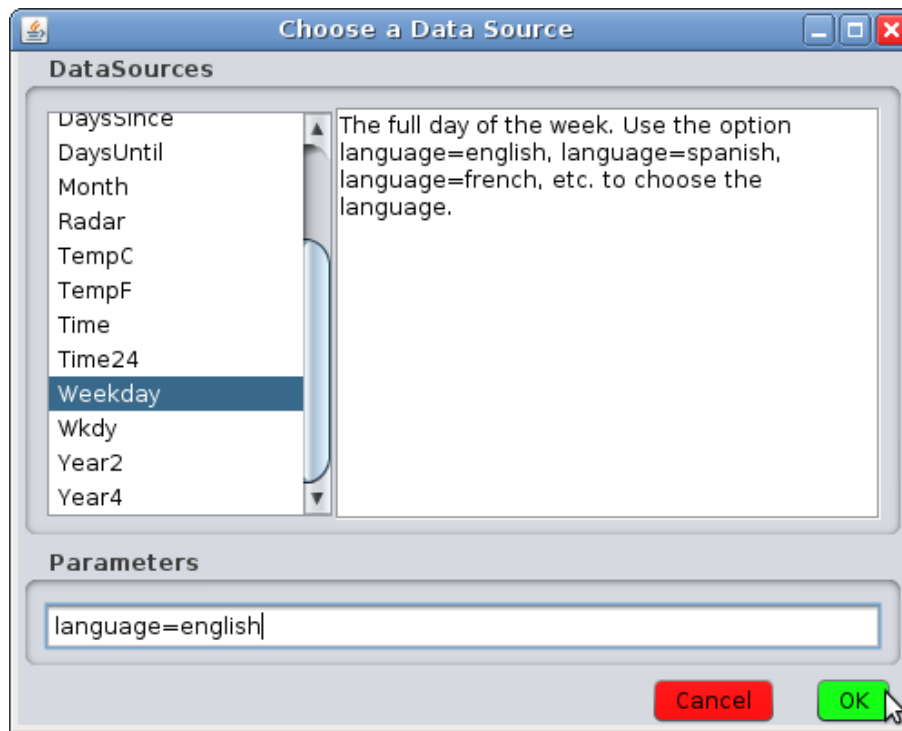
Delete - delete the selected text or source.

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 include the following:

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.

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

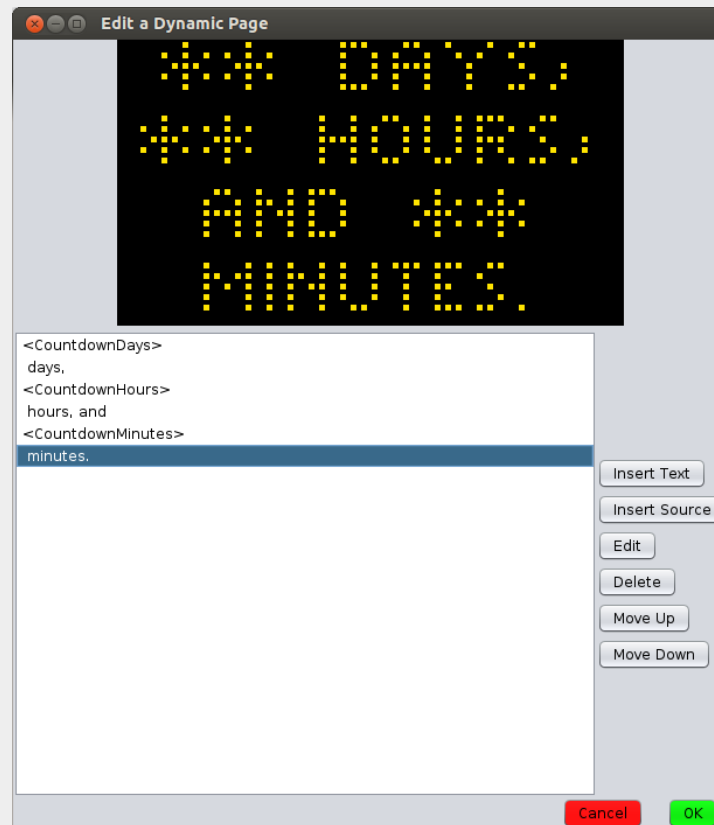
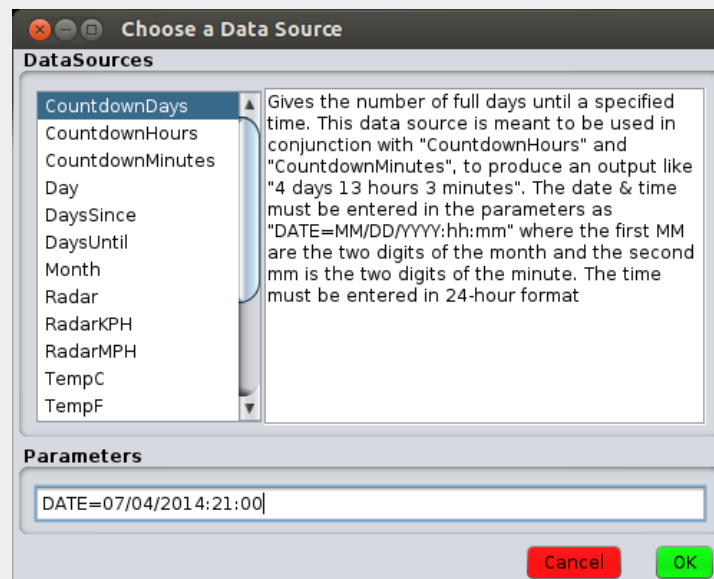
CountdownHours - Counts down the hours until a given date and time. Designed to be used with CountdownDays, and uses the same date format.

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

How do I display a countdown to an event?

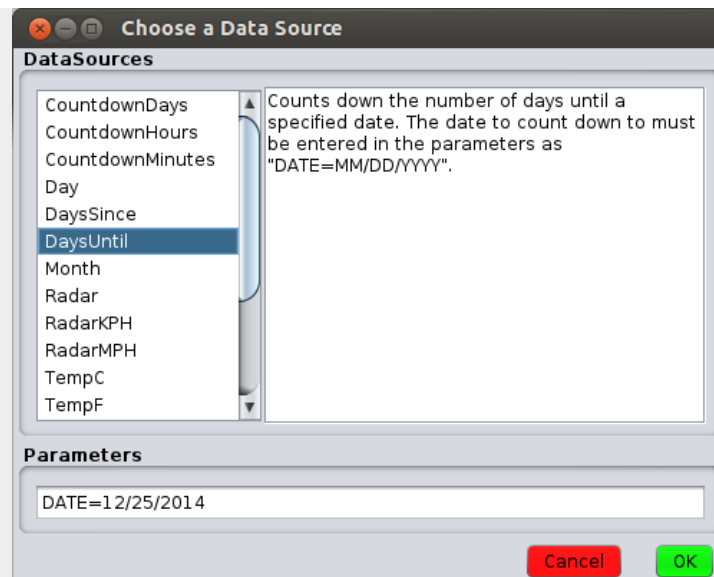
1. To count down to a fireworks display on July 4, 2014, at 9:00pm, create a dynamic message using **CountdownDays**, **CountdownHours**, and **CountdownMinutes** all with a parameter of

DATE=07/04/2014:21:00



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

2. To count down to a day without specifying a time, use **DaysUntil**:



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 the **Export** button to save all schedules to a file.

Click the **Import** button to load schedules from a file.

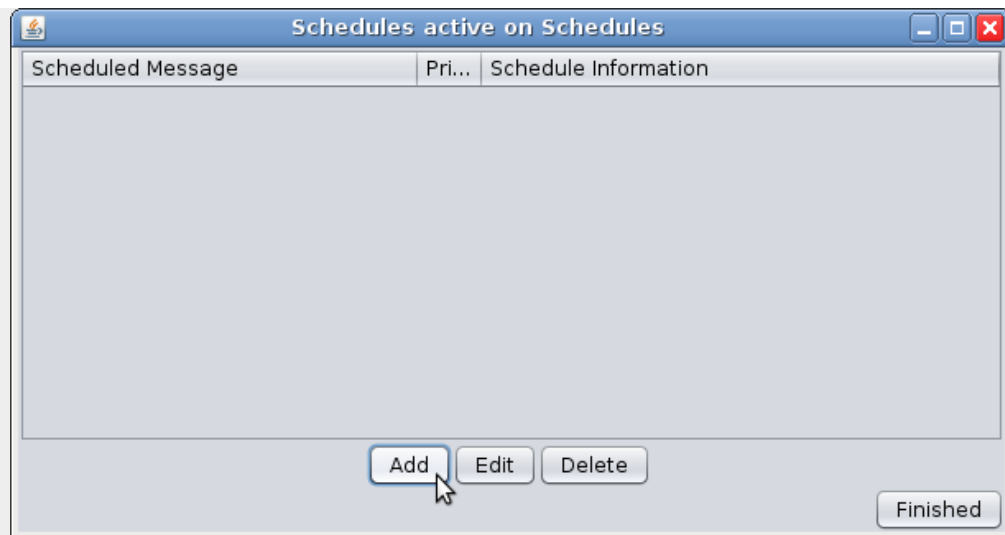
Click **Schedules** to create a new time-based schedule. Schedules can be one-time or repeating. An example of a repeating schedule might be every weekday in July from 9:00am to 5:00pm. An example of a one-time schedule might be from August 28 at noon to August 29 at noon. After a one-time schedule is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

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.

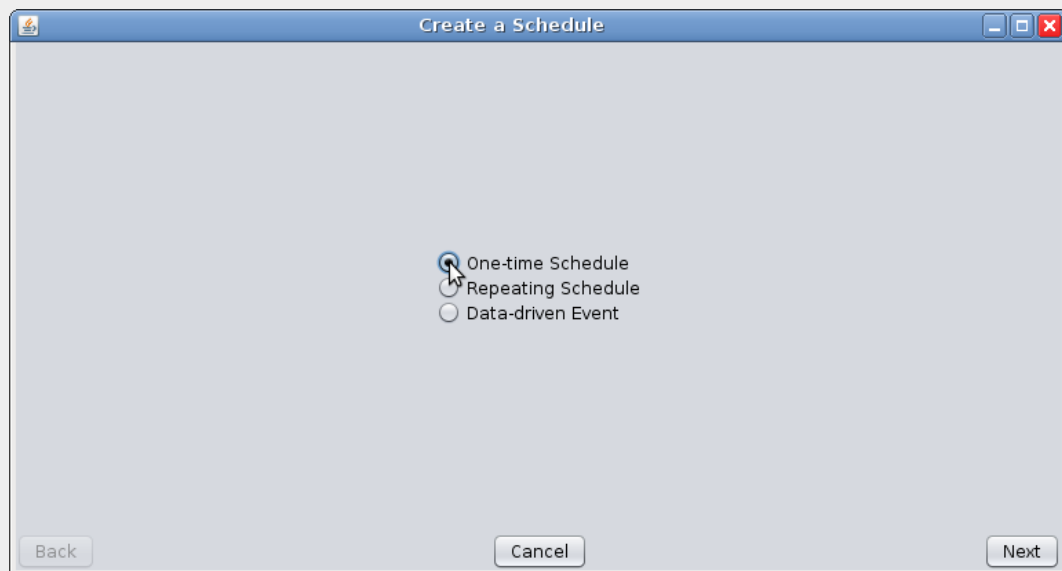
Tip: All schedules are automatically saved on the unit. Only use the Import and Export buttons for special tasks such as copying schedules between units.

How do I schedule a message?

1. From the main screen, click the **Schedules button**. You'll see a window like this.



2. Click the **Add** button to add a new schedule. 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.

Create a Schedule

Starting date: 14 November 2,008 at 7:00 (7:00am)

☐ No end date

☒ End date: 20 November 2,008 at 17:00 (5:00pm)

Back Cancel Next

4. Click **Next** to confirm the schedule. Then you can choose a message:

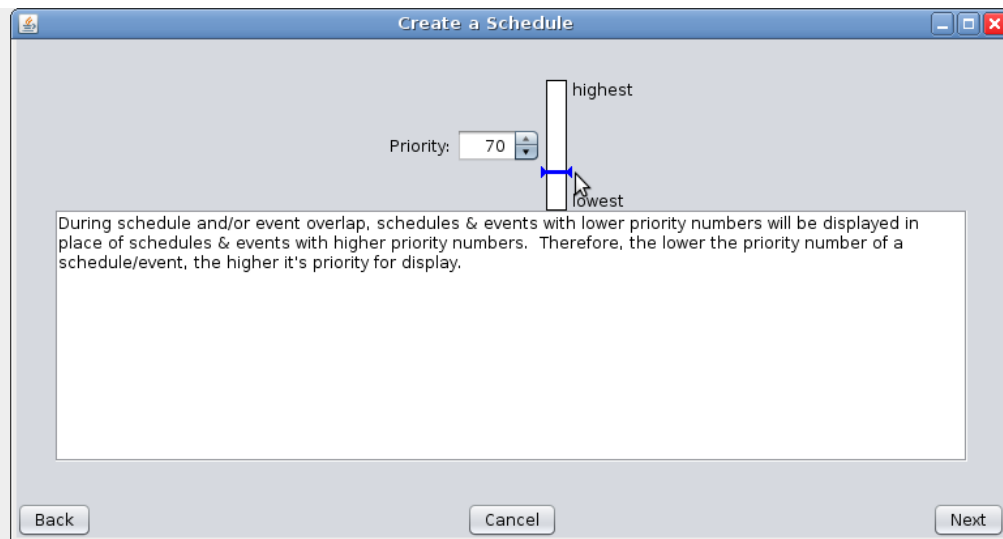
Create a Schedule

Low Battery Warning
Pixel Test Pattern
buckle up
exit 31
lane closed
road work scheduled

Please select the message which will be displayed when this schedule is active.

Back Cancel Next

5. Select the message you would like to display, and then click **Next**. Finally, set the priority:



6. 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**.

How do I schedule a repeating message?

A repeating message is a type of scheduled message that has the ability to turn on and off on a regular basis: for example, a message that only displays during the evening rush hour.

1. To begin, click the [Schedules button](#) from the main screen, click **Add**, choose **Repeating Schedule**, and click **Next**.
2. In the next screen, give a start and end date for the schedule.
- 3.
4. In the next screen, indicate when you would like the message to be displayed. You can give a start or stop time, and the type of repeat (daily, weekly, monthly). In this example, the message will be displayed from 7:00 am until 5:00 pm.

If you want the schedule to only apply during a certain time period (for example, during a road work project), check the box for **Restrict recurrence to certain dates** and on the next screen you can set start and end dates.

Start time: 07:00 Stop time: 17:00

Recurrence Pattern

☒ Daily
☐ Weekly
☐ Monthly

☐ Restrict recurrence to certain dates

Back Cancel Next

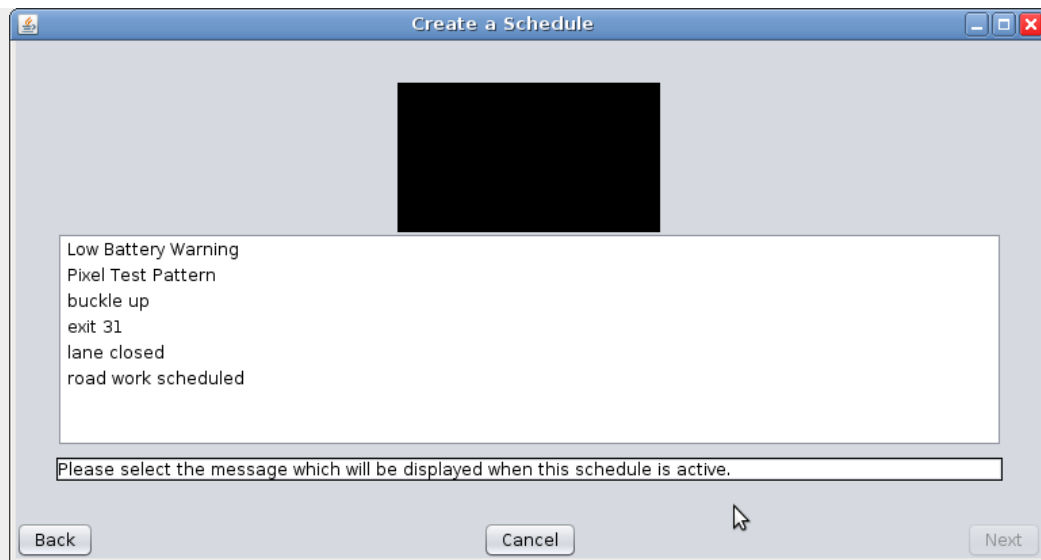
- Click **Next** to confirm the schedule. If you selected **Restrict recurrence to certain dates**, you'll be able to set those dates on the following screen. In this example, the schedule will begin on 7:00 am February 24 and be in effect until 5:00 pm on February 28. When you are finished, click Next.

Starting date: 24 February 2010 at 7:00 (7:00am)

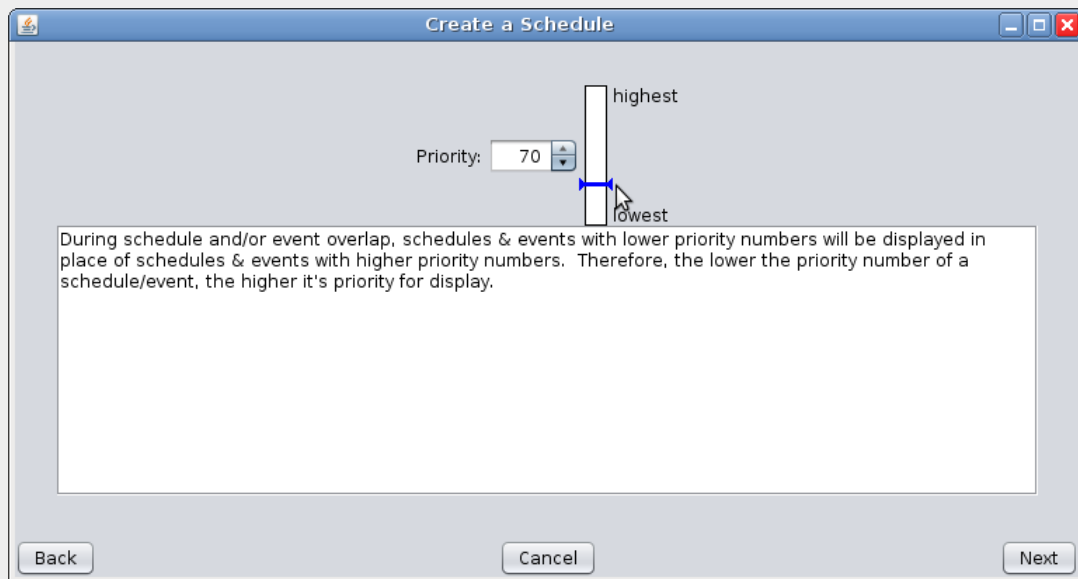
☐ No end date
☒ End date: 28 February 2010 at 17:00 (5:00pm)

Back Cancel Next

- Next, select the message that will display during the scheduled time:



7. Finally, set the priority:



8. 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).

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

Data sources for events

Events can be based on data from different equipment that might be part of or connected to your unit. Commonly used sources include the following:

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.

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.

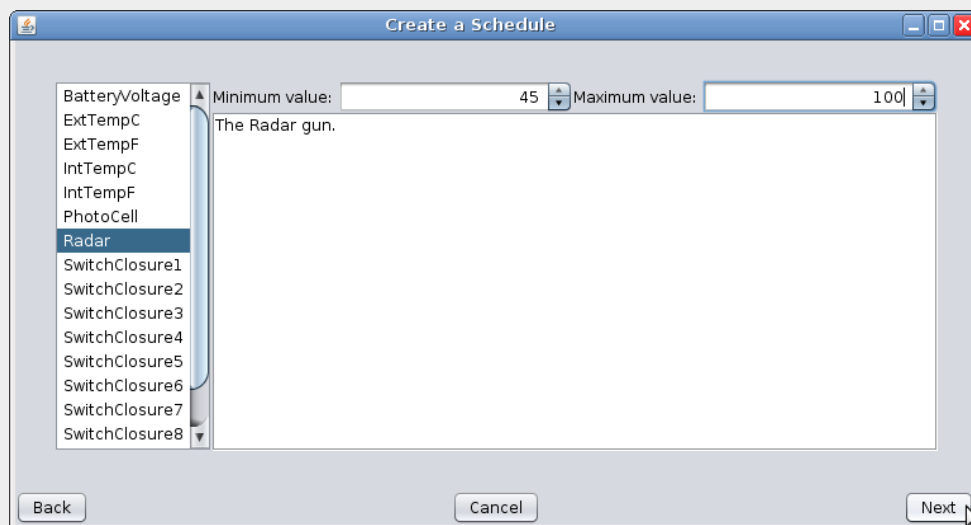
PhotoCell - The raw photocell reading, which may range from 0-4000. In typical conditions, this reading is below 400 at night and above 3000 during the day. Location, light pollution, and other conditions may all affect this reading.

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.

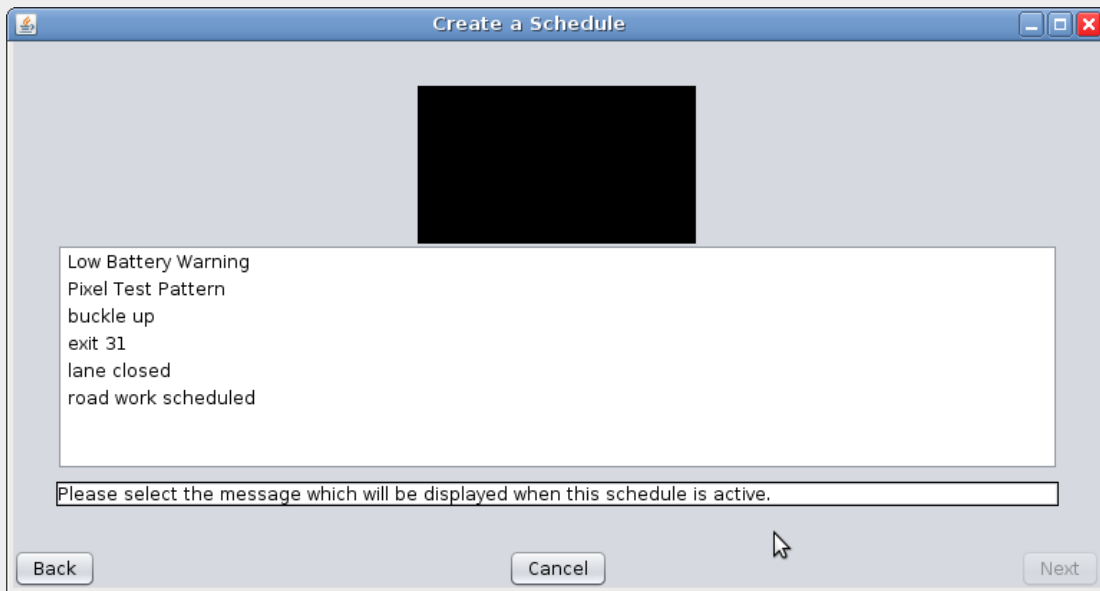
How do I trigger a message from data such as radar gun readings?

1. From the main screen, click the Events button, then click **Add** to add a new data-driven event. The following window will appear:

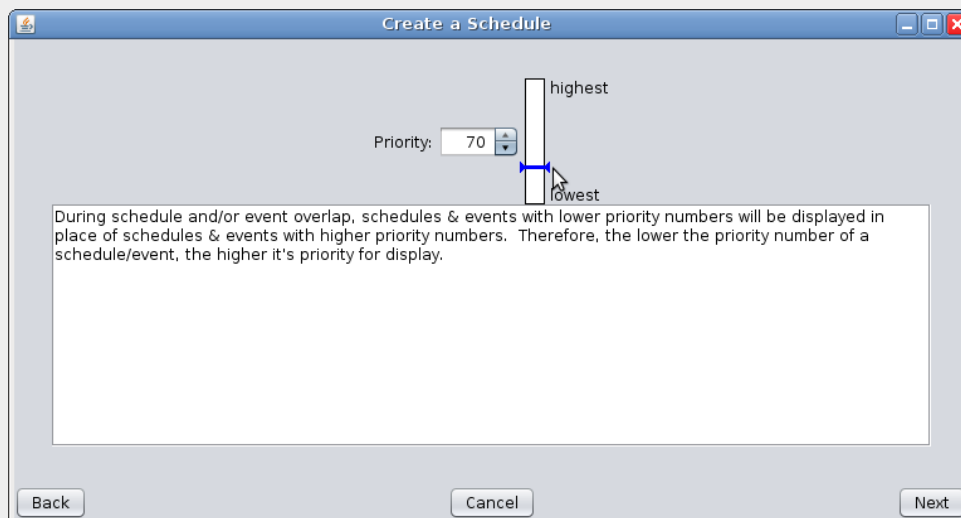


2. Select the data source you'd like to use on the left side of the screen, then set minimum and maximum values. In this example, our message will be displayed when the radar reading is between 45 and 100 mph. (See Data Sources for Events to learn more about these settings.)

3. Click **Next** to continue and choose the message:



Click **Next** to continue and choose the priority.



4. 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).

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

Message view

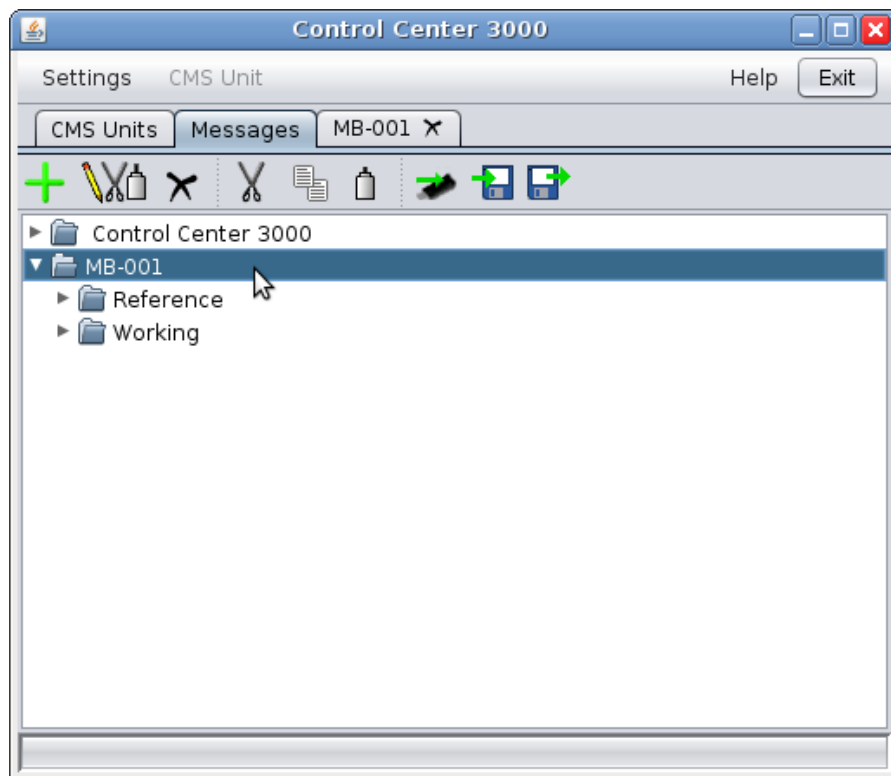
A library is a collection of messages. A CMS unit may have many libraries, but only messages

from the *Working* library (and a special library called *Quick Picks*) are available for use on the CMS unit.

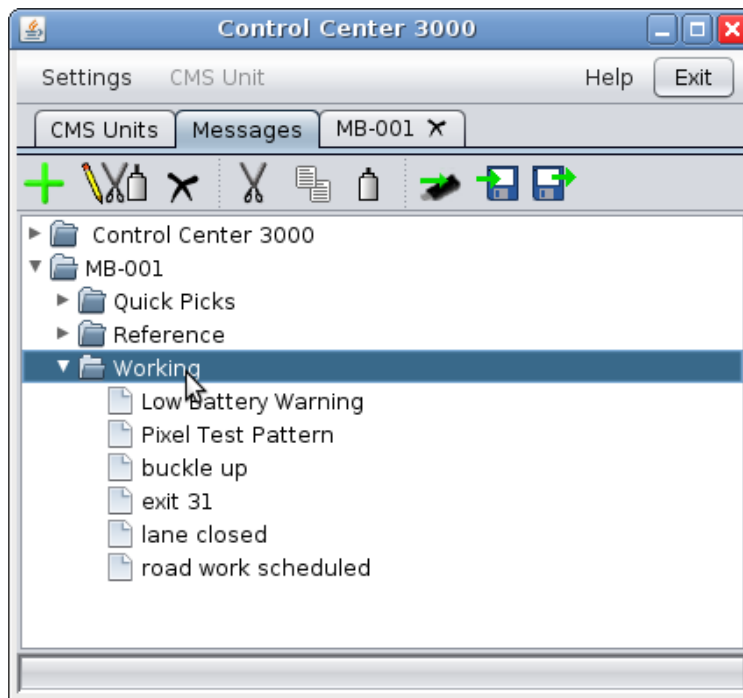
The *Reference* library contains messages that you can choose to copy to the Working library if you would like to use them.

From the **CMS Units view**, click the **Messages** button to see the libraries available to you, both on your computer (shown as the folder Command Center) and on all CMS units to which you are currently connected.

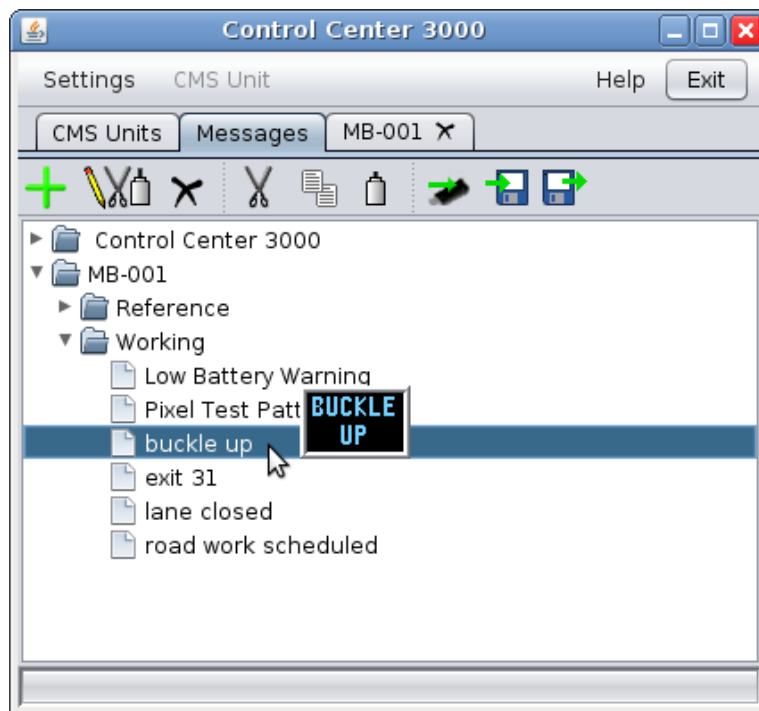
Click the name of a CMS unit to open it and view the libraries available on that unit. In the example below, the unit called MB-001 has the two standard libraries: Reference, containing messages shipped with the unit, and Working, for messages that you create.



Click a library to view the messages inside that library.



To preview a message, hold the cursor over its name for a few seconds. An animated preview of the message will appear:



Tools available in the Messages view

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



Add message - adds a message to the selected library (see [Creating and Editing Messages](#)).



Edit message - edits the selected message (see [Creating and Editing Messages](#)).



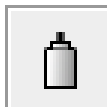
Delete message - deletes the selected message.



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.



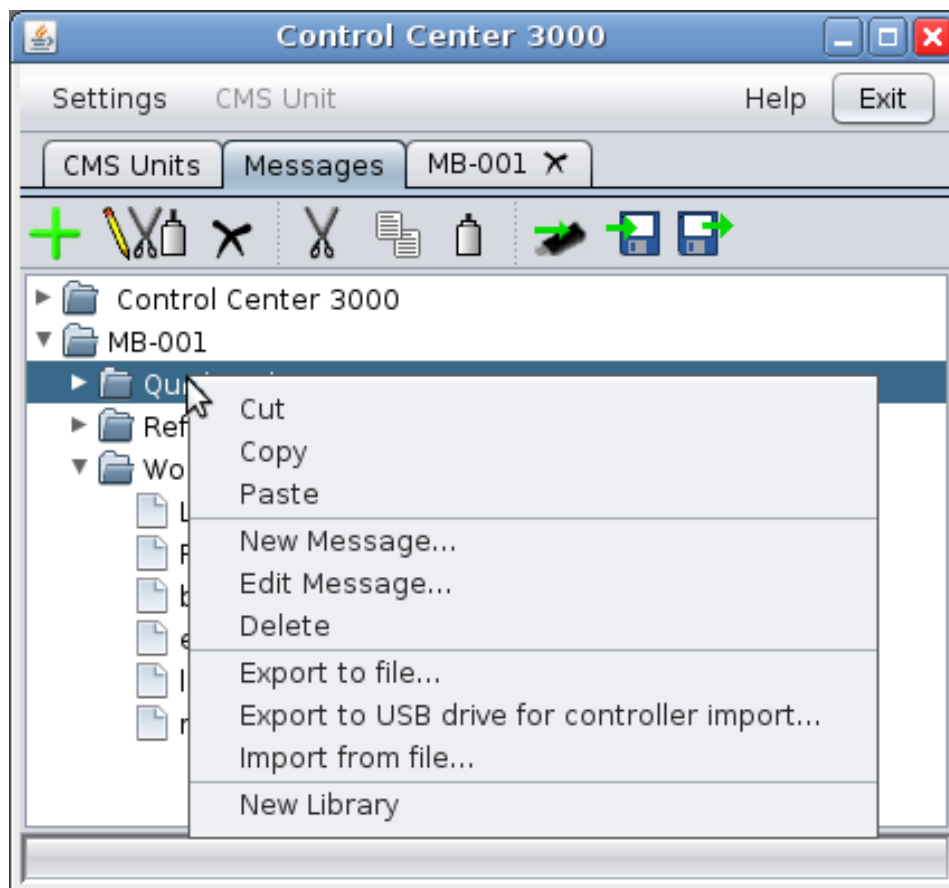
Export to file - saves one or more messages to your computer. Use this to share or back up your messages.



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

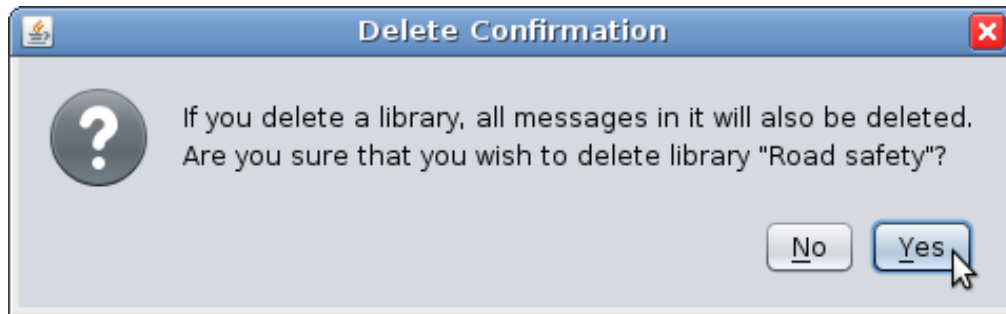
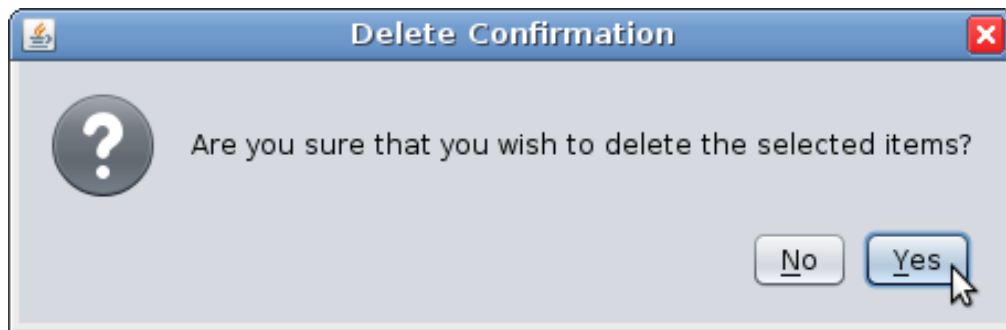
To create a new library in a CMS unit called MB-001, **right-click** on any library within MB-001, and select **New Library** from this menu. You will be prompted to enter the name of the new library.



Click **OK**. The library will be created, and you will see it in the list of libraries.

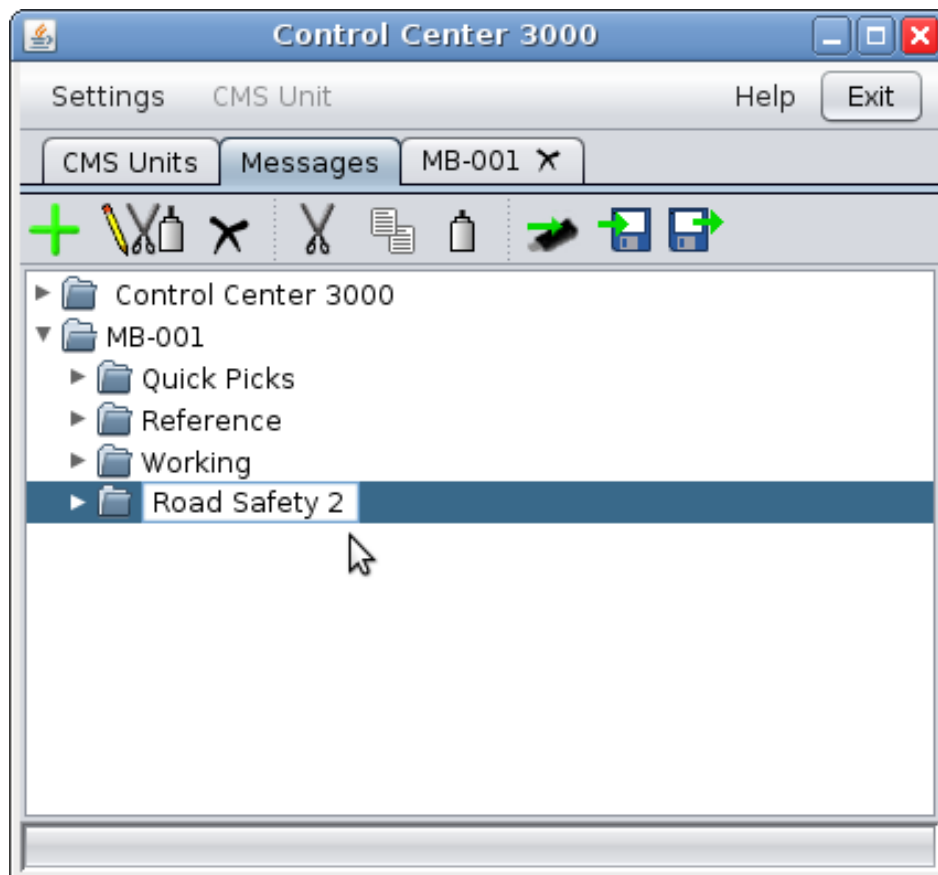
Deleting a library

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.



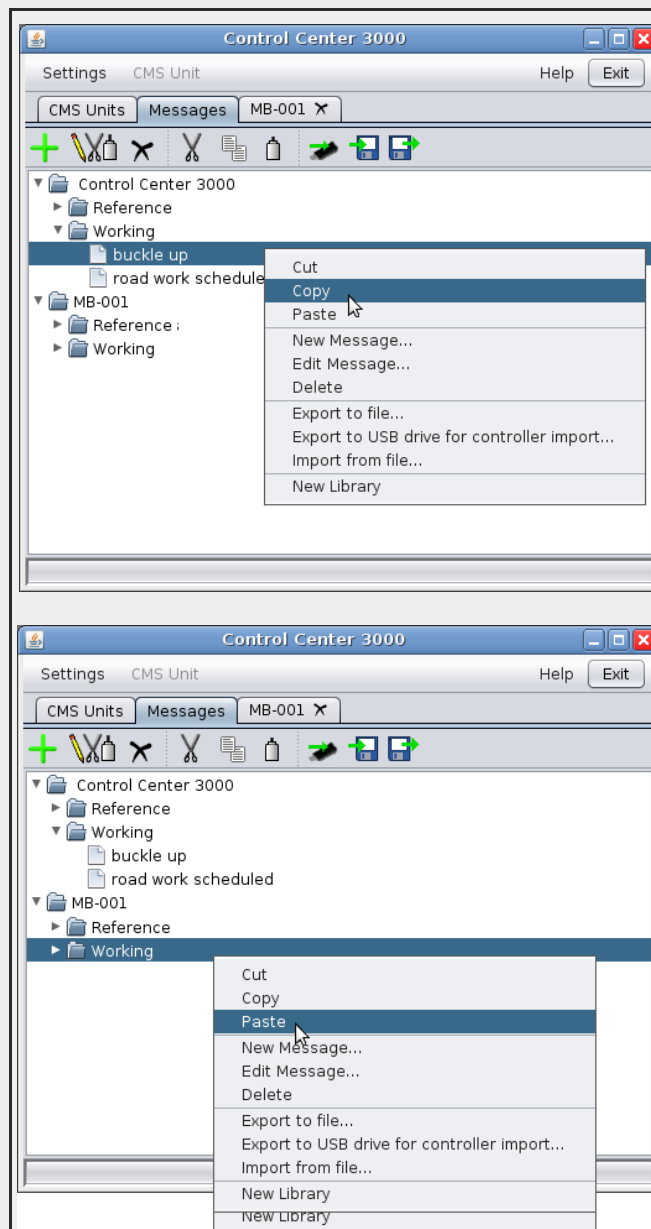
Type the library's new name in this box, and then click outside of the box (in any blank space on the screen) to finish the renaming process.

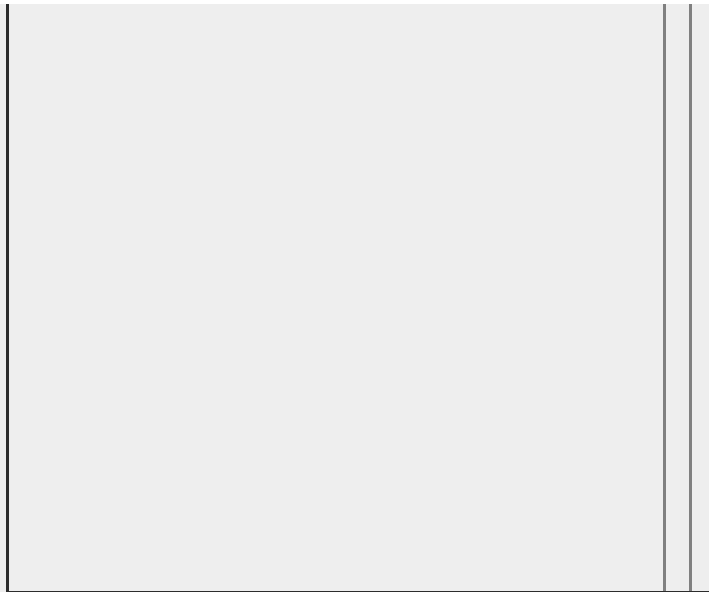
How do I move a message from one sign to another?

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

Tip: 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**.





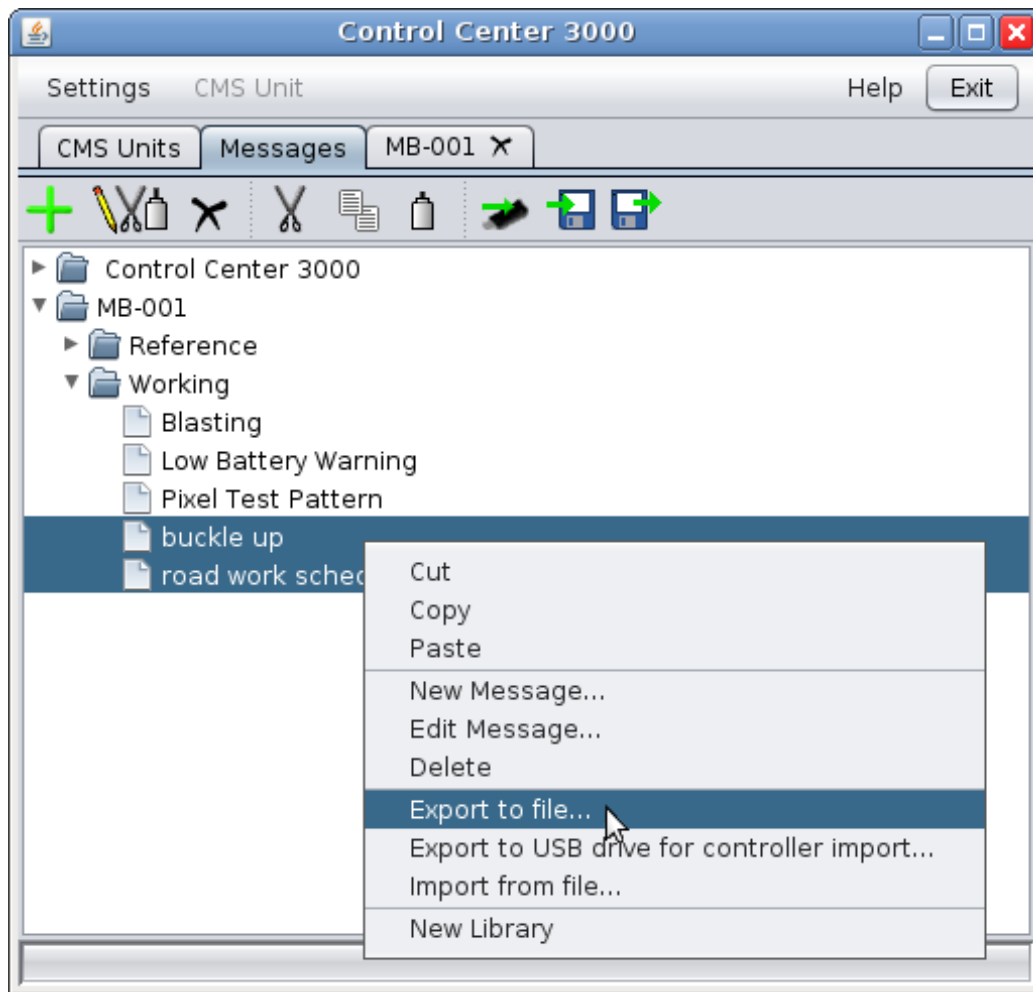
3. To copy the message into other libraries (for example, on multiple CMS units), **Copy** the message once and **Paste** it into each of the destination libraries.
4. To move a message without duplicating it, simply Cut the message and then Paste it into the destination library.

Exporting and Importing Messages

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

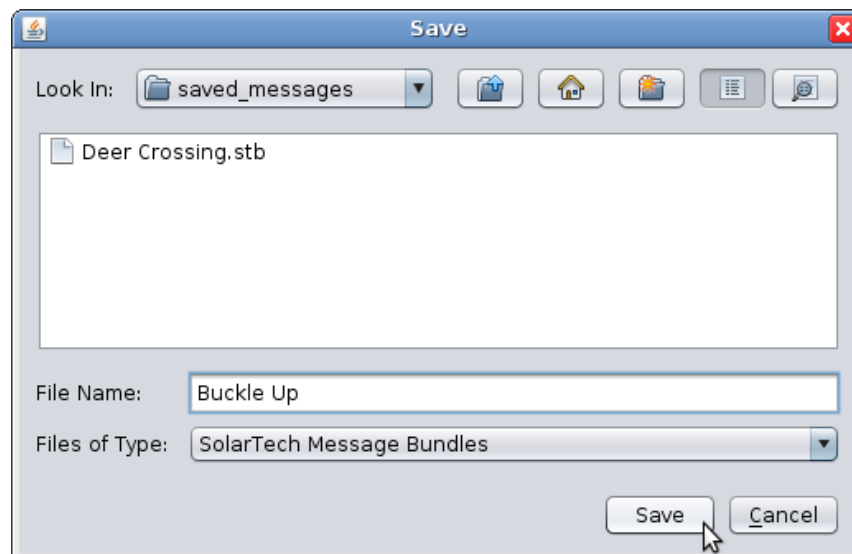
Exporting

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 Command Center.

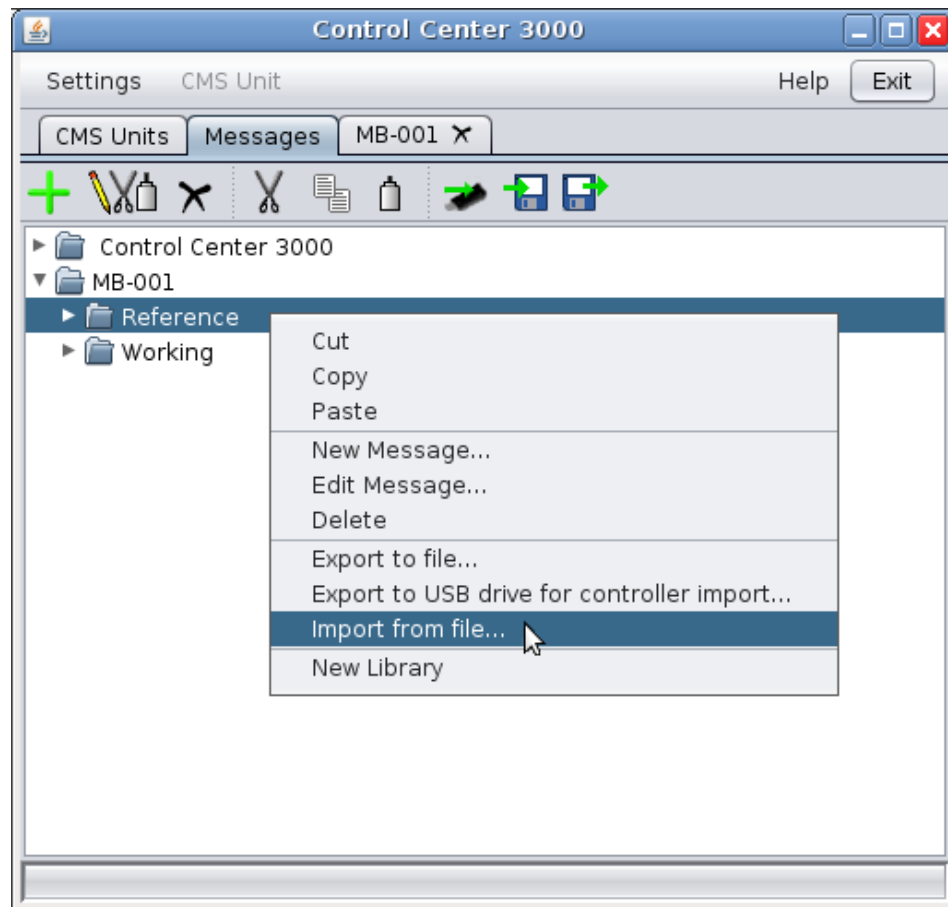
Exporting to a USB drive

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.

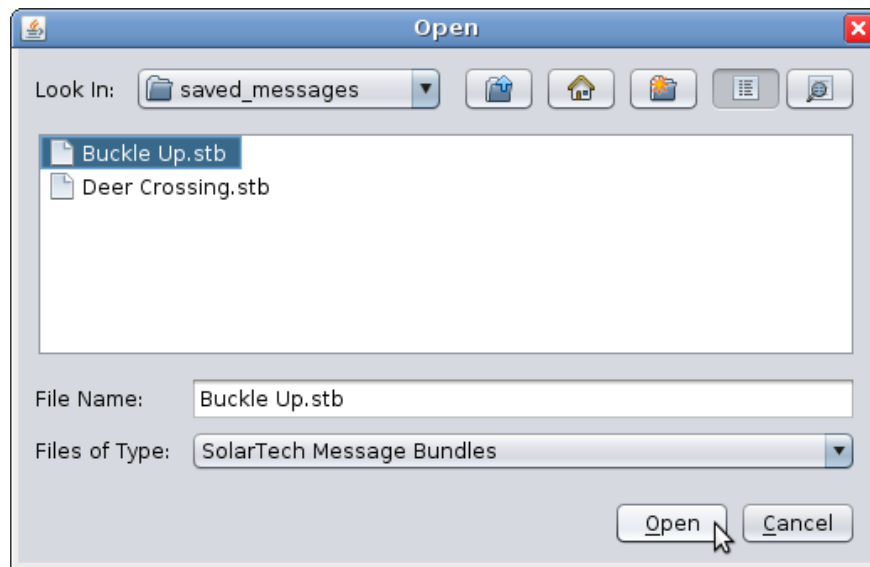
Importing Messages

To import a message from a file, right-click on the desired library in the Messages view, and select **Import from File....**



(Or, click the **Import From File** button.)

A window like the following will appear:



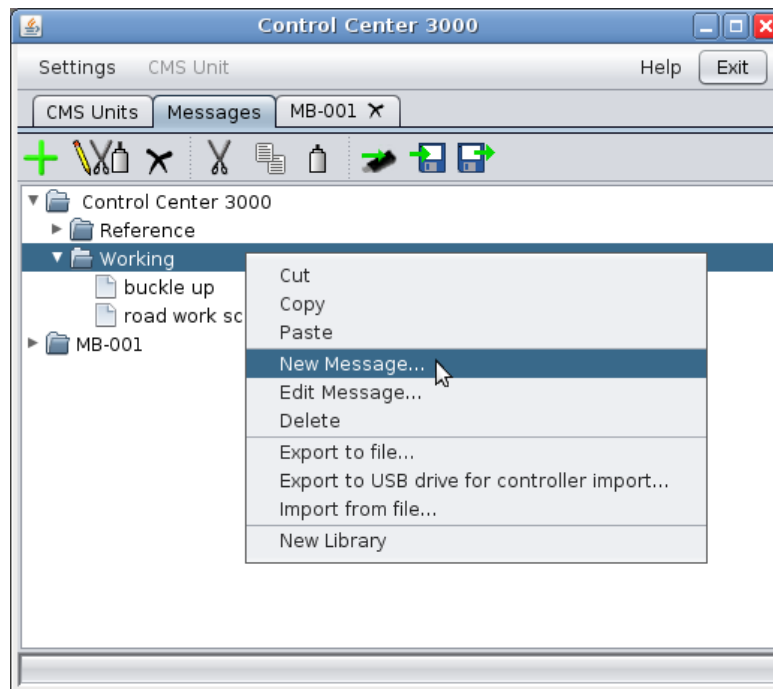
Select the message you would like to import, and click **Open**. The message will now be available in the library.

Local Libraries

Command Center 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

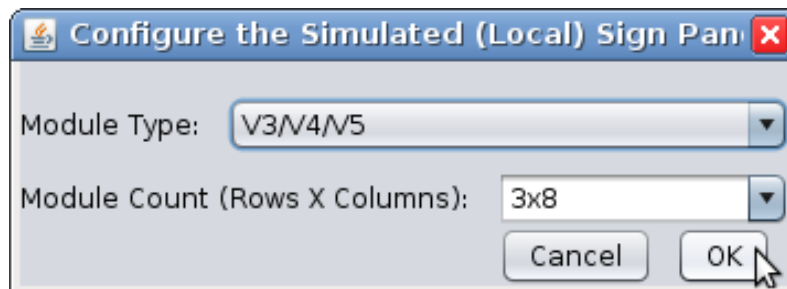
To create a message in a local library, you do not need to be connected to a CMS unit. Right-click on the desired library under the Command Center folder and select **New Message...** (or click the **New Message button**). You can also copy messages from the local library to CMS units with the **Copy** and **Paste** functions.



Working with local libraries

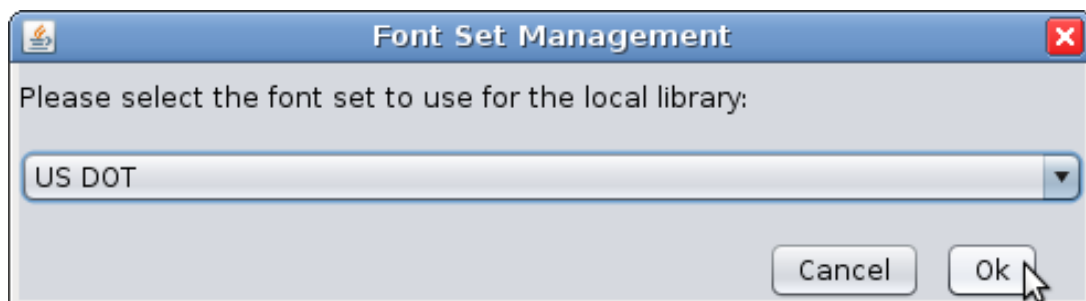
Two important settings for local libraries can be found under the **Command Center** menu.

Configure simulated sign for local messages - 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.



Set Connection Timeout - Change the amount of time Control Center waits before deciding the unit is unreachable. The default is 90 seconds, but if you know you have an especially slow

connection, use this feature to set a longer timeout.

Set Language - Change the language used by Control Center.

Use Background Images - Uncheck this option for slightly faster performance, for example if you access Control Center via remote desktop.

Background Image - Select a different background image for the main screen.

Check for Updates - Check for updated versions of the Control Center software.

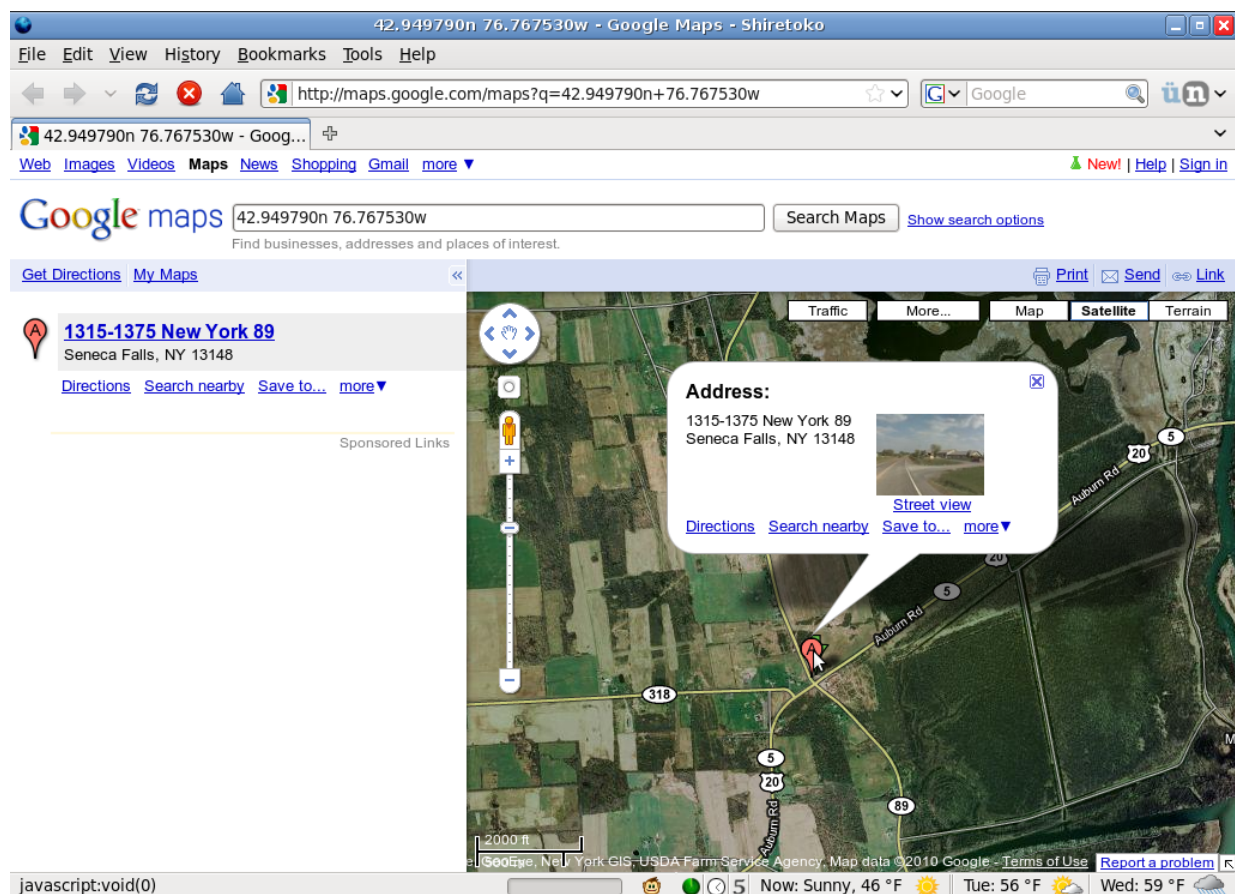
Managing your CMS unit

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

```
Resolution: 48x27  
GPS Location: N42.949790 W76.767530 (map it)  
Sign Panel Heading: 1  
Software Version: TRAFIX-1 9 17 7
```

Click the **map it** link to open a map showing the units 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.

Energy Management

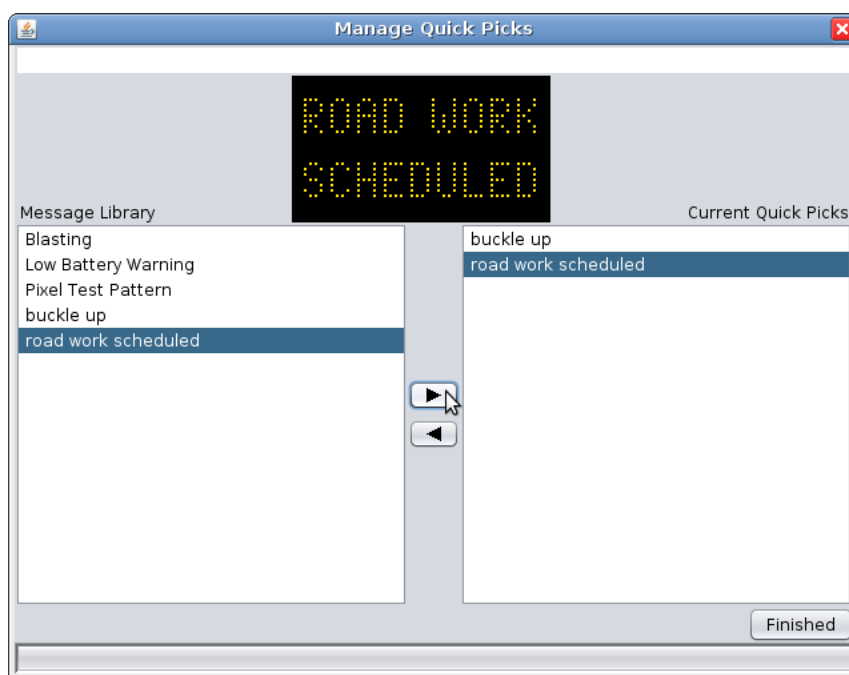
If your unit is equipped with an Energy Management System (EMS), [detailed information about the unit's energy usage](#) is available by clicking the link in the **CMS Information** area.

CMS Unit Menu

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

CMS Unit > Manage Quick Picks

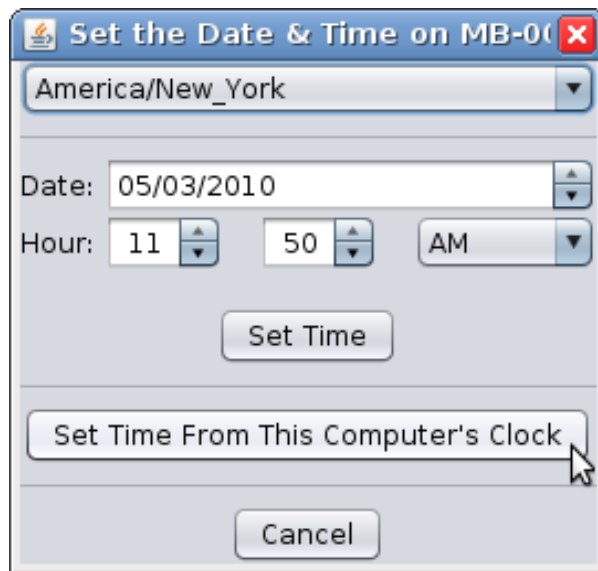
On the CMS unit, a Quick Picks menu may contain up to six messages for easy access. Use **Manage Quick Picks** to add messages from the active library to Quick Picks, as shown:



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.

CMS Unit > Set Date/Time

Use this to set the date and time on your CMS unit's clock. If your computer's clock is correct, just click **Set Time From This Computer's Clock**. Otherwise, set the time manually:



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.

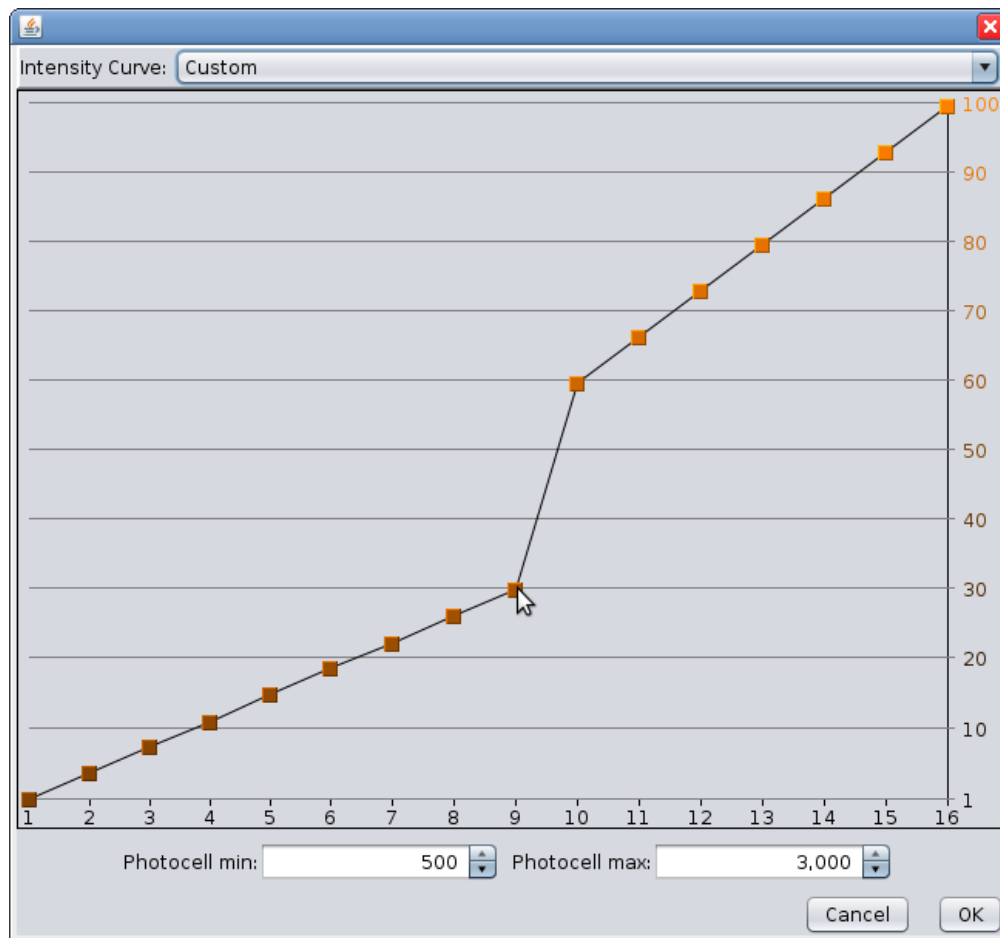
CMS Unit > Set Module Intensity Curve

For closer control over the signs brightness, CMS units with newer module types (V3 HD, V4 HD, and V6) can respond to an intensity curve. Command Center© comes with several curves programmed in; you can also create a custom curve.

WARNING: Custom module intensity curves are not recommended and, if used improperly, may cause extremely dangerous and/or hazardous conditions for motorists. Custom module intensity curves may render sign illegible during periods of high ambient light levels and/or may cause sign panel to temporarily blind motorists during periods of low ambient light levels. The owner(s) and/or operator(s) of this sign assume all responsibility and liability for any and all accidents, injuries and/or deaths caused by this sign when operated with a custom module intensity curve. Solar Technology, Inc. assumes no liability whatsoever for any and all accidents, injuries and/or deaths caused by this sign when operated with a custom module intensity curve. Controller will NOT reset the curve upon a restart.

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.

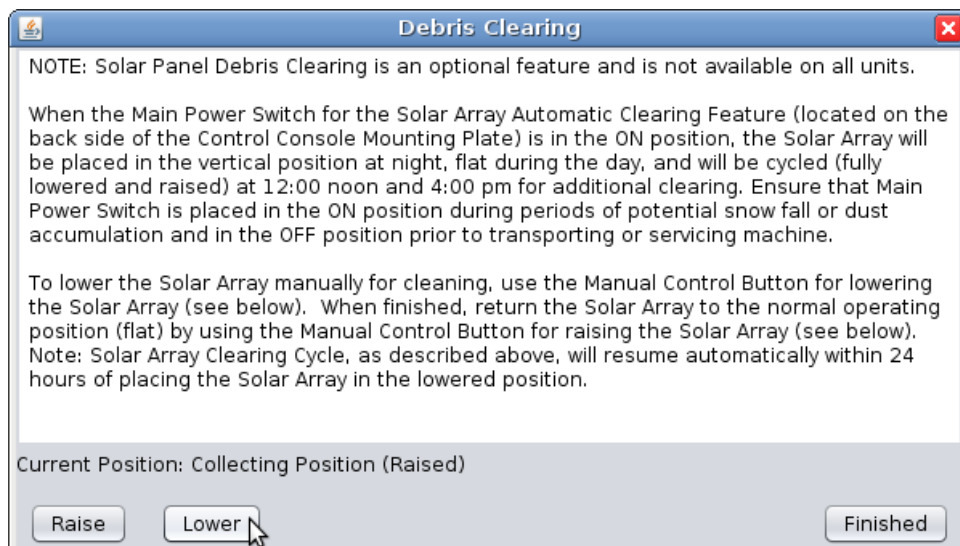
CMS Unit > Override Photocell Intensity Control

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 works well.

WARNING: Manual selection of photocell set points is not recommended and, if used improperly, may cause extremely dangerous and/or hazardous conditions for motorists. Manual selection of photocell set points may render sign illegible during periods of high ambient light levels and/or may cause sign panel to temporarily blind motorists during periods of low ambient light levels. The owner(s) and/or operator(s) of this sign assume all responsibility and liability for any and all accidents, injuries and/or deaths caused by this sign when operated with improperly selected manual photocell set points. Solar Technology, Inc. assumes no liability whatsoever for any and all accidents, injuries and/or deaths caused by this sign when operated with improperly selected manual photocell set points. Controller will automatically restore system to automatic photocell set point selection and operation upon a restart.

CMS Unit > 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.

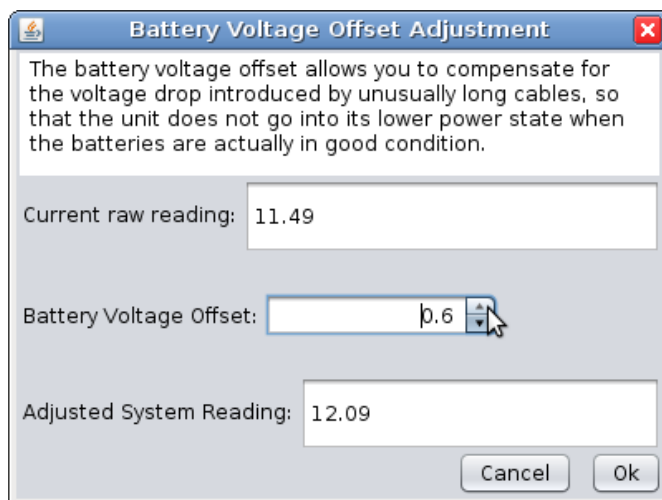


Click the **Lower** button to lower the panel into cleaning position, and the **Raise** button to raise it for normal operation. The expected current position of the panel is reported just above the Raise and Lower buttons.

CMS Unit > 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.

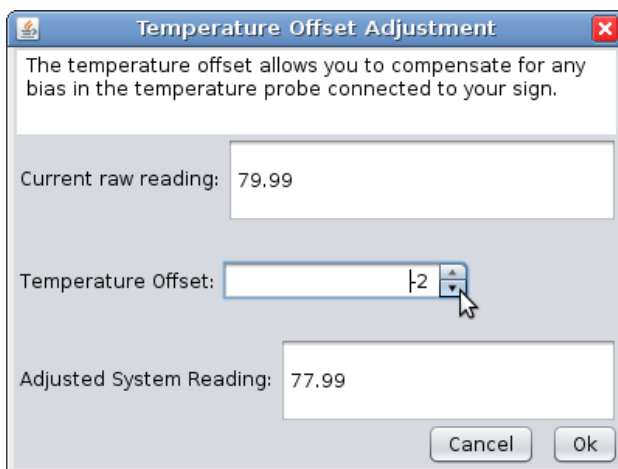
Click the arrows to change the battery voltage offset, as shown below.



CMS Unit > 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.



How do I test a malfunctioning sign panel?

Since your sign panel is made of blocks of pixels called modules, it's possible that a pixel fails (does not light) or that a module fails (does not communicate properly with the rest of the sign). Command Center includes tools to test the sign in both cases.

These sign tests are meant to be performed **when you can see the unit**. Do not perform them remotely; they won't help.

Pixel failure - If a pixel has failed, the sign will still display messages but one or more pixels aren't functioning. In Command Center, a red box will be shown around the failed pixels in Advanced Control mode. If you'd like to test the pixel directly, proceed to the Individual Module Test.

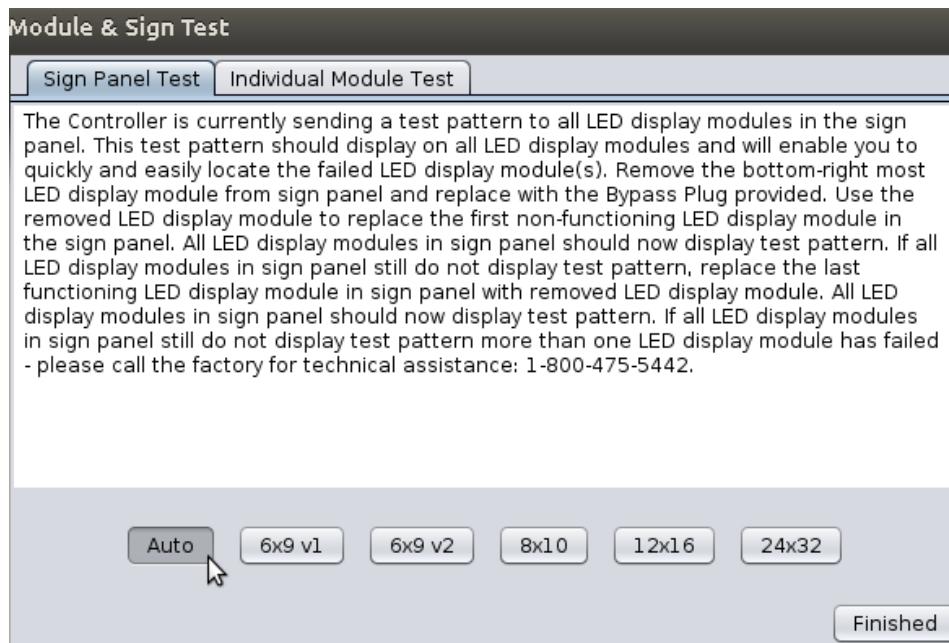
Module failure - If a module has failed, the sign will probably be blank and the console will display a module display failure message. In Command Center, the sign status will read "LED Module Failure" in red. To figure out which module has the problem, proceed to the Sign Panel Test.

CMS Unit > Test Sign Panel...

In case of a pixel or module failure, two tests are available. You must be able to see the sign panel to run these tests; do not perform them remotely.

Sign Panel Test (for module failure)

Select **CMS Unit > Test Sign Panel**. The test will start automatically. Control Center will attempt to send the right test pattern for your module type, but if you know your module type, you can choose it, as shown below:



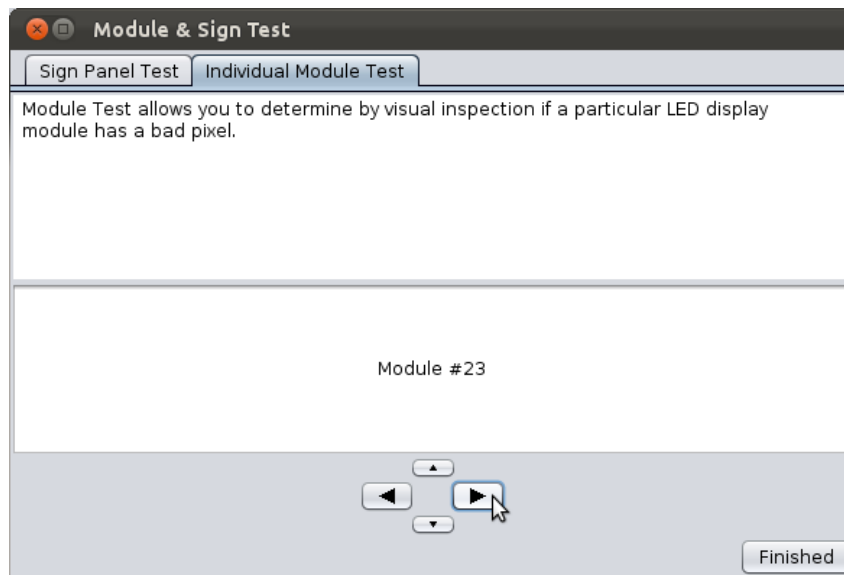
Control Center will send a test pattern to each LED display module in the sign, as shown below. The first module that does NOT display the test pattern is likely to be the failed one. (In the photo below, this would be the 5th module in the second row).



Remove the module in the bottom right corner of the sign, connecting the Bypass Plug in its place. Then, replace the failed module with the module you removed from the corner. (If the problem persists, the failed module may be the one before the blank module. If replacing that module doesn't fix the problem, more than one module has failed. Call the factory for technical assistance at 1-800-475-5442.) You can operate the sign temporarily in this mode, placing the failed module in the corner position for storage.

Individual Module Test (for pixel failure)

Select **CMS Unit > Test Sign Panel** and select the **Individual Module Test** tab. This test lights all of the pixels on a single module, as shown in the photo below. Use the arrow buttons at the bottom of the screen to change which module's pixels are being tested. This test can be useful to confirm a malfunctioning pixel (it will be dark even though the rest of the pixels on the module are lit).



Module 23 looks good here: all pixels light up.

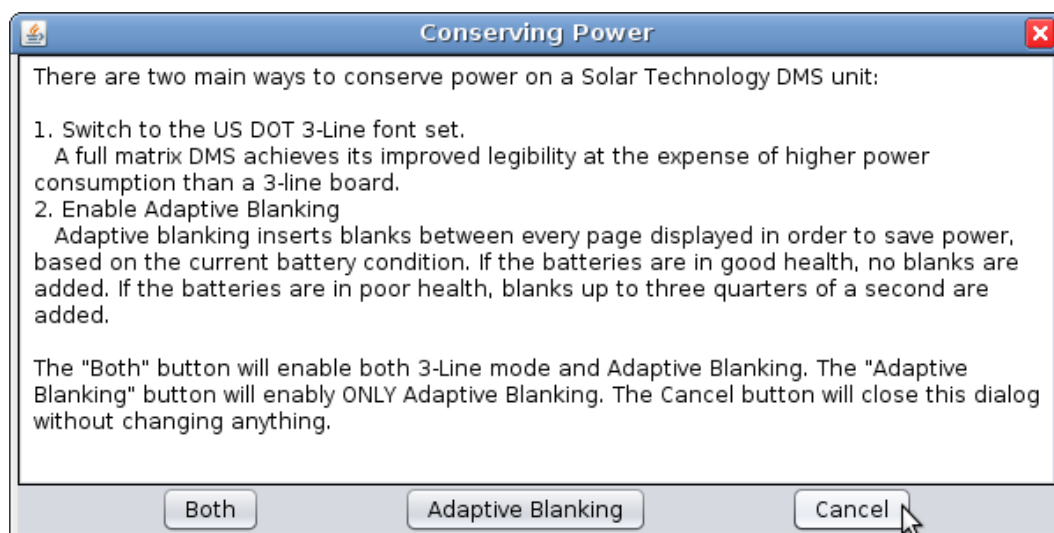
CMS Unit > Sign Panel Management

Use this dialog to set the module type (V3, V4, etc) for informational use by NTCIP and UTMC. This setting overrides the systems 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.

CMS Unit > 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 [CMS Unit > Font Set.](#))



CMS Unit > Font Set

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

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.

CMS Unit > 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.

CMS Unit > Dynamic Pixel Failure Detection

Your CMS unit tests itself during operation to make sure all pixels are working properly. (If a failure is detected, you will see the defective area highlighted with a red box on the main screen). These tests light up pixels for a few microseconds at a time and are normally not detectable by the human eye. Note: turning off Dynamic Pixel Failure Detection means that you will not be automatically notified of dead pixels.

CMS Unit > Scrolling Messages

Enable or disable the ability to scroll text in messages (have it move sideways across the screen). **WARNING:** The use of scrolling text for the management and/or control of traffic is typically prohibited, not recommended, and may create extremely dangerous and/or hazardous conditions for motorists. The owner(s) and/or operator(s) of this sign assume all responsibility and liability for any and all accidents, injuries and/or deaths caused by this sign when displaying scrolling text. Solar Technology, Inc. assumes no liability whatsoever for any and all accidents, injuries and/or deaths caused by this sign when used to display scrolling text.

CMS Unit > Set Radar Units

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

CMS Unit > 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 units 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.

CMS Unit > Retrieve Radar Statistics

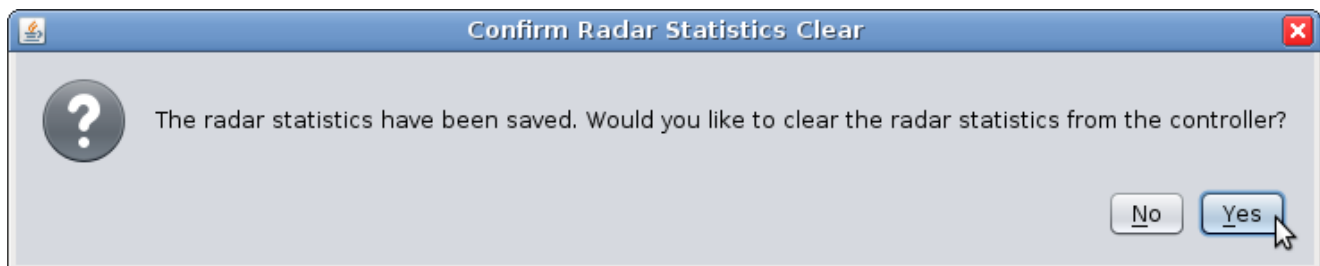
Provides a comma-separated values (CSV) file of radar statistics. Save this CSV file to your hard drive, and open it in a spreadsheet program to read and analyze the data.

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.

CMS Unit > Set the Unit's Communications Password

Set the password that authorizes communication with Command Center®. Your saved password (under **File > Manage CMS Units**) will be updated to match.

CMS Unit > 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.

CMS Unit > 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.

CMS Unit > Manage Touch-Tone ControlXXX still relevant?

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

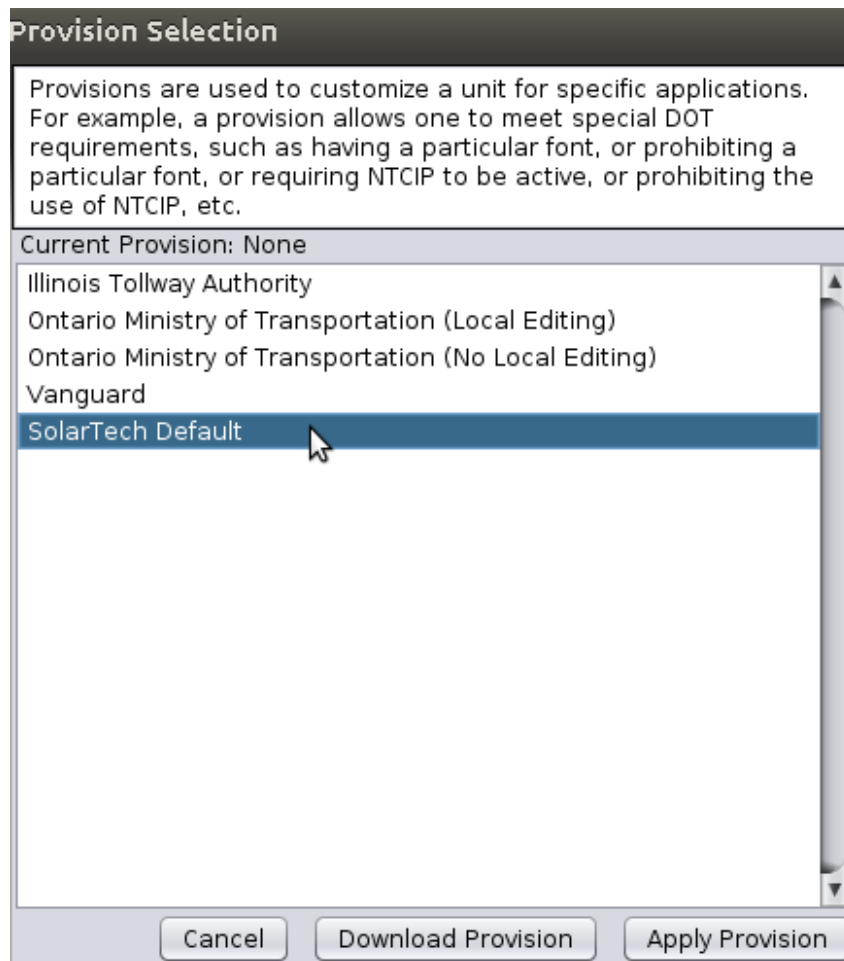
Touch-Tone Control is not available on units that use a dial-up modem.

CMS Unit > Check for Updates

Check for available updates to the software (TRAFIX©) on your CMS unit. (To update Control Center itself, use **Command Center > Check for Updates**.) Control Center will also automatically check for updates when you connect to the unit.

CMS Unit > Provision Unit

Typically for factory use only. Provisions are used to customize a unit for specific applications, such as meeting particular DOT requirements. If you know you need to use a provision, select the appropriate one from the menu, as shown below, and click **Apply Provision**. (If you need to provision a unit that is not connected to the internet, click **Download Provision** to save the provision file on a USB drive.)



CMS Unit > Install Add-on Keyboard

If you have purchased a custom software keyboard from SolarTech, select this menu item to install it. Select the keyboard file and follow the on-screen instructions.

CMS Unit > Disconnect & Close

Selecting this option disconnects your computer from the CMS unit and closes its tab.

CMS Unit > Reboot Unit

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

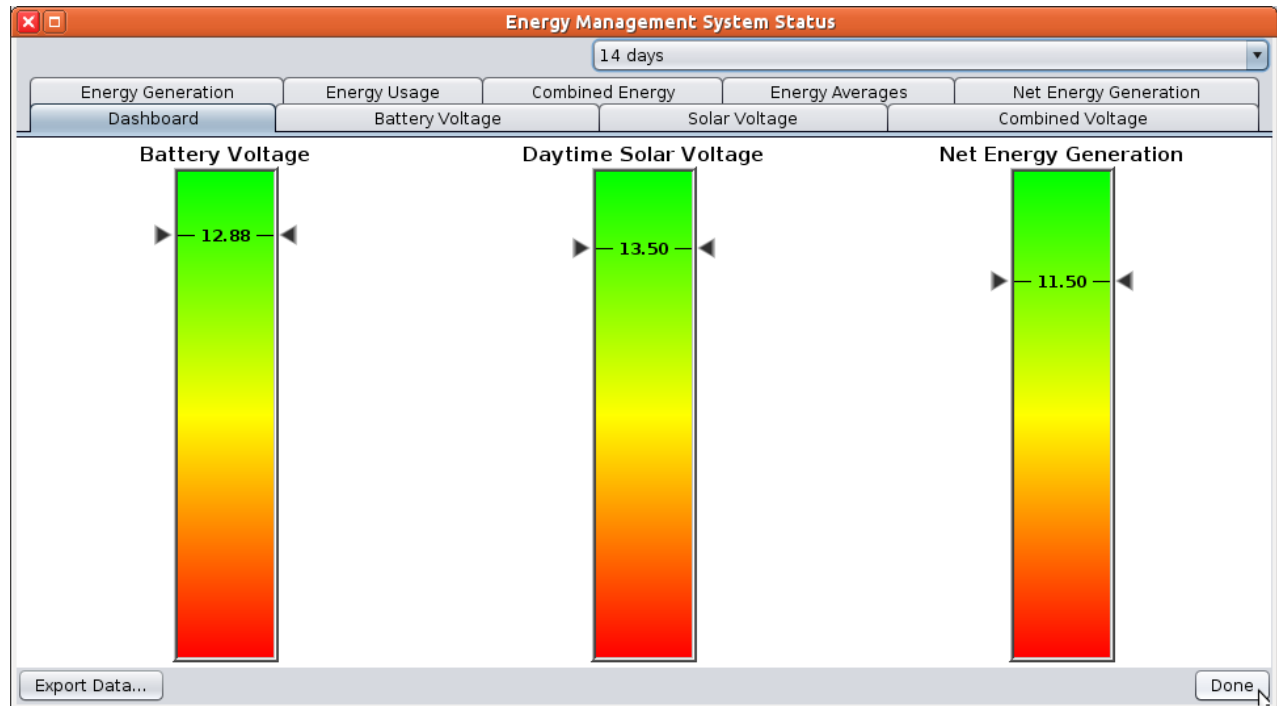
Energy Management Data

If your unit is equipped with an intelligent Energy Management System, detailed information about energy usage and generation is available from a link in the CMS Information section of the screen for that unit. The nine available graphs are explained here.

The graphs represent data gathered over a time period, 14 days by default. You can select a different time period with the drop-down menu at the top right of the window.

- Dashboard
- Battery Voltage
- Solar Voltage
- Combined Voltage
- Energy Generation
- Energy Usage
- Combined Energy
- Energy Averages
- Net Energy Generation

Dashboard



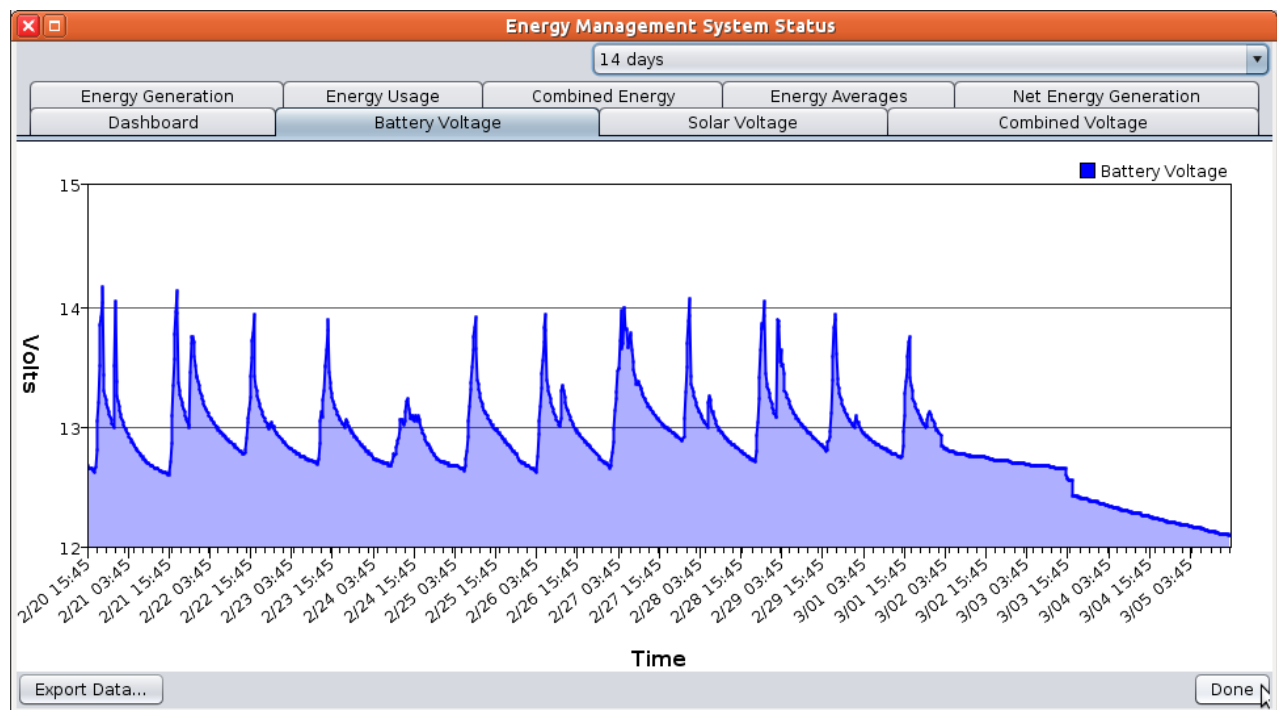
This simple graph shows three important numbers. The color-coded scales indicate how "healthy" each reading is: green is good, yellow indicates a possible problem, and red indicates that action is required.

Battery Voltage - Average battery voltage.

Daytime Solar Voltage - Amount of energy generated by the solar panels during the day.

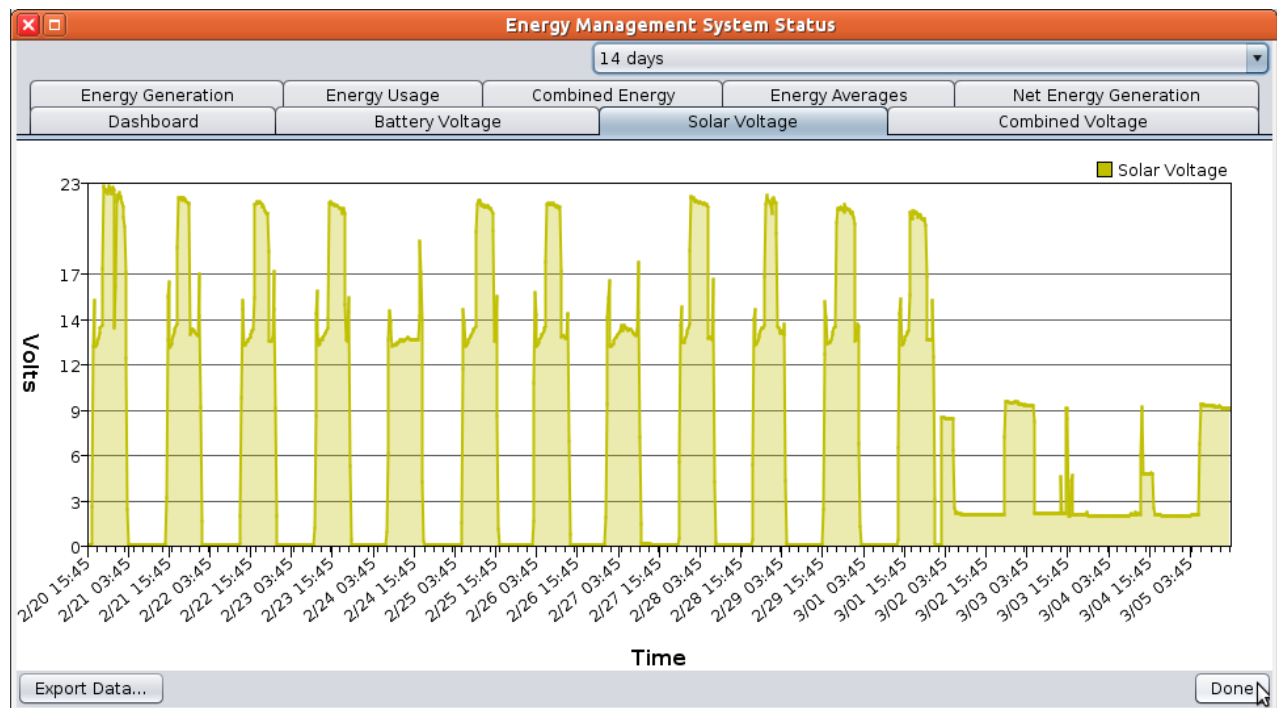
Net Energy Generation - Energy generated minus energy used. The scale for this one changes depending on battery voltage, so use the color (green, yellow, or red) when evaluating this number.

Battery Voltage



This graph shows the battery voltage over time. The line rises as the battery charges, and falls during use. In the graph above, the left-hand side shows a healthy pattern, rising during the day and falling at night, with no downward trend. The right-hand end of the graph shows declining battery voltage, a sign that the battery is not being charged.

Solar Voltage



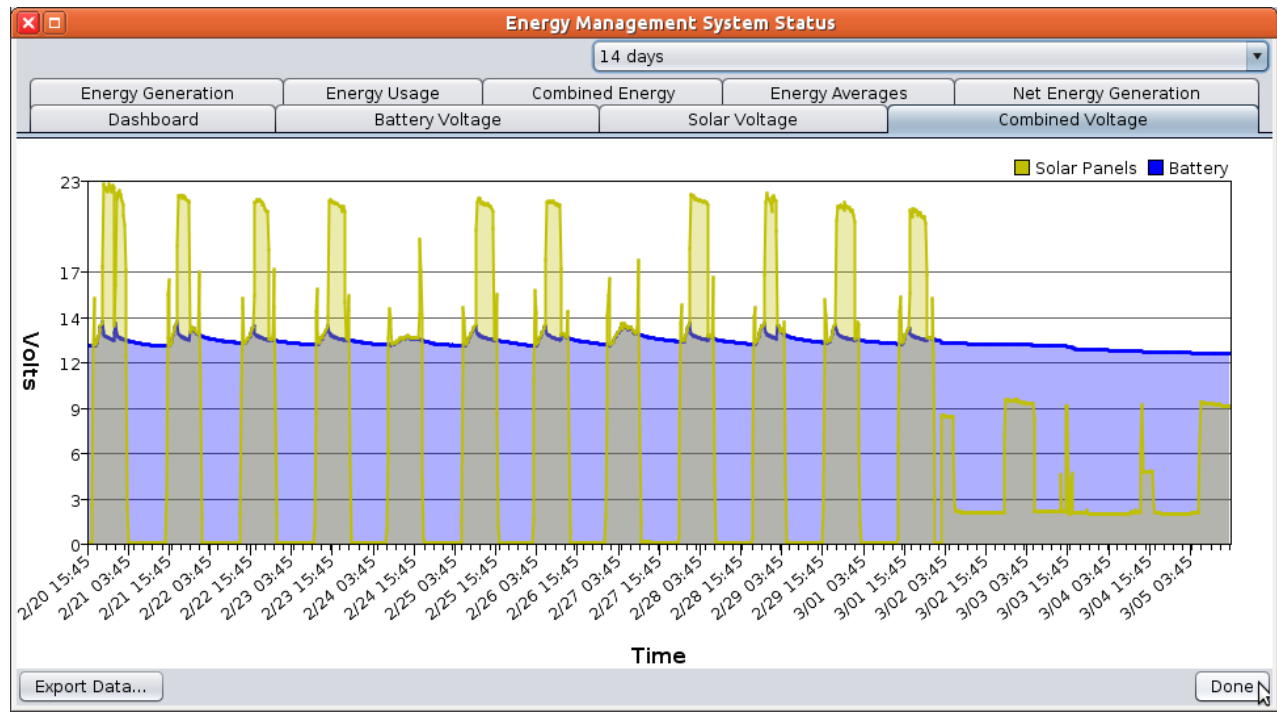
This graph shows the voltage in the solar panels, over time. In the graph above, the 5th and 8th days show a healthy ``batman cowl'' double peak; this shows that the batteries are charging all day.

The triple peaks indicate that the equipment is functioning, but the batteries are not charging in the

middle of the day (in this case, because the batteries are full and the sign is using very little power).

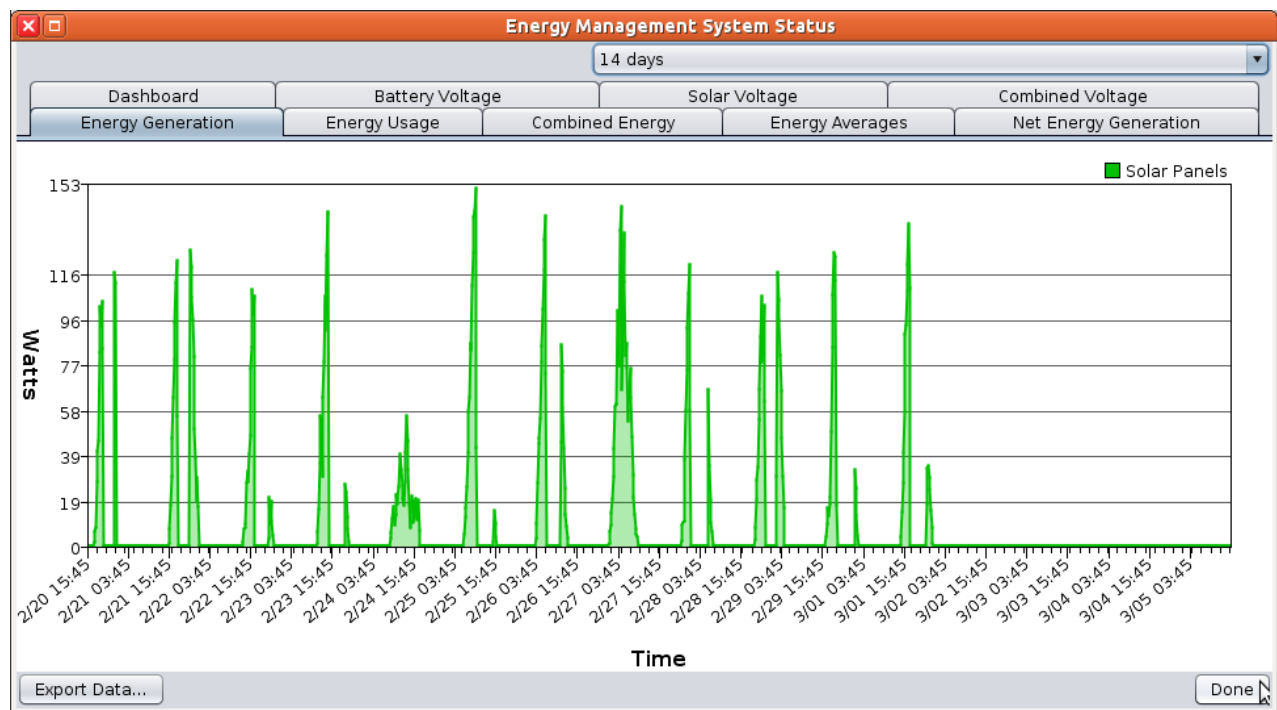
Nights, of course, show zero voltage.

Combined Voltage



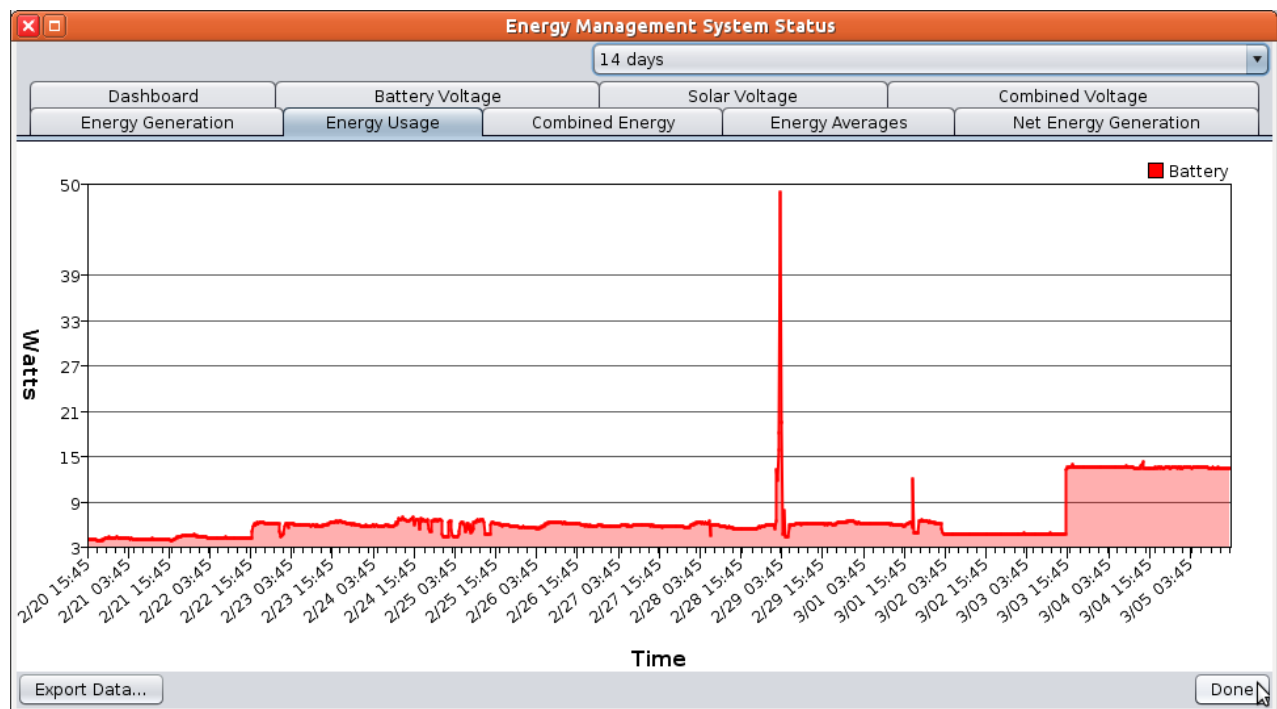
This graph combines the previous two (Battery Voltage and Solar Voltage) for easy comparison. When the blue and yellow lines rise together, the battery is charging; when the yellow line is higher, the solar panel has been automatically disconnected to preserve the battery's charge (this is a normal part of the solar panel's operation). As before, the left-hand side of the graph above shows a typical pattern.

Energy Generation



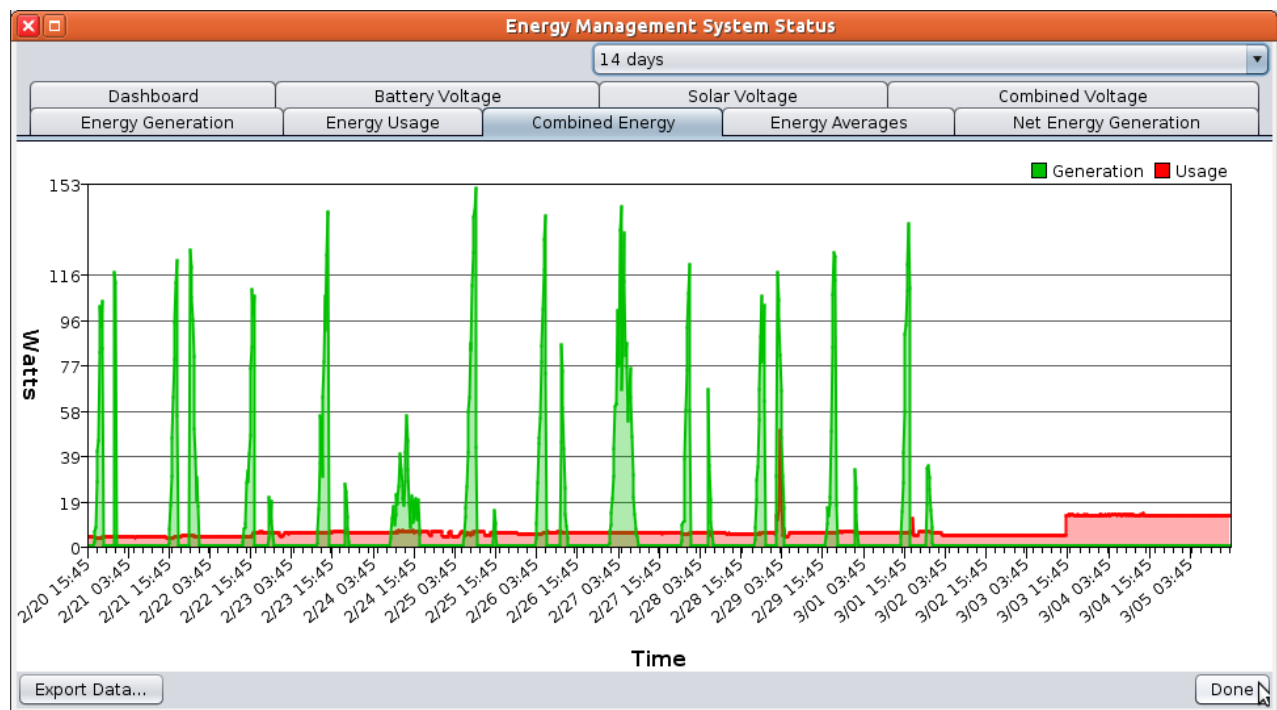
This graph shows the energy being generated by the solar panel that is used to charge the battery. The first four days shown in the example have a double peak, typical of sunny days; the fifth shows a typical cloudy day.

Energy Usage



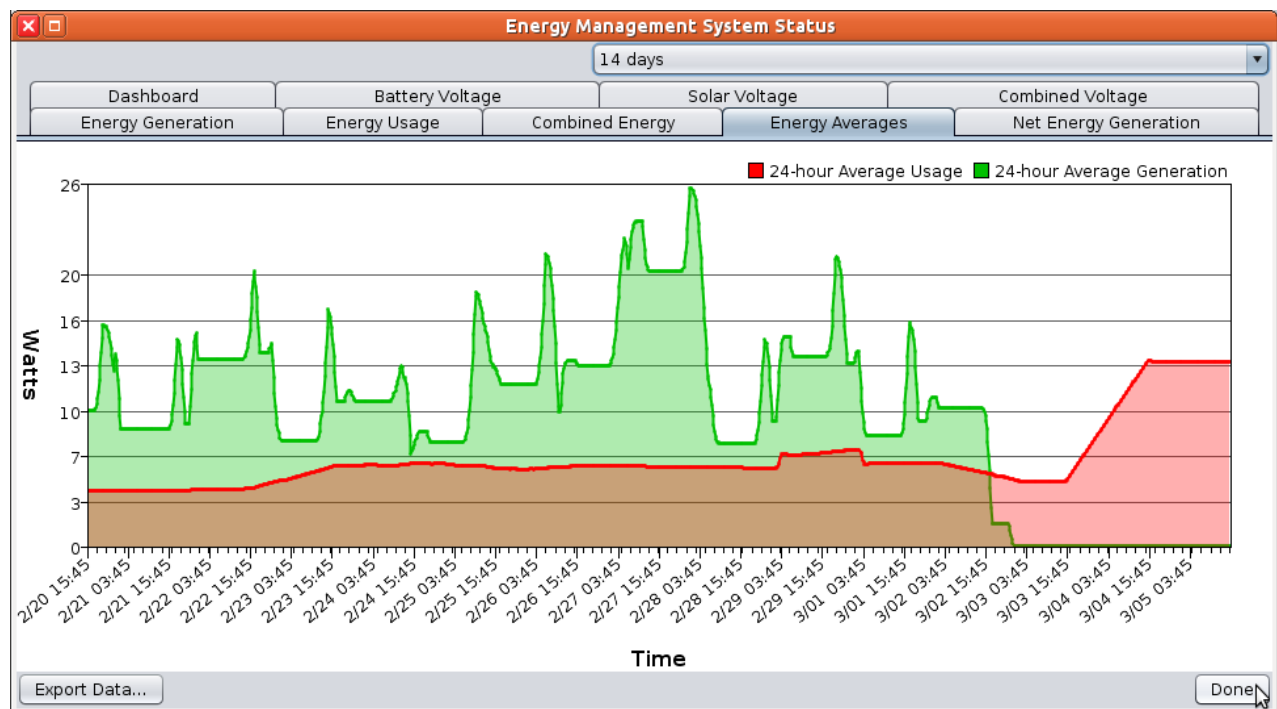
This graph shows energy that is being used by the sign. In this example, energy usage is low, such as when the screen is blank or showing a message that uses little power.

Combined Energy



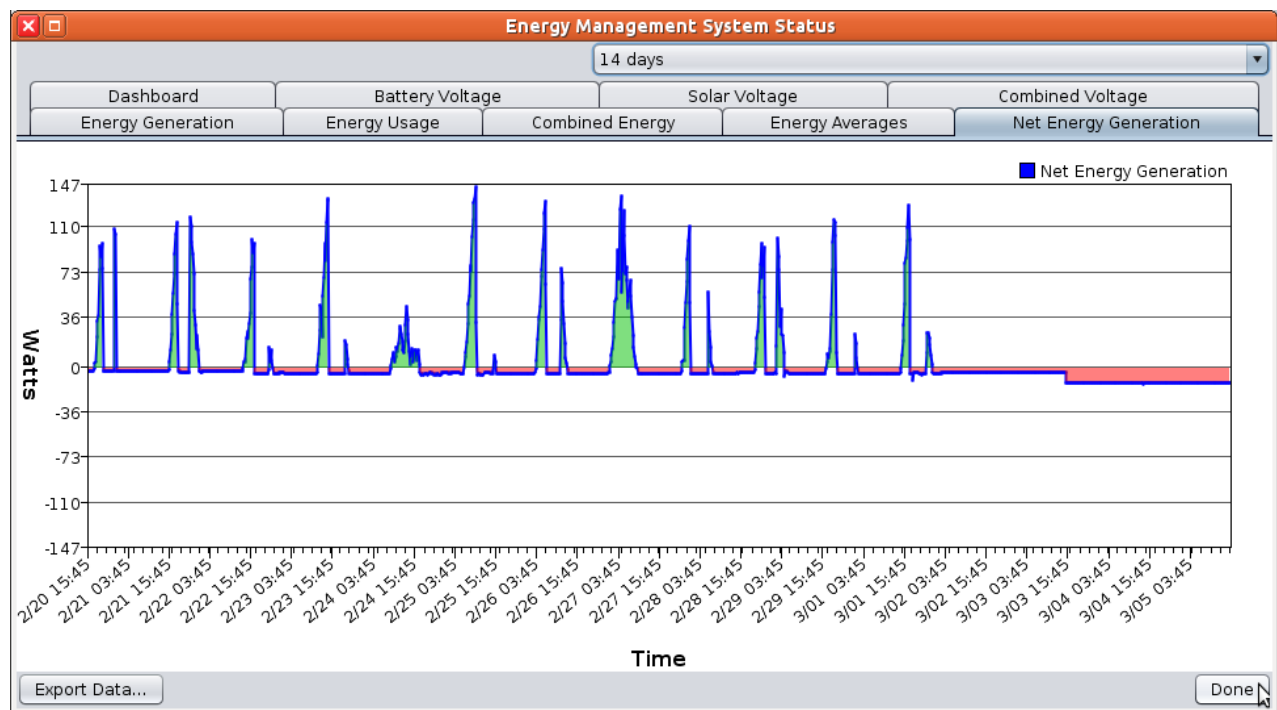
This graph combines the previous two (Energy Generation and Energy Usage) for easy comparison. The example shown here is typical of a low energy usage situation, such as a blank screen.

Energy Averages



This graph shows a rolling average, each data point representing an average of the previous 24 hours. This makes for a smoother line than the Combined Energy graph. As above, green shows energy generation and red shows energy usage.

Net Energy Generation



Net energy generation is defined as energy generated minus energy used.

This graph provides an alternate way of looking at energy usage as compared to energy generation. Green sections of the graph show when net energy is being generated, and red shows when net energy is being used. In a typical scenario, the amounts of red and green on the graph should be similar.

The Fine Print

- [Definitions](#)
- [License Agreement](#)

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 Command Center 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.

Energy Management System - On a CMS unit, the part that connects to the battery, solar panels, etc. The on/off switch is located here.

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.

Library - a collection of messages. Libraries are stored on CMS units or on your local computer. [Read about libraries.](#)

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.

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

Module - a block of LEDs making up part of a sign panel.

Override Message - A message, usually temporary, that is displayed instead of the normally scheduled message. 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.

Runtime - Total number of hours the unit has been in operation. This timer can be reset at any time, like the trip odometer on a car. Not to be confused with Uptime, the time since the unit was last rebooted.

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.

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.

Uptime - Time since the unit was last rebooted. Uptime cannot be reset (but Runtime can).

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CONTROL CENTER 3000

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