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WebCTRL v5

User Manual

Rev. 3/28/2011

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Contents

Chapter 1

What's new in v5

What's new in WebCTRL

Feature	Improvement
Downloading (see page 43)	The downloading interface and functionality has changed as follows: • Downloading moved from the **CFG** tree to the **NET** tree. Click the **Downloads** action button. • The Downloads page (see page 44) was redesigned to provide more flexibility and more feedback on the download tasks. • WebCTRL can download up to 5 routers simultaneously. • The **Memory** download option (see page 44) is now called **All Content** and includes the names of source files (.equipment, .view, .bacview, and .driver). Using this information, the new **Devices** page can show file discrepancies between the database and controller. This feature also accommodates Field Assistant. • You can see who downloaded a controller on the Controller Status Report or on the controller's Properties page.
Improved download performance	WebCTRL can now perform a memory download to at least 5 controllers on separate networks simultaneously and schedule downloads to at least 10 controllers on separate networks simultaneously.
Devices page (see page 46)	A new management tool that allows you to: • View network/controller communication status • Resolve database/controller mismatches • View controller information such as model, address, driver, and control program • Find ALC devices on a network that are not in your system database
Locked values (see page 33)	Locked values on **Graphics** and **Properties** pages have a yellow dashed box around them.
Improved trend collection	Trend services have been improved to allow concurrent data collection through multiple BACnet routers.

Feature	Improvement
Controller Status Report (see page 113)	This report now includes a controller's download information, and, if the controller has the 4.x or later driver, the serial number and Local Access port status.
Tree display options (see page 22)	You can display icons in the **GEO** tree to denote locations where items such as schedules or alarm actions were created or assigned. You can also turn on hover text so that when you hold the cursor over a system, area, or equipment icon, information about the tree item is displayed.
Schedule Group folders (see page 57)	You can create folders and sort your groups into them to organize the **GRP** tree.
WebCTRL Design Server (see page 29)	WebCTRL Server no longer has a Normal mode and Design mode. WebCTRL Server and WebCTRL Design Server are now 2 separate applications on the **Start** Menu.
Location Audit Log and System Audit Log reports (see page 113)	The Audit Log report is now 2 reports, one with location-based changes and one with system-wide changes.
Advanced Password Policy (see page 135)	The **System Settings** > **Security** tab has 2 new options: • Cannot be changed more than once every__ days • Force expiration button
System Settings > Security tab > Permissions (see page 161)	When control programs, views, and bacview files are created by an original equipment manufacturer (OEM), they cannot be used in a WebCTRL system without the creator's permission. However, the creator can produce a key for a system with a different license that will grant permission to the key's recipient. If you receive a key, you can activate it on the **System Settings** > **Security** tab.
System Settings > Web Applications tab (see page 166)	You can deploy a web application from your WebCTRL system.
Alarm Notification Client (see page 83)	It now has a continuous sound and silencing feature. You can now lock a client's **Settings**. Enabling support for Alarm Popup clients moved from **System Settings** > **Other Applications** tab to the **General** tab.
Edit Setpoint Tuning Parameters privilege (see page 124)	The permissions granted by the **Edit Setpoint Parameters** privilege were split between that privilege and the new **Edit Setpoint Tuning Parameters** privilege.
Remotely change the IP configuration of a BACnet IP controller	You can now change the IP configuration of a device in WebCTRL.
Disabling Local Access	To limit access to your system, you can disable a controller's Local Access port from communicating with WebCTRL, Field Assistant, or Test and Balance running on a laptop. Requires the v4.x driver.
HTTP Proxy and HTTP Tunnel in System Settings	These options were removed. Use Field Assistant instead.

Feature	Improvement
Download Source Files	Available only with a v4.x or later driver. If Field Assistant will be used with your WebCTRL system, it needs each controller's .equipment, .bacview, and .driver source files, plus any .view files marked to be included in download. • Select the new **Download Source Files** option on the controller's Properties page to have WebCTRL download the source files so that Field Assistant can upload them. This option depends on the controller's available memory. • Do not select this option if you know the controller does not have enough memory or you want faster uploads in Field Assistant. You will need to export the files from WebCTRL or SiteBuilder so that they can be imported into Field Assistant. **NOTES** • If you select this field but the controller does not have enough memory, the download in WebCTRL will fail. You can then disable this option and download again. • You can exclude a .view file from being downloaded.
System Settings > General tab > Export All Source Files (see page 160)	From WebCTRL or SiteBuilder, you can export source files to a .zip file that can be imported into Field Assistant. And, you can export source files from Field Assistant and import them into WebCTRL or SiteBuilder.
BACnet Discovery	This feature is now a page under the **Devices** button on the **NET** tree. And, you can now export the BACnet information to a .discovery file that can be opened in the new Third-Party BACnet Utility or in EIKON LogicBuilder.
WAP pages	The default WAP pages generated by WebCTRL have been redesigned to be more useful and easier to navigate.
Internet Explorer support	WebCTRL now supports IE9, but no longer supports IE6. **NOTE** If your system has legacy graphics and you are running IE9, you may see a strange font on the graphics pages in WebCTRL. To correct, upgrade your InterOp graphics in SiteBuilder. This will change the font to Courier New.
Reset to Defaults	This menu option was removed from the right-click menu. You can use the revert manual command instead.
64-bit operating system	WebCTRL has a 64-bit install for large systems that can use the increased capability inherent in a 64-bit operating system. However, the 64-bit install does not include Local Access support. The 32-bit install that supports all connection types can be used on a 64-bit operating system. **NOTE** MS Access is not available on a 64-bit installation of WebCTRL. If your system uses an Access database and you want to upgrade to the 64-bit version of WebCTRL v5, you must migrate your Access database to a different type of database before upgrading.

Feature	Improvement
HyperTerminal replaced by PuTTY in Help	Windows operating systems after XP do not include the HyperTerminal application. You can download the external application PuTTY to communicate locally with controllers. Most HyperTerminal instructions in Help have been replaced with PuTTY instructions. For HyperTerminal instructions, see Communicating using HyperTerminal.

What's new in EIKON LogicBuilder

Feature	Improvement
Microblock Common Properties Editor	You can view or edit common properties for the I/O, Network, Display, and BACnet microblocks in a control program.
ZN microblock rules	A ZN control program can now have: • A maximum of 350 microblocks (previously 200) • Up to 2 PID microblocks in addition to the zone controller microblock (previously 1 PID)
Integrator microblock is non-volatile	The integrator microblock now retains its output magnitude through a power loss, controller reset, or controller restart.
"Always upload" feature in BACnet Analog Value Parameter microblock	Using a combination of logic that writes critical parameters within a control program to a BACnet Analog Value Parameter microblock and a new property of the BACnet Analog Value Parameter microblock, you can retain critical values through a power loss, through a controller restart, and (if the reference name of the microblock is unchanged) through a memory download.
BACnet PID microblock	This new microblock provides improved PID algorithm and BACnet accessibility.
20-state BACnet Multi-state Value Parameter and 20-state BACnet Multi-state Value Status microblocks	These 2 new microblocks support up to 20 states.
OCL microblock system variable for weekday	To be consistent with the System Variable microblock, the weekday system variable has changed to WKDAY, where Monday = 1 to Sunday = 7. The previous weekday system variable, WDAY, will continue to work in existing control programs using Sunday = 1 to Saturday = 7.
Wildcard (*) instead of Device ID in BACnet addresses	Use an * in a Network Input or Total Analog microblock's address to have the microblock automatically locate the nearest device that contains the object specified in the address. This feature eliminates the need for specific device addresses when retrieving values from common objects. For example, control programs on a campus that need oa_temp can automatically retrieve the value from the nearest device that contains that object name.

Feature	Improvement
Edit > Third Party BACnet Addresses	You can edit the addresses that you created with the Third-Party BACnet Utility. Or, you can convert a control program into an integration program by changing I/O microblocks to Network or Display microblocks and setting the microblock addresses.
Device Alias microblock and Device Alias field in Display microblocks	These allow the use of Network I/O and Display microblocks in the same program, and efficient re-use of programs for multiple instances of third-party equipment.
Mark certain properties as Read-only	You can right-click some properties in EIKON LogicBuilder and select **Make Editable** or **Make Read-Only** to determine that property's functionality in WebCTRL.
Remove all Property Page Text	You can use this **Tools** menu add-on to remove property page text for all microblocks in a control program.
Keep historical trends for ___days	You can now define this setting in EIKON LogicBuilder for I/O and Log microblocks. Previously, this was only in WebCTRL.
Use unitary naming	You can set your control program to use unitary naming to omit __# at the end of BACnet object names.
Immediate Triggered Write	The **Immediate Triggered Write** property was removed from ANO2 and BNO2 microblocks. These microblocks automatically write their value as soon as they are enabled.

What's new in SiteBuilder

Feature	Improvement
Environmental Index source tree	The new **Environmental Index** source tree allows you to drag and drop zones that use standard reference names to calculate the Environmental Index.
Use Server's Time Zone	A site now defaults to the WebCTRL server's time zone, but you can select a different time zone if needed.
Find feature	You can search your system database for any information that you can access from an item's **Properties** dialog box.
Replicate feature	The **Replicate** dialog boxes were redesigned.
Synchronize views	If multiple pieces of equipment use the same control program and you change the attached view(s) for one, a **Synchronize Views** dialog box appears showing all equipment using the same control program. You can then easily select other equipment that requires the same view change.
View Properties	When you attach a view in SiteBuilder, you can edit the view's navigation properties that were defined in ViewBuilder.
Custom source trees	You can now create up to 20 custom source trees.

Feature	Improvement
Connect strings for MySQL, Oracle, PostgreSQL, or SQLServer databases	The connect strings were broken into fields in SiteBuilder to simplify setup of the databases.
Support for lighting control	When adding an LX6 controller in SiteBuilder, a **Panel Properties** tab appears where you select the lighting control panel's model.
Download Source Files	Available only with a v4.x or later driver. If Field Assistant will be used with your WebCTRL system, it needs each controller's .equipment, .bacview, and .driver source files, plus any .view files marked to be included in download. • Select the new **Download Source Files** option to have WebCTRL download the source files so that Field Assistant can upload them. This option depends on the controller's available memory. • Do not select this option if you know the controller does not have enough memory or you want faster uploads in Field Assistant. You will need to export the files from SiteBuilder or WebCTRL so that they can be imported into Field Assistant. **NOTES** • You can set this option at the site level so that it is the default for every new controller that you add. You can then change the setting for individual controllers. • If you select this field but the controller does not have enough memory, the download in WebCTRL will fail. You can then disable this option on the controller's **Properties** page in WebCTRL and download again.
Export and import source files	From SiteBuilder or WebCTRL, you can export source files to a .zip file that can be imported into Field Assistant. And, you can export source files from Field Assistant and import them into WebCTRL or SiteBuilder.
SSL certificate management	SiteBuilder now has the ability to make and delete SSL certificates, simplifying the process of certificate creation and deletion.

What's new in ViewBuilder

Feature	Improvement
Drawing tools	New tools let you draw vector lines and shapes.
Lighting graphics	The ViewBuilder library now has graphics for lighting.

What's new–Other tools

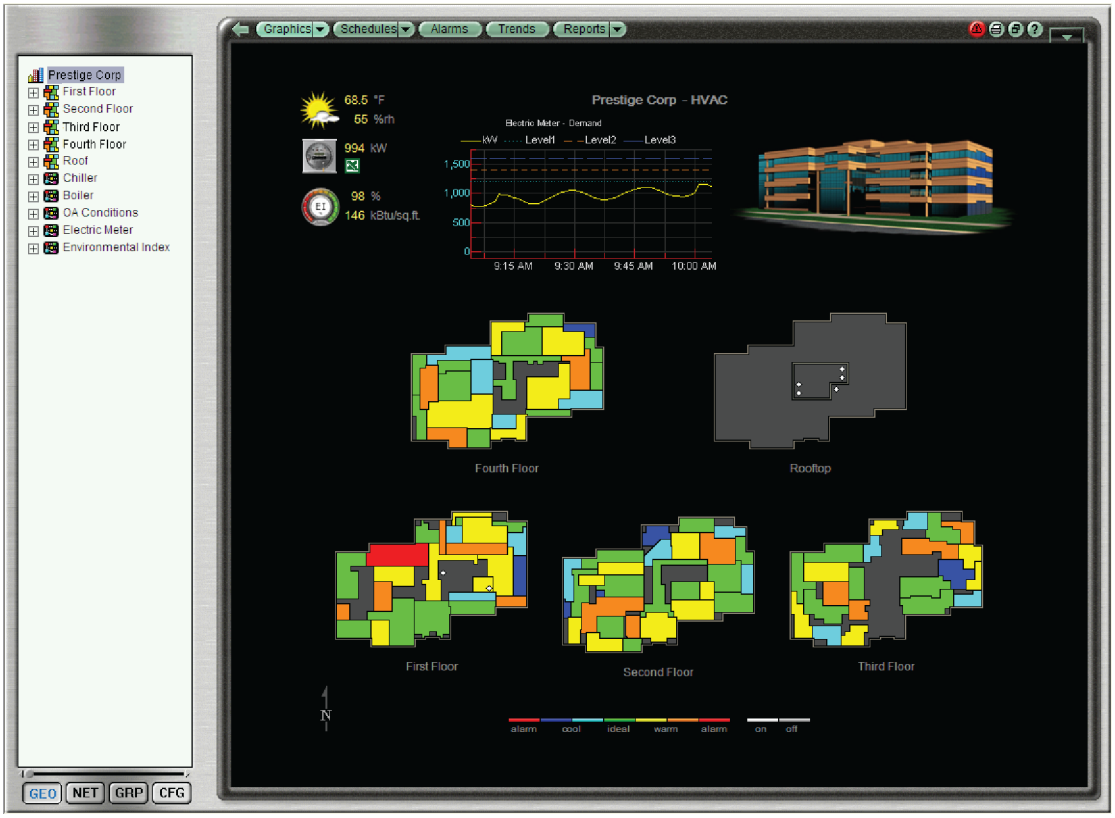
Use...	To...
Field Assistant	Service or start up and commission a piece of equipment or a partial network of controllers.
Third-Party BACnet Utility	Use discovered BACnet information to choose and address microblocks for third party BACnet integration.
Test & Balance (Redesigned)	Calibrate airflow in VAV zone controllers, commission air terminals, and override reheat and terminal fans.

Chapter 2

What is WebCTRL?

WebCTRL is a web-based building automation system that can be accessed from anywhere in the world through Internet Explorer, without the need for special software on the workstation. Through Internet Explorer, you can perform building management functions such as:

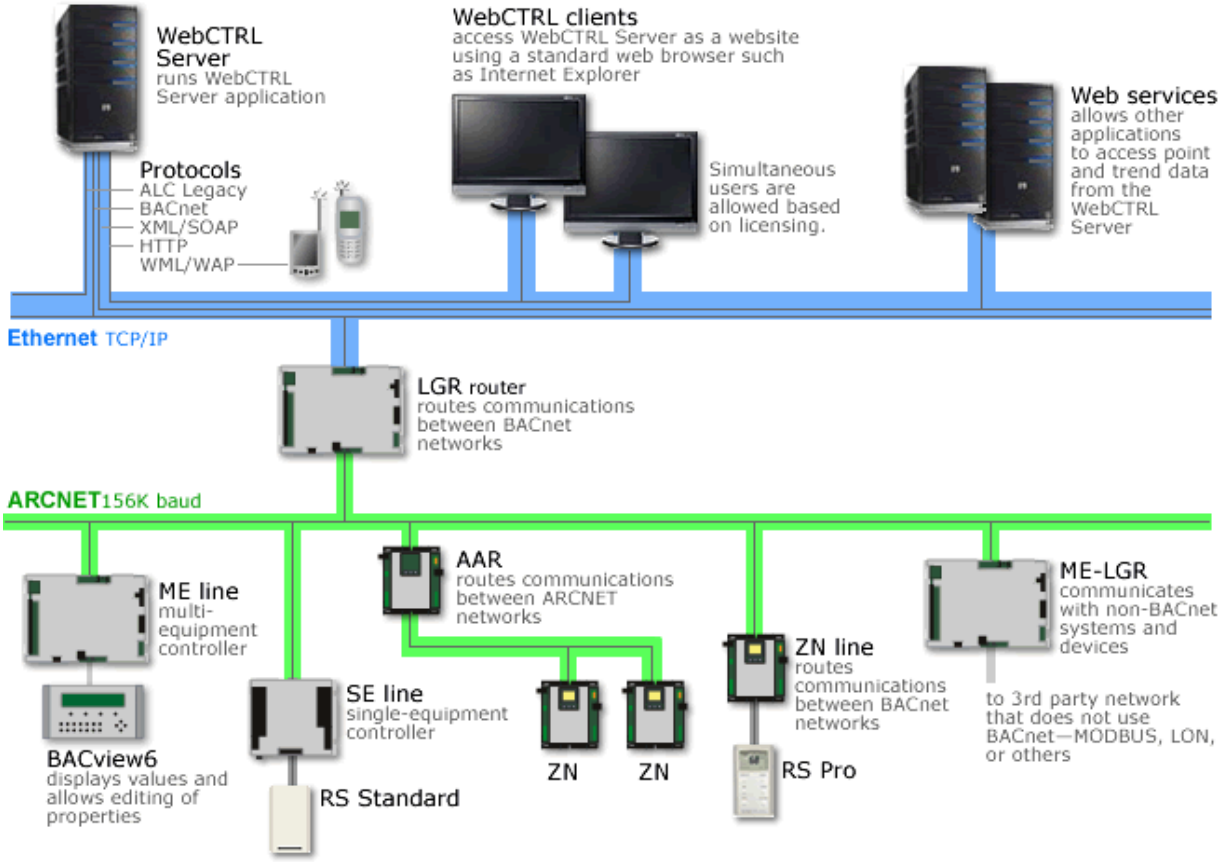
- adjust setpoints and other control parameters
- set and change schedules
- graphically trend important building conditions
- view and acknowledge alarms
- run preconfigured and custom reports on energy usage, occupant overrides, tenant billing, and much more



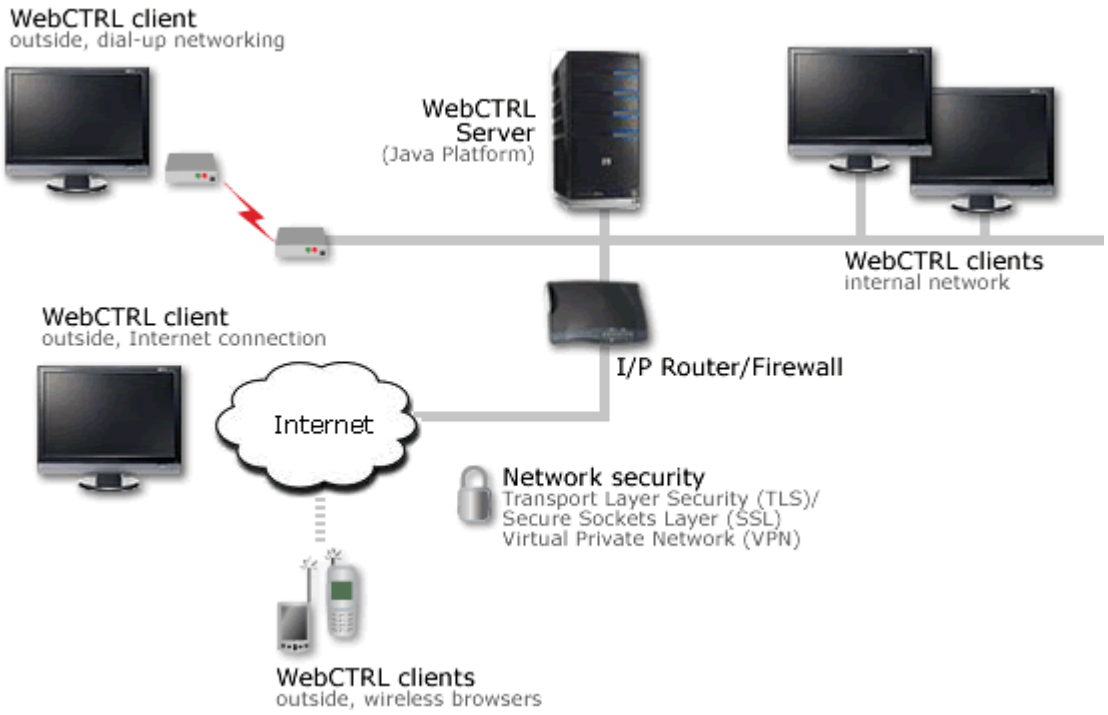
A typical WebCTRL system

WebCTRL uses a network of microprocessor-based controllers to control heating, air conditioning, lighting, and other facility systems. A web-based server communicates with these controllers and generates web pages that the user can access through Internet Explorer. WebCTRL allows you to gather information, change operating properties, run reports, and perform other building management functions on a single building, an entire campus, or a network of facilities that stretch around the globe.

A typical WebCTRL system may include:



The WebCTRL client uses Internet Explorer to access WebCTRL Server as a website. Access and security options in WebCTRL may include:



WebCTRL editions

WebCTRL supports:

- Unlimited simultaneous users
- Multiple operating systems and databases
- Built-in alarming, trending, and reporting
- International languages (International English, Korean, Traditional and Simplified Chinese, Spanish, French, German, Russian, Swedish, Thai)
- Third-party integration
- WAP-enabled devices
- Secure server access using TLS/SSL
- Optional WebCTRL packages listed below

WebCTRL 500 supports all the same features and options as WebCTRL in systems with fewer than 500 points.

NOTE Points include all input and output points tied into the system, regardless of vendor.

Optional WebCTRL packages

Package	Capabilities
Advanced Reporting (see page 113)	Configurable report designer for making environmental reports. Available report types: • Equipment Values • Trend Samples
Advanced Security (see page 131)	• Location-dependent operator access • Configurable password policies • Audit Log reports • Requirement of operator comments and operator verification prior to accepting system changes
Advanced Alarming (see page 82)	The following alarm actions: • Send SNMP trap • Write property • Write to database In addition to running an alarm action when an alarm or return-to-normal occur, alarm actions can be set to run: • After a delay period • Based on a schedule group's occupancy status
Enterprise Integration (see page 191)	• Web services (XML/SOAP) data retrieval • Add-on web applications such as EnergyReports

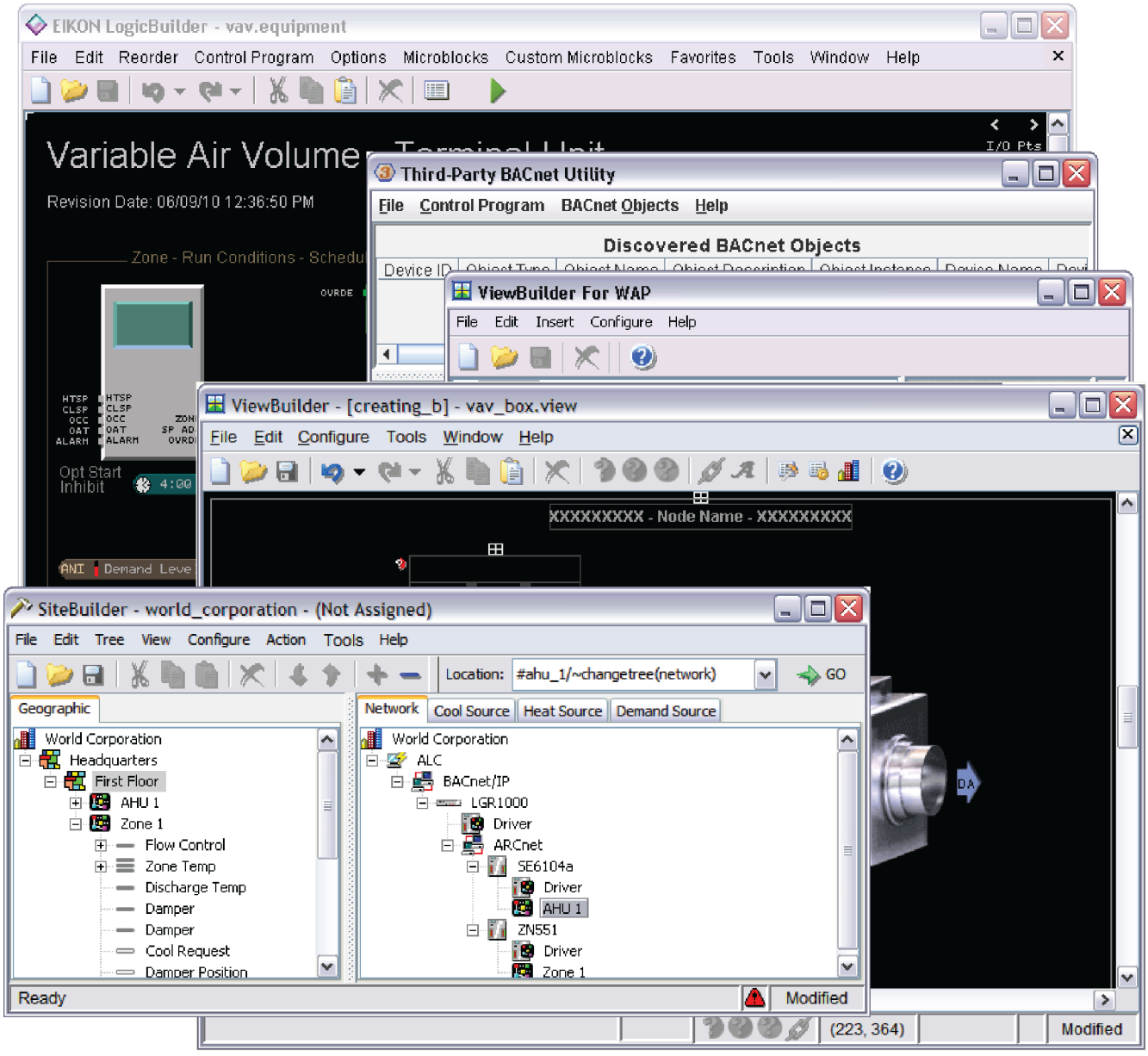
NOTE An optional package is enabled when you install the license that provides the optional package (see page 167).

WebCTRL tools

A WebCTRL system includes the following tools.

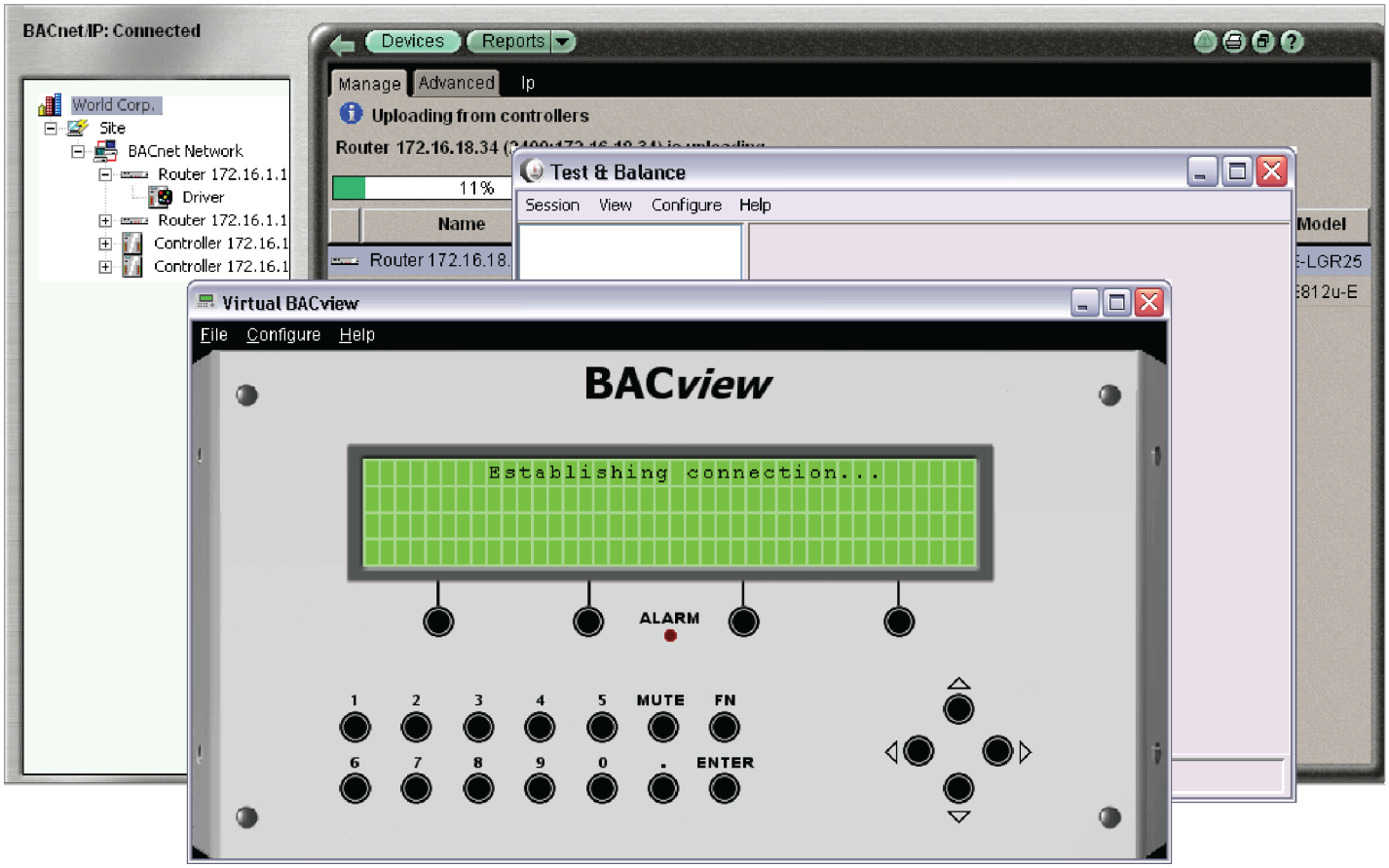
Design Tools

Use...	To...
EIKON LogicBuilder	Create control programs and Properties pages.
ViewBuilder	Create graphics and BACview screens.
ViewBuilder for WAP	Customize pages for WAP-enabled devices.
SiteBuilder	Create and modify the system database and associate control programs and graphics with equipment.
Third-Party BACnet Utility	Use discovered BACnet information to choose and address microblocks for third party BACnet integration.


EIKON LogicBuilder - vav.equipment
File Edit Reorder Control Program Options Microblocks Custom Microblocks Favorites Tools Window Help
Variable Air Volume
Revision Date: 06/09/10 12:36:50 PM
Third-Party BACnet Utility
File Control Program BACnet Objects Help
Discovered BACnet Objects
ViewBuilder For WAP
File Edit Insert Configure Help
ViewBuilder - [creating_b] - vav_box.view
File Edit Configure Tools Window Help
XXXXXXXXX - Node Name - XXXXXXXXX
SiteBuilder - world_corporation - (Not Assigned)
File Edit Tree View Configure Action Tools Help
Location: #ahu_1/~changetree(network)
GO
Geographic
Network
Cool Source
Heat Source
Demand Source
World Corporation
Headquarters
First Floor
AHU 1
Zone 1
Flow Control
Zone Temp
Discharge Temp
Damper
Damper
Cool Request
Damper Position
ALC
BACnet/IP
LGR1000
Driver
ARCnet
SE6104a
Driver
AHU 1
ZN551
Driver
Zone 1
Ready
Modified
(223, 364)
Modified

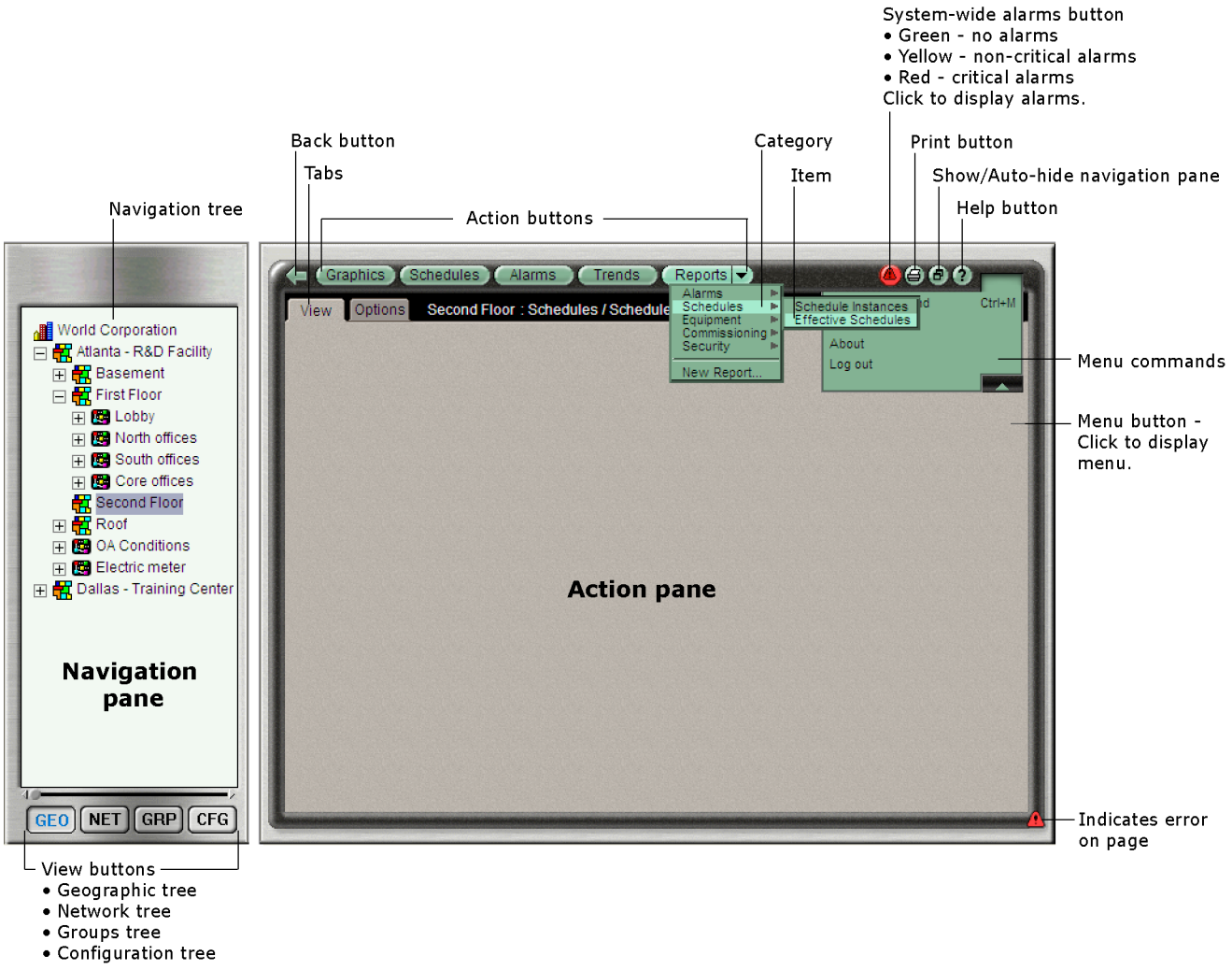
Start-up, Commissioning, and Service Tools

Use...	To...
Field Assistant	Service or start up and commission a piece of equipment or a partial network of controllers.
Test & Balance	Calibrate airflow in VAV zone controllers, commission air terminals, and override reheat and terminal fans.
Virtual BACview	Let your laptop serve as a local interface to a single piece of equipment.



Chapter 3

Getting to know the workspace



NOTES

- After you log in to WebCTRL, you will see the page defined as your starting location on the My Settings page. To change your opening page, see *To change My Settings* (page 130).
- Privileges control what an operator can see or do in WebCTRL. If you cannot see or do something that you read about in Help, ask your System Administrator to check your privileges.

Navigating the system

NOTE Use only the WebCTRL interface to navigate through WebCTRL; do not use the browser's navigation buttons.

To navigate to an item in the system

1 Select an item in the **GEO** or **NET** tree.

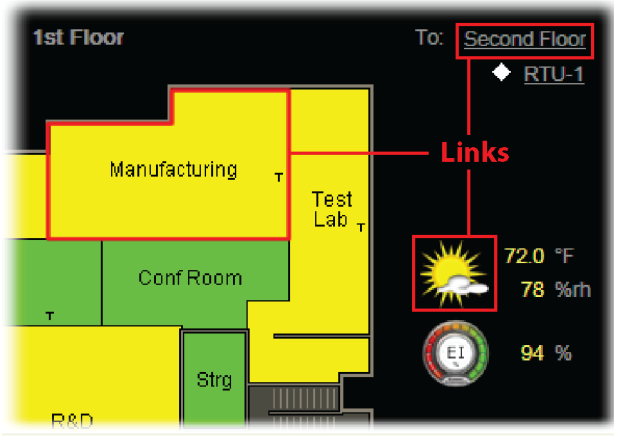
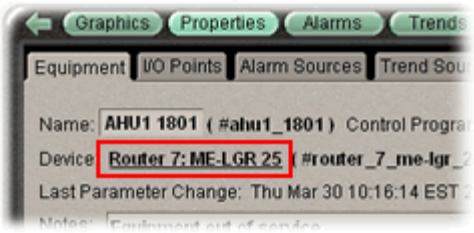
NOTE The **GRP** and **CFG** trees are used to set up your system.

2 Use the action buttons and their drop-down menus to navigate to specific types of information about the selected tree item.

3 Use the tabs to filter the information further.

To navigate using links

Use links to jump to related pages.

On a Graphics page	On a Properties page
	

Tree icons and hover text

The navigation tree displays an icon to the left of each item to denote the type of item. For example:

System Area Equipment

You can select custom equipment icons in EIKON LogicBuilder or in WebCTRL. In WebCTRL, right-click the equipment in the **GEO** or **NET** tree, select **Configure**, then select the **Icon**.

Optional icons

You can display the following icons to denote locations in the **GEO** tree where items were created or assigned.

Schedules
Trend Graphs
Alarm Actions
Schedule Groups
Reports
Privileges

To turn on optional icons:

1 Right-click the **GEO** tree.

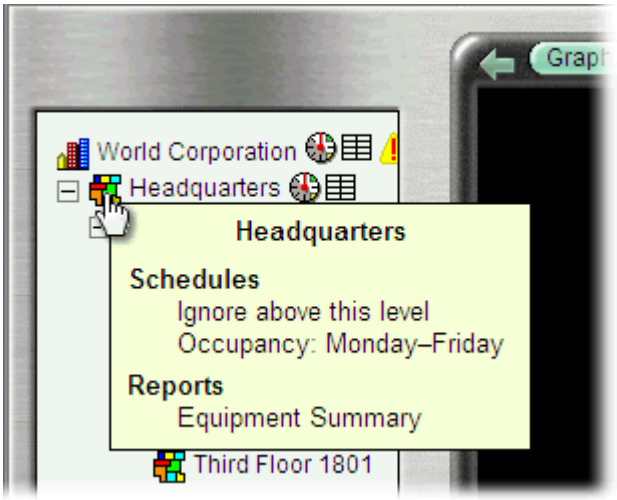
2 Select **Tree Display Options**.

3 Select the desired **Tree Icons**.

4 Click **OK**.

Optional hover text

If you turn on hover text, you can hold the cursor over a system, area, or equipment icon to display information about its item. The information displayed depends on which hover text options you select.



To turn on hover text:

1 Right-click the tree.

2 Select **Tree Display Options**.

3 Select the desired **Tree Hover Text**.

4 Click **OK**.

To show/hide the navigation pane

Click to toggle the navigation pane between shown or hidden. When the navigation pane is hidden, move the cursor across the left edge of the browser to show the navigation pane.

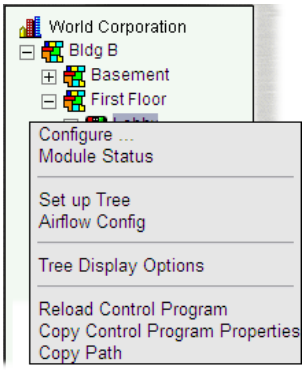
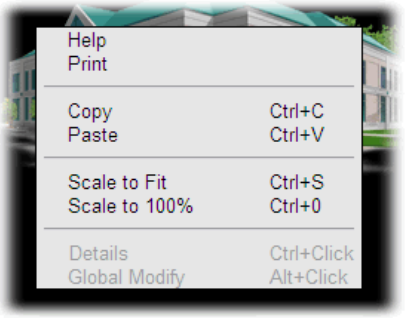
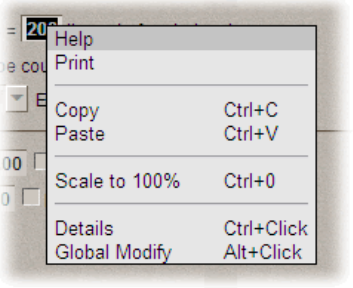
Click and drag the right edge of the navigation pane to adjust its width.

Zooming and resizing in the action pane

- Hold down **Ctrl** while rolling your mouse wheel to zoom in or out on the contents of the action pane.
- Right-click the action pane and select **Scale to 100%** to restore the contents to their original size.
- If a graphic does not fit in the action pane, right-click it and select **Scale to Fit** to make it fit the action pane. Select **Scale to 100%** to return it to its original size.

Using right-click menus

You can right-click the following items to select options:

A tree item	The action pane	A property
		

To print the action pane

Click to print the contents of the action pane. Set the print orientation to Landscape in the Print dialog box.

Colors and status in WebCTRL

The following colors indicate equipment status throughout WebCTRL on floor plans, equipment property pages, and some reports.

Color	Color Name	Status Code	Condition Indicated
	Mustard	none	In equipment when running WebCTRL Design Server
	Purple	0 or 15	In a controller—non-operational or no communications In equipment—a hardware or software error
	Charcoal	14	In a controller—a download is required or is already in progress In equipment—a controller has stopped
	Coral	13	Control program error **NOTE** If a zone controlled by a U line controller shows coral on a floorplan, the controller may be offline.
	Red	2 or 9	Heating or cooling alarm
	Orange	8	Maximum cooling
	Dark blue	3	Maximum heating
	Yellow	7	Moderate cooling
	Light blue	4	Moderate heating
	Gray	1	Unoccupied/inactive
	White	10	Occupied/active
	Light green	6	Free cooling
	Green	5	In a controller—operational or operational read only In equipment—No heating or cooling

Colors and setpoints

Thermographic colors indicate how much a zone's actual temperature differs from its setpoints.

Five conditions may affect a zone's thermographic color:

- Setpoint adjust
- Timed local override (TLO)
- Optimal start
- Demand level
- Hysteresis

In the examples below, a zone's heating occupied setpoint is 70° and its cooling occupied setpoint is 74°.

If you normally see...	when the zone temp is...	but...	then you will see...
green	72.5°	someone adjusts the setpoints (for example, with a **setpoint adjust** of two degrees, the new setpoints would be 68 and 72°)	yellow
gray	73° (unoccupied)	someone presses the **Override** button on a room sensor to use the occupied setpoints	green
gray	77° (unoccupied)	the zone is in **optimal start** and is ramping up to its occupied setpoint in the few hours before occupancy	an occupied color
yellow	75°	the zone's electric meter is in **demand level** 2 with relaxed setpoints of 68 and 76°	green
green	73.5°	cooling began when the temperature rose above 74° and the temperature has not yet dropped beyond the 1° **hysteresis** (to 73°)	yellow

Chapter 4

Running WebCTRL Server

WebCTRL Server accesses and maintains the system database that is viewed and edited from client browsers.

WebCTRL Server's **Current Users**, **Connections**, and **Output** tabs allow you to monitor the status of the system. Output information is continually archived to **WebCTRLx.x\logs\WEBSERVER.log**.

To run a system

WebCTRL Server must be running before operators can log in from client browsers.

1 Select **Start** > **Programs** > **WebCTRL x.x** > **WebCTRL Server**.

TIP If you use WebCTRL as a Windows service, your computer can automatically start WebCTRL Server every time the computer starts. See *Running WebCTRL as a Windows service* (page 177).

2 Start the Internet browser on one or more client computers.

3 Verify that your browser is set up for displaying WebCTRL. See *To set up a browser to view WebCTRL* (page 27).

4 Type the WebCTRL server's address in the browser's **Address** field.

NOTE You can type `http://localhost` if the WebCTRL Server and browser are running on the same computer.

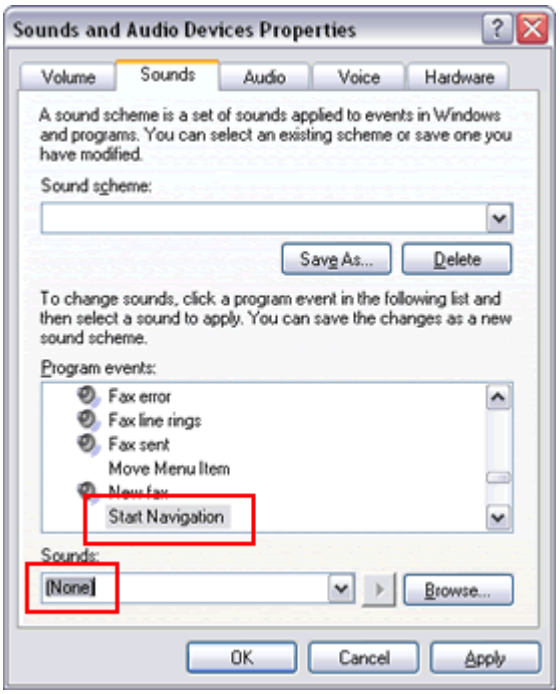
5 Enter a **Name** and **Password**.

To set up a computer and browser to view WebCTRL

NOTES

- WebCTRL Server must be running before operators can log in from client browsers.
- To view trends, client computers need Sun's Java VM plugin. In WebCTRL, go to the **CFG** tree **Client Installs** page for a link to the Java website.

Browser settings	Where to change setting
Accept First-party and Third-party cookies.*	Tools > Internet Options > Privacy tab >Advanced button
Automatically check for newer versions of stored pages.*	Tools > Internet Options > General tab > Browsing history > Settings button
Load ActiveX Control*	Tools > Internet Options > Security > Custom Level > ActiveX controls (enable all of the following settings) • Download signed ActiveX controls > Prompt • Download unsigned ActiveX controls > Disable • Run ActiveX controls and plug-ins > Enable • Script ActiveX controls marked safe for scripting > Enable
Disable the Image Toolbar (IE6).	Tools > Internet Options > Advanced tab > Multimedia section
Select Play animations in web pages.	Tools > Internet Options > Advanced tab > Multimedia section
Do not save passwords if the computer is used by multiple operators.	Tools > Internet Options > Content tab > AutoComplete > Settings button
Disable all the options on the Explorer Bar.	View > Explorer Bar
Disable browser's pop-up blockers.	Tools > Pop-up Blocker > Turn Off Pop-Up Blocker
Disable external toolbar pop-up blockers.	Varies
Hide the browser's toolbars.	View > Toolbars
Maximize the browser window.	F11 on your keyboard, or use the minimize/maximize button in the top right corner of the browser window
Computer settings	
Set the monitor's screen resolution to a minimum of 1024 x 768 with 24- or 32-bit color quality.	Start > Control Panel > Display > Settings tab

Browser settings	Where to change setting
Disable navigation sounds.	Start > Control Panel > Sounds and Audio Devices > Sounds tab 

* WebCTRL cannot function without this setting.

To run without connecting to the controllers

To verify links between graphics and to set up properties, schedules, alarms, and trends before you connect to the network, run the WebCTRL Design Server instead of WebCTRL Server. Then view WebCTRL in a browser as you would if running WebCTRL Server.

NOTES

- Question marks and purple thermographic color indicates correct microblock paths. Missing data or dark yellow thermographic color indicate errors.
- If your Start Menu does not show the WebCTRL Design Server, you are using a Tools Only installation of WebCTRL.

To switch to a different system

Design engineers working on multiple projects can switch systems in WebCTRL Server.

1. In WebCTRL Server, select **Server** > **Change Active System**.
2. Select a different system (it must be in the **webroot** folder) and mode.
3. Click **Select**.

To send a message to logged in operators

Notification messages are delivered immediately to WebCTRL client browsers. You can send multiple messages, but the operator must click **Ok** for the first message before the next message can be delivered. If the browser window is minimized, the message is not visible.

1 In WebCTRL Server, click the **Current Users** tab.

2 Click the Notify button  beside the user you want to send a message to. Or click **Notify All Users**.

3 Type a **Notification message**.

4 Click **OK**.

NOTE You can also type `notify [followed by the message]` in the manual command dialog box in WebCTRL to send a message to all logged in operators.

To log off an operator

NOTE The operator will be logged off without warning.

1 In WebCTRL, press **Ctrl**+**m**.

2 Type `whoson` in the manual command field.

3 Obtain the ID number of the operator you want to log off.

4 Press **Ctrl**+**m**.

5 Type `logoffuser x` (where x is the ID number).

6 Click **OK**.

To shut down a system

1 In WebCTRL Server, select **Server** > **Shut Down**.

2 Optional: Select a delay option, then edit the **Notification message**.

3 Click **Shut Down**.

NOTE You can also type `shutdown` in the manual command dialog box in WebCTRL to shut down the server.

Chapter 5

Working with equipment

You can view and adjust equipment operation from the following pages:

Graphics pages (see page 33)

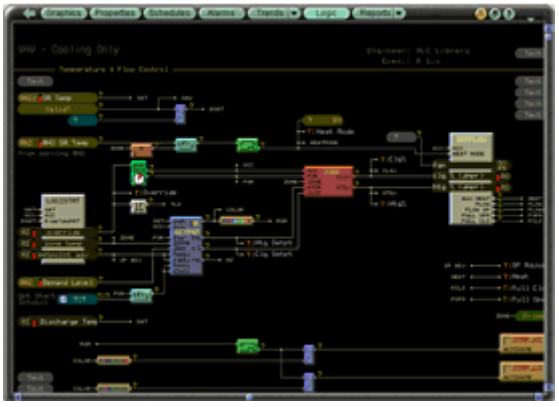
You can view and adjust your essential building controls on most Graphics pages.

- **Thermographic floor plans** indicate the temperature of zones compared to their effective setpoints.

- **Equipment graphics** show the current status of mechanical equipment and often include an adjustable setpoint control or other editable properties.

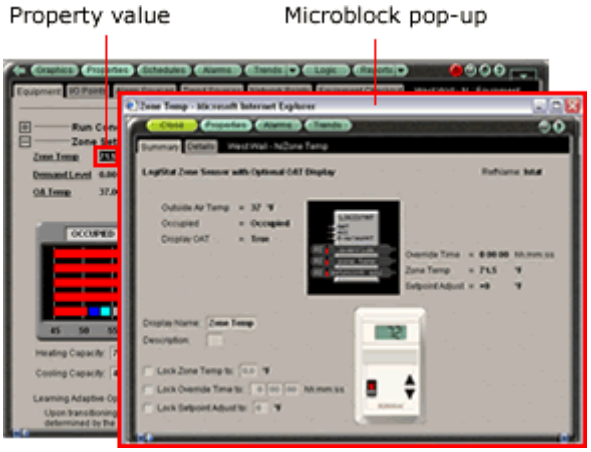
Properties pages (see page 36)

Each piece of equipment and each microblock has a Properties page. You can view and adjust more equipment properties on a Properties page than on its corresponding Graphics page.



Logic pages (see page 39)

Logic pages show the control program for a piece of equipment. Use the sequence of control and yellow status values on the Logic pages for troubleshooting your mechanical equipment.



Microblock pop-ups

To open a microblock pop-up where you can view and change properties:

- Click a microblock on a Logic page.
- Click the bold, underlined microblock name on a Properties page.
- Right-click a value and then select **Details**.

Graphics pages

You can view and adjust your system from Graphics pages, which include navigation maps, floor plans, and equipment.

Some typical controls that may appear on a graphics page are:

- Button or switch to turn equipment on or off
- Input field to set a property value
- Drop-down list to select a state
- Interactive room sensor to override an unoccupied schedule
- Setpoint graph to adjust setpoints
- Trend graph to view trend information
- Link to jump to another WebCTRL page or to the Internet

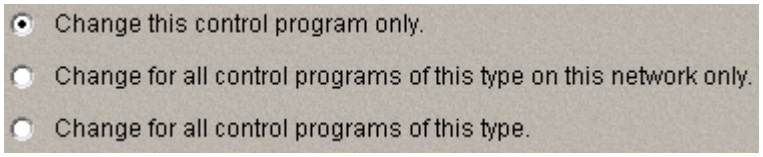
NOTES

- Right-click a value, then select **Details** to view and change properties in the microblock pop-up.
- Right-click a value, then select **Global Modify** (see page 41) to view and change the property in other control programs.
- A yellow dashed box around a value indicates the value is locked. 

- If a graphic is larger than the action pane, right-click the graphic and select **Scale to Fit** to see the whole graphic. Right-click and select **Scale to 100%** to return the graphic to its original size.
- When using **Scale to 100%**, hold down **Ctrl** while rolling the mouse wheel to zoom in and out on a graphic.

To attach a graphic in WebCTRL

1. On WebCTRL's navigation tree, right-click the item that you want to attach a graphic to, then select **Configure**.
2. Equipment graphic only: If the system has other control programs of this type, select which control programs you want to change.



NOTES

- If the control program is in an IP router, the second option will change the graphic for all control programs of this type only on the IP network.
- If the control program is on the network below an IP router, the second option will not change the graphic for the router's control programs of this type.

3 Do one of the following:

If the graphic is...	
In the **Views Available** list	a. Select the graphic, then click **Attach**. b. Click **OK**.
Not in the **Views Available** list	a. Click **Add New**. b. Browse to select the view file. c. Click **Open**. d. Click **Continue**. e. Click **Close**. f. Click **Close** again.

NOTES

- Select a graphic in the **Attached** list to edit the graphic's:
  - **Display Name**–The name that appears in the **Graphics** button drop-down list
  - **Category**–The name of the category that multiple graphics may be sorted into in the **Graphics** button drop-down list

    NOTE Changes to **Display Name** or **Category** apply only to WebCTRL and are not retained if you export source files.
  - **Reference Name**–The name that is used to create links to the graphic in ViewBuilder
  - **Included in download**–Equipment graphics only. Select to have the .view file included in an **All Content** download so that it can be uploaded by Field Assistant. The graphic will have  beside it in the **Attached** list. Requires 4.x or later drivers.
- You can click **Delete Unused** at the bottom of the **Views** section to delete all unattached graphic files from your system.

To edit a graphic on a WebCTRL client

On a WebCTRL client, you can get a copy of a graphic from the server, edit it, then put it back on the server.

To get the graphic

1 On WebCTRL's **GEO** tree, right-click the item that the graphic is attached to, then select **Configure**.

2 At the bottom of the **Views** section, click **Edit Existing**.

3 Select the graphic you want to edit.

4 Click **Save**

5 Browse to the folder you want to put the file in.

6 Click **Save**.

7 Click **Close**.

8 Click **Close** again.

To put the edited graphic back on the server

1 On WebCTRL's **GEO** tree, right-click the item that the graphic is attached to, then select **Configure**.

2 At the bottom of the **Views** section, click **Add New**.

3 Browse to select the .view file.

4 Click **Open**.

5 Click **Continue**.

6 Click **Close**.

7 Click **Close** again.

To organize multiple graphics for a tree item

If a single tree item has multiple graphics and you want to change the default graphic that was defined in SiteBuilder, display the graphic in WebCTRL, then run the setdefault manual command (see page 141).

In WebCTRL, you can create categories and assign graphics to them so that the **Graphics** button drop-down menu has the graphics arranged by category. This is typically done in ViewBuilder or SiteBuilder. See "To define WebCTRL navigation" in ViewBuilder Help and "To attach graphic files" in SiteBuilder Help.

To add or edit a Graphics category in WebCTRL

1 On WebCTRL's **CFG** tree, click the plus sign (+) to the left of the **Categories** folder, then select **Graphic**.

2 Click **Add** or select a category to edit.

3 Type the **Category Name** and **Reference Name**.

4 Optional: Select a privilege so that only operators with that privilege can access graphics in the category.

5 Click **OK**.

NOTE To delete a category, select the category, click **Delete**, then click **OK**.

To assign a graphic to a category in WebCTRL

1 On WebCTRL's **GEO** tree, right-click the item that the graphic is attached to, then select **Configure**.

2 Under **Views**, select the graphic in the **Attached** list.

3 Select the category in the **Category** field.

4 Click **OK**.

Properties pages

Properties pages are automatically generated from control programs created in EIKON LogicBuilder. Use Properties pages to:

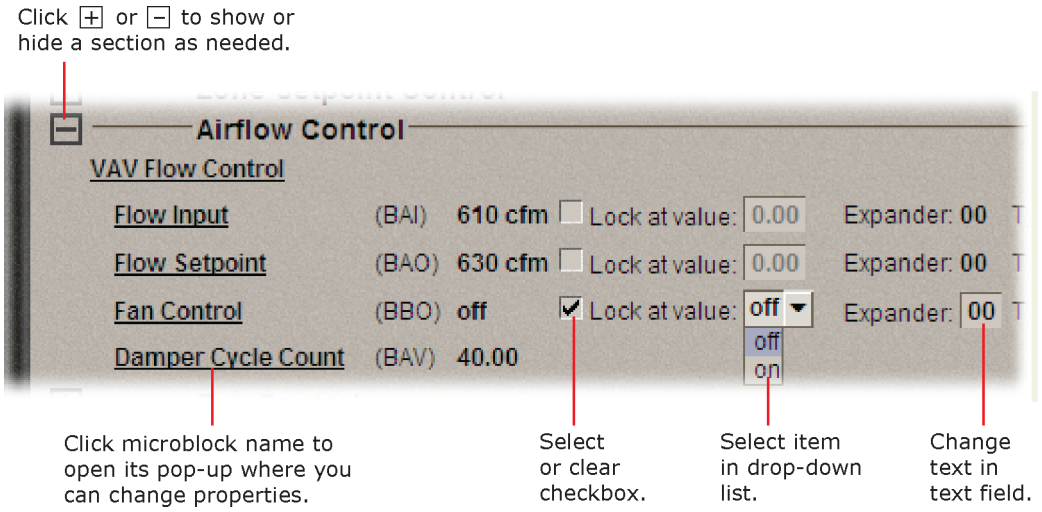
- View the status of a piece of equipment. See *Colors and status in WebCTRL* (page 25).
- View or change the equipment or microblock properties currently stored in the controller
- Commission equipment

To view or edit properties

1 Select a piece of equipment or a microblock on the **GEO** or **NET** tree, then click **Properties**.

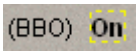
NOTE You must resolve any condition described in red text at the top of the page before a Properties page can obtain current information from its controller.

2 To change a property:



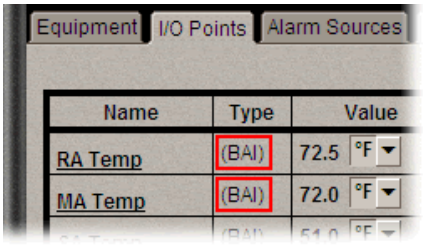
3 Click **OK**.

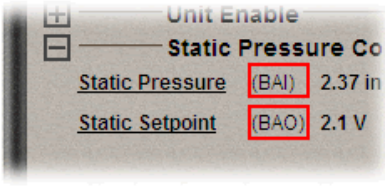
NOTES

- Right-click a value, then select **Details** to view and change properties in the microblock pop-up.
- Right-click a value, then select **Global Modify** (see page 41) to view and change the property in other control programs.
- A yellow dashed box around a value indicates the value is locked. 

Point types

A point name on the Properties page is followed by a code that tells you the point type. The table below describes each code.





Code	Point type
AI	Analog Input
ANI	Analog Network Input
ANI2	Analog Network Input 2
ANO	Analog Network Output
ANO2	Analog Network Output 2
AO	Analog Output
AV	Analog Value
BAI	BACnet Analog Input
BALM	BACnet Alarm
BAO	BACnet Analog Output
BAV	BACnet Analog Value
BBI	BACnet Binary Input
BBO	BACnet Binary Output
BBV	BACnet Binary Value
BFM	Floating Motor
BI	Binary Input
BLSTAT	LogiStat Zone Sensor with Optional OAT Display

Code	Point type
BMSV	BACnet Multi State Value
BNI	Binary Network Input
BNI2	Binary Network Input 2
BNO	Binary Network Output
BNO2	Binary Network Output 2
BO	Binary Output
BPTA	Pulse to Analog Input
BPWM	Pulse-Width Output
BRS	RS Sensor
BRSF	RS Sensor Fan
BTLO	Timed Local Override
BTRN	Trend Log
BV	Binary Value
DI	Digital Input
DO	Digital Output
EVT	BACnet Alarm
LAN AI	LAN Analog Input
LAN AO	LAN Analog Output
LAN DI	LAN Digital Input
LAN DO	LAN Digital Output
LSTAT	LogiStat Zone Sensor
POLLAVG	Average Analog Properties
POLLMAX	Maximum Analog Properties
POLLMIN	Minimum Analog Properties
POLLTOT	Total Analog Properties
PTA	Pulse to Analog Input
TLO	Timed Local Override

Logic pages

The Logic page shows the control program for a piece of equipment. WebCTRL updates the live data (yellow text) every few seconds and whenever you click the **Logic** button. The control program uses exact property values for its calculations, but values are rounded to 2 decimal places when displayed on the Logic page.

TIP Click anywhere on the Logic page, then use the Page Up, Page Down, and arrow keys to scroll through the page.

NOTE If you find an unexpected value on a Properties page or a Logic page, you can use the Logic page to troubleshoot.

To view a Logic page

1. Select a piece of equipment in the **GEO** or **NET** tree.
2. Click **Logic**.
3. Click a microblock to view its details.

To locate a microblock, section, or label

1. Right-click the Logic page, then select **Jump To**.
2. Do one of the following:
   - On the **Microblock** or **Section** tab, select an item to have WebCTRL locate and highlight the item.
   - On the **Label** tab, select a label to have WebCTRL display a reduced logic page outlined in yellow that shows all instances of the label. A red box indicates an output label; a yellow box indicates an input label. Click a red or yellow box to jump to that label in the full-size logic page.

     NOTE You can also click a label on the full-size logic page to display the reduced logic page.

To change properties, alarms, or trends

1. Click a microblock on the equipment's Logic page.
2. In the microblock pop-up, click the **Properties**, **Alarms**, or **Trends** button.
3. Change properties, alarms, or trends for that microblock in the same way that you would make changes on a regular Properties page (see page 36), Alarms page (see page 101), or Trends page (see page 65).
4. Click **OK** or **Apply**.

NOTE Right-click a value, then select **Global Modify** (see page 41) to view and change the property in other control programs.

Using a Logic page to troubleshoot

WebCTRL monitors your system and provides feedback. Interpreting the feedback on a Logic page is a powerful troubleshooting tool.

If you find an unexpected value on a Properties page or a Logic page, work your way backward (right to left) through the sequence in the control program to discover what caused that value. See Microblock reference to understand what each microblock in the sequence is doing.

Unexpected feedback	**Possible cause**
Space temperature reads excessively high or low	• The sensor has a short (or open) circuit. Verify wires are properly connected at the sensor and controller. • A sensor is missing or configured incorrectly on its Properties page.
Equipment displays an unexpected color - effective setpoints are different than the programmed setpoints	**NOTE** Equipment operates using effective setpoints. • Check hysteresis. • Check Demand Level. • Check Optimal Start. • Check Timed Local Override (TLO). • Check Setpoint Adjust.
Gaps in trend data on trend graph	Usually gaps result if network communication was disrupted or a point was temporarily disabled. If the gap is not the result of interrupted communication, send reports more frequently. Open the trend microblock that displayed the gap in data, then decrease the notification threshold so that it is approximately 40% of the buffer size (allocated memory size) for that microblock.
WebCTRL is not receiving alarms from a BACnet alarm microblock	Locate the microblock on the Logic page. If the color square on the microblock is black, the alarm is disabled. To enable it: **1** Click the microblock. **2** In the microblock pop-up, click the **Alarms** button. **3** On the **Enable/Disable** tab, select **Potential alarm source**.
Output should be off, but the equipment is on	The On-Off-Auto (OOA) switch on the controller for that equipment may be locked in the On (Hand) position.
Sensor value on the Properties page does not match the reading from handheld sensor	Calibrate the sensor. Check to see if the output point is locked on.

Changing multiple microblock properties

Two WebCTRL features, **Global Modify** and **Global Copy**, allow you to view and change multiple microblock properties at the same time.

TIP Click  to copy a microblock's reference path to the clipboard so you can paste it into another field or application.

To use Global Modify

Use the Global Modify feature to:

- View a microblock's full path, control program name, and the privileges required to change its properties.
- View or change a single property in several control programs at one time.
- View errors on graphics and Properties pages.

1. Browse to any page that displays the property you want to view or change.
2. Do one of the following to access Global Modify.
   - Right-click the property, then select **Global Modify**.
   - Alt+click the property.
3. Make changes to the **Control Program** field, if needed.

   NOTES

   - Use wildcards in the **Control Program** field to broaden the search.
     For example:

     `vav*` matches vav, vav**1**, vav**x**, vav**12345**

     `vav*z` matches vavz, vav**1**z, vav**x**z, vav**12345**z

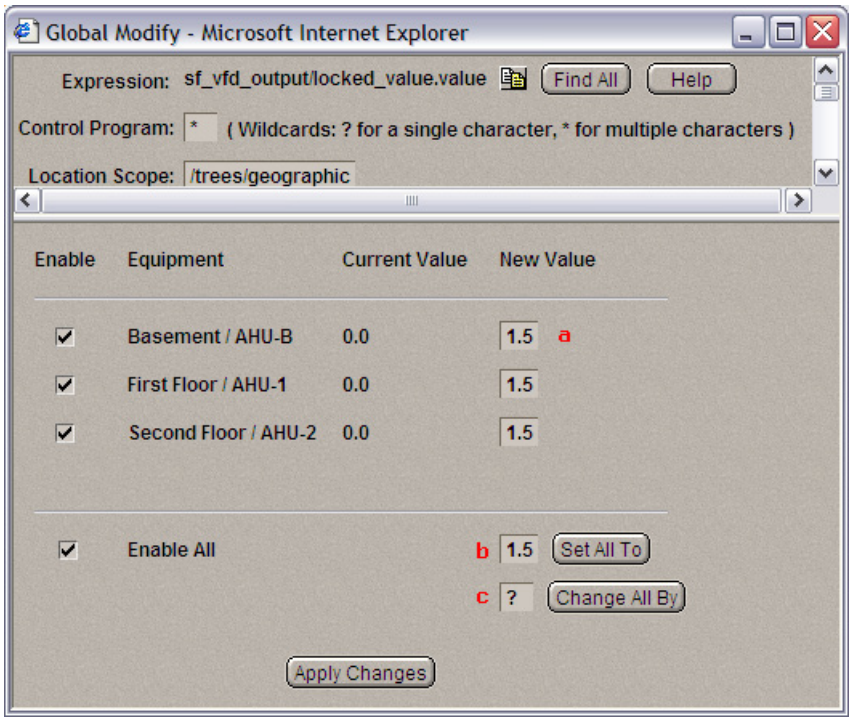
     `vav*1*2` matches vav12, vav**abc**1**xyz**2

     `vav??` matches vav**11**, vav**12**, vav**zz**, but does not match vav, vav1, vav123

     `*` matches any control program
   - Click **Show Advanced** to view the location, value, and privileges associated with this property.
4. Select the tree item under which you want to search for every occurrence of that microblock in other control programs.
5. Click **Find All**.
6. Select the properties in the list that you want to change.

7 Do one of the following:

- Type a **New Value** to the right of each selected item (a).
- Type a number in the **Set All To** field (b).
- Type a number in the **Change All By** field (c).



8 If you typed a value in b, click **Set All To**.
If you typed a value in c, click **Change All By**.

9 Click **Apply Changes**.

NOTE To modify several properties in multiple control programs at the same time, use **Global Copy**.

To use Global Copy

Use **Global Copy** to copy any or all of the following from one control program to other equipment using the same control program:

- Embedded trend graph settings
- Custom trend graphs
- Custom reports
- Other editable properties to other pieces of equipment using the same control program.

1 On the **GEO** or **NET** tree, right-click the piece of equipment that has the properties you want to copy, then select **Copy Control Program Properties**.

2 In the **Global Copy** dialog box, select the items that you want to copy.

3 Select the area on the tree containing similar control programs that you may want to copy these properties to, then click **Search**.

All instances at that level and below are listed in the expanded lower window.

4 Select or clear checkboxes as needed.

5 Do one of the following:

- Select the **Skip bad values** checkbox to copy all values except a bad value (it cannot be copied because you do not have the necessary privilege, the property to be copied is undefined, etc.).
- Clear the checkbox to prevent any values from being copied if a bad value is found.

6 Click **Apply Changes**, then close the **Global Copy** dialog box.

Downloading to controllers

If you make any of the following changes, you must download the new data from WebCTRL Server to the affected controllers.

In WebCTRL	• Change or reload a control program • Change or reload a driver • Change a schedule **NOTE** A schedule change automatically downloads unless you clear its **Automatically Download Schedules** checkbox (on the schedule's **Configure** tab under **Show Advanced**). • Change a BACview file • Select or deselect a .view file's **Included in download** option
In SiteBuilder	• Add a device • Add equipment • Change or reload a control program • Set an object instance • Change or reload a driver • Assign or unassign equipment • Select or deselect a .view file's **Included in download** option

WebCTRL automatically marks the affected controllers as requiring a download. You can download these controllers from the **Downloads** page (see page 44) or the **Properties** page (see page 45) for the controller, the equipment, or a microblock.

When WebCTRL marks a controller for download, it determines what information needs to be downloaded based on the type of information that changed. See *Download Options* (page 44).

NOTES

- A property change in WebCTRL is automatically downloaded while WebCTRL is communicating with the controller. If the download fails, WebCTRL adds the controller to the **Downloads** page with the reason for the failure.
- To see who downloaded a controller last, go to the **NET** tree, select the controller, then do one of the following:
  - Go to **Reports** > **Network** > **Controller Status**, then click **Run**.
  - View **Downloaded by** on the **Properties** page.
  - Click **Module Status** on the **Properties** page.

Download Options

When WebCTRL marks a controller for download, it determines what information needs to be downloaded based on the type of information that changed. Below are the options that can be downloaded.

This option...	Downloads...
All Content	• Only the executable portion of the driver and control programs • The names of all .equipment, .bacview, and .driver source files • The names of any .view files that are marked to be included in a download • Parameters • Schedules **NOTE** An All Content download also: • Synchronizes the controller's time to WebCTRL. • Overwrites trends in the controller. • Restarts the controller.
Only Schedules	All schedules that are not set for automatic download
Only Parameters	All editable properties
Only BBMDs	BBMD tables (.bdt file) that you have updated but have not yet written to the controller

NOTES

- An All Content download clears trend, history, and alarm data from the affected controllers. At the beginning of the download process, trends that have the Trend Historian enabled are saved to the system database.
- If Field Assistant will be used with your system, you can choose to have the **All Content** option download the full source files instead of only their names. In WebCTRL's **NET** tree, select a controller, then enable **Download Source Files** on the **Properties** page. See Commissioning equipment using Field Assistant.

To download from the Downloads page

The **Downloads** page shows any controllers that WebCTRL marked for download. But if needed, you can add other controllers to the list.

To download:

1. On the **NET** tree, select an item to download controllers at and below that item.
2. Click **Downloads**.
3. Click  to the left of a **Location** to see controllers that require a download.

4 Optional: To add controllers to the list:

a) Click **Add**.

b) Select the controller(s).
NOTE Use **Ctrl+click** or **Shift+click** to select multiple controllers.

c) Select a Download Option (see page 44).

d) Click **Add**, then click **Close**.

5 Select the controllers that you want to download.

NOTES

- Use **Ctrl+click**, **Shift+click**, or the **Select All** checkbox to select multiple controllers.
- A network's controllers download in the order shown. To change the order, select a controller(s), then drag and drop or click **Move to Top** or **Move to Bottom**.
EXCEPTION If a controller's router requires a download, it will download first regardless of it's position on the Download page.

6 Click **Start**.

NOTES

- Click **Hold** to stop pending downloads. Active downloads cannot be stopped.
- Up to 5 routers can download simultaneously.
- A controller is removed from the list when its download is complete.
- Icons in the **Tasks** column indicate the following:

	Active—WebCTRL is downloading to the controller.
	Pending—You initiated the download, and the controller is waiting for its turn to download.
	Failed—The download failed. See *If a controller fails to download* (page 46).
	On Hold—Indicates either of the following: • The controller requires a download • You clicked **Hold** to stop a pending download.

- Click in the upper left-hand corner to view a log of download activity in the current session. **Copy to Clipboard** lets you copy the text to paste it into another application.
- To remove an item from the download list, right-click the item, then select **Remove selected tasks**.

To download from a Properties page

If a controller requires a download, a red download message and a **Download** button appear at the top of the **Properties** page for the controller, the equipment, or a microblock. Click the button to start the download.

Downloading from the **Properties** page downloads **All Content** to the controller.

If a controller fails to download

A controller that fails to download appears on the **Downloads** page with this icon .

1 Review the reason for the failure:
   - Hold your cursor over the failed task to see hover text giving the reason.
   - Click in the upper left-hand corner of the page to see information on all failed downloads. **Copy to Clipboard** lets you copy the text to paste it into another application.

2 Correct the problem that caused the failure.

3 Select the controller on the **Downloads** page, then click **Start**.

Checking controller status

On WebCTRL's **NET** tree, you can select a network, router, site, or the system, and then click the **Devices** button to:

- View the status of controllers (see page 47)
- View controller information such as address, model, driver, and .view files included in download
- Download or upload to resolve a mismatch (see page 48)
- Troubleshoot network communication
- Download or upload files for Field Assistant

NOTES

- Use **Ctrl+click**, **Shift+click**, or the **Select All** checkbox to select multiple controllers.
- Click **Hold** to stop pending downloads or uploads. Active downloads or uploads cannot be stopped.
- Icons in the **Tasks** column indicate the following:

	Active—WebCTRL is downloading to the controller.
	Active—WebCTRL is uploading from the controller.
	Pending—You initiated the download, and the controller is waiting for its turn to download.
	Failed—The download failed. See *If a controller fails to download* (page 46).
	On Hold—Indicates you clicked **Hold** to stop a pending download.

- Click in the upper left-hand corner to view a log of activity on the **Devices** page in the current session. **Copy to Clipboard** lets you copy the text to paste it into another application.

Status messages

In WebCTRL's **NET** tree, you can select a router, network, site, or the system to view the status of controllers. The **Status** column shows a description of the controller's current state. Hold your cursor over that description to see hover text with a more detailed description.

If multiple conditions exist, WebCTRL displays the message with the highest priority.

The table below shows all possible messages. The message color indicates the following:

Green—In process
Red—An error occurred
Blue—Requires action from the user

Status column message	Hover text message	Notes
Green messages:		
Downloading	The controller is downloading, communications may be disabled	
Uploading	The controller is uploading, communications may be disabled	
Pending	This controller is waiting to be processed.	
Red messages:		
Connection Error	The connection for this controller failed to start.	Occurs if the connection is misconfigured or failed to start.
Connection Disabled	The connection for this controller has been disabled.	Occurs if someone stopped the connection. This includes stopping a connection, using the **No Connect** connection, or running WebCTRL Design Server.
Out of Service	This controller is out of service.	The controller's **Out of Service** checkbox on the Properties page is enabled.
Communications Error	Cannot communicate with this controller.	
Not Uploadable	This controller is not configured for content upload.	Occurs if you attempt to upload a controller with a pre-4.x driver.
Download Failed	(Message depends on the cause of the failure.)	
Error	An unknown error has occurred.	

Blue messages:		
Download All Content	Please download all content to the controller.	
Controller Replaced	This controller has been replaced by another controller of the same type in the field.	4.x driver only
Program Mismatch	Content differences detected. Upload all content from the controller or download all content to the controller.	4.x driver only
Driver Parameter Mismatch	Driver parameter differences detected. Upload parameters from the controller or download parameters to the controller.	
Parameter Mismatch	Control Program parameter differences detected. Upload parameters from the controller or download parameters to the controller.	
Download Parameters	To download parameters, highlight row and select "Parameters" from the Download Action menu and click "Download"	
Download Schedule	To download schedules, highlight row and select "Schedules" from the Download Action menu and click "Download"	

General messages:	
	This controller is ok.
Cancelled	The last operation on this controller was cancelled

To resolve a mismatch

A mismatch occurs when a value in a controller does not match the value in WebCTRL Server. Use either of the following methods to handle mismatches in your system.

- Select **Always upload properties from controllers to WebCTRL Server on mismatch** on the **System Settings** > **Communications** page to have WebCTRL upload automatically.

- Clear **Always upload properties from controllers to WebCTRL Server on mismatch** so that you can evaluate every mismatch to determine the correct value. When a mismatch occurs:

  1. On WebCTRL's **NET** tree, select the controller's network.
  2. Click **Devices**.

3. On the **Manage** tab, select a controller with a mismatch.
4. Do one of the following:
   - Click **Upload** to upload parameters from the controller to WebCTRL Server.
   - Click **Download** to download parameters from WebCTRL Server to the controller.

   NOTE Click the mismatch message in the **Status** column to view details.

Setpoints

Use setpoints to set temperature values that control the HVAC equipment. WebCTRL displays green when a zone is within the desired temperature range determined by the heating and cooling setpoints.

- **Programmed setpoints** are set and changed by operators. See *To change programmed setpoints* (page 49).
- **Effective setpoints** reflect the impact of other system conditions on the programmed setpoints, such as setpoint adjustments, demand reduction adjustments, and hysteresis. Effective setpoints control the equipment.

Besides manually adjusting setpoints, you can use the following cost-saving strategies (see page 137) to adjust setpoints automatically:

- Optimal Start
- Demand Control
- Setpoint Optimization

To change programmed setpoints

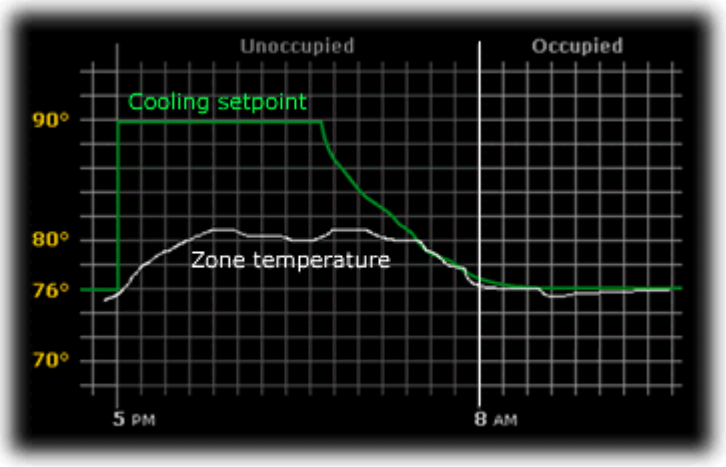
1. Navigate to a setpoint control in one of the following places:
   - The zone temperature section of a Properties page
   - The setpoint microblock pop-up on a Logic page
   - A Graphics page (Click a setpoint trend graph control to access the editable setpoint bar.)
2. On a programmed setpoint bar, click the segment or the gap between segments you want to change.
3. Type new values in the **Heating** and **Cooling** fields.

   TIP You can click and drag a segment or a gap between segments to change setpoints.
4. Click **OK**.

Optimal Start

Optimal Start gradually moves the unoccupied setpoints toward the occupied setpoints as the occupied time approaches. The actual equation that a controller uses to calculate Optimal Start is nonlinear. An approximation of the equation is shown below.

$$\text{calculated capacity} = \frac{\text{design temp} - \text{OAT}}{\text{design temp} - 65^\circ} \times \text{capacity at } 65^\circ$$



Refining Optimal Start saves energy in the following ways:

- Removing guesswork from preheating or precooling zones
- Ensuring that zones reach the ideal comfort range just as people arrive
- Preventing equipment from running unnecessarily during unoccupied periods

You can adjust the Optimal Start routine in the control program's Zone Setpoint microblock.

1 In the **GEO** tree, select the equipment that you want to change.

2 Click **Properties**.

3 Adjust the following fields located below the setpoint graph.

Field	Notes
Heating Capacity **Cooling Capacity**	The maximum rate (in °F/hr) that the zone temperature could be changed by heating or cooling if the outside temperature were 65°F. For example, if it takes 2 hours for a zone to warm up from 65°F to 72°F, the heating capacity is 3.5°F/hr **NOTE** Use 5°/hr as a starting point if you are unsure of actual capacities.
Heating Design Temp **Cooling Design Temp**	The most extreme outside winter and summer temperatures at which the equipment must run 100% of the time to maintain the zone temperature at a comfortable level. ASHRAE determines design temperatures based on the geographic location of the building.

NOTE The Zone Setpoint with Learning Adaptive Optimal Start microblock automatically adjusts the heating and cooling capacities to optimize efficiency.

Learning Adaptive Optimal Start

If you are using the Learning Adaptive Optimal Start feature and a zone does not reach the ideal temperature range by the time occupancy begins or reaches it too soon, then the heating or cooling capacities of the equipment are automatically adjusted up or down for the next unoccupied period.

When the Learning Adaptive Optimal Start routine runs, adjustments are made based on the color that is achieved when occupancy begins. Adjustment amounts are defined for thermographic colors in the control program's Zone Setpoint with Learning Adaptive Optimal Start microblock.

For example, the heating capacity for a zone is 5° per hour. When the zone becomes occupied, the zone temperature is 1° below the occupied setpoint, indicating a need for additional heat. Because the zone temperature was low by 1°, the learned heating capacity will be decreased by the Less than Heating setpoint value. If the value is 0.06, the learned heating capacity will be adjusted to 4.94° for the next optimal start period. The setpoint adjustment will begin sooner in the next unoccupied period.

If you need to change the adjustment values in the Learning Adaptive Optimal Start routine:

1 In the **GEO** tree, select the equipment that you want to change.

2 Click **Properties**.

3 Adjust the color fields between the **Zone Set Points** graph and the **Effective Set Points** graph.

CAUTION When using Learning Adaptive Optimal Start, be sure that all equipment is properly maintained so that your system doesn't "learn" to compensate for dirty filters or loose fan belts.

TIP After your system has run for at least a year, you may want to turn off learning in your control program, and change the **Heating Capacity** and **Cooling Capacity** in your control program to match the learned heating or cooling capacity shown on the Properties page.

Fields	Notes
Color fields	The amount of adjustment the system makes for the color that is achieved at the beginning of occupancy.
Learned cooling and heating capacity	The rate (in °F/hr) that the zone temperature can change by heating or cooling at an outside temperature of 65°F.
Actual or adjusted capacity	The actual heating or cooling capacity of the equipment at an outside temperature of 65°F.

Demand Control

Demand Control is a cost-saving strategy that saves energy while maintaining comfort in the following ways:

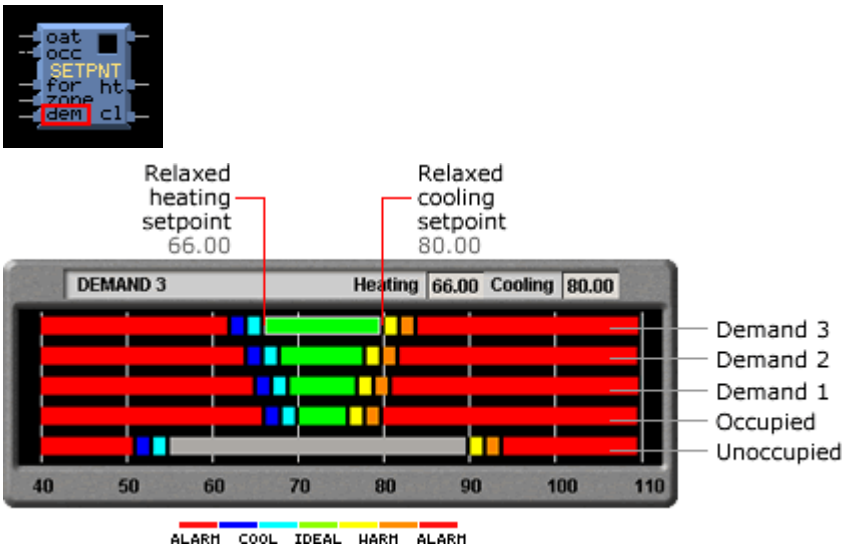
- Controlling energy use to avoid peak demand, ratchet, or time of use utility charges
- Maintaining ventilation at relaxed setpoints rather than shutting down equipment (as with load shedding or duty cycling)

Before you can use Demand Control effectively, you must:

- Obtain details regarding past energy usage and peak demand, ratchet, and time of use charges from your energy provider.
- Understand the demand profiles of the zones you are controlling.

Demand Control can be customized at the zone level. For example, you may relax the setpoints in some zones, like break rooms and closets, by a few degrees, but you may not want to relax setpoints in computer rooms at all.

Zone Setpoint microblocks that have a **Demand** input use a demand control strategy to conserve energy by relaxing setpoints as the demand level rises. In EIKON LogicBuilder, you define the amount that setpoints will be adjusted or relaxed based on the demand level.

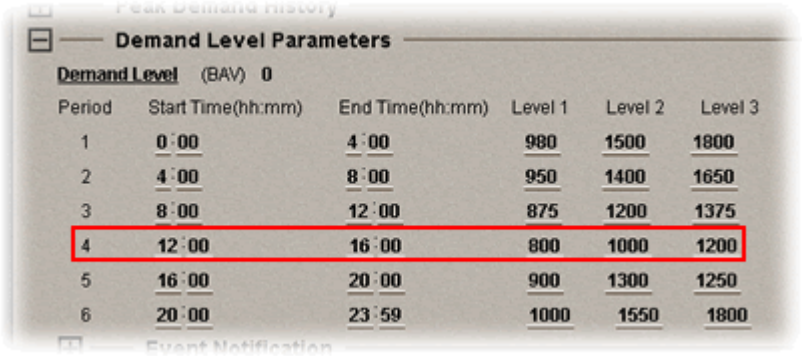


To define Demand Control properties

1. On the **GEO** or **NET** tree, select the electric meter.
2. Click **Properties**.
3. Expand the **Demand Level Parameters** section.
4. Type the **Start Time** and **End Time** to define the time period that you want demand control to be in effect for this zone.
5. Type kilowatts per hour (kW/hr) in the **Level** columns to define the amount of power that the demand must exceed before WebCTRL calls for a higher demand level.

NOTE Levels are defined in the electric meter control program in EIKON LogicBuilder. You can test the Demand Levels by locking the meter to a value.

In the example below, during Period 4, defined as 12:00 (noon) to 16:00 (4:00 p.m.), if the demand exceeds 800 kW/hr, WebCTRL will use Demand Level 1 setpoints. If the demand exceeds 1000 kW/hr, WebCTRL will use Demand Level 2 level setpoints and so on.



Demand Level Parameters

Demand Level (BAV) 0

Period	Start Time(hh:mm)	End Time(hh:mm)	Level 1	Level 2	Level 3
1	0:00	4:00	980	1500	1800
2	4:00	8:00	950	1400	1650
3	8:00	12:00	875	1200	1375
4	12:00	16:00	800	1000	1200
5	16:00	20:00	900	1300	1250
6	20:00	23:59	1000	1550	1800

Setpoint Optimization

Setpoint Optimization, also known as Trim and Respond, saves energy by calculating the setpoint of a piece of equipment based on the number of heating or cooling requests it receives from other equipment.

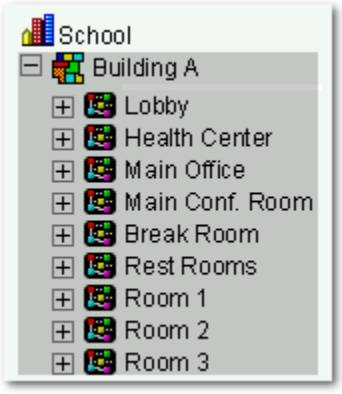
You must put a Setpoint Optimization microblock in a control program to receive Total, Average, Minimum, or Maximum microblock outputs from linked equipment.

Chapter 6

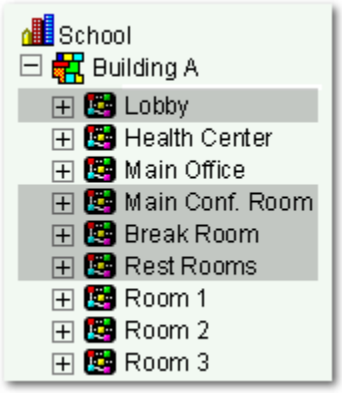
Schedules

Using schedules, your equipment can maintain one set of setpoints during occupied periods to provide comfort, and it can maintain a different set of setpoints during unoccupied periods to reduce energy consumption. Schedules are WebCTRL's most effective cost-saving strategy (see page 137).

You can apply a schedule to a tree item or to a group of tree items.



When you apply a schedule to a tree item, the schedule affects equipment at and below the area or equipment where the schedule was added.



When you apply a schedule to a schedule group, the schedule affects all pieces of equipment in the group.

For example, a school board meets every third Tuesday of the month and uses the lobby, main conference room, break room, and rest rooms. You can create a schedule group to control these different areas with a single schedule.

NOTES

- When multiple schedules affect a tree item, the combined result is the Effective Schedule (see page 60).
- Do not include preheating or precooling time in your schedules. Optimal Start (see page 49), another cost-saving strategy, automatically calculates and controls precise preheating and precooling routines.
- If you are using hierarchical servers, when you add or change a schedule on the parent server, the schedule is automatically downloaded to the corresponding location on the child server(s).

To view schedules

1 Select a **GEO** tree item.

2 Click **Schedules**, then the **View** tab.

3 Optional: Click an **Effective** bar to view all the schedules that contribute to the resulting schedule. If the item has multiple schedules, the schedule closest to the **Effective** bar has the highest priority. You set a schedule's priority when you create the schedule.

NOTES

- You can display icons and hover text in the **GEO** tree that show where schedules have been created. See *Tree icons and hover text* (page 22).
- You can also view schedules on the following detailed, printable schedule reports. These reports are accessible from the Schedules page **Reports** tab or from the **Reports** button drop-down menu.

This report...	allows you to...
Schedule Instances	Find every schedule with its location that is entered at and below a selected tree item. This report can help you discover newly added and conflicting schedules.
Effective Schedules	View all equipment that may be scheduled and the net result of all schedules in effect for a selected date and time. See *Effective Schedules* (page 60).

Setting up schedules

To apply a schedule to equipment

Schedules in WebCTRL are typically based on zone occupancy. See *Using schedule categories* (page 62) if you want to create a schedule based on conditions other than occupancy.

1 On the **GEO** tree, select the area or equipment you want to schedule.

2 Click **Schedules**, then **Configure**.

3 Click **Add**.

4 Select a **Priority**. A schedule's priority determines whether affected zones will use occupied or unoccupied setpoints.

Select...	For...
Normal	A typical occupied period
Holiday	An unoccupied period that overrides a Normal schedule
Override	An occupied period that overrides a Holiday schedule

5 Select a **Type**. See table below.

6 Type a schedule name in the **Description** field.

7 Enter desired values in the fields below **Description**.

8 On the graph, change the schedule's default time segment (shown as a colored bar) by doing one of the following:

- Click the segment, then type **Start** and **End** times in the fields above the segment.
- Click and drag either end of the segment or the entire segment.

9 Optional: Click **Show Advanced** below the schedule bar to add one or more separate segments to the schedule.

10 Click **OK**.

Type	Schedule runs
Weekly	Every week on the specified days
Date	On a single, specified date
Date Range	Between two specified dates
Date List	On multiple, specified dates
Wildcard	According to a repeating pattern (For example, the second Tuesday of every month) **NOTE** Wildcard schedules do not work with ALC legacy equipment. WebCTRL will let you know if you apply a schedule to legacy equipment.
Continuous	Continuously between specified times on two separate dates
Dated Weekly	Weekly between a start date and an end date (For example, the summer break in the school year) **NOTE** To use a Dated Weekly schedule with an ExecB controller, you must use the 1.71:032 (or later) ExecB driver.

NOTES

- To have all new schedules and schedule changes in the system download automatically, click **Show Advanced** under the **Add** button, then select **Automatically Download Schedules**. If you want to manually download schedules, see *Downloading system changes to controllers* (page 43).
- When you apply a schedule to an item in the **GEO** tree, the schedule affects that item and all children of that item. If you do not want an item to be affected by schedules from a higher level, click **Show Advanced** under the **Add** button, then select **Ignore Schedules above this level**.

To apply a schedule to a group of items

You must create a group, then add members (areas, equipment, or other groups) to the group before you can apply a schedule to it.

1 On the **GRP** tree, select **Scheduling Groups**.

Optional: If you have created folders to organize your groups, select the appropriate folder. See "To organize groups using folders" below.

2 Click **Add Group**.

3 Type a name for the new schedule group in the **Name** field.

4 Optional: Change the default **Reference name**. A group's reference name must be unique throughout the system.

5 Click **OK**.

6 Click **Go**.

7 On the **Members** page, select the areas, equipment, or other groups that you want to add to the group from the tree on the right. Use **Ctrl+click**, **Shift+click**, or both to select multiple items.

8 Click **Add**.

TIP Use the **Raise** and **Lower** buttons to reorder items in the **Members** list. Changing the order is for your viewing convenience and does not affect the system.

9 Click **OK**.

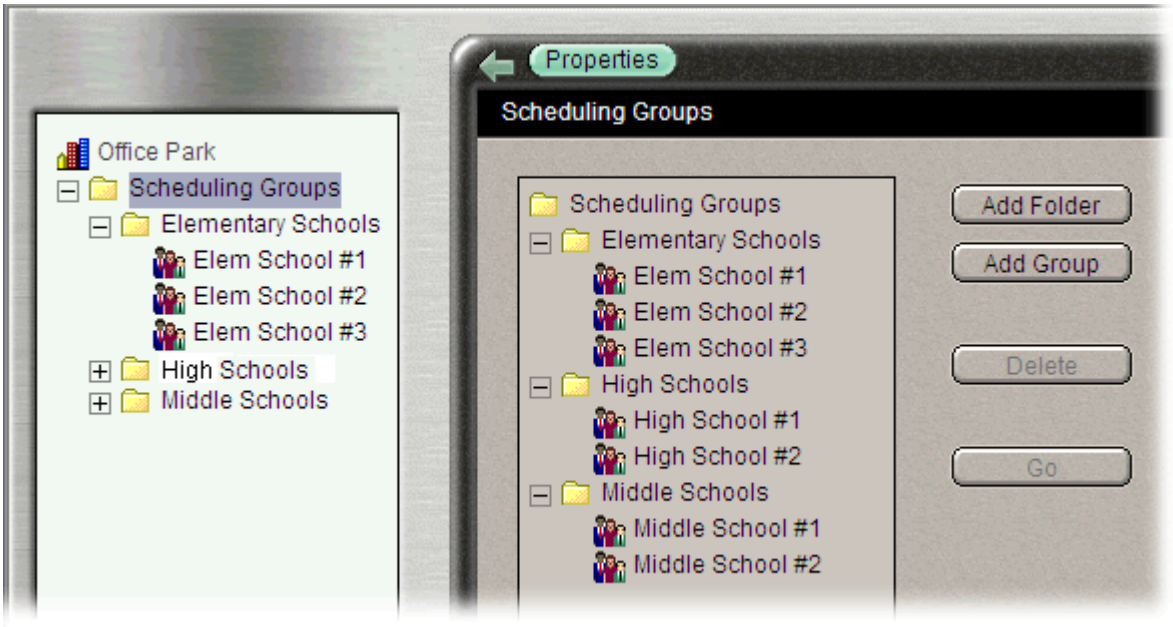
10 Click the **Schedules** button, then **Configure**.

11 Add a schedule to the group. See *To apply a schedule to equipment* (page 56).

NOTE When using hierarchical servers, you can place a server link in a schedule group on the parent server. This automatically creates a schedule group with the same name on the child server(s). This group includes only the top-most area node of the child server. However, from the child server you can edit the group to add other members.

To organize groups using folders

You can create folders and sort your groups into them to organize the **GRP** tree. For example, a large school system that has a group for each school may want to create an Elementary School folder, a Middle School folder, and a High School folder, and put the appropriate groups in each folder.



To create folders and add groups to them:

1 On the **GRP** tree, select **Scheduling Groups**.

2 Click **Add Folder**.

3 Type a name for the new folder in the **Name** field.

4 Optional: Change the default **Reference name**.

5 Click **OK**.

6 Repeat steps 1–4 for each folder that you want to add.

7 Do one of the following to add a group to a folder:

- If you have already created the group, drag and drop it into the appropriate folder in the tree on the **Scheduling Groups** page, then click **OK**.
- Select the folder in the tree on the **Scheduling Groups** page, click **Add Group**, enter a **Name** for it, then click **OK**.

NOTE You can also add a folder to a folder, or drag and drop a folder into another folder.

To edit or delete a schedule

1 Do one of the following:

- On the **GEO** tree, select the tree item where the schedule was defined.
- On the **GRP** tree, expand **Scheduling Groups**, then select the group you want to edit the schedule for.

2 Click **Schedules**, then **Configure**.

3 Select the schedule you want to edit or delete.

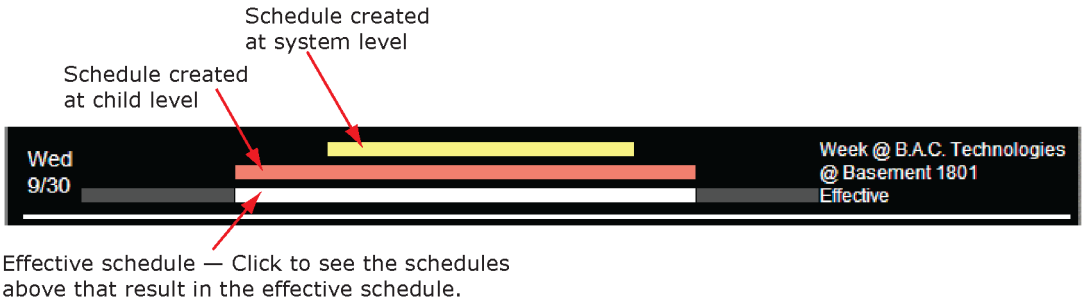
4 Edit the fields you want to change or click **Delete**.

5 Click **OK**.

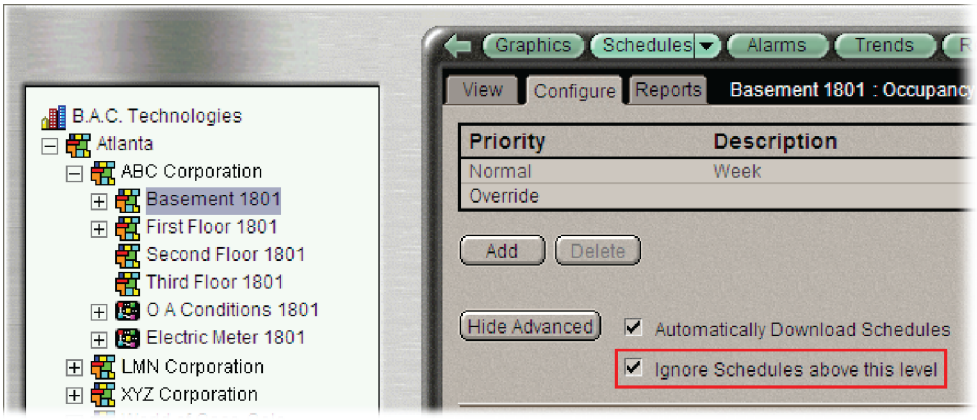
NOTE WebCTRL automatically deletes expired dated schedules from the database at 3:30 AM every day. But expired schedules remain in the controller until the next time schedules are downloaded to the controller. You can change the deletion time on the **Scheduled Tasks** tab of the System Settings page (see page 160).

Effective Schedules

The effective schedule that you see on the **Schedules View** tab can be the result of multiple overlapping schedules.



The following schedule features can influence an item's effective schedule.

Feature	Description
Hierarchy	A schedule applied to an item on WebCTRL's tree affects that item and all of its children. A child item's effective schedule could be the result of multiple schedules applied at different levels above it. To change a child item's effective schedule: • Add a schedule at the child that overrides the current schedule. See the *Priority* feature below. • Set the child to ignore the parent schedules. To do this, select the child item in the tree, then go to **Schedules** > **Configure**. Select the schedule, click **Show Advanced**, then select **Ignore Schedules above this level**. You can then add a different schedule for the child.  Any schedule change that you make to an item affects it and all of its children.

<table>
<tr><th>Feature</th><th>Description</th></tr>
<tr><td>Priority</td><td>You must assign one of the following priorities to every schedule.

<table>
<tr><th>Use...</th><th>For...</th></tr>
<tr><td>Normal</td><td>A typical occupied period</td></tr>
<tr><td>Holiday</td><td>An unoccupied period that overrides a Normal schedule</td></tr>
<tr><td>Override</td><td>An occupied period that overrides a Holiday time</td></tr>
</table>

EXAMPLE For a school, you define:
• A Normal schedule that has it occupied every Monday–Friday, 6 am–5 pm
• A Holiday (unoccupied) schedule for the week of Spring Break
• An Override schedule on the first day of Spring Break from 9 am–1 pm for the cafeteria only where a teacher's meeting will be held.</td></tr>
<tr><td>Type</td><td>You must assign one of the following types to every schedule.*

Weekly
Date
Date Range
Date List
Wildcard
Continuous
Dated Weekly

See To apply a schedule to equipment (page 56) for a description of each type.

EXAMPLE For a school, you define the following 3 schedules:
• Full calendar year: Normal, Weekly, Monday–Friday, 6am–5pm
• Summer months: Holiday, Continuous, 12am June 1st – 11:59pm August 31st
• Work days in summer months: Override, Dated Weekly, Monday–Thursday, 9 am–2 pm

* If you do not see one of the types listed above, go to CFG > Categories > Schedule. Select the Occupancy category, then the Priority. Under Schedule Types, select the missing type, then click OK.</td></tr>
</table>

Using the **Priority** and **Type** options, you can often accomplish the effective schedule you need in several different ways. For example, the effective schedule resulting from the 3 schedules described above for **Type** could also be accomplished with the following schedules:

- School year: Normal, Dated Weekly, Monday–Friday, September 1st–May 31st, 6 am–5 pm
- Summer months: Normal, Dated Weekly, Monday–Thursday, June 1st–August 31st, 9 am–2 pm

Using schedule categories

Occupancy is WebCTRL's only default schedule category. Occupancy is a binary schedule category that allows a zone or piece of equipment to be defined as On when a space is occupied and Off when it is unoccupied.

You can add custom schedule categories to handle other conditions if the equipment's control program includes a Time Clock microblock. For example, you can add a multi-state schedule category to control lights: on during work hours, off at night, and dim for janitorial work.

Creating a custom schedule category

1. Create the custom schedule category in EIKON LogicBuilder. See "To use custom alarm and schedule categories" in EIKON LogicBuilder Help.
2. In EIKON LogicBuilder, select the new category from the **Schedule Category** droplist in a Time Clock microblock.
3. Create the same custom schedule category in WebCTRL. The **Reference Name** must be identical to the category's name in EIKON LogicBuilder. See "To add a custom schedule category in WebCTRL" below.

To add a custom schedule category in WebCTRL

TIP Study the default Occupancy category to understand the various properties you need to set when adding a new schedule category.

PREREQUISITES

- Add the custom schedule category in EIKON LogicBuilder. See "To use custom alarm and schedule categories" in EIKON LogicBuilder Help.
- In EIKON LogicBuilder, select the new category from the **Schedule Category** droplist in a Time Clock microblock.

1. On the WebCTRL **CFG** tree, click the plus sign (+) to the left of the **Categories** folder, then click **Schedule**.
2. Click **Add Category**.
3. Enter values or add items for the fields in each section of the page. See table below.

   NOTE The fields that you see depend on selections you made in previous sections. **Category Details** fields.
4. Click **OK**.

Field	Notes
Reference Name	Must be unique in the database, be lowercase, and not contain any spaces. This name must be identical to the name of the custom schedule category that you added in EIKON LogicBuilder.
Schedule Category Description	The name used in the WebCTRL interface
Allowed Type	Replace **Undefined** with one of the following: • **Boolean**: binary (on/off, true/false) condition • **Multi State**: list of integer-defined states. For example, 1=off, 2=on, 3=dim
Default Value	Displays what schedule value is in effect for times not specified by the schedule. To set this value, in the **Allowed Values** table, select the value that you want to use as the default, then click the **Make Default OK** button.
Allowed Values	If you selected **Boolean** above, select **True Value** or **False Value**. If you selected **Multi State**, click the **Add Value** button to create each schedule state.
Allowed Value Description	The name used in the WebCTRL interface.
Pattern	Type `none`, `dark`, or `/_common/lvl5/graphics/patterns/xxx.gif`, where xxx.gif is any .gif file in the **webroot_common\lvl5\graphics\patterns** folder. 
Priority Description	The name used in the WebCTRL interface.
Index	Represents this priority's relative level of importance within this schedule category. WebCTRL automatically assigns the priority index, which is zero for the first priority level. The higher the index value, the higher the priority of the schedule type relative to other schedules. BACnet limits the number of priority indices to sixteen.
Color	Color of the schedule bar on the **Schedules** page.
Schedule Types	The **Weekly** type is available for Index 0 only. The **Allow Wildcards** and **Partial Day** options affect all selected schedule types.
Default Schedule	The default schedule used when this category is selected. Create the schedule by adding segments for each state until every hour in the 24-hour schedule is covered by a segment. EXCEPTION If you selected **Partial Day** in the **Schedule Types** field, you do not have to add segments for the entire 24-hour period.

To view, edit, or delete a schedule category

1. On the **CFG** tree, click the plus sign (+) to the left of the **Categories** folder, then click **Schedule**.
2. In the **Schedule Categories** table, select the category you want to edit or delete.
3. Edit the fields in the **Category Details** section or click **Delete**.
4. Click **OK**.

Chapter 7

Trends

WebCTRL can read and store equipment status values over time and then display this information in a graph to help you monitor the equipment's operation.

You can collect trend data for any BACnet input or output point in WebCTRL. The controller reads values for a point at intervals that you define and then stores that data in the controller.

Because a controller has limited memory for storing trend data, you can set up historical trending to archive the trend data from the controller to the WebCTRL database. A trend graph can display data from both the controller and the database.

To collect trend data for a point

PREREQUISITE Assign an input or output number to the point in EIKON LogicBuilder or WebCTRL.

Before you can look at a trend graph for a point, you must enable trending for that point and then tell WebCTRL how you want the controller to collect the point's data.

1 On the **GEO** tree, select the equipment that has the point you want to trend.

2 Click the **Trends** button drop-down arrow, select **Disabled Points**, then select the point.

3 Click the **Enable/Disable** tab, then select **Enable Trend Log** to have the controller collect trend data.

4 Enter information in the appropriate fields. See table below.

5 Click **OK**.

TIP You can set up all trends for a piece of equipment at once on the **Trend Sources** tab of the equipment's **Properties** page.

Field	Notes
Sample every _:_:_ (hh:mm:ss)	Records the point's value at this interval. **NOTE** Set trend intervals for U line controllers to one minute or greater. U line controllers are designed to meet low end, high volume terminal control applications and are not suited to very short trend intervals.

Field	Notes
Sample on COV (change of value)	Records the point's value only when the value changes by at least the amount of the **COV Increment**. **NOTE** Use this method for a binary point or for an analog point that has infrequent changes in value.
Allocate memory for __ samples in the controller	Type the maximum number of samples to be stored in the controller. **NOTES** • Trending consumes memory in the controller. The amount of memory available depends on the type of controller. Each trended point consumes 48 bytes of memory plus 10 bytes for each trend sample. Each trend microblock consumes 416 bytes of memory plus 10 bytes for each trend sample. • Click **Reset** to delete all samples currently stored in the controller. • Changing the value in **Allocate memory for __ trend samples in the controller** will delete all of the point's trend samples currently stored in the controller. Click the **Store Trends Now** button before changing the value to transfer the trend data from the controller to the system database.
	The sample and memory allocation fields together define trend data storage in the controller in terms of hours. **EXAMPLE** If you set these fields so that samples are collected every 5 minutes for a maximum of 120 samples, the controller will store 600 minutes (5 x 120) or 10 hours of trend data.
Stop When Full	Select this field to stop trend sampling when the maximum number of samples is reached.
Enable trend log at specific times only?	Collects trend data for the specific period of time you define in the **time** and **date** fields.
Enable Trend Historian	Archives trend data to the system database.
Store Trends Now	Writes all trend data in the controller to the system database without having to enable trend historian.
Every __ trend samples write to historian	Writes all trend data in the controller to the system database each time the controller collects the number of samples that you enter in this field. This number must be greater than zero and less than the number entered in the field **Allocate memory for __ samples in the controller**. The number of trends specified must be accumulated at least once before the historical trends can be viewed.
Trend samples accumulated since last notification	Shows the number of samples stored in the controller since data was last written to the database.
Last Record Written to Historian	Shows the number of trend samples that were last written to the database.
Keep historical trends for __ days	This is based on the date that the sample was read. Set this field to 0 to use the system default defined in System Settings (see page 160).
Delete	Deletes all trend samples stored in the database for the item selected in the **GEO** tree.

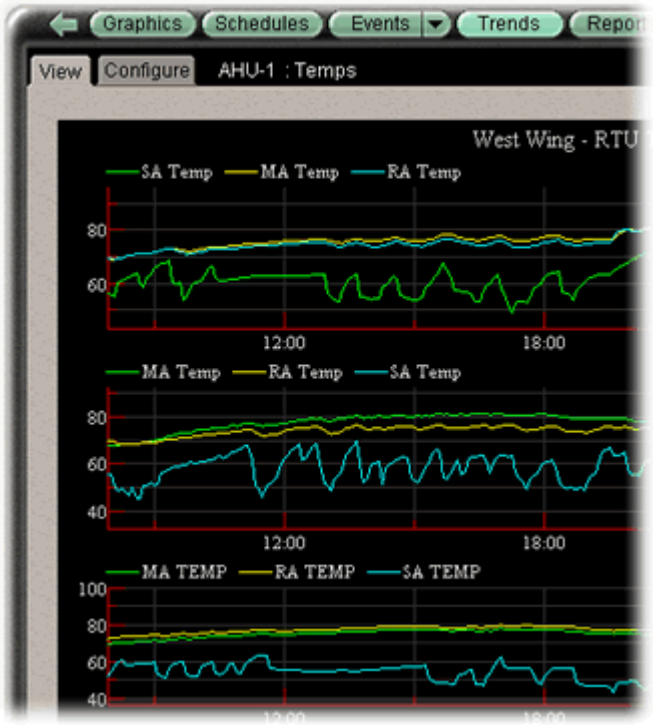
Field	Notes
BACnet Configuration	The **Object Name** is a unique alphanumeric string that defines the BACnet object. Although the **Object Name** field can be edited, it is not recommended. The **Notification Class** is set to 1 to receive alarms generated by ALC controllers.

NOTES

- You can use Global Copy (see page 41) to copy trend properties to other pieces of equipment that use the same control program.
- Run a Trend Usage report (see page 113) to view trend data.

Graphing data for multiple points

You can graph multiple trend points simultaneously to help monitor and troubleshoot your system.



A comparison trend graph can display up to four graphs on the page. Each graph can display up to 4 similar points—4 binary points or 4 analog points.

NOTES

- Before you create a comparison trend graph, you must enable trending for the individual points you want to include in the graph. See *To collect trend data for a point* (page 65).
- You can display icons and hover text in the **GEO** tree that show where trend graphs for multiple points have been created. See *Tree icons and hover text* (page 22).

To create a comparison trend graph

You can select up to 16 trends to view, then save them for graphing again later.

1. In the **GEO** tree, select the area or equipment where you want to view the graph.
2. Click the **Trends** button drop-down arrow, then select **New Graph**.
3. Select up to 16 trends from the selection tree.

   NOTES

   - Use **Ctrl+click**, **Shift+click**, or both to select multiple items.
   - The tree shows only points that have trending enabled. See *To collect trend data for a point* (page 65).
4. Click **View**.
5. Optional: Click **Save** to name and save the trend graph configuration so the graph will be accessible from the **Trends** button.

To edit a comparison trend graph

1. On the **GEO** tree, select the tree item where the trend was created.
2. Click the **Trends** drop-down arrow, then select the trend graph.
3. Select the **Configure** tab.
4. Follow the instructions below for the edits you want to make.

To add another graph to a trend graph page

1. Click the **Add** button below the **Graphs** list.
2. Type a Y-axis label.
3. Add up to 4 points. (See below.)
4. Click **OK**.

To add a point to a trend graph

1. Select the graph in the **Graphs** list.
2. Click the **Add** button below the **Points** list.
3. Select a point from the **Data source** tree.

   NOTES

   - The tree shows only points that have trending enabled. See *To collect trend data for a point* (page 65).
   - Each graph can display up to 4 similar type points (all binary or all analog).
4. Click **OK**.

To delete a point from a trend graph

1. Select the graph in the **Graphs** list.
2. Select the point in the **Points** list.
3. Click the **Delete** button below the **Points** list.
4. Click **OK**.

To delete a graph from a comparison trend graph page

1. Select the graph you want to delete in the **Graphs** list.
2. Click the **Delete** button below the **Graphs** list.
3. Click **OK**.

To delete a comparison trend graph

1. On the **GEO** tree, select the tree item where the trend was created.
2. Click the **Trends** drop-down arrow, then select the trend graph.
3. Click the menu button  , then select **Delete**.

Using trend graphs

In WebCTRL, you can view and print trend graphs. You can also copy the trend data to a spreadsheet program.

To view a trend graph

1. On the **GEO** tree, select the equipment whose trend(s) you want to view.
2. Click the **Trends** button drop-down arrow, then select the graph you want to view.
3. Select the **View** tab.

NOTES

- A large marker indicates a point that is in alarm, in fault, out of service, or has been overridden. **Ctrl+click** the marker to view details.

- A dotted vertical line indicates:
  - Trend Historian has been enabled or disabled.
  - The trend object ID of a third-party trend source has been changed. For information only, you do not need to do anything.
  - Equipment received a time synchronization from its network router or from WebCTRL. **Ctrl+click** the line to view the time correction.
  - Trend Log has been enabled or disabled.
- **Ctrl+click** a dotted vertical line to view details.

Tools for viewing trends

Right-click anywhere on a trend graph to access most of the tools described below.

Shortcut	Tool	Notes
Arrow keys	**Pan**	If you display more than one graph, panning up and down affects only one graph at a time. Panning left to right affects all graphs. You can also **Alt+click** and drag inside the graph.
Page Down	**Zoom in**	You can also use the **+** key on the numeric keypad, the **X** key, or drag a rectangle around area.
Page Up	**Zoom out**	You can also use the **-** (minus) key on the numeric keypad or the **Z** key.
Home	**Zoom to extents**	Shows all the data you have viewed in the current session of a particular trend graph.
End	**Reset view**	Resets the display to its default setting. You can also use the **Enter** or **R** key.
Esc	**Undo**	Undo up to 10 changes to your view.
J	**Set start date**	Enter the date you want the trend to jump to. The trend displays the same time range for the new date. Press the **J** key again to hide the date fields.
H	**History Only**	Displays only the historical data on the graph.
U	**Auto Update**	The trend graph polls for data every 10 seconds. Press **U** again to stop updating.
M	**Point Markers**	Shows a marker for each data point in the graph.
Ctrl-C	**Copy data to clipboard**	Copies only the data from the time range that is currently displayed.
	Refresh the display (gather trend data)	Click **Trends**.
	Display a specific sample's data	**Ctrl+click** a sample to view the point name, time and date the sample was read, the exact point value, and if the point is in alarm, is in fault, out of service, or has been overridden. Click anywhere to clear the details.

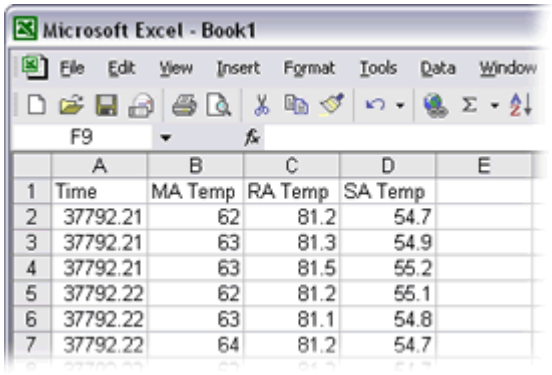
To print a trend graph

1. On the **GEO** tree, select the equipment that has the trend(s) you want to print.
2. Click the **Trends** button drop-down arrow, then select the point graph or custom graph you want to print.
3. Select the **View** tab to display the graph.
4. Click the print button .

To transfer trend data to a table format

You can copy the trend data currently displayed in the graph and paste it into a spreadsheet application, such as Microsoft® Excel.

1. On the **GEO** tree, select the equipment.
2. Click the **Trends** button drop-down arrow, then select the point graph or custom graph.
3. Select the **View** tab to display the graph.
4. Right-click somewhere in the graph, then select **Copy data to clipboard**.
5. Click **OK**.
6. Start your spreadsheet program and paste the trend data into your spreadsheet.



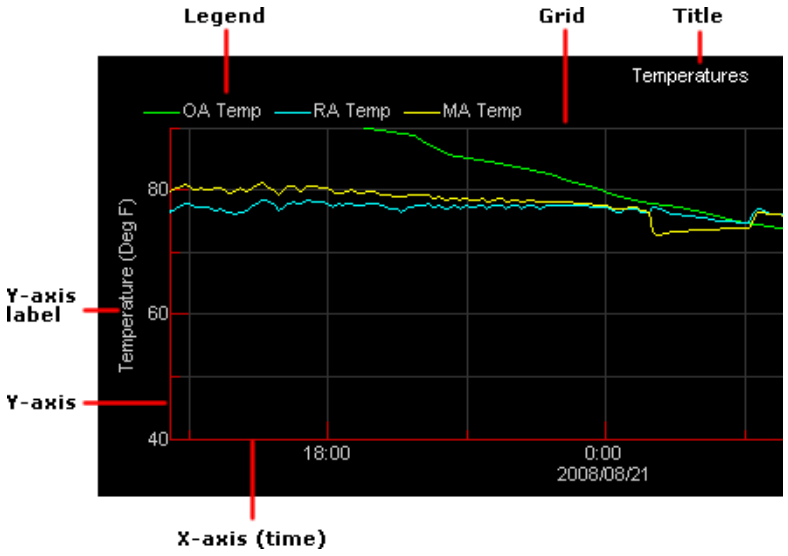
	A	B	C	D	E
1	Time	MA Temp	RA Temp	SA Temp	
2	37792.21	62	81.2	54.7	
3	37792.21	63	81.3	54.9	
4	37792.21	63	81.5	55.2	
5	37792.22	62	81.2	55.1	
6	37792.22	63	81.1	54.8	
7	37792.22	64	81.2	54.7	

7. Convert the trend data in the **Time** column to a readable date/time format using the spreadsheet application's formatting options. For example, in Microsoft Excel, highlight the cells you want to format and choose **Format** > **Cells**. On the **Number tab**, choose **Time** from the **Category** list, and select the type of format you want to see.

Customizing graph appearance

To edit graph properties

Each point trend graph has a standard format. However, you can change the format and how much data is displayed on the graph.



1. On the **GEO** tree, select the equipment that has the trend graph properties you want to configure.
2. Click the **Trends** button drop-down arrow, then select the trend you want to change.
3. Click the **Configure** tab.
4. Edit the graph properties as needed. See table below.
5. Click **OK**.

Field	Notes
Font size	Lets you change the font size of the graph's title and other text.
Enable Grid?	Show or hide the graph's grid.
Autoscale x-axis	Gathers the most recent 2000 data samples and then autoscales the x-axis to include the complete time range of all the samples.
X initial range	If you do not autoscale the x-axis, type in this field how far back WebCTRL should go to display data. For example, if you want to see trend data from a week ago, type 7 in the **Days** field.
Autoscale y-axis	Gathers the trend data from the controller and then autoscales the y-axis to include the complete range of values.
Y-axis minimum and maximum	If you do not autoscale the y-axis, type the minimum and maximum value that you want the graph to display.
Graphs*	Add or delete graphs from the page.
Points*	Add or delete points from the graph selected in the **Graphs** table.

* for custom graphs only

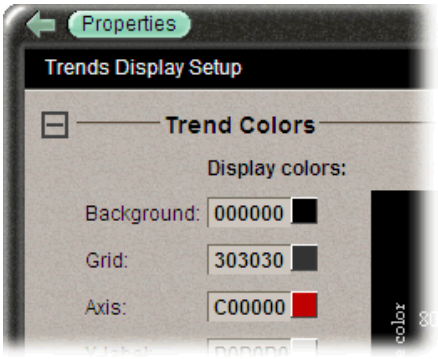
To edit colors, line styles, and marker types

You can change colors, line styles, and marker types for both point trend graphs and custom trend graphs. The changes you make apply to all graphs in the system, and become the default settings for future trend graphs.

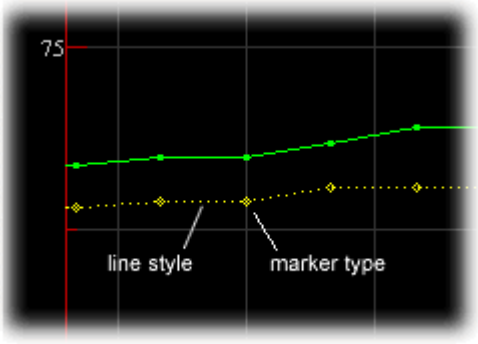
1. On the **CFG** tree, select **Trends Display Setup** to change the settings for displaying trend graphs or select **Trends Print Setup** to change the settings for printing trend graphs.
2. Follow the appropriate instructions below.
3. Click **OK**.

To change a color

Click the colored box to the right of the graph element that you want to change, then select the new color in the color palette. Or, you can type the hexadecimal value in the **RGB** field.



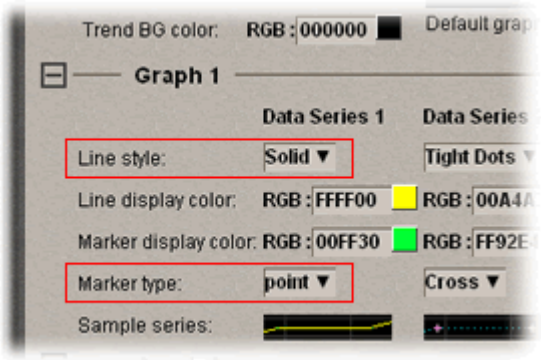
To change line styles and marker types



For a point trend graph, select the new line style and marker type under **Graph 1, Data Series 1**.

For a custom trend graph:

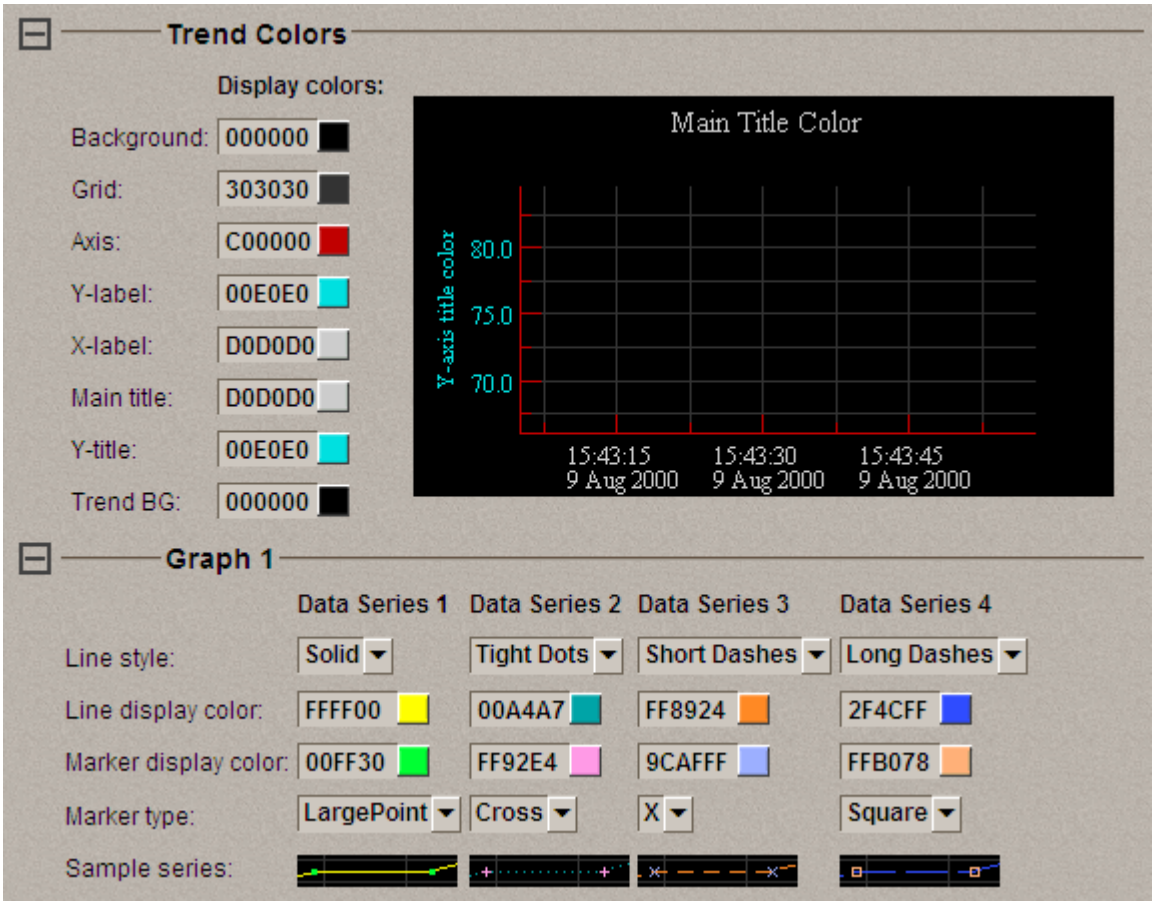
1. Click the plus sign (+) to the left of the graph you want to change.
2. The four **Data Series** refer to the 4 points that you can include on a custom trend graph. Under the appropriate **Data Series**, select the new line style and marker style you want.



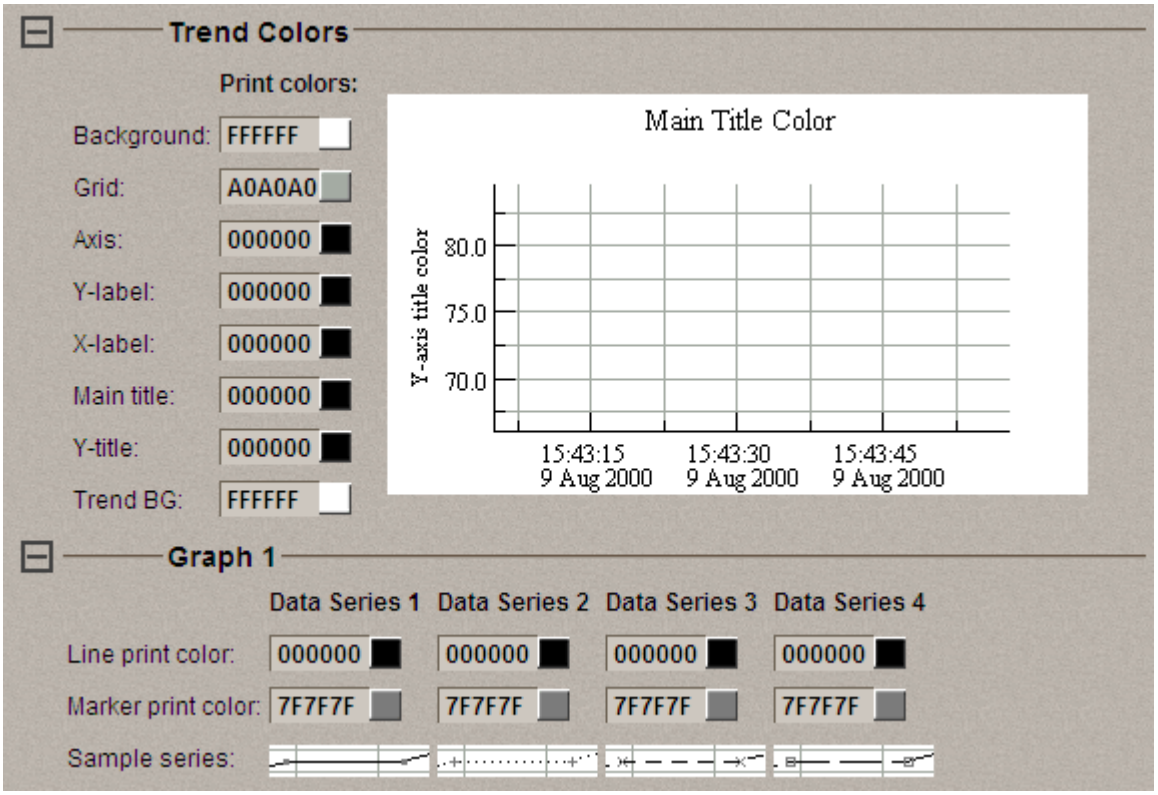
Default settings on Trends Display Setup and Trends Print Setup pages

If you make changes to the **Trends Display Setup** and **Trends Print Setup** pages and then find you need to return them to their original settings, refer to the images below that show the default settings.

Trends Display Setup



Trends Print Setup

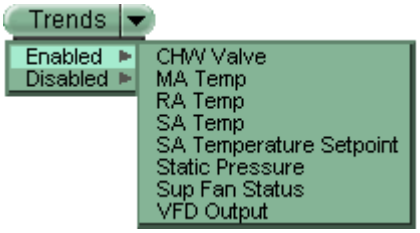


To copy a trend graph's properties

You can use Global Copy (see page 41) to copy trend properties to other pieces of equipment that use the same control program.

To add, edit, or delete a trend category

A point trend graph is in the **Enabled** or **Disabled** category in the **Trends** button drop-down menu.



You can add categories for your custom trend graphs.

1 On the **CFG** tree, click the plus sign (+) to the left of the **Categories** folder, then select **Trend**.

2 Click **Add** or select a category to edit.

3 Type the **Category Name** and **Reference Name**.

4 Select a privilege so that only operators with that privilege can access trends in the category.

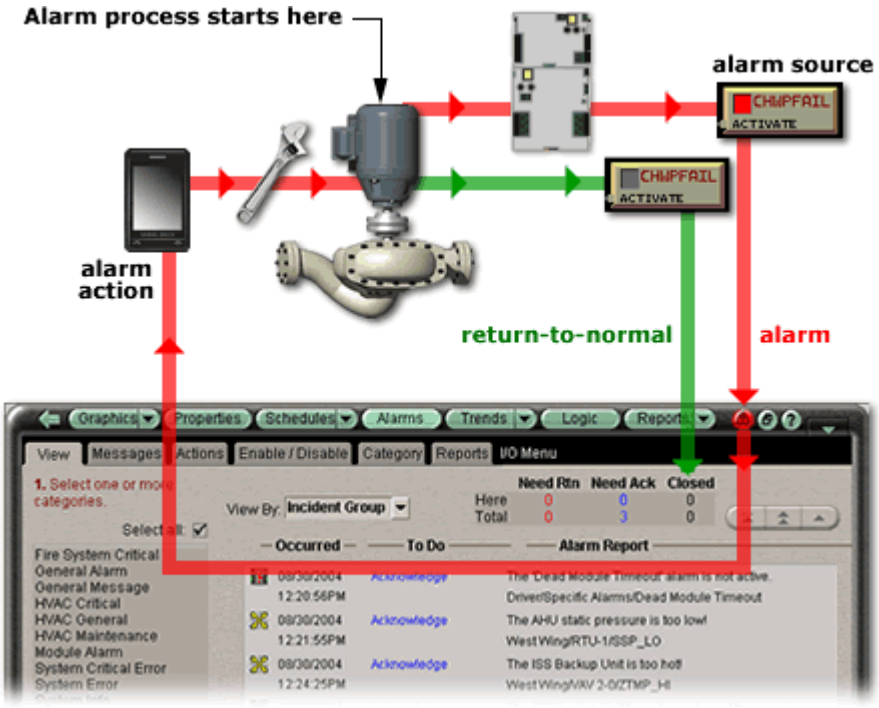
5 Click **OK**.

NOTE To delete a category, select the category, click **Delete**, then click **OK**.

Chapter 8

Alarms

Alarm A message sent from an alarm source (usually a microblock in a control program) to WebCTRL to notify you that certain conditions exist, such as a piece of equipment has stopped running or a temperature is too high. When WebCTRL receives an alarm, it displays information about the alarm on the Alarms page. WebCTRL can also perform alarm actions to inform personnel of the condition and to record information about the alarm. An alarm source can also send a return-to-normal message when the alarm condition returns to its normal state.



Alarm sources and the alarms they generate are assigned to categories, such as HVAC Critical or HVAC Maintenance, to help you work with related alarms.

The application engineer usually sets up alarm sources in EIKON LogicBuilder. In WebCTRL, you:

- View, acknowledge, and delete alarms received by WebCTRL (see page 78)
- Set up the alarm actions that WebCTRL performs (see page 82)
- Edit alarm sources that were set up in EIKON LogicBuilder or set up new alarm sources to generate alarms (see page 101)
- Customize alarms by changing the category or message (see page 104)

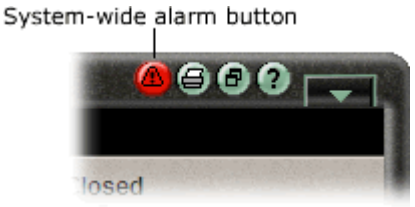
NOTE Besides the alarms that you set up, WebCTRL has built-in system and equipment alarms.

Viewing, acknowledging, and deleting alarms

In WebCTRL, you can view, acknowledge, and delete alarms received by WebCTRL. Select an item in the tree to see all alarms at that level and below it.

Click the system-wide alarms button to view all alarms in the system. The color of this button signifies one of the following conditions:

- Red—Critical alarms need to be acknowledged.
- Yellow—Non-critical alarms need to be acknowledged.
- Green—No alarms need to be acknowledged.



You must acknowledge alarms that have been set up to require acknowledgement.

You should delete alarms from your system as WebCTRL closes them because large quantities of stored alarms can reduce the efficiency of your system. WebCTRL closes an alarm when all of the following have occurred:

- You acknowledge the alarm (if required)
- WebCTRL receives a return-to-normal (if required)
- WebCTRL performs all alarm actions

To save alarm information before deleting, select **Alarms** > **Reports** tab > **Alarms** > click **Run** button.

To view alarms in WebCTRL

1 On the **GEO** or **NET** tree, select the system level, an area, or a piece of equipment.

NOTE The WebCTRL tree is limited to ten levels. When an alarm source is deeper than ten levels, the alarm is reassigned to the system level.

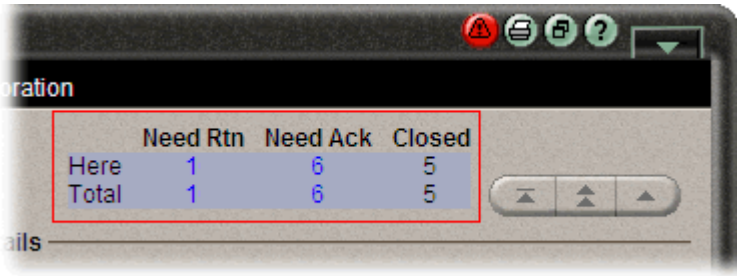
2 Click **Alarms**, then select the **View** tab.

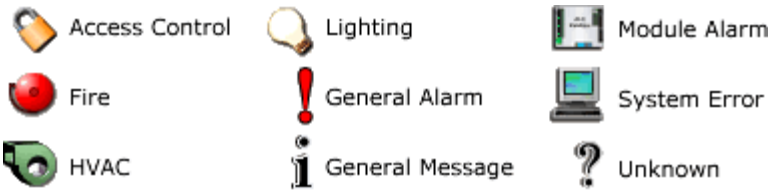
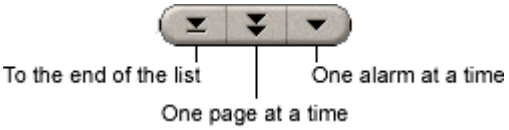
3 Select the alarm categories that you want to view. Use **Ctrl+click**, **Shift+click**, or both to select multiple categories, or select the **Select All** checkbox.

The alarms list displays all alarms received for the selected location and below. See table below.

4 Double-click an alarm to see more information. Double-click again to hide this information.

NOTE This information includes a path to the alarm source. Each section of the path is a link to that location. For example, in the path **West Wing/RTU-1/SSP_LO**, West Wing links to the West Wing graphic, RTU-1 links to the equipment graphic, and SSP_LO links to microblock's Properties page.

Field	Notes	
View By	Select one of the following options to sort the alarms list:	
	Date	Displays all alarms based on the time the alarm was generated with the most recent alarm at the bottom of the list.
	To Do	Displays only alarms that are waiting on one or more actions to complete before they are closed.
	Incident Group	Groups the alarms in an alarm incident group with a bracket to the left of the icons. **Alarm incident group** All alarms related to a particular incident. For example, an alarm and its return-to-normal form an alarm incident group.
Status table	Gives the status of alarms at the current location (**Here**) and in the entire system (**Total**). This table shows the number of alarms that need a return-to-normal, need to be acknowledged, or are closed. 	

Field	Notes
Alarm icon	Indicates the alarm category.  Critical alarms: The category icon plus  . For example,  . Maintenance alarms: The category icon plus  . For example,  .
Occurred	The date and time the alarm was generated
To Do	**Acknowledge** indicates the alarm needs to be acknowledged. **Waiting for normal** indicates the alarm requires a return-to-normal. A checkmark indicates the alarm is closed.
Details	The alarm message. **NOTE** An alarm that requires a return-to-normal appears in red text until the alarm condition returns to normal.
Navigation buttons	Use these buttons to move through the alarm list. 
Additional Actions	You can: • acknowledge or delete multiple alarms simultaneously • search for an alarm generated on a particular date and time

NOTES

- Alarms generated by WebCTRL Server appear at the system level.
- Alarms generated by controllers appear at the system level on the **GEO** tree, but in the network hierarchy on the **NET** tree.

To acknowledge alarms

To acknowledge a single alarm

1. On the **Alarms** page, select the **View** tab.
2. Select an alarm that shows **Acknowledge** in the **To Do** column.
3. Click the **Acknowledge** button beneath the list.

To acknowledge all alarms in the selected categories:

1 On the **Alarms** page, select the **View** tab.

2 Click **Additional Actions**.

3 Click **All** under **Acknowledge alarms in selected categories**.

TIP Acknowledging many alarms simultaneously can take a long time. Acknowledge alarms as they occur to avoid long waits.

To delete alarms

To delete a single alarm:

1 On the Alarms page, select the **View** tab.

2 Select an alarm.

3 Click **Delete**.

To delete multiple alarms in the selected categories:

1 On the Alarms page, select the **View** tab.

2 Click **Additional Actions**.

3 Click the appropriate button under **Delete alarms in selected categories**.

- **Closed Incidents** deletes all closed incident groups. An incident group is considered closed when all alarms in the group are closed.
- **All System** deletes all system alarms.
- **All** deletes all alarms at the selected location and below.

NOTES

- To have WebCTRL automatically delete alarm incident groups a specified number of days after the groups close, select this option on the **Scheduled Tasks** tab in System Settings (see page 160).
- Also on the **Scheduled Tasks** tab in **System Settings**, you can set WebCTRL to archive alarm information to a text file as alarms are deleted.
- An alarm source may be set up to generate an alarm and a return-to-normal. If an alarm occurs but WebCTRL never receives the return-to-normal, you can click **Force Normal** so that WebCTRL can close the alarm. **Force Normal** has no affect on the alarm condition that generated the alarm.

To receive audible notification of alarms

You can set up WebCTRL to play an audio file on your workstation when it receives a critical or non-critical alarm.

1 On the **CFG** tree, select **My Settings**.

2 On the **Settings** tab, select **Non-critical alarms** or **Critical alarms** to be notified of each type of alarm.

3 In the **Sound File** field, type the path to the sound file.

When an alarm triggers the audio file to play, you can temporarily silence the sound by clicking the menu button  and selecting **Silence**. The alarm is silenced for a period of about five minutes or until another alarm that triggers a sound is received.

Setting up alarm actions

Alarm Action An action that WebCTRL performs to notify personnel of an alarm or to record information about the alarm. You can assign alarm actions to an alarm source, a category of alarm sources, alarm sources from a certain location, or a combination of these criteria.

WebCTRL can perform the following alarm actions:

- Alarm Popup
- Print
- Propagate To Server
- Run External Program
- Send Alphanumeric Page
- Send E-Mail
- Write to File

If your system has the Advanced Alarming package, WebCTRL can also perform the following alarm actions:

- Send SNMP Trap
- Write Property
- Write to Database

See the following topics for a description of each alarm action.

To assign alarm actions to alarm sources

To assign alarm actions to multiple alarm sources

Although you can assign an alarm action to a single alarm source, you typically assign an action to multiple alarm sources at the area or equipment level. The alarm action applies to all instances of the alarm sources at the selected location and below. Click an action's **Edit** button to make any changes.

To assign an alarm action to alarm sources:

1 On the **GEO** or **NET** tree, select the area, equipment, or controller containing the alarm sources.

2 Click **Alarms**, then select the **Actions** tab.

3 Follow the 3 steps on the screen.

NOTE Use **Ctrl+click**, **Shift+click**, or both to select multiple items.

4 Click **Add**.

5 Set up the alarm action by editing the fields on the alarm action page. See the appropriate alarm action below for field descriptions.

6 Click **OK**.

After you have assigned alarm actions to an alarm source, simulate the alarm (see page 104) to check your work. If an alarm action fails, WebCTRL receives an alarm for the failed action.

NOTES

- Click **View Selected Sources** to view or change settings for each alarm.
- You can display icons and hover text in the **GEO** tree that show where alarm actions have been created. See *Tree icons and hover text* (page 22).

To assign an alarm action to a single alarm source

1 On the **GEO** or **NET** tree, select the alarm source (microblock).

2 Click **Alarms**, then select the **Actions** tab.

3 Click the drop-down arrow to select an alarm action, then click **Add**.

4 Set up the alarm action by editing the fields on the alarm action page. See the appropriate alarm action below for field descriptions.

5 Click **OK**.

Alarm Popup

The **Alarm Popup** alarm action pops up a message on any computer that is running the WebCTRL Alarm Notification Client application.

Field	Notes
To Operator **To Group**	Select individual operators or operator groups who should receive alarm notification.
Generate alarm if delivery fails	Select this checkbox to send a System Info alarm to WebCTRL Server if the popup recipient is not currently running the Alarm Notification Client application.
Message text	Use punctuation, spaces, or returns after the entries to format the text. To add live data to the text, select field codes (see page 108) from the **Append Field Code** list.
Append Field Code	Add field codes (see page 108) to the message text if desired.

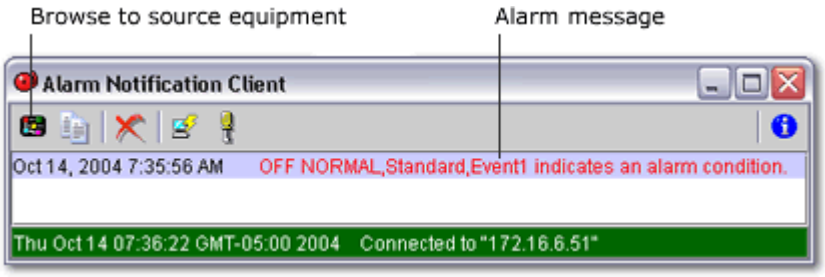
Field	Notes
Perform Action	By default, WebCTRL performs an alarm action when the alarm source generates an alarm **and** when it returns to normal. Under **Perform Action**, you can choose to run the alarm action: • Only when the alarm source generates an alarm **or** when it returns to normal. • After a specified amount of time if the alarm has not been acknowledged or has not returned to normal. Use this option for alarm escalation. * • If the alarm occurs during the occupied hours defined for a schedule group or run if the alarm occurs during the unoccupied hours defined for a schedule group. * EXAMPLE: To have WebCTRL perform one alarm action during work hours and a different alarm action after work hours: 1. Create a schedule group (see page 57), but do not assign members to it. 2. Create a schedule for the group. Set the occupied hours to be the same as the work hours. 3. Create the alarm action that you want WebCTRL to perform during work hours. Under **Perform Action**, select **If schedule group <your new group> is Occupied**. 4. Create the alarm action that you want WebCTRL to perform during after hours. Under **Perform Action**, select **If schedule group <your new group> is Unoccupied**. * Available only if you have the Advanced Alarming package.

Using the WebCTRL Alarm Notification Client application

The WebCTRL Alarm Notification Client application must be running on each client computer that should receive popup notifications. Keep the application minimized to the right side of the Windows task bar. The window will pop up with a message whenever an alarm occurs.

Select an alarm message, then click  to open a browser window displaying the piece of equipment that generated the alarm. A grayed out alarm indicates that it was acknowledged in WebCTRL.

If the Alarm Notification Client is set up to play a continuous alarm sound, you can silence an alarm by clicking **Silence!**, by pressing **Ctrl+S**, or by acknowledging the alarm in WebCTRL.



Button	Notes	
	Opens a browser window that displays the equipment that generated the alarm.	
	Copies the selected alarm information to the clipboard.	
	Removes the alarm information from the alarm popup list. Removing items from this list has no effect on the alarms list in WebCTRL.	
	View information about the server connection.	
	**On this tab...**	**You define...**
	Server Connection	The WebCTRL server and port, and the WebCTRL operator name and password **NOTE** The default port is TCP 47806. If you change this, you must also change the **Port** field in WebCTRL's System Settings. See "To set WebCTRL Server to support Alarm Popup clients" below.
	Browse To	Which page you want to see first in WebCTRL when browsing to the equipment
	Internet Explorer	Whether or not browsing to the equipment opens a new browser window
	Notification Sounds	• If you want to hear a sound when an alarm occurs • Which sound you want to hear for each type of alarm. **NOTE** A **Connection Failure** occurs when the Alarm Notification Client loses communication with WebCTRL Server. • Whether you want the sound to continue until silenced **NOTE** If multiple types of alarms occur simultaneously, the application plays the sound of the most critical alarm (Connection Failure first, then Critical, then Normal).

To set up WebCTRL Server to support Alarm Popup clients

1. On WebCTRL's **CFG** tree, select **System Settings**.
2. On the **General** tab, select **Enable support for Alarm Popup clients to connect to this server**.
3. If the server has more than one network interface adapter, type in the **Restrict to IP Address** field the IP address that the Alarm Notification Client application will connect to. You must specify the same IP address in the **Server** field in the WebCTRL Alarm Notification Client.
4. Use the default port or specify a different port. You must specify the same port in the **Port** field in the WebCTRL Alarm Notification Client.

NOTE If the WebCTRL Alarm Notification Client application is not on the local network and will access WebCTRL alarms through a NAT router, you must port forward the TCP port you defined in step 4 above.

To install the WebCTRL Alarm Notification Client application

Follow the steps below on each client computer that should receive alarm popups.

PREREQUISITE Enable support for Alarm Popup client in System Settings. See above topic.

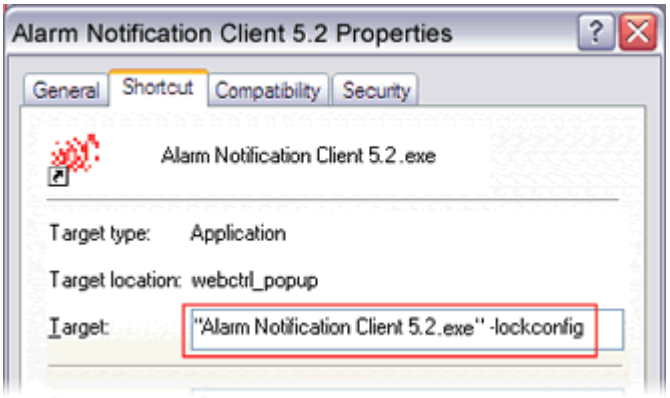
1. On the **CFG** tree, click **Client Installs**.
2. Select the appropriate **Alarm Popup Application** based on whether your client computer is 32-bit or 64-bit.
3. Click **Run**, then follow the on-screen instructions to install the WebCTRL Alarm Notification Client application. After you click **Done**, the application starts automatically.
4. In the **Settings** dialog box, enter appropriate values. You can also click  to open this box. See the table above for a description of each setting.

   NOTE You can lock the **Settings** so that a user cannot edit them. See *To lock a client's Settings feature* below.
5. Click **OK**.
6. Minimize the WebCTRL Alarm Notification Client window.

To lock a client's Settings feature

To prevent a user from editing the **Settings**  :

1. Right-click **Alarm Notification Client** in the Windows **Start** menu.
2. Select **Properties**.
3. On the Shortcut tab, type `-lockconfig` at the end of the **Target** path.



Print

The **Print** alarm action prints alarm information.

Field	Notes
Text Printing	Select to use the WebCTRL server's local dot-matrix printer. Text Printing will not print to a network printer. In the **Printer Name** field, type the computer port that the printer is connected to. In the **Line Width** field, type the number of characters to be printed per line. Prints multiple alarms per page.
Graphics Printing	Select to use the WebCTRL server's default printer (local or network printer). Prints one alarm per page to the WebCTRL server's default printer.
Text to Print	Use punctuation, spaces, or returns after the entries to format the text. To add live data to the text, select field codes (see page 108) from the **Append Field Code** list.
Perform Action	By default, WebCTRL performs an alarm action when the alarm source generates an alarm **and** when it returns to normal. Under **Perform Action**, you can choose to run the alarm action: • Only when the alarm source generates an alarm **or** when it returns to normal. • After a specified amount of time if the alarm has not been acknowledged or has not returned to normal. Use this option for alarm escalation. * • If the alarm occurs during the occupied hours defined for a schedule group or run if the alarm occurs during the unoccupied hours defined for a schedule group. * EXAMPLE To have WebCTRL perform one alarm action during work hours and a different alarm action after work hours: 1. Create a schedule group (see page 57), but do not assign members to it. 2. Create a schedule for the group. Set the occupied hours to be the same as the work hours. 3. Create the alarm action that you want WebCTRL to perform during work hours. Under **Perform Action**, select **If schedule group <your new group> is Occupied**. 4. Create the alarm action that you want WebCTRL to perform during after hours. Under **Perform Action**, select **If schedule group <your new group> is Unoccupied**. * Available only if you have the Advanced Alarming package.

Propagate To Server

The **Propagate To Server** alarm action sends the selected alarm to the parent server in a system with hierarchical servers.

Field	Notes
Message text	The alarm message that is sent to the parent server.
Append Field Code	Add field codes (see page 108) to include live data in the **Message text** field.
Perform Action	By default, WebCTRL performs an alarm action when the alarm source generates an alarm **and** when it returns to normal. Under **Perform Action**, you can choose to run the alarm action: • Only when the alarm source generates an alarm **or** when it returns to normal. • After a specified amount of time if the alarm has not been acknowledged or has not returned to normal. Use this option for alarm escalation. * • If the alarm occurs during the occupied hours defined for a schedule group or run if the alarm occurs during the unoccupied hours defined for a schedule group. * EXAMPLE To have WebCTRL perform one alarm action during work hours and a different alarm action after work hours: 1. Create a schedule group (see page 57), but do not assign members to it. 2. Create a schedule for the group. Set the occupied hours to be the same as the work hours. 3. Create the alarm action that you want WebCTRL to perform during work hours. Under **Perform Action**, select **If schedule group <your new group> is Occupied**. 4. Create the alarm action that you want WebCTRL to perform during after hours. Under **Perform Action**, select **If schedule group <your new group> is Unoccupied**. * Available only if you have the Advanced Alarming package.

Run External Program

The **Run External Program** alarm action starts a program or batch file on the server.

Field	Notes
Command Line	The path of the executable file on the WebCTRL server followed by the path of the output file. **EXAMPLE**: `c:\windows\notepad.exe c:\WebCTRL\webroot\alarms.txt`

Field	Notes
Append Field Code	Add field codes (see page 108) to the **Command Line** field. **EXAMPLE**: c:\reports\run_report.bat $Generation_time$$To_State$ This starts a batch file on the server and uses the alarm's generation time and state as values.
Synchronize	Tells WebCTRL to wait for the external program to finish running before initiating the next **Run External Program** alarm action.
Perform Action	By default, WebCTRL performs an alarm action when the alarm source generates an alarm **and** when it returns to normal. Under **Perform Action**, you can choose to run the alarm action: • Only when the alarm source generates an alarm **or** when it returns to normal. • After a specified amount of time if the alarm has not been acknowledged or has not returned to normal. Use this option for alarm escalation. * • If the alarm occurs during the occupied hours defined for a schedule group or run if the alarm occurs during the unoccupied hours defined for a schedule group. * EXAMPLE To have WebCTRL perform one alarm action during work hours and a different alarm action after work hours: 1. Create a schedule group (see page 57), but do not assign members to it. 2. Create a schedule for the group. Set the occupied hours to be the same as the work hours. 3. Create the alarm action that you want WebCTRL to perform during work hours. Under **Perform Action**, select **If schedule group <your new group> is Occupied**. 4. Create the alarm action that you want WebCTRL to perform during after hours. Under **Perform Action**, select **If schedule group <your new group> is Unoccupied**. * Available only if you have the Advanced Alarming package.

Send Alphanumeric Page

The **Send Alphanumeric Page** alarm action sends a page to one or more alphanumeric pagers or sends text messages to cell phones. The pager or phone must be able to accept e-mail.

Field	Notes
To	Type the address(es) that you want to send the alarm to. To enter multiple addresses, type a space or press Enter after each address.
From	Enter a valid address if required by your mailserver.

Field	Notes
Mail Host	The SMTP mailserver's address. This can be an IP address or a system name, such as mail.mycompany.com.
Specify Mail User For Mail Host Authentication	Select if your mailserver requires a username and password.
Send mail as MIME attachment	Select if your mailserver allows only MIME attachments.
Message Text	Use punctuation, spaces, or returns after the entries to format the text. To add live data to the text, select field codes (see page 108) from the **Append Field Code** list.
Perform Action	By default, WebCTRL performs an alarm action when the alarm source generates an alarm **and** when it returns to normal. Under **Perform Action**, you can choose to run the alarm action: • Only when the alarm source generates an alarm **or** when it returns to normal. • After a specified amount of time if the alarm has not been acknowledged or has not returned to normal. Use this option for alarm escalation. * • If the alarm occurs during the occupied hours defined for a schedule group or run if the alarm occurs during the unoccupied hours defined for a schedule group. * EXAMPLE To have WebCTRL perform one alarm action during work hours and a different alarm action after work hours: 1. Create a schedule group (see page 57), but do not assign members to it. 2. Create a schedule for the group. Set the occupied hours to be the same as the work hours. 3. Create the alarm action that you want WebCTRL to perform during work hours. Under **Perform Action**, select **If schedule group <your new group> is Occupied**. 4. Create the alarm action that you want WebCTRL to perform during after hours. Under **Perform Action**, select **If schedule group <your new group> is Unoccupied**. * Available only if you have the Advanced Alarming package.

NOTE You should not assign this alarm action to frequently-occurring alarms as this may cause problems on your network or the Internet.

To set up a dial-up networking connection

WebCTRL can use a dial-up internet connection through a modem to deliver e-mail for the Send E-mail or Send Alphanumeric Page alarm action.

To set up the dial-up connection:

1 Set up your modem to dial out to your Internet Service Provider. See your modem documentation.

2 On the WebCTRL server, open Internet Explorer.

3 Select **Tools > Internet Options**.

4 On the **Connections** tab, click **Setup**.

5 Follow the instructions in the wizard. See Windows Help for assistance.

6 In a text editor such as Windows Notepad, open WebCTRL**x.x\webroot\<system>\system.properties**.

7 At the end of the file, type the following line:

```
repactions.connection.name=<name of connection>
```

where <name of connection> is the ISP name you entered in the wizard in step 2.

8 Open Internet Explorer, then select **Tools > Internet Options > Connections** tab.

9 If the box under **Dial-up and Virtual Private Network settings** shows more than one connection, select the connection that you just created, then click **Set Default**.

10 Select **Always dial my default connection**.

Send E-mail

The **Send E-mail** alarm action sends a message to one or more e-mail accounts. The alarm action can also run a report and attach it to the e-mail as a PDF, HTML, or Excel file.

Field	Notes
To	Type the address(es) that you want to send the alarm to. To enter multiple addresses, type a space or press Enter after each address.
From	Enter a valid address if required by your mailserver.
Mail Host	The SMTP mailserver's address. This can be an IP address or a system name, such as mail.mycompany.com.
Specify Mail User For Mail Host Authentication	Select if your mailserver requires a username and password.
Send mail as MIME attachment	Select if your mailserver allows only MIME attachments.
Message Text	Use punctuation, spaces, or returns after the entries to format the text. To add live data to the text, select field codes (see page 108) from the **Append Field Code** list.

Field	Notes
Attach Report	Select to attach a WebCTRL report to the e-mail, then select the **Report** and the **Format**. **NOTE** The Report Name field shows a custom report only if it was created at the current system level. **Run as** shows the name and login name of the operator creating the alarm action. The report will be run using the privileges and report options of this operator. **TIP** You may want to create a new operator with limited privileges for this purpose.
Perform Action	By default, WebCTRL performs an alarm action when the alarm source generates an alarm **and** when it returns to normal. Under **Perform Action**, you can choose to run the alarm action: • Only when the alarm source generates an alarm **or** when it returns to normal. • After a specified amount of time if the alarm has not been acknowledged or has not returned to normal. Use this option for alarm escalation. * • If the alarm occurs during the occupied hours defined for a schedule group or run if the alarm occurs during the unoccupied hours defined for a schedule group. * EXAMPLE To have WebCTRL perform one alarm action during work hours and a different alarm action after work hours: 1. Create a schedule group (see page 57), but do not assign members to it. 2. Create a schedule for the group. Set the occupied hours to be the same as the work hours. 3. Create the alarm action that you want WebCTRL to perform during work hours. Under **Perform Action**, select **If schedule group <your new group> is Occupied**. 4. Create the alarm action that you want WebCTRL to perform during after hours. Under **Perform Action**, select **If schedule group <your new group> is Unoccupied**. * Available only if you have the Advanced Alarming package.

NOTES

- You should not assign this alarm action to frequently-occurring alarms as this may cause problems on your network or the Internet.
- This alarm action uses SMTP TCP Port 25 to send emails. To use a different port, open **WebCTRLx.x\webroot\<system_name>\system.properties** in a text editor such as Notepad. In the line **#mail.server.port = 25**, delete **#** at the beginning of the line and change **25** to the port you want to use. If you make this change while WebCTRL Server is running, you must restart it to have the change take effect.

To secure mailserver communication using Secure Sockets Layer (SSL)

By default, the Send E-mail alarm action uses the SMTP protocol to send the email as clear text over TCP/IP. You can switch to one of the following protocols to secure email communication between the WebCTRL server and the mailserver.

SMTPS	Sends email using SSL, a communication protocol that provides data encryption.
STARTTLS	Sends email using SSL, but does not begin encryption until WebCTRL issues STARTTLS command.

To use one of these protocols:

1. Open **WebCTRLx.x\webroot\<system_name>\system.properties** in a text editor such as Notepad.
2. In the line **#mail.transport.protocol = SMTP**, delete **#** at the beginning of the line and change **SMTP** to **SMTPS** or **STARTTLS**. If you make this change while WebCTRL Server is running, you must restart it to have the change take effect.

Before WebCTRL sends an email using SSL, WebCTRL requests an SSL certificate from the mailserver. If the certificate that WebCTRL receives is in its list of trusted certificates, WebCTRL sends the email. If the certificate is not in the list, WebCTRL generates a system alarm indicating that the email alarm action failed. If this occurs, you will need to add the mailserver's certificate to WebCTRL's list of trusted certificates.

1. Get a copy of the certificate file from the mailserver. Ask your Network Administrator for help.
2. Put the file on the WebCTRL server.
3. From the WebCTRL server's **Start** menu, select **Run**.
4. In the **Open** field, type the following command:

   ```
   C:\WebCTRL<x.x>\java\<operating_system>\jre\bin\keytool.exe -import -
   trustcacerts -alias smtpserver -keystore webserver\keystores\certkeys
   -file <file_path>
   ```

   replacing:
   `<x.x>` with the system's version number
   `<operating_system>` with the WebCTRL folder name for the operating system you are running
   `<file_path>` with the full path and file name of the certificate file
5. The information for the smtpserver key is displayed and you are prompted to trust this certificate. Type `yes`.

To set up a dial-up networking connection

WebCTRL can use a dial-up internet connection through a modem to deliver e-mail for the Send E-mail or Send Alphanumeric Page alarm action.

To set up the dial-up connection:

1. Set up your modem to dial out to your Internet Service Provider. See your modem documentation.
2. On the WebCTRL server, open Internet Explorer.

3 Select **Tools > Internet Options**.

4 On the **Connections** tab, click **Setup**.

5 Follow the instructions in the wizard. See Windows Help for assistance.

6 In a text editor such as Windows Notepad, open WebCTRL**x.x\webroot\<system>\system.properties**.

7 At the end of the file, type the following line:

```
repactions.connection.name=<name of connection>
```

where <name of connection> is the ISP name you entered in the wizard in step 2.

8 Open Internet Explorer, then select **Tools > Internet Options > Connections** tab.

9 If the box under **Dial-up and Virtual Private Network settings** shows more than one connection, select the connection that you just created, then click **Set Default**.

10 Select **Always dial my default connection**.

Send SNMP Trap

Optional WebCTRL Package

NOTE To see if your system has this optional package, click  , then select **About**. You have this package if **Enabled Features** shows **Adv. Alarming**.

The **Send SNMP Trap** alarm action sends an SNMP trap in response to receiving an alarm. Traps contain the text created in the **Text to send as the SNMP Trap** field in the alarm action dialog box. You can configure up to five SNMP servers to receive traps.

NOTES

- WebCTRL supports SNMP v1.
- Each SNMP server you want to receive these traps must have SNMP monitoring equipment installed. If problems arise with your SNMP connection or receiving traps, contact your IS department.
- This alarm action uses Port 162 to send SNMP traps. To use a different port, open **WebCTRLx.x\webroot\<system_name>\system.properties** in a text editor such as Notepad. In the line **#snmp.trap.port = 162**, delete **#** at the beginning of the line and change 162 to the port you want to use. If you make this change while WebCTRL Server is running, you must restart it to have the change take effect.

Field	Notes
Network Address*	The network address of the SNMP server receiving the SNMP trap.
Community Name*	The community name that the SNMP server belongs to.
Comment	The physical location of the SNMP server. This field is optional.

Field	Notes
Trap number*	If the network administrator has configured trap numbers, type a unique number from 1 to 127. **NOTE** The same trap number is used for all messages from this alarm action.
Text to send as the SNMP Trap	255 character limit. Type punctuation, spaces, or returns after the entries to format the message. You can customize this text by selecting field codes (see page 108) from the **Append Field Code** list.
Perform Action	By default, WebCTRL performs an alarm action when the alarm source generates an alarm **and** when it returns to normal. Under **Perform Action**, you can choose to run the alarm action: • Only when the alarm source generates an alarm **or** when it returns to normal. • After a specified amount of time if the alarm has not been acknowledged or has not returned to normal. Use this option for alarm escalation. * • If the alarm occurs during the occupied hours defined for a schedule group or run if the alarm occurs during the unoccupied hours defined for a schedule group. * EXAMPLE To have WebCTRL perform one alarm action during work hours and a different alarm action after work hours: 1. Create a schedule group (see page 57), but do not assign members to it. 2. Create a schedule for the group. Set the occupied hours to be the same as the work hours. 3. Create the alarm action that you want WebCTRL to perform during work hours. Under **Perform Action**, select **If schedule group <your new group> is Occupied**. 4. Create the alarm action that you want WebCTRL to perform during after hours. Under **Perform Action**, select **If schedule group <your new group> is Unoccupied**. * Available only if you have the Advanced Alarming package.

* Ask your network administrator for this information.

Write Property

Optional WebCTRL Package

NOTE To see if your system has this optional package, click  , then select **About**. You have this package if **Enabled Features** shows **Adv. Alarming**.

The **Write Property** alarm action writes a specified value to a BACnet property. You typically set up 2 alarm actions, the first writes a value when the alarm occurs and the other writes a value when the return-to-normal occurs.

Field	Notes
Expression	Type the target property's expression.
Value to Write	Type the value you want to write to the microblock property. Type `0` or `1` for a binary property.
Append field code to value	Select field codes (see page 108) to add this information to the **Value to Write** field.
Perform Action	By default, WebCTRL performs an alarm action when the alarm source generates an alarm **and** when it returns to normal. Under **Perform Action**, you can choose to run the alarm action: • Only when the alarm source generates an alarm **or** when it returns to normal. • After a specified amount of time if the alarm has not been acknowledged or has not returned to normal. Use this option for alarm escalation. * • If the alarm occurs during the occupied hours defined for a schedule group or run if the alarm occurs during the unoccupied hours defined for a schedule group. * EXAMPLE To have WebCTRL perform one alarm action during work hours and a different alarm action after work hours: 1. Create a schedule group (see page 57), but do not assign members to it. 2. Create a schedule for the group. Set the occupied hours to be the same as the work hours. 3. Create the alarm action that you want WebCTRL to perform during work hours. Under **Perform Action**, select **If schedule group <your new group> is Occupied**. 4. Create the alarm action that you want WebCTRL to perform during after hours. Under **Perform Action**, select **If schedule group <your new group> is Unoccupied**. * Available only if you have the Advanced Alarming package.

Write to Database

Optional WebCTRL Package

NOTE To see if your system has this optional package, click  , then select **About**. You have this package if **Enabled Features** shows **Adv. Alarming**.

The **Write to Database** alarm action stores alarm information in a table in the WebCTRL alarm database or in a custom database. Third-party applications can access the alarm information for building maintenance management or alarm analysis. For example, an application can perform actions such as triggering a stored procedure or running a report.

Writing to the WebCTRL alarm database

When you add the **Write to Database** alarm action, by default WebCTRL writes alarm information to the **write_db_ra** table in the WebCTRL alarm database. The following table describes the information that WebCTRL writes to the database and gives the column name and data type you will need in order to access the alarm information from a third-party application.

Description	Column Name	Data type
Alarm generation time	EVENT_TIME_	Datestamp
Path to the alarm source Example: #slm/m073	SOURCE_PATH_	String
Display name path to the alarm source Example: Atlanta Office/R&D Facility/Second Floor/VAV 2-1/Zone Temp	DISPLAY_NAME_	String
Alarm state Example: OFF NORMAL, LOW LIMIT, HIGH LIMIT	EVENT_STATE_	String
Alarm text as defined in the **Text to write to the database** field on the alarm action page. You can add live data to the text by selecting field codes (see page 108) from the **Append Field Code list**.	RA_TEXT_	String

Perform Action

By default, WebCTRL performs an alarm action when the alarm source generates an alarm **and** when it returns to normal. Under **Perform Action**, you can choose to run the alarm action:

- Only when the alarm source generates an alarm **or** when it returns to normal.
- After a specified amount of time if the alarm has not been acknowledged or has not returned to normal. Use this option for alarm escalation. *
- If the alarm occurs during the occupied hours defined for a schedule group or run if the alarm occurs during the unoccupied hours defined for a schedule group. *
  EXAMPLE To have WebCTRL perform one alarm action during work hours and a different alarm action after work hours:
  1. Create a schedule group (see page 57), but do not assign members to it.
  2. Create a schedule for the group. Set the occupied hours to be the same as the work hours.
  3. Create the alarm action that you want WebCTRL to perform during work hours. Under **Perform Action**, select **If schedule group <your new group> is Occupied**.
  4. Create the alarm action that you want WebCTRL to perform during after hours. Under **Perform Action**, select **If schedule group <your new group> is Unoccupied**.

* Available only if you have the Advanced Alarming package.

NOTES

- To keep the database table from growing too large, you must delete old entries using a third-party database application. You cannot view, edit, or delete entries from WebCTRL.
- If your system uses an Access or MSDE database, you cannot open the database in a third-party application while WebCTRL or SiteBuilder is running.

Writing to a custom database

WebCTRL can write alarm information to the following types of custom databases. The custom database does not have to be the same type as the WebCTRL database.

- SQL Server
- MySQL
- PostgreSQL
- Oracle

You may create a table in an existing third-party database or create a new database.

Using your database management tool, create a table in your custom database that includes fields for each alarm field code to be written to the table. Each field length in the table should be as long as the longest value to be written to that field.

To set up WebCTRL to write to a custom database instead of the WebCTRL alarm database, select the **Specify Custom Database** checkbox on the Alarms page **Actions** tab, then enter information in the remaining fields. See table below.

Field	Notes	
Text to write to the database	The text is made up of field codes (see page 108) that add live data to the text. You can select additional field codes from the **Append Field Code** list. **NOTE** To write the text in this field to the custom database, you must include the Report Text field code ($report_text$) in the **Database Insert String** field described below.	
Database Connect String	**For database type...**	**The connect string format is...**
	SQL Server	jdbc:odbc:<*odbc_alias*>
	MySQL	jdbc:mysql://<*host*>:<*port*>/<*instance*>
	PostgreSQL	jdbc:postgresql://<*host*>:<*port*>/<*instance*>
	Oracle	jdbc:oracle:thin@<*host*>:<*port*>/<*instance*>
		where: <*host*> is the database server name/IP address <*port*> is the port number for the database <*instance*> is the database name in the database server <*odbc_alias*> is the name of the ODBC data source
Database Login and Password	The login and password to connect to the database.	

Field	Notes
Database Insert String	Use the following format: Insert into <TABLE_NAME> (<column1_name>, <column2_name> ...) values (<$field_code1$>, <$field_code2$>, ...) Example: Insert into WebCTRL_ALARMS (TIME_, LOCATION_, TO_STATE_, TEXT_) values ($generation_time$, $location_path$, to_state, $report_text$) **NOTES** You can add field codes (see page 108) to the Insert String using the **Append Field Code** list. If you add a timestamp type field code (for example, $generation_time$), you should have the data go into a timestamp data type field in the custom database. Otherwise, you must use field code formatting (see page 108) to format the time.
Perform Action	By default, WebCTRL performs an alarm action when the alarm source generates an alarm **and** when it returns to normal. Under **Perform Action**, you can choose to run the alarm action: • Only when the alarm source generates an alarm **or** when it returns to normal. • After a specified amount of time if the alarm has not been acknowledged or has not returned to normal. Use this option for alarm escalation. * • If the alarm occurs during the occupied hours defined for a schedule group or run if the alarm occurs during the unoccupied hours defined for a schedule group. * EXAMPLE To have WebCTRL perform one alarm action during work hours and a different alarm action after work hours: 1. Create a schedule group (see page 57), but do not assign members to it. 2. Create a schedule for the group. Set the occupied hours to be the same as the work hours. 3. Create the alarm action that you want WebCTRL to perform during work hours. Under **Perform Action**, select **If schedule group <your new group> is Occupied**. 4. Create the alarm action that you want WebCTRL to perform during after hours. Under **Perform Action**, select **If schedule group <your new group> is Unoccupied**. 5. * Available only if you have the Advanced Alarming package.

Write to File

The **Write to File** alarm action can do either of the following:

- Record alarm information in a standard ASCII text file that you can view and edit using a text editor such as Windows® Notepad.
- Write a WebCTRL report to a file.

Field	Notes
File Name	Path name for the file you want to write to such as **c:\WebCTRLx.x\webroot\alarms.txt**. • If you do not specify a path, the file is written to the system folder. • If you type a path that does not exist, WebCTRL will create the necessary folders. • You can write to one of the following: - a file on the server - a networked computer if you map the network drive. Use the drive mapping in the path from the server to the computer. • The path name may contain field codes (see page 108).
Write as File	Select to record alarm information in a text file.
Append	Select to append new alarm information to the end of the file instead of writing over existing data. **NOTE** Because you can append new alarm information to the end of the file, this file can become very large. You must back up and delete this file frequently if you are using this alarm action with many alarms.
Text to write to the file	Use punctuation, spaces, or returns after the entries to format the text. To add live data to the text, select field codes (see page 108) from the **Append Field Code** list.
Write as Report	Select to write a WebCTRL report to a file, then select the **Report** and the **Format**. **NOTE** The Report Name field shows a custom report only if it was created at the current system level. **Run as** shows the name and login name of the operator creating the alarm action. The report will be run using the privileges and report options of this operator. **TIP** You may want to create a new operator with limited privileges for this purpose.

Field	Notes
Perform Action	By default, WebCTRL performs an alarm action when the alarm source generates an alarm **and** when it returns to normal. Under **Perform Action**, you can choose to run the alarm action: • Only when the alarm source generates an alarm **or** when it returns to normal. • After a specified amount of time if the alarm has not been acknowledged or has not returned to normal. Use this option for alarm escalation. * • If the alarm occurs during the occupied hours defined for a schedule group or run if the alarm occurs during the unoccupied hours defined for a schedule group. * EXAMPLE To have WebCTRL perform one alarm action during work hours and a different alarm action after work hours: 1. Create a schedule group (see page 57), but do not assign members to it. 2. Create a schedule for the group. Set the occupied hours to be the same as the work hours. 3. Create the alarm action that you want WebCTRL to perform during work hours. Under **Perform Action**, select **If schedule group <your new group> is Occupied**. 4. Create the alarm action that you want WebCTRL to perform during after hours. Under **Perform Action**, select **If schedule group <your new group> is Unoccupied**. * Available only if you have the Advanced Alarming package.

Setting up an alarm source in WebCTRL

The application engineer usually sets up alarm sources in EIKON LogicBuilder. In WebCTRL you can:

- Edit an alarm source's settings from EIKON LogicBuilder or set up a new alarm source to generate alarms.
- Set up all alarms for a piece of equipment at once on the **Alarm Sources** tab of the equipment's **Properties** page.
- Simulate an alarm to test its setup.

Two types of microblocks generate alarms in control programs.

- Alarm microblocks include logic that takes into account conditions such as space occupancy.
- I/O point microblocks can generate an alarm when the present value exceeds defined limits (analog) or when the present value changes to an off-normal state (binary). This type of microblock is typically set up for analog points to generate alarms for sensor failure.

Alarm microblocks and I/O microblocks can have similar names. So, when you are going to enable an alarm source, first look for an alarm microblock in the **GEO** or **NET** tree.

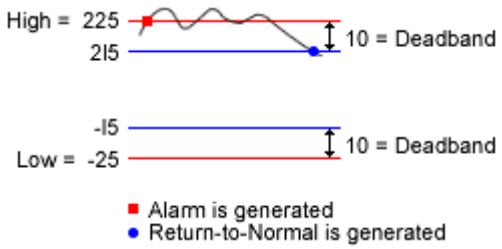
This type of microblock...	Appears in the GEO or NET tree as...
	HI ZONE TEMP Zone Temp

To set up, edit, or disable alarm sources

To set up, edit, or disable a single alarm source

1. On the **GEO** or **NET** tree, select the alarm source (microblock).
2. Click **Alarms**, then select the **Enable/Disable** tab.
3. Make changes to the fields as needed. The fields can vary for different types of alarm sources. See table below.
4. Click **OK**.

TIP To set up all the alarms for a piece of equipment at once, click **Properties**, then select **Alarm Sources**.

Field	Notes
Potential alarm source	Select the checkbox to enable the alarm source to generate alarms. Clear the checkbox to disable the alarm source.
Alarm	Select to have the alarm source generate an alarm when the specified conditions occur. • For a binary input, enter the conditions for generating an alarm. • For an analog input, type the low and high limits that, when exceeded, will generate an alarm. **Deadband** The amount inside the normal range by which an alarm condition must return before a return-to-normal notification is generated. **EXAMPLE**  **NOTE** If the **Status** checkbox is selected, the alarm condition currently exists.

Field	Notes
Return to Normal	Select to have the alarm source generate a return-to-normal when the alarm condition returns to a normal state.
Alarm requires acknowledgement	Select to have WebCTRL require that an operator acknowledge the alarm.
Return requires acknowledgement	Select to have WebCTRL require that an operator acknowledge the return-to-normal.
Classified as critical	This property determines the color of the system-wide alarm button when the alarm comes in.  = Critical  = Non-critical
Event State	The current state of the alarm source can be: • Normal—value is normal • Off normal—the value is not normal (binary only) • Fault—the alarm source microblock may be misconfigured • High Limit—the value exceeds the normal range (analog only) • Low Limit—the value is below the normal range (analog only)
BACnet Configuration:	
Dial on alarm	Select to have this alarm immediately delivered through a modem connection. **NOTE** When monitoring your system through a modem connection, non-critical alarms are stored in the gateway until one of the following happens: • a critical alarm occurs • the gateway is contacted by WebCTRL • the gateway buffer is full, at which time all alarms are sent to WebCTRL
Notification Class	Do not change this field.

To set up, edit, or disable multiple alarm sources simultaneously

1. On the **GEO** or **NET** tree, area, equipment, or controller containing the alarm sources.
2. Click **Alarms**, then select the **Enable/Disable** tab.
3. In step **1**, select the categories that contain the alarm sources.

   NOTE In step **1** and step **2**, **Ctrl+click**, **Shift+click**, or both to select multiple items, or select the **Select All** checkbox.
4. In step **2**, select the alarm sources.
5. Make appropriate changes in step **3**.
6. Click **OK**.

NOTE Click **View Selected Sources** to view or change settings for each alarm.

To simulate an alarm

To test the setup of an alarm source and its alarm actions (see page 82), you can simulate an alarm or its return-to-normal.

1. On the **GEO** tree, select the alarm source (—, but not —) whose alarm you want to simulate.
2. Click **Alarms**, then select the **Enable/Disable** tab.
3. Select the **Enable** checkbox next to **Alarm** or **Return to Normal**.
4. Click **Simulate** next to **Alarm** or **Return to Normal**.
5. Select the equipment on the tree, then select the **View** tab to see the alarm.

To view all instances of an alarm source

To find all instances of an alarm source at and below a selected area:

1. On the **GEO** or **NET** tree, select an area.
2. Select the **Message**, **Actions**, **Enable/Disable**, or **Category** tab.
3. Select an alarm source from the list in step **2**.
4. Click **View Selected Sources**.

Each path in the dialog box links to the alarm source microblock.

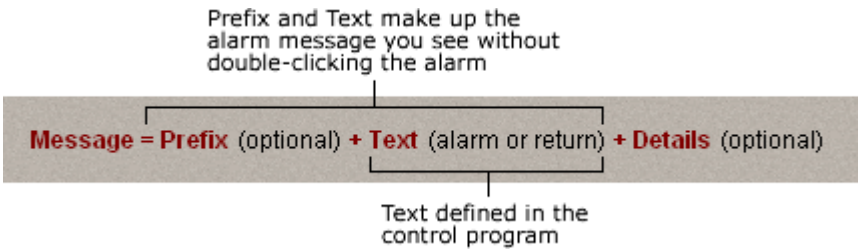
NOTE You may be able to change settings that relate to the tab you selected.

Customizing alarms

Each alarm source has an alarm message, category, and template defined in EIKON LogicBuilder. You can change messages and categories in WebCTRL.

Alarm messages

An alarm message is the information WebCTRL displays on the Alarms page **View** tab for an alarm. An alarm message can consist of three parts.



You can edit Text only at the alarm source in EIKON LogicBuilder.

Prefix and Details are hierarchical. They apply at the location where they are added and to all its children. For example, you could enter Details at the system level to show the acknowledge time for alarms in the HVAC Critical category. The acknowledge time would then be in any HVAC critical alarm message in the system.

NOTE An alarm action can have a different message from the alarm message seen on the **View** tab. To edit the message for a particular alarm action, see *Setting up alarm actions* (page 82).

To edit the message for an alarm source

1. On the **GEO** tree, select the alarm source (microblock).
2. Click **Alarms**, then select the **Messages** tab.

   NOTE **Sample Alarm Message** and **Sample Return Message** show the messages as they are currently defined.
3. Do the following as needed:
   - Edit the **Text** for **Alarm** or **Return**. You can add live data to the text by selecting field codes (see page 108) from the **Append Field Code** list.
   - Click the **Edit** button to edit **Message Prefix** or **Message Details**.
   - In the drop-down list to the right of **Message formation,** select **Add new prefix to beginning of message** or **Add new details to end of message**, then click **Add**.
4. Click **OK**.

To add a Prefix or Details for multiple alarm sources

1. In the **GEO** or **NET** tree, select the area, equipment, or controller containing the alarm sources.
2. Click **Alarms**, then select the **Messages** tab.
3. In step **1**, select the categories that contain the alarm sources whose messages you want to edit.

   NOTE In step **1** and step **2**, **Ctrl+click**, **Shift+click**, or both to select multiple items, or select the **Select All** checkbox.
4. In step **2**, select the alarm sources.
5. In step **3**, select **Add new prefix to beginning of message** or **Add new details to end of message**.
6. Click **Add**.
7. Type text and add field codes as needed.
8. Click **OK**.

Alarm categories

Alarm categories sort related alarm sources and their alarms into groups such as HVAC Critical and Access Control General. Alarm categories let you:

- View, acknowledge, or delete selected categories of alarms received by WebCTRL (see page 78)
- Assign alarm actions (see page 82) to selected categories of alarm sources
- Set up alarm sources (see page 101) in selected categories

Each alarm source is assigned to an alarm category in EIKON LogicBuilder, but you can change the category assignment in WebCTRL.

WebCTRL has a number of default alarm categories, but you can create custom categories, if needed.

To assign alarm sources to a different category

1 On the **GEO** or **NET** tree, select the area, equipment, or controller containing the alarm sources.

2 Click **Alarms**, then select the **Category** tab.

3 In step **1**, select the category that currently contains the alarm sources.

NOTE In step **1** and step **2**, **Ctrl+click**, **Shift+click**, or both to select multiple items, or select the **Select All** checkbox.

4 In step **2**, select the alarm sources whose category you want to change.

5 In step **3**, select a category from the drop-down list, then click **Change**.

6 Click **OK**.

To add a custom alarm category

PREREQUISITE Add the custom alarm category in EIKON LogicBuilder. See "To use custom alarm and schedule categories" in EIKON LogicBuilder Help.

1 On the **CFG** tree, click the plus sign (+) to the left of **Categories**.

2 Click **Alarms**.

3 Click **Add**. See table below.

4 Click **OK**.

Field	Notes
Reference Name	Must be unique in the database, be lowercase, and not contain any spaces. This name must be identical to the name of the custom alarm category that you added in EIKON LogicBuilder.
Icon	1 Find or create a 32 x 32 pixel icon (.gif file) that represents the new category. For example,  2 Store the .gif file in the **WebCTRLx.x\webroot_common\lvl5\graphics\event_categories** folder. 3 Type `/_common/lvl5/graphics/event_categories/<file_name>.gif` in the **Icon** field.

If you upgraded alarms from v2.0 or earlier

All v2.5 and later alarms use one template called Universal. This template lets you define your alarm message text, the critical setting and the required acknowledgements at the alarm source in EIKON LogicBuilder or WebCTRL.

Templates in upgraded systems

If you upgraded your system from v2.0 or earlier, the alarm sources retained their existing templates and existing alarm settings. If the existing alarm sources contain little or no customization to the alarm settings, Automated Logic Corporation recommends that you change all of the alarms to use the Universal template. If the alarm sources had customized alarm settings, continue using the existing templates.

To assign a different template to alarm sources

PREREQUISITE The Alarms Template tab must be visible. If it's not, on the **CFG** tree, select **Privilege Sets**, then select the **Maintain Alarm Templates** checkbox.

1 On the **GEO** tree, select the piece of equipment containing the alarm sources to be changed.

2 Click **Alarms**, then select the **Template** tab.

3 Follow the 3 steps on the screen.

NOTE Use **Ctrl+click**, **Shift+click**, or both to select multiple items.

4 Click **Change**.

5 Click **OK**.

TIP To change all alarms in the system simultaneously, go to the system level and then select all categories and all alarm sources on the **Templates** tab.

To add an alarm template

1 On the **CFG** tree, select **Alarm Templates**.

2 Click **Add**.

3 Select **Source-based** (a v2.5 template) or **Stand-alone** (a pre-v2.5 template), then click **OK**.

4 Edit the template fields as needed. See table below.

5 Click **OK**.

Field	Template Type	Notes
Reference Name	All	Must be unique in the database, be lowercase, and not contain any spaces. This name must be identical to the name of the template in EIKON LogicBuilder.
Display Name	All	The name WebCTRL will display for this template.
Alarm Message	Source-based	The message text displayed on the **View** tab or in the alarm action when an Alarm requires acknowledgement.

Field	Template Type	Notes
Return Message	Source-based	The message text displayed on the **View** tab or in the alarm action when a return-to-normal requires acknowledgement.
Fault Message	Source-based	The message text displayed on the **View** tab or in the alarm action when a Fault requires acknowledgement.
Critical	Stand-alone	Select if this is a template you will use with a critical alarm.
Acknowledgement Required	Stand-alone	Select which alarm states require an acknowledgement.
Out of Range	Stand-alone	Analog inputs and outputs that have low and high limit alarm properties. Click the plus sign (+) to the left of **Out of Range** to make changes to the alarm messages displayed on the **Alarms** page > **View** tab. Short text is the message displayed when the alarm is not expanded. Long text is the message displayed when the alarm is double-clicked and expanded.
Change of State	Stand-alone	Binary inputs and alarm microblocks. See **Out of Range** above to change the alarm messages.
Copy Field Code to Clipboard	Stand-alone	To add a field code to any of the message text fields: **1** Select a field code to copy it. **2** Click in the appropriate text field where you want the field code. **3** Press **Ctrl**+**V** to paste the field code.

Using field codes

Use field codes to insert live data into:

- The message on an alarm action
- Text displayed on the Alarms page > **View** tab
- Alarm information archived to a text file when an alarm is deleted

You can customize the setup of each of these items by appending field codes. For example, to have the message in an alarm action include the device that generated the alarm, append the Device field code to the action's message.

Format field codes

You can type a formatting command after a field code to format the field code in one of the following three ways:

- Format a number field code (Example: ##.##)
- Format a date/time field code (Example: MM/dd/yyyy hh:mm:ss)
- Left, right or center align a field code and set the field width

A formatting command must have the following syntax:

Use the table below to determine the format_type and style for a formatting command.

	① format_type	② style	Example
To format a number	N	The actual formatting, such as ##.##. The basic format uses the pound sign (#) to represent a number. See *Other numerical formatting System Options* http://java.sun.com/j2se/1.4.2/docs/api/java/text/DecimalFormat.html.	To always truncate an alarm value to two digits to the right of the decimal, the field code is: $alarm_value%N:##.##$ For example, 78.9935 becomes 78.99.
To format date/time	D	The actual formatting, such as MM/dd/yyyy hh:mm:ss. See *Date time formatting System Options* http://java.sun.com/j2se/1.4.2/docs/api/java/text/SimpleDateFormat.html.	To show the date and time when an alarm is generated in a format like 03/15/2004 10:50:43, the field code is: $generation_time%D:MM/dd/yyyy hh:mm:ss$
To set alignment and field width	L for left align R for right align C for center align	Indicate the field width by number of characters.	To left align the name of the device that generated the alarm and set the field width to 15 characters, the field code is: $device%L:15$

Using multiple formatting commands

You can type multiple formatting commands for a field code. For example, you can format a number and then set the alignment and field width. The syntax for multiple formatting commands is:

$fieldcode%format_type1:style%format_type2:style$

EXAMPLE To format the alarm date and time, center it and set the field at 20 characters, the field code is:
$generation_time%D:MM/dd/yyyy hh:mm:ss%C:20$

NOTE You must enter the date/time or number formatting command before the alignment/field width command.

Field Codes

Field Code Name	Field Code	Description
Acknowledge Operator	$acknowledge_operator$	The operator who acknowledged the alarm.
Acknowledge Time	$acknowledge_time$	The time when the operator acknowledged the alarm.
Alarm Category	$event_category$	The alarm category that the alarm is assigned to.
Alarm Template	$event_template$	The alarm template that the alarm is assigned to.
Alarm Type	$event_type$	The alarm type of the alarm source; for example, CHANGE OF VALUE, CHANGE OF STATE.
Alarm Value	$alarm_value$	The alarm value.

Alert Text	$alerttext$	For a converted SuperVision system if the option **Create a single alarm template...** was selected during upgrade. Retrieves alarm message text from **cmnet_alert_text.properties**.
		To use this field code:
		1 Select the **Alert Text** field code.
		2 After $alerttext, type one of the following:
		`:normalshort`
		`:normallong`
		`:alarmshort`
		`:alarmlong`
		For example, $alerttext:alarmlong$

Character	c	A single ASCII character. Often used for form feeds and other printer escape sequences. For example, $C:65$ displays A.
Command Value	$command_value$	The commanded value from the alarm source. Valid only for alarm type COMMAND FAILURE.
Dead Band	$deadband$	The deadband value from the alarm source. Valid only for alarm type OUT-OF-RANGE.
Deletion Operator	$deletion_operator$	The operator who deleted the alarm.
Deletion Time	$deletion_time$	The time the alarm was deleted.
Device	$device$	The display name of the device where the alarm came from.
Equipment	$equipment$	The display name of the equipment where the alarm came from.
Error Limit	$error_limit$	The error limit, from the alarm source. Valid only for alarm type FLOATING LIMIT.
Exceeded Limit	$exceed_limit$	The exceeded limit value from the alarm source. Valid only for alarm type OUT-OF-RANGE.

Field Code Name	Field Code	Description
Exceeding Value	$exceeding_value$	The exceeding value from the alarm source. Valid only for alarm type OUT-OF-RANGE.
Fault	$fault$	The status of the fault condition from the alarm source.
Feedback Value	$feedback_value$	The feedback value from the alarm source. Valid only for alarm type COMMAND FAILURE.
Field Message	$field_message$	Additional text recorded in the alarm by the device.
From State	$from_state$	The previous state of the alarm source.
Generation Operator	$generation_operator$	The operator who forced the alarm to return to normal.
Generation Time	$generation_time$	The time in the controller when the alarm was generated.
In Alarm	in_alarm	The in alarm status from the alarm source.
Incident Closed Time	$incident_closed_time$	The time the alarm's entire incident group closed.
Latched Data Value (Analog)	$latched_data_analog:x$	"x" ranges from 1 to 5. The display name of the alarm source that generated the alarm.
Latched Data Value (Digital)	$latched_data_digital:x$	"x" ranges from 1 to 5. The display name of the alarm source that generated the alarm.
Location Path	$location_path$	Displays all the path display names from root to source.
Long Message	$long_message$	The formatted alarm long text displayed by double-clicking the alarm on the Alarms page.
Message Details	$message_details$	The message details displayed on the Alarms page **View** tab.
Message Prefix	$message_prefix$	The message prefix displayed on the Alarms page **View** tab.
Message Text	$message_text$	The message text displayed on the Alarms page **View** tab.
New State	new_state	The status of new state from the alarm source.
New Value	new_value	The new value from the alarm source. Valid only for alarm type CHANGE OF VALUE.
Object ID	$object_ID$	Object ID of the alarm source.
Out of Service	$out_of_service$	The status of 'out of service' from the alarm source.
Overridden	$overridden$	The status of 'overridden' from the alarm source.

Field Code Name	Field Code	Description
Program ID	$program_id$	The address of the control program that generated the alarm. BACnet program address format: device ID, program number (example: 240219,5) SuperVision program address format: site, gateway, controller, fb (example: 1, 2, 13, 5)
Receive Time	$receive_time$	The time at the workstation when the alarm was received.
Recipient Device ID	$device_id$	The device ID of the device where the alarm came from.
Record Type	$record_type$	The type of alarm; for example, BACnet, SuperVision, System.
Reference Path	$reference_path$	Path to alarm source. Available in all alarm actions.
Reference Value	$reference_value$	The 'reference value' from the alarm source. Valid only for alarm type FLOATING LIMIT.
Referenced Bitstring	$referenced_bitstring$	The value of the 'referenced bitstring' value from the alarm source. Valid only for alarm type CHANGE OF BITSTRING.
Report Text	$report_text$	Used only with the **Write to Database** alarm action. You must include this field code in the **Database Insert String**.
RTN Time	RTN_time	The time when the alarm returned to normal.
Setpoint Value	$setpoint_value$	The 'setpoint value' from the alarm source. Valid only for alarm type FLOATING LIMIT.
Short Message	$short_message$	The formatted alarm short text.
Site	$site$	The display name of the site the alarm came from.
Source	$source$	The display name of the alarm source that generated the alarm.
Source description	$source:description$	The description of the alarm source that generated the alarm.
Source Path	$source:<path>$	For advanced users, displays the database item indicated by <path> relative to the alarm source; for example, <path> = ~equipment.display-name. The easiest way to display the path is to use Global Modify.
System Directory	$system_dir$	The system folder name.
To State	to_state	The current state of the alarm source; for example, Normal, Fault, Off-normal, High limit, Low limit.

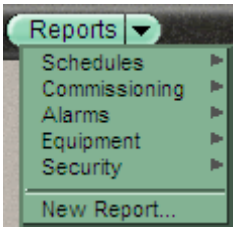
Chapter 9

Reports

Use WebCTRL reports to monitor and troubleshoot your system. In WebCTRL, you can:

- View preconfigured reports
- Create custom reports

See the table below for a list of all reports.



The **Reports** button drop-list varies depending on whether you selected the **GEO** or **NET** tree and if you have created any custom reports at or above the selected location.

A report shows data for the selected item and all of its children.

NOTE You can display icons and hover text in the **GEO** tree that show where custom reports have been created. See *Tree icons and hover text* (page 22).

This preconfigured report...	allows you to...
Schedules	
Schedule Instances	Find every schedule with its location that is entered at and below a selected tree item. This report can help you discover newly added and conflicting schedules.
Effective Schedules	View all equipment that may be scheduled and the net result of all schedules in effect for a selected date and time.
Commissioning	
Test & Balance	View the results of VAV box commissioning. Running this report automatically uploads calibration parameters to WebCTRL.
Equipment Checkout	View the information on the **Equipment Checkout** tab of the equipment's **Properties** page during commissioning. Also, find equipment that has not been fully commissioned.
Alarms	
Alarms	View, sort, and filter the information on the Alarms > View tab (see page 78).

This preconfigured report...	allows you to...
Alarm Sources	Create a summary of potential alarm sources as configured on the Alarms > Enable/Disable tab (see page 101).
Alarm Prefixes & Details	Create a summary of the information configured on the Alarms > Messages tab (see page 104).
Alarm Actions	Create a summary of the information configured on the Alarms > Actions tab (see page 82).
Equipment	
Point List	View the details of all points. Verify that all points have been checked out during commissioning. Also, create custom lists for other contractors. For example, create a list of BACnet IDs or Web services links.
Locked Values	Find all locked points and locked values. **NOTE** Locks in the Airflow microblock are not reported.
Network IO	Verify the programming and status of all network points—especially useful for commissioning controllers used for third-party integration.
Trend Usage	Creates a summary of the information configured on the Trends > Enable/Disable tab (see page 65.
Parameter Mismatch	Discover where your system has parameter mismatches that need to be resolved.
Security	**NOTE** You must have the Advanced Security package to run these reports.
Location Audit Log	View chronological lists of location-based changes, the operators that made them, and the reasons for the changes. This report includes changes such as property edits, downloads, driver changes, and view changes.
System Audit Log	View chronological lists of system-wide changes, the operators that made them, and the reasons for the changes. This report includes changes such as any change made in the **CFG** tree, login/logout, and scheduled processes like deleting expired trends
Network	
Equipment Status	Display the thermographic color, status, and prime variable of each control program.
Controller Status	Discover network communication problems (shown as purple squares on the report) that need troubleshooting. The report also shows boot and driver version, download information, and if controller has 4.x or later driver, the report shows the serial number and Local Access port status.

This preconfigured report...	allows you to...
Add-in reports	Install the following 2 reports if you need them. 1. On the **CFG** tree, select **Reports Administration**. 2. Click **Add**, browse to WebCTRL**x.x\extras\web\reports**, then select a report. 3. Click **OK**.
Historical Trends Report	View historical trend information for the selected GEO tree item, including the point that was trended, the number of trend samples collected, and the date and time of the first and last sample.
Equipment Sources Report	View heat and/or cool sources, the paths to the equipment, and the names of the control programs.

This custom report...	allows you to...
Equipment Summary	View the following information for equipment at or below the location where the report was created: • Color • Active alarm • Locked values • Current value of selected points • Effective schedule See *To create an Equipment Summary report* (page 116).
Equipment Values	Compare point information. See *To create an Equipment Values report* (page 117). **NOTE** This report is available only if your system has the optional Advanced Reporting package.
Trend Samples	View trend values for a particular time frame. See *To create an Trend Samples report* (page 119). **NOTE** This report is available only if your system has the optional Advanced Reporting package.

NOTE The Send E-mail alarm action (see page 91) can run any WebCTRL report and attach it to the email. The Write to File alarm action (see page 100) can run any WebCTRL report and save it as a file. For both alarm actions, the report can be a PDF, HTML, Excel, or CSV file.

To run a report

1. Select an item on the **GEO** or **NET** tree.
2. Click the **Reports** button drop-down arrow, then select a report.
3. On the **Options** tab, define the layout and content of the report.

   NOTES

   - Changing the size and orientation of the printed page also changes the report layout on the **View** tab.
   - To create a CSV (Comma Separated Values) file after you run the report, select **Support CSV text format**. See *To create a PDF, Excel spreadsheet, or CSV file* (page 121).
   - WebCTRL saves report options for the current operator. When that operator logs in again, WebCTRL uses the same options.
4. Click **Run**.
5. Click **PDF** if you want to print the report.

To create an Equipment Summary report

An **Equipment Summary** report can provide the following information for equipment at or below the location where the report is created.

- Color
- Active alarm
- Locked values
- Current value of selected points
- Effective schedule

To create an Equipment Summary report:

1. On the **GEO** or **NET** tree, select the location where you want to view the report.
2. Click the **Reports** button drop-down arrow, then select **New Report**.
3. Select **Equipment Summary**.
4. Optional: Select a **Category**.

   NOTE The **Category** field is visible only if you have defined report categories. See *To organize custom reports* (page 121).
5. Type a name for the report.
6. Click **Create**.
7. On the **Design** tab, define the title, layout, and the **Maximum number of rows**.
8. To create a CSV (Comma Separated Values) file after you run the report, select **Support CSV text format**. See *To create a PDF, Excel spreadsheet, or CSV file* (page 121).
9. Select or clear the **Optional Sections** checkboxes as needed.
10. Optional: Select **Show only equipment for specific control programs at or below this location**, then type the names of the control programs.

11 Select **Available Points** that you want to include in the report. Use **Ctrl+click**, **Shift+click**, or both to select multiple items.

12 Click **Add**.

13 Click **OK**.

14 Click **Run**.

NOTE To run this report later, go to the location where the report was created. Click the **Reports** button drop-down arrow, select the report, then click **Run**.

To create an Equipment Values report

Optional WebCTRL Package

NOTE To see if your system has this optional package, click  , then select **About**. You have this package if **Enabled Features** shows **Adv. Reporting**.

An **Equipment Values** report allows you to compare point information.

To create an Equipment Values report:

1 On the **GEO** or **NET** tree, select the location where you want to view the report.

2 Click the **Reports** button drop-down arrow, then select **New Report**.

3 Select **Equipment Values**.

4 Optional: Select a **Category**.

NOTE The **Category** drop-down list is only visible if you have defined report categories. See *To organize custom reports* (page 121).

5 Type a name for the report.

6 Click **Create**.

7 On the **Design** tab, click  next to **Page** to verify or change the page size and orientation.

NOTE Changing the size and orientation of the printed page also changes the report layout on the **View** tab.

8 Click  next to **Rows**.

9 Do one of the following:

- Select **Show only equipment for specific control programs at or below this location**, then type the control program names.
- On the selection tree, select the pieces of equipment you want to view in the report. (Use **Ctrl+click**, **Shift+click**, or both to select multiple items.) Then click **Add**.

  Optional: Select the **Highlight alternate rows** checkbox to make the report easier to analyze.

10 Click **Next** or  next to **Columns**.

11 Verify or change the report **Title**, **Page units** of measure for defining column widths, and **Outer border** characteristics.

12 Select a column in the report preview.

NOTE The selected column is light purple.

13 Under **Column Header**, define how you want the column header to look.

14 Under **Column Data**, define the data you want in the column and how you want it to look. See table below.

15 Optional: Use the **Add**, **Delete**, and arrow buttons below the report preview to manipulate the columns.

16 Click **OK**.

17 Click **Run**.

NOTE To run this report later, go to the location where the report was created. Click the **Reports** button drop-down arrow, select the report, then click **Run**.

Type of Column Data		
Point	Displays point data in the column.	
	Display	Select the property to show in this column.
	Data is named differently in some equipment	Select this checkbox if similar points have different names in different control programs. Then add each of the names to the **Name to use** list. For example, if a point is named Zone Temp in one control program and Zone Temperature in different control program, add both names to the list.
	Point to use	Select the name of the point to show in the column.
Trend Sample	**Display**	Select **First**, **Minimum**, **Maximum**, or **Last** recorded trend value.
	Data is named differently in some equipment	Select this checkbox if similar points have different names in different control programs. Then add each of the names to the **Name to use** list. For example, if a point is named Zone Temp in one control program and Zone Temperature in different control program, add both names to the list.
	Trend to use	Select the name of the point to show in the column.
	Set	Click to have all columns in the report use the same time range.
	Time Range	Select the time range to run the report for.

Type of Column Data		
Trend Calculation	**Display**	Select the type of calculation to show in the column, **Average** or **Total**.
	Data is named differently in some equipment	Select this checkbox if similar points have different names in different control programs. Then add each of the names to the **Name to use** list. For example, if a point is named Zone Temp in one control program and Zone Temperature in different control program, add both names to the list.
	Trend to use	Select the name of the point to show in the column.
	Set	Click to have all columns in the report use the same time range.
	Time Range	Select the time range to run the report for.
Equipment	**Display**	Select **Color**, **Display Name**, **Display Path**, **Notes**, **Prime Variable**, or **Reference Name** to show in the column.
Expression	**Data is named differently in some equipment**	Select this checkbox if similar points have different names in different control programs. Then add each of the names to the **Name to use** list. For example, if a point is named Zone Temp in one control program and Zone Temperature in different control program, add both names to the list.
	Expression	Type the GQL expression relative to the current control program. The GQL expression must return a string value. To display the **Notes** on an equipment's **Properties** page, type `.notations` in this field.

To create an Trend Samples report

Optional WebCTRL Package

NOTE To see if your system has this optional package, click  , then select **About**. You have this package if **Enabled Features** shows **Adv. Reporting**.

A **Trend Samples** report provides trend values for a particular time frame.

To create an Trend Samples report:

1. On the **GEO** or **NET** tree, select the location where you want to view the report.
2. Select the **Reports** button drop-down arrow, then select **New Report**.
3. Select **Trend Samples**.

4 Optional: Select a **Category**.

NOTE The **Category** drop-down list is only visible if you have defined report categories. See *To organize custom reports* (page 121).

5 Type a name for the report.

6 Click **Create**.

7 On the **Design** tab, click next to **Page** to verify or change the page size and orientation.

NOTE Changing the size and orientation of the printed page also changes the report layout on the **View** tab.

8 Click next to **Rows**.

9 Select a **Time Range** from the drop-down list, then refine that option by selecting an option from the drop-down list(s) to the right.

10 Define the trend data.

NOTES

- **Calculate values for missing samples** calculates a value based on the two closest values to the time interval.
- **Find the closest sample** displays the value closest to the time interval selected.

11 Optional: Select the **Highlight alternate rows** checkbox to make the report easier to analyze.

12 Click **Next** or next to **Columns**.

13 Verify or change the report **Title**, **Page units** of measure for defining column widths, and **Outer border** characteristics.

14 Select a column in the report preview.

NOTE The selected column is light purple.

15 In the top 2 boxes, define the **Column Header** and the **Column Data**.

16 In the bottom 2 boxes, define the appearance of the header and data cells.

NOTE Select **General** from the **Format** drop-down list unless you want to define the number of places to the right of the decimal point for the displayed value.

17 Optional: Use the **Add**, **Delete**, and arrow buttons below the report preview to manipulate the columns.

18 Click **OK**.

19 Click **Run**.

NOTE To run this report later, go to the location where the report was created. Click the **Reports** button drop-down arrow, select the report, then click **Run**.

To create a PDF, Excel spreadsheet, or CSV file

PREREQUISITE FOR CSV TEXT You must enable **Support CSV text format** on the **Options** tab before you run the report.

1 Run a report.

2 Click **PDF**, **Excel**, or **CSV Text**.

3 For Excel or CSV Text, click **Open** to view the file or **Save** to save it.

NOTE If you need a digitally signed PDF to comply with 21 CFR Part 11, open the PDF in a program that supports digital signing such as Adobe Acrobat®, then sign the PDF. WebCTRL does not support digital signing because 21 CFR Part 11 requires that the signature be added manually, not through an automated process.

To edit or delete a custom report

1 Select the item in the **GEO** or **NET** tree where the report was created.

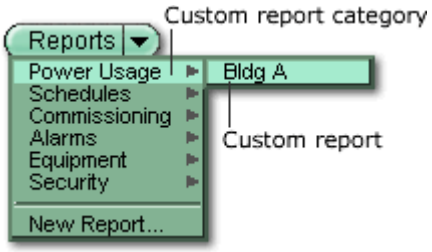
2 Click the **Reports** button drop-down arrow, then select the report you want to edit or delete.

3 Do one of the following:

- Edit the report, then click **OK**.
- Click the menu button  , then select **Delete**.

To organize custom reports

You can organize your custom reports by creating report categories that appear in the **Reports** button drop-down list.



To add or edit a report category

1 On the **CFG** tree, click ⊞ to the left of the **Categories** folder, then click **Report**.

2 Click **Add** or select a category to edit it.

3 Type the **Category Name** and **Reference Name**.

4 Select a privilege so that only operators with that privilege can access reports in the category.

5 Click **OK**.

NOTE To delete a category, select the category, click **Delete**, then click **OK**.

To use custom reports from v2.5 or earlier

If you upgrade WebCTRL from a version that had custom reports created with e.Spreadsheet, Report Designer, or Formula One, you can continue to view and edit those reports in WebCTRL.

Copy the following files from **WebCTRL2.5\webroot\WEB-INF\lib** or **WebCTRL3.0\lib** to WebCTRL**x.x\bin\lib** in your new version of WebCTRL.

f1j9_de.jar
f1j9_es.jar
f1j9_fr.jar
f1j9_it.jar
f1j9_ko.jar
f1j9_zhs.jar
f1j9_zht.jar
f1j9swing.jar
f1jtextures.jar

Then follow the steps below to make the reports appear in the **Reports** button drop-down list.

To add a new e.Spreadsheet report

1. Go to **CFG** > **Reports Administration** and add the report.
2. In the **GEO** tree where you want to be able to access the report, click the **Reports** button down arrow, then select **New Report**.
3. Select **Other**, then select a report type from that drop-down list. Name the report, then click **Create**.

NOTE Report Designer is licensed to Automated Logic Corporation by Actuate Corporation for WebCTRL v2.5 and earlier.

Chapter 10

Operator access

Privileges control the parts of a WebCTRL system an operator can access. Privileges also control what an operator can do and what he can change.

To set up operator access to your system:

1 Log into WebCTRL as the Administrator. See *Operators and operator groups* (page 127).

2 Define privilege sets by job function. See *Privilege sets* (page 124).

3 Enter each operator in the system by assigning him privilege sets and entering settings that apply only to him. If you need to assign the same privilege set to multiple operators, you can create an operator group and assign the privilege set to the group. See *Operators and operator groups* (page 127).

An operator can change many of his operator settings on the My Settings page (see page 130).

To access WebCTRL, an operator must enter his user name and password. This password requirement can be enhanced by using WebCTRL's advanced password policy (see page 135) (available with the optional Advanced Security package).

Restricting operator access

To restrict access to your system, you can:

- Restrict an operator's privileges
- Use location-dependent operator access (see page 131) (available with the optional Advanced Security package)
- Change a microblock's **Editing Privilege** from **Preset** to a specific privilege. The microblock's properties will be editable only by an operator that has that privilege.

  CAUTION Each microblock property has a default Editing Privilege (represented by the **Preset** option) that is appropriate for that property. Changing **Preset** to a specific privilege changes every property in the microblock to the same privilege which may produce undesirable results.

Privilege sets

A privilege set is a group of one or more privileges (see page 124). The Administrator creates privilege sets and assigns them to operators and operator groups.

Privileges

This privilege...	allows an operator to...
System Administration Privilege	• Add, edit, and delete operators, operator groups, and privilege sets. • Update WebCTRL Server with service packs and patches. • Register the WebCTRL software. See *To register your WebCTRL software* (page 167). • Enable and set up advanced security features (see page 131) (optional package) such as location-dependent operator access and a configurable password policy. • Add and remove WebCTRL web applications such as EnergyReports.

This Access privilege...	allows an operator to access (but not edit)...
Access Geographic Locations	pages from the **GEO** tree.
Access Network Items	pages from the **NET** tree.
Access Groups	pages from the **GRP** tree.
Access Config Items	pages from the **CFG** tree.
Access Alarms	alarms.
Access Logic Pages	logic pages.
Access User Category 1-5	anything in a category that has the same privilege assigned to it. See "To create a custom privilege" below.

This Parameter privilege...	allows an operator to edit properties such as...
Edit Setpoint Parameters	occupied and unoccupied heating and cooling setpoints.
Edit Setpoint Tuning Parameters	demand level setpoint offsets, thermographic color band offsets, heating and cooling capacities and design temperatures, color hysteresis, and learning adaptive optimal start capacity adjustment values.
Edit Tuning and Logic Parameters	gains, limits, trip points, hysteresis, color bandwidths, design temperatures, and optimal start/stop.
Edit Manual Override Parameters	locks on input, output, and network points.
Edit Point Setup Parameters	point number, type, range, and network source and destination.

This Parameter privilege...	allows an operator to edit properties such as...
Edit Restricted Parameters	properties the installer restricted with this privilege.
Edit Category Assignments	Alarm, Graphic, Trend, and Report category assignments.
Edit History Value Reset	elapsed active time and history resets, and runtime hours.
Edit Trend Parameters	enable trend logging, log intervals, and log start/stop times.
Edit Calibration Parameters	point calibration offsets.
Edit Hardware Controller Parameters	driver properties.
Edit Critical Configuration	critical properties the installer protected with this privilege.
Edit Area Name	area display names.
Edit Control Program Name	control program display names.
Edit Alarm Configuration	enabling/disabling alarms and editing alarm messages, actions, categories, and templates.
InterOp Privilege 1 - 10	those protected by password levels 1-10 in SuperVision.

This Functional privilege...	allows an operator to...
Manage Alarm Messages and Actions	add, edit, and delete alarm messages and actions.
Maintain System Parameters	edit all properties on the System Settings page.
Maintain Schedules	add, edit, delete, and download schedules.
Maintain Schedule Group Members	add, edit, and delete schedule groups.
Maintain Categories	add, edit, and delete categories.
Maintain Trends Display and Print Setup	edit Trends Display Setup and Trends Print Setup on the CFG tree.
Maintain Alarm Templates	edit Alarm Template and Reporting Action Templates.
Acknowledge Non-Critical Alarms	acknowledge all non-critical alarms.
Acknowledge Critical Alarms	acknowledge all critical alarms.
Force Normal Non-Critical Alarms	force non-critical alarms to return to normal.
Force Normal Critical Alarms	force critical alarms to return to normal.
Delete Non-Critical Alarms	delete non-critical alarms.
Delete Critical Alarms	delete critical alarms.
Execute Audit Log Report	run the Location Audit Log and System Audit Log reports.
Download Controllers	mark equipment for download and initiate a download.
System Shutdown	issue the Shutdown manual command that shuts down WebCTRL Server.

This Functional privilege...	allows an operator to...
Engineer System	• log in and make database changes in SiteBuilder. • use the copy, notify, reload, and revert manual commands. • access the **Configure** and **Set up Tree** right-click menus in WebCTRL. • Add text in the **Notes** field on an equipment's Properties page.
Access Commissioning Tools	access: • Equipment Checkout • Airflow Configuration • Trend, Report, and Graphic categories that require this privilege • Discovery tool
Maintain Graphs and Reports	add, edit, and delete trend graphs and reports.
Maintain Connections	edit Connections page properties.
Remote File Management	access files using a WebDAV utility.
Remote Data Access-SOAP	retrieve WebCTRL data through an Enterprise Data Exchange (SOAP) application.
Do not audit changes made using SOAP (Web services)	not have his SOAP (Web services) changes recorded in the Audit Log.
Manual Commands/Console Operations	access the manual command dialog box and issue basic manual commands.
Manual Commands/File IO	execute manual commands that access the server's file system.
Manual Commands/Adv Network	execute manual commands that directly access network communications.
Manual Commands/Unrestricted	execute manual commands that bypass all safeguards and may cause unpredictable results if used incorrectly.

To create a custom privilege

You can assign a privilege to a Graphic, Property, Trend, or Report category so that only operators with that privilege can access the category. You assign a category privilege on the page where you create or edit categories.

If all the other privileges are too widely used to accomplish the results you want, you can assign one of the five Access User Category privileges to the operator(s) and category.

For example, your system has two graphics categories, HVAC and Lighting/Security. You want HVAC technicians to see only the HVAC graphics and security personnel to see only the Lighting/Security graphics. To do this:

Assign...	To...	Results
Access User Category 1	HVAC graphics category and HVAC technicians only	The security personnel cannot see the HVAC graphics because they do not have Access User Category 1.
Access User Category 2	Lighting/Security Graphics category and Security personnel only	The HVAC technicians cannot see the Lighting/Security graphics because they do not have Access User Category 2.

To add or edit a privilege set

1. On the **CFG** tree, select **Privilege Sets**.
2. Click **Add** to create a new privilege set, or select a privilege set to edit.
3. Type the **Name** and **Reference Name** for the privilege set.
4. Select the checkbox beside each privilege you want to include in the privilege set.
5. Click **OK**.

CAUTION Include all required access privileges in a privilege set. For example, if you add **Acknowledge Non-Critical Alarms** to a privilege set, also add **Access Alarms** to that privilege set.

TIP To create a privilege set that is similar to an existing set, select the existing set, then click **Add**. The privileges that are initially selected are identical to those of the existing set.

To delete a privilege set

1. On the **CFG** tree, select **Privilege Sets**.
2. Select the privilege set to be deleted.
3. Click **Delete**.
4. Click **OK**.
5. Click **OK** again.

Operators and operator groups

The Administrator (see "Default operators" below) sets up each operator in WebCTRL by entering the necessary settings and assigning one or more privilege sets to the operator.

Operator groups give you the ability to assign privilege sets to a group of operators instead of the individual operators. Operator groups are useful if you have multiple operators who need the same privilege set or you have positions with high turnover rates. You can assign an operator to a group when you enter the operator or when you create the operator group.

NOTE When using hierarchical servers, you must create identical operators on each server in order to navigate across servers.

Default operators

WebCTRL is installed with the following default operators:

Operator...	Has ...	To log in...
Administrator	Almost all privileges	Type `Administrator` in the **Name** field, then click **Log in**.
Anonymous	The Standard privilege set that contains only viewing privileges	Click **Log in**.

To ensure system security, log in as the Administrator, then do one of the following:

- Assign the Admin privilege set to another operator, then delete the Administrator operator
- Assign a password to the Administrator operator.

CAUTION Passwords can be forgotten. To ensure access to the administrative functions of WebCTRL, assign the Admin privilege set to at least two operators.

If you want to prevent Anonymous access to your system, delete the Anonymous operator.

To add or edit an operator

1. On the **CFG** tree, select **Operators**.
2. Click **Add** to enter a new operator, or select an operator to edit his settings.
3. Enter information on this page as needed. The only required fields are **Name** and **Login Name**. See table below.
4. Click **OK**.

Field	Notes
Login Name	The name the operator must type to log in to the system. This name must be unique within the system.
Change password	Enable this field, then type the current and new passwords. **NOTE** An operator can change his password on the My Settings page (see page 130).
Force User to Change Password at login?	Forces the operator to change his password immediately after his next login. **NOTE** Use this field with the **Change Password** field to create a temporary password that the operator must change after his next login.
Exempt From Password Policy	If the advanced password policy is enabled in System Settings on the Security tab (see page 161), select this option if you do not want the policy to apply to this operator.
Logoff options	If the automatic logoff feature is enabled in System Settings on the Security tab (see page 161), select one of the 3 logoff options.
Personal Information	You can enter contact information for this operator. **NOTE** An operator can enter contact information on the My Settings page (see page 130).
Starting Location and **Starting Page**	The location and page WebCTRL will display after the operator logs in.

Field	Notes
System-wide Privilege Sets	To assign a privilege set to the operator, select the privilege set's checkbox. **NOTES** • Click **Show current privileges only** to see only the selected privilege sets. • A grayed out privilege set with a group name beside it indicates the operator is inheriting that privilege set from the group.

To delete an operator

1. On the **CFG** tree, select **Operators**.
2. Select the operator.
3. Click **Delete**.
4. Click **OK**.

To add or edit an operator group

1. On the **CFG** tree, select **Operator Groups**.
2. Click **Add** to create a new operator group, or select an operator group to edit it.
3. Type the **Display Name** and **Reference Name** for the operator group.
4. Under **Members**, select the operators and/or groups that you want to add to the new group.
5. Under **Privilege Sets**, select the privilege sets that you want to assign to the new group.
6. Click **OK**.

TIP WebCTRL has a permanent default group called **Everybody** that every operator is automatically a member of. You can assign privilege sets to this group.

To delete an operator group

1. On the **CFG** tree, select **Operator Groups**.
2. Select the operator group.
3. Click **Delete**.
4. Click **OK**.

CAUTION When you delete an operator group, its individual members lose the privilege sets that were assigned to the group.

To change My Settings

On the My Settings page, you can change settings, such as your:

- Password
- Viewing preferences
- Contact information

NOTE The System Administrator can also change these settings on the Operators page.

To change your settings:

1 On the **CFG** tree, select **My Settings**.

2 Make changes on the **Settings** or **Contact Info** tab. See table below.

3 Click **OK**.

Field	Notes
Change password	Enable this field, then type your current and new passwords.
Starting Location and **Starting Page**	The location and page WebCTRL will display after you log in.
Language	The language and formatting conventions you want to see in WebCTRL. **NOTES** • If you will be using a language other than English, see *Setting up your system for non-English languages* (page 181) for additional requirements. • If support for your selected language is removed in SiteBuilder, WebCTRL will automatically assign the System language to you.
Automatically collapse trees	Expands only one tree branch at a time.
Play sound at browser when server receives	Select the **Non-critical alarms** or **Critical alarms** checkbox if you want the system to audibly notify you when that type of alarm is received. If you want to use a custom sound file (.au or .wav): 1 Put the file in the **webroot_common\lvl5\sounds** folder. 2 In the **Sound File** field, replace **warning_bell.au** or **critical_bell.au** with the name of your sound file. **NOTE** You can put your sound file anywhere under the WebCTRL**x.x** folder, but be sure to change the path in the **Sound File** field.

Chapter 11

Advanced security

Optional WebCTRL Package

NOTE To see if your system has this optional package, click  , then select **About**. You have this package if **Enabled Features** shows **Adv. Security**.

Location-dependent operator access

Optional WebCTRL Package

NOTE To see if your system has this optional package, click  , then select **About**. You have this package if **Enabled Features** shows **Adv. Security**.

With the Advanced Security package, you can set up operator access to your system to be location-dependent. This type of operator access lets you assign privileges to an operator only at locations in the system where he needs them. For example, you could assign an operator mechanic privileges in one building in a system, view-only privileges in another building, and no privileges in a third building.

New and converted WebCTRL systems default to location-independent operator access in which an operator's privileges apply throughout the system. You should understand this type of operator access before switching to location-dependent. See *Operator access* (page 123) for more information on location-independent operator access.

NOTE When using hierarchical servers, the security policy and privilege sets are local to each server, so you can have location independent security on one server but not on another.

To switch to location-dependent access

CAUTIONS

- Create a backup of your system before you begin. Switching to location-dependent operator access changes the configuration of operators and privilege sets. If you need to revert to location-independent operator access, your previous configuration cannot be automatically restored.
- If you change the policy after you create and assign privilege sets to operators, you may need to reconfigure your operators' privileges.

To switch to location-dependent operator access:

1 On the **CFG** tree, select **System Settings**.

2 Select the **Security** tab.

3 Click **Change Policy**.

4 Follow the on-screen instructions.

Privileges and privilege sets

When using location-dependent operator access, privileges are either system-wide or local.

System-wide privileges allow an operator to perform functions throughout the entire system, such as accessing the Configuration tree or performing a system shutdown.

Local privileges allow an operator to perform functions in a specific area of the system, such as editing setpoints or viewing alarms. Assigning any local privilege to an operator also allows him to change his password and set preferences on the **My Settings** page on the **CFG** tree.

You assign system-wide privileges to system-wide privilege sets and local privileges to local privilege sets. Use the following table in planning which privileges to assign to a privilege set. For a description of each privilege, see *Privileges* (page 124).

System-wide privileges	Local privileges
Access Groups	Access Geographic Locations
Access Config Items	Access Network Items
Maintain System Parameters	Access Alarms
Maintain Schedule Group Members	Access Logic Pages
Maintain Categories	Access User Category 1 - 5
Maintain Trends Display and Print Setup	Edit Setpoint Parameters
Maintain Alarm Templates	Edit Setpoint Tuning Parameters
Acknowledge Non-Critical Alarms	Edit Tuning and Logic Parameters
Acknowledge Critical Alarms	Edit Manual Override Parameters
Force Normal Non-Critical Alarms	Edit Point Setup Parameters
Force Normal Critical Alarms	Edit Restricted Parameters
Delete Non-Critical Alarms	Edit Category Assignments
Delete Critical Alarms	Edit History Value Reset
Execute Audit Log Report	Edit Trend Parameters
Download Controllers	Edit Calibration Parameters
System Shutdown	Edit Hardware Controller Parameters
Engineer System	Edit Critical Configuration
Access Commissioning Tools	Edit Area Name
Maintain Graphs and Reports	Edit Control Program Name
Maintain Connections	Edit Alarm Configuration
Remote File Management	InterOp Privilege 1 - 10
Remote Data Access-SOAP	Manage Alarm Messages and Actions
Do not audit changes made using SOAP (Web services)	Maintain Schedules
Manual Commands/Console Operations	
Manual Commands/File IO	
Manual Commands/Adv Network	
Manual Commands/Unrestricted	

NOTES

- For an operator to add, edit, or delete schedule groups, he must have the system-wide privilege Maintain Schedule Group Members. He must also have the local privileges Access Geographic Locations and Maintain Schedules at each location that is a member of the schedule group.
- If you switch to location-dependent operator access in a system that has operators and privileges set up, WebCTRL splits any existing privilege set containing local and system-wide privileges into two separate privilege sets - one local and one system-wide. Operators' system-wide privilege sets still apply throughout the system. The operators' local privilege sets are automatically assigned at the system level. You can then reassign the local privilege sets to the operators at the locations where they need them.

To add a privilege set

Adding a privilege set using location-dependent operator access is the same as using location-independent operator access except that you must select whether you are adding a system-wide or local privilege set. See *Privilege sets* (page 124).

To assign privilege sets to an operator

Assign a **system-wide** privilege set to an operator on the Operators page in the same way you would assign privilege sets in a system using location-independent operator access. See *Operators and Operator Groups* (page 127).

Assign a **local** privilege set to an operator at locations on the **GEO** or **NET** tree where he needs the privileges.

1 Select a location on the **GEO** or **NET** tree.

2 Click **Privileges**.

3 Click **Add**.

4 Select the operator or operator group.

5 Click **OK**.

6 Select the privilege set(s) that you want the operator to have.

7 Click **OK**.

NOTE You can display icons and hover text in the **GEO** tree that show where privileges have been assigned. See *Tree icons and hover text* (page 22).

To delete a local privilege set assignment

1 On the **GEO** or **NET** tree, select the location where the assignment was made.

2 Click **Privileges**.

3 Select the assignment under **Privilege Set Assignments at this Level**.

4 Click **Delete**.

5 Click **OK**.

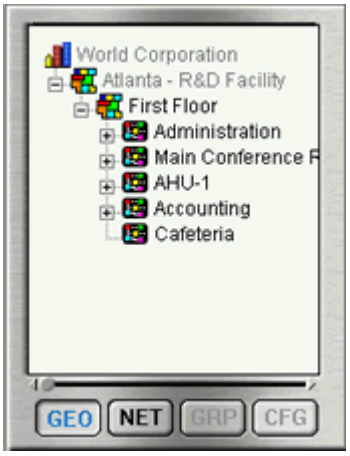
Restricting access in the system

Restricting an operator's access to areas of the system

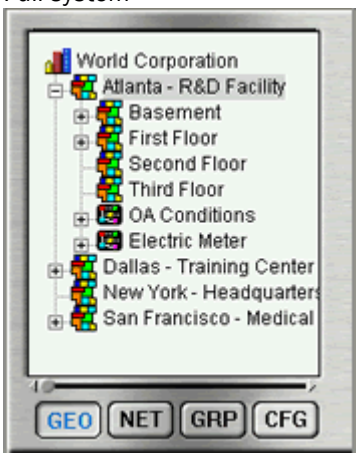
You can give an operator access to only a specific area of the system. All other areas will be either grayed out or not visible when the operator logs in to WebCTRL.

EXAMPLE If you give an operator the Access Geographic Locations privilege only at the first floor of the system shown below, he will see a navigation tree like the one on the left. The areas above the first floor are visible because he needs them to navigate to the first floor, but grayed out because he cannot access them. The operator does not see Dallas, New York, or San Francisco because he can't access them and does not need them to navigate.

Restricted access



Full system



Restricting all operator access to a location

To remove all operators' local privileges from a location so that you can assign access only to a specific operator(s), navigate to the location, select **Privileges**, then clear the checkbox **Inherit security privileges from above this level**.

Security Assignments Report

A Security Assignments Report shows an operator's local and system-wide privileges and privilege sets at a specific location.

1. Select the location on the **GEO** or **NET** tree.
2. Click the **Reports** button drop-down arrow, then select **Security** > **Security Assignments**.
3. On the **Options** tab, select an operator.
4. Click **Run**.

Recording reasons for edits (21 CFR Part 11)

Optional WebCTRL Package

NOTE To see if your system has this optional package, click  , then select **About**. You have this package if **Enabled Features** shows **Adv. Security**.

The Advanced Security package provides support for 21 CFR Part 11. With this feature enabled, WebCTRL can require an operator to record a reason for changing an equipment property before WebCTRL accepts the change. WebCTRL's Audit Log report then displays the operator's name and the recorded reason for making the change.

NOTE You cannot use WAP-enabled devices to change equipment that requires operators to log changes.

To set up equipment to require reasons for changes

1 In WebCTRL's **GEO** or **NET** tree, right-click the equipment, then select **Configure**.

2 Select the **Require operator to record any changes to equipment** checkbox.

3 Click **OK** or **Apply**.

NOTE You can also turn this setting on in SiteBuilder in the equipment's Properties dialog box.

To view reasons for changing equipment properties

1 In WebCTRL, select a piece of equipment that requires reasons for change.

2 Click the **Reports** button drop-down arrow, select **Security** > **Audit Log**.

3 On the **Options** tab under **Display the following columns**, select the **Reason** checkbox.

4 Click **Run**.

Advanced password policy

Optional WebCTRL Package

NOTE To see if your system has this optional package, click  , then select **About**. You have this package if **Enabled Features** shows **Adv. Security**.

With the Advanced Security package, you can set up a WebCTRL password policy to meet your security needs.

1 On the **CFG** tree, select **System Settings**.

2 Select the **Security** tab.

3 Enter information in the fields described below.

NOTE See *System Settings* (page 160) for information on all the other fields.

Field	Notes
Use advanced password policy	Enable this field to put restrictions on passwords. An operator's login name and password must be different when this policy is enabled. After you change the password policy, any operator whose password doesn't meet the new requirements will not be locked out of the system, but will be prompted to create a new password.
Passwords must contain	You can require that passwords contain any or all of the following: Numbers Special characters—any keyboard character that is not a number or letter. Letters—uppercase, lowercase, or both.
Cannot be changed more than once every __ days.	Enter a number to limit how often users can change their passwords. When set to 0, users can change them as often as they want.
May not be reused until __ different passwords are used.	Enter a number between 1 and 20. Enter 0 to reuse passwords without a delay.
Expire after __ days	Enable to set the number of days an operator can use his password before the system requires him to change it. Enter a number between 1 and 999.
Force expiration	Click this button to force every user's password to expire. Each user will be prompted to change their password when they next attempt to log in to WebCTRL.

Chapter 12

Cost-saving strategies

HVAC equipment runs in order to maintain adequate temperature for zones. Some zones, like classrooms, must maintain a comfortable temperature only while people occupy them. When a zone is no longer occupied, you can define different setpoints that require less energy to maintain. Use WebCTRL Schedules for these occupied/unoccupied zones so that equipment runs only as needed to reduce energy consumption, but not comfort.

Other zones, like computer server rooms and production floors, must maintain particular cooling and heating setpoints 24 hours a day, 7 days a week. Schedules would have no cost-saving effect on them. Use one of the other cost-saving strategies to reduce energy consumption and equipment repairs for these kinds of zones.

You can realize the greatest savings by using Schedules. Then fine tune Optimal Start, Demand Control, and Setpoint Optimization. Each strategy depends on a particular microblock.

Microblock	Strategy	Description
	Schedules (see page 55)	Define when a building or zone is occupied and whether or not equipment should run, depending on the occupied setpoints.
	Optimal Start (see page 49)	Ensures that a zone's ideal comfort range is reached just as the zone becomes occupied.
	Demand Control (see page 52)	Relaxes heating or cooling setpoints when a certain level of energy use is reached in order to avoid peak demand, ratchet, or time of use electric charges.
	Setpoint Optimization (Trim and Respond) (see page 53)	Calculates a piece of equipment's setpoint based on the number of heating or cooling requests it receives from other equipment.

Advanced topics and features

Chapter 13

Manual commands

To run a manual command:

1 Click the menu button  , then select **Manual Command**.

2 Type the manual command in the dialog box, then click **OK**.

TIP **Ctrl**+**M** also opens the dialog box.

You must have the Manual Commands/Console Operations privilege to access the manual commands dialog box. The descriptions below tell you if you need an additional privilege to run the corresponding command.

Command	Description
addon	Opens a dialog box where you can upload, start, stop, or remove an add-on program such as Tenant Override Billing.
arcnet	Run this command each time you plug a device, such as a laptop, into a controller using an ARCNET card. The arcnet command configures WebCTRL to recognize your device as the WebCTRL server. Run this command from the equipment, controller, or network level on the **NET** tree.
autopilot location	Displays the full path for the current location and copies the path to the Windows® clipboard. You can then paste the path into the autopilot.xml file that runs WebCTRL's autopilot. See *Running WebCTRL's autopilot* (page 149).
bbmd commands:	You must have the Manual Commands/Adv Network privilege to run bbmd commands.
bbmd read <IP address>	Reads the BBMD table of the controller at the given IP address. For example, to display the BBMD table in the BACnet device router at IP address 154.16.12.101, type: `bbmd read 154.16.12.101`
bbmd update <network number>	Selects BBMDs on the specified network and marks them for download. If no network is entered at the end of the command, all networks in the system are scanned. For example, if the network number is 888, type: `bbmd update 888`

Command	Description
bbmd view <network number>	Views the list of BBMDs that have been selected for the network number at the end of the command. Assumes the update has been run. For example: `bbmd view 888`
bbmd write <table file> <IP address>	Writes the BBMD table into the controller at the given IP address. See To set up BBMD's using WebCTRL. For example, to write the BBMD table in dallasbbmd.bdt into the BACnet device router at IP address 154.16.12.101, type: `bbmd write dallasbbmd.bdt 154.16.12.101`
bbmd clear <IP address>	Clears the BBMD for the specified controller. For example: `bbmd clear 154.16.12.101`
bbmd dump <network> <file>	Writes to a file the BBMD from the specified controller. For example: `bbmd dump 888 dallasbbmd.bdt`
checkurls	**1** Finds all network point exp: expressions for the selected item in the **GEO** or **NET** tree. **2** Converts the exp: expressions to bacnet:// equivalent expressions that the controllers use. **3** Compares the equivalent bacnet:// expressions to the bacnet:// expressions currently downloaded in the controllers. **4** Displays any mismatches.
checkurls -p	Does the same as checkurls, then adds any mismatches to the download queue as parameter downloads.
checkurls -v	Does the same as checkurls, but displays the exp: and bacnet:// expressions for all network points that were checked.
commstat	Gives a complete set of diagnostic information for all defined connections as well as information regarding all modems in the system.
copy	Displays a global copy utility that allows you to selectively copy trend graphs, custom reports and all editable properties from the selected equipment to other equipment in the system with the same control program. See *To use Global Copy* (page 42).
disconnect	Disconnects you from a BACnet dial-up session if you are the last active operator.
download commands:	Each of these commands performs an immediate download to a controller for the selected control program, device, or driver.
download m	Downloads all content, including parameters, schedules, and BBMDs (if applicable).
download p	Downloads parameters only.
download s	Downloads schedules only.

Command	Description
go commands:	

go <refname or path>	Goes to the point in the system that is referenced.
	For example:
	`go #oa_conditions`
	or
	`go vav_1/m28`

go ~net	Takes you from a piece of equipment on the **GEO** tree to the same equipment on the **NET** tree.
go ~geo	Takes you from a piece of equipment on the **NET** tree to the same equipment on the **GEO** tree.
go ~device	Takes you to the controller for a point or piece of equipment on the **NET** tree.
go ~network	Takes you to the network the selected object's controller is associated to.
go -logicpopup <refname>	Goes to the microblock pop-up for the microblock that is referenced. You must run this command from the microblock's equipment in the navigation tree. For example: `go -logicpopup lstat`
go <device ID>	Goes to a device in the **NET** tree. For example, to go to device 301205 referenced in a dead module alarm, type: `go 301205`
go <device ID>/<object ID>	Goes to a device and object in the **GEO** or **NET** tree. For example: `go 300550/AI:3`
go <object ID>	Goes to an object for the current device in the **GEO** or **NET** tree. For example, if a module alarm reports a control program Locked I/O Alarm and references an error in program 11, click the link to go to the device, then go to the object by typing: `go PRG:11`
go <s.g.m.p>	(site, gateway, controller, program) Goes to the item that the s.g.m.p address references. Use this command for legacy equipment only. For example: `go 2,1,4,1`
localhost	Shows the IP address of the WebCTRL server
logoffuser	Logs off a user (without warning the user). Type a `whoson` manual command to view the IDs of logged in operators, then type `logoffuser x`, where x is a the user's ID.
markdownload commands:	These commands place the controller for the selected tree item on the list to download at a later time. The download list can be viewed at **NET** > **Downloads**.

Command	Description
markdownload	Marks for an All Content download, that includes parameters, schedules, and BBMDs (if applicable).
markdownload p	Marks for a Parameters download.
markdownload s	Marks for a Schedules download.
memory	Shows the amount of server memory allocated for WebCTRL and the amount being used by WebCTRL.
memory -free	Releases unused server memory, then shows the memory usage by WebCTRL before and after the release.
modstat commands:	These commands display a Modstat report. **NOTE** It is not necessary to download a controller before running a Modstat on it. Binding takes place when you run the modstat.
modstat	Displays status of the controller at the current location, including: • Hardware components of the device • Software components of the device • Error conditions that may exist in the device • Date and time the device is using
modstat 8:<device instance number>	Displays status for a specific controller in the IP network using the controller's ID. Your location in the system does not have to be the controller you are querying. For example: `modstat 8:489202`

modstat mac:<network number>,<media type>:<mac address>	Displays a Modstat for a specific controller in the system using the controller's MAC address. Network number is the number of the network this controller is on as specified in SiteBuilder; media type is the type of network the controller is on; MAC address can be either the controller address or the IP address and depends on the controller's media type.
	For example:
	`modstat mac:48161,arcnet:2`
	or
	`modstat mac:888,bacnet/ip: 172.16.101.119`

notify	Sends a message to all operators currently logged in to the system. For example, "The server is going to shut down in 5 minutes. Please log off." To run this command, type: `notify your message`. The message must use only alphanumeric characters. You must have the Admin privilege set or the Engineer System privilege to run this command.

Command	Description
paramupload	Uploads parameters (editable properties) to WebCTRL Server from the equipment or driver at the current location and below. If you want to upload editable properties for all equipment on a floor, navigate to the floor level on the **GEO** tree. If you want to do this for everything under a particular router (such as an), navigate to the router or the network on the **NET** tree. You must have the Manual Commands/Adv Network privilege to run this command.

ping	Ping to verify communication between to IP devices. You cannot ping devices on non-IP networks. To run this command type: `ping <hostname>` where <hostname> is the IP address or device name.
	For example:
	`ping 192.168.168.1`
	(will ping the IP address 4 times)
	or
	`ping 192.168.168.1 -t`
	(will ping the IP address constantly)

rebootserver	Restarts WebCTRL Server. You must log back in to WebCTRL if you want to continue. You must have the System Shutdown privilege to run this command.
rebuild	Rebuilds a Properties page. Use if you make changes to control program property text in EIKON LogicBuilder.
reload	Reloads a control program. Use if you make changes to control program logic in EIKON LogicBuilder. You must have the Engineer System privilege to run this command.
restartmodule	Restarts the current controller. You must have the Manual Commands/Adv Network privilege to run this command.
rnet here	Overrides the address configuration of the Rnet host controller to allow a subsequent All Content or Parameters download. Run this command if you experience communication problems with the controller because the controller's network number does not agree with SiteBuilder's network number. Run this command from a control program, device or driver.
revert	Resets the selected driver or control program to its default values.
setdefault	Sets the current page as the default view for the selected action button and the selected tree location. You must have the Engineer System privilege to run this command.

Command	Description
setgcm	Initializes any LANgate (gateway) from a converted SuperVision system. After downloading to the LANgate, run setgcm if you: • Added a controller to a CMnet where the address is set higher than any other address on the CMnet • Changed the 3-letter system name • Changed the dead module timeout value on the System Settings page • Changed the site number in SiteBuilder (previously referred to as the line number) setgcm sends the following information from the WebCTRL database to the LANgate: • Maxnet (the highest addressed controller plus one) • 3-letter system name • Site number • Dead module timeout value **NOTES** • You can send this command over network, direct or modem connections, but not over a direct network (access port). • In SuperVision, the command set the workstation phone number in the LANgate. You must now type the LANgate's phone numbers on the LANgate's parameter pages. • You must have the Manual Commands/Adv Network privilege to run this command.
showhistory	Gives historical information on the system, such as when it was created and updated. You must have the Manual Commands/Unrestricted privilege to run this command.
shutdown	Shuts down WebCTRL Server. This stops communication between the server and the client, but does not close any open WebCTRL pages. You must have the System Shutdown privilege to run this command.
storetrends	Uploads trend data from the controller(s) to the database for all equipment at and below the selected item on the **GEO** tree. This command stores trend data for points that have Trend Historian enabled.

Command	Description
timesync	Synchronizes the time on all controllers at the current location and below to the time on the server. Run this command only from a location in the **NET** tree. **NOTE** For CMnet networks, executing a timesync on a controller sends the timesync to its gateway, and all the controllers under that gateway. You must have the Manual Commands/Adv Network privilege to run this command.
updatedriver commands:	You must have the Engineer System privilege to run updatedriver commands.
updatedriver	Updates the selected controller to the latest version of its driver.
updatedriver net	Updates the selected controller to the latest version of its driver and any other controllers on the same network that use that driver.
updatedriver all	Updates the selected controller to the latest version of its driver and all other controllers in the system that use that driver.
whereami	Displays the full path for the current location and gives the display and reference names of the action button, category, instance and tab. If the selected tree location differs from the location shown in the action pane (for example, a point trend page), whereami returns information on both locations. Use this command when you create links in ViewBuilder.
whoson	Shows the list of users currently logged in to the WebCTRL system, the IP addresses from where they are logged on, what kind of interface they are using (for example, lvl5 for an Internet browser on a computer), and how long it has been since they have actively interfaced with the WebCTRL system.
zap	Restarts the current controller. You must have the Manual Commands/Adv Network privilege to run this command.

Chapter 14

Running WebCTRL's autopilot

To monitor your WebCTRL system, you can run the autopilot to display specified WebCTRL pages at regular intervals. You can run the autopilot on the WebCTRL server or on one or more client computers. Each computer can display a different set of pages.

To set up WebCTRL's autopilot

1. Copy the WebCTRL**x.x\autopilot** folder from the WebCTRL system to any location on the computer where you will be running the autopilot.
2. In a text editor such as Windows® Notepad, open the **autopilot.xml** file in the new folder you created in step 1.

   CAUTION Do not open or edit the original autopilot.xml file in the WebCTRL system. Keep this file to set up the autopilot on other computers.
3. In the row that begins with **<script**, replace the highlighted text shown below with the information needed to start your system.

   NOTES

   - The **Attribute** list near the top of the file describes each field.
   - To prevent exposing someone's password in this file, create a generic user and password in WebCTRL.

4. Each pair of rows beginning with **<navigate** and **<delay** define a page in WebCTRL and how many seconds WebCTRL should display the page. Follow the steps below to replace each **<navigate** line with information specific to your system. Add or delete rows as needed.

   a) In WebCTRL, go to the page you want to display.

   b) Press **Ctrl**+**m**.

   c) Type `autopilot location`.

   d) Click **OK**. The path to the WebCTRL page is displayed and is copied to the Windows clipboard.

e) In the **autopilot.xml** file, highlight a **<navigate** row, then press Ctrl+V to replace the highlighted text with the copied WebCTRL path.

NOTE To have the autopilot run a report, define the path to the report's **View** tab.

5 In the **<delay** row below each path, change 20 to the number of seconds you want to display the WebCTRL page.

6 Save the file.

To run WebCTRL's autopilot

NOTE If your computer is running Windows Vista®, see *To run autopilot with Windows Vista* (page 150) before starting the autopilot.

1 Start WebCTRL Server.

2 Run the **autopilot.bat** file that you created in step 1 of *To set up WebCTRL's autopilot* (page 149).

NOTES

- To stop the autopilot, do one of the following:
  - Close the browser.
  - Close the Command Prompt window that is running the **autopilot.bat** file to stop the autopilot but leave WebCTRL running in the browser.
- If the autopilot does not start, open **autopilot.log** to see the error.

To run autopilot with Windows Vista

To run the autopilot with the Windows Vista® operating system, you must add the WebCTRL URL to Internet Explorer's trusted sites.

1 In Internet Explorer, select **Tools** > **Internet Options**.

2 On the **Security** tab, select the **Trusted Sites** icon, then click the **Sites** button.

3 Under **Add this Web site to the zone**, type the url that autopilot uses to start your system. See step 3 in *To set up WebCTRL's autopilot* (page 149).

4 Clear the checkbox beside **Require server verification (https:) for all sites in this zone**.

5 Click **Add**.

6 Click **OK** to close both windows.

7 Close Internet Explorer to have the changes take effect.

Chapter 15

Managing files on a remote WebCTRL server

WebCTRL supports WebDAV, a network protocol designed for managing remote server files through an Internet connection. By using WebDAV, you can access the Internet from anywhere in the world and manage your system files residing on a distant WebCTRL server.

Methods for using WebDAV

- A third-party WebDAV client application such as WebDrive allows you to open remote files in addition to managing them.
- Perform remote file management:
  - With Internet Explorer by opening the remote system as a web folder.
  - With Microsoft Windows file explorer by adding a network connection in file explorer.

  NOTE These functions may not be available on all versions or combinations of Windows operating systems or Internet Explorer.

To use WebDAV with Internet Explorer

PREREQUISITES

On your client computer, you must:

- Be running WebCTRL v2.0 or later on the WebCTRL server.

  NOTE Your WebCTRL system must be running on the remote server for WebDAV to work; you can then access the webroot folder for the system. You cannot edit the WebCTRL database when using WebDAV.
- On the WebCTRL **Systems Settings** page **Security** tab, enable **Remote File Management**.
- Have Remote File Management privilege assigned in your privilege set.
- Have a password for the person logging in; the password field cannot be empty.

To use WebDAV from a client computer:

1. On the Internet Explorer menu bar, select **File** > **Open**.
2. In the **Open** dialog box, select **Open as Web Folder**.
3. In the **Open** field, type the IP address of your WebCTRL server/webdav. For example: `http://172.16.2.163/webdav`.

   NOTE On a Windows XP machine, you may need to include the HTTP port number in your URL. For example: `http://172.16.2.163:80/webdav`.
4. Type your WebCTRL user name and your password.

   NOTES

   - The user name must not end with a space when using WebDAV.
   - The password field must contain a valid password, must not contain a space, and must not be blank.
5. Browse to **Web Folders** to remotely view and manage your WebCTRL files.

Chapter 16

Using wireless devices with WebCTRL

WebCTRL supports Wireless Application Protocol (WAP), a communications protocol that allows you to access your system through a wireless device, such as a mobile phone. WebCTRL supports WAP-enabled browsers on 2G and 3G devices on the Sprint PCS network and Pocket Internet Explorer on devices running Windows Mobile for Pocket PC 2003 or later.

Using a WAP device, you can access the Internet and remotely manage certain aspects of your system. WebCTRL currently supports only English alphanumeric characters.

NOTES

- Navigation buttons and how the information is presented varies among WAP devices.
- To use WAP through a Secure Sockets Layer (SSL), you must use a certificate from a trusted Certificate Authority (CA). Ask your phone company which Certificate Authorities they support. See "To set up TLS/SSL using a self-signed certificate" in WebCTRL Help.

Supported WebCTRL features

The WAP interface supports the following features of WebCTRL. You can:

- Navigate through the **GEO** tree.
- View and manage **Alarms** for the current location.
- Receive an e-mail alarm message.
- View and edit abbreviated **Properties** pages for areas and equipment.
- View and edit abbreviated **Properties** pages for microblocks.

You cannot:

- View and manage **Schedules**.
- View and edit items under the **CFG** tree.
- Configure and view **Reports**.
- View **Graphics** pages.
- Send manual commands.

To dial up a System using WAP

Dialing up a WebCTRL system using a WAP device differs from dialing a telephone number. Each service has a slightly different method. The following method for connecting to a WebCTRL server using WAP is similar to the Sprint PCS Wireless mobile phone process.

1. Turn on the WAP device.
2. Select **Wireless Web**.
3. Select **Launch Browser**.
4. Select **Menu**.

   You can also select **WebCTRL bookmark** if one has been saved.
5. Select **Goto**.
6. Tap in the WebCTRL IP address; for example, `192.168.168.1`.

   NOTE If you do not see the WebCTRL login, tap in the IP address again and do the following:

If your WAP device supports...	...append these characters to the end of the address.
WML browsers. Applies to most older (pre 3G) WAP devices.	?t=w
XHTMLMP browsers. Applies to most newer (3G) WAP devices.	?t=xmp
XHTML browsers. A text only interface for PC's or PDA's.	?t=X

   EXAMPLE `192.168.168.1?t=xmp`
7. Log in to your WebCTRL system:
   - Tap in your WebCTRL username, then select **OK**
   - Tap in your WebCTRL password, then select **Login**.

To navigate the System

Navigating through the WAP interface is the same as navigating through the WebCTRL **GEO** tree—the WAP screen is similar to the WebCTRL navigation pane.

WebCTRL automatically generates default WAP interface pages. However, you can create custom pages using ViewBuilder for WAP.

After you log in, the first screen shows the system level. The name at the top of the screen is the name of the current level. To navigate deeper into the system, select an item by either pressing its number on the keypad or by scrolling through the list and then selecting OK. To navigate to other areas of the system, see below.

Select		Action
1...		Navigate up one level.
Menu	**Navigation**	Return to the navigation tree (area and equipment level only).
	Alarms	List the alarms at the current level (area and equipment level only).
	Properties	Show properties at the point level and show properties at the area and equipment levels if custom pages have been attached.
	Back	Return to the previous page.
	Go to Root	Return to the top of the **GEO** tree.
	Logout	Log out of WebCTRL.

To view and edit Alarms

1 Navigate to the area you want to view alarms for.

2 Select **Menu**.

3 Select **Alarms** to view all alarms at this area.

4 Select an alarm, then click **OK** to view or edit its details.

5 Select **Actions** to view a list of actions for the alarm.

6 Select the action to be done, then select **OK**.

Select	Action
1 List	List all alarms at the current area or equipment level.
2 Navigation	Return to the navigation tree.
3 Ack All	Acknowledge all alarms at the current level.
4 Del All Closed	Delete all closed alarms at the current level.
5 Del All	Delete all alarms at the current level.

To view and edit equipment properties

NOTE If WebCTRL requires reasons for changes to equipment (see page 135), you cannot edit equipment properties using WAP.

1 Navigate to a point or BACnet object to view.

2 Edit any properties in brackets.

NOTE You may need to scroll down the screen to view them all.

For example, from the BACnet analog input point level, you can view the following:

Select	Action
Value	Present value for that point.
Lock	Locked override status for that point; **True** locks the present value to the **At** value.
At	Locked override value.
Alarm	Alarm state for that point.

Chapter 17

Setting up a system in WebCTRL

Editing the GEO or NET tree in WebCTRL

In WebCTRL, you can edit the **GEO** or **NET** tree that was originally set up in SiteBuilder. The system database is updated immediately.

Right-click an item in the **GEO** tree, then select **Set up Tree**. Click **GEO** or **NET** to display the tree you want to edit.

Click this button...	Or use this shortcut...	To...
		Add an area as a child of the selected area. (GEO tree only)
		Import a clipping that was saved in SiteBuilder. See *To import a clipping* (page 158) below.
	Ctrl+X	Cut a selected item so it can be pasted in another location in the tree. (GEO tree only)
	Ctrl+V	Paste an item that was previously cut from another location in the tree. The item will be pasted as a child to the selected item. (GEO tree only)
	Up arrow, or Drag and drop in new location	Move the selected item up the tree to a new location. (GEO tree only)
	Down arrow, or Drag and drop in new location	Move the selected item down the tree to a new location. (GEO tree only)
		Rename the selected item.
	Delete	Delete the selected item. The item and all of its children will be deleted.
	Double-click the tree item	Edit the item's features such as: • names • view—See *To attach a graphic in WebCTRL* (page 33) • control program—See *Working with control programs in WebCTRL* (page 171)

CAUTIONS

- Make a backup of your system before making changes.
- Make changes carefully as they cannot be undone.

NOTES

- You can also right-click items in the **Set up Tree** dialog box to perform the above tasks.
- You can perform some of the above actions on multiple tree items simultaneously. Use **Ctrl+click**, **Shift+click**, or both to select multiple items.

To import a clipping

You can export a clipping (a portion of a system) in SiteBuilder and then import it in WebCTRL. The following items are imported:

- One or more selected **Geographic** and **Network** tree items including attached control programs, graphics, and drivers
- Reports
- Alarm templates and categories
- Location-dependent security information
- Schedules and schedule group membership (including the entire schedule group and schedules, if it does not exist in the target system)
- Alarm actions
- Alarm message prefixes and suffixes
- Source tree relationships (including source tree rules if the source tree does not exist in the target system)

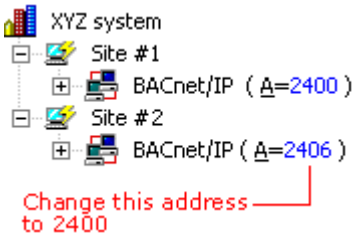
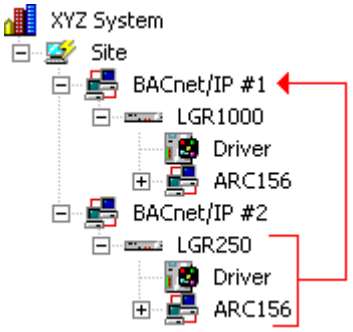
To import a clipping:

1. Right-click an item in the **GEO** tree, then select **Set up Tree**.
2. Click the **Import clipping** button  .
3. **Browse** to and select the clipping you want to import, then click **Next**.
4. Optional: If necessary, you can change the location path where the clipping will be imported. Select the system fragment, then select the import location in the tree below.
5. Click **Next**.
6. If asked if you want to replace event templates, follow the on-screen instructions.
7. If asked if you want to overwrite components, follow the on-screen instructions.
8. WebCTRL lists any conflicts and problems that were found during the import. Make any needed corrections in SiteBuilder.

   NOTE Click **Copy to Clipboard** and then paste the list into another program such as Notepad for viewing or printing.
9. Click **Next**.

10 Click **Finish**.

11 Do any of the following that apply.

If you imported...	Do the following in SiteBuilder...	Do the following in WebCTRL...
Another site into the system	Change the new site's BACnet/IP network number to be the same as the other BACnet/IP network(s). 	Download All Content to all ALC IP routers in the system.
A second BACnet/IP network into a site	Move the items under the new network to the original BACnet/IP network, then delete the new network. 	Download Parameters to any controllers that you moved.
Any controllers that use the SiteBuilder option **Automatically Configure My BBMDs**	N/A	Download BBMDs to the routers.
Any controllers that use manually configured BBMD tables	N/A	Update the routers' BBMD tables. See "To set up BBMD's using WebCTRL" or "To set up BBMD's using the BBMD Configuration Tool" in WebCTRL Help.

System Settings

The System Settings page contains information that you must enter before WebCTRL can run properly.

To access System Settings:

1 On the **CFG** tree, select **System Settings**.

2 Click each tab, then enter the necessary information. Tab details are described below.

General tab

The **General** tab presents the following system information:

- **System Directory Name**
- **System Date and Time**
- **Path to the Web Root Directory**
- **Database Type**

You can edit or use the following fields and buttons.

Field	Notes
Time Sync	Click to synchronize the time on all controllers in the system to the time on the server.
Time Format	Select one of the following for the system's time: • **12-hour clock** (Example: 4:34 pm) • **24-hour clock** (Example: 16:34)
Date Format	Select the format you want the system to use.
Node Name Display Depth	The number of levels displayed in paths in WebCTRL. For example, if **Node Name Display Depth** is set at: 2, a typical path might be ..\AHU-1\RA Temp 3, a typical path might be ..\Atlanta R&D\First Floor\AHU-1 **NOTE** Changing this field does not take effect until you restart WebCTRL Server.
System Language	The language to be used for: • The default language for new operators • Alarms logged to the database • State text and object names downloaded to the field • The login page **NOTE** Language also refers to formatting conventions. For example, English uses the date format mm/dd/yy, but English (International) uses the date format (dd/mm/yy).

Field	Notes
Use a single alarm template for CMnet alarms	If your system is an upgraded legacy system, do one of the following: • Select this checkbox to have alarms for CMnet equipment use only the alert_auto alarm template. • Disable this checkbox to allow multiple alarm templates.
All Source Files	Use to export source files to a .zip file that can be imported into Field Assistant. If the technician using Field Assistant changes or adds files, he can export them from Field Assistant so that they can then be imported in WebCTRL or SiteBuilder. Source files include: • Control programs (.equipment files only) • Drivers • Graphics (.view files only) • BACview files **NOTE** If import detects a difference between a database file and an import file with the same name, import does not overwrite the database file. A message lists any file differences so that you can resolve them. See Commissioning equipment using Field Assistant.
Alarm Popup	Select the checkbox to use the Alarm Notification Client application. See *Alarm Popup* (page 82).
Restrict to IP Address	If the server has more than one network interface adapter, type the IP address of the server's network connection that the Alarm Notification Client application will connect to.
Port	Change this field if the Alarm Notification Client application will use a port other than 47806 on the server.
Current client connections	Shows any workstation whose Alarm Notification Client is actively connected to this server.
Select a week of logs to review	For troubleshooting, you can download a zip file that contains logs of system activity.

Security tab

Field	Notes
Log audit data to file	Records operator activities and some system activities (such as opening and closing the database or automatic deletions) in a text file. The default file is **auditlog.txt** stored in **WebCTRL\webroot**<system_name>. You can change the file name and include a different path. To prevent the file from growing too large as new data is appended,

Field	Notes
	you can archive the data to another text file by selecting an archive frequency in the **Archive log file contents** field. The archive file is **auditlog**_yyyy_mm_dd**.txt**, where *yyyy_mm_dd* is the creation date of the archive file. This file is created in the same location as **auditlog.txt**. **NOTE** If you do not archive the log file contents, you should manually delete the oldest entries.
Log audit data to database	Records audit data in a database named **audit.mdb** that can be accessed by third-party software. **NOTE** For Access or MSDE, the database is automatically created. An Access database is named **audit.mdb**; a MSDE database is named **audit.mdf**. For MySQL, SQL Server, PostgreSQL, or Oracle, you must create the database manually.
Delete database entries older than ____ days	Automatically deletes entries in the database that are older than the number of days you specify.
Log errors for invalid URLs	Enable this field to write to the core.txt log any time an external source sends a request to the WebCTRL Server. **NOTE** Regular maintenance scans by external software can cause the log files to grow large.
Security Policy	See *Location-dependent operator access* (page 131) for information on **Change Policy**.
Allow remote file management	Lets you access the system using WebDAV.
Return operators to previous locations when server reconnects	Returns operators to current tree locations when the server reconnects.
Log off operators after _:_ (HH:MM) of inactivity	The system automatically logs off an operator who has had no activity in the system for the time period specified. This is a default setting for the system. The System Administrator can change this setting for an individual operator on the Operators page.
Lock out operators for __ minutes after __ failed login attempts	**Clear Lockouts** removes lockouts for all users. **NOTE** Restarting WebCTRL Server will remove lockouts.
Use advanced password policy	A feature of the Advanced Security package that provides additional security. See *Advanced password policy* (page 135).
Do not synchronize operator and privileges	If using hierarchical servers, WebCTRL automatically synchronizes the operator/privilege settings on the child servers with those on the parent server. You have the following options: • Enable this checkbox on all servers to stop the synchronization process. • Enable this checkbox on a child server to remove it from the synchronization process so that you can manage that server's settings locally.

Field	Notes
Synchronize Now	Click this button on the parent server for immediate synchronization of operator/privilege settings.
Permissions	When control programs, views, and bacview files are created by an original equipment manufacturer (OEM), they cannot be used in a WebCTRL system without the creator's permission. However, the creator can produce a key for a system with a different license that will grant permission to the key's recipient. If you receive a key, put it in the **WebCTRL X.X\resources\keys** folder. The table in the **Permissions** section of the **Security** page shows all keys in the that folder. To activate a key, click **Add**, then browse to the key. To delete a key from your system, select the key in the table, then click **Delete**. Red text in the table indicates the key has a problem such as it does not apply or has expired. See the **Notes** column for an explanation.

Communications tab

The fields on this tab let you define controller communication with WebCTRL Server and BACnet network communication.

Field	Notes
WebCTRL Server BACnet Device Instance and BACnet Alarm Recipient Instance	The BACnet identifier for the system's server and the alarm recipient. You enter these system properties in SiteBuilder.
Always upload properties from controllers to WebCTRL server on mismatch	Automatic uploads are listed in the Audit Log. If you do not select this field, properties must be manually uploaded or downloaded by the operator when a mismatch occurs. **NOTE** If an automatic upload fails and the operator chooses to do nothing at that time, the upload will be attempted again when he returns to the page where he encountered the mismatch.
Ignore incoming alarms from sources not in this database	WebCTRL Server will ignore alarms from third-party devices not in the database or devices from other WebCTRL systems on the same network.
BACnet Settings	Native WebCTRL system only
Use Static BACnet Bindings	If selected, WebCTRL uses information in its database to bind to BACnet devices rather than using BACnet's Who-Is/I-Am/Who-Is-Router-To/I-Am-Router-To broadcasts to resolve BACnet network and

	device bindings (dynamic binding). If not selected, WebCTRL uses BACnet (dynamic) binding for communication between devices. Leave this field at its default setting unless you are doing one of the following: • Select this checkbox if your system uses NAT routing. • Clear this checkbox to use BACnet Discovery or for third-party BACnet integration.
Log BACnet Binding Conflicts	When checked, WebCTRL logs binding conflicts that result from duplicate network numbers or device IDs.

Scheduled Tasks tab

Field	Notes
Automatically delete alarm incident groups which have been closed for more than ___ days	Alarm incident groups are all alarm actions, such as Off Normal, Fault, and Return to Normal, that are triggered by a single alarm. **NOTE** Alarms in an incident group are not deleted until all alarms in the group have been closed.
Archive alarm information upon alarm deletion	Writes alarm information to a text file.
Archive file	The default file is **eventdel.txt** stored in **WebCTRL\webroot**<system_name>. You can change the file name and include a different path.
Archive file format	The alarm information to be written to the archive file. To add information, select field codes in **Append Field Code**. To delete field codes, highlight them in the **Archive file format** box and press **Delete**.
Automatically delete expired schedules daily at ___	To ensure there are no time zone conflicts, WebCTRL waits two days after a schedule expires to delete it.
Keep historical trends for ___ days	Stores trend data in the WebCTRL database for the time you specify. This is a default setting that you can change when you set up trends for an individual point.
Remove expired historical trends daily at ____	Deletes trend data that has been in the database longer than then time you specified in the previous field.

Field	Notes
Enable time synchronization of controllers daily at____	Automatically synchronizes the time on all equipment to the time on the server, adjusting for different time zones and Daylight Saving Time. We recommend that you enable this field. **CAUTIONS** • To prevent time sync problems when the transition to and from Daylight Saving Time occurs, set the time sync to occur at least 1 hour after the last controller in the system is adjusted for DST. For example, your server and part of your system is in the Eastern Standard Time zone, but you also have controllers in the Pacific Time zone. Your server is adjusted for DST at 2:00 a.m. Eastern Standard Time, but the controllers in the Pacific Time zone are not adjusted until 3 hours later. So you would set the time sync to occur daily at 6:00 a.m. or later. • Make sure that your server's time and time zone setting are correct. • Make sure that each site's time zone setting is correct in SiteBuilder. **NOTES** • You can disable this function for an individual site on the site's Properties page. See To set up site properties. • You can also perform time synchronizations using the timesync manual command (see page 141).

Daylight Saving tab

On this tab, you can adjust the settings for Daylight Saving Time.

Click **Update** to automatically set the table's **Begin** and **End** dates for the next ten years based on the system's timezone. This marks all controllers with ExecB drivers for a Parameters download.

If the updated dates are incorrect

If you clicked **Update** but the dates are incorrect, your system's Java timezone data may be out-of-date. Do the following:

1. Go to the *Oracle Java SE Download site* (http://java.sun.com/javase/downloads).
2. Download the **JDK DST Timezone Update Tool** (**tzupdater-.zip**).
3. In WebCTRL, go to **System Settings** > **Daylight Saving**, then click **Import**.
4. Browse to the **tzupdater.zip** file, select it, then click **Open**.
5. Click **Continue**.
6. Restart WebCTRL Server.
7. On the **System Settings** > **Daylight Saving** tab, click **Update**.

Web Applications tab

Optional WebCTRL Package

NOTE To see if your system has this optional package, click  , then select **About**. You have this package if **Enabled Features** shows **Enterprise**.

A web application, such as Tenant Billing, is an application that retrieves and uses data from a WebCTRL system. A web application is a standard Web Application Archive (.war) file as described in the Java Servlet Specification. For example, Tenant Billing is override.war.

To deploy a web application from your WebCTRL system:

1. Save the web application's .war file to your computer.
2. On the **System Settings** > **Web Applications** tab, click **Browse** and open the .war file.
3. Click **Add Web Application**. After a few seconds, the message **Web Application has been successfully deployed** is displayed.
4. Click **OK**. The web application appears in the table at the top of the page. The information in each column is described below.

NOTE To update a web application, select **Remove (Leave data)** in the **Commands** column for that application, follow steps 4 through 6 above, then restart the WebCTRL Server.

Column	Notes
Webapp Path	To open the web application in a web browser, append this path to your WebCTRL system's address. For example, to start Tenant Billing, enter: http://<system_name>/override, or http://<system_IP_address>/override.
Running	Shows the status of the web application. This column must show running for you to open the web application in a browser.
Sessions	Shows the number of web browsers that are currently connected to the web application.
Commands	Use these commands to stop or start the application, remove the application and its data, or remove just the application. **NOTE** If you click one of the **Remove** commands, you must follow the procedure above to deploy the application again. **CAUTIONS** If you click **Remove All**, you will lose all data associated with the web application.
Webapp Data Directory	This displays the size and location of the web application data. For example, the data for Tenant Billing is stored in: WebCTRLx.x\webroot\<system_name>\webapp_data\override
Webapp Directory	Shows the location of the installed web application.

To set up site properties

1 On the **NET** tree, select the site.

2 Click **Properties**.

3 Configure site properties.

Field	Notes
Enable Timesync	Daily synchronizes the time in the site's controllers with the server's time, adjusting for different time zones and Daylight Saving Time. Synchronization occurs each day at the time specified in the field **Enable time synchronization of controllers daily at** on the System Settings > Scheduled Tasks tab (see page 164). **CAUTION** Make sure that your server's time and time zone setting are correct. Also, make sure that the site's time zone setting is correct in SiteBuilder.
Group Cache Controller	The designated router where colors are cached when peer caching is enabled in SiteBuilder.

To register your WebCTRL software

To register your software, you must obtain a registered license from ALC and then apply it in WebCTRL. You can apply it when you install WebCTRL or at a later time.

1 Go to *http://accounts.automatedlogic.com* (http://accounts.automatedlogic.com).

2 Select **Support** > **Software Licenses** > **WebCTRL 2.5 and later (BAS License Manager)**.

3 Select filter criteria to narrow the list of licenses, then click **Filter** in the upper right-hand corner.

4 Select the appropriate row.

5 Fill in the blank fields in the **License Registration Area**.

6 Click **Register License**.

7 Select the checkbox for **I agree to the terms of use**.

8 Click **Download License**, then save the license file to a disk or to your hard drive.

9 Apply your license in WebCTRL:

- During the WebCTRL installation—The installation requests the location of your license file. Browse to location where you saved it in step 4 above.
- After the installation—
  a. In WebCTRL, select **CFG** > **License Administration**.
  b. Browse to the license file.
  c. Click **Apply**.
  d. Restart WebCTRL Server using the rebootserver manual command (see page 141).

NOTES

- Do not edit any part of this registered license file. Editing a license file invalidates the license.
- Store the license in a safe location.

To replace the license when adding features

You can add any of the following optional WebCTRL packages to your WebCTRL system:

- Enterprise integration: Web services (XML/SOAP) data retrieval
- Advanced security: Location-dependent operator access, configurable password policies, and required operator comments/verification for system changes
- Advanced reporting: Custom reports
- Additional alarm actions

You can purchase an optional package at http://orders.automatedlogic.com. Select **Options** under **Software Products**.

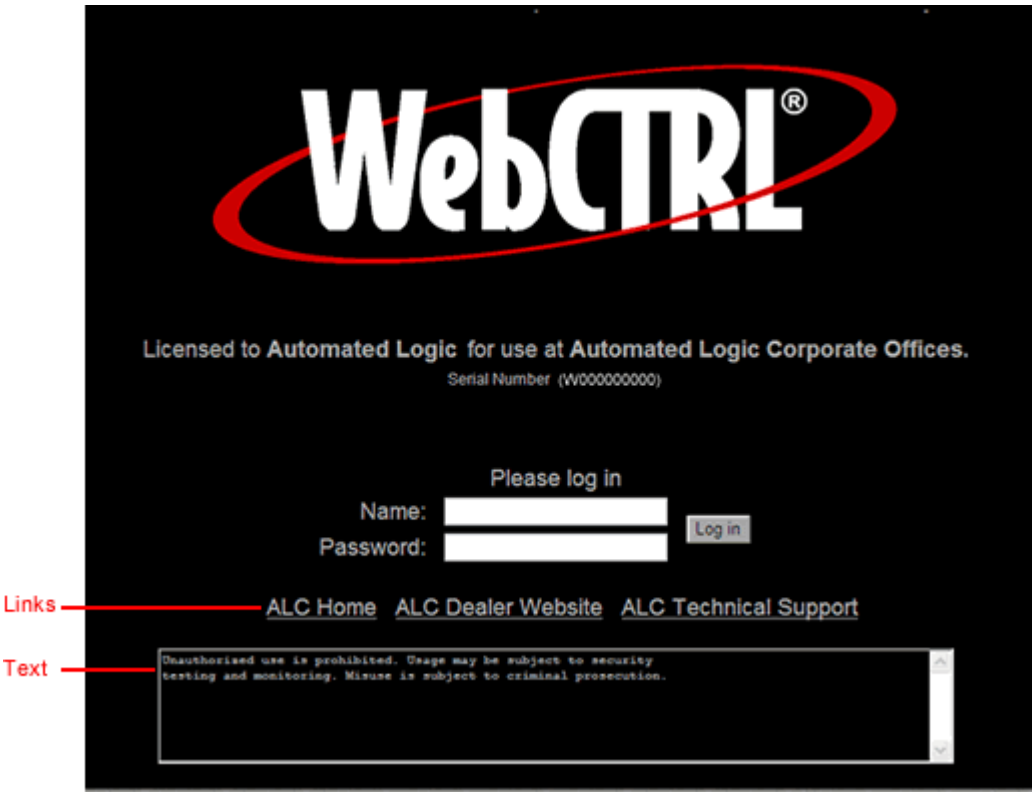
To obtain an updated license and then apply it in WebCTRL:

1. Go to *http://accounts.automatedlogic.com* (http://accounts.automatedlogic.com).
2. Select **Support** > **Software Licenses** > **WebCTRL 2.5 and later (BAS License Manager)**.
3. Select filter criteria to narrow the list of licenses, then click **Filter** in the upper right-hand corner.
4. Select the appropriate row.
5. Select the checkbox for **I agree to the terms of use**.
6. Click **Download License**, then save the license file to a disk or to your hard drive.
7. To replace your license in WebCTRL, select **CFG** > **License Administration**.
8. Browse to the license file.
9. Click **Apply**.
10. Restart WebCTRL Server using the rebootserver manual command (see page 141).

TIP Back up your system (see page 207) before replacing your license in WebCTRL.

Adding links or text to WebCTRL's login page

You can add links or text, such as a disclaimer, to WebCTRL's login page.

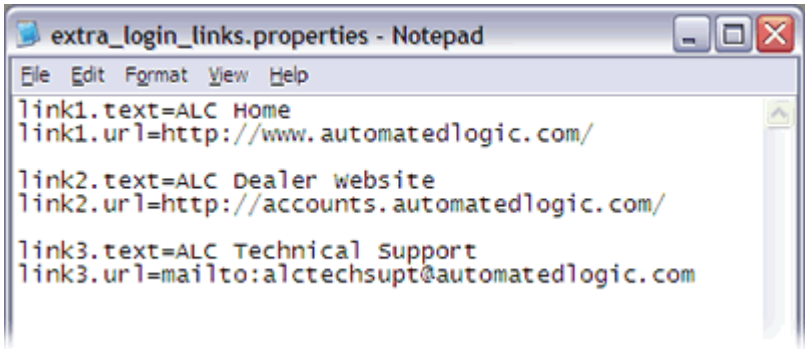


To add links to the login page

1 In a text editor such as Notepad, type 2 lines for each link that you want on the login page.

Line 1: `link#.text=<the link text that is to appear on the login page>`
Line 2: `link#.url=<the link's address>`

Example to add links shown above:

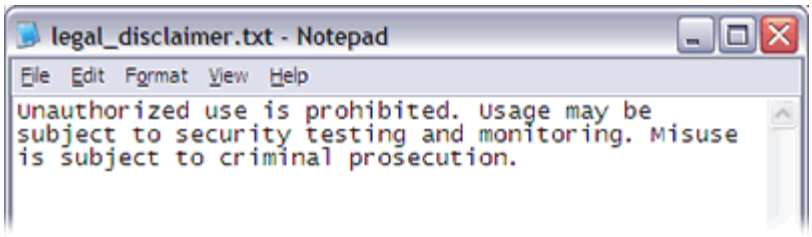


2 Save the file with the following name and location.
File name: extra_login_links.properties
Location: WebCTRLx.x\webroot\<system_name>

To add text to the login page

1 In a text editor such as Notepad, type the text that you want on the login page.

Example to add text shown above:



2 Save the file with the following name and location.
File name: legal_disclaimer.txt
Location: WebCTRLx.x\webroot\<system_name>

Chapter 18

Working with control programs in WebCTRL

A control program is typically defined in SiteBuilder when the system is engineered, but you can make the following changes to a control program in WebCTRL. These changes require you to download All Content to the controller (see page 43).

- Select a different control program

  See topic below.

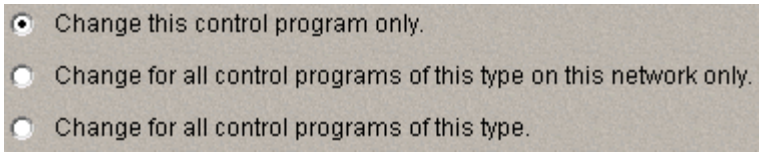
- Reload a revised control program located in **webroot**<system>**\programs**.

  In WebCTRL's **GEO** tree, right-click the equipment, then select **Reload**.

NOTE If you change a control program in EIKON LogicBuilder and it does not display correctly in WebCTRL, **Ctrl**+**right-click** WebCTRL's action pane, then select **Refresh**.

To select a different control program

1. Right-click the equipment on WebCTRL's navigation tree, then select **Configure**.
2. If the system has other control programs of this type, select which control programs you want to change.



NOTES

- If you are changing an IP router's control program, the second option will change all control programs of this type only on the IP network.
- If you are changing a control program on the network below an IP router, the second option will not change control programs of this type in the router.

3 Do one of the following:

If the control program is...	
In the **Control Program** drop-down list	a. Select the control program. b. Click **OK**.
Not in the **Control Program** drop-down list	a. Click **Add New**. b. Browse to select the control program. c. Click **Open**. d. Click **Continue**. e. Click **Close**. f. Click **Close** again.

4 Download All Content to the controller (see page 43).

NOTE You can click **Delete Unused** in the **Control Programs** section to delete all unattached control programs and any supporting files with the same name from the **programs** folder.

To edit a control program on a WebCTRL client

On a WebCTRL client, you can get a copy of a control program from the server, edit it, then put it back on the server.

To get the control program

1 Right-click the equipment on WebCTRL's **GEO** or **NET** tree, then select **Configure**.
2 In the **Control Programs** section, click **Edit Existing**.
3 Click **Save**.
4 Browse to the folder you want to put the file in.
5 Click **Save**.
6 Click **Close**.
7 Click **Close** again.

To put the edited control program back on the server

1 Right-click the equipment on WebCTRL's **GEO** or **NET** tree, then select **Configure**.
2 In the **Control Programs** section, click **Add New**.
3 Browse to select the control program.
4 Click **Open**.
5 Click **Continue**.
6 Click **Close**.
7 Click **Close** again.

Chapter 19

Working with drivers in WebCTRL

A controller's driver is defined in SiteBuilder when the system is engineered, but you can make the following changes to a driver in WebCTRL.

- Change or upgrade a driver. See topic below.
- Reload a driver if it becomes corrupt (for example, a driver page is missing in WebCTRL). On WebCTRL's **NET** tree, right-click the controller or driver, then select **Reload Driver**. Changes you made on the driver pages in WebCTRL remain in effect.

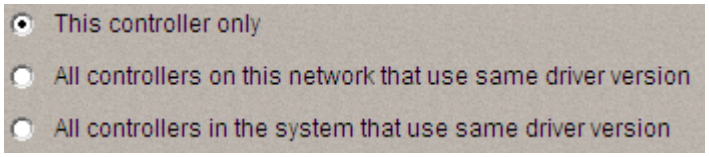
After you make these changes, you must download All Content to the affected controller(s) (see page 43).

NOTE You can also make these changes in SiteBuilder. See "To change or upgrade a driver" in SiteBuilder Help.

To change or upgrade a driver

1 On WebCTRL's **NET** tree, right-click the controller, then select **Configure**.

2 If other controllers in the system use this driver, select which controllers you want to change.



3 Do one of the following:

If the driver is...	
In the **Driver Version** drop-down list	a. Select the driver. b. Click **OK**.
Not in the **Driver Version** drop-down list	a. Click **Add**. b. Browse to select the driver. c. Click **Open**. d. Click **Continue**. e. Click **Close**. f. Click **Close** again.

4 Download All Content to the controller (see page 43).

NOTE You can click **Delete Unused** in the **Controller** section to delete all unused drivers in **WebCTRLx.x\webroot**<system_name>**\drivers**.

Chapter 20

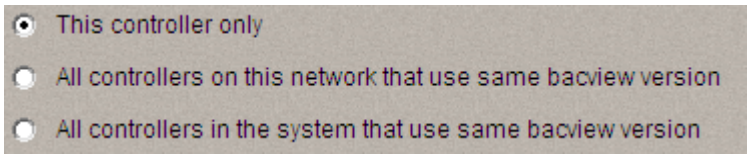
Working with BACview files in WebCTRL

To use a BACview to view or edit a controller's property values, you must download a .bacview file to the controller. The .bacview file is typically defined in SiteBuilder and downloaded with the initial download to the controller, but you can select a different file in WebCTRL.

To select a different .bacview file

1 On WebCTRL's **NET** tree, right-click the controller, then select **Configure**.

2 If other controllers in the system use this .bacview file, select which controllers you want to change.



3 Do one of the following:

If the .bacview file is...	
In the **BACview file** drop-down list	a. Select the file. b. Click **OK**.
Not in the **BACview file** drop-down list	a. Click **Add**. b. Browse to select the .bacview file. c. Click **Open**. d. Click **Continue**. e. Click **Close**. f. Click **Close** again.

4 Download All Content to the controller (see page 43).

NOTE You can click **Delete Unused** in the **Bacview** section to delete all unused BACview files in:

- **WebCTRLx.x\webroot**<system_name>**\views**
- **WebCTRLx.x\webroot**<system_name>**programs**

To edit a .bacview file on a WebCTRL client

On a WebCTRL client, you can get a copy of a .bacview file from the server, edit it, then put it back on the server.

To get the .bacview file

1. On WebCTRL's **NET** tree, right-click the controller that uses the .bacview file, then select **Configure**.
2. Under **BACview**, click **Edit**.
3. Click **Save.**
4. Browse to the folder you want to put the file in.
5. Click **Save**.
6. Click **Close**.
7. Click **Close** again.

To put the edited file back on the server

1. On WebCTRL's **NET** tree, right-click the controller that uses the .bacview file, then select **Configure**.
2. Under **BACview**, click **Add**.
3. Browse to select the .bacview file.
4. Click **Open**.
5. Click **Continue**.
6. Click **Close**.
7. Click **Close** again.

Chapter 21

Running WebCTRL Server as a Windows service

Run WebCTRL Server as a Windows service if you want WebCTRL Server to automatically start up when the server computer is restarted.

NOTE If your WebCTRL system uses a non-MS Access database located on the same computer as WebCTRL Server, you must set up Windows to delay starting WebCTRL Server until the database service has started. See *Microsoft's "How to delay loading of specific services"* (http://support.microsoft.com/kb/193888).

To install WebCTRL Server service

NOTE If you think the service was previously installed, see *To determine if WebCTRL Server service is installed* (page 179).

On Windows 2003 and XP

1. Click the Windows **Start** button, then click **Run**.
2. Browse to the **WebCTRLx.x** folder, select WebCTRL **Service.exe** (the service install file), then click **Open**.
3. Click **OK**.

On Windows 7, Vista, 2008, and 2008 R2

1. In the Windows **Start** menu, right-click **Command Prompt**, then select **Run as administrator**.
2. Select **Yes** in the User Account Control message.
3. In the Command Prompt window, type: `cd <path to the WebCTRL install directory>`
   For example, type: `cd c:\WebCTRL5.2`
4. Press **Enter**.
5. Type: `"WebCTRL Service.exe" -install`
6. Press **Enter**.

To start WebCTRL Server as a Windows service

1. Click the Windows **Start** button, then select **Control Panel**.
2. Double-click **Administrative Tools**, then **Services**.
3. In the **Services (Local)** list, double-click **WebCTRL**.
4. In the **WebCTRL Properties** dialog box, select **Automatic** in the **Startup type** drop-down list.
5. Optional: If you want to be able to access WebCTRL Server on the server computer's desktop, select **Allow service to interact with desktop** on the **Log On** tab.

   NOTES

   - If you do not select this checkbox, the computer screen will give no indication that WebCTRL Server is running; you must view the computer's Services page to see if it is running.
   - This checkbox applies only to a user logged in on the server. A Windows Remote Desktop user cannot access WebCTRL Server running as a service.
   - If you select this checkbox, you cannot use the instructions below to set up printing to a network printer. Ask your Network Administrator to set up **Local System account** to use a network printer.
   - If you select this checkbox and WebCTRL is to run email alarm actions, ask your Network Administrator to set up **Local System account** to send emails.
6. Click **Start**.
7. Click **OK**.

NOTES

- To shut down the WebCTRL service, return to the **WebCTRL Properties** dialog box and click **Stop**.
- If WebCTRL Server does not start when you click **Start**, you may have a Windows permissions problem. Follow the procedure below in *To set up the WebCTRL service for network printing* to set up the Windows user name and password.

To set up the service for network printing

If WebCTRL runs as a service on a computer that is using a network printer, you must set up the Windows user name and password for the service. The Print alarm action requires this setup to be able to print.

1. Open the Windows Control Panel.
2. Select **Administrative Tools** > **Services**.
3. Double-click **WebCTRL Service x.x**.
4. On the **Log On** tab, select **This account**.
5. Browse to the computer's domain, then select the user that the service will log in as.

   NOTE Contact your network administrator if you need help determining the domain.
6. Type the user's password in the **Password** and **Confirm password** fields.

To remove WebCTRL Server service

On Windows 2003 and XP

1. Click the Windows **Start** button, then click **Run**.
2. Browse to the **WebCTRLx.x** folder, select WebCTRL **Service.exe** (the service install file), then click **Open**.
3. At the end of the path, type: <space>-remove
   EXAMPLE "c:\WebCTRL5.2\WebCTRL Service.exe" -remove
4. Click **OK**.

On Windows 7, Vista, 2008, and 2008 R2

1. In the Windows **Start** menu, right-click **Command Prompt**, then select **Run as administrator**.
2. Select **Yes** in the User Account Control message.
3. In the Command Prompt window, type: `cd <path to the WebCTRL install directory>`
   For example, type: `cd c:\WebCTRL5.2`
4. Press **Enter**.
5. Type: `"WebCTRL Service.exe" -remove`
6. Press **Enter**.

To determine if WebCTRL Server service is installed

If you do not know if the service was previously installed, follow the appropriate steps below.

On Windows 2003 and XP

1. From the Windows **Start** menu, open **Command Prompt**.
2. In the Command Prompt window, type: `cd <path to the WebCTRL install directory>`
   For example, type: `cd c:\WebCTRL5.2`
3. Press **Enter**.
4. Type: `"WebCTRL Service.exe" -check`
5. Press **Enter**.

On Windows 7, Vista, 2008, and 2008 R2

1. In the Windows **Start** menu, right-click **Command Prompt**, then select **Run as administrator**.
2. Select **Yes** in the User Account Control message.

3. In the Command Prompt window, type: `cd <path to the WebCTRL install directory>`
   For example, type: `cd c:\WebCTRL5.2`
4. Press **Enter**.
5. Type: `"WebCTRL Service.exe" -check`
6. Press **Enter**.

Chapter 22

Setting up a system for non-English languages

English is WebCTRL's default language, but you can set up your system to display a different language. You can also set up multiple languages so different operators can view the system in different languages.

Follow the procedures below to display WebCTRL in non-English languages.

1 Install a language pack (see page 181).

2 Prepare your workstation for non-English text (see page 181).

3 Create control programs and translation files (see page 183).

4 Create graphics (see page 185).

5 Create your system in SiteBuilder (see page 187).

6 Set an operator's language in WebCTRL (see page 188).

Installing a language pack

A language pack translates the text in the WebCTRL interface. WebCTRL is installed with an English language pack. To download other language packs:

1 Go to *http://accounts.automatedlogic.com* (http://accounts.automatedlogic.com).

2 Select **Support > Download**.

3 Under **Software Updates**, select **Language Packs** for the version you need.

4 Follow the instructions under **To install this language pack**.

NOTE If you create a system by copying an existing system that uses language packs, install the same language packs on the new system.

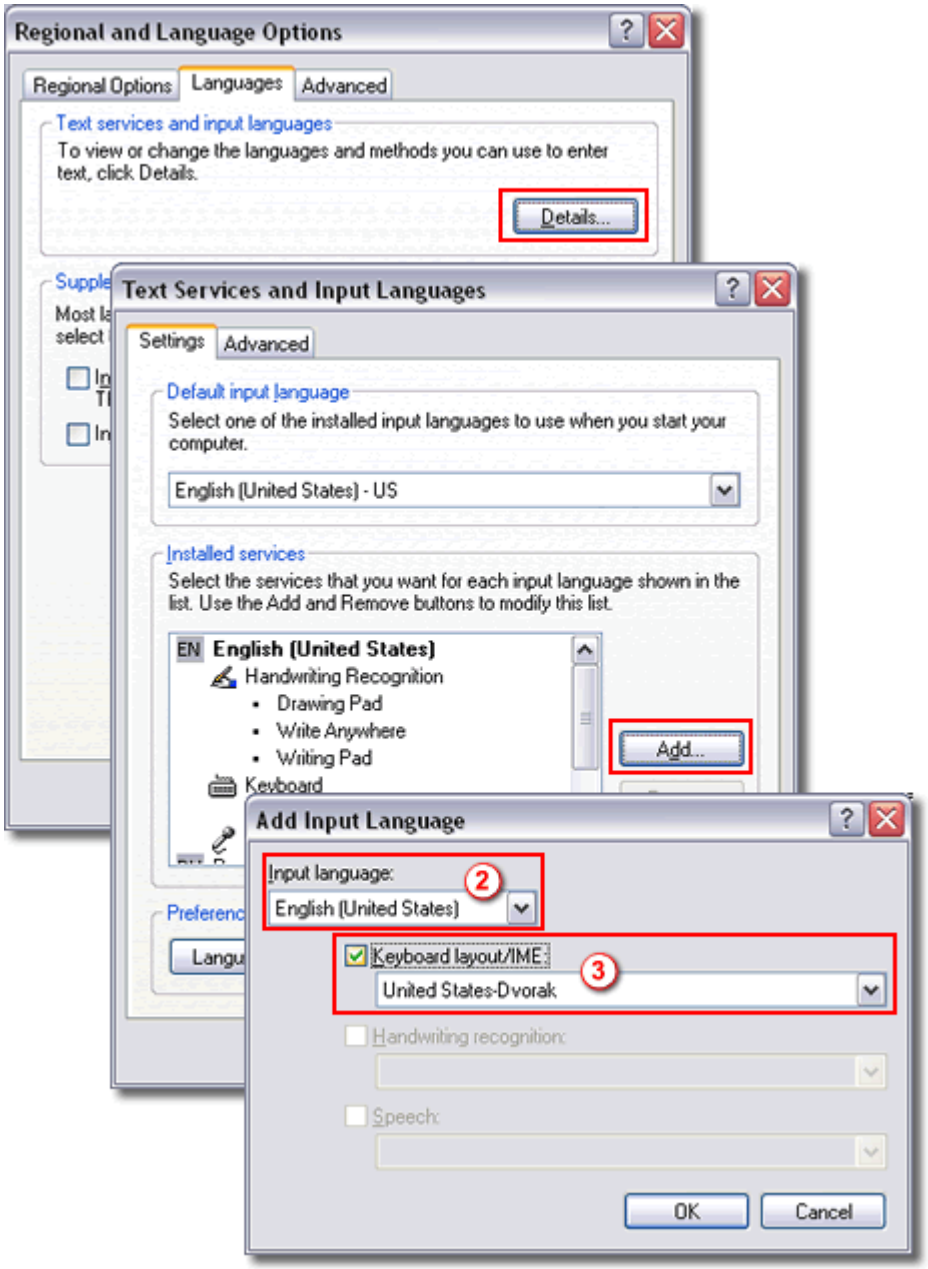
Preparing your workstation for non-English text

Set up your workstation so you can type international fonts from your keyboard.

1 Install the appropriate fonts for the languages you will be using. In the Windows **Control Panel**, open **Fonts**, select **File > Install new fonts**.

2 In the **Control Panel**, open **Regional and Language Options**, then select the **Input language**.

3 Install an Input Method Editor (IME) for non-alphanumeric characters.



See your operating system's Help for more information.

Creating control programs and translation files for a non-English system

To have WebCTRL display a control program's user-defined text (such as microblock names and property text) in a non-English language, you must:

1 Create the control program using key terms instead of the text.

2 Create translation files of key terms and their language-specific equivalents.

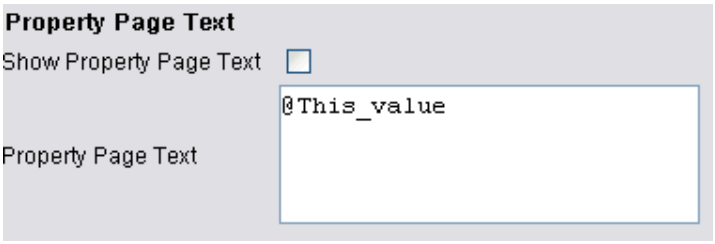
In WebCTRL, the key term is replaced with its equivalent in the translation file for the current operator language. If a WebCTRL Properties page, Logic page, or graphic shows **??key term??**, the key term is missing from the translation file.

NOTES

- You also use key terms and translation files with graphics that you create with WebCTRL extensions for FrontPage (see page 185).
- To edit existing control programs or translation files, see *Editing translation files, control programs, or graphics* (page 189).

To enter a key term in EIKON LogicBuilder

In EIKON LogicBuilder's Property Editor, type `@` before each key term.



NOTES

- Type only the key term in EIKON LogicBuilder. Expressions such as $present_value$ are put in the translation file as part of the translated text. See EXAMPLES in "Translation files" below.
- Key terms can contain only alphanumeric characters and underscores (no spaces) and cannot start with a number.

Translation files

Translation files are used to translate key terms in control programs and graphics created with WebCTRL extensions for FrontPage (see page 186). A translation file contains key terms and their language-specific equivalents.

For a non-English system, you must create an English translation file and a non-English translation file* for each of the following:

- Each control program
- Key terms used in multiple control programs
- Each graphic created with WebCTRL Extensions for FrontPage
- Key terms used in multiple graphics

EXAMPLES

Translation files	Key term=Language-specific equivalent
English	This_value=This value is $present_value$ Zone_temp=Zone temperature
Spanish	This_value=Este valor es $present_value$ Zone_temp=Temperatura de zona

*If WebCTRL will be displayed in multiple non-English languages, create a translation file for each language.

To create and implement a translation file

Create your translation file in a text editor, such as Microsoft Word, that supports the character encoding you need.

1. Type one key term and language equivalent per line, left justified, starting in column 1. Do not put spaces on either side of the equal sign.
2. Save the file using the appropriate file name and location in the table below.

If key terms are used in...	the file name is...	File location
A single control program	<any_name>_xx.native*	Any location
Multiple control programs	equipment_xx.native*	WebCTRL\webroot\ <system_name>\resources
A single graphic	<graphic_name>_xx.native*	WebCTRL\webroot\ <system_name>\graphics\lvl5
Multiple graphics	translations_xx.native*	WebCTRL\webroot\ <system>\resources

* xx = the language extension code. See "Extension codes and encoding" below.

If you are using:

- the English character set, save the file as Text only.
- a non-English character set, save the file as Encoded text . (See your application's help for information on saving files as encoded text.) When prompted for the language and encoding, see "Extension codes and encoding" below.

3. Open the control program in EIKON LogicBuilder, then select **Control Program** > **Bundled Resources**.
4. Click  , locate and select the translation file(s) for this control program, then click **Open**.

   NOTES

   - Do not add equipment_xx.native files that you created for multiple control programs.
   - You can use **Ctrl+click** or **Shift+click** to select multiple files.
5. Save the control program. The translation files are embedded in the control program; the original files are no longer necessary.

Extension codes and encoding

Language	Extension codes	Encoding*
English	_en	ISO-8859-1
French	_fr_FR	ISO-8859-1
German	_de	ISO-8859-1
Japanese	_ja	EUC-JP
Korean	_ko	EUC-KR
Russian	_ru	KOI8_R
Spanish	_es	ISO-8859-1
Swedish	_sv	ISO-8859-1
Simplified Chinese	_zh	GB2312
Traditional Chinese	_zh_TW	Big5
Thai	_th	TIS620
Vietnamese	_vi	Cp1258

* Encoding is used when you create the translation file.

Creating graphics for a non-English system

Use ViewBuilder to create graphics for a single language system.
Use WebCTRL extensions for FrontPage to create graphics for a multi-language system.

Creating a non-English graphic in ViewBuilder

NOTES

- The names of your .view file and any inserted image files must contain only ASCII characters.
- Graphics created in ViewBuilder do not use translation files. Type non-English terms directly into the graphic in ViewBuilder.

Before you begin adding objects to a graphic:

1. Select **Configure** > **View Properties**.
2. In the **Language** field, select the language you want to use.
3. Click **OK**.

To set the default font

If your system has language packs installed, you can select a language to be the default language for all new graphics that you create in ViewBuilder. You can then change the language selection for an individual graphic in its **View Properties**.

To set the default language:

1 Select **Configure**> **Preferences**.

2 Select the **Languages** tab.

3 Select the checkbox for the default language.

ViewBuilder uses the defined font for all text in your graphic. The default is Arial Unicode MS because it supports all languages and is the only font that ensures controls and labels in your graphic will align correctly in WebCTRL. If you do not see Arial Unicode MS in the **Font** column, install it if possible using the following instructions. If you cannot install it, use the font shown or click on it to see other fonts that you can select.

To install the Arial Unicode MS font

Arial Unicode MS is only supplied with Microsoft® Office. Although Office may be installed on your computer, the font may not be installed.

1 Insert your Microsoft Office CD in the computer.

2 Select **Start** > **Control Panel**.

3 In the **Control Panel**, select **Add/Remove Programs**.

4 Make sure **Change or Remove Programs** in the upper left corner is selected.

5 Select **Microsoft Office XP** (or Microsoft Word 2002).

6 Click **Change**.

7 In the **Setup** window, select **Add or Remove Features**.

8 Click **Next**.

9 Expand **Office Shared Features**.

10 Expand **International Support**.

11 Click the icon next to **Universal Font**.

12 Select **Run all from My computer**.

13 Click **Update**.

14 Restart ViewBuilder if it was open.

Creating a graphic for a multi-language system using WebCTRL extensions for FrontPage

When you create a graphic using WebCTRL extensions for FrontPage, you enter a key term instead of text in the graphic. When the graphic is displayed in WebCTRL, the key term is replaced with its equivalent in the translation file for the current operator language. See *Creating control programs and translation files* (page 183).

To enter a key term for an image area label:

1. Double-click the image area label.
2. Enter a key term in the **Label Text** field.

   NOTE Use only alphanumeric characters and underscores (no spaces). Do not start a key term with a number.
3. Select **Label Text is resource key**.
4. Do one of the following:
   - If the translation file for the graphic is in **WebCTRL\webroot**<system_name>**graphics\lvl5**), leave the **Resource** field blank.
   - If the translation file is in **WebCTRL\webroot**<system_name>**resources**, enter the following in the **Resource** field: **resources**<translation file prefix>

     EXAMPLE resources\translation
5. Click **OK**.

To enter a key term for other text:

1. Click the International Text button  .
2. Double-click **[Text]** on the graphic.
3. Type the key term in the **Key** field.
4. Enter the location of the translation file in the **Resource** field. See step 4 above.
5. Click **OK**.

Creating a non-English system in SiteBuilder

To set language preferences

1. In SiteBuilder, select **Configure** > **Preferences**.
2. Select the **Language** tab.
3. Under **Supported Languages**, select each language that your system will display.

   NOTE Each language you select requires a language pack. See *Installing a language pack* (page 181).
4. Select the system language under **System**. See *System Language* (page 188).
5. Click **OK**.
6. Save your database.

To create your system

To create your system in each language that the system will display:

1. In SiteBuilder, select **Configure** > **Preferences**.
2. Select the **Font** tab.
3. To the right of each language that your system will display, click **Default** and select the appropriate font for that language from the drop-down list.
4. Click the **Language** tab.
5. Select a language in the **Current Session** field.
6. Click **OK**.
7. Create your system.
8. Save your database.
9. If your system will display multiple languages:
   a) Select **Configure** > **Preferences**, select the **Language** tab, and select another language in the **Current Session** field.
   b) Re-enter all node names and display names in the current language.
   c) Save your database.
   d) Repeat steps a. through c. for each additional language the system will display.

System language

The system language is used for:

- The default language for new operators
- Alarms sent to the database
- State text and object names downloaded to the field
- The default login page *

All other information is displayed in the operator's language, which may be different than the system language. See *Setting an operator's language in WebCTRL* (page 188).

* You can change the language shown on WebCTRL's login page by selecting a different language from the list below the **Password** field.

To set an operator's language in WebCTRL

An operator can change their language preference in WebCTRL.

1. On the **CFG** tree, select **My Settings**.
2. Under **Preferences**, select the **Language** in the drop-down list.
3. Click **OK**.

Editing translation files, control programs, or graphics for a non-English system

If you add or edit a key term in a control program or graphic, be sure to make the same change in the translation file. See *Creating control programs and translation files* (page 183).

If you make changes after attaching a control program or graphic in SiteBuilder, do one of the following:

- If you changed text only in a control program or its translation file, right-click the control program in the **Geographic** tree, then select **Rebuild Equipment Pages**.
- If you changed logic in the control program, right-click the control program in the **Geographic** tree, then select **Reload Control Program**.
- If you changed a translation file located in WebCTRL\webroot\<system_name>\resources, right-click each applicable graphic in the **Geographic** tree, then select **Rebuild Graphic Resources**.

To edit a bundled resource

EIKON LogicBuilder bundles (embeds) the translation file(s) for a control program into the .equipment file. See steps 3 through 5 in *To create and implement a translation file* (page 184). To edit a bundled translation file:

1. Open the control program in EIKON LogicBuilder.
2. Select **Control Program > Bundled Resources**.
3. Select the file, then click  to save it to your hard drive.
4. Edit the translation file.
5. In the **Bundled Resources** dialog box in EIKON LogicBuilder, click  and select the edited file.
6. Click **OK** to overwrite the existing file.

Editing an EIKON for WebCTRL control program in EIKON LogicBuilder

To edit a non-English control program that you created in EIKON for WebCTRL:

1. In EIKON LogicBuilder, open the .eiw or .equipment file, then make your edits.
2. Select **Control Program > Bundled Resources**.
3. Verify that the list shows all translation files specifically for the control program. Use the plus or minus button to add or delete translation files.

   NOTE This list shows the translation files in the **WebCTRL\webroot\<system_name>\programs** folder. This list should not include translation files for multiple control programs or graphics.
4. Click **OK**.
5. Save the control program. The translation files are bundled with the control program; the original files are no longer necessary.

NOTE If you need to change a translation file after you save the control program, see *To edit a bundled resource* (page 189).

Copying translation files to another system

To copy most translation files from one system to another, you copy the files in the source system and paste them into the same folders in the destination system.

However, if your source system and destination system have translation files with the same name, copying and pasting would overwrite the file(s) in the destination system. In this case:

1. Open the source system's translation file in a text editor, then copy the key terms and translations.
2. Open the destination system's translation file in a text editor, then paste into it the key terms that you copied. Remove any duplicate key terms.

Chapter 23

Web services

Optional WebCTRL Package

NOTE To see if your system has this optional package, click  , then select **About**. You have this package if **Enabled Features** shows **Enterprise**.

Using Web services to retrieve or change data

Web services are:

- A class of data exchange using XML (extensible markup language) and SOAP (simple object access protocol)
- Self-contained, modular applications that can be run over the Internet and can be integrated into other applications
- A standardized method for combining remote applications distributed over the Internet so that they may work together for a common purpose
- Application-to-application interfaces

Using Web services, you can retrieve information or set values for items accessible through WebCTRL's GEO or NET tree. You can retrieve trend data, reports, present values, setpoints, and any other BACnet object property information from a remote WebCTRL server and import the information into a SOAP client such as Microsoft Excel. You can also set present values, setpoints, and any other object property information on a remote WebCTRL server.

The Web services examples we provide use Microsoft Excel as the SOAP client, but you can use other software packages.

NOTE To use Web services with Microsoft Excel or Microsoft Word:

- You should be comfortable writing Visual Basic scripts and setting up macros.
- You must install the Soap Toolkit found at http://download.microsoft.com/download/xml/Install/3.0/W982KMeXP/EN-US/SoapToolkit30.EXE.

WebCTRL privilege requirements

You should create a WebCTRL operator and a privilege set whose specific purpose is Web services. The privilege set must have the following privileges:

- Remote Data Access
- Access Geographic Locations or Network Locations, as needed
- Access Network items, as needed
- Any privileges needed for the specific task

Every change made through Web services is recorded in the Audit Log. If you do not want these changes recorded in the Audit Log, add the following privilege to the privilege set:

- Do not audit changes made using SOAP (Web Services)

WebCTRL data access using SOAP

NOTE The operator attempting to use SOAP must have the **Remote Data Access** privilege.

You can use the following services with WebCTRL data:

- **Eval** - Returns the value for the given GQL Expression.
- **Trend** - Returns trend data for a specified point
- **Report** - Returns the WebCTRL report in CSV or HTML format
- **System** - Returns a path to a folder in the system folder where a web application can store data so that it is backed up with other system files

The information below gives the WSDL, methods, and parameters for each service.

NOTE You may discover other methods in our web services that are not listed below, but these are for internal use only and not intended for use by our customers.

1. **Eval**

   See:
   Example using Web services to set a value (page 197)
   Example using Web services to retrieve values (page 199)

   WSDL:
   http://<WebCTRL_server>/_common/webservices/Eval?wsdl

   Methods:

   a. String getValue(String expression)
      Returns the **raw** value for the given expression.

   b. String [] getValues(String [] expressions)
      Returns an array of the **raw** values for the given expressions.

   c. String getDisplayValue(String expression)
      Returns the **display** value for the given expression.

   d. String [] getDisplayValues(String [] expressions)
      Returns an array of the **display** values for the given expressions.

   e. setValue(String expression, String rawVal, String reason)
      Sets the given **raw** value for the expression.

   f. setValues(String [] expressions, String [] rawVals, String reason)
      Sets an array of the given **raw** values for the expressions.

   g. setDisplayValue(String expression, String displayVal, String reason)
      Sets the given **display** value for the expression.

   h. setDisplayValues(String [] expressions, String [] displayVals, String reason)
      Sets an array of the given **display** values for the expressions.

   Parameters:

   - expression:
     For Methods a. through d., its the GQL expression to be evaluated. For points, expression only needs to refer to the microblock; present_value is assumed.
     For Methods e. through h., its the GQL expression for which new value is to be set
   - rawVal: The raw value (for instance, 1, indicating a On status) *
   - displayVal: The display value (for instance, “On”, indicating On status) *
   - reason: Reason for the change.**

   * **raw value versus display value:** For a binary input that is on, the raw value would be "1". For an operator whose default language is English, the display value would be "On". The display value is in the operator's default language.

   ** **reason** can be used if you need to comply with 21 CFR Part 11 (see page 135).

NOTE Methods b, d, f, and h above process multiple expressions. If an expression causes an error, only that expression returns an error. The remaining expressions are processed as intended.

- For an expression that gets a value, an error is indicated by [ERROR]:*error message*. Correctly processed expressions return a value.
- For an expression that sets a value, an error is indicated by [ERROR]. Correctly processed expression return [OK].

2. Trend

See *Example using Web services to retrieve trend data* (page 202).

WSDL:
http://<WebCTRL_server>/_common/webservices/Trend?wsdl

Method:

getTrendData(String trendLogPath, String sTime, String eTime, boolean limitFromStart, int maxRecords)

Retrieves trend records for a given point or a trend log. A series of (time, value) pairs representing trend samples is returned.

The first element of the array is the time for the first sample, second element of the array is the trend data value for the first sample. The third element is time for second sample fourth element is trend data value for second sample etc. The returned array is in the following format:

10/02/2002 10:22:00 AM	---->	Time for first sample
76.1	---->	Trend data value for first sample
10/02/2002 10:22:30 AM	---->	Time for second sample
76.1	---->	Trend data value for second sample
10/02/2002 10:23:00 AM	---->	Time for third sample
76.2	---->	Trend data value for third sample

Parameters:

- user: WebCTRL operator login Id. This user should have the Remote Data Access privilege.
- password: Password for the above WebCTRL user.
- trendLogPath: The full (GQL) path to the point, or trend log node whose trend data is desired. For example, #mxm/ai_interval, or #mxm/ai_interval/trend_log
- sTime: Start Time. Returns trend data values starting with this time.
- eTime: End Time. Returns trend data values until this time.
- limitFromStart: If maxRecords is >0, use True to retrieve maxRecords from the start (sTime if specified or the first record in the database); use False to retrieve maxRecords from the end (eTime if specified or the last record in the database)
- maxRecords: Maximum number of records desired. Use a number >0 to limit records; use 0 to retrieve unlimited records. If using 0, you must specify sTime and eTime; limitFromStart will be ignored.

NOTES

- sTime and eTime format: MM/dd/yyyy hh:mm:ss aa. Example: 10/02/2002 10:22:00 AM
- If you do not want to specify a start time or end time, use NULL or an empty string for the sTime or eTime. In this case, maxRecords must be >0.

EXAMPLES

- sTime=04/07/2007 12:00:00 AM
  eTime=NULL
  limitFromStart=True
  maxRecords=10
  The first 10 records starting on 4/7/07 at 12:00:00 AM will be returned.

- sTime=NULL
  eTime=NULL
  limitFromStart=False
  maxRecords=10
  The most recent 10 records in the database will be returned.

- sTime=04/07/2007 12:00:00 AM
  eTime=04/10/2007 11:59:00 PM
  limitFromStart=False
  maxRecords=0
  All records in the database between 04/07/2007 12:00:00 AM and 04/10/2007 11:59:00 PM will be returned.

3. **Report**

   See *Example using Web services to retrieve a report* (page 205).

   WSDL:
   http://<WebCTRL_server>/_common/webservices/Report?wsdl

   Methods:

   a. String runReport(String location, String reportName, String extension)
      Runs the named report at the given location and returns the result as a large string with embedded carriage returns.

   b. String [] runReportCsvLines(String location, String reportName)
      Runs the named report at the given location and returns an array of individual CSV lines. The caller must still parse each line.

Parameters:

- location: The location to run the report at in the database
- reportName: The name of a built-in report or the reference name of a custom report

  Built-in report names:
  ~schedule-instance
  ~effective-schedule
  ~point-list-report
  ~locked-value
  ~network-io
  ~test-and-balance
  ~equipment-checkout
  ~audit-log
  ~alarms
  ~alarm-source
  ~network-status
  ~module-version
  ~security-assignment
  ~alarm-messages
  ~alarm-actions
  ~trend-usage
  ~parameter-mismatch

- extension: Type of report to run, CSV or html

4. **System**

WSDL:
http://<WebCTRL_server>/_common/webservices/System?wsdl

Method:

String getWebAppStorageDirectory(String webAppName)
Returns a path to a folder in the system folder where a web application can store data. The web application is responsible for creating the folder.

Parameter:

webAppName: A name unique to the web application.

Example using Web services to set a value

Follow the process below to change a BACnet Binary Point's:

- Raw value in the WebCTRL database and controller
- Display value shown in WebCTRL

Step 1: Create a spreadsheet

1. Enter the following information the spreadsheet uses to log in to the WebCTRL system.
   - WebCTRL Server IP address or the server network name (Cell A1 in this example)
   - Operator name for logging in to WebCTRL (Cell A2 in this example)
   - Operator's WebCTRL password (Cell A3 in this example)
2. Enter the GQL path to the property whose raw value you want to set (Cell A5), then enter the raw value (Cell B5).

   NOTE You can use an absolute path, such as /trees/geographic/points/io_points/m001, or a global reference name.
3. Enter the GQL path to the property whose display value you want to set (Cell A6), then enter the display value (B6).
4. If you need to comply with 21 CFR Part 11 (see page 135), enter the reason the values are being changed (Cell C5 and C6).

	A	B	C
1	192.168.162.170		
2	administrator		
3	abc		
4			
5	#o_points/m021/locked	TRUE	Fan needs maintenance
6	#o_points/m021/locked_value	On	Fan needs maintenance
7			

Step 2: Create a macro

The macro will write the values from the spreadsheet to the WebCTRL system.

The following steps correspond to the numbered parts of the code shown below.

1. Name the subroutine (testSoapWrite) that will set the value in WebCTRL.
2. Define which spreadsheet cells contain the:
   host (WebCTRL server)
   user (WebCTRL operator)
   password (WebCTRL operator's password)
3. Identify the Web services program that allows the spreadsheet to access the WebCTRL server over the network or Internet.
4. Enter the code to authenticate the user.
5. Enter the error handling code.

6 Enter the code that uses the setValue method to set the raw value.

7 Enter the code that uses the setDisplayValue method to set the display value.

8 This displays an error checking statement if an error is found in the data.

```
1  Sub testSoapWrite()

2  host = Range("A1").Value
   user = Range("A2").Value
   passwd = Range("A3").Value
   Dim changeReason As String

3  Dim client As MSSOAPLib30.SoapClient30
   Set client = CreateObject("MSSOAP.SOAPClient30")
   URL = "http://" & host &
                "/_common/webservices/Eval?wsdl"

   client.mssoapinit (URL)

4
   client.ConnectorProperty("WinHTTPAuthScheme") = 1
   client.ConnectorProperty("AuthUser") = user
   client.ConnectorProperty("AuthPassword") = passwd

5  On Error GoTo err

   i = 5
6  expression = Range("A" & i).Value
   newValue = Range("B" & i).Value
   changeReason = Range("C" & i).Value
   client.setValue expression, newValue, changeReason

   i = 6
7  expression = Range("A" & i).Value
   newValue = Range("B" & i).Value
   changeReason = Range("C" & i).Value
   client.setDisplayValue expression, newValue, changeReason

   GoTo done
8  err:
       Range("D" & i).Value = err.Description

   done:

   End Sub
```

NOTE If you have problems connecting to WebCTRL using Visual Basic, add the following line:

```
client.ClientProperty("ServerHTTPRequest") = TRUE
```

above the line:

```
client.mssoapinit (URL)
```

Step 3: Run the macro

NOTE WebCTRL Server must be running.

1. In Excel, click **Tools** > **Macro** > **Macros**.
2. Select the **TestSoapWrite** sub-routine.
3. Click **Run**. The macro will write the values into the WebCTRL database and field controllers.

   NOTE Follow the steps below if you get an error message when you run the macro.

   a) In Excel, select **Tools** > **Macro** > **Visual Basic Editor**.

   b) In the Visual Basic editor, select **Tools** > **References**.

   c) Select the **Microsoft Soap Type Library v3.0** and click **OK**.

Example using Web services to retrieve values

Follow the process below to read the value of BACnet Binary Inputs.

Step 1: Create a spreadsheet

1. Enter the following information the spreadsheet uses to log in to the WebCTRL system.
   - WebCTRL Server IP address or the server network name (Cell A1 in this example)
   - Operator name for logging in to WebCTRL (Cell A2 in this example)
   - Operator's WebCTRL password (Cell A3 in this example)
2. Enter the GQL paths to the properties whose values you want to get (Cells A5, A6, and A7).

   NOTE You can use an absolute path, such as /trees/geographic/points/io_points/m001, or a global reference name.

	A	B
1	192.168.162.170	
2	administrator	
3	abc	
4		
5	#vav1/zone_temp/present_value	
6	#vav2/zone_temp/present_value	
7	#vav3/zone_temp/present_value	
8		

The macro that will retrieve the values will write them to cells B5, B6, and B7.

Step 2: Create a macro

The macro will read the values from the WebCTRL system and write them to the spreadsheet.

The following steps correspond to the numbered parts of the code shown below.

1. Name the subroutine (testSoapRead) that will retrieve the values from WebCTRL.
2. Define which spreadsheet cells contain the:
   host (WebCTRL server)
   user (WebCTRL operator)
   password (WebCTRL operator's password)
3. Identify the Web services program that allows the spreadsheet to access the WebCTRL server over the network or Internet.
4. Enter the code to authenticate the user.
5. Enter the error handling code.
6. Enter the code to allocate and specify the expressions to get.
7. Enter the code to get the values and insert them into the spreadsheeet.
8. This displays an error checking statement if an error is found in the data.

```
1  Sub testSoapRead()

2  host = Range("A1").Value
   user = Range("A2").Value
   passwd = Range("A3").Value
   Dim changeReason As String

3  Dim client As MSSOAPLib30.SoapClient30
   Set client = CreateObject("MSSOAP.SOAPClient30")
   URL = "http://" & host &
                 "/_common/webservices/Eval?wsdl"

   client.mssoapinit (URL)

4
   client.ConnectorProperty("WinHTTPAuthScheme") = 1
   client.ConnectorProperty("AuthUser") = user
   client.ConnectorProperty("AuthPassword") = passwd

5  On Error GoTo err

   REM VB arrays start at index 0 and are declared by the maximum index
6  REM some the next line declares an array of two strings at indices 0 and 1
   Dim expressions (2) As String
   Dim values (2) As String
   Dim result() As String

   expressions(0) = Range("A5").Value
   expressions(1) = Range("A6).Value
   expressions(2) = Range("A7").Value
```

```
result = client.getValues(expressions)
Range("B5") = result(0)
Range("B6") = result(1)
Range("B7) = result(2)

GoTo done
err:
    Range("D" & i).Value = err.Description

done:

End Sub
```

NOTE If you have problems connecting to WebCTRL using Visual Basic, add the following line:

```
client.ClientProperty("ServerHTTPRequest") = TRUE
```

above the line:

```
client.mssoapinit (URL)
```

Step 3: Run the macro

NOTE WebCTRL Server must be running.

1. In Excel, click **Tools** > **Macro** > **Macros**.
2. Select the **TestSoapRead** sub-routine.
3. Click **Run**. The macro will write the values into the WebCTRL database and field controllers.

   NOTE Follow the steps below if you get an error message when you run the macro.

   a) In Excel, select **Tools** > **Macro** > **Visual Basic Editor**.

   b) In the Visual Basic editor, select **Tools** > **References**.

   c) Select the **Microsoft Soap Type Library v3.0** and click **OK**.

Example using Web services to retrieve trend data

Follow the process below to retrieve a collection of zone temperature samples and put it in an Excel spreadsheet.

Step 1: Create a spreadsheet

1. Enter the following information the spreadsheet uses to log in to the WebCTRL system.
   - WebCTRL Server IP address or the server network name (Cell A1 in this example)
   - Operator name for logging in to WebCTRL (Cell A2 in this example)
   - Operator's WebCTRL password (Cell A3 in this example)
2. Enter the GQL path to the trend object you want to retrieve (Cell A5 in this example).

   NOTE You can also use a global path or a global reference name such as #zone_1.
3. Define the sample's start time (Cell A6) and end time (Cell A7), and the maximum number of samples to take (Cell A9).
4. The text in Cell A11 indicates where the results will be listed after the macro is run.

	A	B
1	192.168.162.170	
2	administrator	
3	abc	
4		
5	#vav7/zone_temp/trend_log	
6	1/13/07 8:00 AM	
7	1/13/07 5:00 PM	
8		
9	100	
10		
11	Results:	
12		

The macro will retrieve the trend data and write the time of each sample in column A and the corresponding zone temperature in column B.

Step 2: Create a macro

The macro will retrieve the values from your system's trend log and put them in the spreadsheet.

The following steps correspond to the numbered parts of the code shown below.

1. Name the subroutine (evalTrends) that will retrieve the trend data from WebCTRL.
2. Define which spreadsheet cells contain the:
   host (WebCTRL server)
   user (WebCTRL operator)
   password (WebCTRL operator's password)

3 Add this section to define the data read from the GQL expression for the trend in cell A5. This retrieves trends from startDate to endDate:
LimitFromStart - to retrieve maxRecords from beginning if true; from end if false
MaxRecords - the maximum numbers of records to retrieve

expression - the expression to evaluate

4 Identify the Web services program that allows the Excel spreadsheet to retrieve the data from the WebCTRL server over the network or Internet.

5 Enter the code to authenticate the user.

6 Enter the error handling code.

7 Add this code to retrieve the trend data and displayed it.

8 This displays an error checking statement if an error is found in the data.

```
1  Sub evalTrends()

2  host = Range("A1").Value
   user = Range("A2").Value
   passwd = Range("A3").Value

3  startDate = Format(Range("A6").Value, "mm/dd/yyyy hh:mm:ss AMPM")
   endDate = Format(Range("A7").Value, "mm/dd/yyyy hh:mm:ss AMPM")
   limitFromStart = Range("A8").Value
   MaxRecords = Range("A9").Value

   expression = Range("A5").Value

4  Dim client As MSSOAPLib30.SoapClient30
   Set client = CreateObject("MSSOAP.SOAPClient30")
   URL = "http://" & host &
                "/_common/webservices/Trend?wsdl"

   client.mssoapinit (URL)

5
   client.ConnectorProperty("WinHTTPAuthScheme") = 1
   client.ConnectorProperty("AuthUser") = user
   client.ConnectorProperty("AuthPassword") = passwd

6  On Error GoTo err
   Dim result1()  As String
```

```
7   result1 = client.getTrendData(expression, startDate, endDate,
                limitFromStart, maxRecords)

    Dim i, row, index, size As Integer
    index = 0

    Rem results is time/value string pairs
    Rem compute size: result is 0 based, so add one to UBound to get size
    size = (UBound(result1) + 1) / 2

    For i = 1 To size
        row = i + 11
        Range("a" & row) = result1(index)
        Range("b" & row) = result1(index + 1)
        index = index + 2
    Next

    GoTo done

8   err:
        Range("a10") = err.Description

    done:

    End Sub
```

NOTE If you have problems connecting to WebCTRL using Visual Basic, add the following line:

```
client.ClientProperty("ServerHTTPRequest") = TRUE
```

above the line:

```
client.mssoapinit (URL)
```

Step 3: Run the macro

NOTE WebCTRL Server must be running.

1. To launch and run the macro, click **Tools**.
2. Click **Macro** > **Macros**.
3. Select the **evalTrends** sub-routine.
4. Click **Run**. The macro will retrieve the data and place it in the spreadsheet.

   NOTE Follow the steps below if you get an error message when you run the macro.

   a) In Excel, select **Tools** > **Macro** > **Visual Basic Editor**.

   b) In the Visual Basic editor, select **Tools** > **References**.

   c) Select the **Microsoft Soap Type Library v3.0** and click **OK**.

Example using Web services to retrieve a WebCTRL report

Follow the procedure below to retrieve a WebCTRL Point List report and put it in an Excel spreadsheet.

Step 1: Create a spreadsheet

1. Enter the following information the spreadsheet uses to log in to the WebCTRL system.
   - WebCTRL Server IP address or the server network name (Cell A1 in this example)
   - Operator name for logging in to WebCTRL (Cell A2 in this example)
   - Operator's WebCTRL password (Cell A3 in this example)
2. Enter the path to the WebCTRL report (Cell A5 in this example).

   NOTE You can also use a global path or a global reference name such as #zone_1.

	A	B
1	192.168.162.170	
2	administrator	
3	abc	
4	/trees/geographic/chiller	
5	~point-list-report	
6		

The macro will write the report data to Cell B1.

Step 2: Create a macro

The macro will retrieve the report data and add it to the spreadsheet.

The following steps correspond to the numbered parts of the code shown below.

1. Name the sub-routine (TestReport) that will retrieve the report.
2. Define which spreadsheet cells contain the:
   host (WebCTRL server)
   user (WebCTRL operator)
   password (WebCTRL operator's password)
3. Identify the Web services program that allows the Excel spreadsheet to retrieve the report from the WebCTRL server over the network or Internet.
4. Enter the code to authenticate the user.
5. Enter the error handling code.
6. Enter the code to run the report.
7. This displays an error checking statement if an error is found in the data.

```
1   Sub TestReport()

2   host = Range("A1").Value
    user = Range("A2").Value
    passwd = Range("A3").Value

3   Dim client As MSSOAPLib30.SoapClient30
    Set client = CreateObject("MSSOAP.SOAPClient30")
    URL = "http://" & host &
                  "/_common/webservices/Report?wsdl"

    client.mssoapinit (URL)

4
    client.ConnectorProperty("WinHTTPAuthScheme") = 1
    client.ConnectorProperty("AuthUser") = user
    client.ConnectorProperty("AuthPassword") = passwd

5   On Error GoTo err

    location = Range("A4").Value
6   report = Range("A5").Value

    result = client.runReport(location, report, "csv")
    Range ("B1").Value = result
    GoTo done

7   err:
        Range("B1").Value = err.Description

    done:
    End Sub
```

NOTE If you have problems connecting to WebCTRL using Visual Basic, add the following line:

```
client.ClientProperty("ServerHTTPRequest") = TRUE
```

above the line:

```
client.mssoapinit (URL)
```

Step 3: Run the macro

NOTE WebCTRL Server must be running.

1. To launch and run the macro, click **Tools**.
2. Click **Macro** > **Macros**.
3. Select the **TestReport** subroutine.
4. Click **Run**. The macro will retrieve the data and place it in the spreadsheet.

   NOTE Follow the steps below if you get an error message when you run the macro.

   a) In Excel, select **Tools** > **Macro** > **Visual Basic Editor**.

   b) In the Visual Basic editor, select **Tools** > **References**.

   c) Select the **Microsoft Soap Type Library v3.0** and click **OK**.

Chapter 24

System database maintenance

You should perform the following system maintenance on a regular basis.

To back up a system

The type of database your system uses determines the method you use to back up the system.

For MS Access or MSDE

1. Shut down WebCTRL Server and SiteBuilder.
2. In the **WebCTRLx.x\webroot** folder, copy your system folder.
3. Paste the copy to a new location.

   TIP Zip the copy before transporting it over a network or to a CD.

For MySQL, MS SQL Server, Oracle, or PostGreSQL

Use the database management system's backup method.

To compact and defragment

In a new WebCTRL system, the records in a database are contiguous. As records are added, deleted, and modified, the records become scattered in the database. This condition, called fragmentation, can slow down system performance and increase the database size. Compact the database to correct this situation.

The files on the server's hard drive can also become fragmented. Defragment the hard drive to correct this situation.

You should compact and defragment on a regular schedule such as once a month. But, you may need to do these more often, depending on how often the data or files change.

TIP To minimize the effects of fragmentation, you should maintain at least 20% free disk space on the server.

Compacting the database

MSDE, MySQL, MS SQL Server, Oracle, and PostGreSQL databases are compacted dynamically—compacting occurs in the background when a database is open.

To compact an MS Access database:

1 Shut down WebCTRL Server and SiteBuilder.

2 Click **Start** > **Control Panel**.

3 Double click **Administrative Tools**.

4 Double click **Data Sources (ODBC)**.

5 On the **User DSN** tab, click **MS Access Database**, then click **Configure**.

6 Click **Compact**.

7 Under **Directories**, select your system's folder under **\webroot**.

8 Under **Database Name**, select **core.mdb**, then click **OK**.

9 Under **Format**, select **Version 4.x**, then click **OK**.

10 When asked if you want to replace the database, click **Yes**.

11 When compacting finishes, click **OK**.

NOTE Compacting a database may take several minutes to several hours, depending on its size.

12 Repeat steps 5 - 10 to compact **audit.mdb**, **events.mdb**, and **trends.mdb**.

Defragmenting the server's hard drive

For all database types, use a defragmentation utility such as Windows Disk Defragmenter or Norton SystemWorks.

NOTE If you are using a single computer as both the WebCTRL server and the client, you must defragment the disk more often than the disk of a dedicated server—especially if people access the Internet from this computer.

To minimize the database size

The larger a database is, the less responsive it may become. Deleting closed alarm incident groups, expired schedules, and expired historical trends on a regular basis will reduce the database size. You can set WebCTRL to automatically delete these. See "System Settings - *Scheduled Tasks tab* (page 164)" in WebCTRL Help.

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