

bEgaugeMonitor is a driver that uses the built-in 'Usage' and 'Generation' registers of a connected eGauge device to track power consumption and production over a period of time. The driver uses the UI Proxy to display the total and net power to the user.

In my setup, bEgaugeMonitor collects usage and generation data for a daily summary. Using the Scheduling Agent, a 'Mark Start Time' event is triggered at midnight and a 'Mark End Time' event triggers at 11:59p. A Report event is triggered at midnight before the 'Mark Start Time' to collect and report values for the day.

SETUP

- 1) Within your Control4 project, install an instance of the bEgaugeMonitor driver for each eGauge register you would like to track
- 2) Enter the IP address of your eGauge device
- 3) Run 'Build Register List' Action to populate the Register property
- 4) Choose the eGauge register to monitor in the Register property

*Remember to configure the driver visibility after installation and 'Refresh Navigators'. Like all UI devices, the driver can be visible Comfort, Listen, Security or Watch.

PROPERTIES

DRIVER SETUP

Upgrade Mode	BNet Solutions drivers can automatically update themselves. Options are "Automatic", and "Upgrade Now". See "Upgrade Mode" section below
Admin Server Enabled	Enables / Disables the driver's Admin Server. See "Admin Server" section below
Admin Port	Listening port assigned to Admin Server
Admin Token	Token required to access the driver's Admin Server

LICENSE SETUP

License Key	Key used to permanently enable driver functionality
License Status	Display current state of driver's license
Driver Version	Installed driver version
MAC Address	Unique network interface identifier for the Controller

EGAUGE SETUP

eGauge IP Register	Network IP address to the eGauge device to be monitored eGauge Register to be monitored by this instance of bEgaugeMonitor
Show Generation	Toggle to show/hide eGauge generation information
Show Time of Use	Toggle to show/hide Time of Use information. *see Time of Use section for discussion

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TIME OF USE

Peak Period 1-4	<p>Definition(s) for the location's utility peak period. A peak period must be entered as:</p> <p>sMM/sDD-eMM/eDD sDOW-eDOW sHH:sMM-eHH:eMM</p> <p>MM - Month DD - Day of Month HH - Hour of Day (24-hour/military) MM - Minute of hour DOW - Day of Week (1=Sunday, 2=Monday, etc) sXX - Start (as in sMM=Starting Month) eXX - End (as in eDOW=Ending Day of Week)</p> <p>For example, these are the Peak Period definitions for my utility: 4/1-10/31 2-6 12:00-21:00 11/1-3/31 2-6 6:00-10:00 11/1-3/31 2-6 18:00-22:00</p> <p>Up to 4 peak periods can be entered, blank period(s) are ignored. Time of Use Properties block is only visible if 'Show Time of Use' property is 'True'. *see Time of Use section for discussion</p>
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START / END INFORMATION

Start/End Time Friendly	"Friendly" Start/End timestamp in MM/DD/YY @ HH:MM:SS format
Start/End Usage	Start/End of eGauge usage register
Start/End Generation	Start/End of eGauge generation register

TOTALS

Elapsed Time	Time, in seconds, between marked start and ending events
Total Peak Usage	Usage, in KWh, that is within a Peak Period definition since Start Period
Total OffPeak Usage	Usage, in KWh, that is NOT within a Peak Period definition since Start Period
Total Usage	All usage (Peak and OffPeak), in KWh, since Start Period
Total Peak Generation	Generation, in KWh, that is within a Peak Period definition since Start Period
Total Off Peak Generation	Generation, in KWh, that is NOT within a Peak Period definition since Start Period
Total Generation	All generation (Peak and OffPeak), in KWh, since Start Period
Net Peak	Peak Generation less Peak Usage, in KWh, since Start Period
Net OffPeak	OffPeak Generation less OffPeak Usage, in KWh, since Start Period
Net	All Generation less All Usage, in KWh, since Start Period

DEBUG SETTINGS

Debug Mode	Sets where the driver outputs debug information. See "Troubleshooting" section below for more information
Debug Level	Sets how much debug detail the driver outputs

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ACTIONS

Build Register List	After entering eGauge IP, will build and display the available registers from the eGauge in the Register property
Mark Start Time	Marks the starting Usage, Generation and Time
Mark End Time	Marks the ending Usage, Generation and Time and calculates the difference between marked Start Time

COMMANDS

Mark Start Time	Marks the starting Usage, Generation and Time
Mark End Time	Marks the ending Usage, Generation and Time and calculates the difference between marked Start Time

EVENTS

Start Marked	Fired when Start Period is marked
End Marked	Fired when Ending Period is marked
Peak Period Started	Fired when a Peak Period is starting
Peak Period Ended	Fired when a Peak Period is ending

CONDITIONALS

Is Peak Period	IS (True) / IS NOT (False) currently a Peak Period
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USAGE

bEgaugeMonitor starts tracking usage and generation when 'Mark Start Time' is invoked (Action or Programming Command). The total registers are recorded and compared to the values captured when 'Mark End Time' (Action or Programming Command) is invoked. All values can be view on the driver's property page or read/used programmatically via the driver's corresponding public variables.

By default, the bEgaugeMonitor icon will show the Net KWh consumption/production of the selected Register since the last 'Start Time' - green numbers are positive and red are negative.

The icon is updated every 15 minutes. The update works reliably on all connected UI devices (T3s, EA1, etc) and on the Control4 app when the app is open and the icon is visible in the current view. It does not update reliably when the app is closed, or the icon is not visible in your current view.

To help address this 'feature', a single-click will invoke the 'Mark End Time' event AND update the icon to the current net value. You will know the driver registered the click and is updating when you see the 'dot-dot-dot' icon.

Two or more clicks (within 2 seconds) will start an icon rotation beginning with Usage (seen after 'Use' icon), Generated (seen after 'Gen' icon) followed by current Net (seen after 'Net' icon).

TIME OF USE (TOU)

An increasing number of utilities are offering a Time of Usage rate structure. In such a structure, the customer is billed at a different rate for power consumed within and outside of the utility's published Peak and OffPeak times. With the Peak Periods defined within bEgaugeMonitor, the driver can now track and report consumption and generation for Peak/OffPeak separately as

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well as total consumption and generation.

ADMIN SERVER

BNet Solutions drivers' have a built-in webserver that looks and behaves like the Properties, Actions and Lua Output tabs for the driver in Composer. The Admin Server's default port for the bEgaugeMonitor driver is 40400 and is configurable in the driver's properties. Using a web browser, navigate to [http://\[controller ip\]:40400](http://[controller ip]:40400) where "controller ip" is the IP Address of your Control4 Director (EA5, EA3, EA1, etc). For example, <http://192.168.1.100:40400>. The Admin Server is protected by a challenge page that requires a token to continue. By default, the token is "bEgaugeMonitorAdmin". Once authenticated, the token is stored in a cookie (technically hashed, then stored) so you won't need to log in every time. The token is configurable via the driver's property page. The Admin Server is enabled by default but can be disabled entirely via the driver's property page.

KNOWN ISSUES AND LIMITATIONS

- Requires C4 OS v2.10.X or greater

UPGRADE MODE

BNet Solutions drivers can automatically update themselves. New driver functionality or capability is typically packaged as an incremental "Major" version (v3, v4 etc). "Minor" versions (v2.3, v2.4) are typically maintenance releases that update underlying libraries, address a specific issue or usability concern.

Automatic When "Automatic" is selected, the driver will upgrade/update itself when a new version is available. This is currently the only available option.

Update Now Checks for and upgrades to any newer Major or Minor version.

TROUBLESHOOTING

All BNet Solutions products have an additional 'Submit' Debug Mode. With this mode selected, the driver creates a unique log file to capture the Lua output based on the selected Debug Level (usually set to "5 - Debug"). Once 'Submit' Debug Mode is deselected, either manually or when the Debug Timer expires, the Submit Debug Log is uploaded to the BNet Solutions Server for analysis.

The server notifies me when Submit files are uploaded but if you have not purchased a license, I have no way to reach out to you for troubleshooting so please email me your contact information.

TRIAL AND PURCHASE

All BNet Solutions drivers are fully functional for a 7-day Trial Period. To continue usage after the Trial Period, you will need to purchase a license. To do so, install the bLicense driver from <https://bnet4solutions.com> and follow the documented purchase steps. There are no refunds so please review the documentation for any limitations or known issues and determine acceptance during the Trial Period.

LEGAL

By using this driver, you are indicating that you have read and agree with the Policies and Terms that govern its usage as published [here](#).

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MY CONTACT INFORMATION

You can reach me at blucas@bnet4solutions.com for comments or questions.

CHANGE LOG

v1 - 3/19	Beta Release
v2 - 5/19	Initial Release
v3 - 7/19	Updated Architecture
v4 - 11/19	Added auto-update functionality
v5 - 9/21	Added Time of Use functionality