

OWNER'S MANUAL

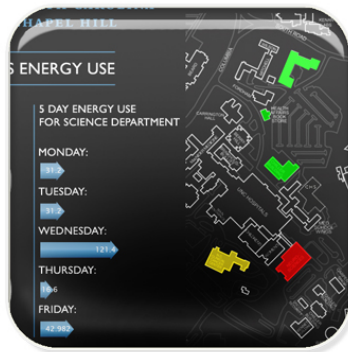
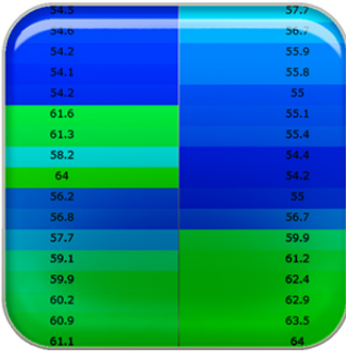
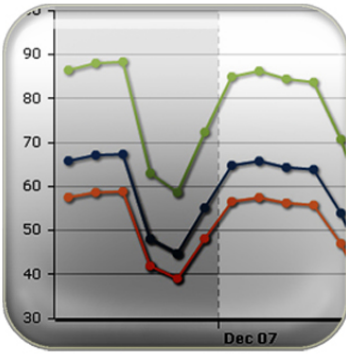


Table of Contents



by **activelogix**

PERISCOPE OVERVIEW.....	2	VIEWLET CONFIGURATION.....	20
About Periscope	2	Configuration Menu	20
Periscope Benefits	2	Configuration Terminology	20
Periscope Goals	2		
UNDERSTANDING THE BASICS.....	3-4	STANDARD VIEWLETS.....	21-33
Web Supervisor	3	Resource Consumption Viewlet	21
JACE	3	Circular Gauge Viewlet	22
Viewlets	3	Point Table Viewlet	23
User View vs. Configuration View	3	History Line Chart Viewlet	24
Dashboard Basics	4	Pie Chart Viewlet	25
Points	4	Column Chart Viewlet	26
Trends	4	PX and Web: Connect Viewlets	27
		Semi-Circular Gauge Viewlet	28
		Virtual Utility Meters Viewlet	29-31
		Green Tips Slideshow	32
		Digital Totalizer Viewlet	32-33
GETTING STARTED.....	5	OPTIONAL VIEWLETS.....	34-40
Periscope Prerequisites	5	Ranking Chart Viewlet	34
Installing Periscope	5	Utility Performance Index Viewlet	35
Initial Periscope Configuration	5	Demand Duration Viewlet	36
User Setup	5	Network Health Viewlet	37
		Utility Accounting Viewlet	38-39
		Drilldown Column Chart Viewlet	40
		Drilldown Pie Chart Viewlet	41
		Drilldown Viewlets Configuration	41-42
		Baseline Comparison Viewlet	43
		Point Line Chart Viewlet	44
		Dual Axis Viewlet	45
		History ColorGrid Viewlet	46
		The Weather Correlation Viewlet	47
		The Year-Over-Year Viewlet	48
		Event History Timeline	49
		High-Low-Average Viewlet	50
		Area Chart Viewlet	51
		FIN: Connect Viewlet	52-53
		Media: Connect Viewlet	53
		Temp to Degree Days	53-54
		Weather Normalization Viewlet	54
		Cross Correlation Viewlet	55
		Solar Generation Viewlet	56-57
		EV Viewlet	58
PERISCOPE CONFIGURATION.....	6-10	AHU DIAGNOSTICS PACKAGE.....	59-62
Locations	6	Space Temperature Compliance	59
CO2 Footprint	7	AHU Efficiency Calculator	60
Global Properties	7	Cooling Compliance	61
Point and Trends	7	Heating Compliance	62
Filtering	8		
Mapped vs. Unmapped Variables	8		
PX/Web Pages	8		
Checking Validity	9-10		
USING PERISCOPE.....	11-17	FAQs.....	63-66
Dashboard Setup	11		
Tabs	11		
Viewlet Configuration Tools	11		
Rollover Information	11		
Viewlet Options Menu	12		
Dashboard Options Menu	12		
Kiosk Operation	13		
InfoPopup Configuration	13		
Kiosk Timing Manager	14		
Viewlet Layout and Positioning	14		
Enterprise Tab & Viewlet Library	15		
Editing a Viewlet Title	16		
Sharing a Viewlet	16		
Guest and Preferred Guest Profiles	17		
PDF Reports	17		
Chart Legend Configuration	17		
LOCALIZATION.....	18	GLOSSARY.....	67-71
Localization	18		
VIEWLETS.....	19		
Adding a Viewlet	19		
Selecting the Right Viewlet	19		

PERISCOPE OVERVIEW

About Periscope

Periscope™ is a rich internet application (RIA) built with the Adobe® Flex toolset, an open source framework for building and maintaining expressive web applications that deploy consistently on all major browsers, desktops, and operating systems. Periscope runs as a service on a Niagara^{AX} station (a platform marketed by most of the major controls suppliers) and can be easily integrated with third party BACnet™, LonWorks™ and other standard protocols. It provides a web-based client that can graphically display and analyze any information contained in the automation control system, as well as related items like weather, occupancy, and production from other traditional databases.

Periscope Benefits

Periscope is unique in its ability to allow each and every user the ability to easily customize (in minutes) their own “views” of various data, histories, and metrics, including energy trends, building comparisons, weather data, network status, consumption efficiencies, key performance indices, and more. Periscope can even display the custom pages built with proprietary graphics tools, thus preserving prior investments while enabling side-by-side comparisons of operating graphics with related variables and performance trends.

Periscope Goals

Designed to promote behavioral change through wider access to critical facility control parameters, Periscope enables a high level of engagement by facility stakeholders that, for the first time, can see the real-time impact of the choices they make in utilization of facility resources like lighting, electricity, water and other consumables. Using Periscope, facility stakeholders can truly become “agents of change”, with the ability to dramatically influence the demand on limited facility resources.

What's New for Periscope 2012

Many new improvements and additions have been made in the latest release to make Periscope even better. These include several new optional viewlets including Hi-Low Average, Area Chart, EV Stations, and the FIN Viewlet. Other new features including Localization, improved PDF Reports, and Application Update Notifications have also been added, as well as various other usability and performance enhancements.

In addition, a number of previous Viewlets have received updates including Resource Consumption, Column Chart, Line Chart, Point Line Chart, Cross Correlation Analysis, Weather Normalization, and the virtual Water Meter, just to name a few.

UNDERSTANDING THE BASICS

JACE®

JACE (Java Application Control Engine) controllers are embedded computers running the Niagara Framework® software. JACEs are distributed throughout the customer's network and they provide connectivity to the many different physical systems within a building. JACEs connect to common building automation systems, metering, and other smart devices using protocols such as LonWorks, BACnet, Modbus, and many proprietary protocols. The JACE provides control logic, trending, scheduling and alarming and allows real time point data to be brought into Periscope.

Web Supervisor™

The Web Supervisor is a desktop server or PC running the Niagara Framework. The Supervisor is designed to manage a network of JACEs or to monitor points from third party servers. It reduces the costs of managing and controlling multiple buildings and allows centralized engineering, alarming, scheduling and trending of remote equipment. The Web Supervisor supports multiple client workstations, and has an extensive security/password model to protect user information. A Web Supervisor is often the best location for Periscope because long term trends are generally stored here to manage a network of JACEs or to monitor points from third party servers.

Viewlets

Periscope comes with an ever expanding library of viewlets, which are the basic components of Periscope. Sometimes referred to as a widget or pod, viewlets are the data windows used to populate a user's "dashboard", which refers to the Periscope user's layout of their information. Viewlets are broken into five categories: history, point, diagnostic, sustainability, and general. Point viewlets rely on real-time metrics that change constantly. History viewlets look at sets of trend data for charting changes over time series. Diagnostic viewlets analyze historical and live data to help diagnose inefficiencies or problem areas. Sustainability viewlets display historical and live data related to some sustainable effort (solar, wind, etc.). General viewlets are those which reference other sources for their displays, such as URLs. Each viewlet has different capabilities and configuration options which are covered later in the document.

User View vs. Configuration View

Periscope consists of two major servlet components – a "Configurator" and a "Dashboard". The "Configurator" servlet is used initially to discover available points, trends, and other available parameters in the Web Supervisor (or JACE) and "map" them into the "Dashboard" accessible library. The "Dashboard" servlet is used to create unique dashboards which can consist of multiple viewlets and tabs selected by the individual user. The Configurator allows Periscope to collect and store all of the information needed for a user to have complete control of how they wish to visualize their energy or facilities data in their unique dashboard view.

The Periscope Configurator is accessed by going to [http://\(IP address of the Web Supervisor or JACE\)/periscopeconfig](http://(IP address of the Web Supervisor or JACE)/periscopeconfig). This should be the first place a user should visit after completing the necessary installation steps, which are covered on the following page. Users must have super user rights to access the Periscopeconfig servlet. After completing a few basic configuration steps covered in the configuration section ahead, the user will be ready to start customizing their dashboard. The address for the Dashboard servlet is normally [http://\(IP address of the Web Supervisor or JACE\)/periscope](http://(IP address of the Web Supervisor or JACE)/periscope).



This is a typical user view, or “dashboard”. Viewlets are used to display a user’s facility data in a variety of effective presentations.

Dashboard Basics

The user can modify their dashboard and its viewlets in a variety of ways. Viewlets can be moved, minimized, maximized, added, deleted, and even moved to different tabs. The “plus” tab allows users to choose to add new tabs or viewlets to their dashboard. A viewlet options list is accessible through a menu (gear icon) in each viewlet, and viewlets can be configured through the red wrench icon. Default display colors can also be set for each location in the Periscopeconfig browser, assisting users in quickly identifying locations within the viewlets.

Points

”Points” refer to data within the Niagara network that consists of real-time values or setpoints. Viewlets which rely on point data have the ability to update in seconds, and provide immediate indication of a change of status or value. The Point Table Viewlet is an example of a viewlet that uses points.

Trends

”Trends” refer to data sets that contain historic information. Trends can consist of data points plotted for time periods reaching as far back as data is available, years in many cases. Certain viewlets rely on trend data to give users a detailed view of energy usage for a user-selectable time range. This can be useful in identifying areas of concern or opportunities to reduce energy consumption.

GETTING STARTED

Periscope Prerequisites

- Periscope must run on a Niagara^{AX} station, version 3.2 or higher. A station is defined as an instance of Niagara running on a hardware platform, so Web Supervisors and JACEs are considered a station. It is strongly recommended that Periscope run on a Niagara Web Supervisor station due to the increased storage capacity, but it can be installed on a JACE station also.
- Any station running the Periscope service should have at least 5MB available. The Periscope module itself takes up about 2MB, and it will need room to maintain configuration and user dashboard options.
- The connected Niagara^{AX} station must have oBIXTM (Open Building Information Xchange) installed and enabled in the station's drivers folder.
- Periscope requires the installer and end-user to install the Adobe[®] Flash plug-in for their browser. Users will be prompted if they have not installed the necessary files to view Periscope.

Installing Periscope

First, the Periscope JAR file must be installed on the Web Supervisor (or JACE). An oBIX Network must also be added to the driver's folder if not already present. Once both files have been added, open the alxPeriscope palette, and drop the PeriscopeService into the services category. A valid license and certificate file must be obtained and added in the platform's license manager as well. Periscope is now installed and licensed, but it must be configured before being used.

Initial Periscope Configuration

To configure Periscope, go to [http://\(IP address of the Web Supervisor/JACE\)/PeriscopeConfig](http://(IP address of the Web Supervisor/JACE)/PeriscopeConfig) and log in as a super user. Under the locations tab, add several locations or buildings by selecting the new location button at the bottom of the screen. Also make sure to enter a square footage and a blended rate for electricity, and other utilities as desired. At least one trend, point, meter, or web/PX page should be added before accessing Periscope. Periscope's automatic discovery wizard will instantly import all available numeric points and trends, as well as any meters or PX pages discovered in the Web Supervisor/JACE database. Any additional variables added after the initial discovery will not show up in Periscope until the user does a manual discovery. This is done by pressing the "discover" button at the bottom of the respective variable's configuration screen. Once configured, the user can access Periscope by going to [http://\(IP address of the Web Supervisor/JACE\)/periscope](http://(IP address of the Web Supervisor/JACE)/periscope) and entering their credentials.

User Setup

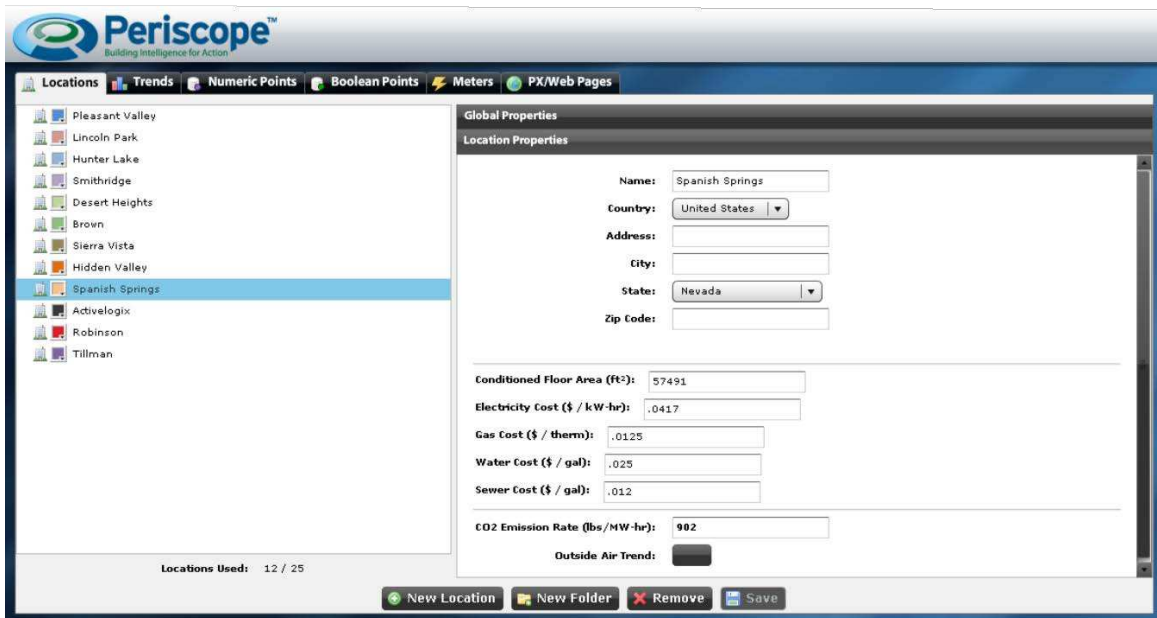
All users are capable of accessing their own Periscope dashboard if they meet these requirements:

- Operator Read access to all mapped points is enabled
- Admin Invoke on the PeriscopeService, Meter and Rollover objects

PERISCOPE CONFIGURATION

Locations

The first time a user opens Periscope's configuration window, located at [http://\(IP address of the Web Supervisor/JACE\)/PeriscopeConfig](http://(IP address of the Web Supervisor/JACE)/PeriscopeConfig), they will need to add locations. Locations are used to group data into logical categories typically based on a building or location's name, but they can be used to refer to specific rooms, building wings, or anything the user wishes to classify as a location. All mapped data will then be assigned to a location in order to identify where it is coming from. All entries under the location properties menu should be filled in, especially the conditioned floor area and utility rates. These are used for numerous conversions within Periscope, and can help the user more clearly understand the extent of their energy usage. A default color can also be set/modified, which Periscope will use when displaying any data from that location in a viewlet.



New locations can be added by selecting the new location button at the bottom of the screen. In addition, folders can also be used to arrange them into like groups, like Classrooms, Regional Offices, Fire Stations, etc... Default location colors are displayed in selectable color palette icons next to each location's name.

Global Properties

Global Units

Conditioned Floor Area:

Cost:

Electricity:

Natural Gas:

Water:

Sewer:

General

Help URL:

Default Theme:

Location Properties

CO₂ FOOTPRINT

Periscope users can discover their region's emissions at <http://www.epa.gov/cleanenergy/energy-and-you/how-clean.html>. By simply entering a zip code and the user's energy provider, the most accurate and up to date emissions average can be discovered and entered in the appropriate entry box. This can then be used as a conversion factor within Periscope, allowing the user to accurately track their carbon footprint and take full advantage of the energy conversions used throughout Periscope.

GLOBAL PROPERTIES

Located in the drop-down menu above the location properties, the global unit properties allows users to alter the units displayed in Periscope viewlets that display utility usage information. Changing units will not automatically convert the user's data into equivalent values; therefore the user should ensure their data is set up accordingly before it is assigned a global unit. Also included in the global properties menu is the help URL and default theme setting. The help URL will redirect users to a specified web address when the help option is selected in Periscope's dashboard mode. The default theme setting will effect whether a user's default dashboard appearance is "light" or "dark". The theme option will only be visible if using the default Periscope theme (not custom themes).

Point and Trends

Once points (numeric and boolean) and trends have been discovered, the user must map whichever variables they wish to bring in to Periscope and have the ability to display. This can be done by dragging and dropping the points or trends from the top window to the bottom, or by highlighting them and clicking the "add" button at the bottom of the screen. A few simple fields should be completed after mapping a point or trend for the first time. The value should be given an easily identifiable 'virtual' name, a unit type, and a location. For trends, the user must also select whether or not it is accumulating (often selected for kWh trends if the Niagara trend is set up to accumulate). The user can make changes to the information at any time by highlighting the variable and selecting the edit button at the bottom of the screen. The case-sensitive filter box allows users to enter key names or numbers in order to search for a specific variable amongst hundreds or even thousands of entries.

The screenshot shows the Periscope dashboard interface. At the top, there are navigation tabs for Locations, Trends, Numeric Points, Boolean Points, Meters, and PX/Web Pages. Below the navigation is a search filter box. The main content area is divided into two sections: Unmapped Points (120) and Mapped Points (76).

Unmapped Points (120)

Name	Ord	Unit	Value
TEMP	Points/Pleasant Valley/TEMP		71.32
TEMP1	Points/Pleasant Valley/TEMP1		79.32
TEMP3	Points/Pleasant Valley/TEMP3		72.03
TEMP4	Points/Pleasant Valley/TEMP4		74.35
TEMP5	Points/Pleasant Valley/TEMP5		83.76
TEMP6	Points/Pleasant Valley/TEMP6		70.44
TEMP7	Points/Pleasant Valley/TEMP7		71.04
TEMP8	Points/Pleasant Valley/TEMP8		78.21
TEMP	Points/Lincoln Park/TEMP		71.25
TEMP1	Points/Lincoln Park/TEMP1		76.51

Mapped Points (76)

Dashboard Name	Unit	Location
IrradiationNow	Watts Per Square Meter (W/m²)	Activelogix
SolarPower	Kilowatt (kW)	Activelogix
BuildingPower	Kilowatt (kW)	Activelogix
Lounge	Fahrenheit (°F)	Brown
Cafeteria	Fahrenheit (°F)	Brown
Conference	Fahrenheit (°F)	Brown
Front Office	Fahrenheit (°F)	Brown
Gymnasium	Fahrenheit (°F)	Brown
IT Room	Fahrenheit (°F)	Brown
Warehouse	Fahrenheit (°F)	Brown

At the bottom of the dashboard, there are several action buttons: Discover, Check Validity, Add, Edit, Remove, and Save.

Configuring Periscope is done through simple, one-click processes. Mapping variables into Periscope is a “drag-and-drop” operation.

Name	Ord	Unit	Location
TEMP6	Points/TEMP6	Fahrenheit (°F)	Atkins
TEMP5	Points/TEMP5	Fahrenheit (°F)	Atkins
TEMP4	Points/TEMP4	Fahrenheit (°F)	Atkins
TEMP3	Points/TEMP3	Fahrenheit (°F)	Atkins
TEMP1	Points/TEMP1	Fahrenheit (°F)	Atkins

Name:

Unit:

Location:

FILTERING

The case-sensitive filter box allows users to enter key names or numbers in order to sort any data being mapped. This is helpful when searching for a specific variable amongst hundreds or even thousands of them.

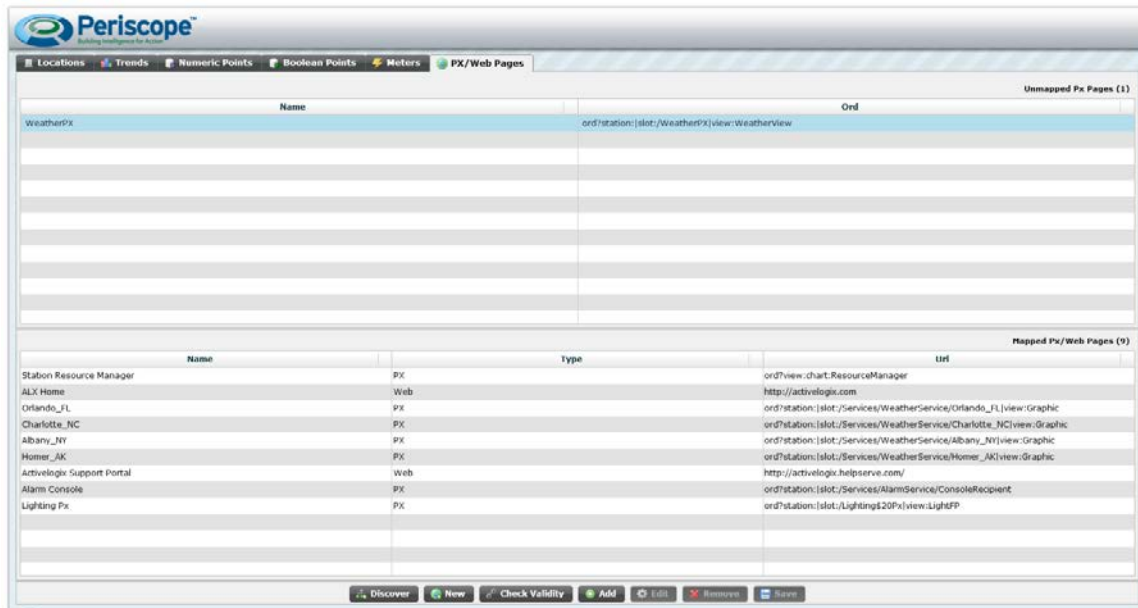
MAPPED vs. UNMAPPED VARIABLES

When Periscope is initially installed and connected to the Niagara Station, it has the ability to “discover” all the points and trends that have been assigned to the station. The

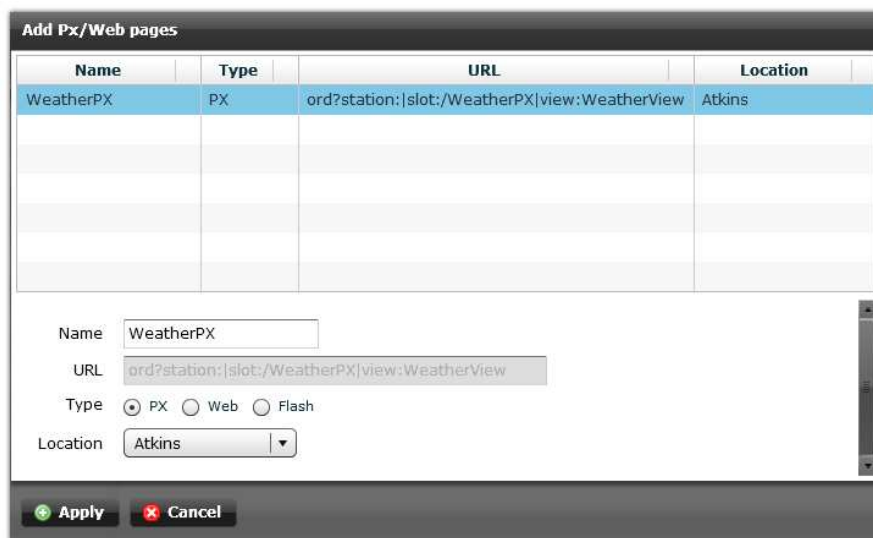
“discovery” wizard searches through the station and loads these variables into the upper “unmapped” window. From this “global” list, desired variables can then be selected and individually or collectively dragged to the lower “mapped” window, making them available to all Periscope users. Unmapped points and trends cannot be recognized by Periscope until they are placed in the lower half of the configuration menu, and a few important informational descriptions are entered. The image to the left is the pop-up presented after a variable is mapped

PX/Web Pages

Within Periscope’s configuration browser, there is a tab for PX/web pages. Both are automatically discovered from the Web Supervisor’s database, saving the user time by eliminating their need to manually copy and paste URLs when they want to display a previously created graphics page in a PX Viewlet. Note that there will not likely be any web pages found on the Web Supervisor, but if the user wanted to create and save web pages for future use in Periscope, they could do so by pressing the “add” button at the bottom of the screen. The unmapped pages cannot be filtered like points or trends, but there should be far fewer to sort through. Once the URLs for both the web and PX pages have been mapped, they will be accessible from inside Periscope. The user will see them appear in a list for quick selection when the configuration tool for the Web Viewlet or PX Viewlet is opened in their dashboard window.



All discovered pages can be added through the same drag-and-drop process as points and trends.



PX and web pages can be given a name, page type and location association.

Checking Validity

A large percentage of Periscope problems are caused by the existence of invalid variables, which have been mapped into Periscope's configuration menu and then changed in the database at a later time. When data is mapped, and then altered in Niagara^{AX}, it will break the link in Periscope because the variable no longer exists as it did when it was first created. This will cause any viewlets which are attempting to display that variable to break as well. The "check validity" feature allows users to automatically check any mapped information to make sure it is still valid, and easily identify it if it is not. The tool looks at all of the mapped data for the tab in Periscopeconfig the user is currently viewing and compares the ORDs to the AX database to make sure they all exist. If any of them do not match, a dialog will appear in the center of the screen informing the user how many invalid variables were found, and ask the user if they would like to remove them and save. Any viewlets displaying invalid variables should be deleted and added back to the user's dashboard after removing the invalid data from the Periscopeconfig mapping window.

Periscope
Building Intelligence for Action

Locations Trends Numeric Points Boolean Points Meters PX/Web Pages

Unmapped Px Pages (1)

Name	Ord
WeatherPX	ord?station: slot:WeatherPX view:WeatherView

Mapped Px/Web Pages (9)

Name	Type	Url
Station Resource Manager	PX	ord?view:chart:ResourceManager
ALX Home	Web	http://activelegix.com
Orlando_FL	PX	ord?station: slot:Services/WeatherService/Orlando_FL view:Graphic
Charlotte_NC	PX	ord?station: slot:Services/WeatherService/Charlotte_NC view:Graphic
Albany_NY	PX	ord?station: slot:Services/WeatherService/Albany_NY view:Graphic
Homer_AK	PX	ord?station: slot:Services/WeatherService/Homer_AK view:Graphic
Activelegix Support Portal	Web	http://activelegix.helpserve.com/
Alarm Console	PX	ord?station: slot:Services/AlarmService/ConsoleRecipient
Lighting Floor Plan	PX	ord?station: slot:Lighting Px view:LightFP

Discover New Check Validity Add Edit Remove Save

Any invalid variables will display in red after being discovered by the check validity tool.



If the user deletes and saves, they should select the discover button afterwards to attempt to rediscover the changed variable.

USING PERISCOPE

Dashboard Setup

Periscope's user interface is designed to allow the end user to dynamically configure his or her view of facility information. When a new user logs in to Periscope for the first time they are presented with several preset viewlets added to their dashboard. The user can begin to configure their own custom dashboard by using the variety of interface options shown below.

TABS

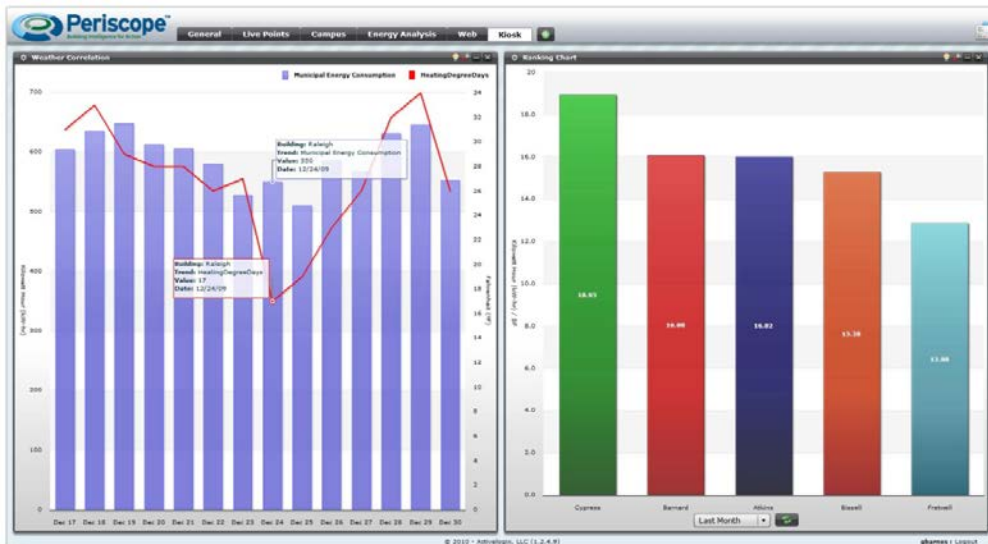


Tabs give users the ability to organize their facility information into separate "dashboard" displays. The "add" tab ("+" icon pictured above, far right) allows users to expand their dashboard by inserting additional tabs or viewlets. Users can customize the tab and viewlet names at any time. The number of tabs and viewlets that can be added is limited only by the size of the user's display. Viewlets can be moved to different tabs through the viewlet options menu (see page 11), and tabs can be renamed by clicking on the tab, and pressing "F2". Tabs can also be organized by clicking on a tab, and while holding the mouse down, dragging the tab to a new location.

VIEWLET CONFIGURATION TOOLS



Located in the upper-right corner of each viewlet are several tools used for configuring viewlets. The red wrench is the configuration tool, and it allows the user to set up the respective viewlet. Depending on which viewlet is being configured, the user will be able to select which locations or variables to plot, choose time ranges, and much more. The light bulb is the informational pop-up configuration tool. If it is lit, as shown, the user has configured a pop-up for the respective viewlet, and selecting it will display it. If it is not lit, clicking on the light bulb will display the pop-up configuration (see page 12). The user also has the option to quickly minimize and delete their viewlet as well.



ROLLOVER INFORMATION

To discover additional information inside of most viewlets, move the mouse pointer over certain areas of the graph or display. Pop-ups like the one pictured can help users instantly identify the specific location and units on the graphs and charts. Values are also displayed when applicable, giving the user quick access to critical metrics. On the dual-axis graphs, the user will often be presented with dual pop-ups.



VIEWLET OPTIONS MENU

Located under the gear icon in the top-left corner of every viewlet is a list of viewlet options. Selecting the gear icon will open a drop-down menu that will allow the user to do a variety of things. See the diagram below for more details on each option.

- Edit Viewlet Title
- Refresh Viewlet
- Move To Tab...
- Export PDF Report
- Export > Image
- Export > CSV

- Show InfoPopup
- Configure InfoPopup

- Share Viewlet
- Save To Library
- Remove Viewlet

- Edit Viewlet Title** – Opens a dialog that allows the user to customize the viewlet’s title.
- Refresh Viewlet** – Updates all viewlet data (historical and live).
- Move to Tab** – Allows the user to move this viewlet to any other tab in the dashboard.
- Export** – Enables the user to export a viewlet in PDF, Image (JPEG/PNG), or CSV format.
- Show InfoPopup** – Displays the InfoPopup configured for this viewlet.
- Configure InfoPopup** – Opens the configuration window for InfoPopups.
- Share Viewlet** – An optional feature that generates a unique URL to share this viewlet with other users or embed on iGoogle.
- Save to Library** – Saves this viewlet to the global dashboard Library. This allows other users to duplicate this viewlet at any time.
- Remove Viewlet** – Deletes this viewlet and associated data from the dashboard.



DASHBOARD OPTIONS MENU

Located under the menu icon in the top-right corner of the Periscope browser is a set of dashboard options. Selecting the menu icon will open a drop-down list that will allow the user to do a variety of things. See the diagram below for more details on the dashboard options.

- Kiosk Timing Manager
- Kiosk [Dashboard]
- Kiosk [Tab]
- Export > Image

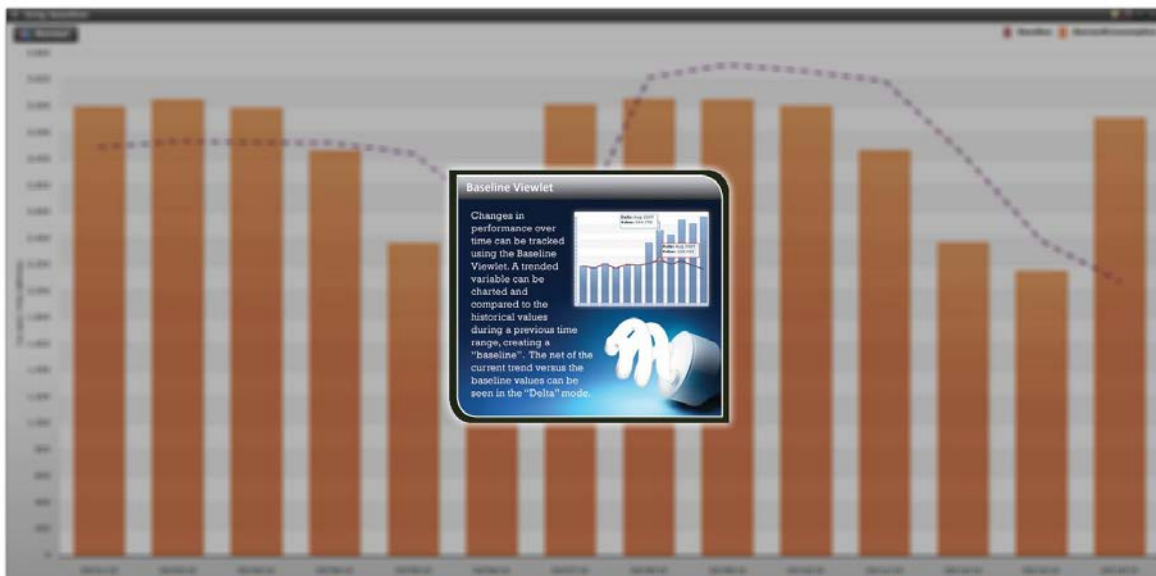
- About
- Configure About

- Switch Layout Type
- Save Tab To Library
- Change Theme
- Change Locale
- Help
- Logout

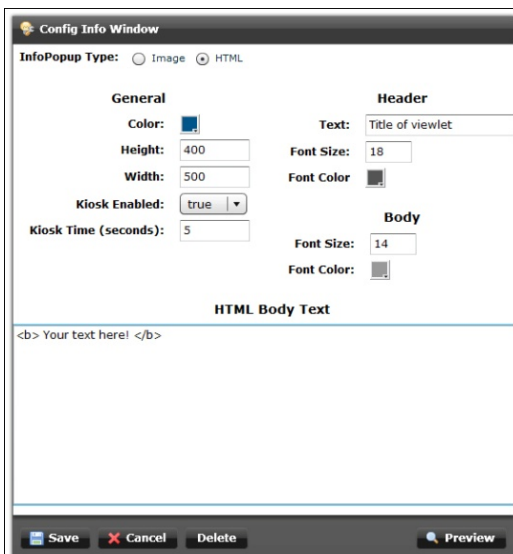
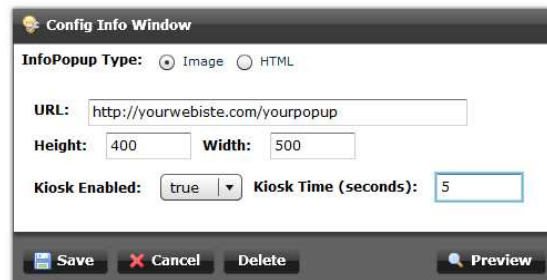
- Kiosk Timing Manager** – Opens the Kiosk Timing dialog which allows in depth customization of viewlet/tab timing while in Kiosk Mode.
- Kiosk [Dashboard]** – Starts kiosk mode for the entire dashboard.
- Kiosk [Tab]** – Starts kiosk mode for this tab. This mode will not change the current tab.
- Export** – Allows exporting the entire dashboard content to an Image (JPEG/PNG).
- About** – Displays an InfoPopup for this Periscope installation. This InfoPopup can be configured to display when a user opens Periscope.
- Configure About** – Opens a dialog with options to configure the contents of the About InfoPopup.
- Switch Layout Type** – Switches the current tab’s layout type between Auto and User Defined.
- Save Tab To Library** – Saves the current tab to the Library.
- Change Theme** – Allows the user to change between the Periscope light/dark themes. This option is only available to Periscope themed users (custom themes will not see this option).
- Change Locale** – This control allows the user to change the displayed language inside of Periscope to one of the available languages shown in the "Locale Dropdown" selector. Periscope can support multiple user-specified languages simultaneously.
- Help** – Opens the Help URL defined in the global options of Periscope Config.
- Logout** – Logs the user out of Periscope and Web Workbench.

Kiosk Operation

When using Kiosk mode, the user has several options. They can choose to kiosk their entire dashboard or one single tab through selections in the Dashboard Options Menu (the menu icon at the top right of the dashboard). If the dashboard kiosk mode is selected, Periscope will cycle through each viewlet on the user's current tab once, switch to the next tab in line, and repeat the process continuously. The kiosk mode will remain active until the user returns to the dashboard menu and selects the kiosk mode option again. The user also has the ability to configure informational pop-ups that can display custom, user-configured content. The light bulb icon is used to configure viewlet InfoPopups. If an InfoPopup has been configured, and the light bulb appears lit, the user can hold control and click on the light bulb to open the configuration menu. This content can be coded in HTML, or an image's URL can be referenced by selecting the respective option. The user can also configure an "about" pop-up which can display an image or HTML entry when users first enter Periscope. This is configured through the Dashboard Options Menu, in entry boxes similar to those shown below.



This is an example of a pop-up window which is being displayed prior to showing the viewlet. Pop-ups can be HTML or an image URL.

A screenshot of a configuration window titled "Config Info Window". It has two radio buttons for "InfoPopup Type": "Image" and "HTML". The "HTML" option is selected. The window is divided into three sections: "General", "Header", and "Body".
- General: Color (blue swatch), Height (400), Width (500), Kiosk Enabled (true), Kiosk Time (seconds) (5).
- Header: Text (Title of viewlet), Font Size (18), Font Color (black swatch).
- Body: Font Size (14), Font Color (black swatch).
At the bottom, there is a text area for "HTML Body Text" containing the text " Your text here! ". Buttons for "Save", "Cancel", "Delete", and "Preview" are at the bottom.A screenshot of a configuration window titled "Config Info Window". It has two radio buttons for "InfoPopup Type": "Image" and "HTML". The "Image" option is selected. The window contains fields for:
- URL: http://yourwebiste.com/yourpopup
- Height: 400, Width: 500
- Kiosk Enabled: true, Kiosk Time (seconds): 5
Buttons for "Save", "Cancel", "Delete", and "Preview" are at the bottom.

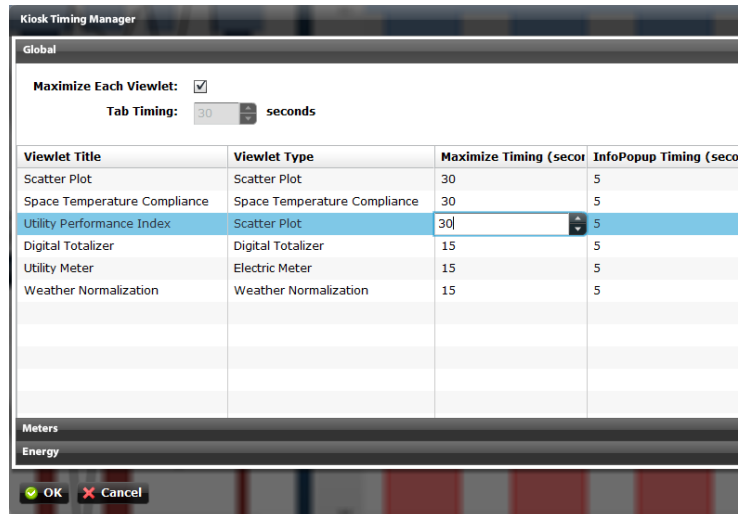
INFOPOPUP CONFIGURATION

The configuration menus for HTML or image InfoPopups are slightly different, but contain similar options. The user should determine a pop-up size in pixels, a display time should be established, and either HTML body text or a URL should be entered. The user should save any changes made, and the can preview the pop-up by selecting the "preview" button to the right. The user can choose to enable or disable the pop-up at any time by choosing 'true' or 'false' from the kiosk enabled menu.

Kiosk Timing Manager

The Kiosk Timing Manager is a new configuration dialog that can be used to edit kiosk timing in a central location and in better detail. Viewlets can now be configured to maximize in kiosk mode for any number of seconds or be skipped altogether.

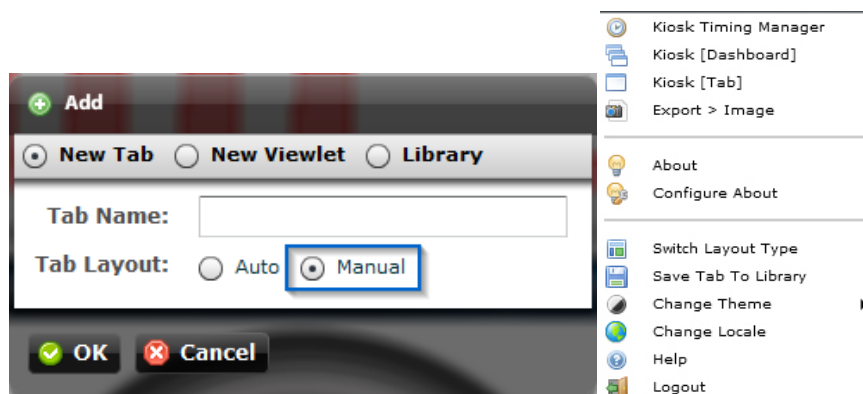
Each tab of the dashboard will be a separate *accordion* panel and each of these panels will contain a list of all viewlets on that tab. The *Maximize Timing* and *InfoPopup Timing* columns can be changed by clicking. If the *Maximize Each Viewlet* checkbox is unchecked, the tab will not iterate through each viewlet but instead show the entire tab for the period of time configured in the *Tab Timing* box.



Viewlet Layout and Positioning

As new viewlets are added to each tab within the application, Periscope can automatically place them and size them equally to consume the available tab area. Alternatively, the user can use Periscope's dynamic viewlet sizing and positioning feature which allows users to create unlimited dashboard configuration layouts. This function is particularly handy when combining various viewlets of different complexity. For example, a simple Gauge viewlet can be set to use less space than a more complex viewlet like the Utility Accounting Viewlet. With the user defined layout function, users can manually move and scale the viewlets, making them the exact size desired for the best possible dashboard layout.

The selection of how the viewlet layout is managed is determined by the Setting in the Dashboard Options Menu (the menu icon at the top right of the dashboard). Clicking on the "Switch Layout Type" button will toggle the Tab layout logic between the Auto Sizing (All Viewlets are automatically placed and identically sized) and the User Layout mode (User can select placement and sizing of any viewlet in the tab window).

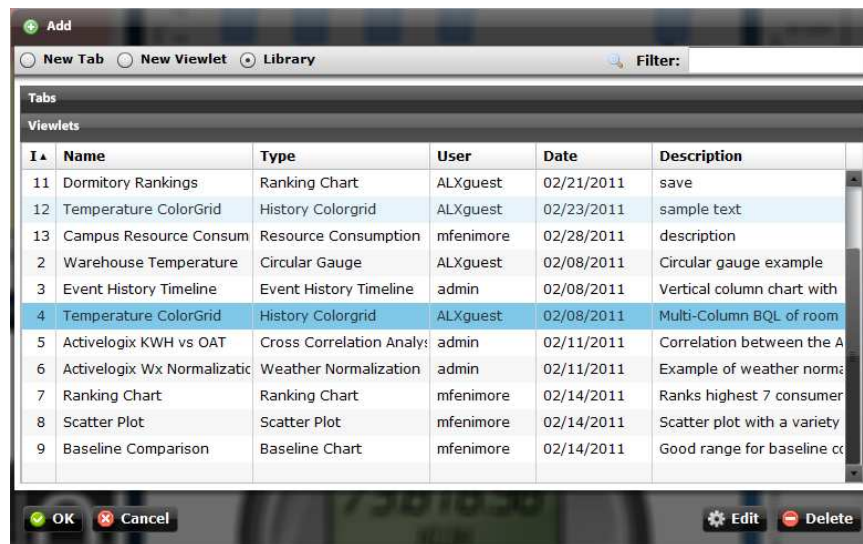


Enterprise Tab & Viewlet Library

The Tab and Viewlet Library is a new selection available in the *Add* dialog and can be used to store and share preconfigured tabs and viewlets. Viewlets can be saved to the library by clicking “Save to Library” in the *Viewlet Menu* (gear icon on top-right of viewlet title bar) and tabs can be saved to the library through the *Periscope Main Menu* (top right menu button). Once saved, other users can pull an exact copy of the tab or viewlet into their own dashboard via the library.

Library items can only be edited or deleted by the creator (person who added to the library) or by a Super user.

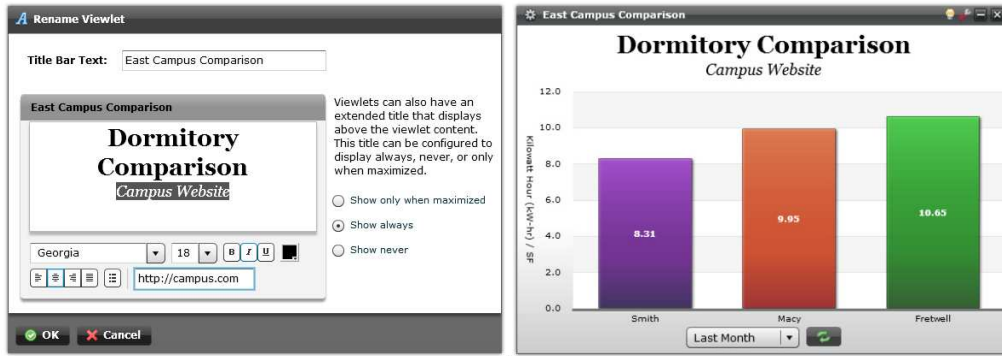
This feature is extremely useful in quickly initializing new user dashboards based on existing viewlet configurations. It is also a great way to share location or topic specific viewlets with other users or colleagues. Lastly, it is a useful way to store a large number of predefined viewlets based on location parameters, buildings or equipment.



I#	Name	Type	User	Date	Description
11	Dormitory Rankings	Ranking Chart	ALXguest	02/21/2011	save
12	Temperature ColorGrid	History Colorgrid	ALXguest	02/23/2011	sample text
13	Campus Resource Consum	Resource Consumption	mfenimore	02/28/2011	description
2	Warehouse Temperature	Circular Gauge	ALXguest	02/08/2011	Circular gauge example
3	Event History Timeline	Event History Timeline	admin	02/08/2011	Vertical column chart with
4	Temperature ColorGrid	History Colorgrid	ALXguest	02/08/2011	Multi-Column BQL of room
5	Activelogix KWH vs OAT	Cross Correlation Analyz	admin	02/11/2011	Correlation between the A
6	Activelogix Wx Normalizatic	Weather Normalization	admin	02/11/2011	Example of weather norma
7	Ranking Chart	Ranking Chart	mfenimore	02/14/2011	Ranks highest 7 consumer
8	Scatter Plot	Scatter Plot	mfenimore	02/14/2011	Scatter plot with a variety
9	Baseline Comparison	Baseline Chart	mfenimore	02/14/2011	Good range for baseline c

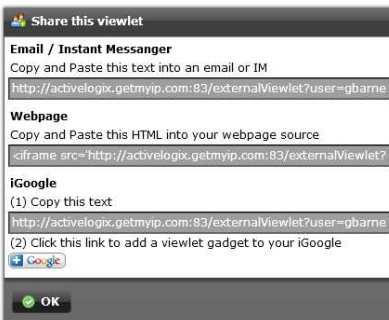
Editing a Viewlet Title

Viewlets can be given custom titles, both in the title bar of the viewlet, and inside the viewlet window. Viewlet titles can be edited by selecting the appropriate option in the viewlet options menu, or by right-clicking the title bar of the viewlet and selecting rename viewlet. This will present the user with the “rename viewlet” popup window. Here the user can create custom titles, change the size, style, and alignment of the titles, and even attach hyperlinks. A hyperlink can be created by highlighting the word or words the hyperlink will be attached to, and entering the URL in the box at the bottom of the “rename viewlet” window. Users should also make sure to specify when the title will be displayed by choosing one of the three radio button options.



Sharing a Viewlet

An optional feature in Periscope, users can export fully configured viewlets to external web pages, iGoogle dashboards, and share through email and instant messenger. These viewlets can then be embedded in a website or as an iGoogle “gadget”. If any changes are made in Periscope to shared viewlets, the changes will persist to the web pages and/or iGoogle once they are refreshed. Creating a separate user for sharing viewlets is a good idea to keep shared viewlets configured as desired.



When a viewlet is shared, it will present the user with several options. When opened, each shared viewlet will be viewed in full screen, minus the title bar and any configuration options. To export into a user’s iGoogle page, the user should first add an iframe gadget to their iGoogle dashboard, and then paste the provided URL in the source box of the gadget’s properties.

	Inherit	PeriscopeGuest
Config	n/a	•
Services		
+ UserService		
+ CategoryService		
+ JobService		
+ AlarmService		
+ HistoryService		
+ AuditHistory		
+ LogHistory		
+ ProgramService		
+ BackupService		
+ Webservice		
+ PeriscopeService		•
+ Periscope Servlet		
+ Periscope Config Servlet		
+ External Viewlet Servlet		•
+ Jace Health		
+ Utility Mapper		
+ WeatherService		
+ Webservice2		
+ PlatformServices		
Drivers		
+ NiagaraNetwork	✓	
+ FileNetwork	✓	
+ ObixNetwork		•

The Viewlet Web Publishing feature requires an AX Guest account set up in order to export and share. The AX guest must have ‘Operator Read’ and ‘Admin Invoke’ rights to the following AX objects: PeriscopeService, External Viewlet Servlet, oBIX Network, and any other points which are to be displayed in the shared viewlets.

Category	Operator			Admin		
	R	W	I	R	W	I
PeriscopeExternalGuest	✓	✓				✓
Category 2						

The Guest must have ‘Operator Read’ access to any live Point that may be viewed in Periscope

Guest and Preferred Guest Profiles

Periscope provides two "guest" profile types:

- Periscope Preferred Guest - This user can edit, add and remove viewlets but no changes are saved. The dashboard will always return to the same state as it was when the user initially logged in.
- Periscope Guest (read only) - This user does not have the ability to edit or remove viewlets (or save them). The "remove" and "add" buttons are not visible.

To modify the user profile, it is necessary to utilize the NiagaraAX Workbench application.

[CAUTION: Changes made here should be done by a knowledgeable Niagara technician.]

Open the Periscope Service, navigate to Services > User Service and double-click the user profile of interest. Change the "Profile Type" to "Periscope Guest or Preferred Guest" using the drop-down selector box and save. Note that once set as a "Guest", the only way to further modify this dashboard (as in adding/deleting new viewlets to the "Guest" presentation) is to change it back to a "Normal" user, make the desired changes, and then switch it back to "Guest".

The screenshot shows a user profile configuration form with the following fields and options:

- Language: [Text Input]
- Email: [Text Input]
- Password: Password [Masked], Confirm [Masked]
- Facets: Time Format [(default)], Unit Conversion [None]
- Nav File: null [Text Input]
- Prototype Name: [Text Input]
- Network User: false [Dropdown Menu] (Open menu shows: Periscope Guest Profile, Periscope Preferred Guest Profile, Periscope Hx Guest Profile, Periscope Hx Preferred Guest Profile, Appliance Hx Profile, Chotchkie Hx Profile)
- Web Profile: Auto Logoff Enabled, Auto Logoff Period, Type

PDF Reports

Exporting to a PDF will include both an image of the exported viewlet as well as relevant tabular data used in the viewlet display.

Chart Legend Configuration

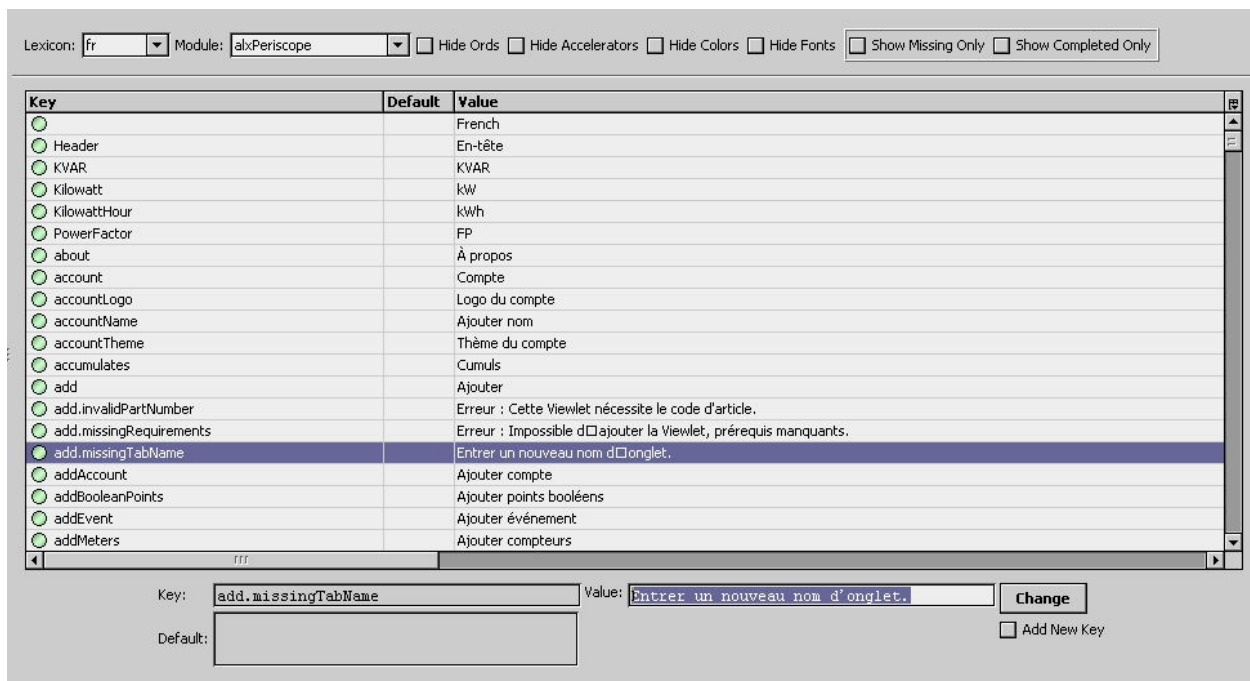
All viewlets now have the ability to define the data displayed in the legend (name, location, or both).

LOCALIZATION

Full localization support has been added in Periscope 2.1 allowing users to edit or translate strings throughout the application. Some languages have already been translated and are included out of the box, including English (default), Spanish, French, German and Italian. Periscope will automatically choose the correct language based on the logged in users browser locale (if that lexicon exists). If a new language is selected, it will be saved for future logins.

Periscope has adopted the Niagara AX Lexicon model for localization editing. A *lexicon* is a file which includes name/value pairs of used Strings. There is a file for each localized language and these files can be found in the `/AX_Home/lexicon/` directory.

Niagara AX includes the Lexicon Editor which is a GUI for creating and editing lexicons. This tool is especially useful for finding missing Strings which could occur after an update. The Lexicon Editor can be found within Niagara AX Workbench under Tools > Lexicon Editor. Once the user has modified a missing String, the “Save” button must be pressed in order to write the lexicon file. A station restart is required in order to update the strings within Periscope.



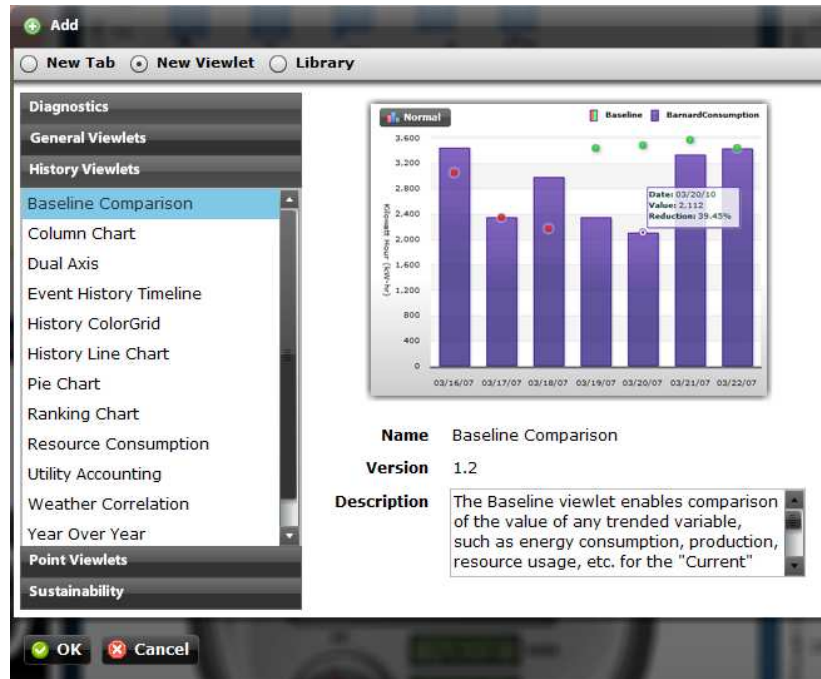
Periscope 2.1 includes a new option under the main menu labeled “Change Locale”. This dialog allows the current user to change the locale used within the application. New languages cannot be added to this dialog by the user, please contact your distributor if you would like an additional language added.



VIEWLETS

Adding a Viewlet

Viewlets are data windows used to populate a user's dashboard. Periscope comes with an ever expanding library of viewlets, each allowing the user to display their information in a unique way. Viewlets can be added, moved, and deleted from the user's display with ease. Adding a viewlet is accomplished by clicking the add button ('+' button), selecting "add a viewlet", and choosing the desired viewlet from the pop-up menu shown below.



When a viewlet is highlighted, the user is presented with a thumbnail example, a version number, and a brief description.

SELECTING THE RIGHT VIEWLET

Periscope users have the option of adding viewlets from three categories: general, point and history. Point viewlets rely on real-time point data that updates constantly. History viewlets look at sets of trend data for charting changes over time. The history viewlets will be able to display information as far back in time as the available trends allow. General viewlets are those which reference other sources for their displays, such as URLs. The user should understand the capabilities of each viewlet to ensure their visualization goals are met.

Diagnostics Viewlets: Cross Correlation Analysis, Cooling vs. Supply Air Temperature, Demand Duration Chart, Heating vs. Supply Air Temperature, Network Health, Space Temperature Compliance, Utility Performance Index, Weather Normalization, Cross Correlation Analysis.

General Viewlets: Digital Totalizer, Green Tips, PX Viewlet, Web Viewlet, FIN Viewlet

History Viewlets – Baseline Comparison, Column Chart, Dual Axis, Event History Timeline, History ColorGrid, History line Chart, Pie Chart, Ranking Chart, Resource Consumption, Utility Accounting, Weather Correlation, Year-Over-Year, Event History, High-Low-Average, Area Chart

Point Viewlets – Circular Gauge, Drilldown Pie Chart, Drilldown Column Chart, Point Table, Point line Chart, Semi-Circular Gauge, Utility Meter Viewlets (Elec/Water/Gas)

Sustainability – Solar Energy Generation

VIEWLET CONFIGURATION

The Configuration Menu

Configuring a viewlet is accomplished by selecting the red wrench icon, known as the configuration tool, located in the top right corner of each viewlet. When selected, the user is presented with a pop-up configuration menu in the center of their dashboard. While each viewlet has a slightly different menu, many of the configuration options are applicable to each viewlet. Setup can be completed with just a few mouse clicks once the user has a basic understanding of their meanings. Several of the viewlets have multiple tabs for configuration options, as seen in the viewlet types and examples section of the user manual.

Configuration Terminology

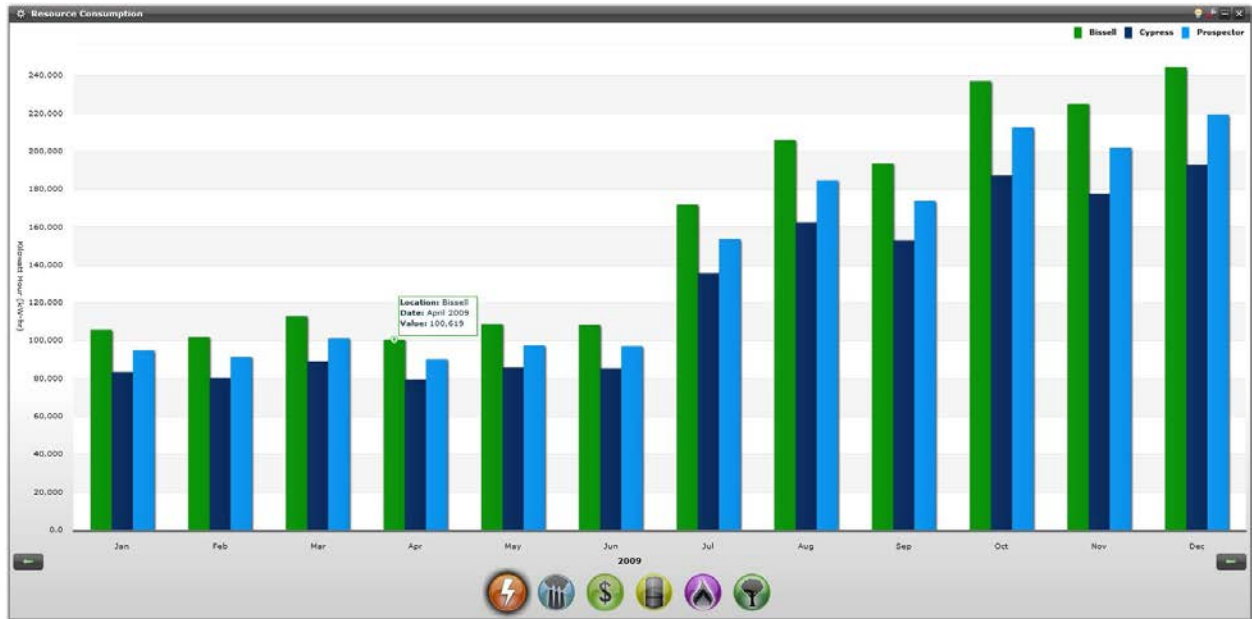
Understanding the terminology within the viewlet configuration menus is necessary for the user to get the most out of their viewlet displays. Listed below are several terms the user should be familiar with.

- Sort:** This refers to the order which Periscope displays information from left to right, whether it be ascending or descending.
- Normalize:** An important feature within Periscope, normalization averages data such as energy consumption based upon common units of measure such as square footage. This feature will help a user make a more informed decision on energy usage by eliminating the size difference of locations. Normalizing the data sets will provide a fair view of total energy consumption figures in side-by-side comparisons. The user must be certain to enter a location's conditioned square footage area within the Periscope configuration menu.
- Rollup:** The Rollup selection allows users to select multiple time intervals when summarizing large data sets for display. In most cases the user can choose to display the minimum, maximum, average, and sum of the units at hand. The time rollup lets Periscope know how often to pull those values from the Niagara database for charting purposes. For example, if energy demand is trended in 15 minute periods, but the user wants to display only the hourly maximum demand values, the user would choose "hourly" rollup. In another example, the user could choose to display only the sum of monthly kWh over a one year-span, even though trends are in 15 minute periods.
- Stacked or Clustered:** These options modify the display capabilities of bar-charts within Periscope. A stacked chart will compile the user's chosen locations vertically, display the value of each individual location. This can be useful if a campus had separate buildings/locations and the user would like to view aggregated totals. A clustered display presents the information by aligning the bars next to one another for side-by-side comparisons.
- Filters:** Many viewlets have the ability to "filter" the available points or trends to be added. Systems with a large number of site locations or thousands of points may require the use of the unit filter or location filter to narrow the list of available points down to a subset of system points. The unit filter automatically displays a type of unit, i.e. Fahrenheit. This unit can be changed by clicking on the filter button and selecting a new unit from the unit picker menu. Units are grouped in categories. Once a category is selected, all variations of that category are available for selection. For example, selecting the Energy category, allows the point or trend database to be filtered by sub-categories such as Watt-Hr, Kilowatt-Hr, BTU, Therm, etc. Location filters will allow the user to see points or trends from only one location at a time.

STANDARD VIEWLET TYPES AND SETUP

The Resource Consumption Viewlet

The Resource Consumption Viewlet can be used to display the monthly or daily consumption of a utility resource (e.g. Electric, Water, Gas, etc.). Double-clicking on a month's display drills down to a daily or hourly breakdown of energy usage during that time. Single or multiple locations can be graphed in a viewlet in a stacked or clustered display. The viewlet displays circles above current time-frame's columns giving period-ending consumption predictions.



The Resource Consumption Viewlet is unique in its ability to convert energy usage into alternative units of measurement.

Resource Consumption Configuration

The Resource Consumption Viewlet has many different display capabilities, several of which are located inside of the viewlet itself. Conversion icons can be selected at the bottom of the viewlet, and on each side is an arrow allowing the user to scroll through yearly data, if available. Users can also click on the monthly data to view daily usage for that month. Within the configuration menu, the user can add locations through the add button inside of the compare tab. Data can also be normalized by square footage, and column type can be specified as clustered or stacked

Name	Location	Color
<input checked="" type="checkbox"/> Bissell Consumption_kWh	Bissell	Green
<input checked="" type="checkbox"/> Cypress Consumption_kWh	Cypress	Blue
<input checked="" type="checkbox"/> Prospector Consumption_kWh	Prospector	Light Blue

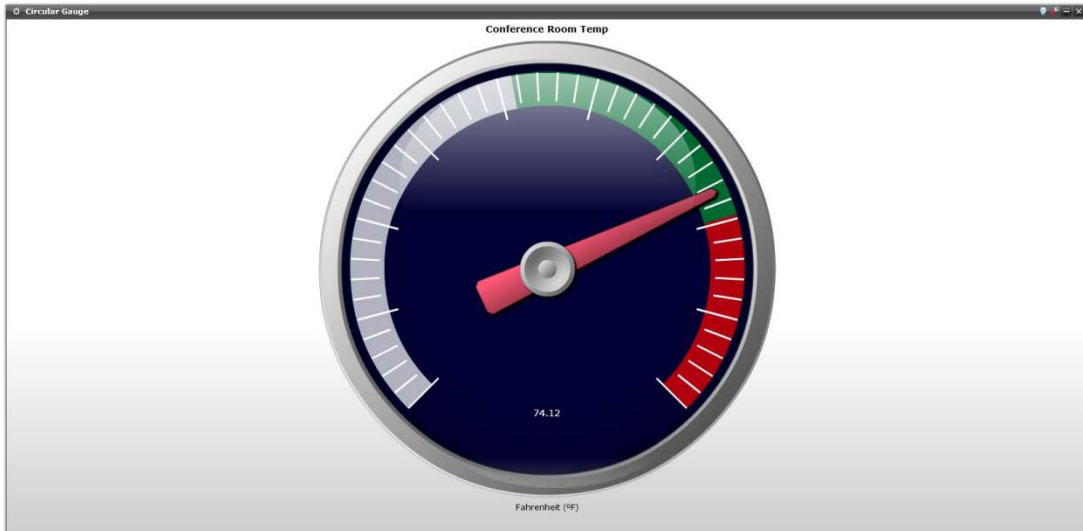
Options:

Normalize by: Square Foot (ft²) (SF)

Column Type: (dropdown menu with options: Clustered, Stacked)

The Circular Gauge Viewlet

The Circular Gauge Viewlet is an analog display which can monitor real-time values of a unit such as temperature, power, pressure, etc. The large “speedometer” style display can provide the user with an instant status indication of important variables, and has customizable colored zones for unique configurations.



This Circular Gauge Viewlet shows a real-time room temperature, which appears to be approaching the red indicator zone. A numeric readout is given in the center of the gauge, below the needle, and can display values to the hundredth.

Circular Gauge Configuration

The Circular Gauge can be set up to show three configurable color-coded status zones. The minimum and maximum values of the gauge can be set, and the span of each zone within those values can be adjusted using the slider. The user can also change the label of the gauge for identification purposes.

The Point Table Viewlet

The Point Table Viewlet allows the user to view a list of live boolean and numeric points on the network. Status colors are imported from Niagara, so point values that are in alarm are highlighted for quick recognition.

Name	Value	Unit
CurrentIrradiation	24.13	Watts Per Square Meter (W/m ²)
JacksOfficeHumidity	82.69	Percent Relative Humidity (%RH)
J Substation	78.89	Kilowatt (kW)
Demand Setpoint	73.00	Kilowatt (kW)
CurrentSolar	30.04	Kilowatt (kW)
CurrentBuilding	149.83	Kilowatt (kW)
Circuit 101 kW	38.26	Kilowatt (kW)
ALX Office kW	5.52	Kilowatt (kW)
WarehouseWestTemp	69.46	Fahrenheit (°F)
WarehouseEastTemp	69.80	Fahrenheit (°F)
Warehouse Spacetemp	70.20	Fahrenheit (°F)
T7350 Spacetemp	76.73	Fahrenheit (°F)
SupplyAirTemperature	70.98	Fahrenheit (°F)
Outside Air Temp	50.00	Fahrenheit (°F)
Jacks Office	32.00	Fahrenheit (°F)
WarehouseOuterLights	16.65	Ampere (A)
CubeFarmLights	0.60	Ampere (A)
DemoBooleanAlarm	false	Null
Alarm	false	Null

The Point Table Viewlet can display numerous points for the user's monitoring purposes. The table can be used to monitor variables across many sites or a table of variables from a trouble zone, such as an air handling unit. This table shows a boolean and numeric point in alarm.

Point Table Configuration

The Point Table can be configured to show a large list of real-time values. The user can add points to the list by selecting the add button on the bottom left corner of the viewlet, or by selecting the configuration wrench. Points can be quickly removed from the table by highlighting the point and selecting the delete button in the bottom left corner of the viewlet as well. The user can filter existing points by location or unit through drop-down menus.

Add Point

Unit Filter: All Units

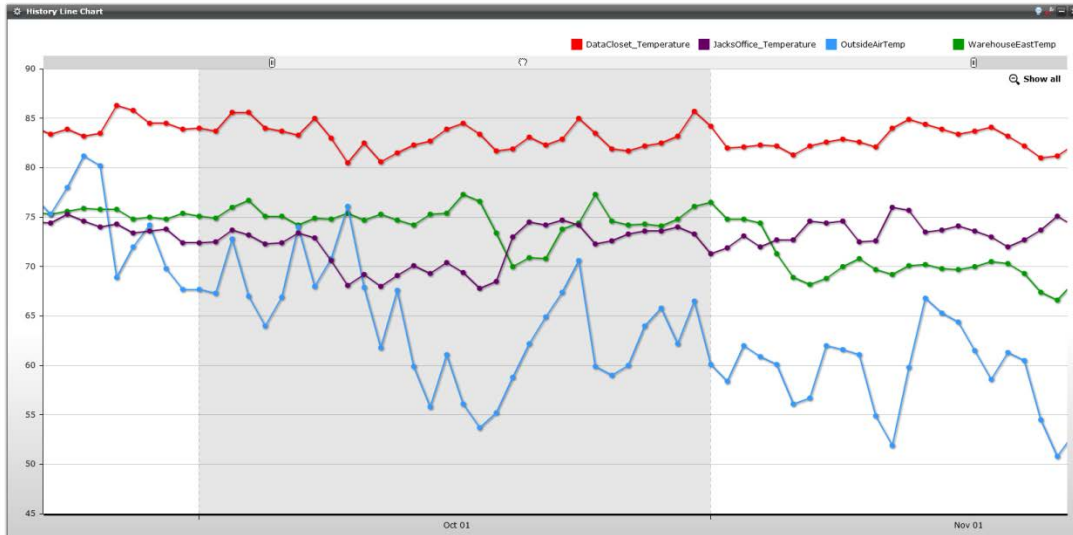
Location Filter: All Locations ▼

Sel	Name	Location
<input checked="" type="checkbox"/>	ChicagoOutsideAir	Prospector
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		

Apply
Cancel
Select All
Select None

The History Line Chart Viewlet

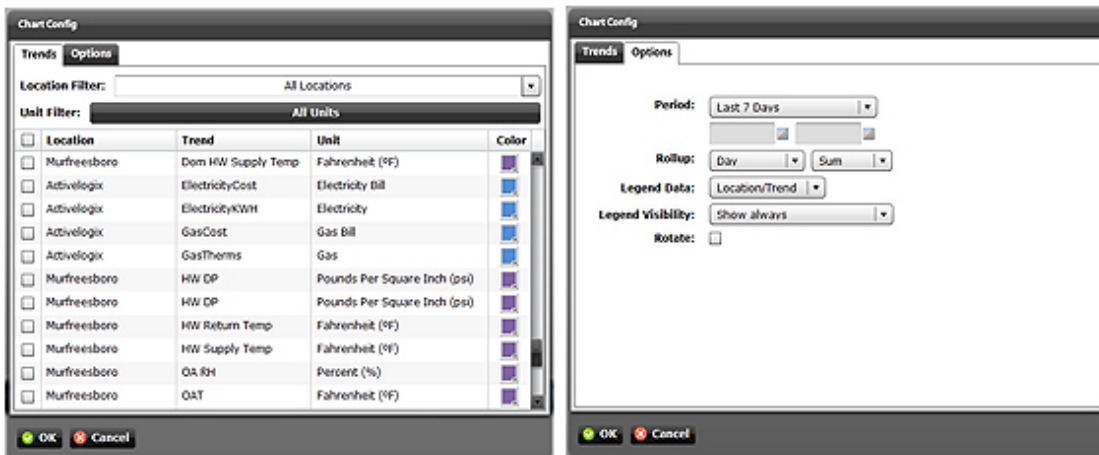
The History Line Chart Viewlet is used to plot values for multiple similar variables over time. For each interval over the selected time period, the Viewlet can plot the maximum, minimum, average, or sum of the variable. One of the most informative history viewlets, the peaks and valleys seen in a History Line Chart can give the user an instant view of energy consumption and efficiency over time.



This example shows temperature trends from several locations over a specific time period.

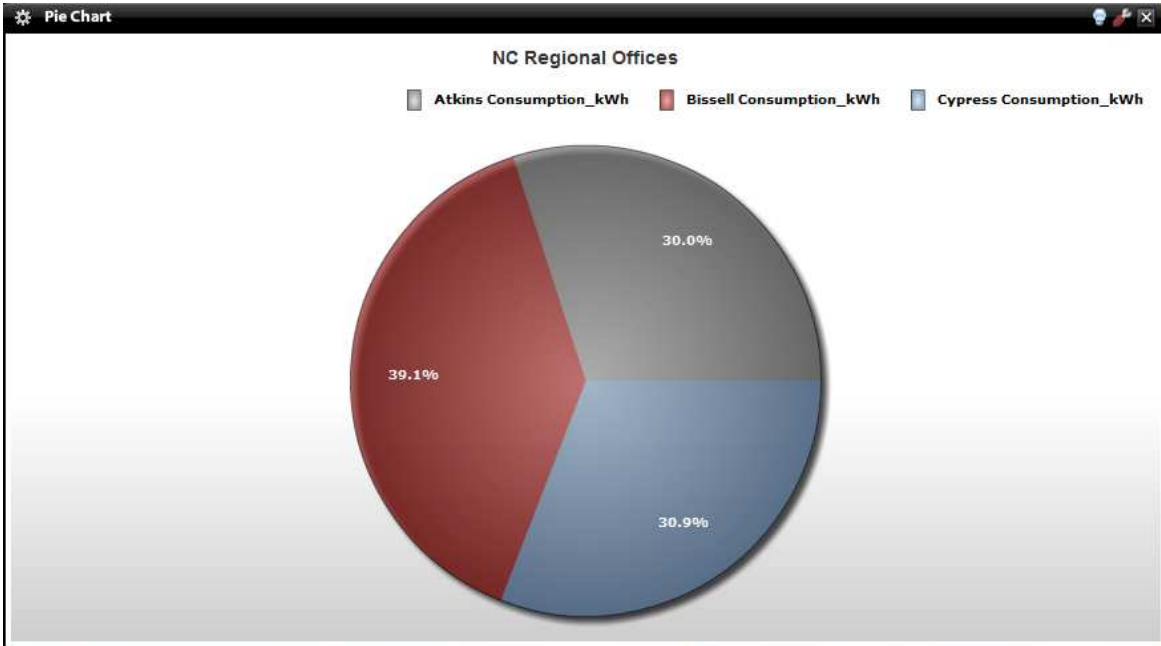
History Line Chart Configuration

The History Line Chart can be configured to plot a multitude of lines, chosen by checking the standard set of selection boxes based upon locations imported from Periscope's configuration menu. Corresponding color selection helps avoid confusion when displaying numerous locations on one graph. Options include selecting a time range to be graphed, and specifying a rollup period and value type. New viewlet functionality allows the user to manually drag a marquee over a section of the line or lines to zoom in and view any particular range, and then use the horizontal pan bar along the top of the viewlet to scroll across the line. Checking "Rotate" will position the graph rotated 90 degrees vertically on the Y axis. Selecting "show all" will revert back to displaying the entire time range indicated in the configuration menu.



The Pie Chart Viewlet

The Pie Chart Viewlet presents a typical pie chart that the user can set up with a variety of comparable values. This is a type of presentation graphic in which percentage values are represented as proportionally-sized slices of a pie. The Pie Chart is useful for making quick comparisons, and discovering the percentage of each variable compared to the whole. A typical example would be to view sub-metered loads within a building, i.e. lighting, HVAC, and plug energy loads.



This example shows a standard Pie Chart Viewlet with sections representing kWh percentages. The user can easily identify which locations accounted for the largest portion of energy consumption for a period of time.

Pie Chart Configuration

The Pie Chart Viewlet can be configured to compare similar locations to one another of a user selected time period. The location's segments can be labeled with either their individual values or their percentage of the whole. Rollup can also be set to display averages, minimums, maximums, or sums of the desired unit.

Chart Config

Trends Options

Unit Filter: Kilowatt Hour (kW-hr)

Location	Trend Name	Sel	Color
Atkins	Atkins Consumption_kWh	<input checked="" type="checkbox"/>	Red
Barnard	BarnardConsumption	<input type="checkbox"/>	Red
Bissell	Bissell Consumption_kWh	<input checked="" type="checkbox"/>	Green
Cypress	Cypress Consumption_kWh	<input type="checkbox"/>	Purple
Fretwell	Fretwell Consumption_kWh	<input type="checkbox"/>	Blue
Garinger	Garinger Consumption_kWh	<input checked="" type="checkbox"/>	Orange
Kennedy	Kennedy Consumption_kWh	<input type="checkbox"/>	Blue
Macy	Macy Consumption_kWh	<input type="checkbox"/>	White

Apply Cancel

Chart Config

Trends Options

Period: Time Range

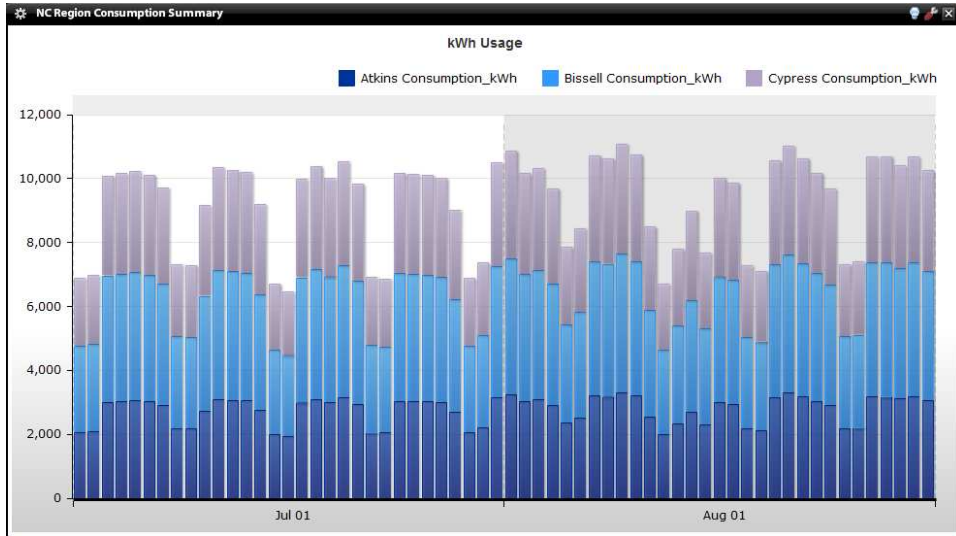
Rollup: Avg

Label: Percent

Apply Cancel

The Column Chart Viewlet

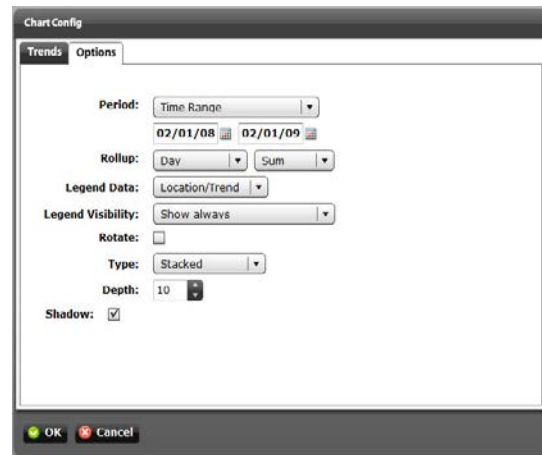
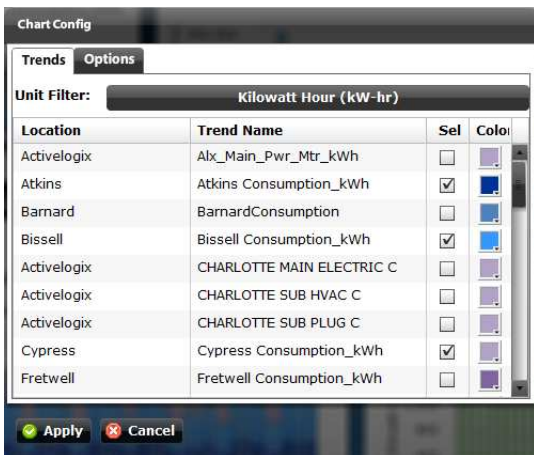
The Column Chart Viewlet can be used to plot the aggregate or relative value for multiple variables over time. For each rollup interval over the selected time period, the Column Chart can plot the maximum, minimum, average, or sum of the variable. The Column Chart Viewlet is a useful tool for presenting historical data in a variety of ways, for instance, comparing locations against each other or aggregating sub-meters in a building.



The Column Chart Viewlet can present information from multiple locations in either a stacked or clustered display (stacked shown).

Column Chart Configuration

The Column Chart can be presented in a stacked, stacked 100%, or clustered display. Rollup times and values can be set, as well as the time period of information the user would like to chart. A standard drop-down menu is used to select desired units, and check-box selections are made for selecting trends to display. New viewlet functionality allows the user to manually drag a marquee over a selection of columns to zoom in to view any particular section of the graph, and then use the horizontal pan bar along the top of the viewlet to scroll through the columns. Checking "Rotate" will position the graph rotated 90 degrees on the Y axis. Selecting "show all" will revert back to displaying the entire time range indicated in the configuration menu. The user also can also control the amount of 3D depth the columns have, and whether or not they show a shadow. If a large number of columns is being displayed, a low depth setting can prevent the columns from overlapping.



The PX: Connect Viewlet

“PX Pages” refer to the default and customized pages provided with the Niagara Framework. There are standard PX pages, such as alarm consoles, weather, etc., and there are typically a large number of custom pages provided by the installer or systems integrator as well. These custom pages can often provide detailed and animated views of the status of specific equipment, such as air handlers, lighting controls, etc. The PX: Connect Viewlet enables the user to add any of these additional Niagara PX pages to their dashboard, allowing them to integrate previously created operational graphics into their dashboard. This eliminates the need for a user to navigate outside of Periscope’s browser to check on comfort issues, alarms or to change building equipment schedules.



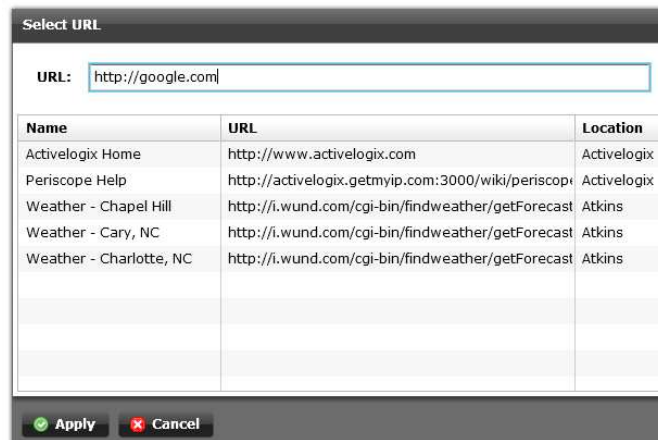
This PX Viewlet shows an interactive floor plan graphic with attached lighting schedules. All PX page functionality remains available.

The Web: Connect Viewlet

The Web: Connect Viewlet gives the user the ability to connect to any internet or intranet web site and display the page in a viewlet window. This allows the user to track news, real time pricing of energy, monitor internal events, etc.

PX and Web Viewlet Configuration

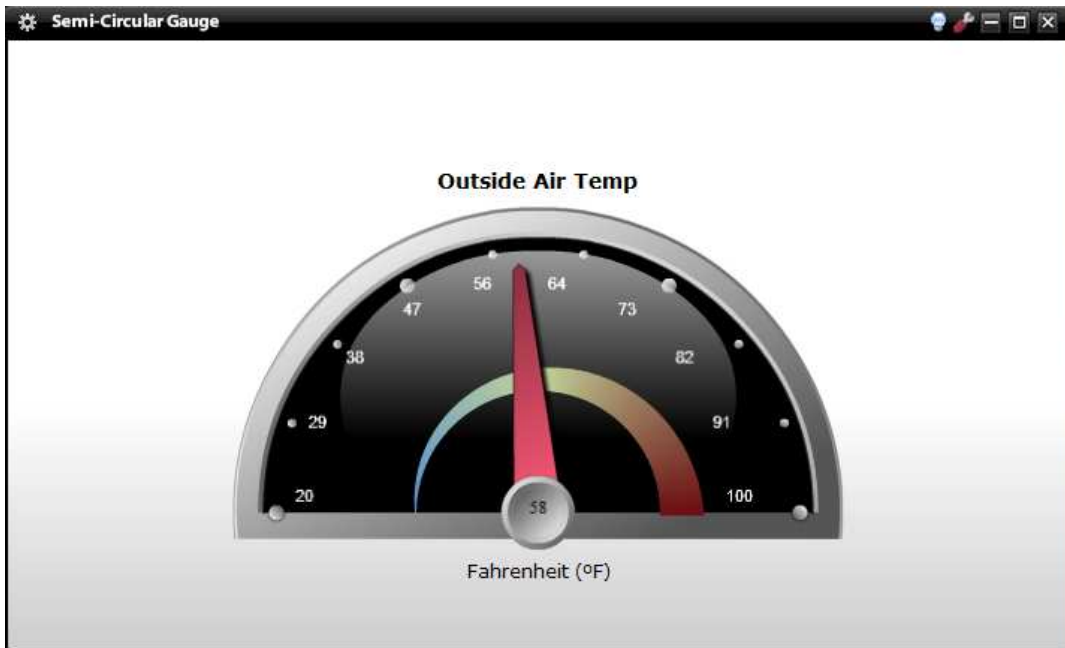
Both the PX and Web Viewlet configuration menus require the user to enter a URL. URLs which have been mapped and saved within Periscope’s configuration menu will appear in a list below the address entry box.



Name	URL	Location
Activelogix Home	http://www.activelogix.com	Activelogix
Periscope Help	http://activelogix.getmyip.com:3000/wiki/periscope	Activelogix
Weather - Chapel Hill	http://i.wund.com/cgi-bin/findweather/getForecast	Atkins
Weather - Cary, NC	http://i.wund.com/cgi-bin/findweather/getForecast	Atkins
Weather - Charlotte, NC	http://i.wund.com/cgi-bin/findweather/getForecast	Atkins

The Semi-Circular Gauge Viewlet

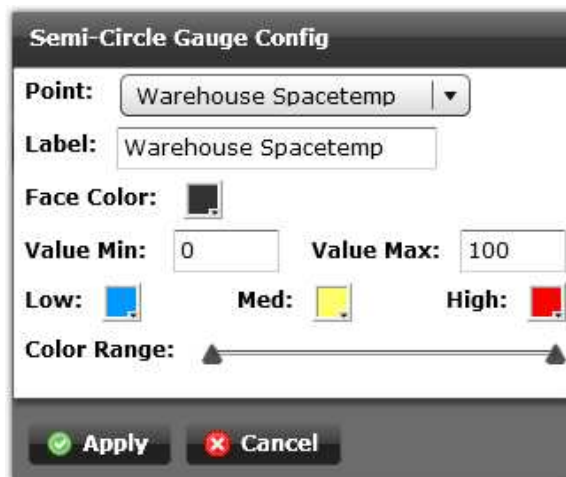
The Semi-Circular Gauge Viewlet is an analog display which can monitor real-time values of a unit such as temperature, power, pressure, etc. The display can provide the user with an instant status indication of important variables, and has customizable colored zones for unique configurations.



The simplified display presents users with instant readings that provide easy, real-time monitoring.

The Semi-Circular Gauge Configuration

The Semi-Circular Gauge can be set up to show three configurable color-coded status zones. The minimum and maximum values of the gauge can be set, and the color range between low and high values can be adjusted using the slider. The user can also change the label of the gauge for identification purposes.

A screenshot of a configuration dialog box titled "Semi-Circle Gauge Config". It contains several settings: "Point:" with a dropdown menu set to "Warehouse Spacetemp"; "Label:" with a text field containing "Warehouse Spacetemp"; "Face Color:" with a black color swatch; "Value Min:" with a text field set to "0" and "Value Max:" with a text field set to "100"; "Low:" with a blue color swatch, "Med:" with a yellow color swatch, and "High:" with a red color swatch; and "Color Range:" with a horizontal slider bar. At the bottom, there are "Apply" and "Cancel" buttons.

Virtual Utility Meters Viewlet

This Viewlet has been expanded to contain three types of virtual meters: Electric, Water and Gas. Multiple Meter Viewlets may be used simultaneously to display information from different meters and can be configured and used on multiple dashboards. The Electric Meter can be used to simultaneously display four configurable variables which default to KWH, KW, KVAR and Power Factor. The parameter shown on the Main display is user selectable. The Water and Gas Meters can display flow and consumption.



The Virtual Utility Meter Viewlets are configurable through Periscope, but must be set up in Workbench before it is functional.

Electric Virtual Utility Meter Configuration

The Electric tab of the Utility Meter configuration is used to setup electric meters from the mapped meters in the Periscope database. Additional options include the ability to change power factor range, update interval, and title font size.

The screenshot shows the 'Meter Configuration' dialog box with the 'Electric' tab selected. It contains a table with two columns: 'Name' and 'Location'. Below the table are input fields for 'Power Factor Min', 'Power Factor Max', 'Update Interval (ms)', and 'Title Font Size'. At the bottom are 'Apply' and 'Cancel' buttons.

Name	Location
Charlotte_KwMeter	Activelogix
Charlotte_kwMeter	Winston Salem

Power Factor Min:

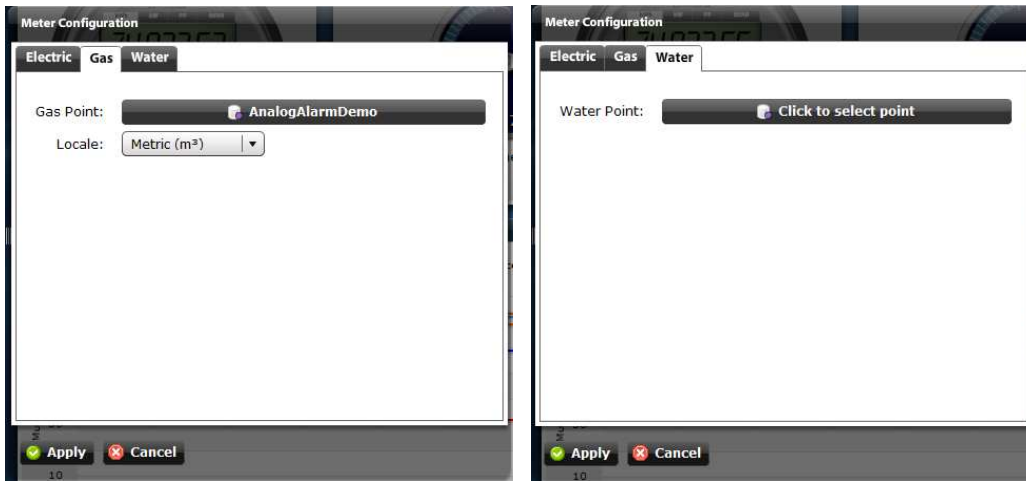
Power Factor Max:

Update Interval (ms):

Title Font Size:

Gas/Water Configuration

The Gas and Water configuration dialogs are very simple and similar. Each tab contains a Point Picker to choose the appropriate consumption point. The Gas tab also includes the option to manually set the units to Standard (gallons) or Metric (m³). The Water meter will automatically display the unit of the selected point.



Editing Units of Electric Virtual Utility Meter

The Electric Virtual Utility Meter can now be configured to display any unit rather than the default kWh, kW, PF, kVAR. These can be configured by editing the DisplayNames of the slots in the corresponding Meter Component.

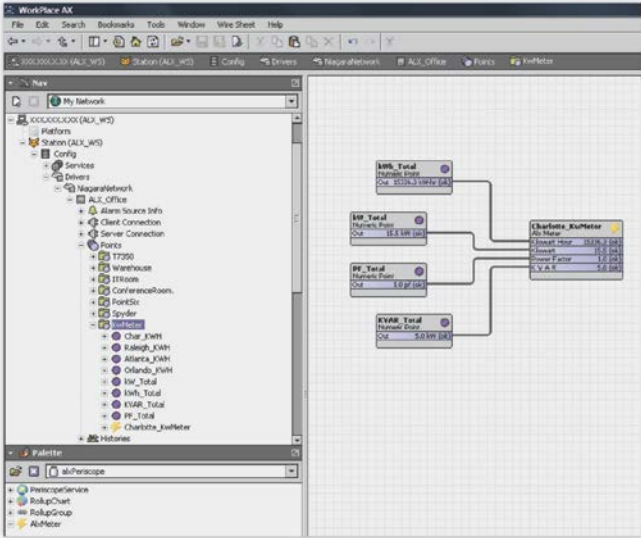
<input type="radio"/>	Property	0	meterName	Meter Name	Frozen	h	baja:String
<input checked="" type="radio"/>	Property	1	KilowattHour	kWh	Frozen		baja:StatusNumeric
<input type="radio"/>	Property	2	Kilowatt	kW	Frozen		baja:StatusNumeric
<input type="radio"/>	Property	3	PowerFactor	PF	Frozen		baja:StatusNumeric
<input type="radio"/>	Property	4	KVAR	kVAR	Frozen		baja:StatusNumeric

Display Name	
Display name for "KilowattHour":	<input type="text" value="MWh"/>
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

To edit the DisplayName of a Meter object, first go to the Slot Sheet view (right click > views > Slot Sheet). Next, double click on the variable you would like to rename.

Virtual Electric Meter Initial Setup

Before using the Virtual Electric Meter Viewlet, the user is required to make a few easy connections within Workbench. Below is an example of a configured meter shown in a file tree on the left, and in a wire sheet view on the right. Only four connections must be made to the in slot of the AlxMeter object, one for kWh, kW, power factor, and kVAR. Once the meter has been created and the necessary links have been made, the user should go to the Periscopeconfig browser and map the new meter.



The meter object is a simple setup, only requiring four connections to be made.

PALETTE OBJECT

The object required to create a Virtual Electric Meter Viewlet is located inside of the alxPeriscope palette. After opening the palette, the Meter object should be added in any location the user wishes to create the meter. As seen in the depiction above, adding it to a point folder is a good idea due to the required points which must be added and linked to the correct slots of the meter object. An incorrect linking of points will result in an incorrect meter display within Periscope, as the viewlet itself cannot discern between the different measurements of consumption.

Once the palette object has been added to the station, a *Discovery* on the Meters tab of PeriscopeConfig will display the new meter. Once the Meter object has been mapped, Electric Virtual Utility Meter Viewlets will be able to display the meter.



Be sure to map the newly created meter within Periscope's configuration browser. Here the user can give the meter a name and assign it to a location.

Green Tips Slide Show

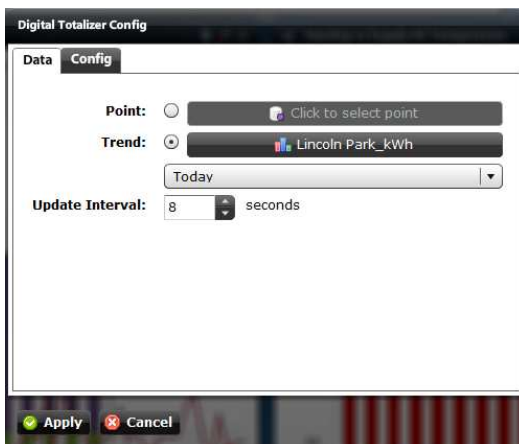
The Green Tips slideshow displays a growing series of environmental tips geared towards "Going Green". The photos and text are intended to educate and represent good practices in efficiency and sustainability initiatives. This viewlet can be customized to display site specific photos and information through an optional service by Activelogix. Contact your distributor for more information on this program.



Digital Totalizer Viewlet



The Digital Totalizer can be configured to show the current value of any monitored variable or total value for a period of time. For example, "Yearly Savings to Date", "Avoided CO2", "Campus kWh this Month", etc. The Digital Totalizer can be configured to mirror real-time point data or calculate a total value over a period of time such as "This Month".



The Digital Totalizer Configuration

1. Data Tab

- a. Point Picker – Allows the user to choose a point to be displayed on the counter
- b. Trend Picker – Allows the user to choose a trend to be displayed on the counter
- c. Update Interval – The update interval is essentially the poll rate, how often the counter will request the latest value.

2. Config Tab

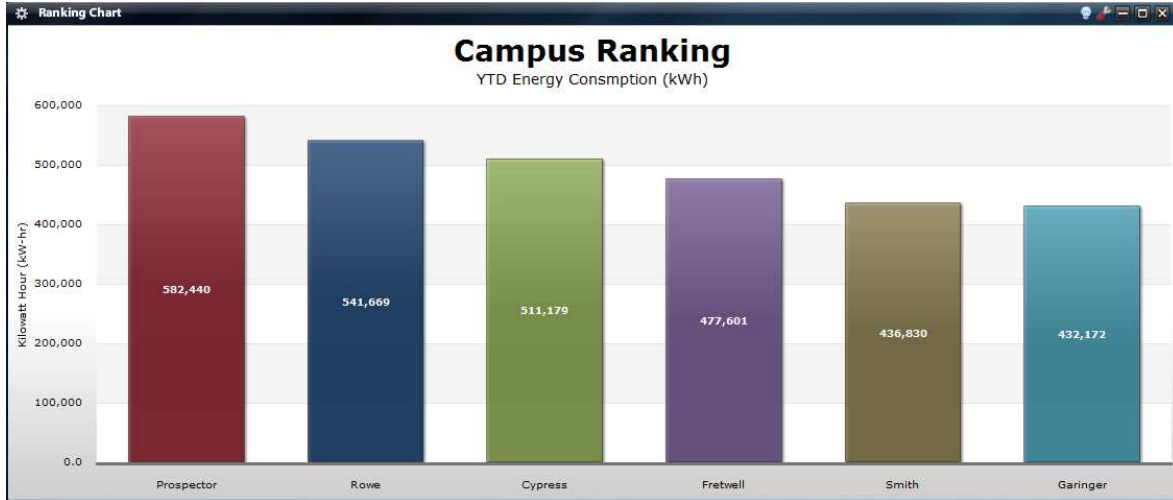
- a. Precision – The number of fractional digits used on the counter
- b. Digits
 - i. Auto
 - ii. Manual – The counter will use this amount of characters for displaying the value. Note that this is not traditional digits but also includes commas and period. This feature can be used to ensure the counter is always a set size.
- c. Text Color
- d. Background Color
- e. Icon – This icon will be displayed to the left of the counter. The “No Icon” checkbox will remove the icon completely allowing the counter to take the entire width of the viewlet.

Note: *Polling for a trend update requires more bandwidth and station processing power. If the chosen trend is updating on a 15 minute interval, the counter should match this interval and be set to 900 seconds.*

OPTIONAL VIEWLET TYPES AND SETUP

The Ranking Chart Viewlet

The Ranking Chart Viewlet allows the user to make instant side-by-side comparisons amongst locations. The Ranking Chart enables the user to display columns representing the values of similar variables, ranked in either increasing or decreasing order. Values can be normalized to make accurate comparisons.



The Ranking Chart Viewlet is an appropriate tool for making quick and easy assumptions about energy usage between facilities.

Ranking Chart Configuration

The Ranking Chart can be configured to compare multiple locations by checking the appropriate selection boxes within the trend tab. Colors should be set to ensure each building has a unique display, even though the building's names are listed under their corresponding bar inside the viewlet. Options include whether the values are presented in ascending or descending order, if and how they are normalized, and their rollup value. Whether a location is highest or lowest depends on the ascending or descending sort order. Users can also input a number of locations to display, which will automatically show only that number of locations.

Ranking Chart Config - Options

Unit Filter: Kilowatt Hour (kW-hr)

Location	Trend Name	Sel	Color
Atkins	Atkins Consumption_kWh	<input checked="" type="checkbox"/>	Red
Barnard	BarnardConsumption	<input checked="" type="checkbox"/>	Blue
Bissell	Bissell Consumption_kWh	<input checked="" type="checkbox"/>	Green
Cypress	Cypress Consumption_kW	<input checked="" type="checkbox"/>	Purple
Fretwell	Fretwell Consumption_kW	<input checked="" type="checkbox"/>	Light Blue
Garinger	Garinger Consumption_kV	<input checked="" type="checkbox"/>	Orange
Kennedy	Kennedy Consumption_kV	<input checked="" type="checkbox"/>	Dark Blue
Macy	Macy Consumption_kWh	<input checked="" type="checkbox"/>	White

Ranking Chart Config - Options

Sort: Descending

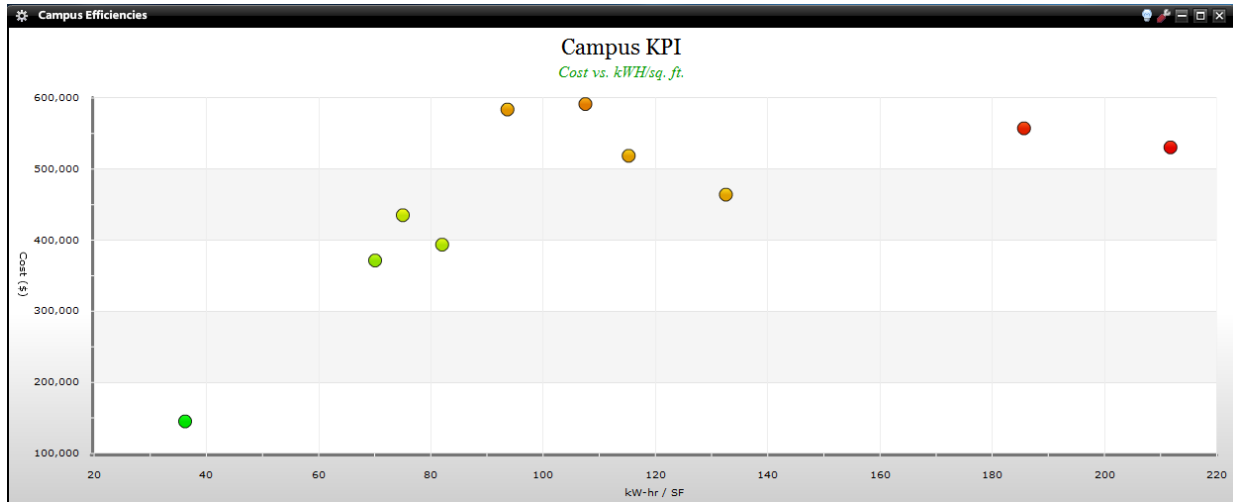
Normalize: Square Foot (ft²)

Rollup: Sum

Display Only: 7

The Utility Performance Index Viewlet

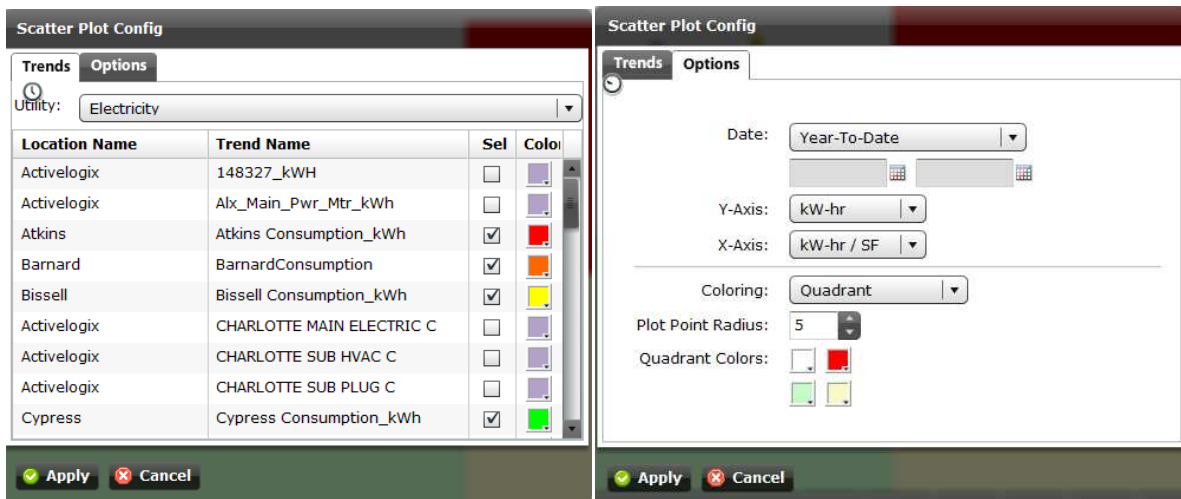
The Utility Performance Index (previously Scatter Plot) provides a “KPI-style” visualization of Utility Usage versus efficiency for multiple locations, and is an excellent way to identify and prioritize opportunities for improvement in energy efficiency among all the buildings in a campus or enterprise.



The user should desire their locations to be located in the lower, left quadrant of the plot. Problem spots are located towards the top of the graph, especially in the red section. Mousing over the locations gives the user more detailed information on the facility’s usage numbers.

Utility Performance Configuration

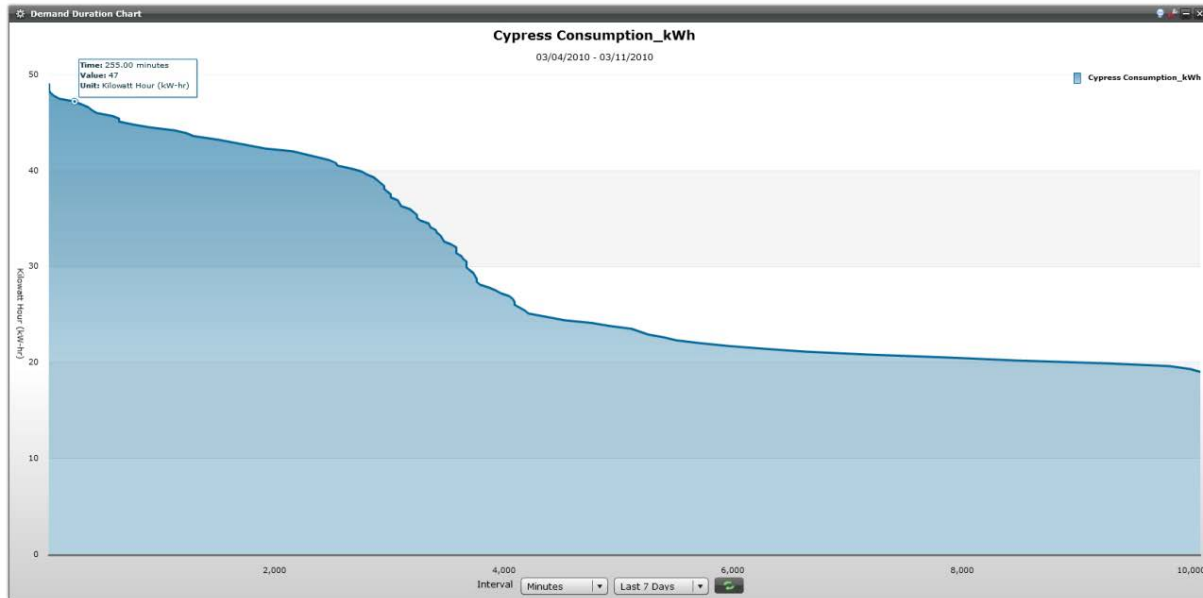
The configuration supports multiple utilities including electricity, gas, sewer and water. The “Options” tab allows the user to customize axes between usage, usage/sqft, cost, and cost/sqft. There are also multiple ways to color the data (available in the *Coloring* dropdown). The Quadrant option will split the scatter plot into four quadrants with user specified colors. The Dynamic Thermal option will color the plot items in a thermal gradient from green (bottom-left) to red (top-right). Finally, the None option will color each plot item based off of the trends color selected in the first tab.



Setup is straightforward. After selecting the desired Trends, the user can determine the time period of interest, units for X and Y axes as well as how or if the background quadrants are colored.

The Demand Duration Viewlet

The Demand Duration Viewlet displays the amount of time a given variable has exceeded a specific value. The user will often look to eliminate peak values on the left side of the graph that only occur a minimal portion of the time. For instance, if kW demand spikes for 4 hours per month, the user may determine that a simple demand limit algorithm can prevent that peak from happening. The viewlet could also be used to determine how many hours per month a room temperature is above a specific point.



This example shows a high level of energy consumption, as indicated by the large portion of area under the left side of the graph. “Mousing” over the border of the duration graph presents the user with the length of time energy consumption was over the given value.

Demand Duration Configuration

The Demand Duration Viewlet has a relatively simple configuration menu. The user’s desired trend to be graphed is selected from a list which will appear once the trend button has been clicked. The graph’s color can also be set from a standard pop-up menu. Further configuration can be controlled through the viewlet window itself, as additional time rollups can be set using the menus below the X-axis.

Trend Picker

Location Filter:

Unit Filter: **Kilowatt Hour (kW-hr)**

	Location	Trend	Unit
<input type="checkbox"/>	Atkins	Atkins Consumption_	Kilowatt Hour (kW-hr)
<input type="checkbox"/>	Barnard	BarnardConsumption	Kilowatt Hour (kW-hr)
<input type="checkbox"/>	Bissell	Bissell Consumption_	Kilowatt Hour (kW-hr)
<input type="checkbox"/>	Fretwell	Fretwell Consumptio	Kilowatt Hour (kW-hr)
<input type="checkbox"/>	Garinger	Garinger Consumptio	Kilowatt Hour (kW-hr)
<input type="checkbox"/>	Kennedy	Kennedy Consumptio	Kilowatt Hour (kW-hr)
<input type="checkbox"/>	Macy	Macy Consumption_k	Kilowatt Hour (kW-hr)
<input type="checkbox"/>	Barnard	MeterLoggedPoint_C	Kilowatt Hour (kW-hr)
<input type="checkbox"/>	Prospector	Prospector Consum	Kilowatt Hour (kW-hr)

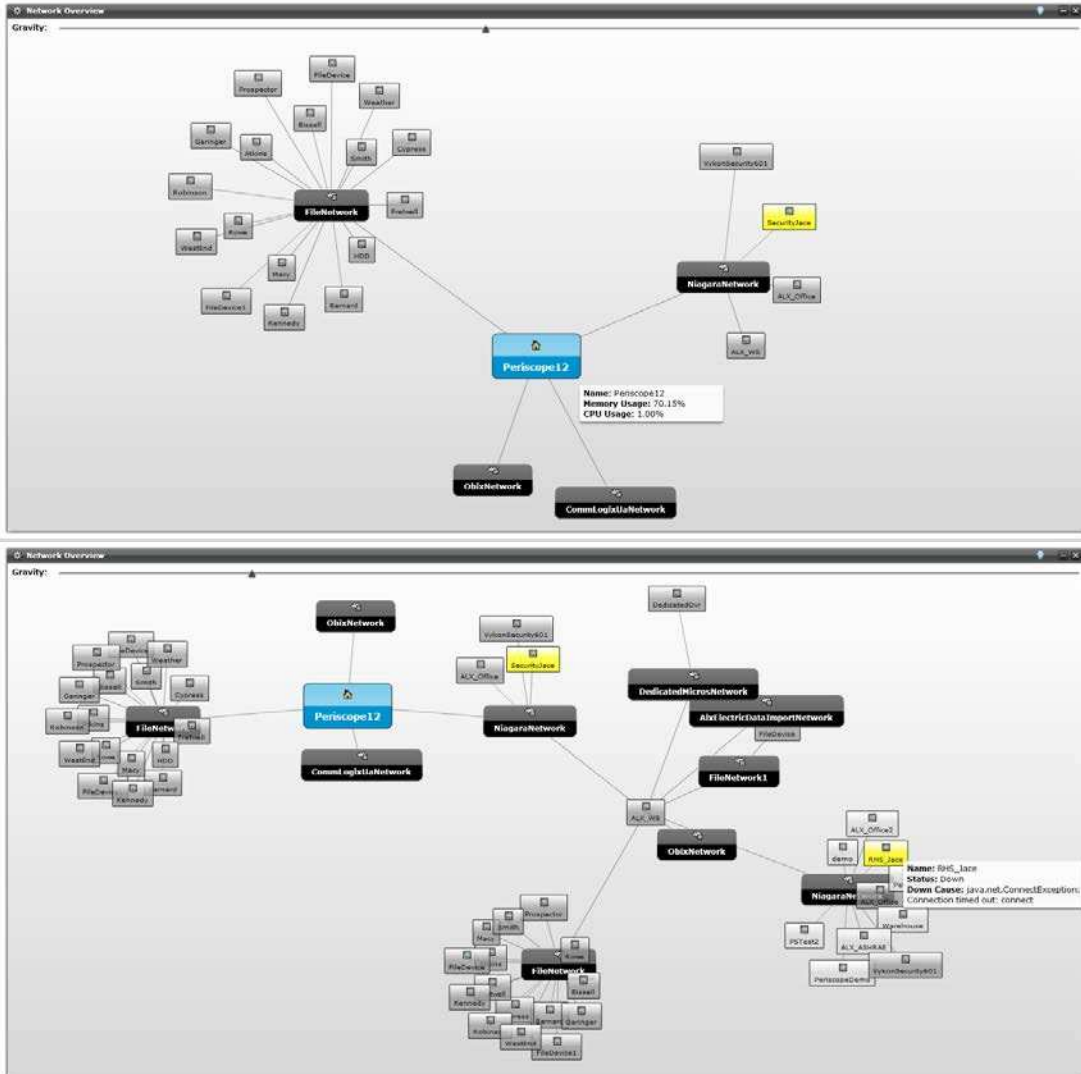
Load Duration Config

Trend:

Color:

The Network Health Viewlet

The Network Health Viewlet is an automatically configured chart that presents the user with a graphical representation of their network's hierarchy. It is useful for immediate recognition of components and device health within the Niagara network.



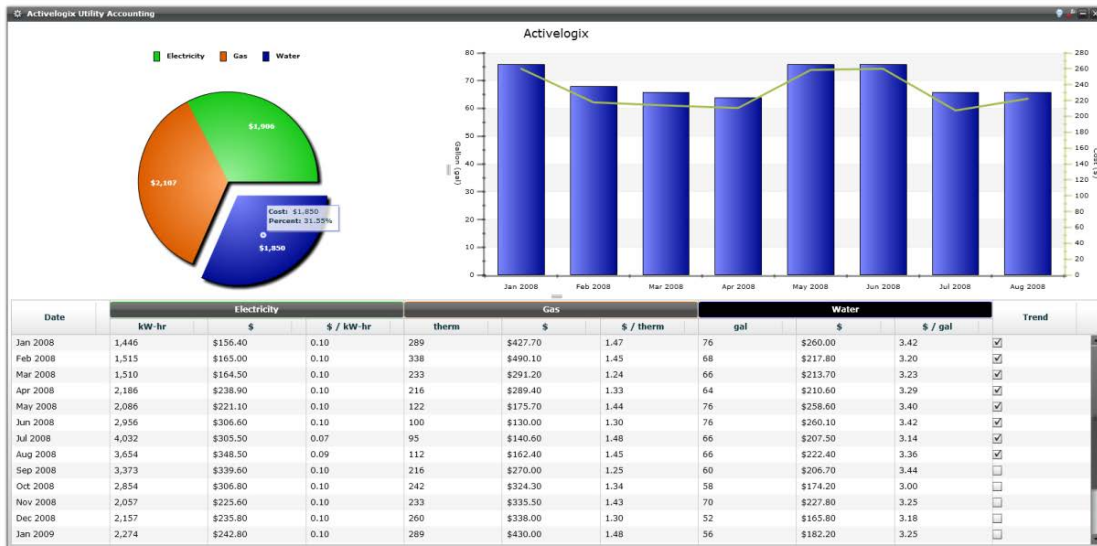
These screenshots are of the same workstation within a Niagara network. Double-clicking on an expandable branch of the network such as the ALX_WS box in the top graphic triggers an exploded view. The yellow colored node designates a problem or health issue with one branch on the network. When moused over, a pop-up box presents the user with information on the location and cause of the problem.

Network Health Configuration

The Network Health Viewlet automatically builds a network representation for the user. The viewlet's only option lies in the "gravity" slider located at the top of the viewlet. More gravity (scroll right) lengthens the distance between the branches on the network's display. Less gravity (scroll to left) brings the branches closer together. Nodes can also be moved around the window by clicking and dragging the desired box

The Utility Accounting Viewlet

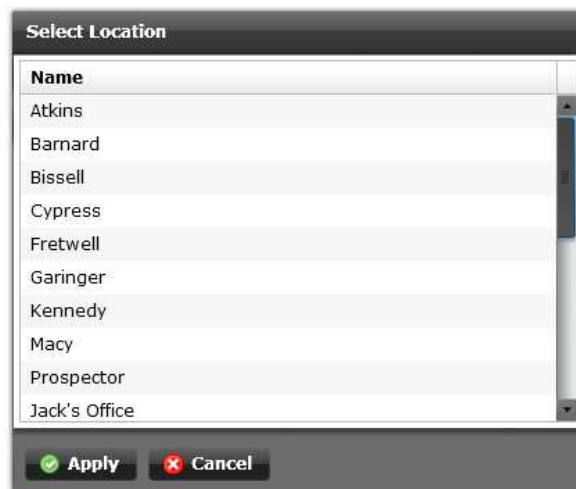
The Utility Accounting Viewlet allows the user to import their utility bills and display monthly electricity, gas, and water usage statistics. The numbers are shown in a chart which gives total resource consumption numbers for each utility, the cost per month, as well as the cost per unit of consumption. The viewlet also presents the figures in interactive pie and column charts to help the user visualize their respective energy usage over time. This viewlet is a great resource for tracking energy usage and associated spending over time.



Monthly data can be added or removed from the energy analysis by checking or un-checking each location's corresponding box, located on the right of the viewlet. Electricity, gas, and water can all be sorted, and displayed in an interactive pie and column chart.

Utility Accounting Configuration

Configuring the Utility Accounting Viewlet is done through a .csv file import feature within Workbench (see below). While automatic bill import is custom, it can be arranged if desired. Otherwise, a Systems Integrator will be required to set up and import histories for water, gas, and electric data from monthly utility bills. Configuration within Periscope only requires the user to select from a list of locations.



Utility Accounting Initial Setup

In order to use the Utility Accounting Viewlet, utility data must exist in the Niagara^{AX} station. The most common way to import data into Niagara^{AX} is by importing .csv files. The Utility Mapper can be found under the PeriscopeService of Niagara^{AX}, and comes preconfigured to import example data. The user will need to configure their own .csv file based on their utility data, and replace the file on the station with their newly created one. There are several options in Workbench when importing the file.

Property	Value
Status	{ok}
Fault Cause	
Csv File	file:^periscope/CsvTemplate.csv
Execution Time	Manual
Timestamp Format	M/d/yyyy
Example Timestamp	11/9/2009
Timestamp Column Index	1 [1 - max]
Device Row Index	1 [1 - max]
Static Device Name	
History Name Row Index	2 [1 - max]
Skip Rows	2

Status - Displays the status of the UtilityMapper, "{ok}" means working correctly.

Fault Cause - If the Status of the object is "{fault}", this property will explain what error occurred.

Csv File - This property points to the .csv file that will be imported.

Execution Time - This property determines how often the UtilityMapper will reload the CSV file. It can be set to manually update (only user can force an update), or to update periodically on any time frame.

Timestamp Format - This is the format of the Timestamp column of the CSV file.
full documentation here: <http://java.sun.com/j2se/1.4.2/docs/api/java/text/SimpleDateFormat.html>.

Example Timestamp - This property changes every time the Timestamp Format string is modified to show an example timestamp.

Timestamp Column Index - This property points to the column index of the timestamp in the .csv file (forced to 1).

Device Row Index - Often when importing CSV files, there is a need to name the "device" of each history. This can be cumbersome when using other methods (like the File Driver) due to manually having to set each history's device name. This property tells us which row of the .csv file will be used for naming the "device" of your history.

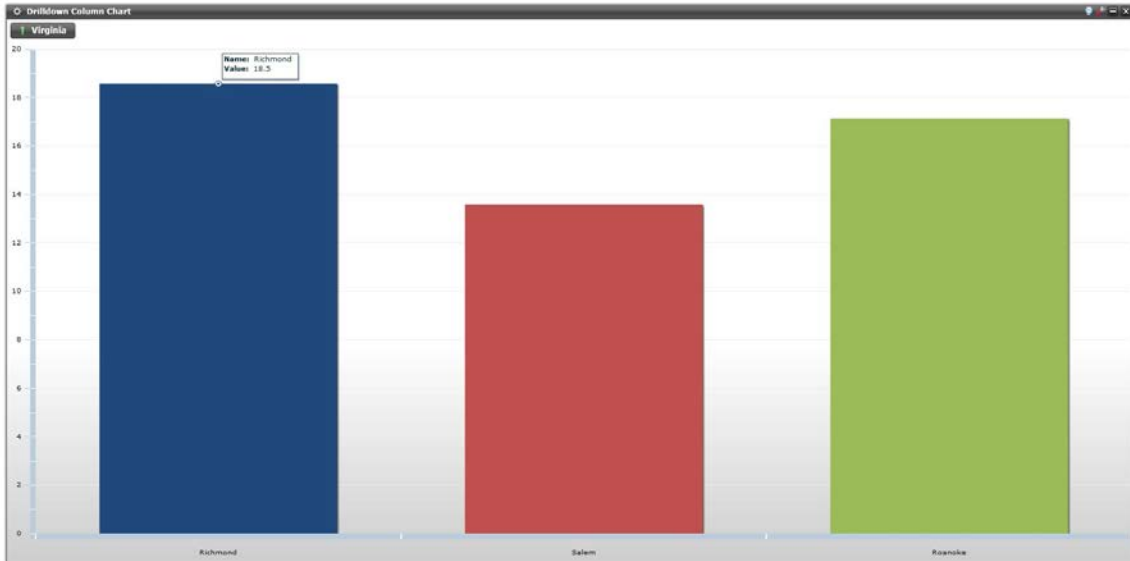
Static Device Name - If any text is entered in this property, Device Row Index will be ignored and all histories will be given this device name.

History Name Row Index - This property says which row to use for naming the histories.

Skip Rows - This property designates how many rows from the top there are before actual data exists.

The Drilldown Column Chart Viewlet

The Drilldown Column Chart Viewlet has the same functionality as the normal Column Chart Viewlet, with the benefit of being multi-tiered. By clicking on specific columns, the user can “drill down” to levels contained within the one above it. The groups beneath each section are constantly totaled, relative size at all times. Specific values can be seen by hovering over the individual columns. This viewlet can be helpful for comparing multiple levels of data, such as a business park, its buildings, wings, rooms, etc.



The chart can have as many levels as the user creates. A double-click drills down, while the button in the upper-left corner navigates the user up one tier

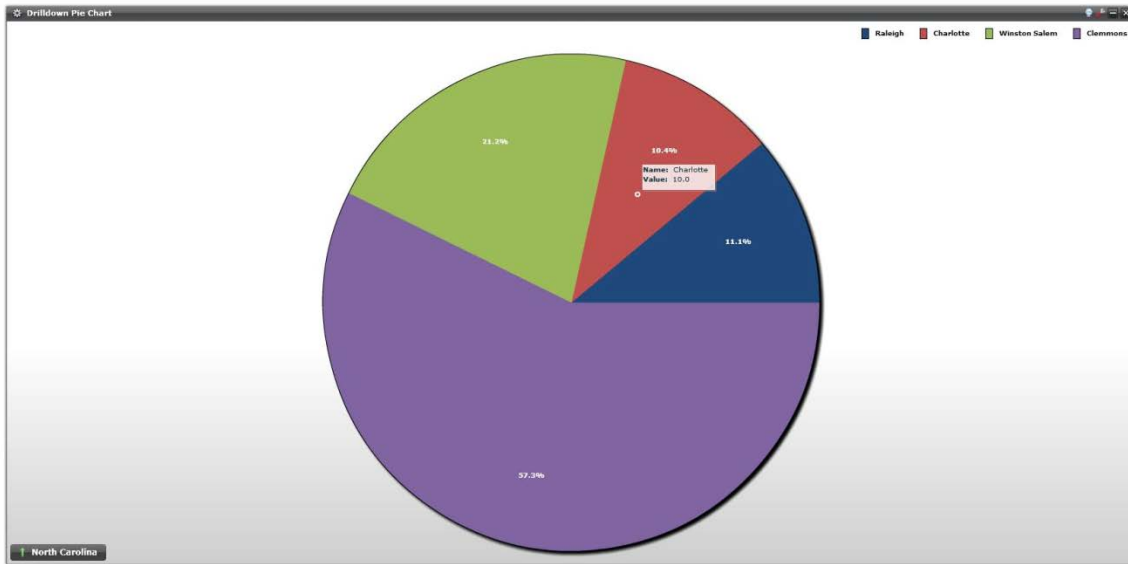
Drilldown Column Chart Configuration

The user should first select the rollup chart from a list of previously configured charts, which have been created in Workbench and mapped in Periscope’s configuration browser. The user can also choose whether or not they want to rank the live columns, and in what order.



The Drilldown Pie Chart Viewlet

The Drilldown Pie Chart Viewlet has the same functionality and configuration as the Drilldown Column Chart. By clicking on specific slices of the chart, the user can “drill down” to levels contained within the higher group. The groups beneath each section are constantly totaled, thus giving their percentage of the whole and specific value at all times. Percentage numbers can be viewed by hovering over corresponding slices of the pie chart. This viewlet can be helpful for organizing comparisons with multiple levels of data, such as a university divided into campuses, dorms, halls, etc.

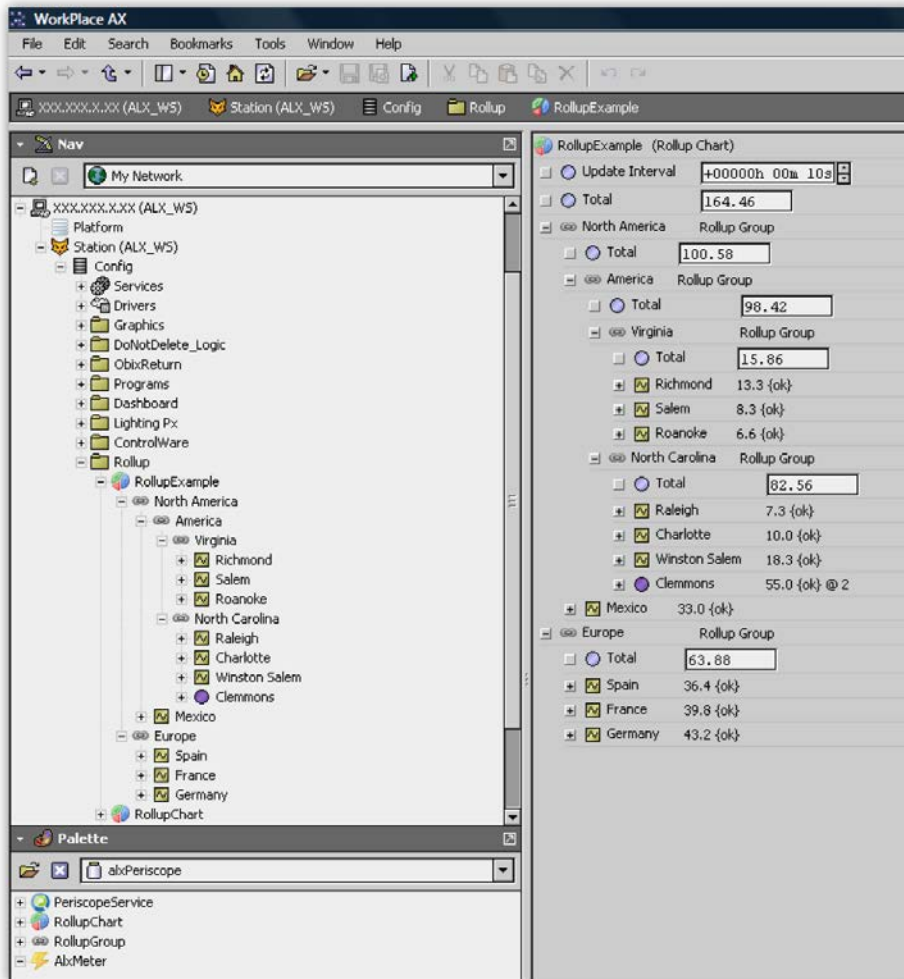


The chart can have as many levels as the user creates. A double-click drills down, while the ‘Up One’ button navigates the user up one tier.

Drilldown Viewlets Initial Setup

Before using both the Drilldown Pie Chart Viewlet and the Drilldown Column Chart Viewlet, the user is required to configure the levels of the chart and the corresponding data for each level before use. Shown below is an example of a Drilldown Viewlet configured in Workbench. The main element of a chart is the RollupChart object. This object can contain any number of nested RollupGroup and NumericPoint objects. The *Update Interval* property is used to adjust how often this object totalizes the different levels of information. This should be no quicker than your point update interval and can be reduced to save processing power. Once the RollupChart is created, the object must be discovered and mapped within the points tab of PeriscopeConfig, so the user will have access to the new chart in their dashboard. The created chart will then be applicable to both types of Drilldown Viewlets.

The required palette objects to configure a Drilldown Viewlet are located inside of the alxPeriscope module, which is provided with Periscope. After opening the palette, the RollupChart (pie chart icon) is the first object which must be added to create the new drilldown chart. In this example, it is placed in a folder called Rollup, but its location within the station is up to the user. Each level within the drilldown chart is then created by adding the RollupGroup object (chain link icon) within the level above it. This allows the user to build their chart based on the file structure they create. Data points can then be added within the levels, giving each level of the chart the actual information to display within Periscope



On the right side, the property sheet view shows the expanded nodes of the Rollup Chart. Note how each group is totaled based on the values of the data beneath it, allowing multiple levels of comparison and analysis. The RollupGroups contain different types of NumericPoints and other RollupGroup components.

The Baseline Comparison Viewlet

The Baseline Viewlet enables comparison of the value of any trended variable, such as energy consumption, production, resource usage, etc. for the “current” time period versus a prior time range, creating a “baseline” period. The comparison may be visualized either in direct units, or through a “delta mode” showing the net of current minus baseline values. This is very useful in highlighting changes in performance over time.



The baseline can be plotted as a line, dashed line, or color-coded bubbles, as seen in the example above.



The user can visualize their changes in performance through the delta mode, where the differences are effectively presented.

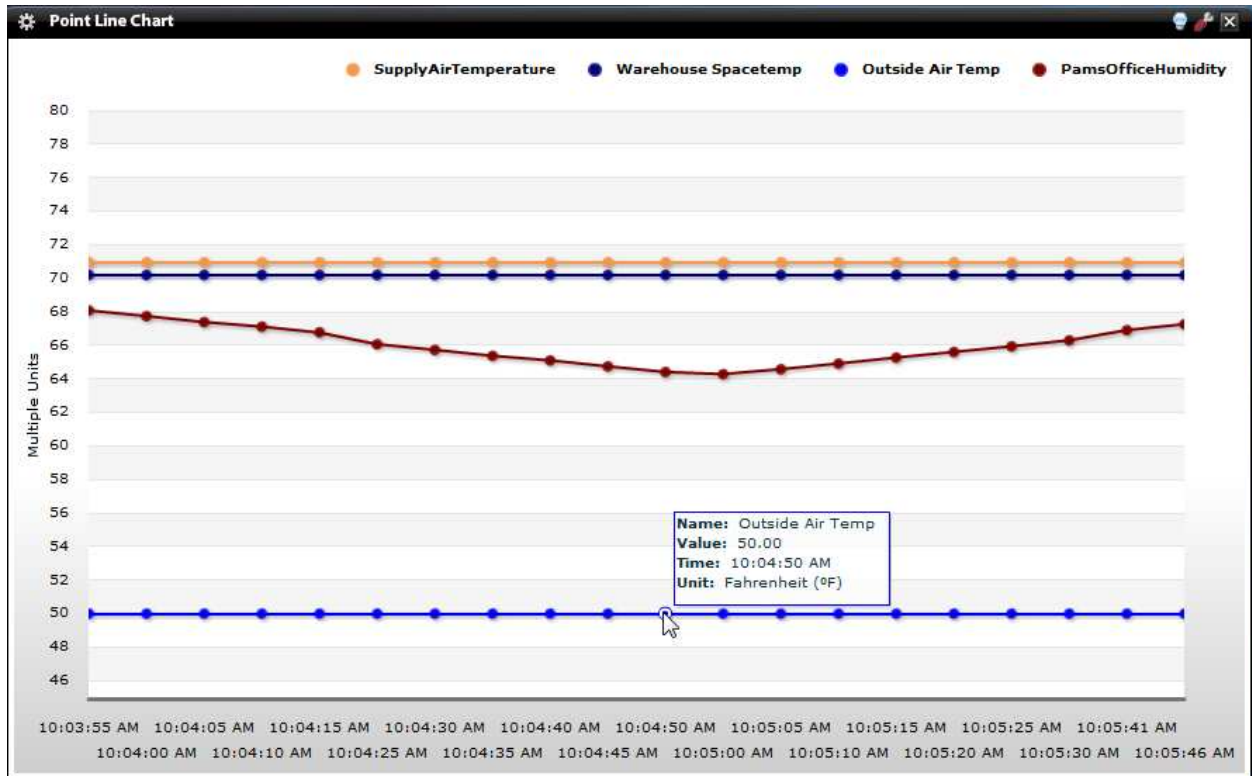
The Baseline Comparison Configuration

There are three tabs in the Baseline Comparison Viewlet’s configuration menu. The first tab, labeled “trend”, allows the user to filter available data by location and/or unit, and select the variable they would like to compare with its baseline period. The second tab, labeled “baseline”, is for choosing the date range for your baseline period. There are three options for specifying a baseline, Baseline Year, Previous Period, or Manual. The “Options” tab is used to set the time range, rollup values, and several display options.

The figure shows two screenshots of the 'Baseline Config' dialog box. The left screenshot shows the 'Baseline' tab with radio buttons for 'Baseline Year', 'Previous Period', and 'Manual'. A calendar for January 2009 is displayed, with the 1st selected. The 'Start' date is 01/01/2009 and the 'End' date is 12/31/2009. The right screenshot shows the 'Options' tab with a 'Period' dropdown set to 'Month-To-Date', a 'Rollup' dropdown set to 'Day', and a 'Baseline Style' dropdown menu open showing options: 'Bubble', 'Line', 'Dashed Line', and 'Bubble'.

The Point Line Chart Viewlet

The Point Line Chart Viewlet graphs real-time values, as it plots constantly updated lines representing selected units of measurement. Changes in the lines can help the user detect malfunctioning equipment or environmental fluctuations.



The Point Line Chart constantly updates with new values from right to left, updating itself in user-defined time increments.

Point Line Chart Configuration

Points can be filtered by unit or location from drop-down lists within the Point Line Chart configuration menu. Points can then be selected and deselected by checking the boxes on the left of the menu. Corresponding colors can be set so the user can tell which line represents a specific value. The refresh interval (in seconds) allows the user to configure how often the points update. The rollover limit determines how many points or nodes are plotted before the viewlet pushes the last plotted node off of the chart and plots a new one. Additionally, the max and min values of the Y-Axis are configurable by clicking on them.

Add Point

Unit Filter: All Units

Location Filter: All Locations

Sel	Name	Location	Unit	Color
<input checked="" type="checkbox"/>	Conference	Atkins	Fahrenheit (°F)	Red
<input checked="" type="checkbox"/>	Warehouse	Barnard	Fahrenheit (°F)	Orange
<input checked="" type="checkbox"/>	Lounge	Barnard	Fahrenheit (°F)	Yellow
<input type="checkbox"/>	ChicagoOutsideAi	Prospector	Fahrenheit (°F)	Green
<input checked="" type="checkbox"/>	Jack's Office	Activelogix	Fahrenheit (°F)	Blue
<input checked="" type="checkbox"/>	IT Room	Activelogix	Fahrenheit (°F)	Dark Blue
<input checked="" type="checkbox"/>	Greg's Office	Activelogix	Fahrenheit (°F)	Purple

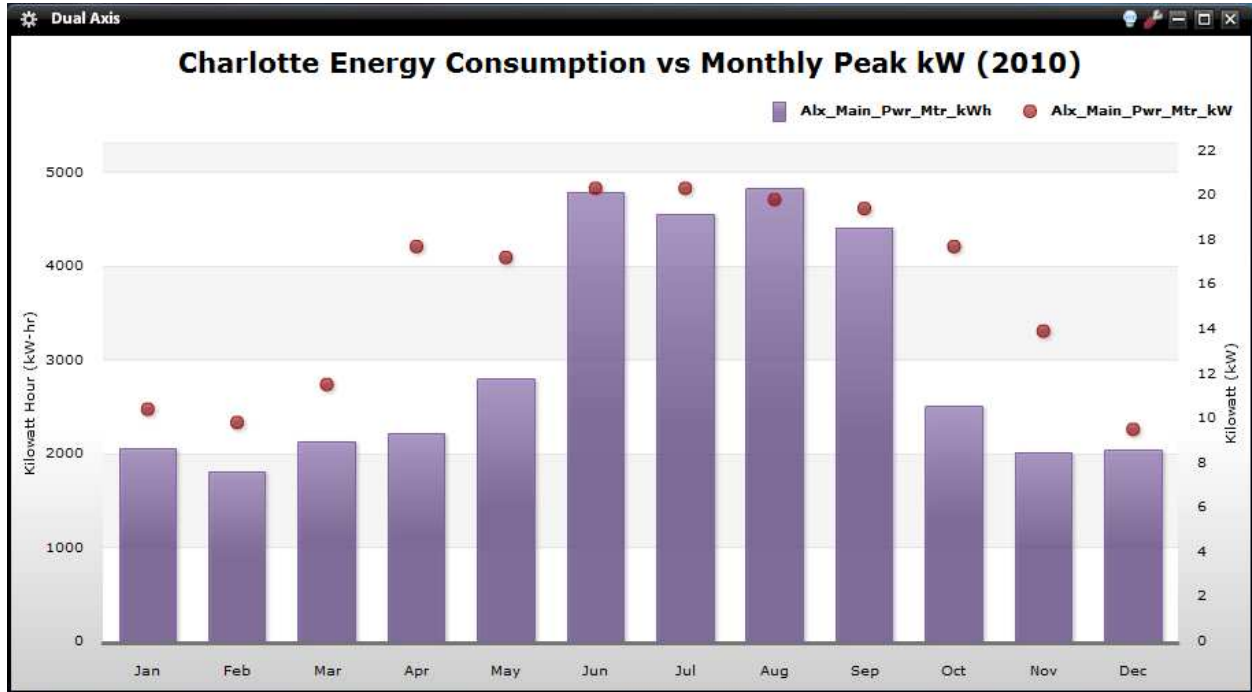
Refresh Interval:

Rollover Limit:

Ok Cancel Select All Select None

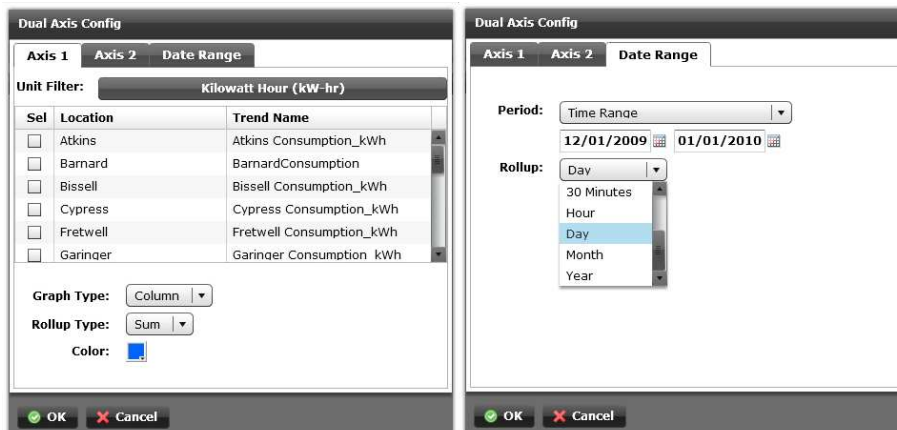
The Dual Axis Viewlet

The Dual Axis Viewlet allows a user to visually evaluate the relationship between two or more historic variables through the ability to chart two different types of trends on separate Y-axes. This feature can be used for making comparisons between similar or different variables over a common time frame, as correlations in profiles are easily identifiable.



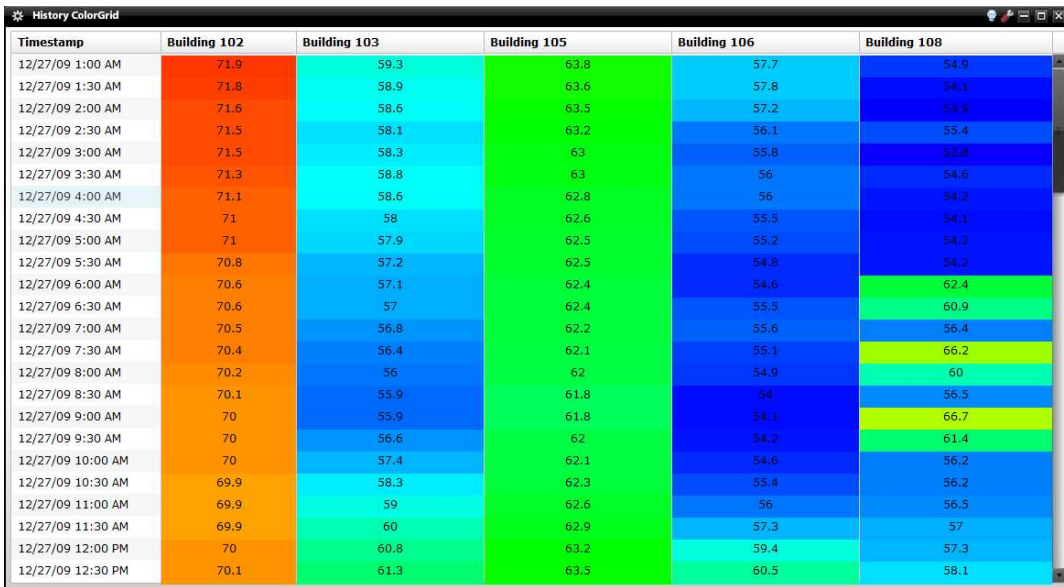
The Dual Axis Configuration

There are three tabs in the Dual Axis Viewlet's configuration menu. The first two are for filtering trends by unit and selecting which variables which will be on each Y-axis. Users can select multiple trends for each axis, as long as the trends displayed on their respective axis are all the same unit. The user can choose the rollup type (sum, minimum, maximum, or average) and color, as well as whether each variable is charted as a column, line, or bubble. The third tab is used to set the time range and the time rollup.



The History ColorGrid Viewlet

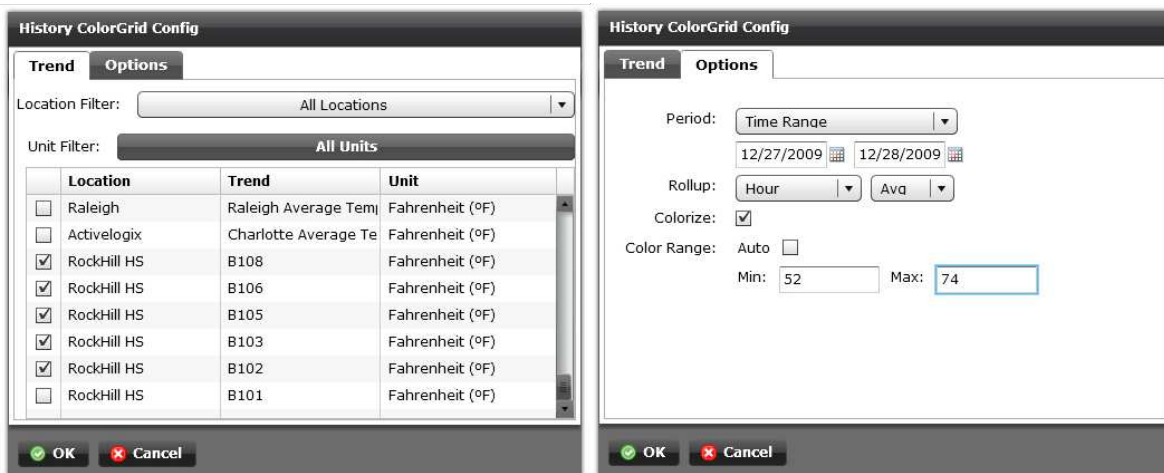
The History ColorGrid Viewlet is used to analyze complex arrays of data using color visualization of variations in the values of the data being analyzed. This feature is useful in rapidly detecting instances of cyclical data variations over user-selectable time periods.



Seemingly obvious trends in numeric data can be visualized efficiently and easily through the use of color assignment to ranges of data.

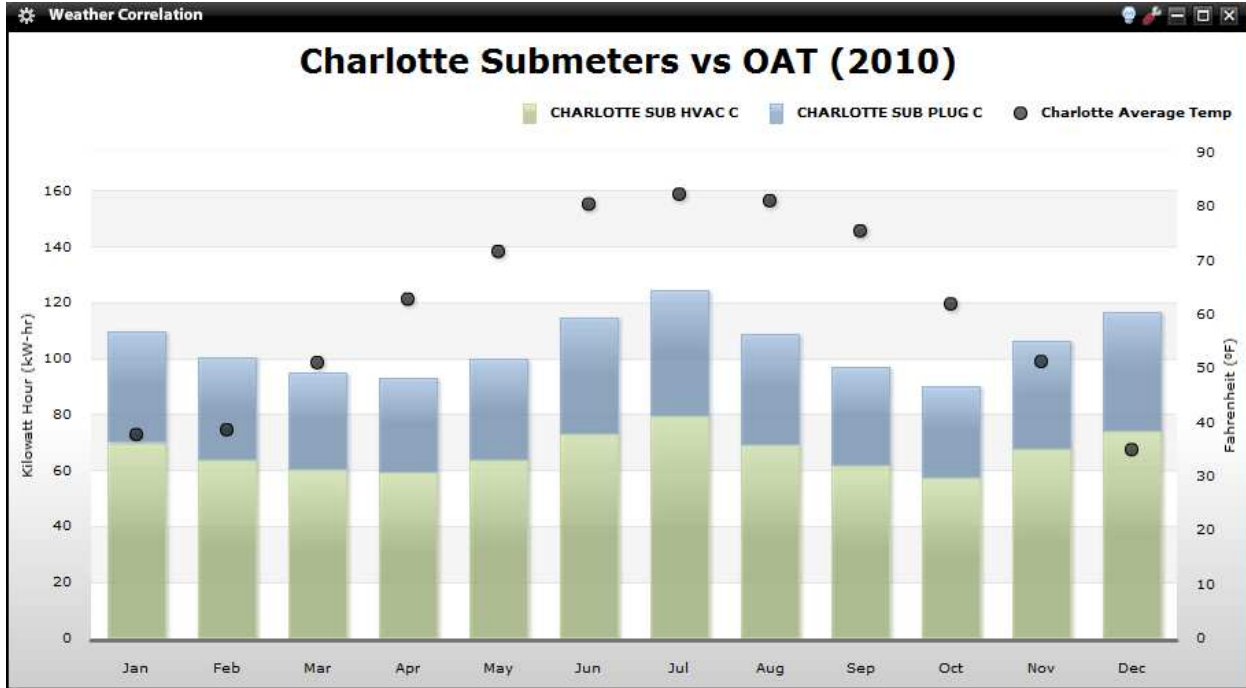
The History ColorGrid Configuration

The user's configuration options for the History ColorGrid consist of a standard "trend" tab for selecting the multiple variables which will be plotted in the table. The user can select as many trends as they would like to compare, and are only limited by the on-screen space available for displaying them in the viewlet. The "options" tab has the usual time range selection menu and rollups, along with several options relating to the colorization of the chart. The user can toggle the colors on or off at any time, and enter a custom numeric range to control which values designate the most extreme colors. Dark blue represents the lowest color, where as dark red represents the highest.



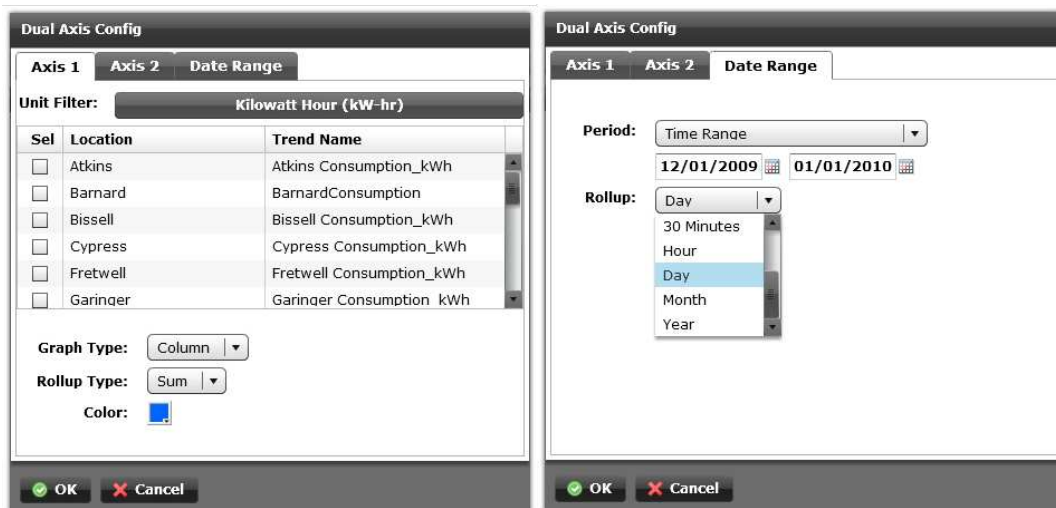
The Weather Correlation Viewlet

The Weather Correlation Viewlet enables a user to visually evaluate the relationship between a location's historical outside temperature (OAT) and a chosen building variable, such as energy consumption (e.g. kWh). This feature can be used for ruling "in" or "out" weather as a likely contributor to a change in consumption over a user defined time range.



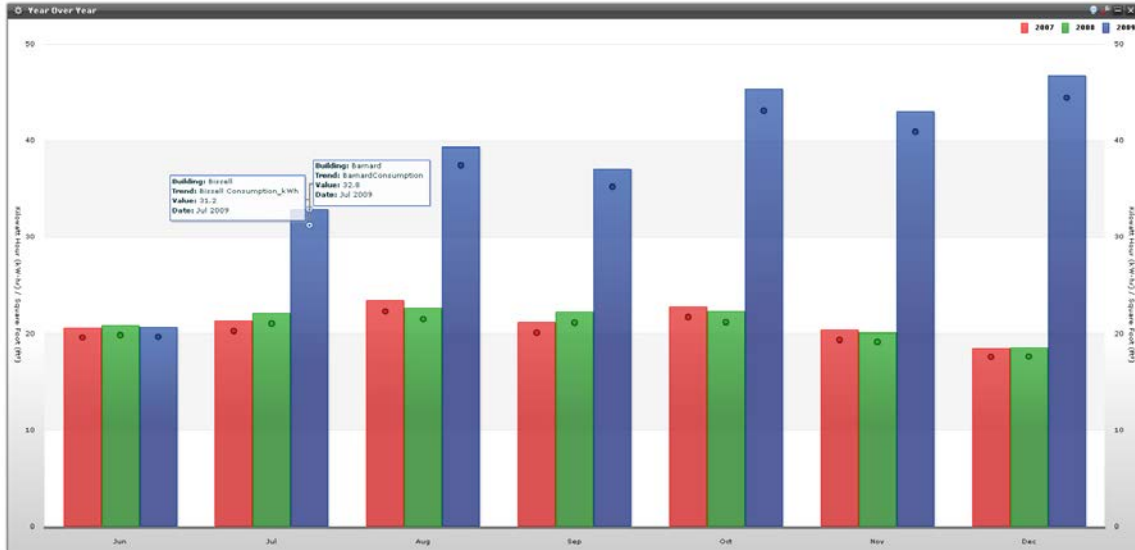
The Weather Correlation Configuration

There are three tabs in the Weather Correlation Viewlet's configuration menu. The first two are for filtering the trends by unit and selecting which variables which will be on each Y-axis. The user can choose the rollup type (sum, minimum, maximum, or average) and color, as well as whether each variable is charted as a column, line, or bubble. The third tab is used to set the time range and the time rollup.



The Year-Over-Year Viewlet

The Year-Over-Year Viewlet provides a side-by-side comparison of the monthly value of up to two variables, such as energy consumption, over multiple years for one or more selected months. The dual axis setup allows for different variables at different locations to be plotted against one another. This is useful for a quick analysis of year over year trends by the month.



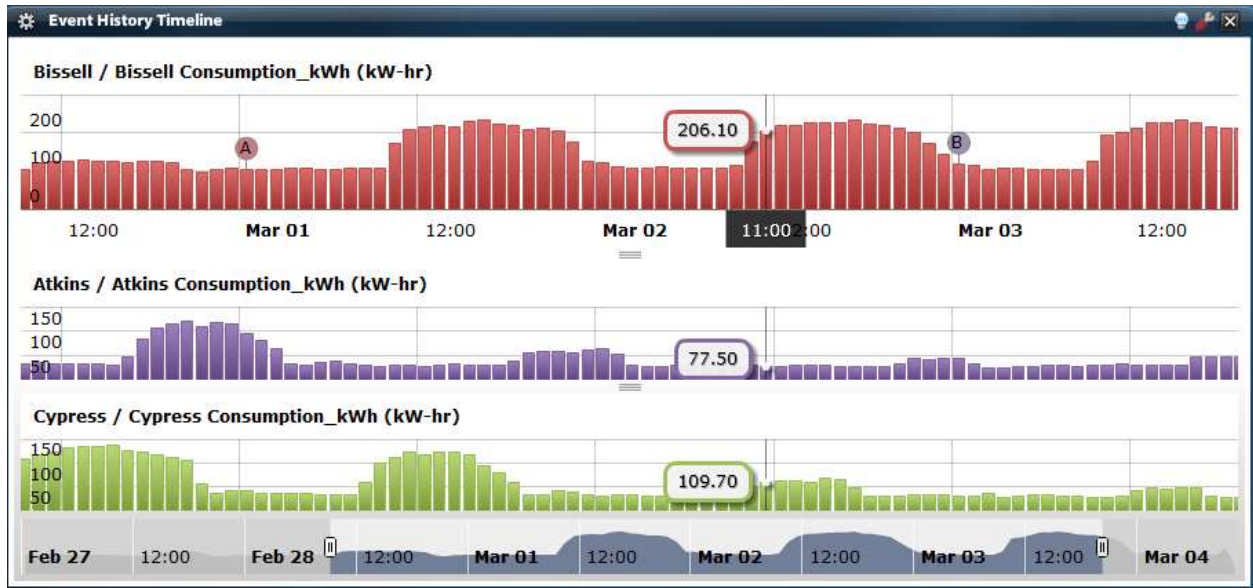
The scale of each axis is different, so be sure to understand the true value for each variable. Rollover pop-ups help identify the trends.

The Year-Over-Year Configuration

There are four tabs in the Year-Over-Year Viewlet's configuration menu. The first two are for filtering the trends by unit and/or location, and selecting which variables which will be on each Y-axis. The user can choose the months and years which will be compared in the "dates" tab, and normalization and rollups are specified in the "options" tab.



Event History Timeline



The Event History Timeline provides a powerful stacked chart view for consuming large amounts of information. This viewlet also has capability to drill down into smaller time periods and display user configurable events.

Like other viewlets, configuration is intuitive and straightforward.

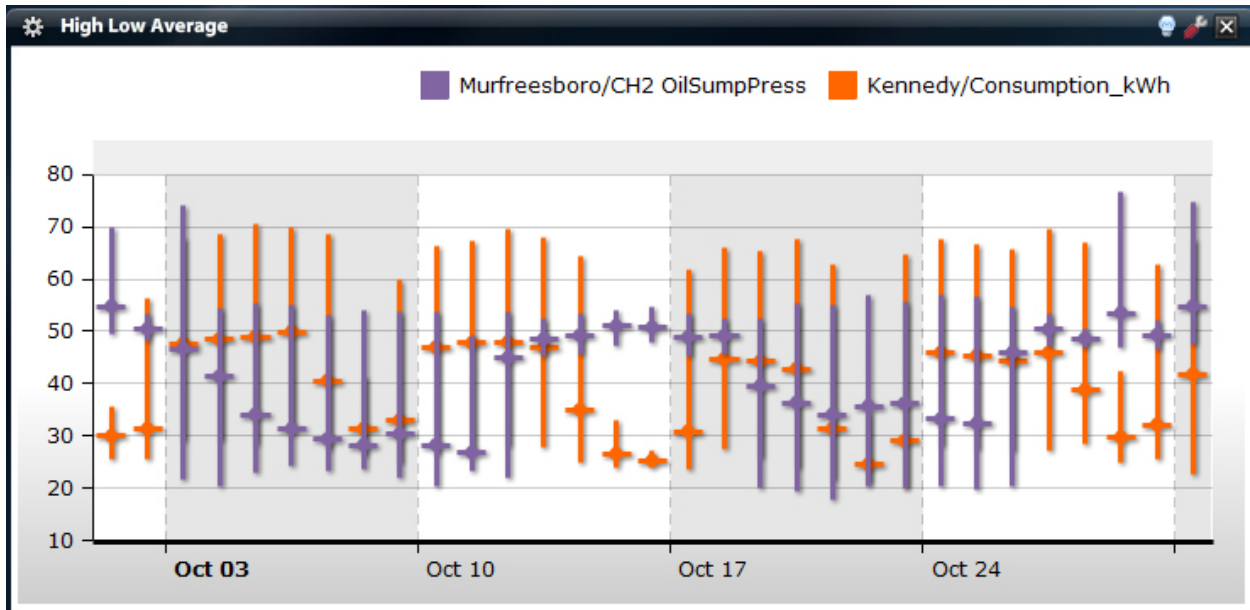
Setting up the Event History Timeline viewlet is a multi-step process.

1. Click the wrench icon to display the trend picker. Up to 5 trends may be placed on the viewlet by using the "Add Trend" button at the lower right side of the wizard. The User can customize a number of settings including an optional Trend Title, rollup, and chart type and chart color.
2. Use the Events tab to add or remove events by entering the event name and the date of the event. Example: "Lighting Retrofit Completed on 2/23/2011".

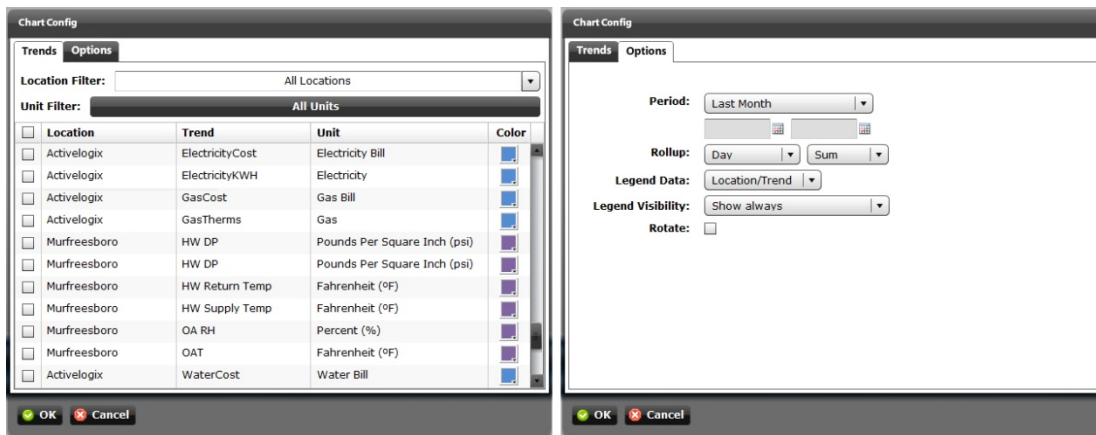
Lastly, use the Config tab to select the date range of interest using one of the pre-defined periods (Year-to-date, Month-to-date, Last Year, etc.) or a custom date range. A variable roll-up period can also be selected if desired.

High-Low-Average Viewlet

The High-Low-Average Viewlet is a useful tool to chart and compare the range and average of one or more concurrent “historized” variables in the system. Similar to a stock “High-Low-Close” presentation, the High-Low-Average viewlet shows the extremes of the variable’s values for the selected time frame and desired sample period (rollup). The built-in chart tools enable zooming into specific timeframes within the overall plot range. The chart may be plotted in either Landscape (default) or Portrait modes using the “rotate” flag in the viewlet config dialog.

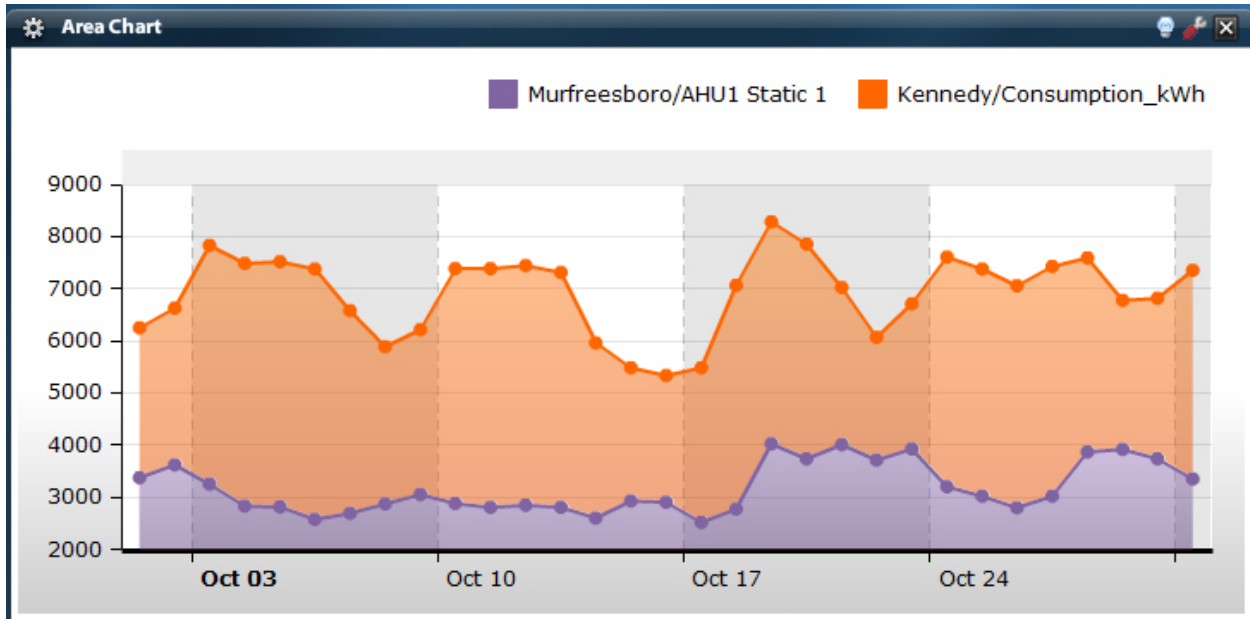


The High-Low-Average Configuration

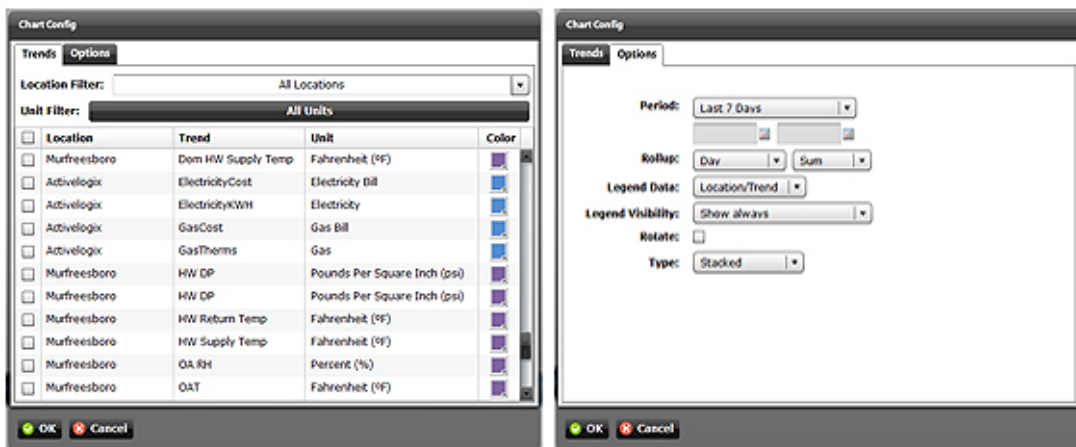


Area Chart Viewlet

The Area Chart Viewlet enables the user to display graphically quantitative data from one or more similar variables. Similar to line charts, the area charts often enable the user to visualize the underlying data more clearly. The chart may be plotted in either Landscape (default) or Portrait modes using the “rotate” flag in the viewlet config dialog.



The Area Chart Configuration

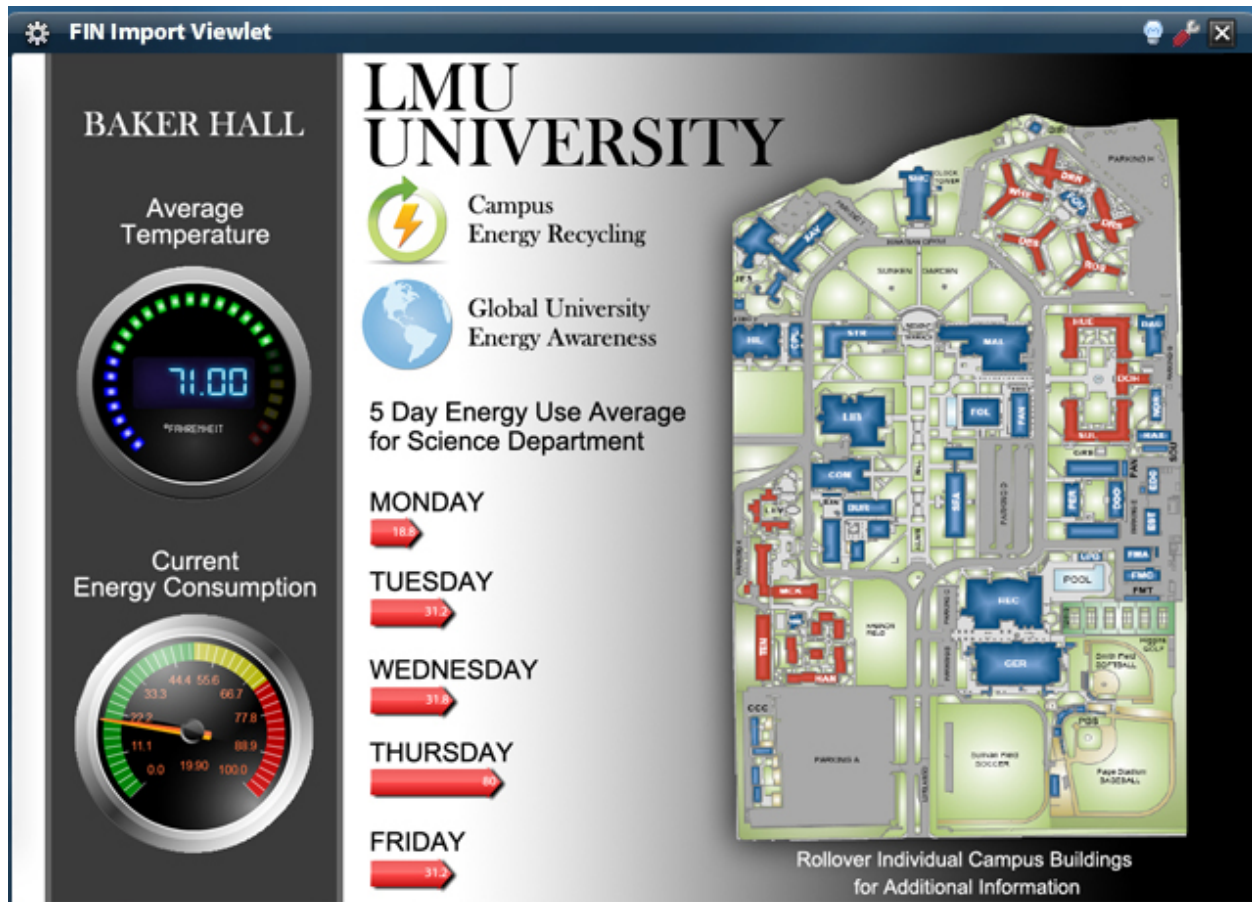


FIN: Connect Viewlet

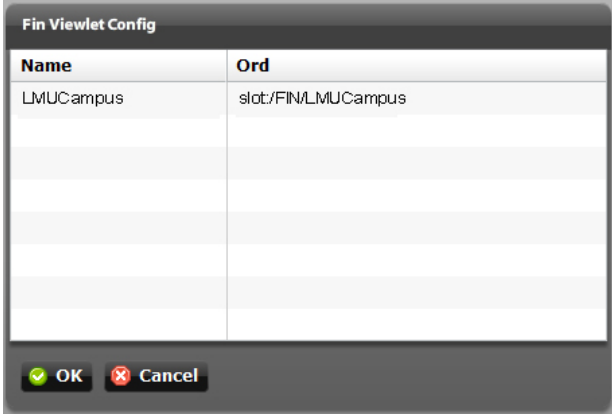
Periscope now enables the native integration of a powerful new graphics tool from J2Innovation of Chino, California, USA. This optional tool, (FIN Builder) is named for the “Fluid Integration” it provides the user and is a substantial leap forward over the traditional AX Workbench graphics tools such as PX, HX, etc. The FIN system allows users to create BAS library components easily and use them over and over again. FIN comes standard with a library of built-in components and new components are continually being added to the library.

Periscope has a built-in Wizard to discover, use, archive and recall existing FIN files on the system (similar to the PX Wizard and Viewlet) and thus enables the user to natively display these files in the FIN Viewlet(s). The FIN Builder toolset is an optional package that may be purchased through Activelogix or other J2Innovation distribution channels.

More information is available [here](http://www.j2inn.com/products/fin) (<http://www.j2inn.com/products/fin>).



The FIN: Connect Viewlet Configuration



Name	Ord
LMUCampus	slot:/FIN/LMUCampus

Media: Connect Viewlet

The Media: Connect Viewlet contains a library of sustainability and HVAC focused media. The contents vary from interactive Flash presentations to videos.



Temp To Degree Days (AX Object)

This component converts historical temperature data into respective heating, cooling, and total degree days. It can be configured to run on an interval or manually.

TempToDegreeDays (History Degree Days)	
Status	{ok}
Fault Cause	
Temperature History	null
Temperature Record Type	Interval
Execution Time	2:00 AM {Sun Mon Tue Wed Thu Fri Sat }
History Folder	DegreeDayData
History Base Name	
Base Temperature	65

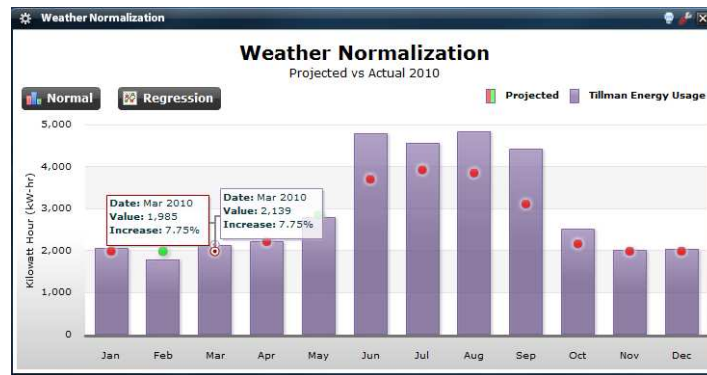
Properties

- Temperature History - The AX History containing temperature values.
- Temperature Record Type - *Interval* is the default usage and will calculate degree days for each day of the month. Only use *Monthly* if your temperature trend contains one average temperature record per month.
- Execution Time - How often to automatically execute. Set to Manual if you do not want automatic execution.
- History Folder - The History Folder or *Device Name* that the generated degree day histories will be placed.
- History Base Name - This string will be prepended to "_HDD", "_CDD", and "_TDD". For example, if your History Base Name was "Charlotte", executing would create the following trends: "Charlotte_HDD", " Charlotte_HDD ", and " Charlotte_HDD".
- Base Temperature - The base temperature used to calculate degree days.

Note: This object requires the PER-V251 feature in order to be used

Weather Normalization Viewlet

The Weather Normalization viewlet uses linear regression analysis of degree day and consumption data to find a best fit line. Once found, actual consumption data is baselined against the predicted data based on weather trends which allows the visualization of performance independent of weather.

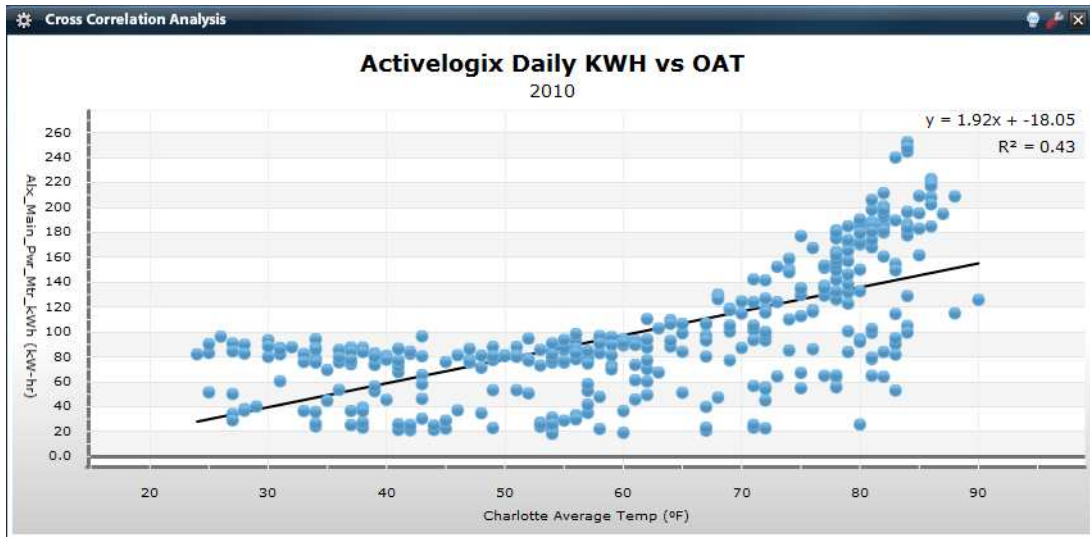


Setting up the Weather Normalization viewlet is a multi-step process.

1. Click the wrench icon and select a consumption trend in the *Trend* tab and a degree day trend in the *Degree Days* tab.
2. Set your *Baseline Date Range* under the *Baseline* tab. This is the period in which we will run a linear regression of your consumption and degree day data.
3. Set the *Period* and *Rollup* in the *Options* tab. By setting "Year-to-Date", the viewlet will show actual values vs. predicted values based on your "Baseline" usage for the current year.

When running a linear regression analysis, occasionally there are "rogue" points or "outliers" contained in the subject data. If desired, these points may be removed from the regression analysis calculation using a simple tool in the viewlet and clicking on the bad points to remove them.. The linear regression variables can also be manually edited under the *Baseline* tab.

Cross Correlation Viewlet



The Cross Correlation Analysis viewlet shows various kinds of correlations between variables with a certain confidence interval. This viewlet uses linear regression analysis to provide actual correlation values. If the pattern of dots slopes from lower left to upper right, it suggests a positive correlation between the variables being studied. If the pattern of dots slopes from upper left to lower right, it suggests a negative correlation. A line of best fit (alternatively called 'trendline') can be drawn in order to study the correlation between the variables. In addition, an identity line, i.e., a $y=x$ line, or an 1:1 line, is often drawn as a reference. The more the two data sets agree, the more the scatters tend to concentrate in the vicinity of the identity line; if the two data sets are numerically identical, the scatters fall on the identity line exactly. Setting up the Cross Correlation viewlet is a multi-step process.

1. Click the wrench icon to filter by unit or location if desired.
2. Use the X-Axis tab to select the variable of interest, such as "Main Power (kWh)" and Roll-up type, such as Avg, Min, Max or Sum.
3. Use the Y-Axis tab to select the cross correlation variable such as "Outside Air Temperature" and Roll-up type, such as Avg, Min, Max or Sum.
4. Finally, click on the Config tab to select a predetermined date range or a custom date period. Additional configuration is available to select colors, radius and best fit and/or identity line:

If desired, stray points can be removed from the linear regression calculation by clicking on them.

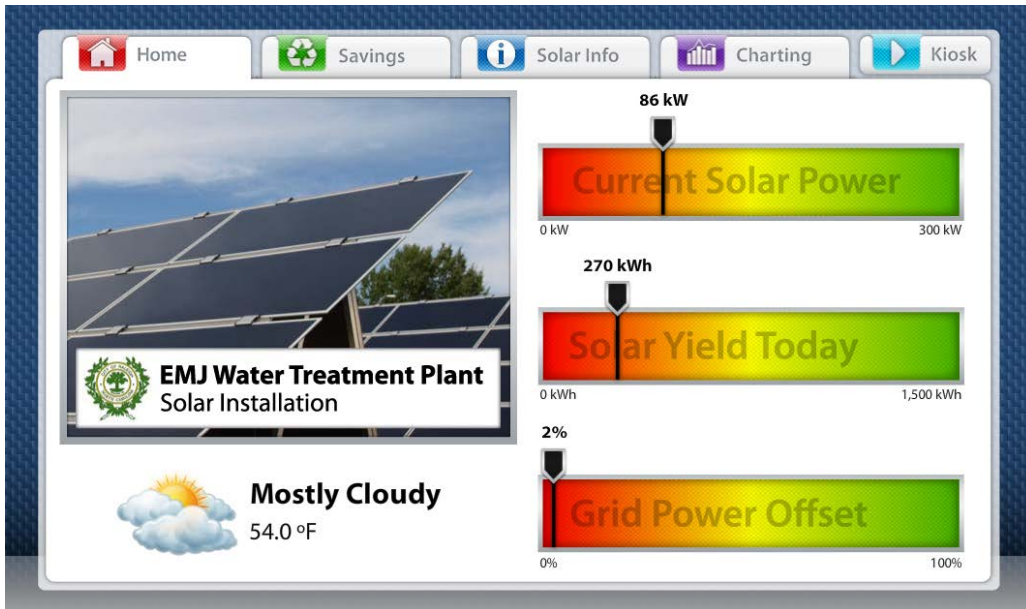
The image shows a "Correlation Config" dialog box with three tabs: "X-Axis", "Y-Axis", and "Config". The "Config" tab is selected. The settings are as follows:

- Date Range: Month-To-Date (dropdown menu)
- Rollup: Day (dropdown menu)
- Plot Point Color: Blue (color selection)
- Plot Point Radius: 5 (spin box)
- Display Best Fit: (checkbox)
- Display Identity Line: (checkbox)

At the bottom of the dialog, there are "OK" and "Cancel" buttons.

Solar Generation Viewlet

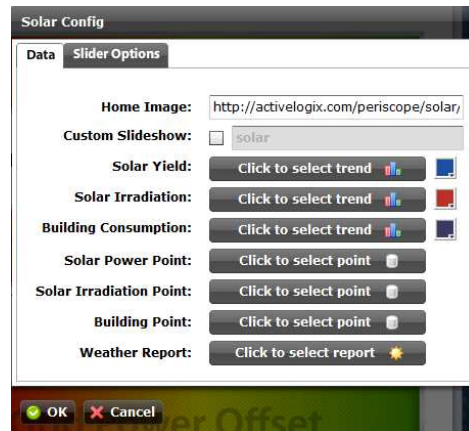
The Solar Energy Generation viewlet is the first of a family of “focus” viewlets targeting sustainable energy applications. The solar viewlet is composed of five different views for focusing on solar generation data compared to on-site consumption. It contains sliders to gauge real-time performance, counters that display live energy generation and equivalents such as CO₂, a slideshow of solar tips and a tab with various charts to view historical energy data.



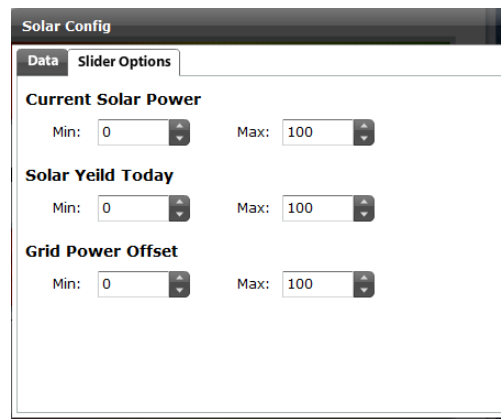
If the solar site is so-equipped, the viewlet can track the system output relative to the solar intensity through the use of a “solar insolation” meter, sometimes referred to as a pyranometer, which measures the irradiance value in Watts per Square Meter. This value is co-plotted on a chart with the Solar Plant output, thus providing an indication of system performance over time for a given level of solar intensity.



Solar Energy Generation Configuration



1. Click the wrench icon and select the Data Tab. In this tab, the user can select a URL for the image to be displayed in the “Home” page of the Solar Viewlet. The recommended size is 473 x 366 px.
2. The Solar viewlet supports the ability to have a custom slide show that employs actual site photographs if desired. This is an optional Periscope service. Contact your distributor if you are interested in this feature. If installed, selecting the check box and typing in your distributor provided ID will “play” a custom slide show.
3. The remaining configuration items in this wizard need to be selected by the user, and are typically a one-time setup (if saved to the Periscope library).
 - a. Solar Yield – Selects the appropriate inverter history feed that represents the kW output power of the solar installation. User can also select a unique color for the resulting chart.
 - b. Solar Irradiation – Selects the trend of the output from the solar irradiance sensor (if installed). This sensor measures the incident solar power at the site. User can also select a unique color for the resulting chart.
 - c. Building Consumption – Selects the whole building (or location) consumer trend history (kWh) co-located (typically) at this site. This allows the viewlet to show the contribution (and avoided costs) of the solar plant to the consumer location. The “Consumer” can alternatively be any other location in the enterprise, if desired. User can also select a unique color for the resulting chart.
 - d. Solar Power Point – Selects the real-time solar generation output variable from the solar plant.
 - e. Solar Irradiation Point - Selects the real-time solar irradiation point from the solar plant.
 - f. Building Point – Selects the real-time total kW point from the consumer building (location).
 - g. Weather Report – Selects the appropriate location weather that applies to the geographical location of the solar site. This listing may require prior setup in Niagara AX Workbench.
4. If desired, additional configuration of the slider ranges may be set by opening the “Slider Options” Tab. This section enables user selection of the Max and Min values for each of the sliders on the Solar Viewlet “Home” page:

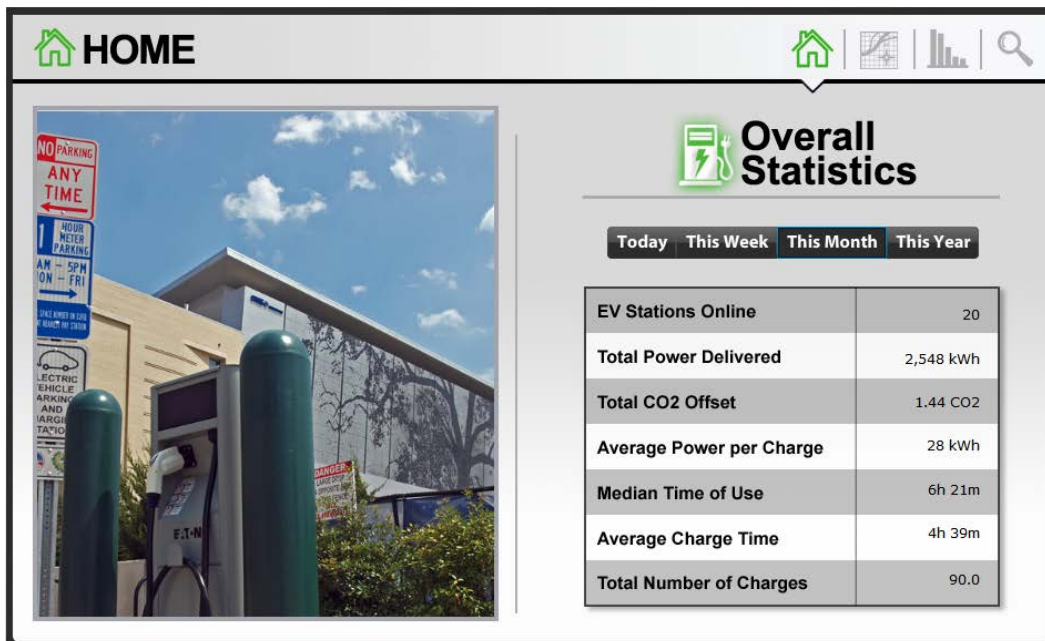


5. Once Complete, Click “Ok” to save these settings.

EV Viewlet

The Electric Vehicle (EV) Viewlet is one of a family of Sustainability Viewlets and provides an extensive overview of a charging system network. Like other Sustainability Viewlets, the EV Viewlet is a “mini-application” on its own, providing multiple tabs and views of every aspect of the charging system network.

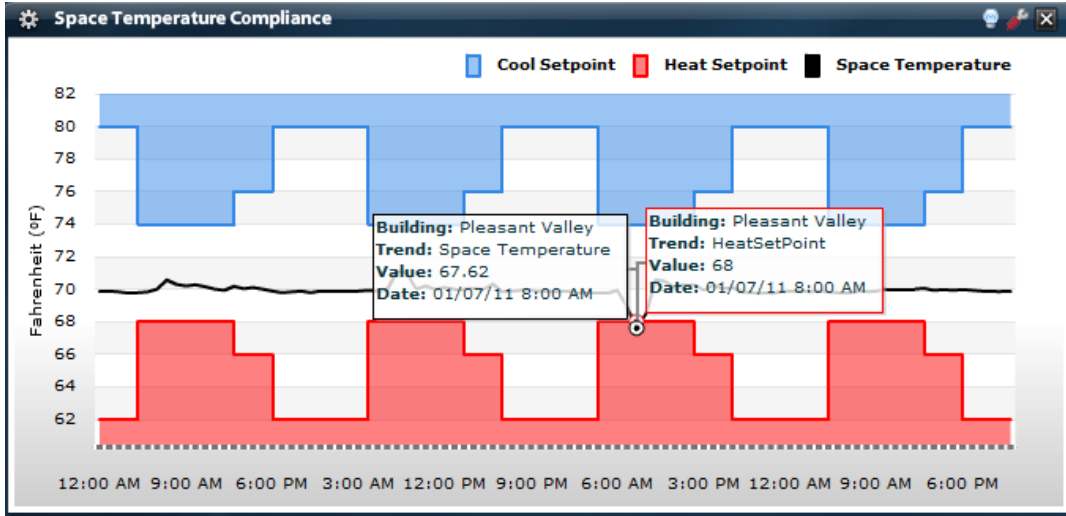
The EV Viewlet provides an overview of useful statistics showing station status, availability and power delivery, both aggregated across the network as well as on a “per station” basis. Additional metrics on frequency and time of use, power delivery and CO2 offsets are all provided in an intuitive format. The EV Viewlet can unify information across multiple types and brands of EV stations and enable effective management without the costly subscription service frequently offered by individual station manufacturers. (Note: Implementation of the EV Viewlet may require additional data interfaces, depending on the brands and model of individual EV Stations in the network. Contact your Periscope distributor for details.)



AHU DIAGNOSTICS PACKAGE

Space Temperature Compliance

The Space Temperature Compliance viewlet displays the relationship of the space temperature versus the cooling and heating setpoints for a particular space. At a quick glance one can determine how well the unit is performing to maintain setpoint. This viewlet requires space temperature, heating setpoint and cooling setpoint trends.

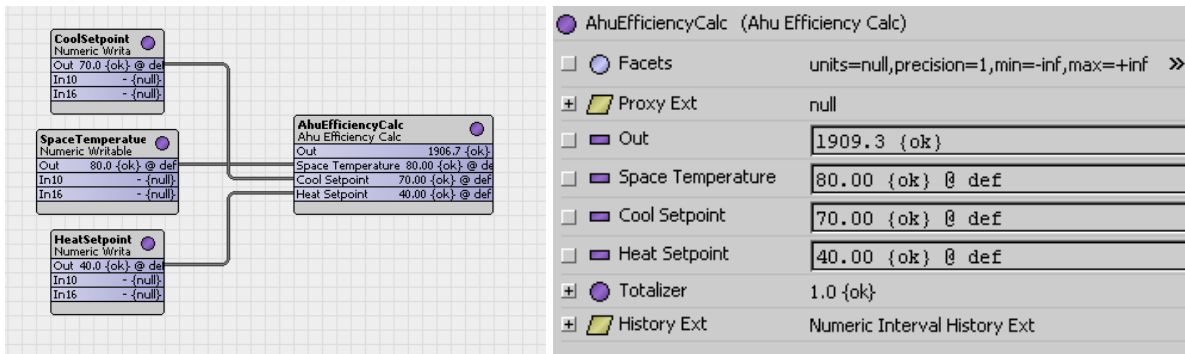


The configuration dialog box includes the following settings:

- Trends:** Active Cool Setpoint, Active Heat Setpoint, Conference_Room_Spa...
- Date:** (Empty field)
- Auto Scale Y-Axis:**
- Minimum:** 0
- Maximum:** 0

Buttons: OK, Cancel

AHU Efficiency Calc (AX object)



The AHUEfficiencyCalc AX object assists in calculating inefficient runtime of an AHU, the time in which the space temperature is above the cooling setpoint or below the heating setpoint. This object is can be found in the *alxPeriscope* palette in the “AHU” folder.

This object includes a Numeric Interval History Extension which allows quick trending. Once trended, this data can be used in multiple viewlets to pinpoint least efficient AHUs or trends across AHUs. Examples include:

- Ranking Viewlet – Find most/least efficient AHU
- History Line Chart – Look over any time period – spikes signify a poor performing period
- History ColorGrid – Allows quick recognition of problematic times across multiple AHU

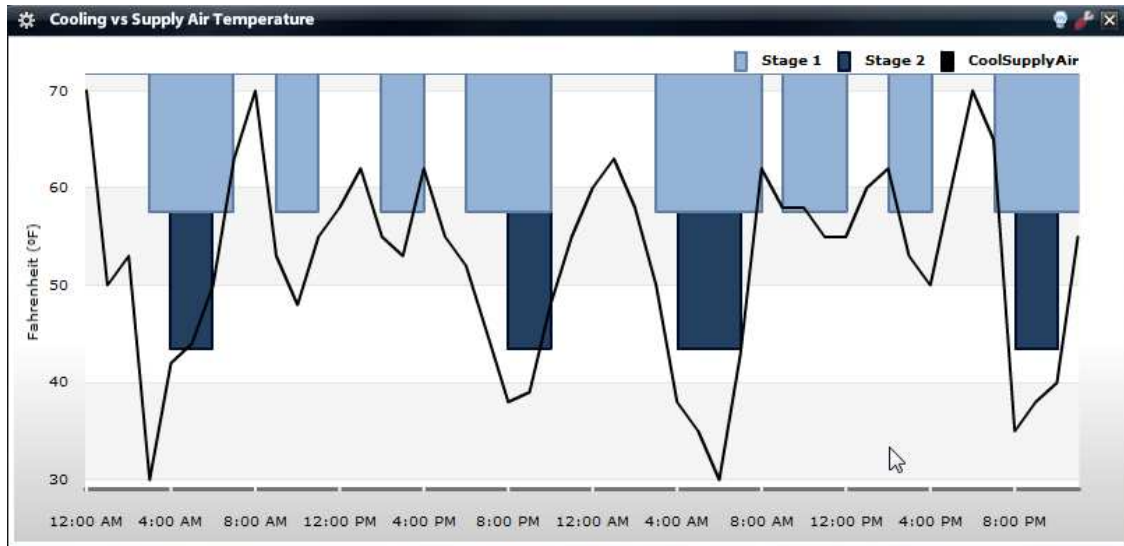
Setup:

1. Copy the AhuefficiencyCalc block from the *alxPeriscope* palette into the Station
2. Link the AHU Cooling Setpoint, Heating Setpoint, and Space Temperature into the block
3. Enable the History (through History Ext)
4. Map the newly created trend in PeriscopeConfig. **The trend must have the *Accumulates* flag checked in order to be used properly.**

Note: This object requires the PER-v201b feature in order to be used

Cooling Compliance

The Cooling vs. Supply Air Temperature viewlet shows the performance of the cooling cycle. This viewlet supports 1-3 heating stages. The required histories for this viewlet are Supply Air Temperature, Heating Stages (1-3) of Boolean type.



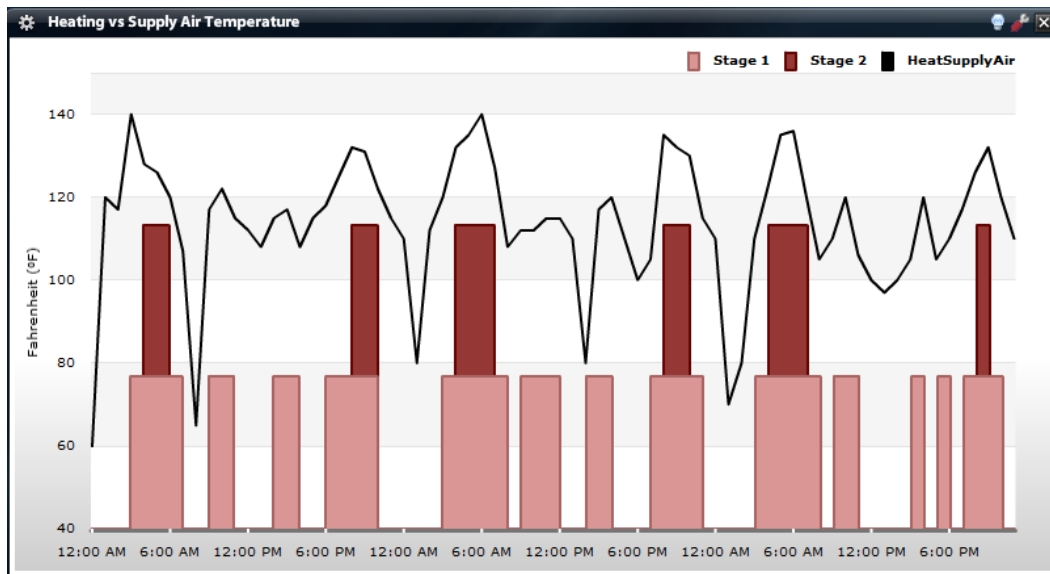
The Cooling Compliance Config dialog box allows users to configure the data trends and axis settings for the chart. It includes the following options:

- Trends:** A tabbed interface with 'Trends' and 'Date' tabs.
- Supply Air Temperature:** A checkbox and a button labeled 'CoolSupplyAir' with a small bar chart icon.
- Stage 1:** A checkbox and a button labeled 'CoolStage1' with a small bar chart icon.
- Stage 2:** A checked checkbox and a button labeled 'CoolStage2' with a small bar chart icon.
- Stage 3:** An unchecked checkbox and a button labeled 'Click to select trend' with a small bar chart icon.
- Auto Scale Y-Axis:** A checked checkbox.
- Minimum:** A numeric input field set to 0 with up/down arrows.
- Maximum:** A numeric input field set to 0 with up/down arrows.

At the bottom, there are 'OK' and 'Cancel' buttons.

Heating Compliance

The Heating vs. Supply Air Temperature viewlet shows the performance of the heating cycle. This viewlet supports 1-3 heating stages. The required histories for this viewlet are Supply Air Temperature, Heating Stages (1-3) of Boolean type.



The Heating Compliance Config dialog box allows users to configure the trends and date for the Heating vs. Supply Air Temperature viewlet. The dialog includes the following settings:

- Trends:** HeatSupplyAir (selected), HeatStage1, HeatStage2, Click to select trend.
- Auto Scale Y-Axis:** Unchecked.
- Minimum:** 40.
- Maximum:** 150.

Buttons: OK, Cancel.

FREQUENTLY ASKED QUESTIONS

Prerequisites

What User Permissions are required to run the Periscope Service?

An AX user will require “Operator Read” permission on any point/trend they intend to access. They will also require “Admin Invoke” for the Periscope Service. The installer or Systems Integrator typically sets up user permissions.

Installing Periscope

What components do I need to install Periscope?

Periscope requires the following JAR files installed into Niagara^{AX}:

- oBIX.jar
- alxPeriscope.jar

Periscope also requires the following components from those jars installed into the station:

- oBIX Network (Installed in Config/Drivers)
- Periscope Service (Installed in Config/Services)

How do I install the Periscope Service?

- Install the jar file on the Web Supervisor
- Add an oBIX Network to the Drivers (if not already present)
- Open the alxPeriscope palette
- Drop the PeriscopeService into your Services

General

What is a Viewlet?

A viewlet is a basic component of Periscope, sometimes referred to as a widget or pod. Viewlets are broken into three categories: Historical, Point (live), and General.

What is a Tab?

In Periscope, tabs are used to separate groups of viewlets. They are located across the top of the dashboard.

What is a Location?

A location is a physical area that can be assigned properties such as square feet. In Periscope, every mapped variable is assigned to a location, providing associated area and cost information. It also allows for better filtering of points/trends by being able to view all variables from a single location.

Is there a limit to how many points or trends I can bring into Periscope?

No. The user can import and map an unlimited amount of data into Periscope.

Can Periscope be integrated with R2?

Yes, however Periscope requires at least one instance of AX, as well as the oBIX driver to communicate. As long as the R2 station or JACEs has the oBIX driver installed, the data can be brought into AX and then Periscope.

What is the difference between a “Point” Line Chart and a “History” Line Chart?

A Point Line Chart is simply a trend of real-time values for a selected variable captured and displayed while the user’s dashboard is active.

A History Line Chart is a trend of calculated values, each of which may be a user selectable “average”, “maximum”, “minimum” or “sum” of all the historical points in a given time interval for a range of dates.

Periscope Operation

Will Periscope run on a JACE?

Yes, Periscope will run on a Niagara JACE. Certain viewlet functionality may not be as useful on a single JACE, however. For instance, JACEs usually have less trend data stored on them due to the lack of file space. Nevertheless, we do not restrict usage and users are free to run Periscope on any station (JACE or Web Supervisor).

Why do my PX pages have a navigation bar on the top or left side?

Periscope uses an HTML frame to display PX pages in the PX Viewlet. This means that whatever Niagara^{AX} user profile is logged into Periscope will also be used in the PX Viewlet. If you would like a PX page to be displayed without left and top navigation, use the profile Handheld Wb Web Profile.

Why can’t my browser get past the Periscope loading screen?

In certain cases, an incorrect or missing install of Adobe’s Shockwave and/or Flash player will cause the browser to hang up and stop Periscope from launching. Make sure you have the latest version of plug-ins loaded before trying to access Periscope.

Do I have the most recent version of flash?

To make sure you have the latest version of Flash loaded, visit http://kb2.adobe.com/cps/155/tn_15507.html and check the Flash Player version number. If the computer’s Flash Player is not up to date, follow the links to download the most recent version.

Why can’t I maximize or restore my viewlet?

Adobe Flash/Flex has a strict definition of a double click. If the mouse moves between the first and second click, it will be registered as two separate single clicks. If you experience problems when trying to maximize or restore a viewlet, try lowering the sensitivity of your mouse.

Why can’t I access the viewlet options menu?

Occasionally you may have trouble opening the viewlet options menu due to a nearby viewlet’s interference. Try moving the viewlet you are having trouble with to the left side of the screen, or double-clicking the viewlet’s title bar to expand the viewlet, and then open the options menu.

How do I re-name a tab or viewlet?

To rename a viewlet, the user should open the viewlet menu (gear icon) and select “edit viewlet

title”. Several naming options are available through the menu. Viewlets can also be renamed by right-clicking the title bar of the viewlet and selecting “rename viewlet”. Tabs can be renamed by selecting the tab and pressing “F2”.

How do I set a custom time range on viewlets with the time range menu at the bottom of their display?

Select “time range” in the pull-down menu, then click the “refresh” button to the right. The viewlet will then display a “from” and “to” calendar where you can select the specific dates of interest.

Why am I automatically logged into Periscope, without having entered a username or password?

In Niagara, if the guest user is enabled (under user service properties for the guest user, enabled=true), and the guest has permission to access the Periscope through the CategoryService, it will automatically login. To disable this, either set the guest user to enabled=false, or remove any permissions that would allow the guest account access to Periscope.

Why can I not access the viewlet options menu on my Web and PX Viewlets?

The complexity of the iFrame coding required to run the Web and PX Viewlets creates unique problems associated with the user interface in Periscope. The layering issue is a very time-intensive bug fix which will eventually be resolved. For now, the user can right-click on the title bar of the viewlet to access the viewlet options menu.

I added a new point or trend via discovery and yet my point is not available when I configure a viewlet?

Verify that you saved the discovery changes after they were made in the Periscopeconfig browser. Check to see if you have both Periscope and Configuration browser windows open. If so, refresh the Periscope browser. Also make sure to that when you mapped the variable you assigned the proper unit and location.

How do I print a viewlet?

Periscope supports exporting viewlets to a PDF or as an image file through a right-click option list on the title bar of any viewlet, or in the viewlet’s options menu. The easiest way to configure your image and paper set up is to copy the exported image into Microsoft Word or similar word processing software.

Is it possible to change scaling of the Web Viewlet so as not to use the scroll bars to see other parts?

Periscope uses an iFrame to display external web pages. The display is determined by what the web page is designed for, so standard pages will be bigger than the pixels available to display the image, particularly if you are showing six viewlets per tab, and will require scrolling, both vertically and horizontally. We have found that the “iweb” pages designed for mobile phones work well.

If I have a Web Viewlet open and navigate to a different page on the site, how do I keep it from opening the new browser window outside of Periscope?

This is determined by the site HTML for that hyperlink – some will open in the same frame, or new window. Note that if there is a link on a web page that opens in the viewlet and you want to open it in a new tab, you can right click it and choose “Open in New Window/Tab” (depending on your browser). You can’t go the other way though. This should work with either Firefox or IE.

How do I address a PX view when using the PX Viewlet?

To display PX pages, you need to have the complete URL for the page you want. You can acknowledge alarms and other basic functions but it is not the recommended way to navigate through the Niagara system, but rather to display common PX pages, like alarm consoles and equipment animations, etc..

Why can I not double-click and drilldown into my JACEs in my Spider Chart Viewlet?

When trying to open or expand equipment in the Spider Chart, the Web Supervisor will open a connection to the JACE and try to run a BQL query to identify the tree structure. This is not possible if the Web Supervisor does not have the same modules as the JACE, so make sure to load all relative modules on the Web Supervisor to allow the drilldown functionality.

What do the numbers at the bottom of my dashboard stand for?

The first two numbers stand for the version of Periscope. The third number is for the JAR file, and the last is the flash version. The flash is server side, so it is likely to change on occasion. When a new flash-based update is made on the server side a small “notifier” icon will appear in footer of each users dashboard (near the version number) the first time they log-in after the change is made. Right clicking on the “notifier” icon will display a pop-up dialog that describes the changes that have been made and to which viewlet(s) they apply.

Why does it sometimes take so long to update a trend chart?

Periscope is very efficient when transferring data to and from Niagara^{AX} but some viewlets can be overloaded with too much data. A couple reasons for slow loading are:

- Slow download speed from end-user internet connection
- Slow upload speed from the Periscope server JACE/WS
- Your time range and rollup are set so that there is a very large amount of data being loaded.

GLOSSARY

Baseline Comparison

A baseline comparison highlights the difference between a trended variable for the “current” time period versus a prior, “baseline” time range. The difference, or “delta” , shows the net of current minus baseline values, providing an insight to changes in performance over time.

Circular Gauge

The Circular Gauge provides a “speedometer” style display to monitor the real-time value of any variable.

Column Chart

The Column Chart Viewlet can be used to plot the aggregate value for multiple variables over time.

Conditioned Floor Area (CFA)

Conditioned floor area (CFA) is the total floor area (in square units) of enclosed conditioned space on all floors of a building, as measured at the floor level of the exterior surfaces of exterior walls enclosing the conditioned space.

Dashboard

The “dashboard” refers to a user’s custom Periscope window, complete with viewlets.

Dashboard Options Menu

The dashboard options menu is located in the upper-right corner of the Periscope browser window, and allows the user to access the kiosk mode, as well as several other options related to the entire dashboard.

Demand Duration

The Demand Duration Viewlet enables the display of the amount of time a variable is above a specific level during the selected interval.

Drilldown

To drill down means to view and underlying level of data, usually initiated with a double-click.

Drilldown Column Chart

The Drilldown Column Chart Viewlet is an interactive column chart which has the ability to show multiple levels of comparisons. Once configured properly, double-clicking on a column will ‘drill down’ to separate, underlying charts nested within the larger one.

Drilldown Pie Chart

The Drilldown Pie Chart Viewlet is an interactive pie chart which has the ability to show multiple levels of comparisons. Once configured properly, double-clicking on a single slice of the pie will ‘drill down’ to separate, underlying charts nested within the larger one.

Dual Axis

A dual axis enables the evaluation of two different historic variables by charting each on a separate Y-axis.

Guest Profile

A guest profile, which is set up in Niagara's Workbench tool under User Services, will restrict all configuration options for the assigned user. All configurations for the user's dashboard should be completed before assigning said user to a guest profile.

FIN Builder and FIN Files

FIN Builder is a product of J2Innovations of Chino, California. This tool enables improved efficiencies in the creation of custom graphics over the traditional Niagara Workbench graphical toolset. Graphics built with this tool are called "FIN files" and are able to be natively archived, recalled, shared and displayed with the FIN Viewlet in Periscope.

History ColorGrid

A history ColorGrid displays variations in the values of data by colorizing the range of values from dark blue (lowest value) to bright red (highest value).

InfoPopup

InfoPopups are informational pop-ups that can be configured for any viewlet. Accessible through the light bulb icon, or the viewlet options menu, they can be presented before each viewlet is displayed in kiosk mode.

JACE

JACE (Java Application Control Engine) controllers are embedded computers running the Niagara Framework software. JACEs are distributed throughout the customer's network and they provide connectivity to the many different physical systems within a building. JACEs connect to common building automation systems, metering, and other smart devices using protocols such as LonWorks, BACnet, Modbus, and many proprietary protocols. The JACE provides control logic, trending, scheduling and alarming and allows real time point data to be brought into Periscope.

Kiosk Mode

When the kiosk mode is enabled, Periscope automatically cycles through the user's dashboard, maximizing each viewlet within a single tab for a brief period. This mode gives users the ability to showcase their facility's performance to the masses.

Line Chart

The Line Chart Viewlet can be used to plot the value for multiple similar variables over time. For each interval over the selected time period, the Viewlet can plot the maximum, minimum, average, or sum of the variable.

Normalize

Normalize means to average data such as energy consumption based upon common units of measure such as square footage. This feature, available within certain viewlet configuration windows, will help a user make a more informed decision on energy usage by eliminating the size difference of locations in side-by-side comparisons. The user must be certain to enter a location's conditioned square footage area within the Periscope configuration menu for the normalize option to function.

Periscopeconfig

Periscopeconfig is one of two browsers a user will need to operate Periscope. Requiring super user status to enter, Periscopeconfig allows users to set up locations, map and configure data into Periscope, manage user accounts, and more. Periscopeconfig is located at [http://\(IP address of the WS or JACE\)/periscopeconfig](http://(IP address of the WS or JACE)/periscopeconfig).

Pie Chart

The Pie Chart Viewlet can be used to show the relative value of multiple variables over time. For each interval over the selected time period, the Viewlet can plot the maximum, minimum, average, or sum of the variable.

Points

Points refer to live, real-time data within the Niagara network. The user is allowed to map numeric and boolean points into Periscope.

Point Table

The Point Table provides a tool to configure and view real-time values of any variable in the network.

Preferred Guest Profile

A preferred guest profile, which is set up in Niagara's Workbench tool under User Services, will not restrict configuration options for the assigned user, however, any changes a user makes will not persist once they log out of Periscope. The preset dashboard setup which a preferred guest is presented with upon login should therefore be completed before assigning the user to a preferred guest profile.

Profile

A profile is a setting applicable to each user in the UserService of Niagara. Different profile settings can affect individual user's configuration and/or viewing options (*see guest profile and preferred guest profile*).

PX Viewlet

The PX Viewlet enables the user to add any Niagara PX page or view (e.g. Alarm Console, etc.) to a viewlet tab.

Ranking Chart

The Ranking Chart enables the user to display comparative values for similar variables, ranked in either increasing or decreasing order. If appropriate, values may be normalized based on certain criteria, such as conditioned area (SF).

Resource Consumption

The Resource Consumption Viewlet can be used to display the monthly or daily consumption of a utility resource (e.g. Electric, Water, Gas, etc.) for one or multiple locations over time.

Rollup

Rollup refers to the user's ability to select multiple time intervals when summarizing large data sets for display. In most cases the user can choose to display the minimum, maximum, average, and sum of the units at hand. The time rollup lets Periscope know how often to pull those values from the Niagara database for charting purposes.

Utility Performance Index

The Utility Performance Index enables the user to create an analysis of two variables to display inter-relationships. It is an effective way to show relative efficiencies among different locations.

Network Health

The Network Health Viewlet provides a mechanism to view the hierarchy of a network. This viewlet is frequently used to portray the components and health of the Niagara network.

Tabs

Tabs are horizontally aligned organizational tools used to house a user's separate display windows within Periscope. They can be added, deleted, and renamed at the user's discretion.

Trends

Trends refer to values that contain historic information. History viewlets are used for displaying trends.

Utility Accounting

The Utility Accounting Viewlet allows the user to import their utility bills and display monthly electricity, gas, and water usage statistics in several different displays.

Viewlet

A Viewlet is a customizable applet that allows users to visualize and configure their data in a variety of ways. Users can populate their dashboard with viewlets by adding them from the viewlet library.

Viewlet Library

The viewlet library contains all of the viewlets available in Periscope. The library can be accessed by selecting the plus tab at the top of the dashboard window. The library presents the user with a brief description and thumbnail image of each viewlet, and also notifies the user which, if any viewlets are not licensed.

Viewlet Options Menu

The viewlet options menu is located under the gear icon in the upper-left corner of each viewlet. The user can choose between a variety of options relating to the individual viewlet. Users can also right-click on the title bar of the viewlet to expose a menu of viewlet options.

Weather Correlation

Weather Correlation enables a user to visually evaluate the relationship between a location's historical outside temperature (OAT) and a chosen building variable in order to rule "in" or "out" weather as a likely contributor to a change in consumption over time.

Web Supervisor

The Web Supervisor is a desktop server or PC running the Niagara Framework™. The Supervisor is designed to manage a network of JACEs or to monitor points from third party servers. It reduces the costs of managing and controlling multiple buildings and allows centralized engineering, alarming, scheduling and trending of remote equipment. The Web Supervisor supports multiple client workstations, and has an extensive security/ password model to protect user information. A Web Supervisor is often the best location for Periscope because long term trends are generally stored here.

Web Viewlet

The Web Viewlet enables the user to subscribe to any internet or intranet web site and display the page in a Viewlet window.

Workbench

This term refers to the user interface of Tridium's WorkPlace^{AX} software. This software is used when first installing Periscope, and again for certain viewlets which require it.

Year-Over-Year-Viewlet

The Year-Over-Year Viewlet provides a side-by-side comparison of the monthly value of up to two variables over multiple years for one or more selected months. This is useful for a quick analysis of performance over time.