

Standard and Custom Graphic Interfaces for DLM

An introduction to the standard Digital Lighting Management (DLM) Segment Manager 2.1 tile interface versus custom Segment Manager and LM-SUPERVISOR floor plan graphics

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Graphic Interface Options Overview

Presently, there are three graphical interface choices for Digital Lighting Management (DLM) systems. This document introduces and explains these three offerings.

- I. **Segment Manager 2.1** – Beginning in fall of 2015, Segment Managers will ship with a new user interface which includes a tile-based graphical user interface that allows the customer flexibility to easily Group rooms, areas, floors, and buildings into the desired view. This option is covered in detail below, but has a stand-alone option as well as a 2.1 Supervisor option to allow historical trending of DLM equipment and single point access when integrating several Segment Managers and/or buildings. This option is deployable (in most cases) during the start-up process and does not require customization by a WattStopper Integration Specialist.

- II. **Segment Manager Custom Floor Plan Graphics** – This option is completely customized* and can only be fully implemented after a project has been started up. It is priced on a per-screen basis. To implement custom graphics, a copy of the completed Segment Manager station and the complete, fully documented LMCS site file (post start-up) must be sent to WattStopper Project Management. In order to estimate delivery time, a WattStopper Integration Specialist (IS) will evaluate the specification for the project and determine the amount of time required to build the custom screens. Upon completion, a Return Start-up visit, by a WattStopper Field Service Technician, is required to update the on-site Segment Manager with the updated programming, graphics, and perform training. Depending on site/specification complexity, there may be a requirement to have the WattStopper IS who built the custom graphics performs the necessary training. *Note: Unlike SegMan 2.1, this option does not allow end-user flexibility for re-grouping rooms. Any changes to the graphical interface must be performed by a trained WattStopper Technician or Integration Specialist and additional charges (or Planned Service Agreement) apply.*

- III. **LM-SUPERVISOR Custom Floor Plan Graphics** – Like SegMan Custom Graphics, this option is also completely customized* and development begins shortly after a project has been started up or during the course of a large project installation. It is also priced on a per-screen basis. The Supervisor bridges communication over multiple Segment Managers and allows custom graphics, Single Point Scheduling, Historical Trending, etc. LMCS software is required to manage and maintain the site. The Supervisor can be installed on an HDESKTOP provided by WattStopper, or a PC/VM Server provided by the customer that meets the WattStopper HDESKTOP specs (VM can be Windows Server 2008/2012 instead of Win7). It is required to allow WattStopper remote access (with admin rights) to any computer provided by the customer for remote configuration and support during the installation. The method for remote access is at the discretion of the customer's IT department. In order to estimate delivery time, a WattStopper IS will evaluate the specification for the project and determine the amount of time required to build the custom screens. Upon completion, a Return Start-up visit, by a WattStopper Field Service Technician, is required to update the on-site PC and Segment Manager/s with the updated programming, graphics, and perform training. Depending on site/specification complexity, there may be a requirement to have the WattStopper IS, who built the custom graphics, perform the necessary training. *Note: Unlike SegMan 2.1 this option does not allow end-user flexibility for re-grouping rooms. Any changes to the graphical interface must be performed by a trained WattStopper Technician or Integration Specialist and additional charges (or Planned Service Agreement) apply.*

**Customization requires building the graphics screens from scratch. Screens are based on specification requirements and the customer's existing website and corporate logo designs. All floor plans are converted to a 3D layout using the project ACAD drawings.*

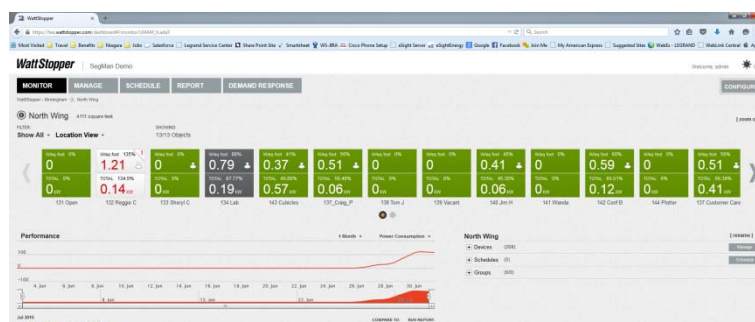
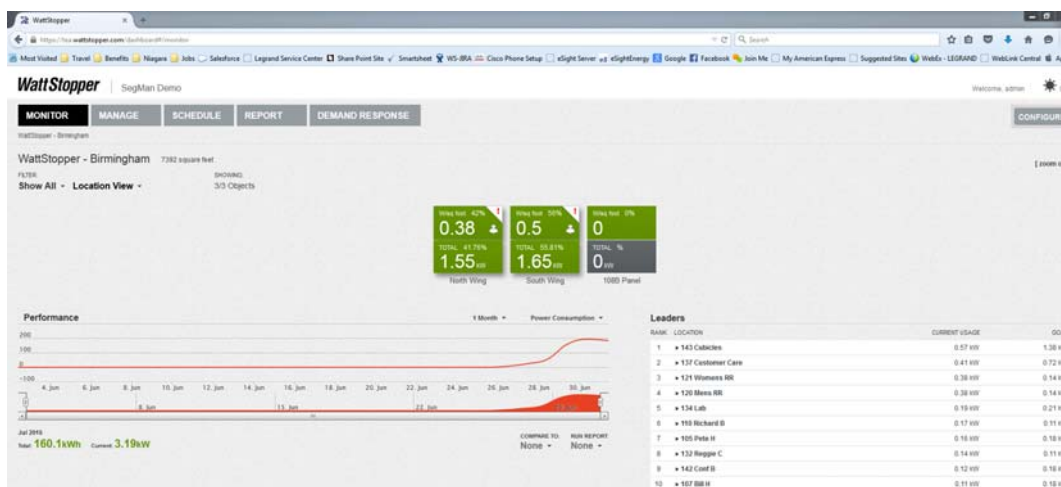
I. Segment Manager 2.1

Overview

The Segment Manager 2.1 dashboard is a tile-based graphical user interface that automatically creates a hierarchy of tiles based on an LMCS file to show the whole building, individual floors, and individual rooms. It also allows users the flexibility to easily create customized views that display tiles for selected groups of rooms based on the needs of the project. SegMan 2.1 can be stand-alone or a Supervisor can be added to allow historical trending of DLM equipment. A Supervisor also provides a single interface when integrating several Segment Managers and/or buildings. *Note: The stand-alone option does not allow historical trending.* This option is deployable (in most cases) during the start-up process and does not require the development of custom programming logic by a WattStopper Integration Specialist.

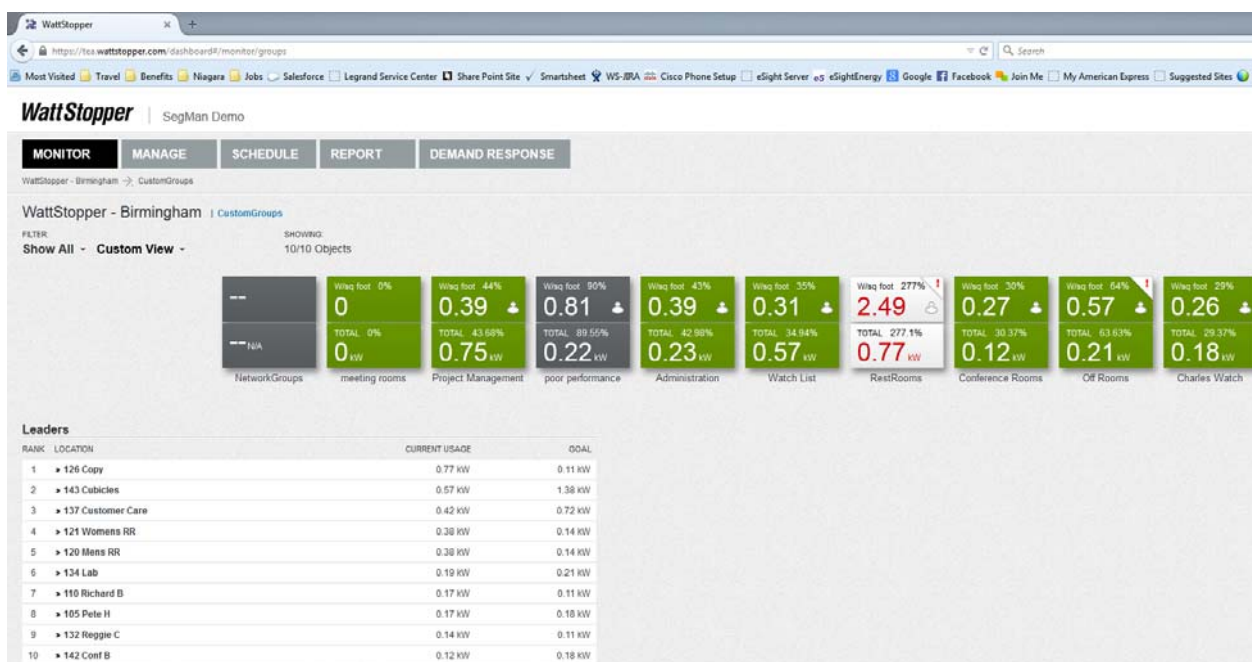
1. The Tile Interface

- Core DLM Room tiles are created upon discovery of the system.
- Allows import of LMCS file for site hierarchy (Site, Building, Floor, Area, Room, etc.)
- Group Descriptions can be modified through the interface and Rooms can be moved and/or added to Custom Groups at will (Exterior Offices, Common Areas, Conference Rooms, etc.)
- Tiles indicate Total kW (if enhanced 200 Series Room Controllers with current transducers are used on the project), W/sq foot (when room size is entered), Occupancy, and alarming.



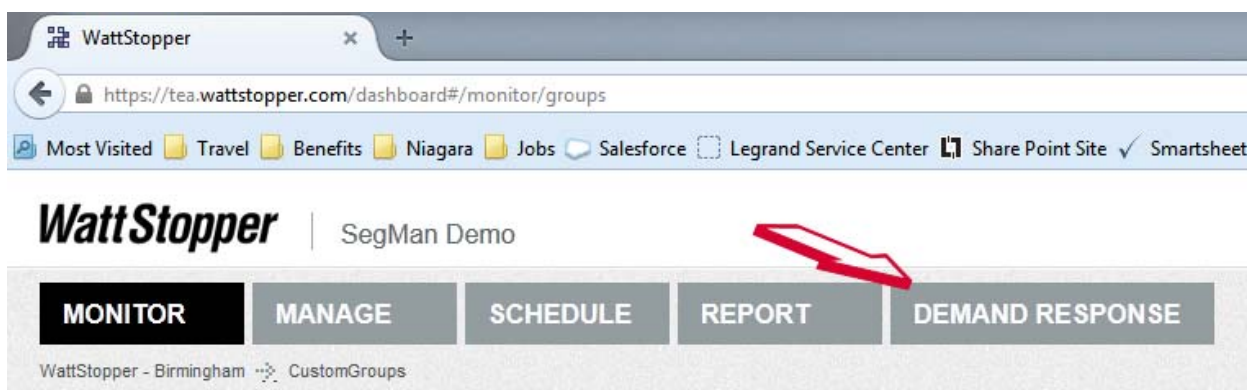
2. Custom Groups

- Groups of Rooms can be created for temporary or permanent display.



3. Integrated Demand Response Functionality.

- Load Shed events can be enabled/disabled based on the actively displayed Group.



4. Tablet and Smart Phone friendly

- The SegMan 2.1 GUI is not Java based and will be accessible from any PC, Tablet, or Smart Phone with browser access.

II. Segment Manager Custom Floor Plan Graphics

Overview

WattStopper uses a Java based web application that allows use of 3D Floor Plan graphics to view and control DLM systems. The graphics pages are designed based on the customer's web site color scheme and/or corporate logo. Generally there is a main page with a picture of the building with clickable links and a navigation tree to access floors and rooms. The overall features of these pages can vary based on the project specifications and design. Generally power monitoring is not a driving factor in SegMan graphics since historical trending is not allowed at the Segment Manager level. SegMan graphics usually report area/room lighting status with individual Room Dashboards for details and load control. This option is not tablet or smart phone friendly as it is Java based and requires the Java applet to run the graphics. Not all devices support Java.

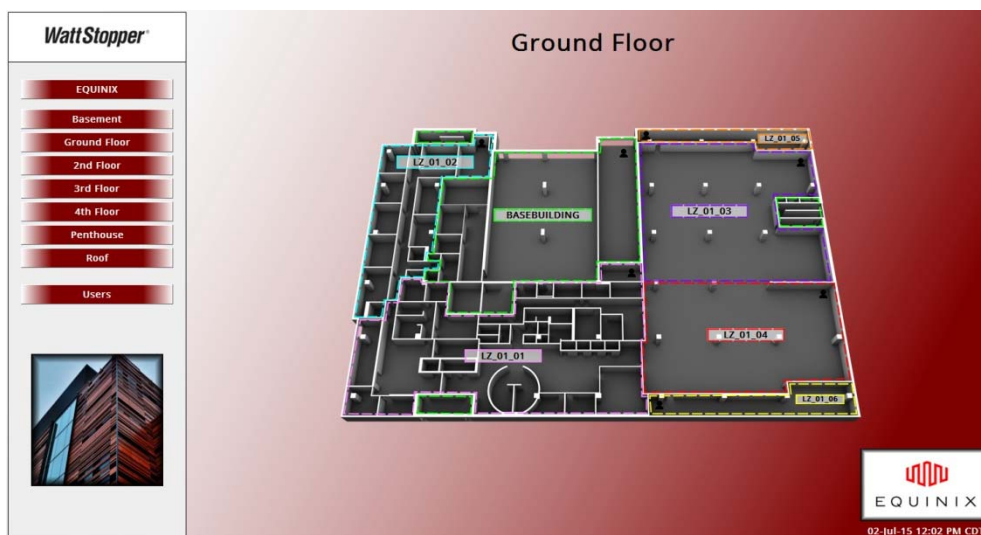
1. Home Page

- Includes picture of main building.
- Navigation tree to individual floors or areas
- User Administration Link
- Counts toward the per-page pricing scope (x1 page)



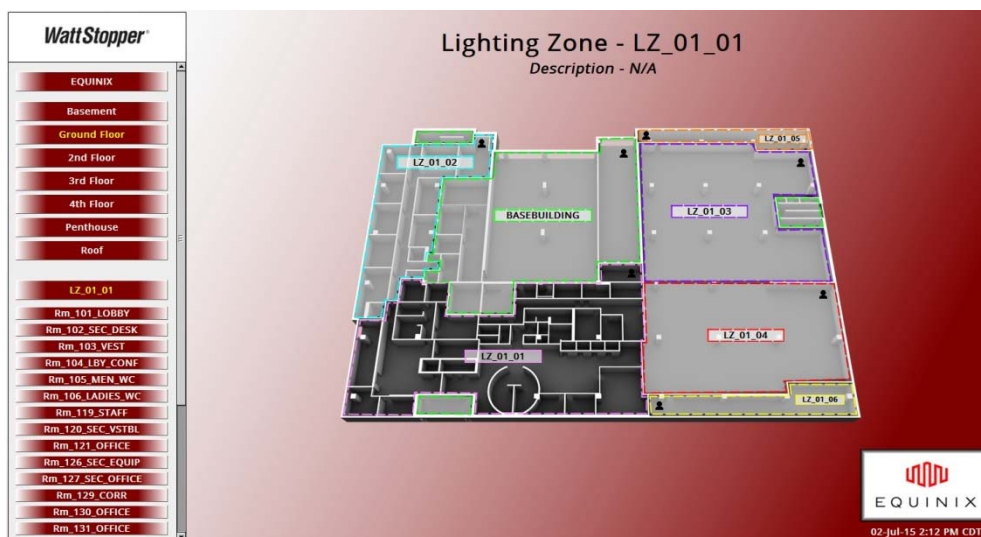
2. Floor Plan Page

- 3D Floor Plan Graphic (based on ACAD drawings)
- Can be customized to Lighting Zones or Individual Room Status with On/Off status
- Zone or Individual Room Labels
- Zone or Individual Room Occupancy Status
- Clicking Zones or Individual Rooms will open a dashboard for that Zone or Individual Room
- Counts toward the per-page pricing scope (x1 page per floor)



3. Lighting Zone Page (where lighting zones are specified)

- Static lighting zones when not showing individual room status on the Floor Plan Page. Individual room status is shown on the Room Dashboard. Zones are pre-defined and cannot be modified by the user.
- Navigation tree changes to include access to individual rooms in selected lighting zone.
- Counts toward the per-page pricing scope (x1 page per zone)



4. Individual Room Dashboard

- The Room Dashboard includes all the basic points for DLM room monitoring and control
 - Room Mode - Normal/After Hours Status (controllable from graphic)
 - Occupancy
 - Switch Lockout Status (controllable from graphic)
 - Room Size (controllable from graphic)
 - Lighting Density (where LMRC-2xx Series are used)
 - Lighting Watts (where LMRC-2xx Series are used)
 - Scene Status (controllable from graphic)
- Individual Load Status and Control for all in-room Loads (note: the Load table is designed to support the room with the most Loads. The status & control feature will be hidden from the table if the Load doesn't exist in the room.)
- All controllable points can be right-clicked to open the command options for overriding or setting new values.
- Users can be defined as Admin, Control, or View Only – view only users will not be able to initiate commands to points from the graphics.
- Counts toward the per-page pricing scope (1x page per site – not per room)

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Basement
Ground Floor
2nd Floor
3rd Floor
4th Floor
Penthouse
Roof
Users

Room Data

Room Mode:	Normal Hours
Occupancy Sensor Status:	Unoccupied
Switch Lockout:	Unlocked
Room Size:	0 ft²
Lighting Density:	0 W/ft²
Lighting Watts:	0 W
Scene:	Scene Undefined

In-Room Loads (Right-Click to Override)

Load1	Load2	Load3			
0 %	0 %	0 %			

Rm 101 LOBBY
Room Dashboard

EQUINIX

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5. User Management

- Super Users (or administrators) can add/edit/delete users from the system using the User Manager on the graphics.
- Other users will only be able to modify their own user (reset password, change information, etc.)
- The system will be installed with the 3 basic user types “SiteName_Admin, SiteName_Control, and SiteName_View” and these users can be duplicated as needed and renamed for specific users. Selecting one of the base users, and right-clicking will bring up the “Duplicate” option.
- Does not count toward the per-page pricing scope (included)

Name	Full Name	Enabled	Expiration	Network User	Prototype Name	Language	Email	Force Password Reset	Password Expiration	Default
admin		true	Never	false				false	null	Default
guest		false	Never	false				false	null	Default
BACnet		true	Never	false				false	null	Default
Supervisor	Supervisor	true	Never	false				false	null	Default
Upgrade	Upgrade User	true	Never	false				false	null	Default
Singleton	Administrator	true	Never	false				false	null	Default
Observer	observer	true	Never	false				false	null	Handhe
Equinox_Admin	Duplicate this User for individuals needing Admin Graphics Access	true	Never	false				false	null	Handhe
Equinox_Control	Duplicate this user for individuals needing Control Graphics Access	true	Never	false				false	null	Handhe
Equinox_View	Duplicate this User for individuals needing View Only Graphics Access	true	Never	false				false	null	Handhe

Example Use Case

Project is a three story building; each floor contains less than 40 DLM Rooms and the specifications do not call for graphical representation of lighting zones, just the lighting status of rooms. Based on the project size, DLM design best practices allow the use of an LMSM-3E Segment Manager. There is no specification requirement for historical trending, so there is no need for the LM-SUPERVISOR. The project does require but floor plan graphics.

For this site, we would recommend:

- 1) 1x - Home Screen with Building Graphic
- 2) 3x – Floor Plan Screens
- 3) 1x – Individual Room Dashboard Screen (applied to every Room; selecting rooms will change the data that populates this page)
- 4) Additional site visit required to implement graphics

Total = 5 Custom Screens + SCOM (this SCOM is not the factory startup visit so at least 2 visits are required to complete this project)

III. LM-SUPERVISOR Custom Floor Plan Graphics

Overview

Similar to Segment Manager graphics, Supervisor graphics are developed using a Java-based web application that allows use of 3D Floor Plan graphics to view and control DLM systems. The Supervisor also adds the capability to perform Historical Tending, Common Scheduling, Real-Time Reporting, etc. The graphics pages are designed based on the customer's web site color scheme and/or corporate logo. Generally there is a main page with a picture of the building with clickable links and a navigation tree to access floors and rooms. The overall features of these pages can vary based on the project specifications and design. Generally power monitoring is a key driving factor in implementing a Supervisor so the customer can trend lighting power data. While power monitoring is a driving factor, it is not a necessity. This option is not tablet or smart phone friendly as it is Java based and requires the Java applet to run the graphics. Not all devices support Java.

Requires:

- HDESKTOP or Customer Server (meeting WattStopper Specs)
- LM-SUPERVISOR in BOM
- LMSM-CONNECT (license feature required for SegMan to Supervisor connectivity – 1x per SegMan)
- Base setup service charge plus appropriate per-page pricing scope
- Remote Access to server during the Start-up and Commissioning process

1. Home Page

- Varies based on Specifications and requirements
- Includes picture of main building.
- Navigation tree to individual floors or areas
- May include tabled break down of individual floors and current power usage
- May include Active Power and Peak Power gauges with kWh Consumption
- Counts toward the per-page pricing scope (x1 page)



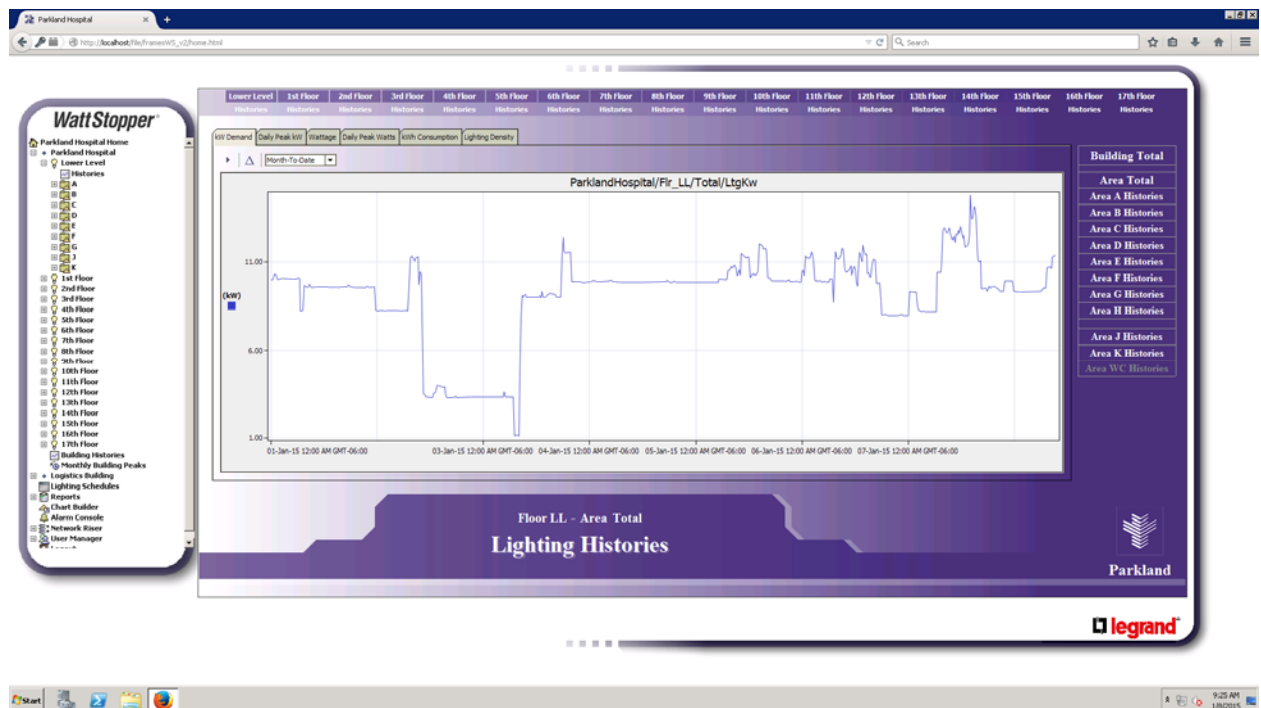
2. Floor Plan Page

- 3D Floor Plan Graphic
- Generally, if there are more than 30 Rooms per floor, the floor plan will be zoned per the drawings and will not indicate individual Rooms – rooms will be accessible from the navigation tree.
- Zone Labels if greater than 40 Rooms. Room Labels if less than 40 Rooms
- Zone or Individual Room Occupancy Status
- Clicking Zones or Individual Rooms will open a History chart for that Zone or the Individual Room Dashboard
- Current and Peak Active Power gauges and historical trends
- Lighting status shown by color changing objects on the page based on Lighting Density (or Load status depending on specification requirements)
- Counts toward the per-page pricing scope (x1 page per floor)



3. History Chart Page

- Chart and Table trends for all trended Building/Floor/Zone data in the system
 - kW Demand
 - Daily Peak kW
 - Watts
 - Daily Peak Watts
 - kWh Consumption
 - Lighting Density
- Quick links to allow viewing of other zones on this floor.
- Counts toward the per-page pricing scope (x1 page per site)



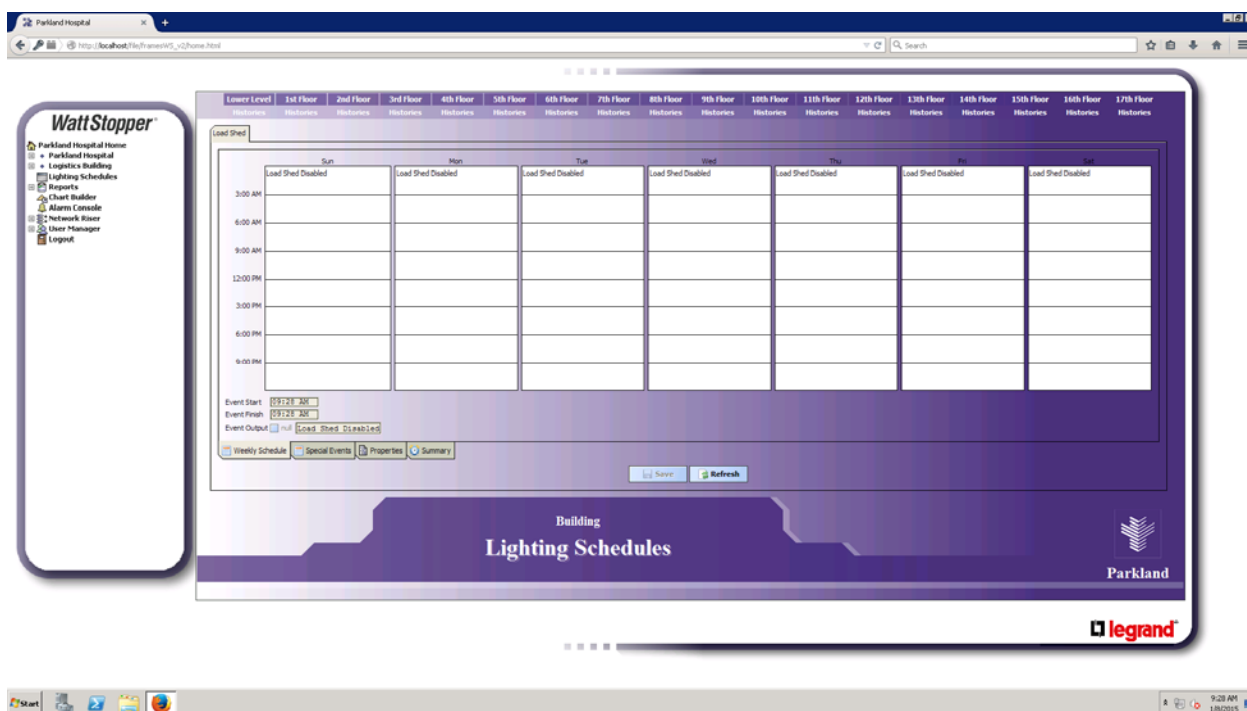
4. Individual Room Dashboard

- The Room Dashboard may include all the basic points for DLM Room monitoring
 - Room Mode - Normal/After Hours Status (controllable from graphic)
 - Occupancy
 - Switch Lockout Status (controllable from graphic)
 - Room Size (controllable from graphic)
 - Lighting Density (where LMRC-2xx Series are used)
 - Lighting Watts (where LMRC-2xx Series are used)
 - Scene Status (controllable from graphic)
 - Load Shed
- Several other software points may be added for power monitoring like kWh trended daily, weekly, monthly, and yearly.
- Individual Load Status and Control is accessed through the Segment Manager GUI. The Supervisor is configured to monitor/control the 8 main aggregate DLM Room objects and does not connect to the individual Loads.
- All controllable points can be right-clicked to open the command options for overriding or setting new values.
- Users can be defined as Admin, Control, or View Only – view only users will not be able to initiate commands to points from the graphics.
- Includes Historical data for each room
- Includes kW and Daily Peak kW gauges for the room
- Counts toward the per-page pricing scope (1x page per site – not per room)



5. Schedule Interface

- Drag and Drop Schedule interface
- Supports Weekly Schedule and Special Events
- Must be pre-defined by customer and linked by WattStopper IS – once defined and linked, the customer can edit the schedule at will.
- Counts toward the per-page pricing scope (1x page per site)



6. Other Available Features

- Custom Load Shed Interface (per-page pricing – 1x per site)
- Monthly Lighting Power Peaks – Building Total (included when monitoring lighting power)
- Real Time Reports (per-page pricing - 1x per site)
- Custom Historical Chart Builder (included)
- Alarm Console (included)
- User Manager and Audit Log (included)

Example Use Case

Project is a campus with three five-story buildings; based on DLM design best practices, each building contains an LMNC-5 (Network Cabinet w/ 5 NB-ROUTERS) with an LMSM-6E for each cabinet. Each floor, in this case, still contains less than 40 DLM Rooms and the specifications do not call for graphical representation of lighting zones, only lighting status of the rooms. There is a specification requirement for historical trending, Demand Response, and a common point for scheduling.

For this site, we would recommend:

- 1) LM-SUPERVISOR
- 2) HDESKTOP (or Customer provided Server meeting WS Specs)
- 3) 3x LMSM-CONNECT (one for each Segment Manager, required for Supervisor connectivity)
- 4) 1x - Home Screen with Campus Graphic
- 5) 3x – Building Screens
- 6) 15x Floor Plan Screens
- 7) 1x – Individual Room Dashboard Screen (applied to every Room; selecting rooms will change the data that populates this page)
- 8) 1x Schedule Interface Screen
- 9) 1x Demand Response Screen (includes programming)
- 10) Additional site visit required to implement graphics

Total = Equipment/Licenses + 22 Custom Screens + SCOM (this SCOM is not the factory startup visit so at least 2 visits are required to complete this project)