SmarTLC 3.1

User's Guide

< Contents >

CHAPTER 1. INTRODUCTION

This Chapter explains the features and functions of SmarTLC for users

1. Overview

This guidance will provide useful information to the client user in a SmarTLC based on the powerful control and simple user interface. Also it will help building operators to configure the entire building light with the SmarTLC perfectly.

This user guidance has following contents

2. Product Introduction and Features

2.1 Fundamental Notion of SmarTLC

Lighting which is the main factor of losing electric energy in the public or private buildings can be controlled efficiently by using the lighting management system.
SmarTLC can provide the way of saving energy, comfortable business environment and productivity.
Lighting management system with energy saving is essential facility equipment from the operation side of the illumination equipment which is convenient.

Currently the lighting control equipment inside the building introduces the distributed control system of STAND-ALONE method and it has an effect on conservation of electricity and convenient SCENE control.

Lighting management encompasses all systems which go beyond mere “on/off” control.
Lighting management tools for use at different stages, either alone or in combination with others, include:

- pre-programmed lighting scenes for different locations and activities
- motion detectors for presence-dependent lighting control, permitting instant activation, timed deactivation or dimming of lighting in response to movement

From this point of view, SmarTLC is Windows-based Complete Control software currently installed on PCs delivered with a Complete Control system. This software is designed to support programming of lighting control equipment, and provide monitor and control functions for any points in the system.

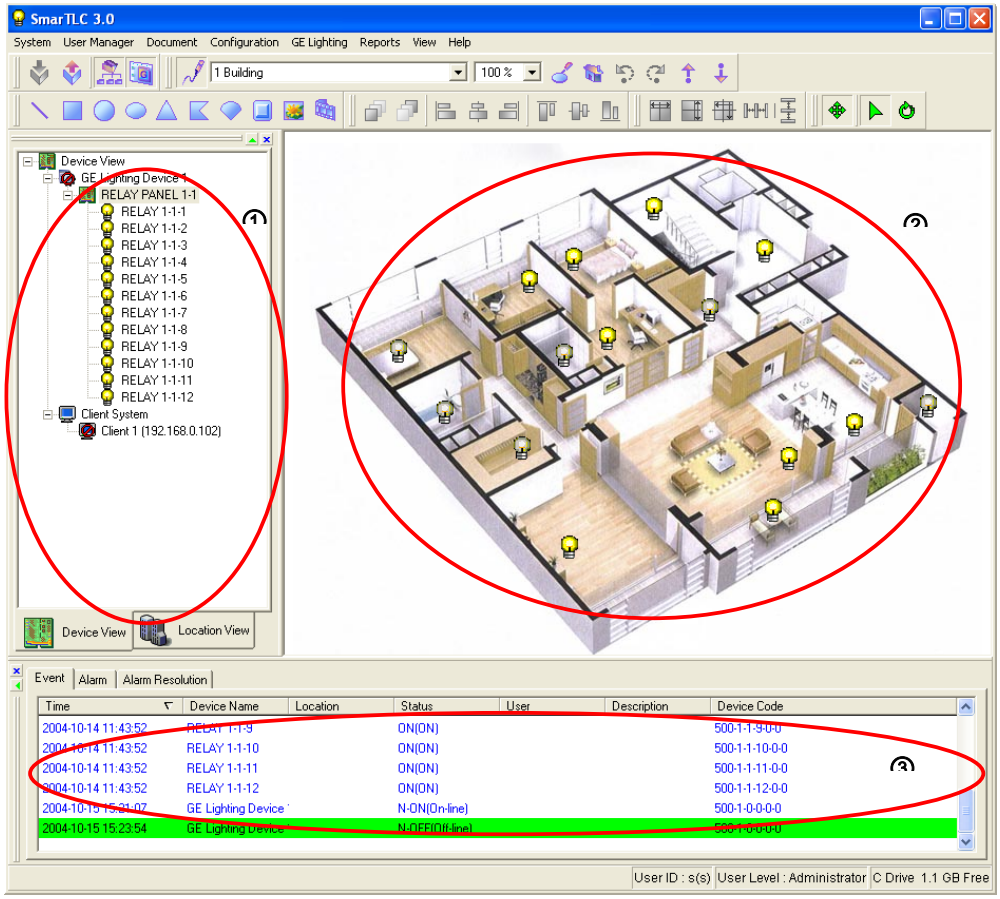
2.2 Product Introduction

SmarTLC is a Windows-based User Interface that provides users direct understanding of the way of managing lighting controls. This software is composed of three parts as like below.

Lighting devices can be viewed as a Device view or Location view. Users can setup all lighting devices in the Device view, and control the lighting objects on the blueprint. [Figure ①]

Users can display all lighting locations in the Drawing Management Windows and manage all lighting controls. Diagrams, images are linked up to the lighting devices and show all the status of them. It makes users can figure out whether the devices are operating correctly. SmarTLC is a perfect central management tool of lighting devices. [Figure ②]

All the management events and warning logs are displayed in the window divided with several tabs. Manager can make log or event report any time. [Figure ③]



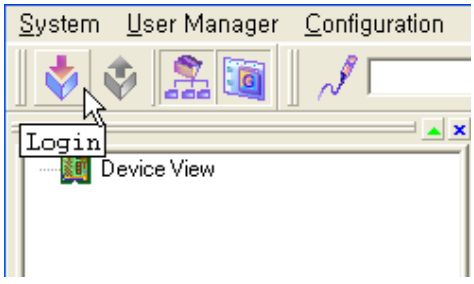
CHAPTER 2. SmarTLC Basic Functional Setup

Basic Environment setup and detailed lighting setup are explained for using SmarTLC as a lighting control system.

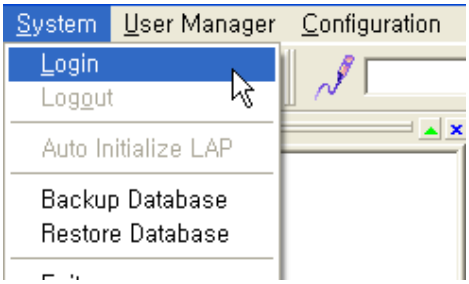
1. System

1.1 Login/Logout

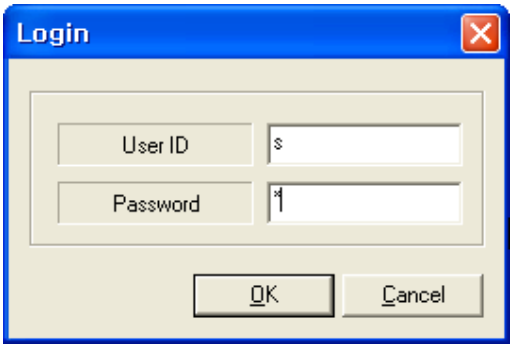
Click login menu in the system menu or login button in the toolbar. Logout is the same way as login. When you click login menu, login window pops up asking ID and password.
SmarTLC setup menu and control function is displayed depending on the users account level.



<Login with Toolbar>

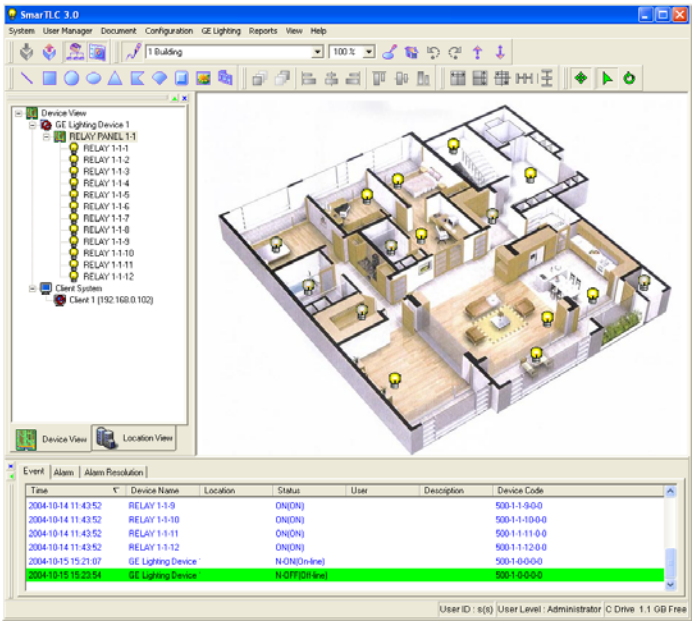


<Login with System menu>

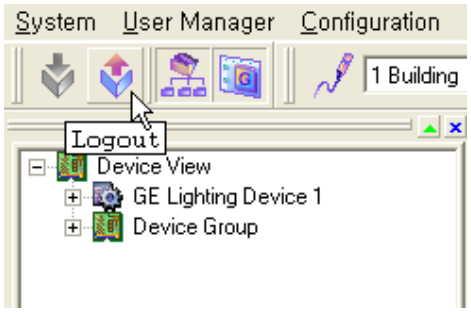


<Login window>

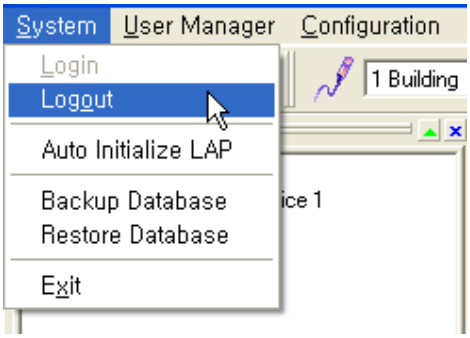
Control point is displayed by user account level.



Control point is disappeared when user logout.



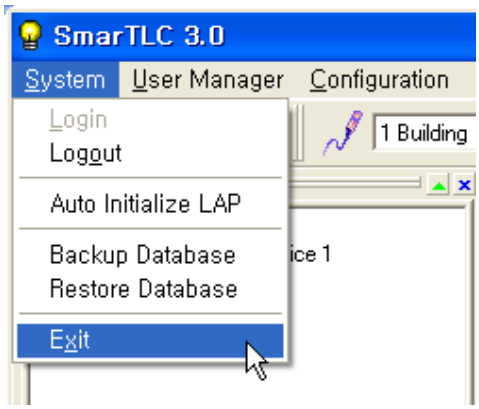
< Logout with Toolbar >



< Logout with System menu >

1.2 Exit

Close the SmarTLC program.



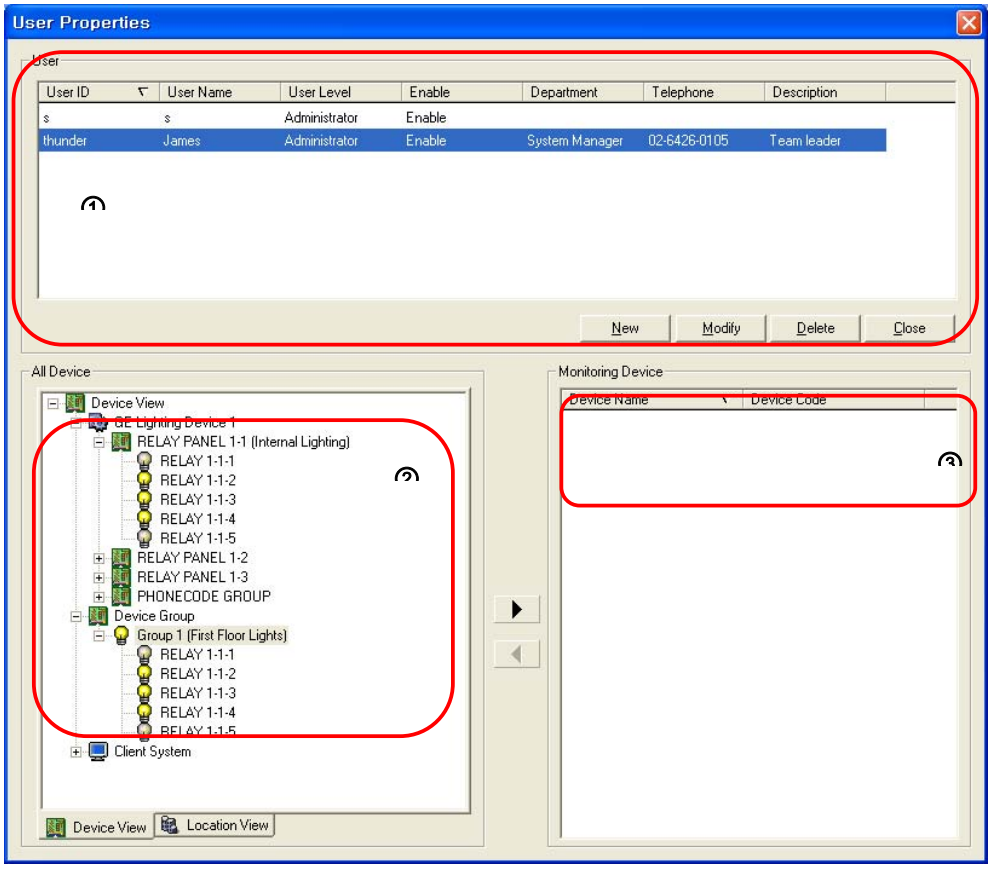
2. User Management

2.1 User Registration

User Registration prevents a user having no access authority from causing a malfunction or an accident.

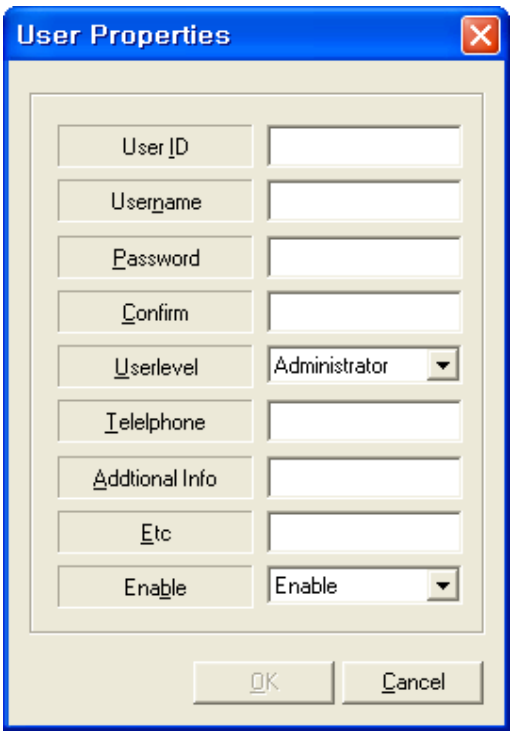
User part consists of User's detailed information and User level, Enable items.
User has to be registered at first, and if there is no user, register menu is enabled.
If user is registered, user information displayed like as below. [Figure ①]

Monitoring Device part include or exclude the devices that user can control and manage. Lighting device control authority can be differentiated by manager access level.
[Figure ②, ③]



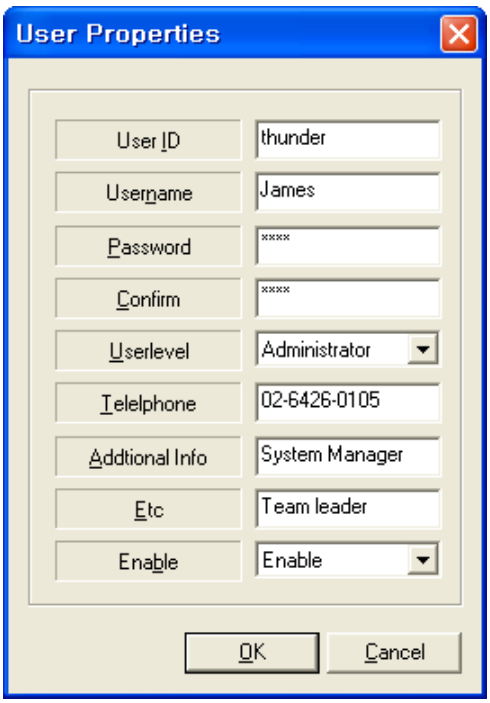
Add Users

Add SmarTLC manager or user. Insert users' level and detailed user information.
User ID can be inserted from 4 to 10 characters and password can be inserted from 4 to 8 characters.
You can choose User level in the User level item. It defines the management authority.
(Please refer to the User Access Level Registration)



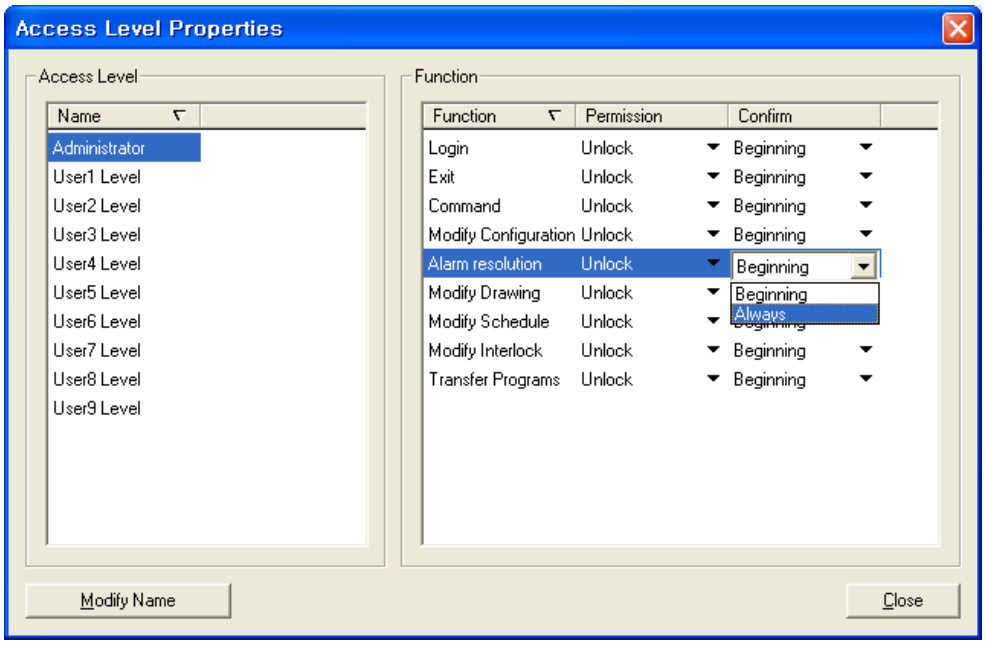
Modify Users

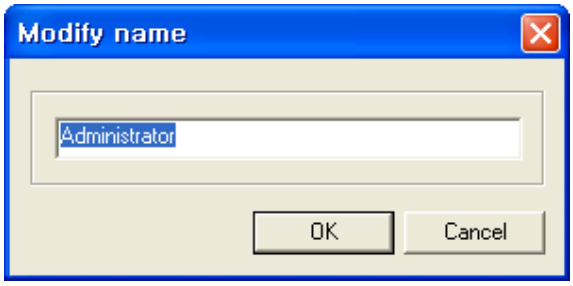
Modify Authority and detailed information of SmarTLC managers and users



2.2 User Access Level Registration

Administrator~User9 Level, SmarTLC control and management authority can be set up depending on 10 User Access Level.
User Access level name can be modified to any name. Function item has Permission(Lock /Unlock), Confirm(Beginning/Always) options.





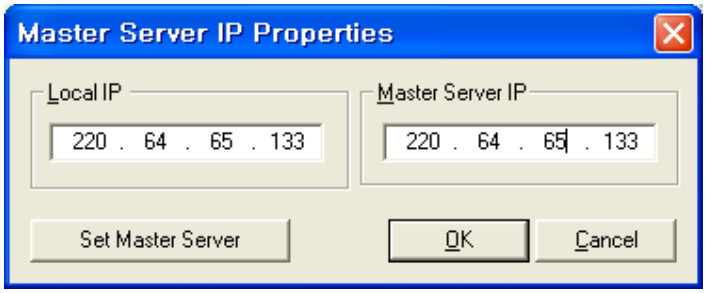
3. Basic Setup

3.1 Master Server IP

SmarTLC can control lighting as a stand-alone and get out of time and distance limitation with network environment.
If SmarTLC use network communication, server IP has to be set up.

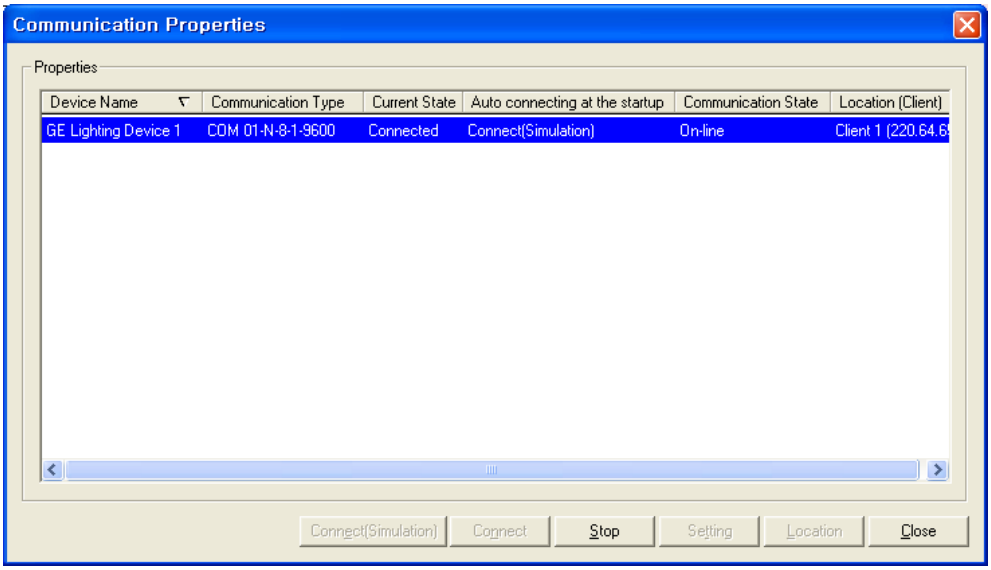
Local IP :
Display local computer IP installed SmarTLC automatically.

Master Server IP :
Insert computer IP operating as a SmarTLC Server. If the current computer operates as a server mode, you can just click the 'Set Master Server' button below.
If Local IP is same as Master Server IP, SmarTLC operates as a server mode
SmarTLC operates as a client mode by insert a server IP.
SmarTLC client connects to the server for downloading and synchronizing all the setup information and setup environment.



3.2 Communication

The lighting devices can be managed any time, anywhere if the SmarTLC is connected to the network.
Other existing management systems are only connecting to the server. But SmarTLC can control local lighting devices and also control remote lighting devices by connecting the remote SmarTLC. SmarTLC has no time and distance limitation.



Connect(Simulation)

Users can check all the lighting management settings just like the same as connected status by using the 'Connect(Simulation)' mode.
Before connect to the devices, it is better to use 'Connect(Simulation)' mode and check all the settings.

Connect

'Connect' button connect device drivers with hardware.
Before try to connect to the devices, you should check the setup status of lighting devices.

Stop

'Stop' button stop the connection between device driver and hardware.
SmarTLC can not receive an important data from the lighting devices in the disconnected status. In this case, the lighting devices buffer the data and transfer data when it is connected again. But hardware has a limited memory so if data overflows, previous data can be lost.
The Stop mode has to be used in the case of device repairing or changing

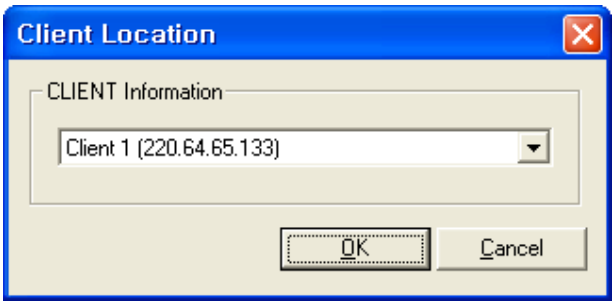
Setting

'Setting' button setup the way of communication between device driver and hardware.
Hardware has a different connection setting. Basic connection setting in the SmarTLC is RS-232c.

<RS-232C setting>

Location

'Location' button select the SmarTLC System which hardware will be connected
Connected Location can be local computer or SmarTLC Client in remote.
If you select the 'Location', the corresponding computer operates the device driver and transfers the hardware information to the server.
But, TCP/IP network communication has to be available between server and client.
If you select the 'Location', the window which selects the corresponding computer shows up.
If you want to operate local computer, you select the local computer which has local IP or '127.0.0.1'.
'127.0.0.1' network address recognize that it is local IP

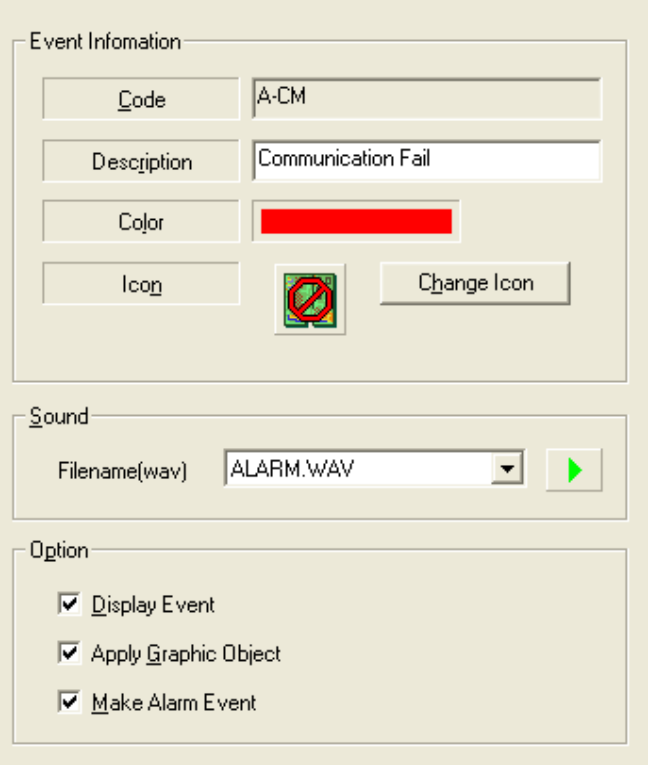


3.3 Event

The hardware system of SmarTLC specifies the event type sending to the each server and event code to check out client login, logout information and connection status.
Users can make their own event code setting, sound effect or display effect in the window.

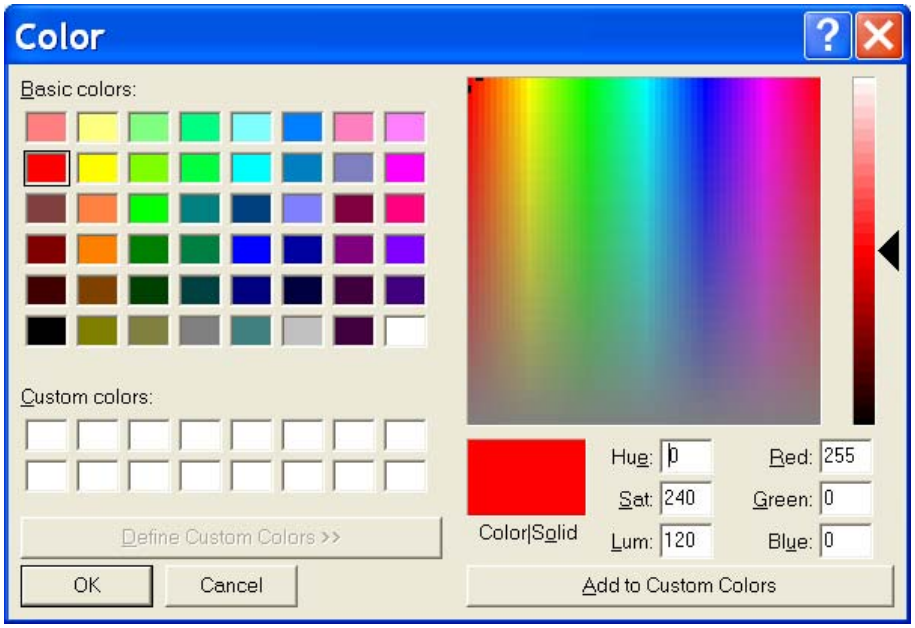
GE Lighting	
Events	**Commands**
A-CM (Communication Fail), A-PF (LAP Communication Fail) A-RF (Relay Fail), N-OFF (Off-line) N-ON (On-line), NOCLOCK (Time Clock Fail) OFF (OFF), ONOFF (ONOFF) RRDC1 (RRDC1 Fail), RRDC2 (RRDC2 Fail) RRDC3 (RRDC3 Fail), RRDC4 (RRDC4 Fail) NOPROGRAM (No Programs)	C-01 (ON Command) C-02 (OFF Command) C-03 (Request Relay On/Off Status) C-04 (Request Relay Fail Status) C-51 (Properties) C-52 (Request Relay Status)
Client	
Events	
CONNECT(Connected), DISCONNECT(Disconnected), LOGIN(Login), LOGOUT(Logout)	

<Event List>



Event color

User can decide event log color in the event log window when event take places using the event color. Event color can be expressed by any color what computer can do.
If you want to change event color, click the squared color.



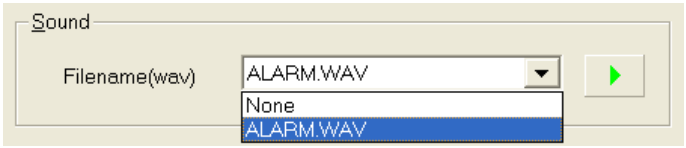
If there is no color you want to select, click the 'other' button and click the 'user customized color' button again. You can make your own event log color.
Now, the event text color expressed what you selected color in the event log window.

Event Icon

Event icon setup the corresponding icon to the window when event take place.
Icon can be expressed differently by the event type.

Sound

Sound is played when the corresponding event take place. If sound is wave file for windows, any sound can be played.
Sound clip has to be coped into the sound folder of installed SmarTLC folder. All the sound files in the sound folder are loaded in the combo box. You can select the sound and listen it by clicking the play button.



Option

Display event (Display events in the event window) :
If this option is checked, display the information of event log in the event log window

Apply graphic object (Display the event in the blueprint) :
If this option is checked, display the information of event in the blueprint.

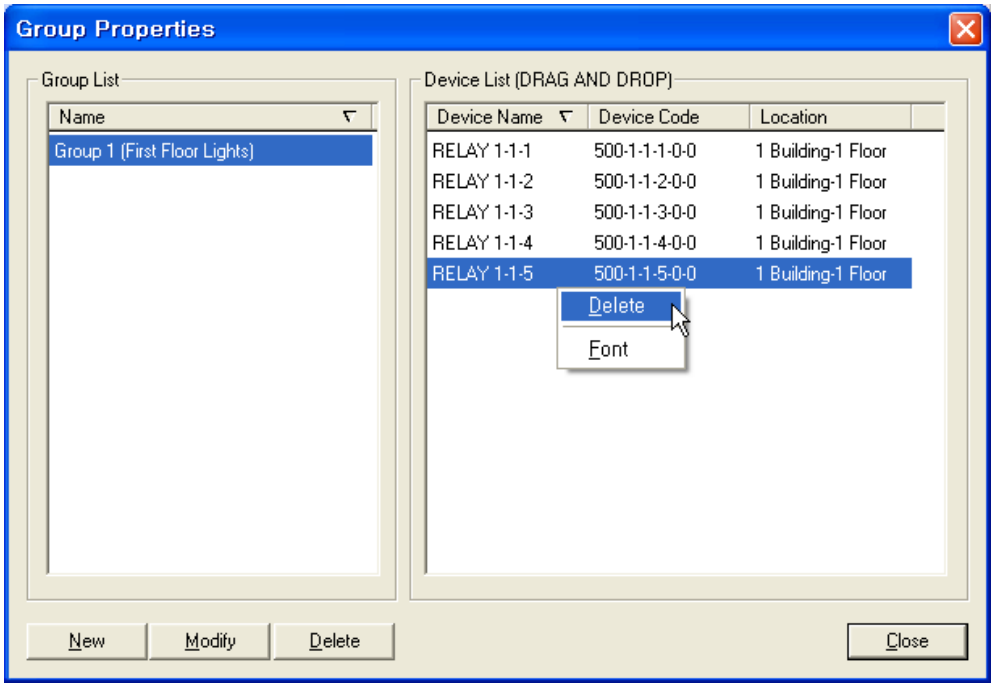
Make alarm event (Handle the event as an alarm) :
If this option is checked, corresponding event is considered as an alarm. The manager should handle this alarm.
(Handling alarm is explained in the function of event display window)

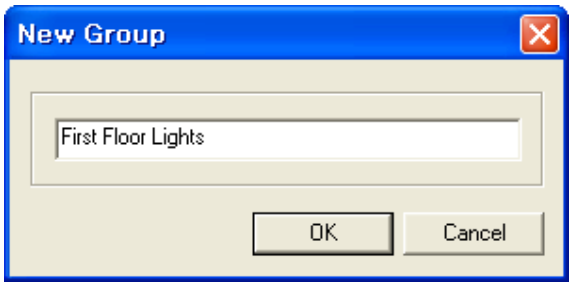
3.4 Group

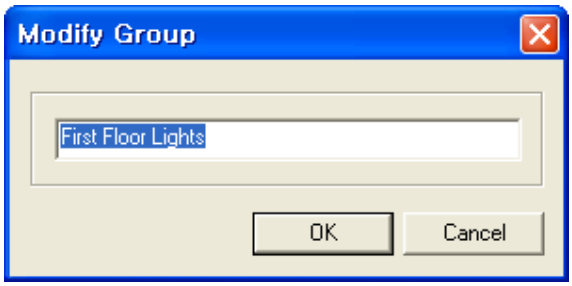
User can make a virtual group to control the physically separated lighting devices.

ex) In case of controlling the lighting instruments in the first floor, manager can make a first floor virtual group and control them. Other lighting devices in the first floor physically linked to the same hardware.

Lighting devices can be inserted to the device list by Drag & Drop



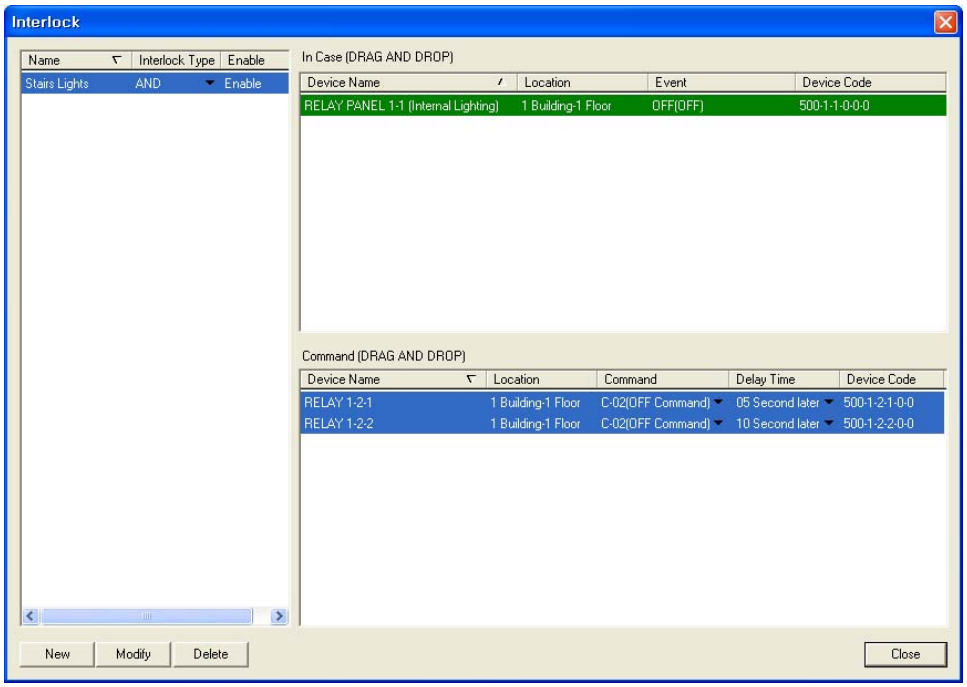




3.5 Interlock

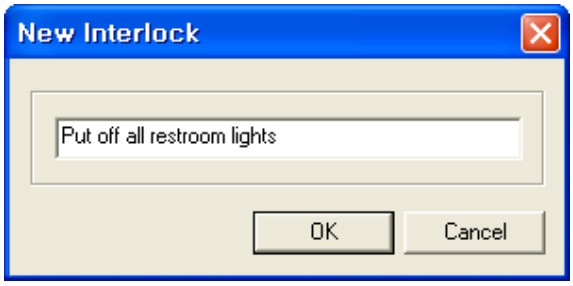
Interlock is one of the most convenient functions in SmarTLC. User can control the lighting group or each lighting by controlling the interlocking lighting device.

ex) When the whole lighting is put off, each light of restroom will be put off after 5 seconds and each light of stairs will be put off after 10 seconds.



New/Modify/Delete

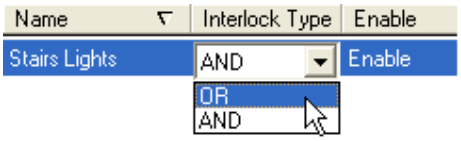
There is no interlocking history in the SmarTLC for the first time. Interlock setup can be different depending on the environment of each site. Manager should setup directly.
You can add interlock setting by clicking the 'New' button.



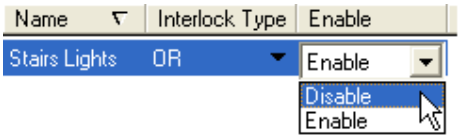
Modify: change the interlocking name.
Delete: delete the interlocking item.

Select interlocking hardware and detail setup

Interlocking hardware can be selected by three items.
At first, select the interlocking condition. Interlocking condition can be checked out in the interlock type.
You can enable interlocking item or disable it.

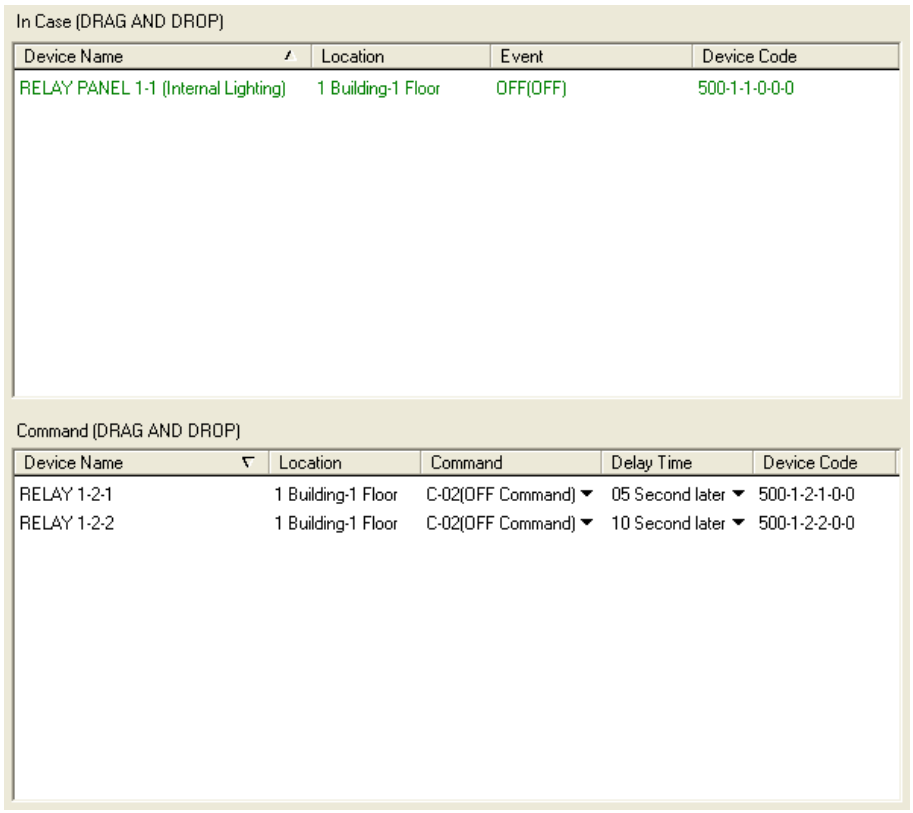


< Select interlock type>

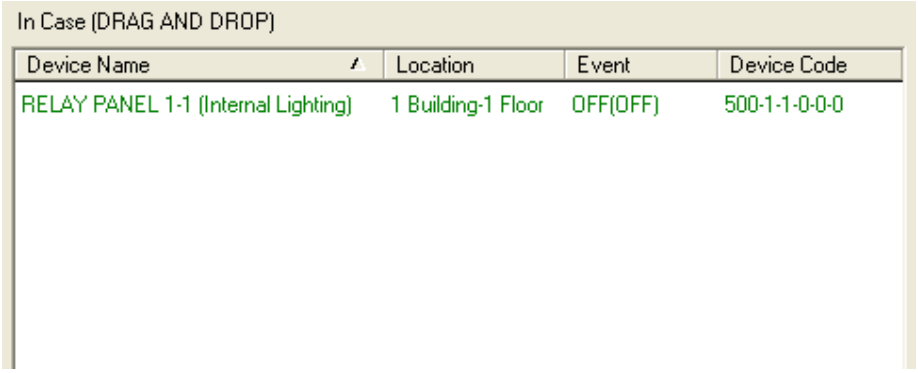


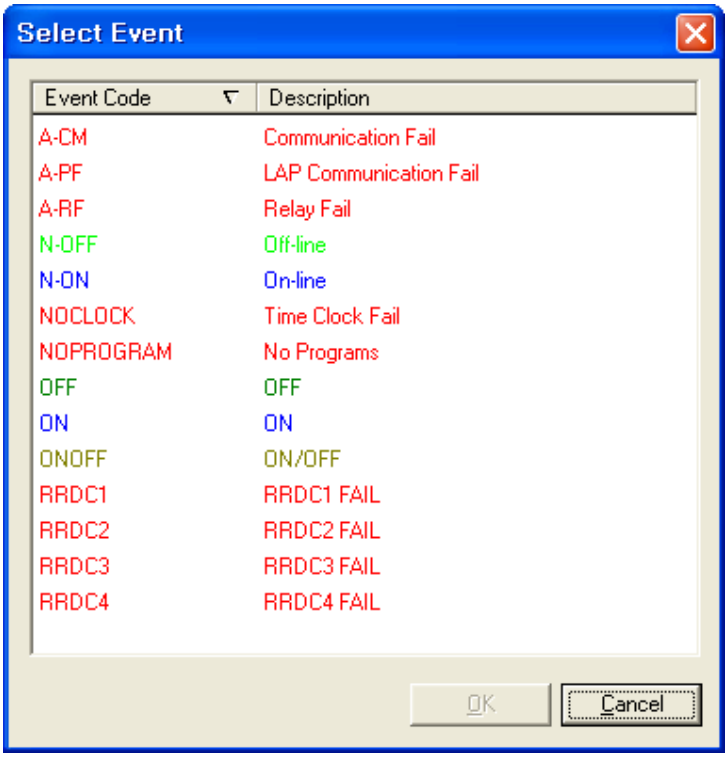
< Select interlock enable item >

If interlocking condition is setup, the hardware should be selected.
Hardware display window consists In Case list and Command list

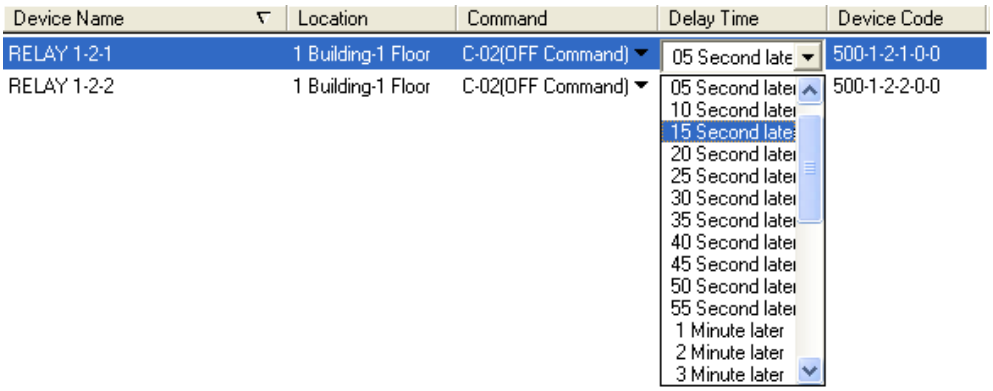


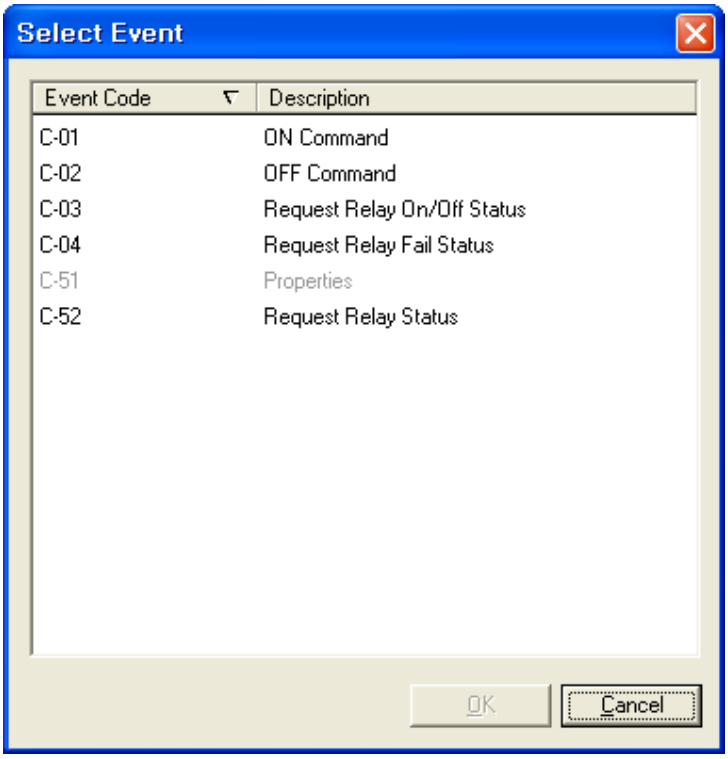
In the In case window, you can drag device and drop it which is in device view.
If you want to change command option, double click the item. The event list will show up.





If you double click the Command item, event list shows up and you can select the appropriate event in the command list. And also you can select the delay time for interlocking.
The delay time can be selected the maximum 60 minutes. The first 1 minute can be selected per 5 second.
If you select delay time, the target device will be operated after the delay time.

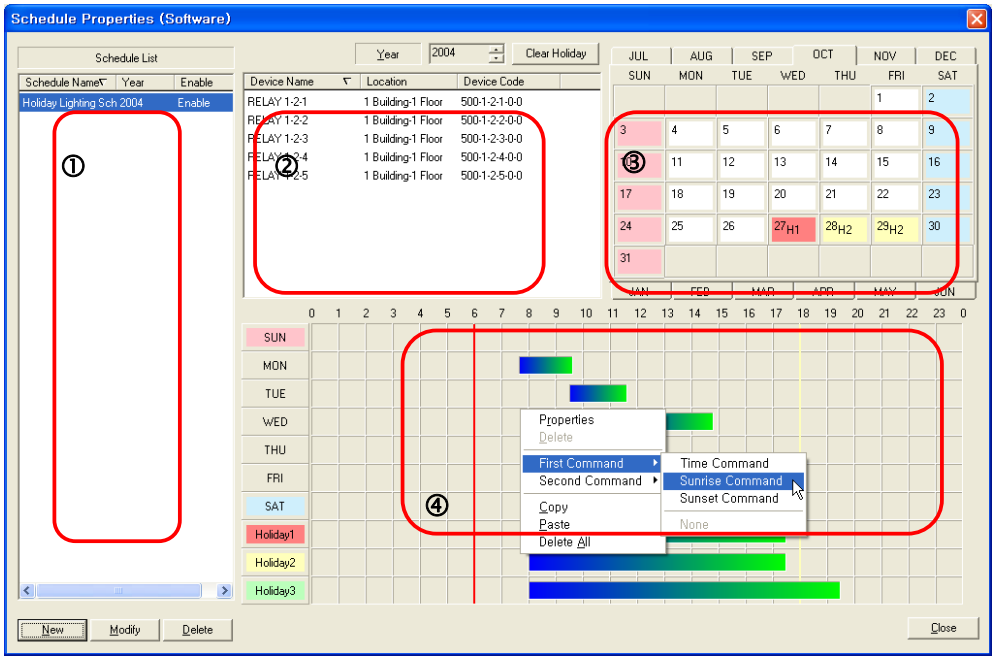




3.6 Schedule(software)

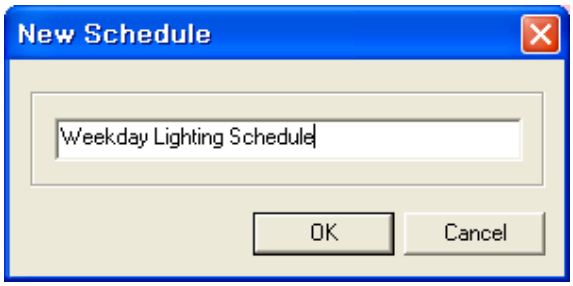
Lighting on/off schedule can be applied to all the lighting devices, and also schedule automatically calculate the seasonal sunrise/sunset time.
SmarTLC controls all the registered hardware by schedule. But this schedule function can be operated only when the SmarTLC is operating.
For example, if system is turned off or the SmarTLC is not in the process, the schedule is not working. In this case, you should use hardware provided schedule.

You can add, modify, and delete schedule in the schedule list. [Figure ①]
The devices applied by schedule can be selected or delete. [Figure ②]
Holiday can be assigned using by calendar and operated together with schedule [Figure ③]
Lighting on/off time is effectively scheduled in detail and sunrise/sunset time can be applied together. [Figure ④]



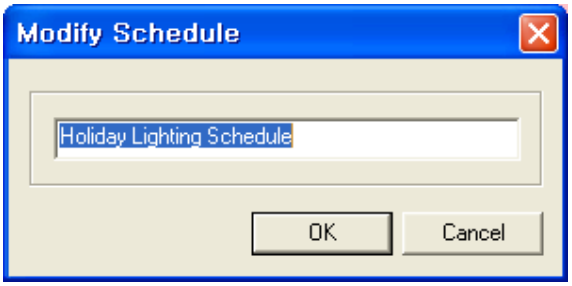
New Schedule

SmarTLC provides the software schedule that user can register without limit. Unlimited schedule registration enables precise control lighting on/off command.
If you click the 'New' button, New Schedule window pops up.



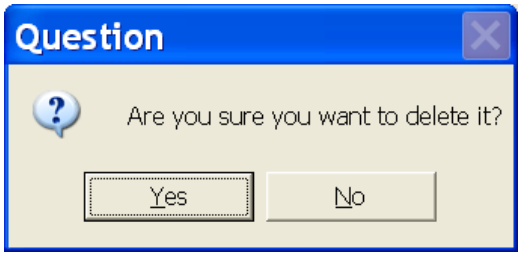
Modify Schedule

Modify schedule name. If the schedule name has not correct meaning, you can change schedule name.
Select the schedule in the list and click the 'Modify' button. Modify window shows up.



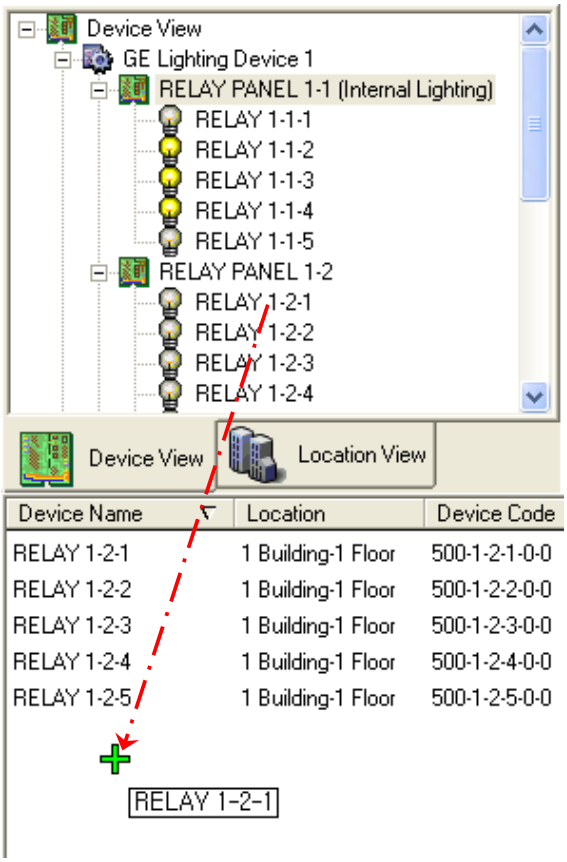
Delete Schedule

If you delete schedule, all detail schedule information will be deleted. You should be careful when you delete it.
Select the schedule in the list and click the 'Delete' button. Delete confirm message shows up.



Add Device

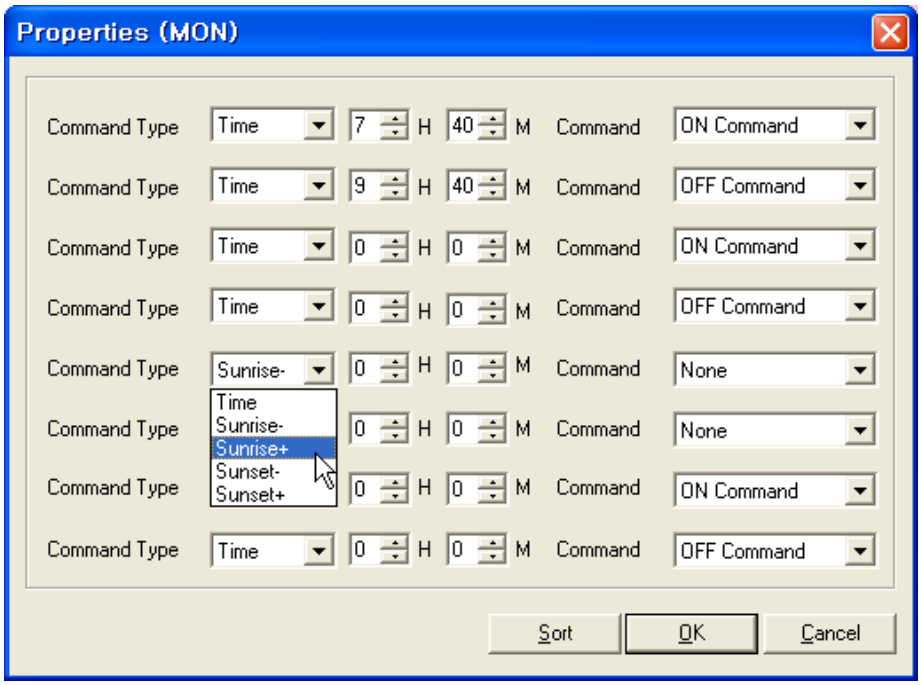
You need devices for scheduling. Select a device to be scheduled, drag it from the device view to the device list and drop the selected device.



Control schedule setup

Daily control schedule should be setup after registering the device. Control schedule is easy to setup.
You just click mouse left button at the first of schedule and move to the end of schedule.
If you click mouse right button, the extended menu show up for detail setting.

Properties:
8 scheduling can be setup in a day and command type has [time, sunrise+, sunrise-, sunset+, sunset-] option and command has [none, on command, off command] option.
Total 4 schedules can be added, and each schedule time setup can be specified.
If you click 'sort' button, the schedules are sorted by time order.



First Command/ Second Command:
Schedule has two commands. First Command is setup when the schedule starts. Second Command is setup when the schedule ends.

Time Command:
Setup the control time option.

Sunrise Command:
Sunrise Command has 'Sunrise-', 'Sunrise+' option and means before and after sunrise. Setup time means 1 hour, 2 hour.
ex) If control time is one hour before sunrise calculated by SmarTLC, select 'Sunrise-' option.

Sunset Command:
Sunset Command has 'Sunset -', 'Sunset +' option and means before and after sunset.
ex) If control time is one hour before sunset calculated by SmarTLC, select sunset -' option.

None: Select 'None' when there is no control command.

ON Command: Select when you need light on control.

OFF Command: Select when you need light off control.

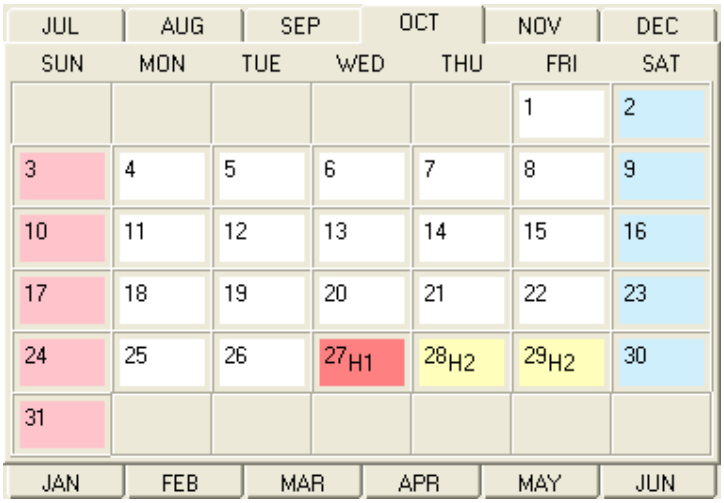
Copy: Copy the registered schedule. Scheduled information is stored in the windows memory and copied schedule can be pasted to other schedule setting.
Paste:

Paste the copied schedule which is copied in the memory.

Delete All:
Delete all scheduled information. 'Delete All' option applied to only corresponding day.
You should be careful when use delete all option because there is no confirm message.

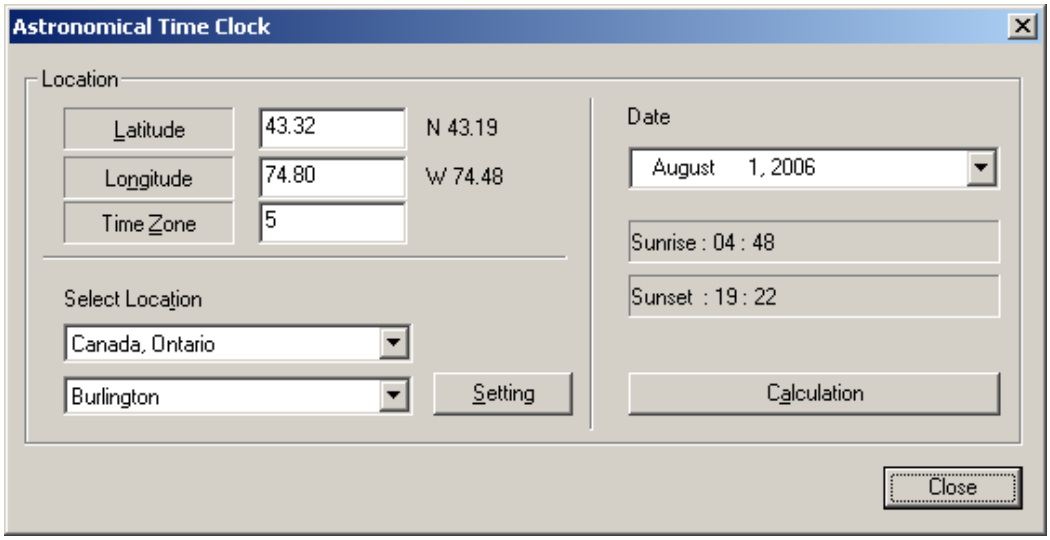
Holiday Register

When schedule time and control setting finished, corresponding schedule has to be registered in the calendar.
There is no special setting in week day or Sunday, but 'Holiday1~3' need separate setting.
If you want to set holiday, click the calendar. User can select three types of holiday.
When mouse is clicked, holiday changes like 'Holiday1'→ 'Holiday2'→ 'Holiday3' order.



3.7 Astronomical time clock

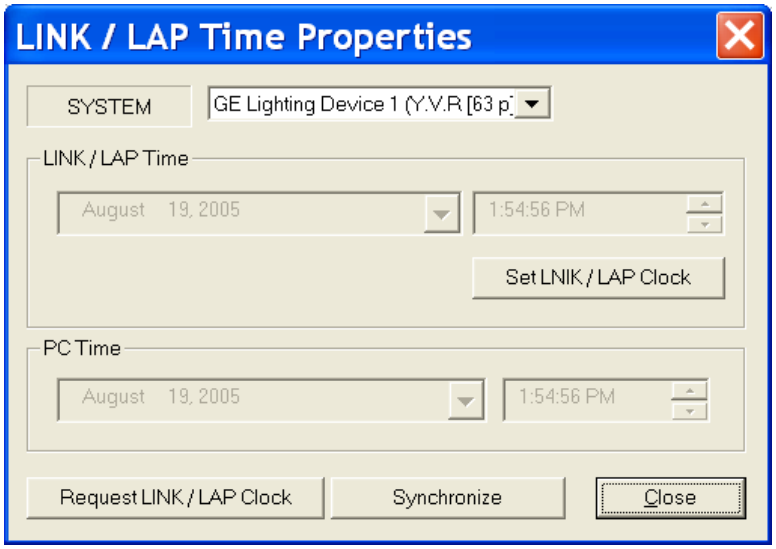
Sunrise/Sunset time is dependent on region and country. Automatic lighting on/off control is tightly coupled with sunrise/sunset time.
Select country, city and click 'Setting' button, SmarTLC automatically calculate the sunrise/sunset time with latitude, longitude, and time zone generation.
If you change date and click the 'Calculation' button, it calculates again with changed date.
Sunrise/Sunset time can be applied to schedule setup or LAP schedule setup.



4. GE Lighting

4.1 Link/LAP Time Clock

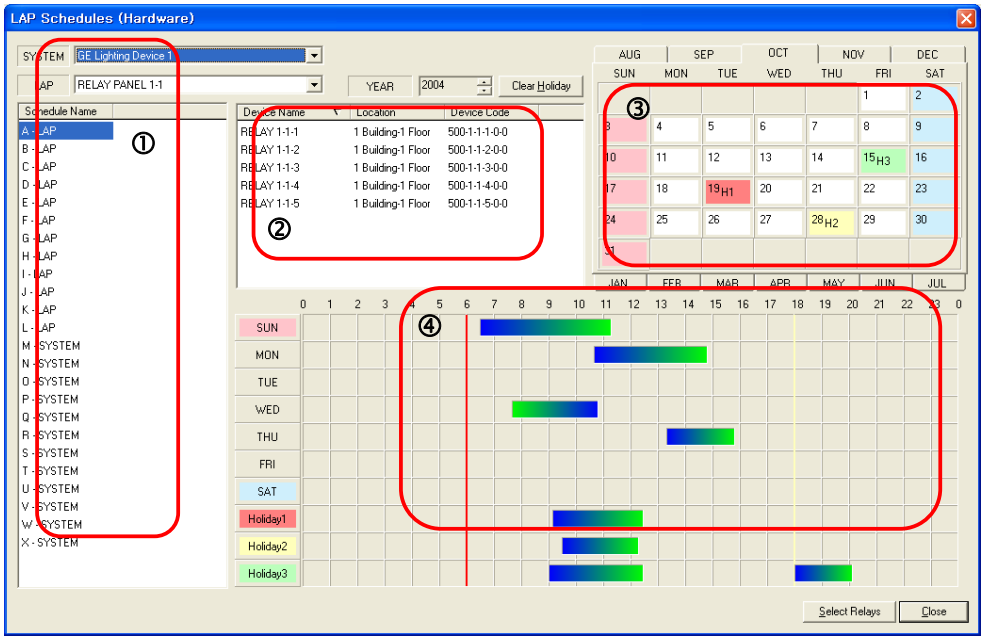
Setup or inquire a LAP/LINK time.
[Set LINK/LAP Clock] is change the LAP/LINK time of corresponding system.
[Request LINK/LAP Clock] request the current setting of LAP/LINK.
[Synchronize] synchronize the LAP/LINK time of corresponding system with current time of PC.



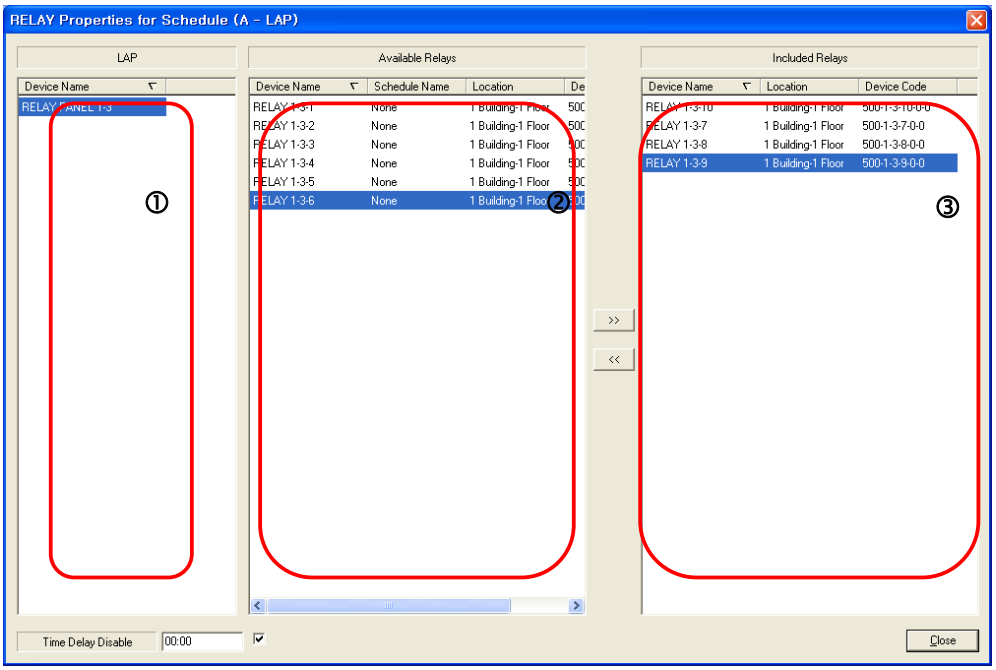
4.2 LAP Schedules

Setup the lighting devices linked with LAP hardware. If you click the 'Select Relays' button, you can select necessary devices from the available device list.
If you select system and LAP, you can see the schedule list and lighting device list.

LAP **(A~L) :** Particular schedule setup by each lap.
System **(M~X):** Common schedule applied to all LAP.

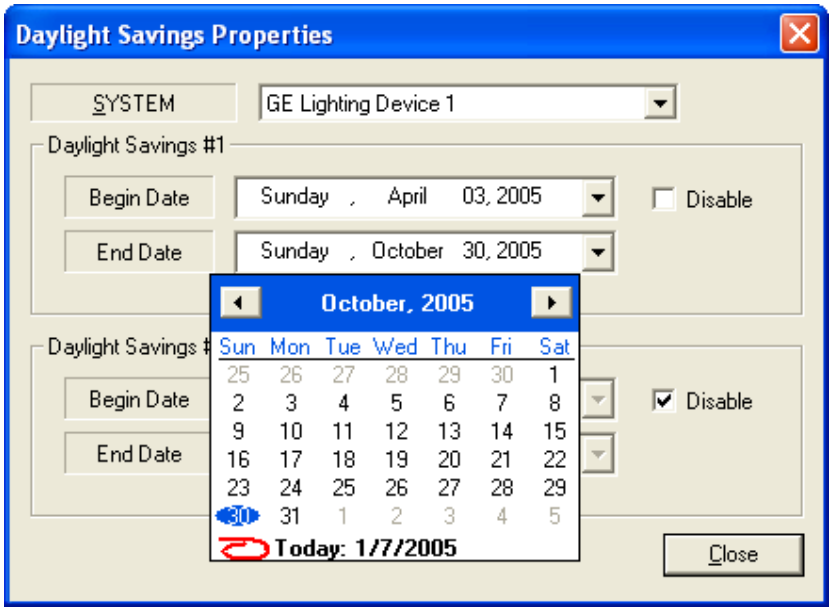


Include Relays from the available Relays list.



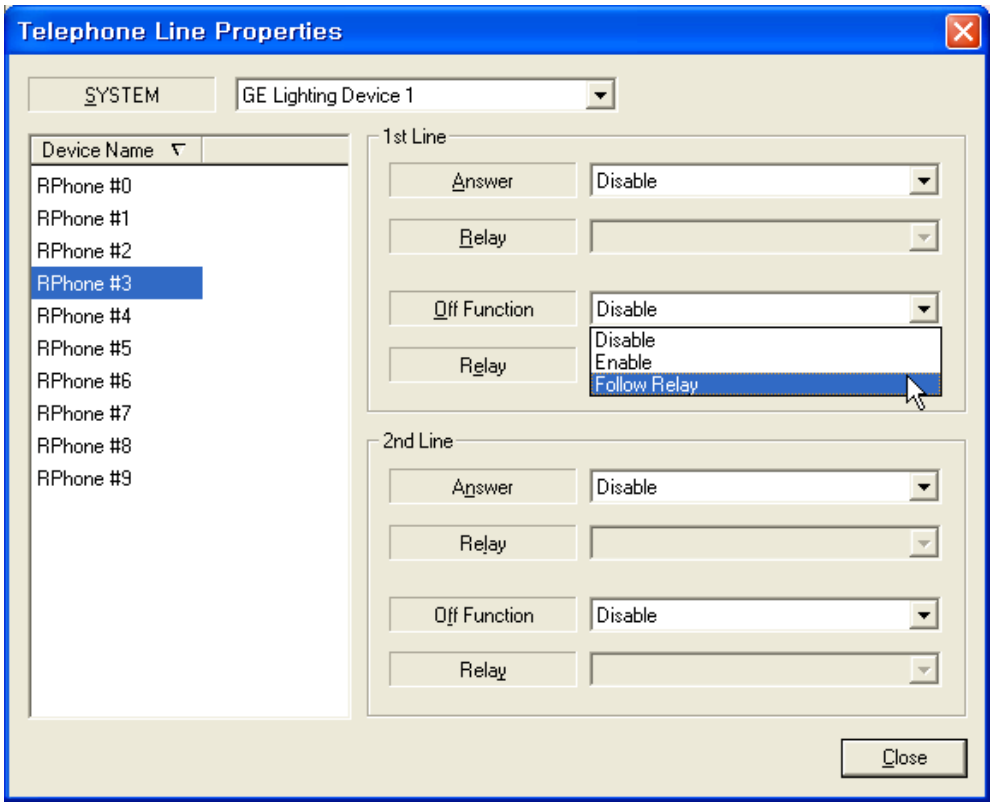
4.3 Daylight Saving

Daylight saving option.



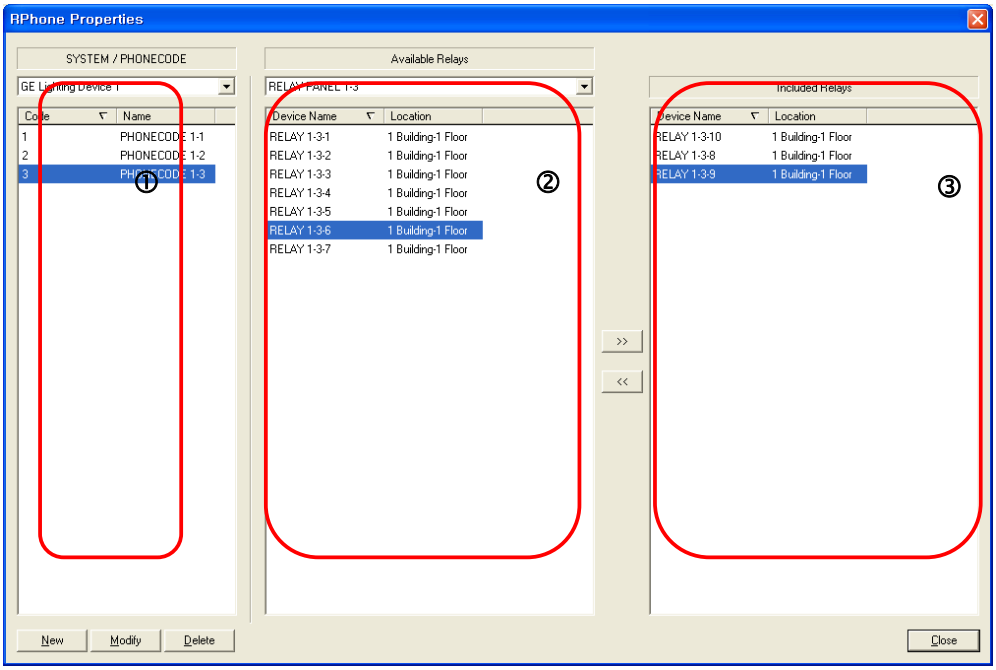
4.4 RPhone Devices

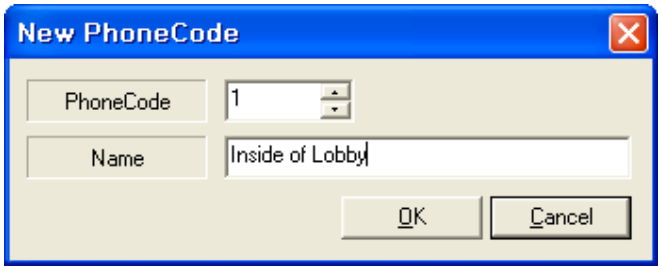
Setup the lighting device operating option when phone is connected to RPhone or phone is disconnected.
Answer and off function item has [Disable, Enable, Follow Relay]. If user selects 'Follow Relay' option, you can choose RELAY to co-operate.
RPhone consists LINE1, LINE2 and 10 RPhones can be installed.



4.5 RPhone Codes

Create representative phone code to control relays. When user press the representative phone code using phone, related relays are controlled.
Select relays in the available relays list and move to the included relays list.
Representative phone code controls the included relays.

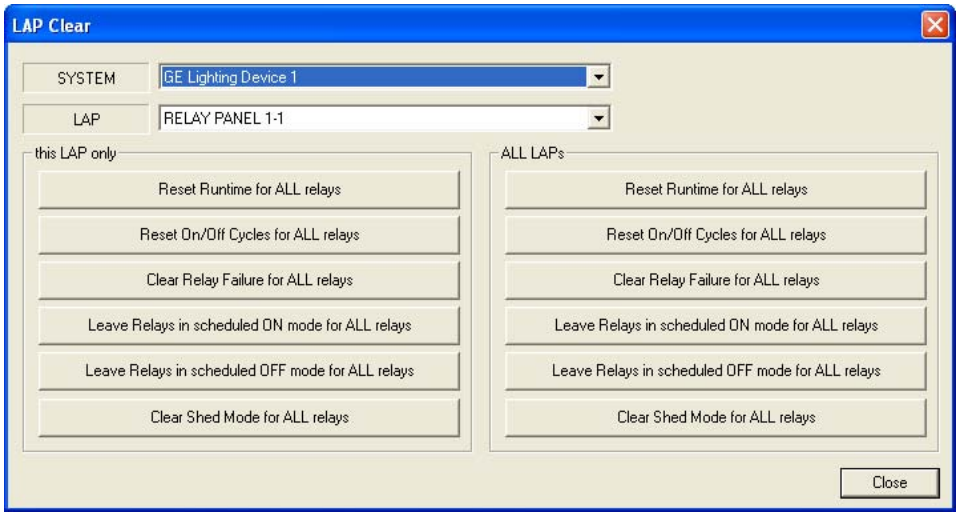




4.6 LAP Clear

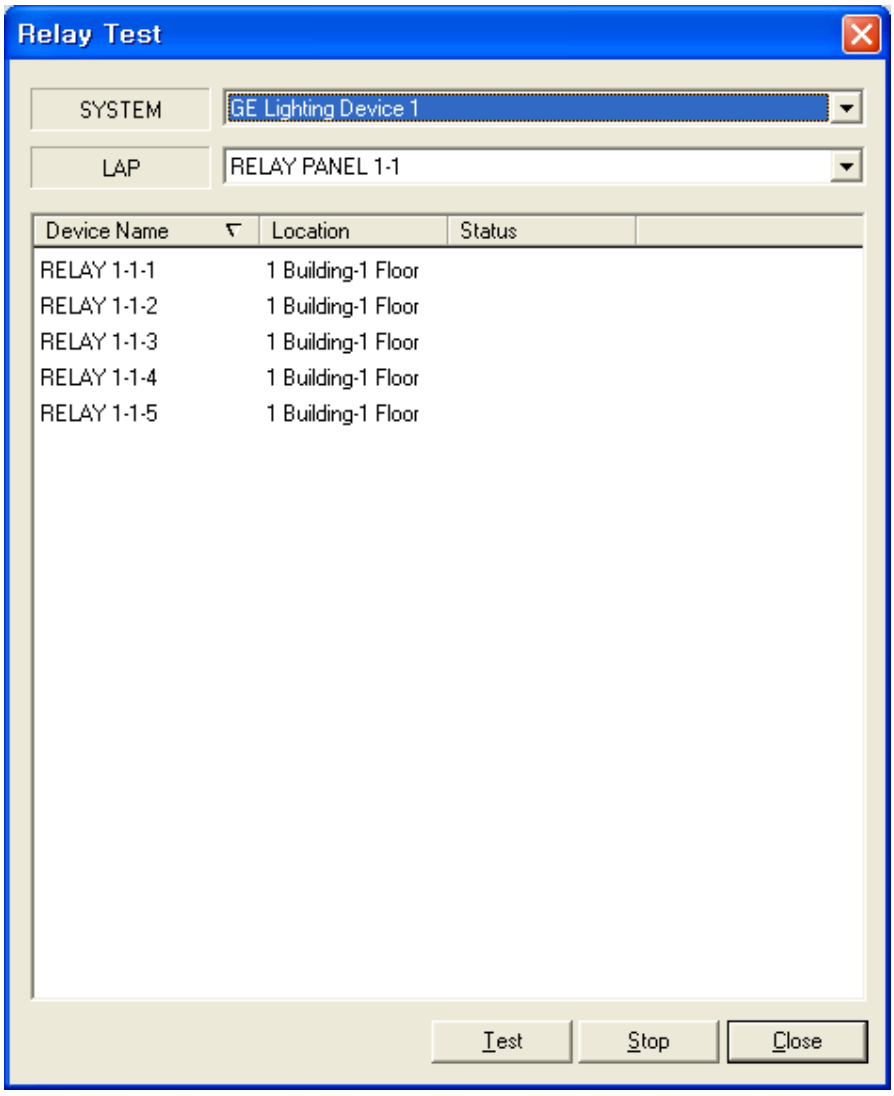
Delete data stored in the Relay device. Runtime data, On/off cycles, Relay fail item can be deleted. LAP Clear can apply to the only one LAP or All LAPs

Reset Runtime for All relays: Reset Runtime
Reset On/Off Cycles for All relays: Reset On/Off Cycles
Clear Relay Failure for All relays: Delete relay fail data.
Leave Relays in scheduled On mode for All relays: Leave Relays in scheduled On mode.
Leave Relays in scheduled Off mode for All relays: Leave Relays in scheduled Off mode.
Clear Shed Mode for All relay: Clear Shed Mode.



4.7 Relay Test

Test all lighting devices linked to the relay by turning on and turning off.
Relay test is for checking the device status and operation.



4.8 Transfer Programs

Transfer necessary programs between SmarTLC and LAP
You can select the LAP and transfer programs or all programs can be transferred.

SYSTEM1, SYSTEM2 tab display the data transferring status of each GE lighting system.

Downloading Programs:
Download SmarTLC programs to the selected LAP. Only modified data is transferred.

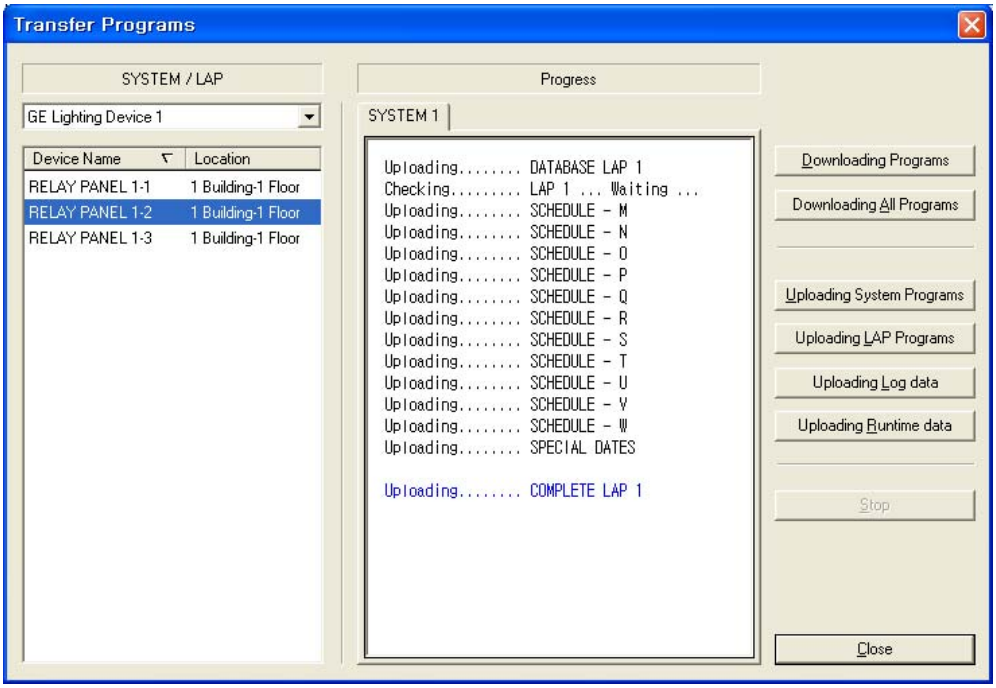
Downloading All Programs:
Download all programs to the all LAPs.

Uploading System Programs:
Upload SmarTLC system programs to the selected LAP.

Uploading LAP Programs:
Upload each Lap programs

Uploading Log data:
Upload log data from the selected LAP

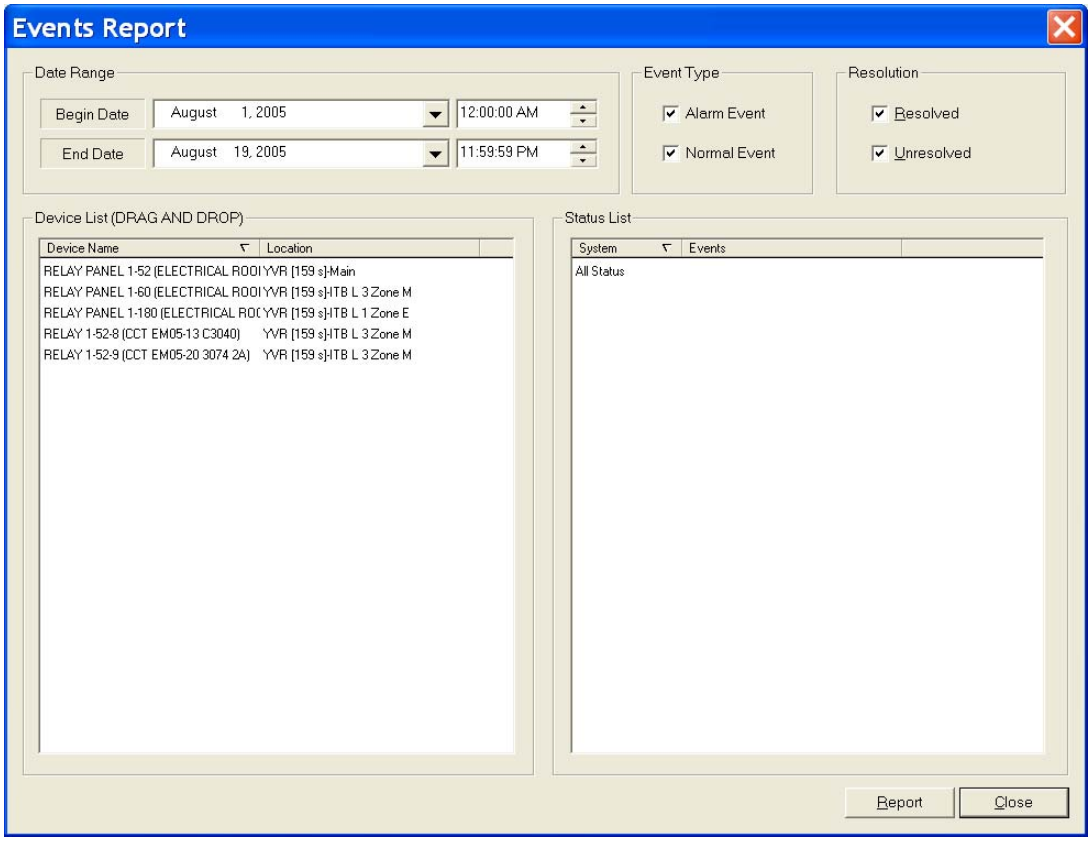
Uploading Runtime data:
Upload Runtime data from the selected LAP.



5. Reports

5.1 Event Report

Event report searches all the logs generated from the SmarTLC.
Search condition items are consisted with 'Data Range', 'Device List', 'Event Type', and ‘ Resolution’ .

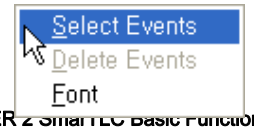


Device List

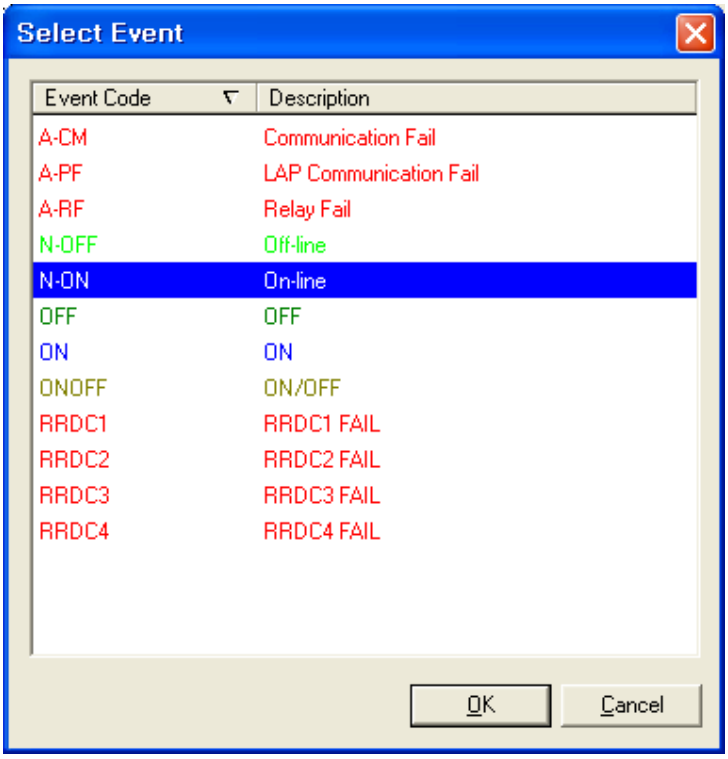
Select device which generated events. Select devices from the Device view and drag them to device list.

Status List

Select events which generated from the selected device.
Default search condition is for 'All Status'. If you want to search specific event, click the mouse right button and call the following sub menu.

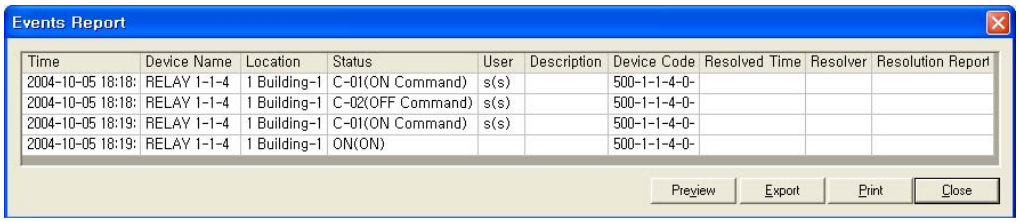


`If you select 'Select Events' menu, Select event window shows up.
Select all events what you want to search, then click 'OK' button. Now you can search and make a report about selected events.



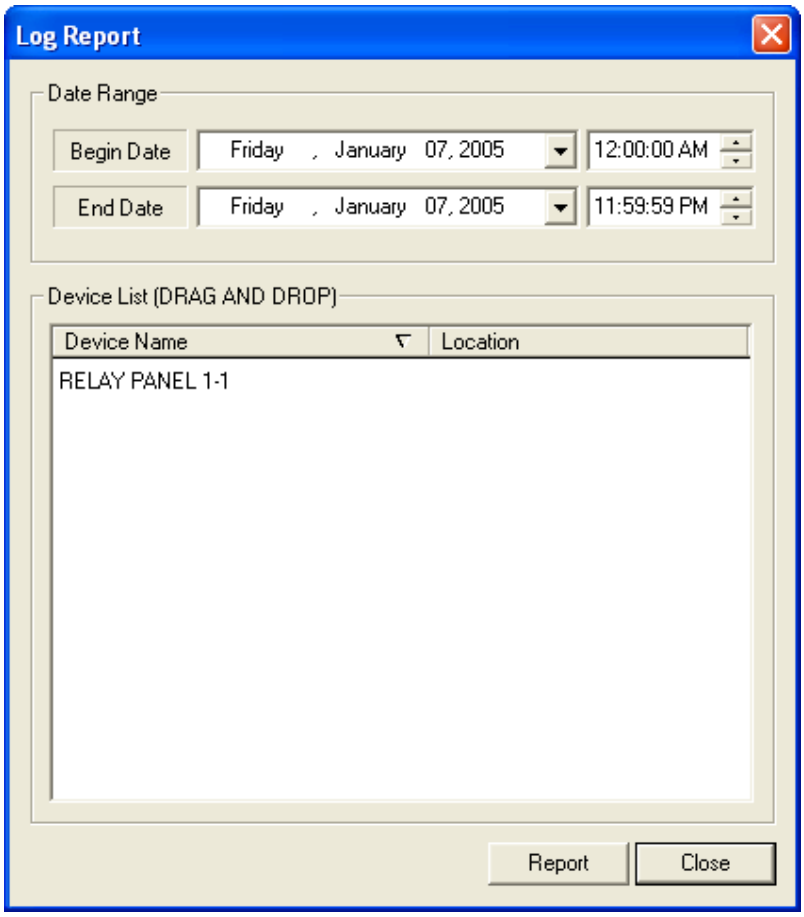
Report

Click the 'Report' button. The following event report window what you searched shows up.
If you want to save event report as an excel file, click 'Export' button. You can also preview and print it.



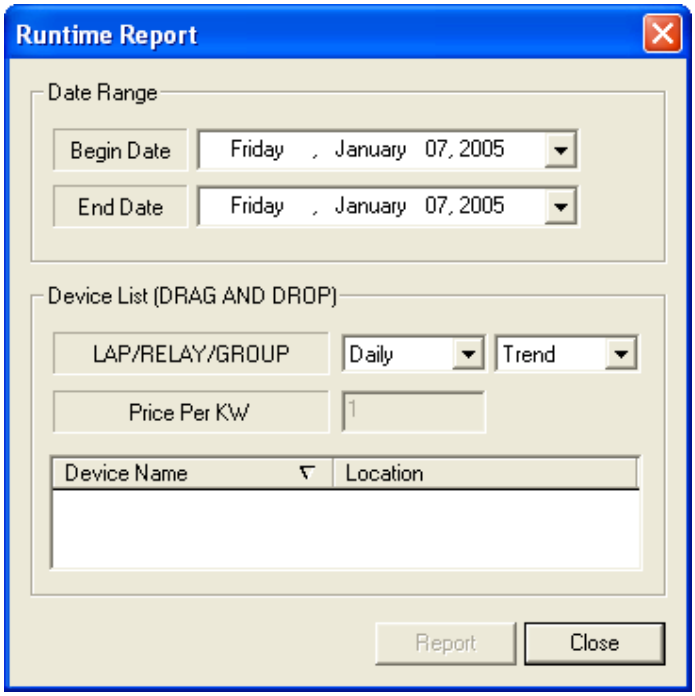
5.2 Log Report

Select date range and drag the device from the device view and drop the device list.
You can search all device generated logs in this log report.
Log report consists Time, Device name, Location, Status, Mode, Action Initiator, Device code items.
All searched data can be saved as an excel file and printed.



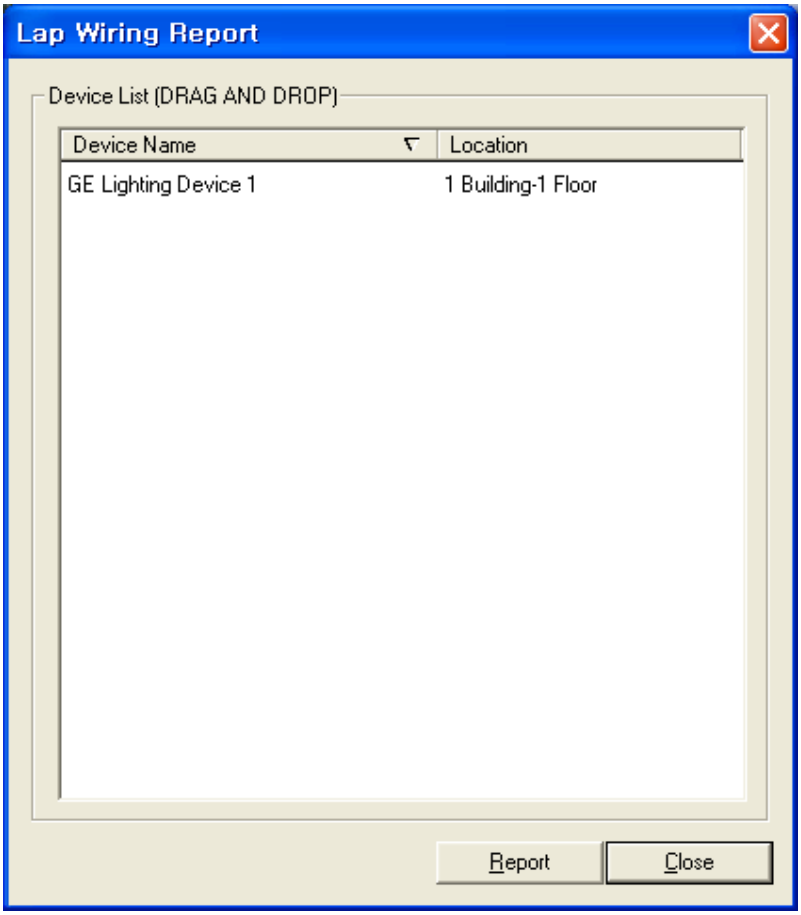
5.3 Runtime Report

Runtime report searches runtime data of lighting devices. Devices can be added from the device view by Drag & Drop and there is Daily/Monthly, Trend/Billing options.
Searched data can be saved as an excel file and printed.



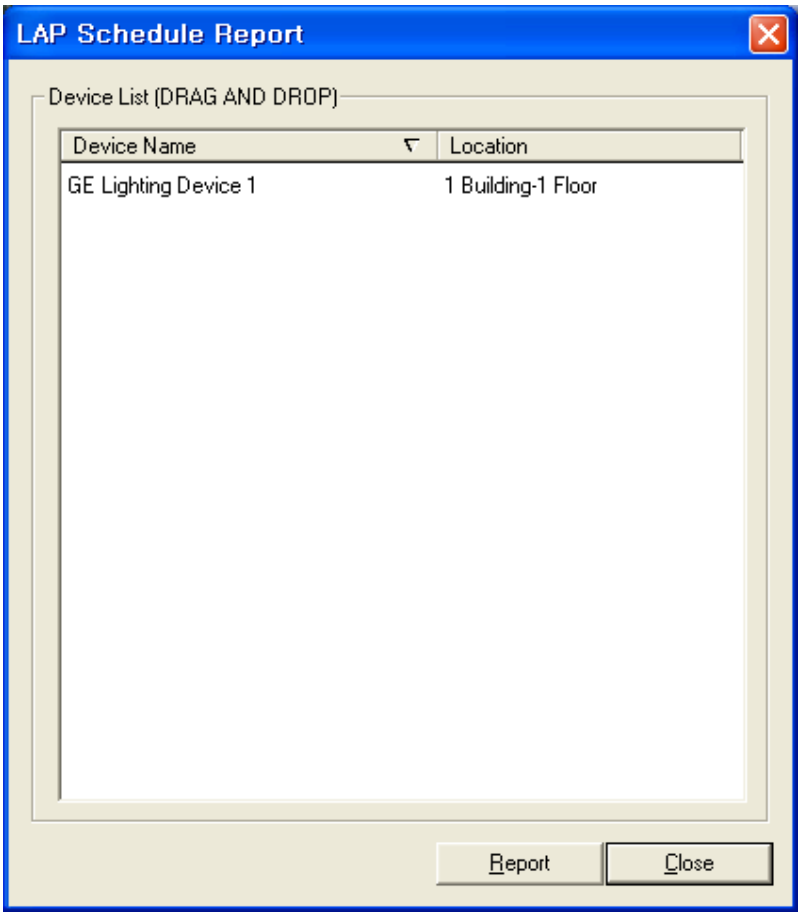
5.4 LAP Wiring Documentation Report

You can search lighting devices linked to the LAP.
Devices can be added from the device view by Drag & Drop. Searched data can be saved as an excel file and printed.



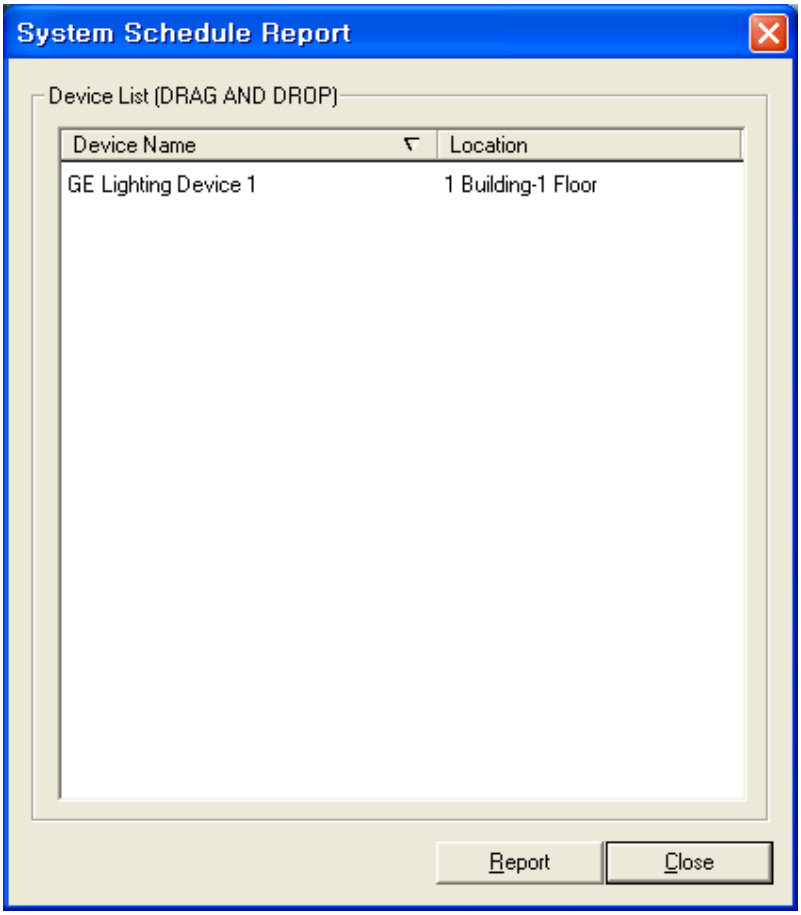
5.5 LAP Schedule Report

You can search schedule of lighting devices linked to the LAP.
Devices can be added from the device view by Drag & Drop. Searched data can be saved as an excel file and printed.



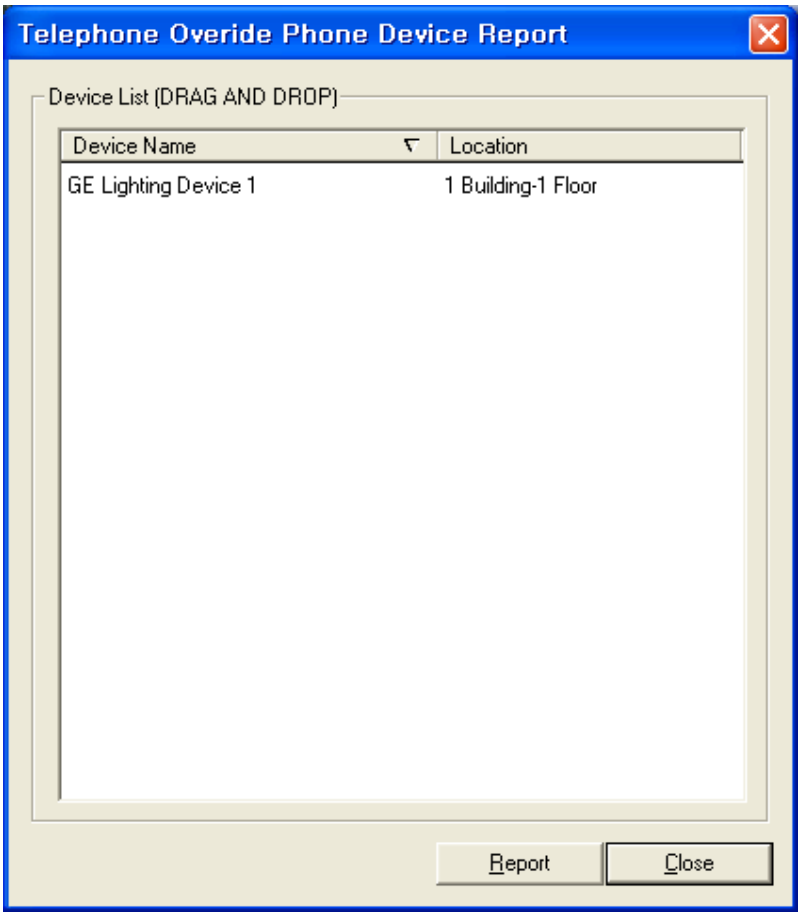
5.6 System Schedule Report

You can search system schedule.
Devices can be added from the device view by Drag & Drop. Searched data can be saved as an excel file and printed.



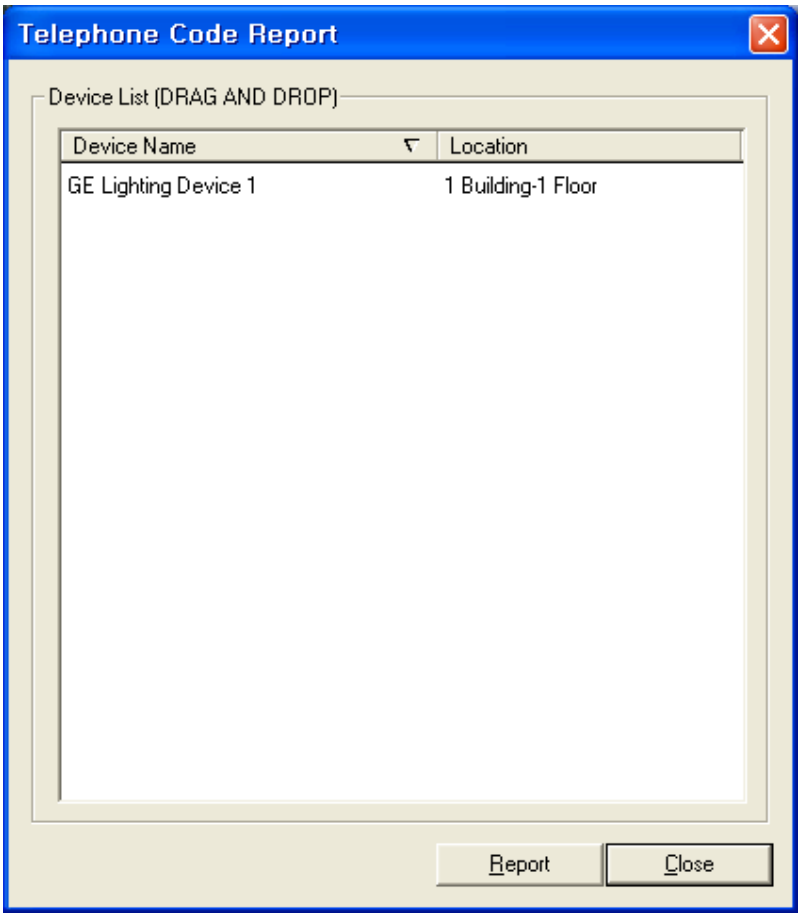
5.7 Telephone Override Device Report

You can search detailed setup information of RPhone.
Devices can be added from the device view by Drag & Drop. Searched data can be saved as an excel file and printed.



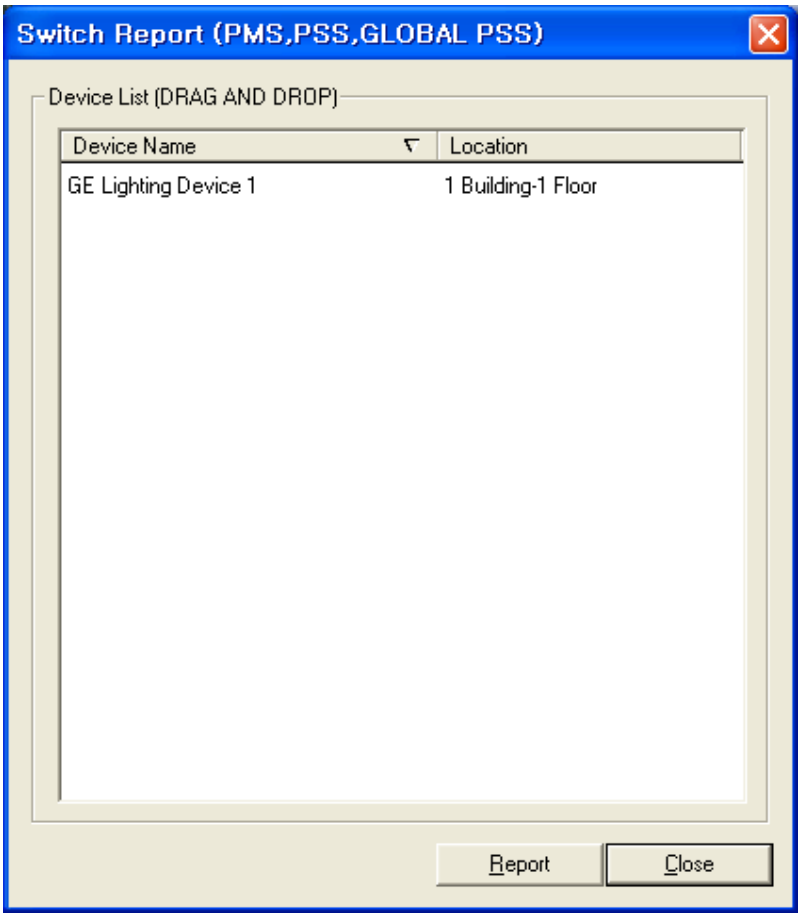
5.8 Telephone Code Report

You can search Relay list linked with the telephone code.
Devices can be added from the device view by Drag & Drop. Searched data can be saved as an excel file and printed.



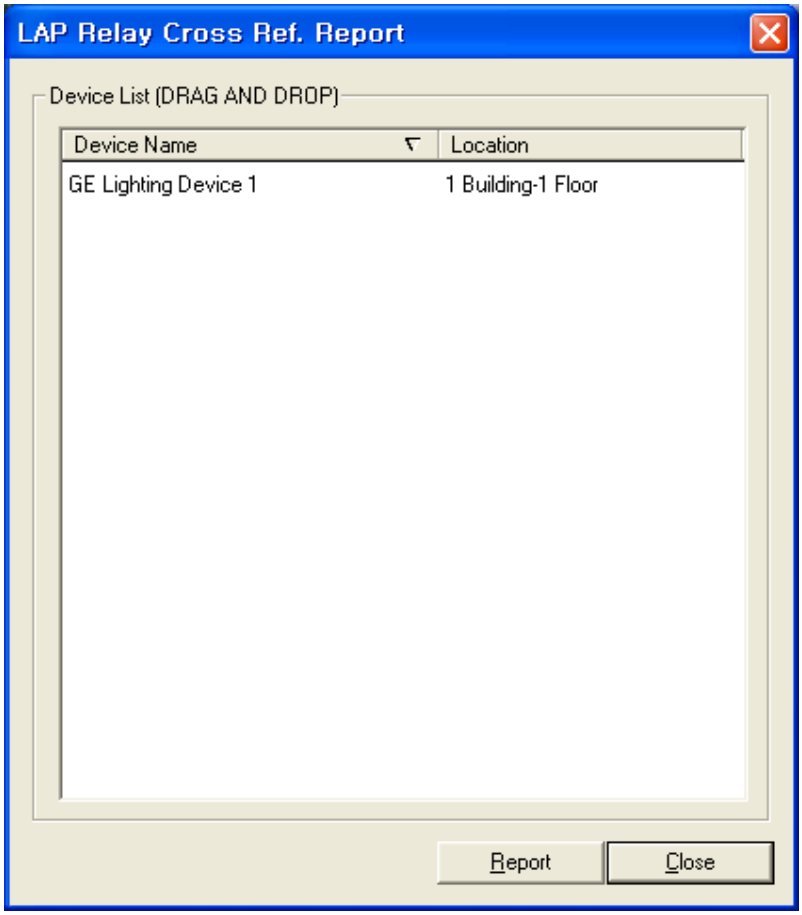
5.9 Switches Report(PMS, PSS, GLOBAL PSS)

You can search registered Switches (PMS, PSS, GLOBAL PSS).
Devices can be added from the device view by Drag & Drop. Searched data can be saved as an excel file and printed.



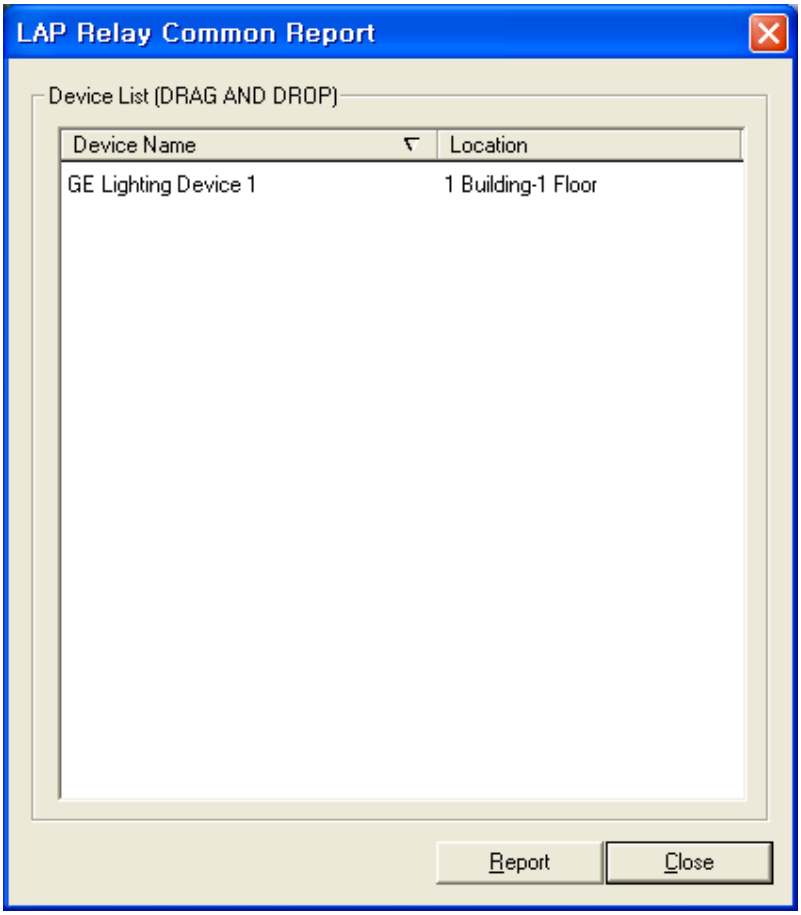
5.10 LAP Relay Cross ref. Report

You can search properties of relays.
Devices can be added from the device view by Drag & Drop. Searched data can be saved as an excel file and printed.



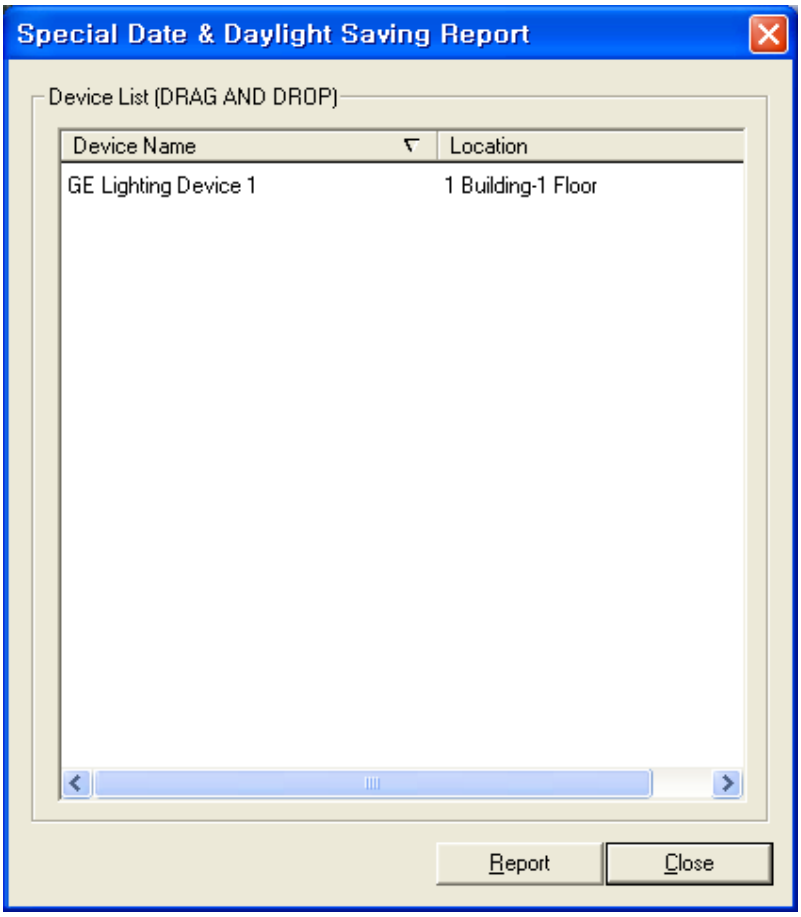
5.11 Relay Common Report

You can search lighting devices setup as common relay.
Devices can be added from the device view by Drag & Drop. Searched data can be saved as an excel file and printed.



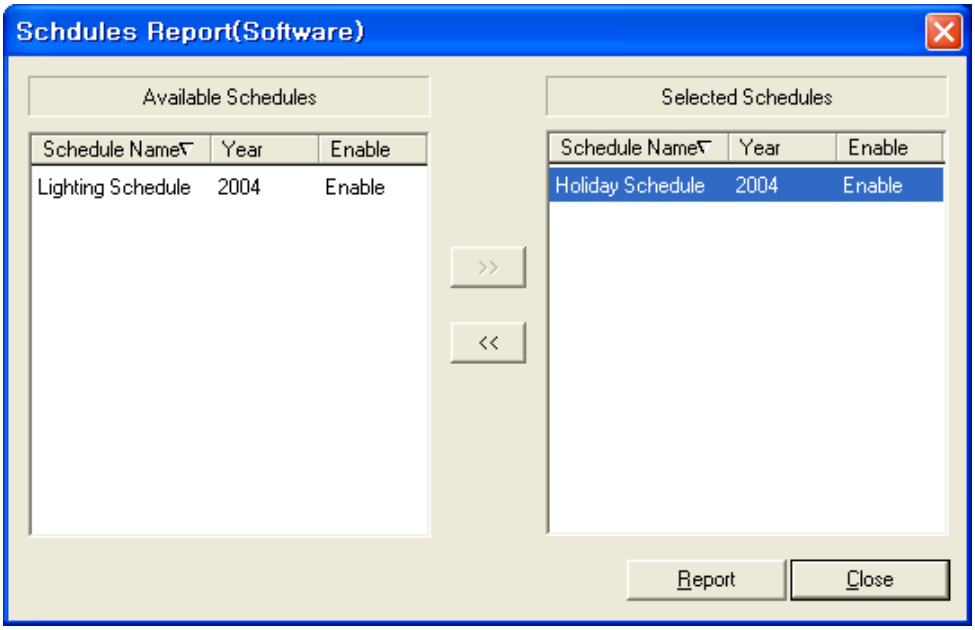
5.12 Special Date & Daylight Saving Report

You can search special date and daylight saving information.
Devices can be added from the device view by Drag & Drop. Searched data can be saved as an excel file and printed.



5.13 Schedules Report(Software)

You can search detailed schedules which are setup in the SmarTLC.
Detailed schedules have daily settings and holiday settings.
Searched schedules can be saved as an excel file and printed.



CHAPTER 3. SmarTLC User Interface and Practical Usage

Explain the User interface of SmarTLC for efficiency of lighting control management

1. User Interface Composition

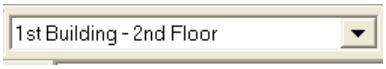
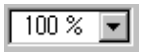
1.1 Main Toolbar

Main Toolbar provides following functions

Icon	Function
	Login
	Logout
	Device View show/hide
	Drawing View show/hide

1.2 Graphic Toolbar

Graphic Toolbar provides following functions

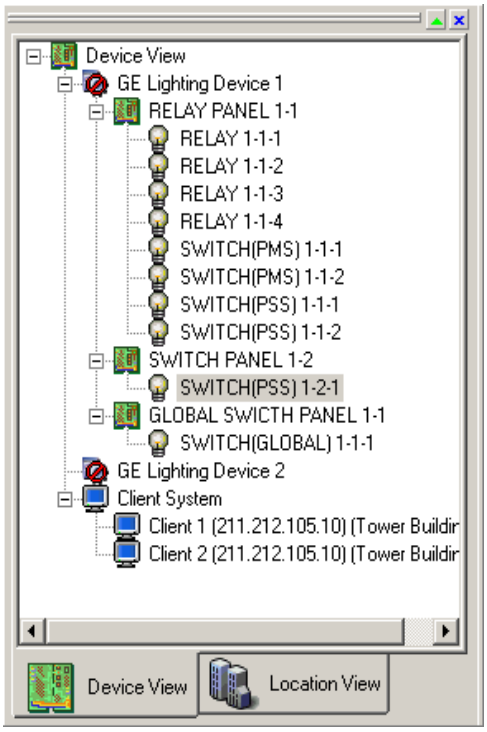
Icon	Function
	Drawing Mode
	Drawing Location Select
	Drawing Zoom Ratio Select
	Zoom In/Out
	Previous Drawing
	Move to the Top Level Drawing
	Next Drawing
	Move up to the High Level
	Move down to the Low Level

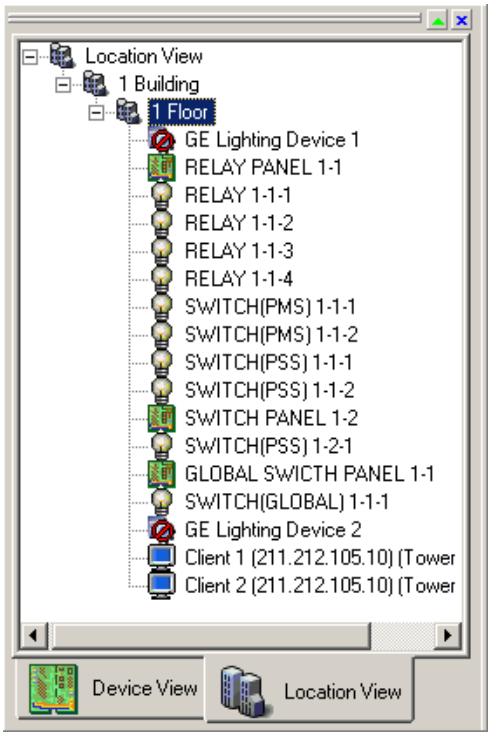
※ Click the Drawing Mode Button for editing drawing. Edit Toolbar shows as follows

Edit Toolbar is explained in the Drawing management page

1.3 Device/Location View

Device View displays the relationship with each device. Location View displays the location of devices.



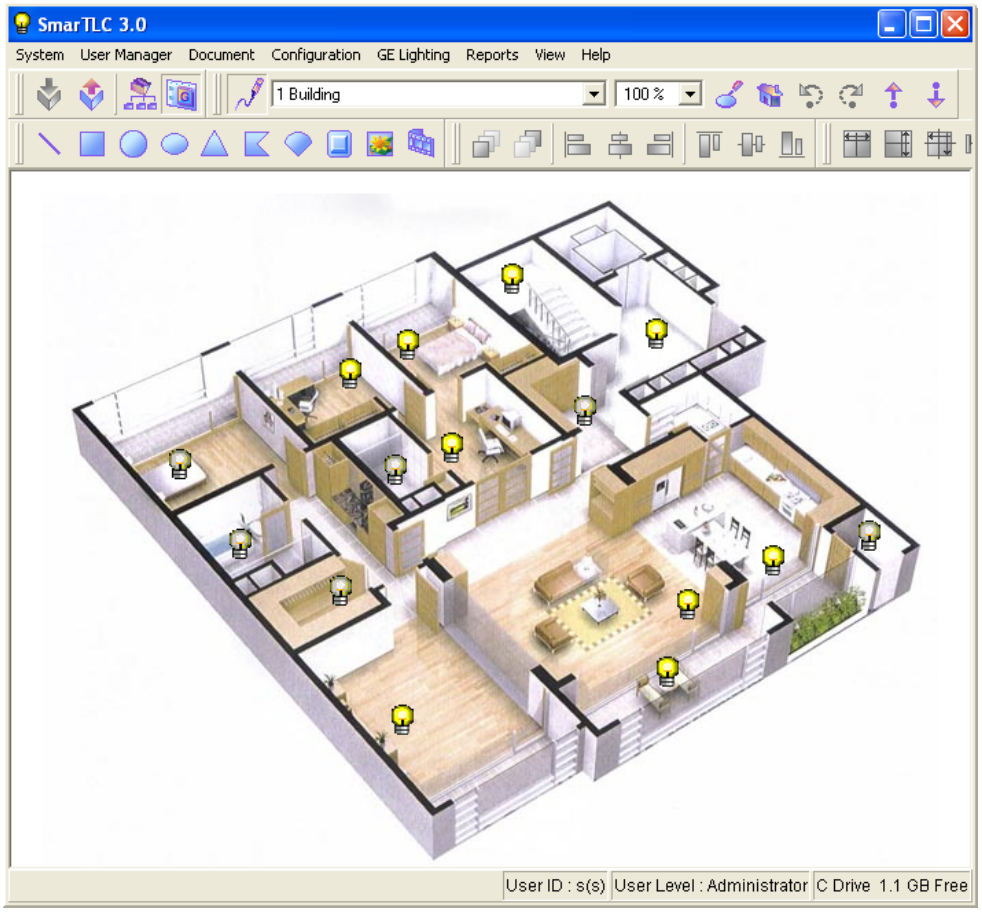


1.4 Drawing View

Drawing View visualizes the location and status of devices on the drawing by using graphical objects and design tools

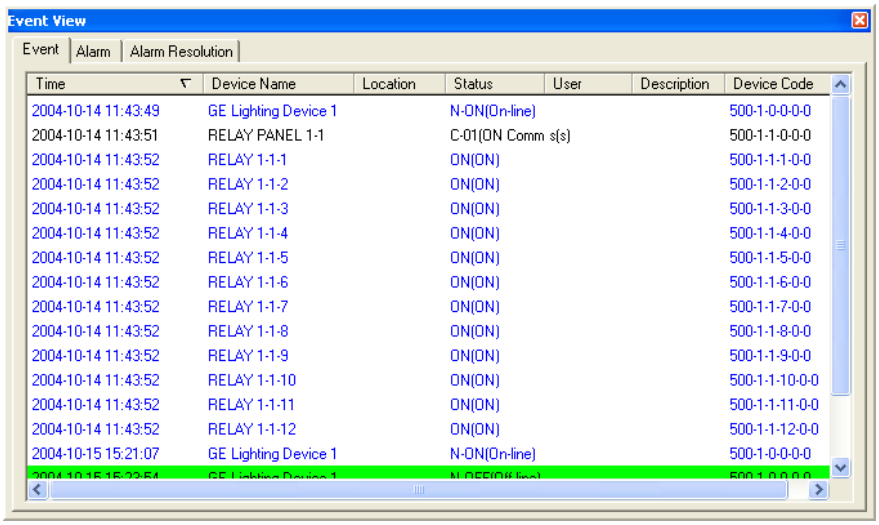
The way of Drawing editing and Device Setting is explained in the Drawing Management Chapter.

Graphical Objects provide the variety of visualization properties, which are like picture changing, color changing, and image flickering. SmarTLC manager can make perfect monitoring system with these graphical objects.



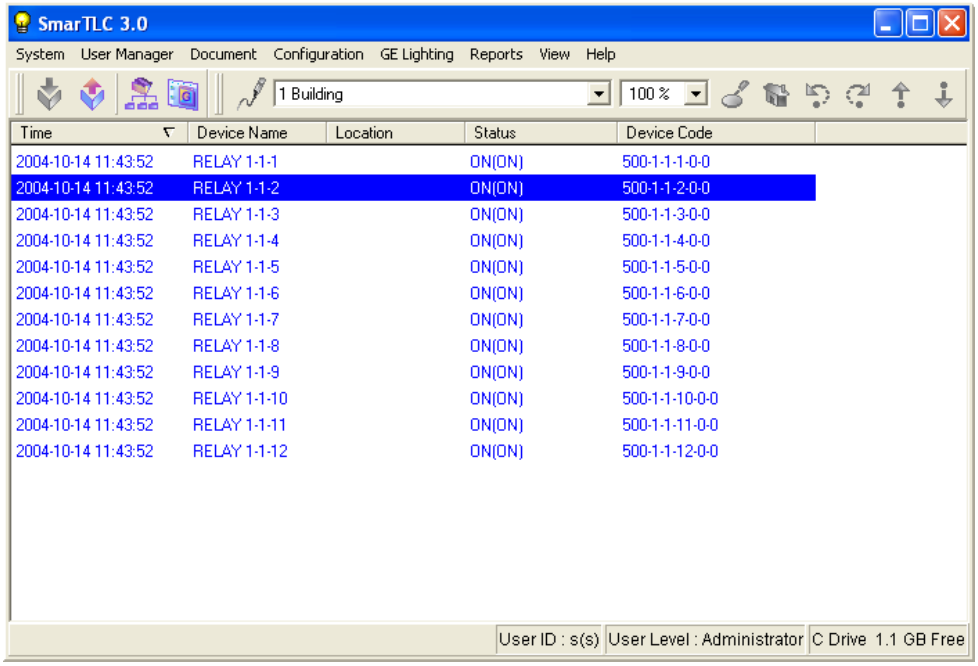
1.5 Event View

Event View displays every events and logs generated from the devices. It composes Event, Alarm, and Alarm Resolution tab.



1.6 Text View

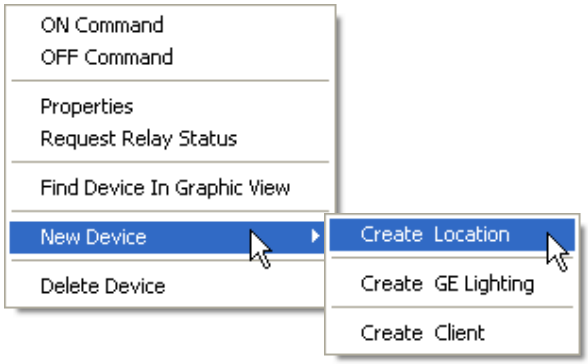
Click the Drawing View icon to hide Drawing view then the Text View shows up.
The sub menu is same as Device view menus.



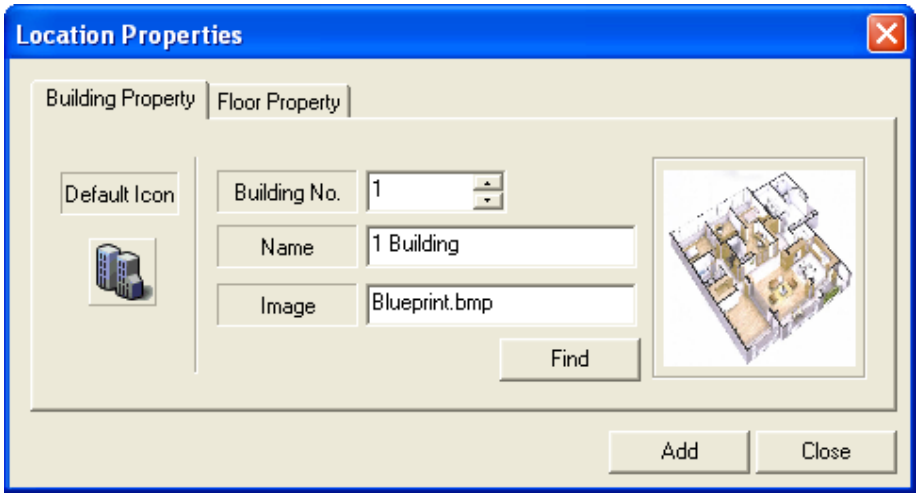
2. Device View

2.1 Create Location

Register the real location where the devices will be installed (ex: building, floor)



When click the right mouse button in the device view, the 'New Device' submenu shows up. Click the Create Location menu. Location Properties window shows up as follows. Location Properties window has Building property, Floor property tabs. Create a new building and floor location. The order of registration should be like 'Building' → 'Floor' order.



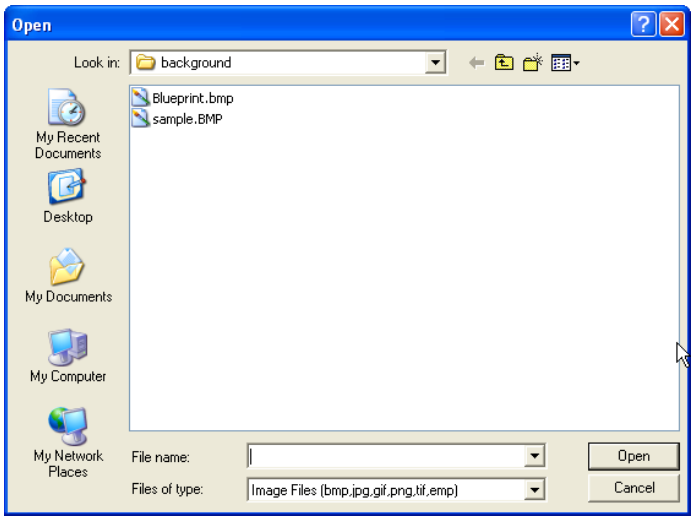
Building Registration

Select Building property tab and fill out the proper information. If the location is already registered, the 'Add' button is disabled.

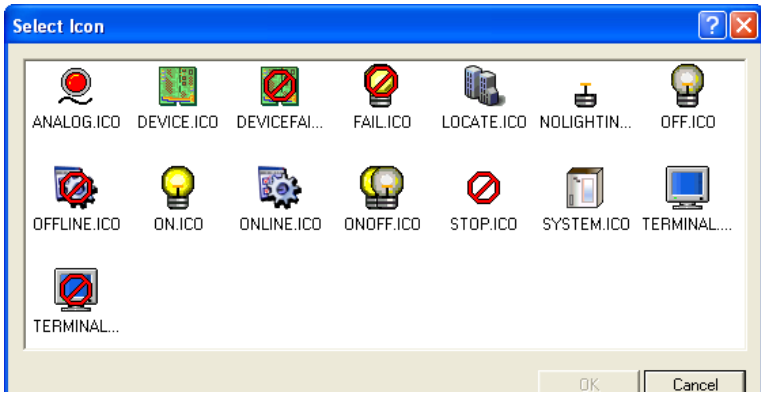
Building No:
Building No identifies the each building and can be registered less than 255 buildings.

Name:
SmarTLC manager can make unified building names for easy identification of each building.

Image:
If you have building blue prints or image files, you can link the location with the selected image. Click the Find button, you can search and select images from the following the search dialog.
For the efficient management, keep the building and floor blueprints in the Background folder of SmarTLC



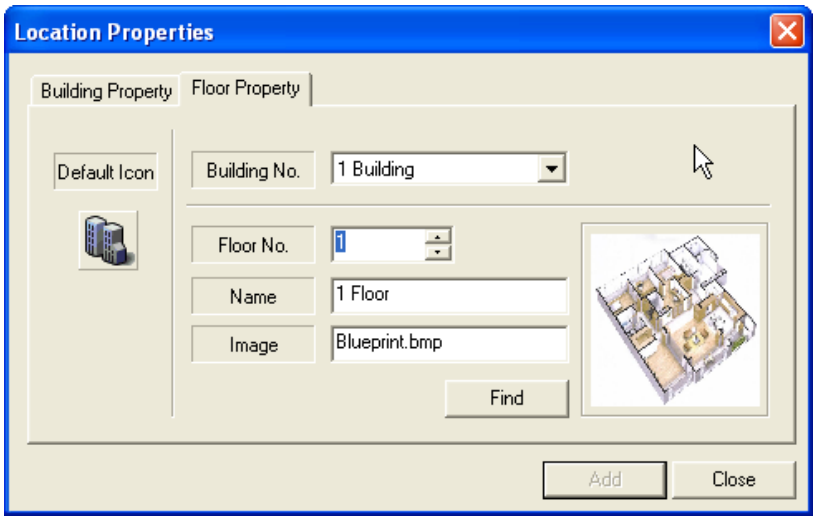
Select Icons:
The selected icon displays on the device view.
Default icon will be displayed at the first time. You can change icon by clicking the icon button. Select icon dialog shows up as follows.



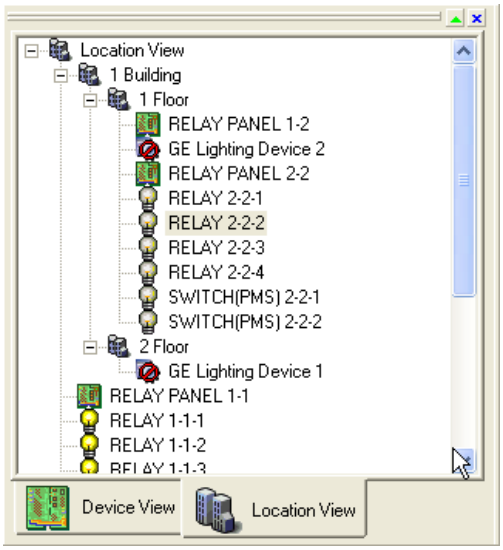
Floor Registration

Select Floor property tab and fill out the proper information. If the location is already registered, the 'Add' button is disabled.

Building No:
Building No can be selected from the list which is already registered in the Building Property.
Select the Building No where the floor is located.
Floor No:
Floor No identifies the each floor and can be registered less than 255 floors.
Name:
SmarTLC manager can make unified floor names for easy identification of each floor.
Image, Select Icons:
Same as the Building Properties tab.

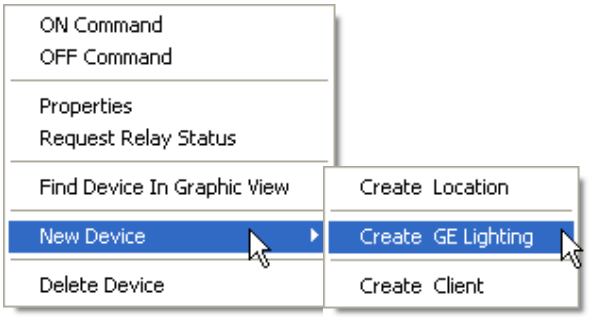


After finishing the registering the building and floor location, the new building and floor information displayed in the device view.
The registered building and floor displays hierarchically.

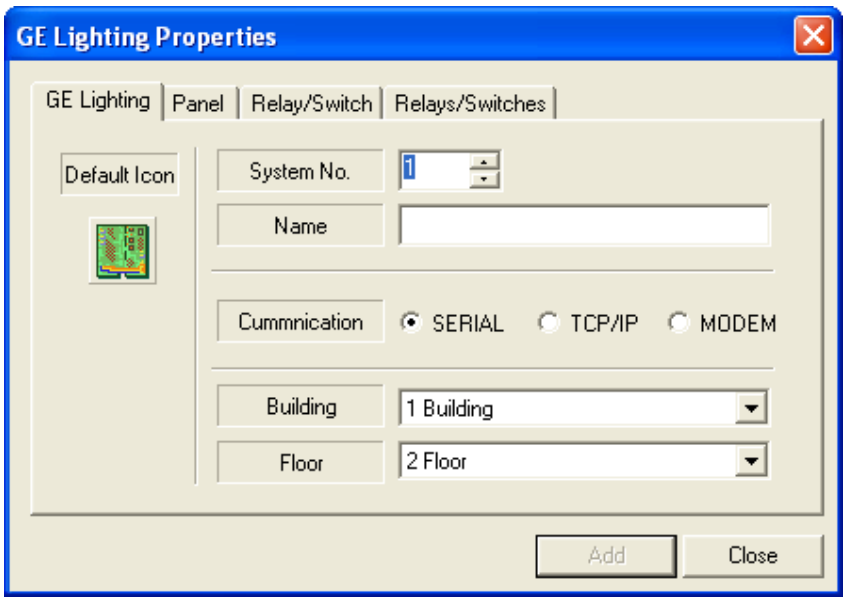


2.2 Create GE Lighting

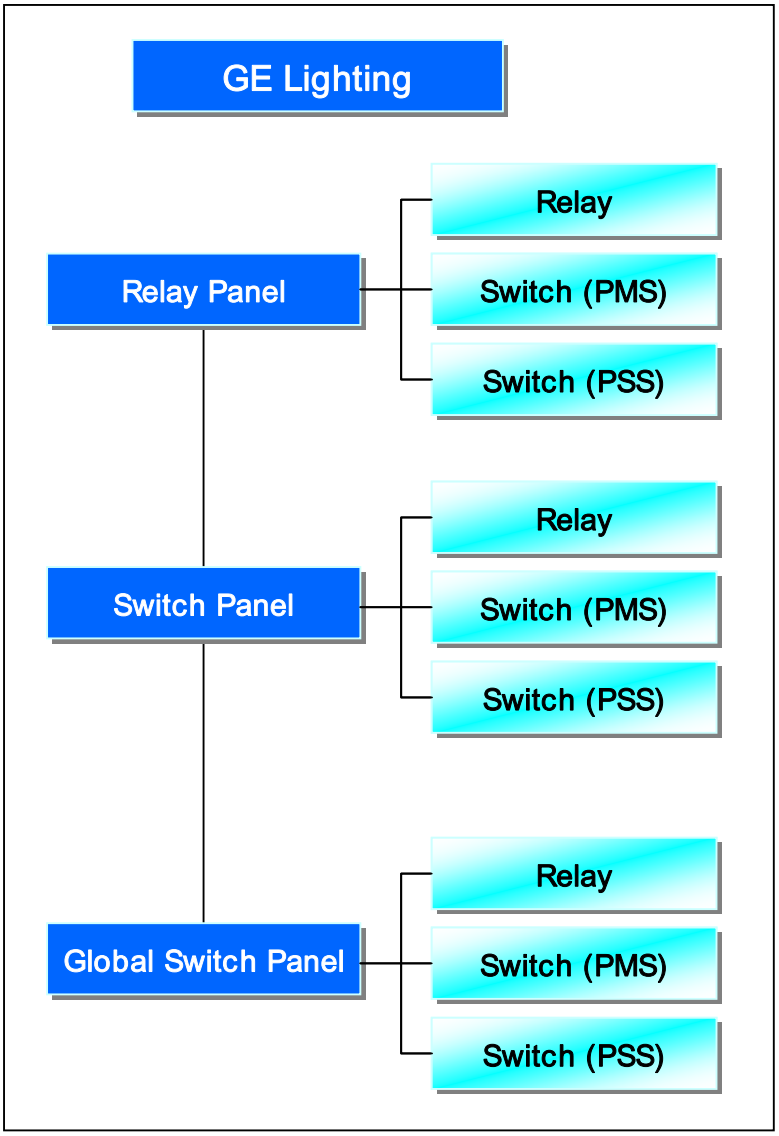
Manager can register substantial lighting devices (PANEL, SWICTH, RELAY).
The registered lighting devices are communicating with SmarTLC and transmitting the events or system information.
All devices should be registered in the SmarTLC for the regular operation.



When click the right mouse button in the device view, the 'New Device' submenu shows up. Click the 'Create Location' menu. Location Properties window shows up as follows.
Location Properties window composes 'GE Lighting', 'Panel', 'Relay/Switch', 'Relays /Switches'. Select the proper tab and fill out corresponding information.
The order of registration should be like 'GE Lighting' → 'Panel' → 'Relay/Switch' → 'Relays/Switches' order.



The devices of SmarTLC keep the mutual dependency. The diagram is like bellows



GE Lighting

Select the GE Lighting tab for GE Light device register. If there is an already registered device, add button is disables. GE Lighting means the top level of lighting device and 'GE Lighting Device' text is generated automatically as a default.

System No:
System No can be registered from 1 to 32. System No is an essential logical number to systematize the incoming information from the devices.

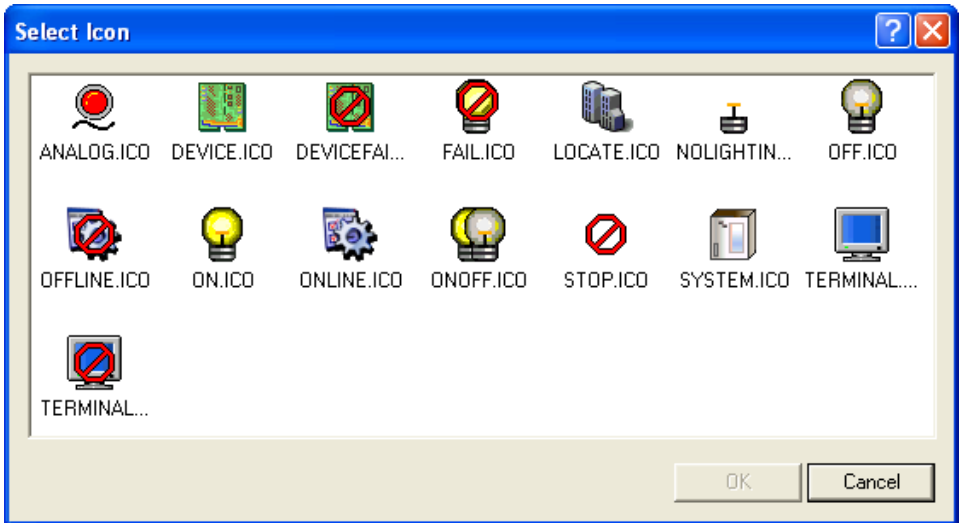
Name:
SmarTLC manager can not find a correct device by System No. Making the unique device name can help the efficient management.

Communication:
Select the communication option to communicate with the devices.

Building:
Select the Building where the devices are installed. Manager should register the location information first.

Floor:
Select the Floor where the devices are installed. Floor information should be registered previously.

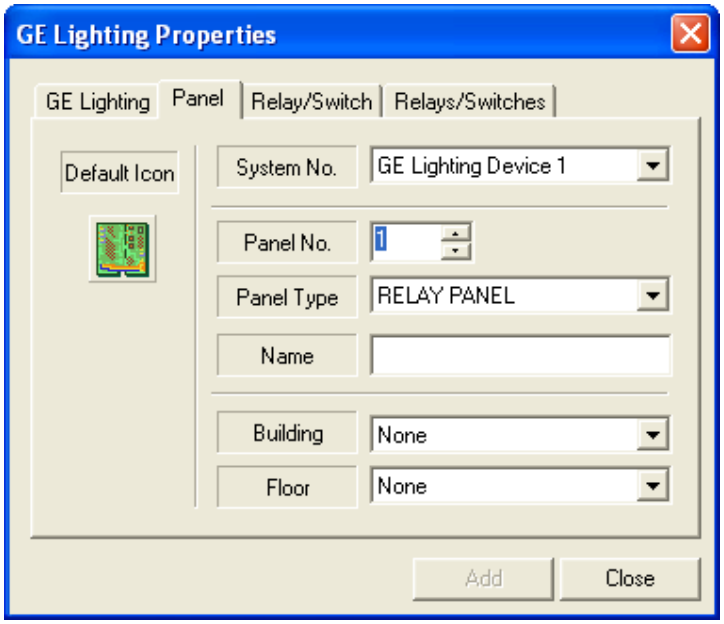
Select Icons:
The selected icon displays on the device view.
Default icon will be displayed at the first time. You can change icon by clicking the icon button. Select icon dialog shows up as follows.



Panel Registration

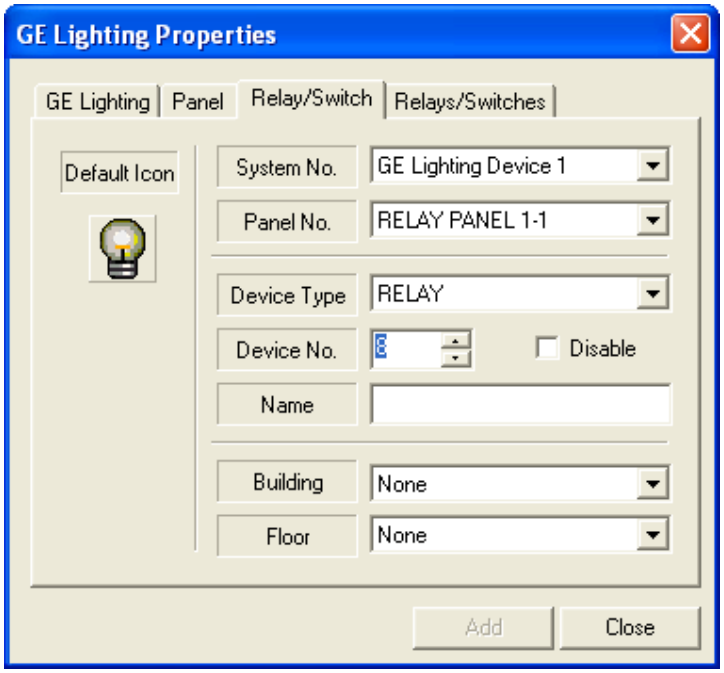
Panel is the next level of the GE Lighting. It composes Relay Panel, Switch Panel, and Global Switch Panel

Select Panel number and type. The Name, Building, Floor information is same as GE Lighting registration.



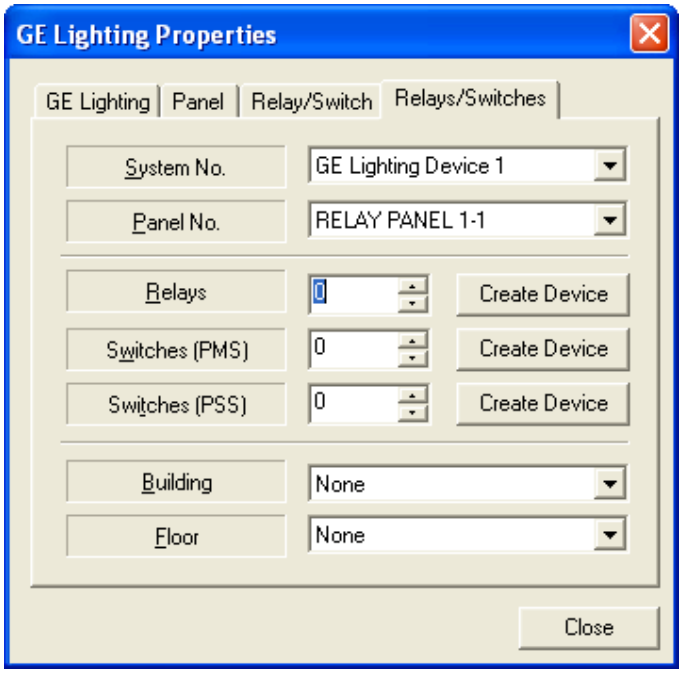
Relay/Switch Registration

Relay/Switch is the low lever of the Panel. Select the System No, Panel No, Device type and number. The Device type composes Relay, Switch(PSS), Switch(PMS) and can select the disable option to the registered device. The Name, Building, Floor information is same as GE Lighting registration.
If you select the disable option, the default icon is changed.



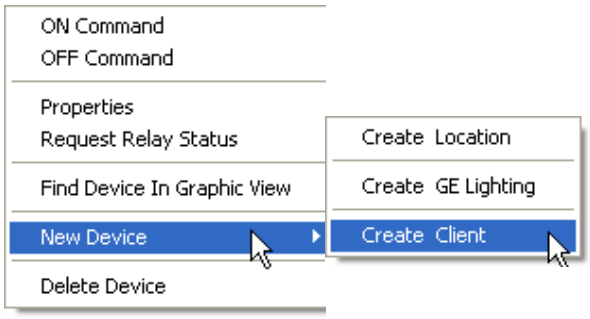
Relays/Switches

Manager can register amount of relays and switches at one time in the Relays/Switches tab.
Insert the number of registering relays, Switches(PMS), Switches(PSS) and click the 'Create Device' button.
It is very convenient tab for registering the devices applied same options.



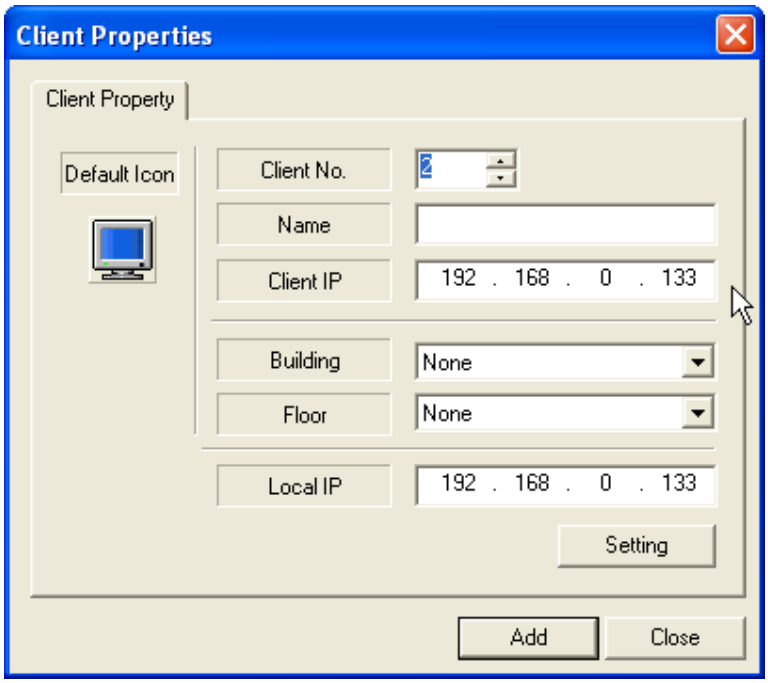
2.3 Client Register

SmarTLC is basically Server/Client structure. It can operate as a server or client depends on program option.
All the accessible Clients IP address is stored in the SmarTLC Server by registering the Client information.



'Create Client' menu register the computer network IP which is installed SmarTLC as a client.
If Client is not registered, Server does not allow connecting to the server from other network.
For the correct system operation, client network address should be registered.

The client registration window is as follows



Client Registration

Client No:
There are many clients exist and connected to the server. Client No should be registered for the client identification

Name:
Manager can make client name for efficient system operation
Client name will be better to make including location information because client can be existed in the internet with public IP. For example, 'Monitoring room in the Tower palace' or 'Sales team in the New York branch'

Client IP:
Client IP means that computer IP installed SmarTLC as a client. This IP should be public IP.
If Server IP is same as client IP, click the 'Setting' button. The current local IP will be filled out.

※ Client IP should be public IP because if it is private IP or generated by DHCP server, the Server can not have correct information of client.

2.4 Menus

Menus have On Command, Off Command, Request Relay On/Off Status, Request Relay Fail Status, Properties, Request Relay Status, and Find Device in Graphic View, Delete Device menu

ON/OFF Command

Turn On/Off the light

Request Relay On/Off Status

Request the current relay' s on/off status

Request Relay Fail Status

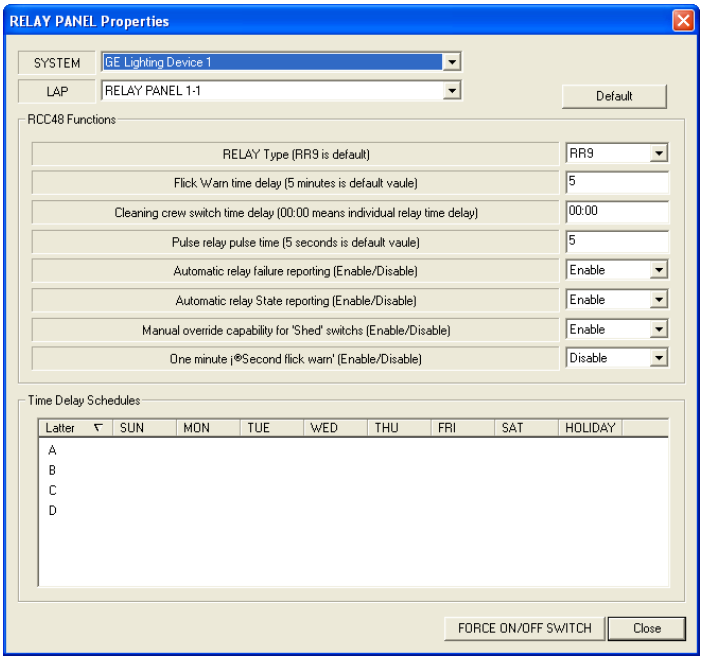
Request the current relay' s failed status

Properties

Displays the properties of the Relay Panel, Relay, and Switch located bellow the Panel

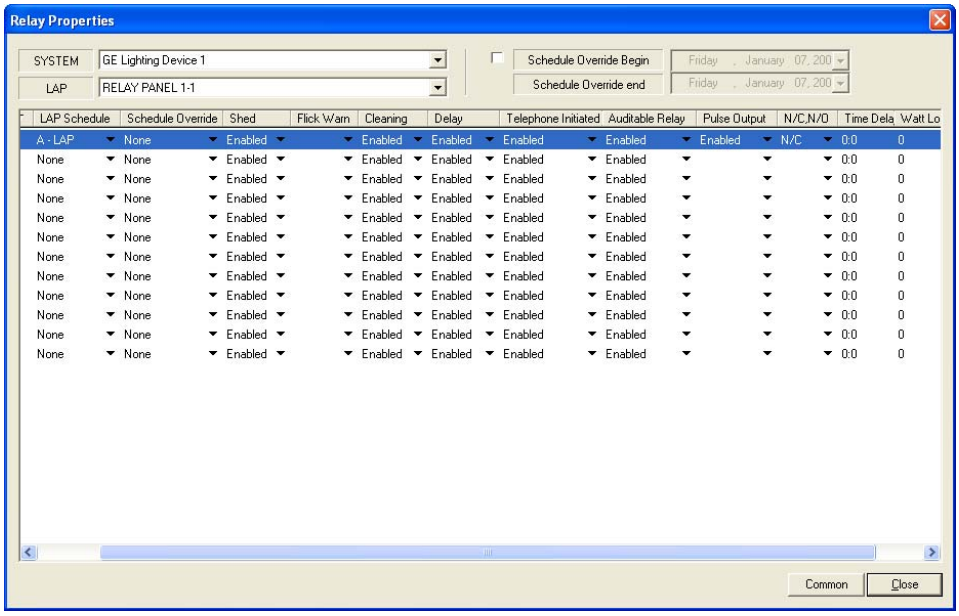
Relay Panel Properties:

Displays the Relay Panel Properties.

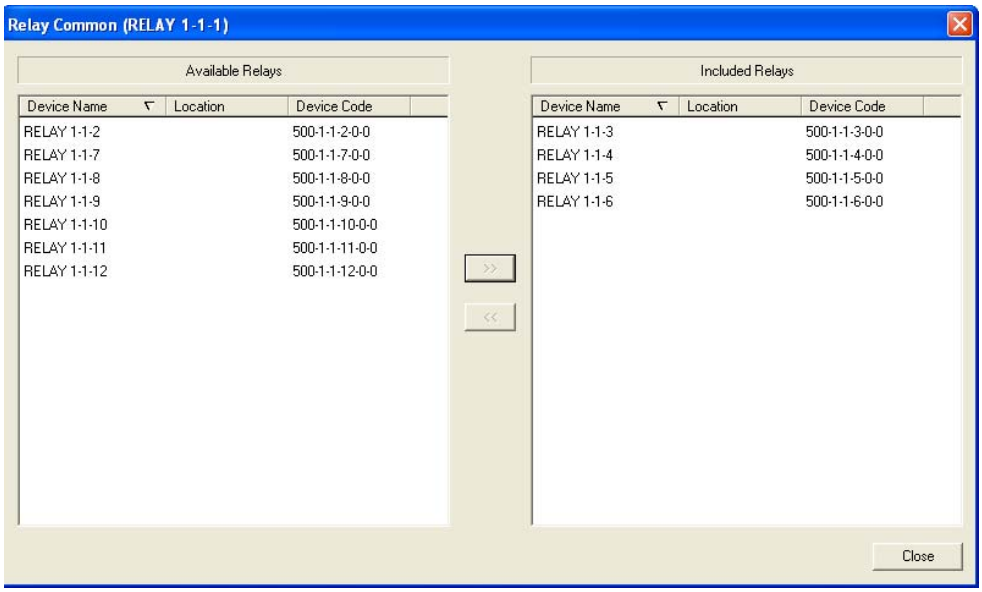


Relay Properties:

Displays the system and LAP which the Relay belongs and setup the detailed options of Device Name, LAP Schedule, Schedule Override, Shed, Flick Warn, Cleaning, Delay, Telephone Initiated Override, Auditable Relay, Pulse Output, N/C N/O, Time Delay, Watt Loads.



Click the Common button, if the Common Relay should be registered.

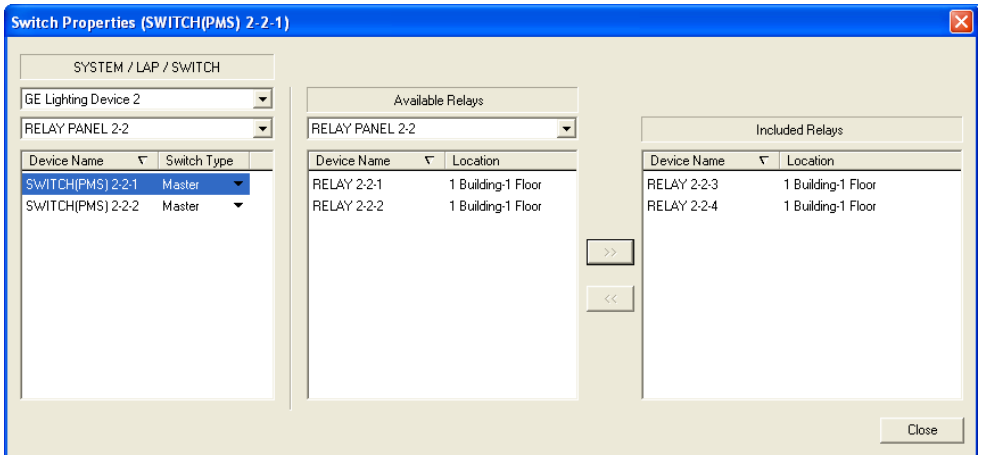


Switch Properties:

Select the switch to add the panel in the Switch list of each Panel

All the relays are listed up in the Available Relays list. Select the relays and click the move button, then the selected relays move to the Included Relays list.

Finally the selected relays are added to the selected switch.

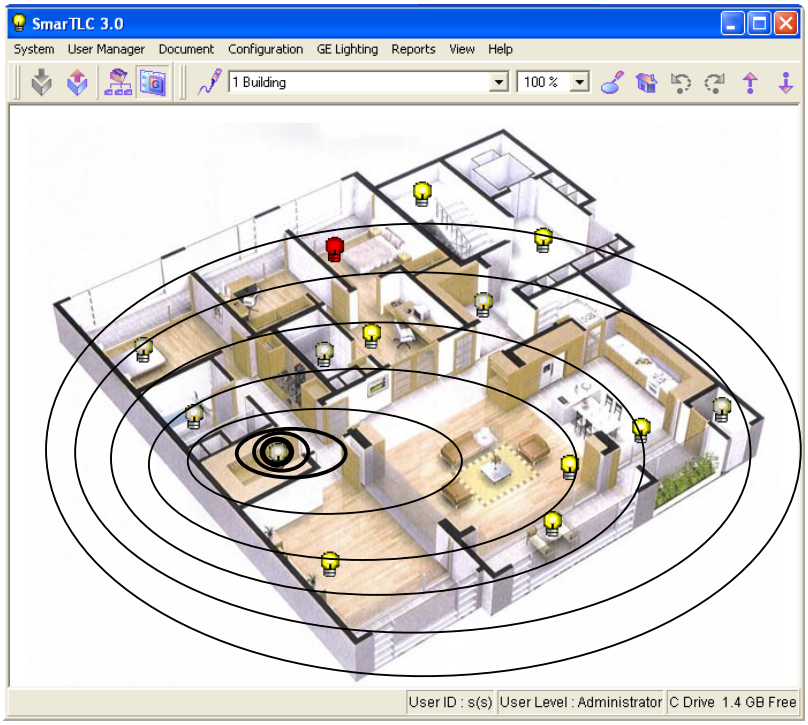


Request Relay Status

Select the relay in the device view and click the right mouse button. The Request Relay Status menu shows up.
Relay Status dialog is like bellows.

Find Device in Graphic View

SmarTLC manager needs to know the specific device location in the blue print of building. It is very difficult to find the location with only device name and printed blue print.
'Find Device in Graphic View' menu provides the efficient function for manager can find the device in the graphic view with little time.



Delete Device

Delete the registered device.

3. Drawing Management

3.1 Drawing Edit

SmarTLC provides excellent graphic editing solution.
Graphic editing function provides 'Line', 'Rectangle', 'Circle', 'Ellipse', 'Triangle', 'Polygon', 'Arc', 'Button', 'Image', 'Animation(GIF)' objects linking devices.
The graphic objects can be defined particular properties.

3.1.1 Object Toolbar

Object Toolbar shows up when click the drawing mode button

Icons	Function
	Drawing Line object.
	Drawing Rectangle object
	Drawing Circle object
	Drawing Ellipse object
	Drawing Triangle object
	Drawing Polygon object
	Drawing Arc object
	Drawing Button object
	Drawing Image object
	

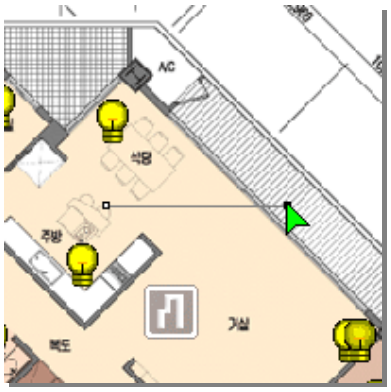
	Drawing Animation(GIF) object

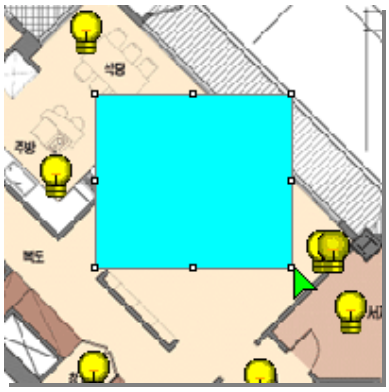
3.1.2 Drawing

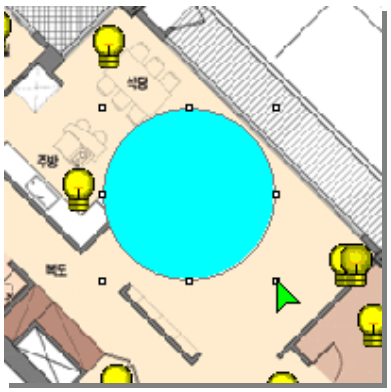
Select object button and start drawing on the graphinc window

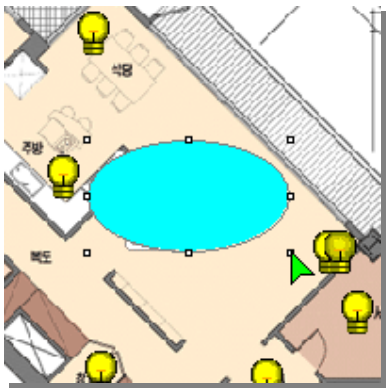
Line, Triangle, Rectangle, Circle, Ellipse object drawing

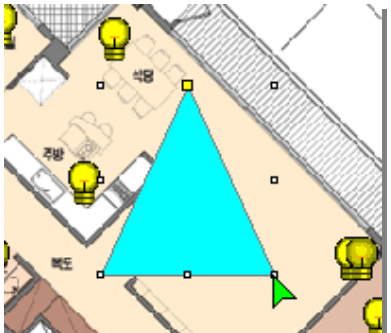
Line, Triangle, Rectangle, Circle, Ellipse object displayed as a same drawing process











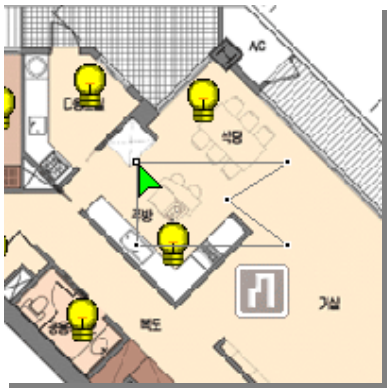
Polygon object drawing

Polygon object has start point and end point.
Select Polygon button and mouse click at the any point of the graphic window.

<Polygon 1>

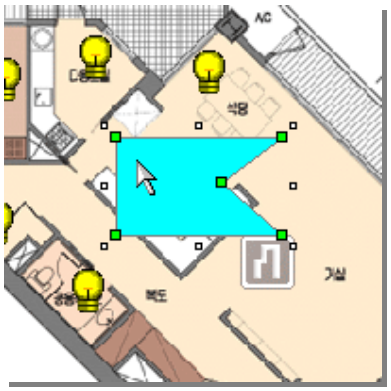
Mouse click the every point for the desirable shape.

<Polygon 2>



<Polygon 3>

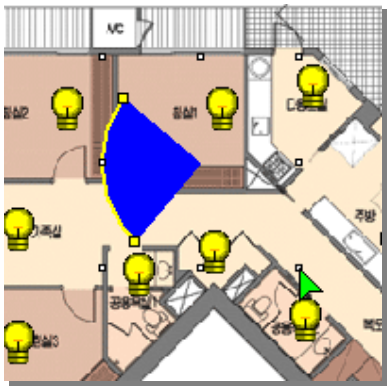
When the desirable shped is made click the mouse right button. The polygon is completed



<Polygon 4>

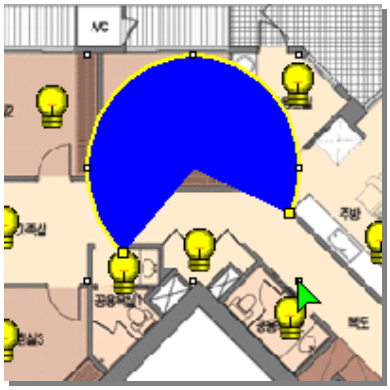
Arc object drawing

With various size Arc object can be made. Select the Arc button and mouse click at the any point of the graphic window.
When arc is displayed, change the rectangle size.



<Arc 1>

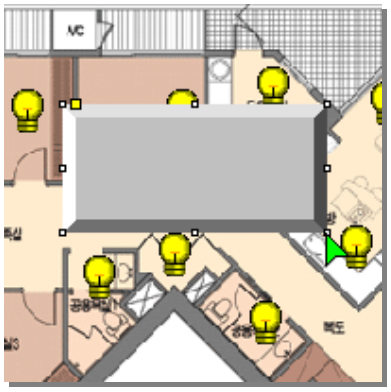
There are two yellow small rectangle in the both side of arc. Click the this point and change the size of arc



<Arc 2>

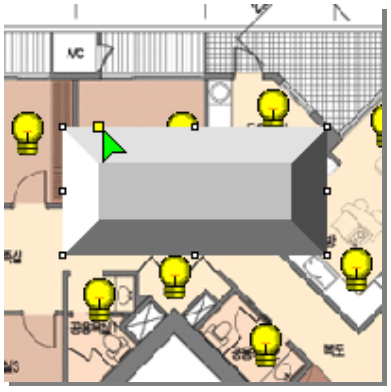
Button object drawing

Select the Arc button and mouse click at the any point of the graphic window.



<Button 1>

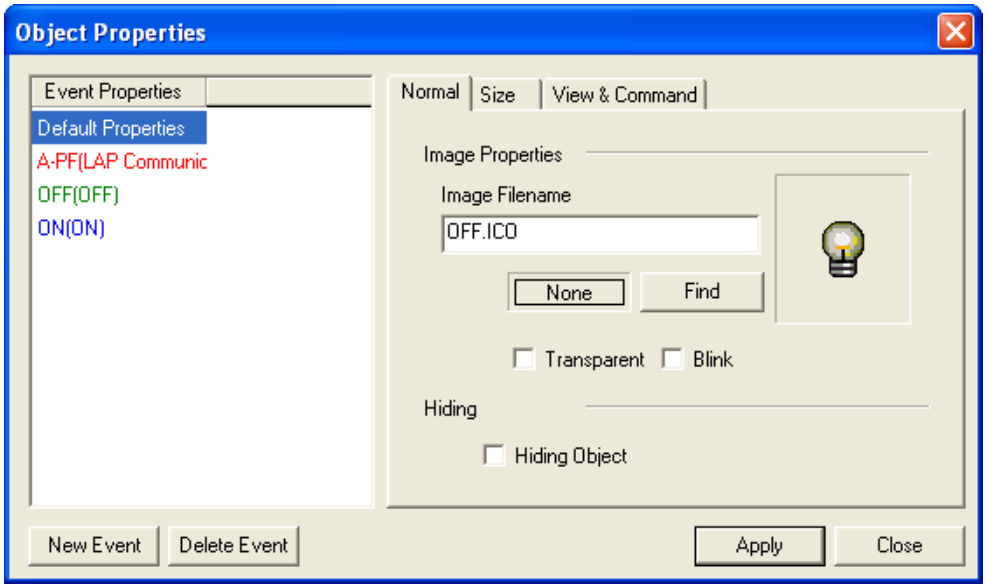
After making the button object, there is a yellow small rectangle on the left side of button. Click the yellow point and move with mouse then the 3D effect is changing



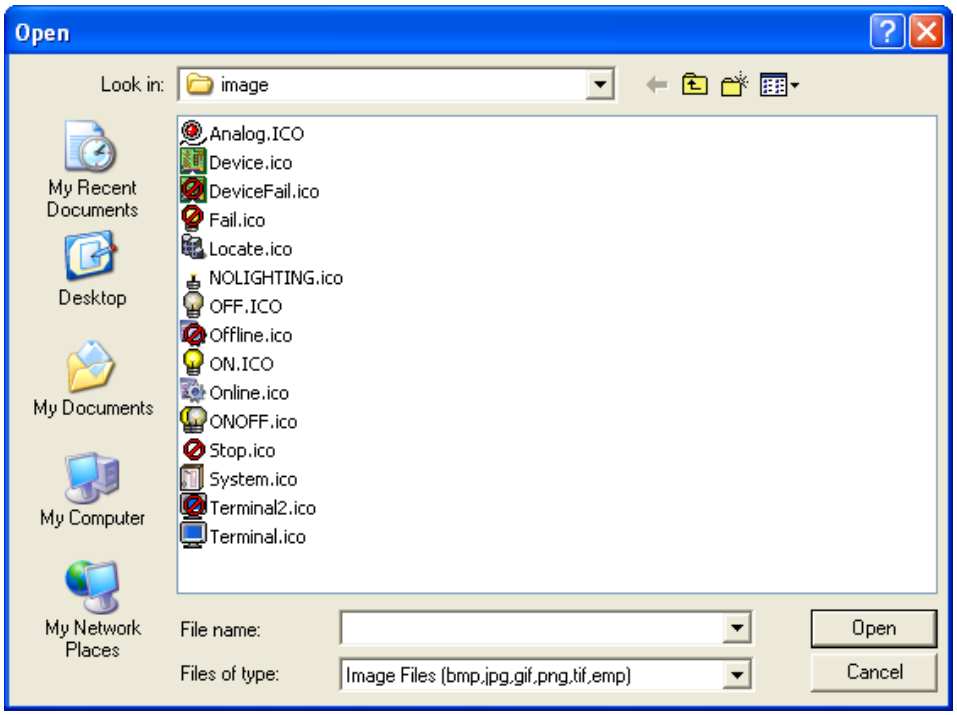
<Button 2>

Image object drawing

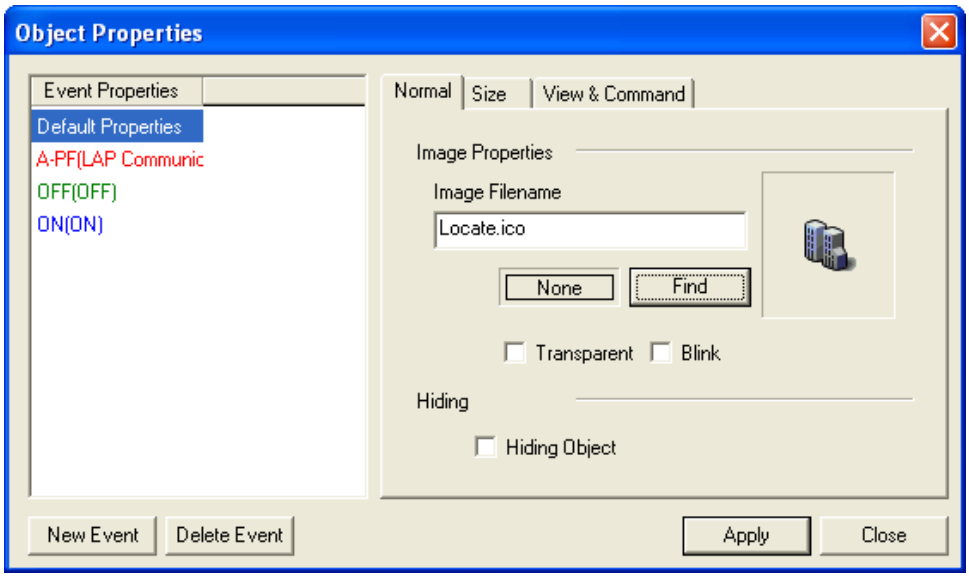
Icons, Bitmap, Jpeg files can be registered to the Image object.
Select the Image button and mouse click at the any point of the graphic window then the object properties dialog shows up.



Click the 'Find' button and select an image to display.



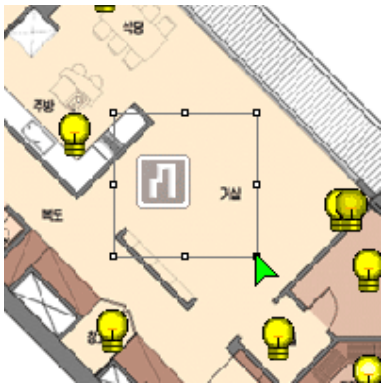
The selected image can be viewed on the object properties dialog.

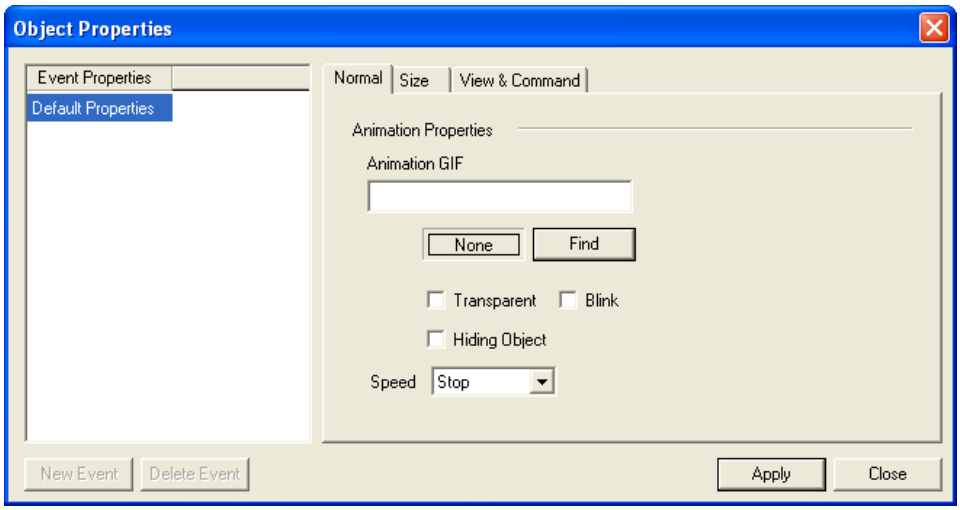


The selected image displayed on the graphic window and the object size is changeable.

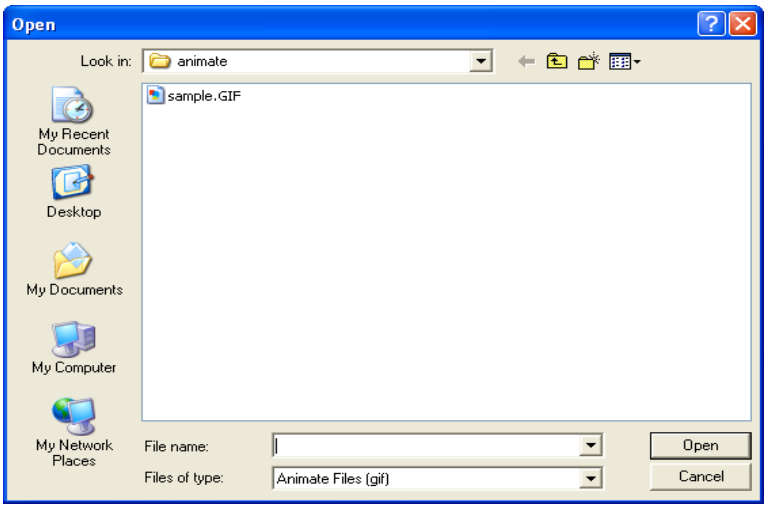
Animation object drawing

Animation object support animation gif file.
Select the Animation button and mouse click at the any point of the graphic window then the object properties dialog shows up.

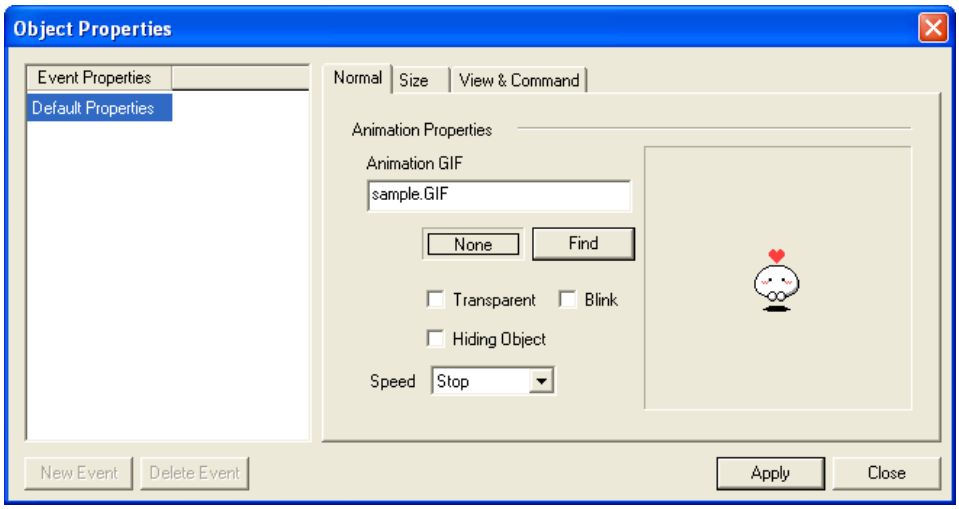




Click the 'Find' button and select an animation gif file to display.

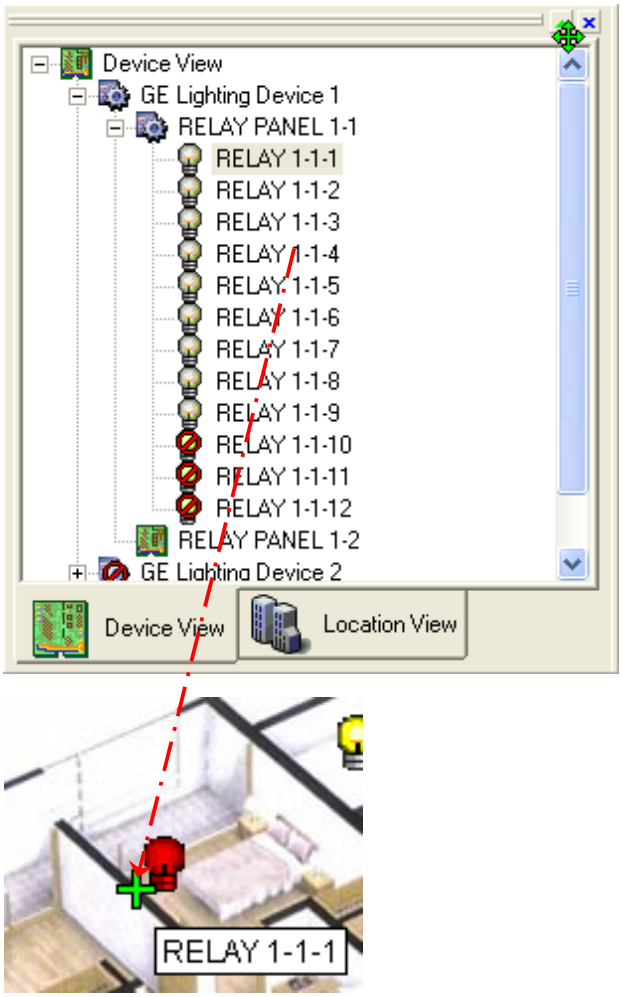


The selected animation gif file can be viewed on the object properties dialog.
The animation object is not activated by default setting. This object should be linked with the device and setup property.



3.1.3 Link Object to Device

After drawing and editting the object, devices should be linked to.
All the events of device can be applied on the graphic window after linking to the device.
Select the device on the device view and drag and drop it on to the object to link.



3.1.4 Align Toolbar

Align Toolbar displayed when click the drawing mode button.

Align Toolbar aligns objects on the basis of selected object.
The buttons' function is as follows.

Icons	Function
	Set the object to the front
	Set the object to the back
	Align the objects to the left side
	Align the objects to the center side
	Align the objects to the right side
	Align the objects to the top
	Align the objects to the middle
	Align the objects to the bottom

Align Toolbar functions are same as submenu of object.

3.1.5 Arrange Toolbar

Arrange Toolbar displayed when click the drawing mode button.

Arrange Toolbar arranges objects on the basis of selected object.
The buttons' function is as follows.

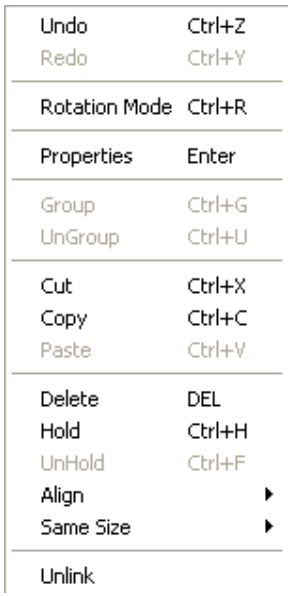
Icons	Function
	Arrange all the objects as same width
	Arrange all the objects as same height
	Arrange all the objects as same height and width
	Arrange all the objects as same wide space
	Arrange all the objects as same long space

3.2 Graphic Edit Menu

SmarTLC provides excellent graphic edit functions and also each object has its own properties.
Objects react to the particular event and move other drawing window through objects property setting

3.2.1 Graphic menu

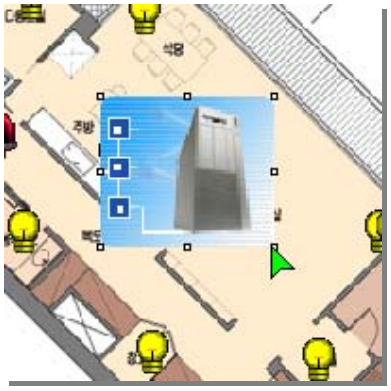
Select object and click mouse right button the graphic menu shows up.



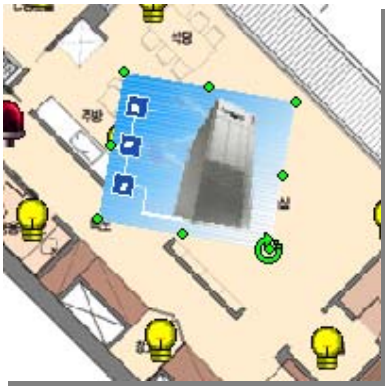
Graphic menu functions provide indiviual property setting and edit options of objects on the graphic window.
Graphic menu composes setting menu and edit menu.

Rotation Mode / Sizing Mode

'Rotation Mode' can be changed to the 'Sizing Mode' by selecting menu or clicking the mode toolbar.
Object can be rotated its shape in the 'Rotation Mode' and changed its size in the 'Sizing Mode'.



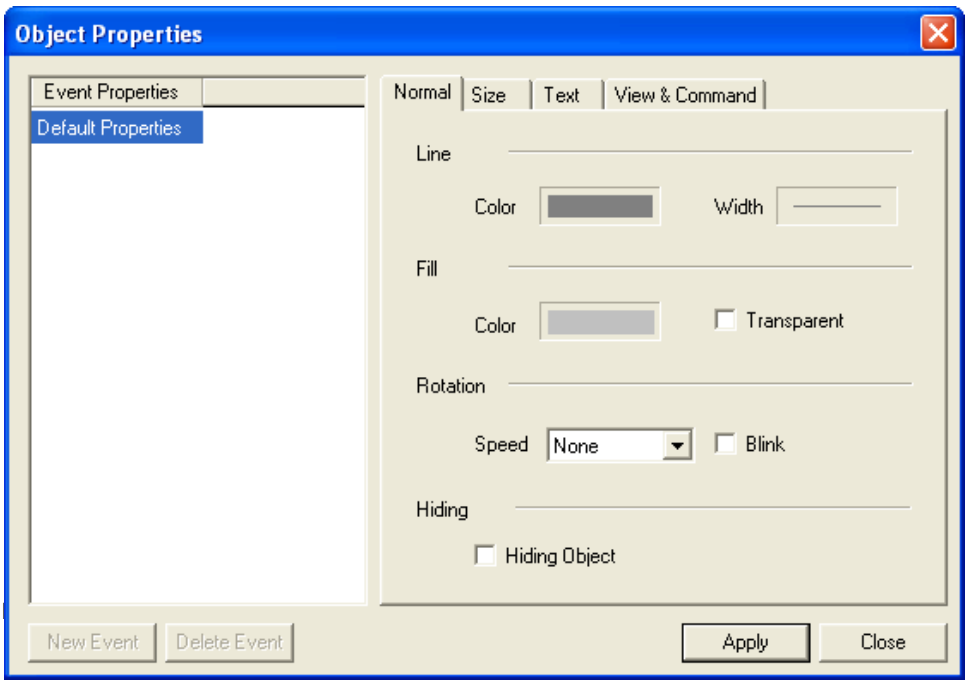
< 'Sizing Mode'>



< 'Rotation Mode' >

Properties

Object has detailed properties and can be reacting differently by the properties setup.
Basically, object properties are set as same options except animation object.
Following object properties dialog shows up when select the properties menu.

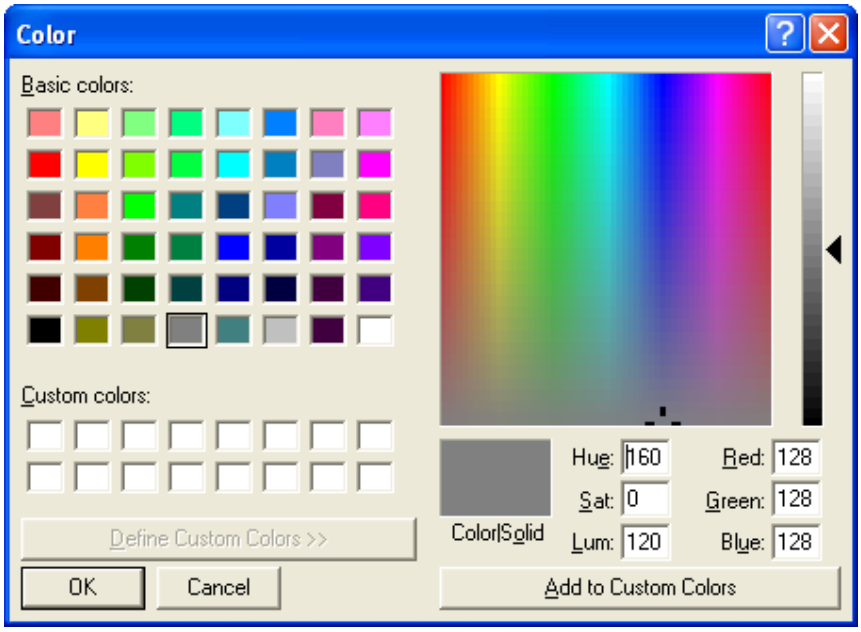


❑ Normal Properties

Normal Properties set outline color of object, internal color of object, rotation option and hide option.

Line:
Line sets the out line color of object.
When click the color section, the color selection window shows up.

If there is no color to select, click the other button. User can make customized color and use it.



Width:

Line width can be selected.

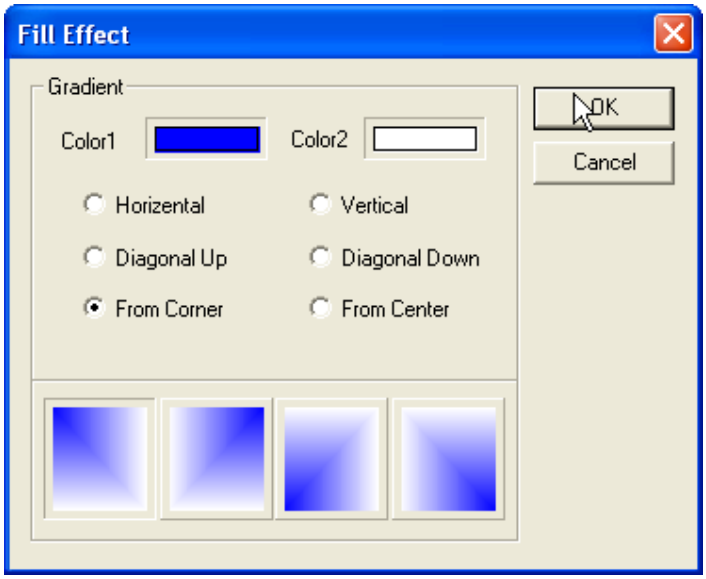
Click the width section then the following window pops up.

Fill:

Set the inner color of object. Fill option has gradient option to fill object color with mixed two colors. It gives a way to express the object' s status more effective.

The way of selection is same as line color selection

The gradient effect setting as follows.



Select two colors and the way of color selection is same as what explained before.

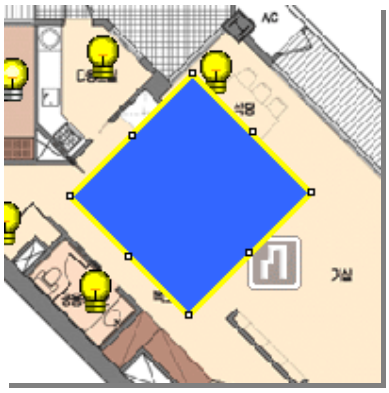
The gradient has 6 effects modes and four variable shapes.

Transparent:

Check the transparent option when the object on the back should be shown with the object on the top together.

The following picture explains the transparent effect.

<Transparent>

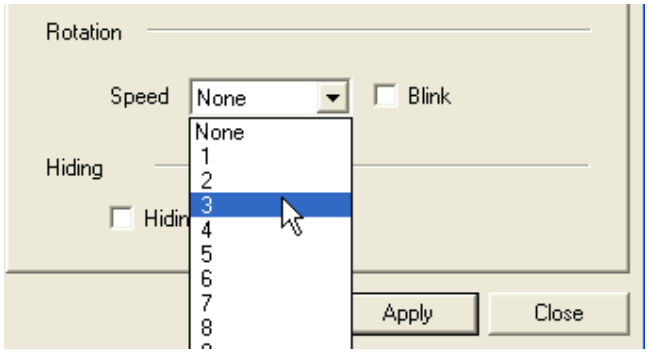


<Opaque>

Rotation :

Set the rotate option of the object when particular event is generated.

There are rotation speed and blink option.



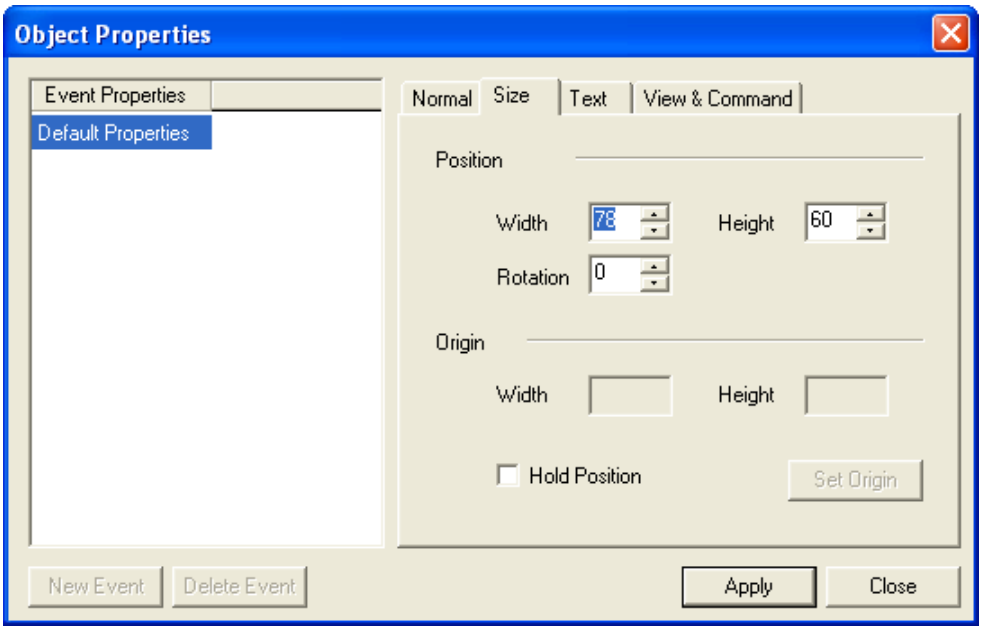
The speed option has 1~10. 1 is the lowest rotation option and 10 is the fastest rotation option.

Hide:

Hide the object when particular event is generated.

❑ Size Properties

Size Properties set the width, height, rotation ratio and hold position option of object.

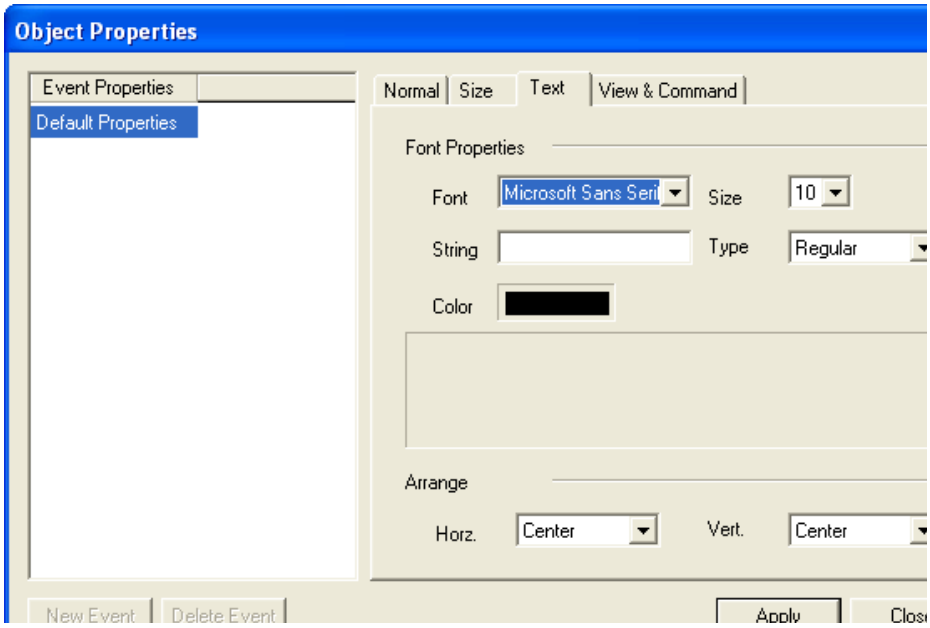


Position:
Set the width, height, and rotation ratio of object on the drawing.
The rotation ratio is from 0 to 359.

Hold position:
Hold position prevent the changing position by mistake of mouse movement.

❑ Text Properties

Text can be inserted inside of the object and Text properties dialog sets the font, detailed text color, size, type and string to be inserted.



Font:
Select the text font to be displayed

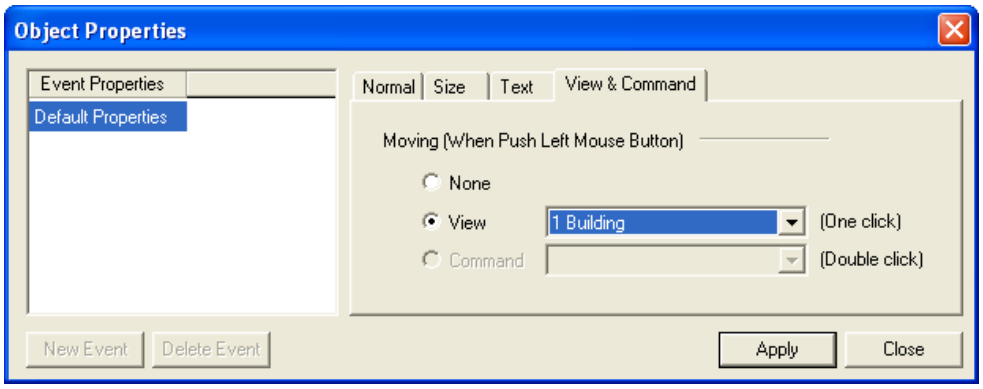
Size:
Select the text color

Type:
Select the text type

String:
The content to be shown inside of the object.

❑ View & Command Properties

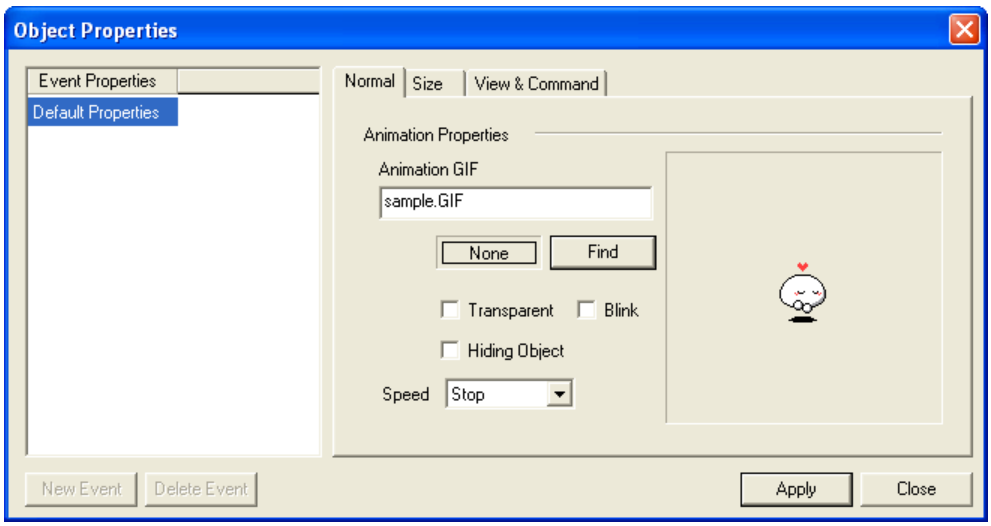
User can set the view option if one drawing needs to shift to another drawing when object clicked. User can generate the particular command event by double click the object. Command option provides this function.



None:
Do not set View & Command option

❑ Animation Properties

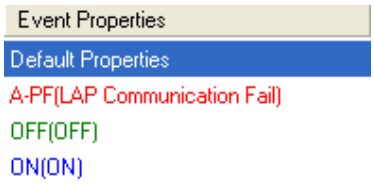
Animation properties dialog provides the option of the animation speed.



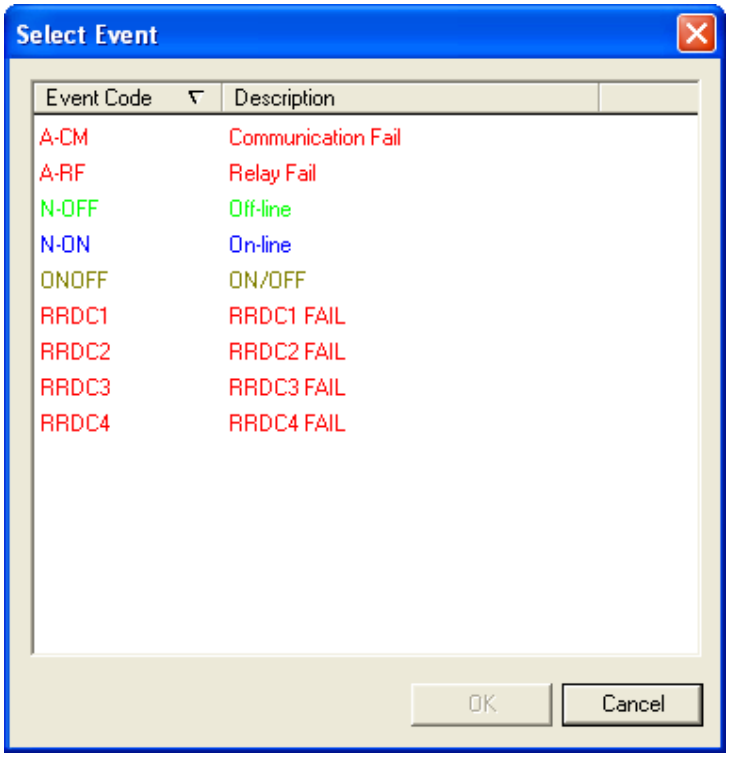
Speed:
Speed can be selected from stop to 9. When Stop option is selected, the animation option does not animate and 9 is the fastest animation speed.

❑ Event Properties

Event Properties has 'New Event', 'Delete Event' menus.
'New Event' menu adds variable event generated from the device to make the object on the drawing display variable status.
If the events are not registered, the event properties options are not applied

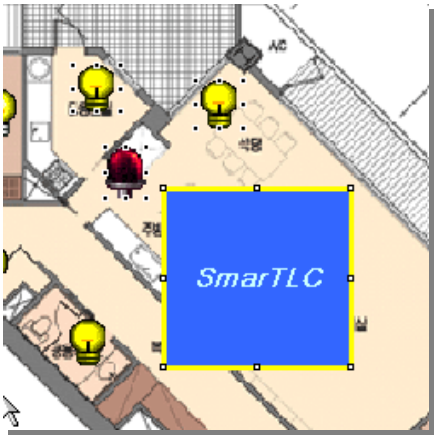


New Event:
The Event list window shows up when click the New Event button. Select the event to register.

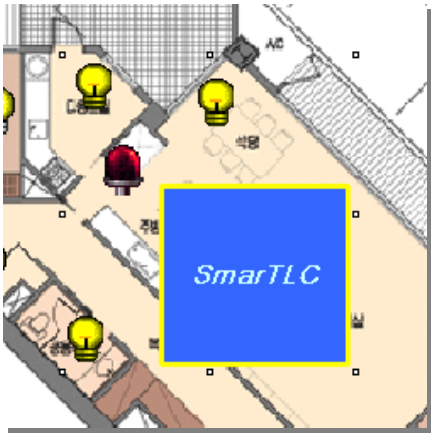


Group / Ungroup

Group menu include several objects and manage it as one object.
Select several objects to make one object and click the Group menu.



<Select objects>



<Set Objects as a group>

Cut

Cut menu delete the object but the cut object is copied to the memory. The cut object can be restored by selecting the 'Paste' menu

Copy

Copy the object to the memory
The selected object stays on the drawing and the copied one stored in the memory.

Paste

Duplicate the object with storing the selected object properties by 'cut' or 'copy' menu.
This menu is convenient for duplicating the many objects with same properties.

Delete

Delete the objects without storing the memory. The deleted objects are not restored.

Hold

Hold menu is for preventing the location changing by mistake of mouse movement.

Unhold

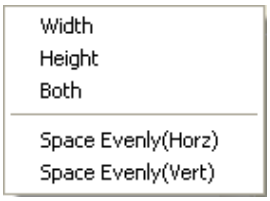
Unhold menu is for editing the held object. When unhold menu clicked the held object can be moved to other location.

Align

Align menus are same as Align Toolbar functions.

Same Size

Same Size menus are same as Arrange Toolbar functions.



Unlink

Unlink menu disconnect between device and object. Unlinked object can be linked to another device.

4. Event Management

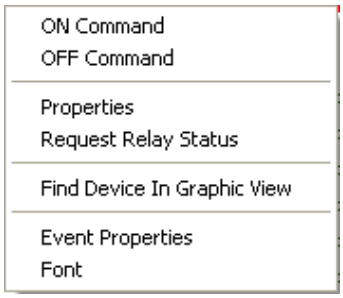
4.1 Event Window

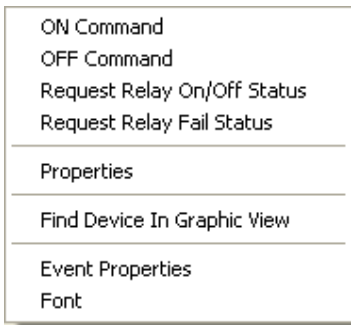
'Event Window' shows every event generated from the devices registered in SmarTLC.
This composes 'Event', 'Alarm', 'Alarm Resolution' tabs.

4.1.1 Event

Event Tab

Event Tab displays every events generated from the devices in real time
These events are all checked 'Display Event' option in the Event Properties dialog.





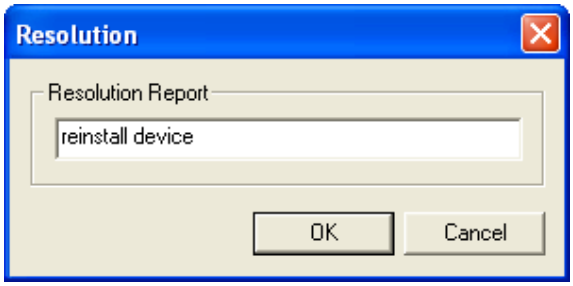
When right mous button click, the menu is dinamically changed depending on the generated event type.

ON Command, OFF Command, Properties, Request Relay Status, Find device in Graphic View menus are same as in the device view mouse right button click menus. The SmarTLC manager can control divices in the Event tab.

Alarm Tab

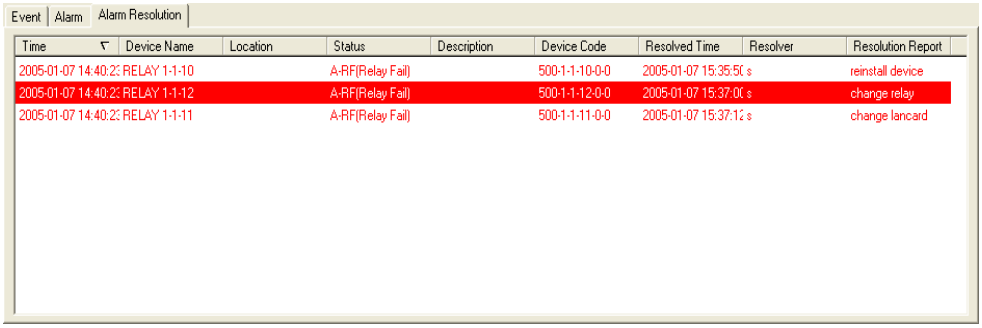
All the unresolved alarms are displayed in the Alarm Tab.
It provides sub menus as follows.

Resolve Alarm :
Manager writes a detailed resolution history in the dialog. All the generated alarms should be resolved and made resolved history.
This history can provide more efficient device management way.
Manager can leave the resolved log by clicking the Resolve Alarm and the logs are displayed in the Alarm Resolution tab.
The same log can be applied to the multi alarms.



Alarm Resolution

All the resolved alarms with the resolved logs are displayed in the Alarm Resolution Tab.



CHAPTER 4. User Notes

This chapter explains the notes for user to operate SmarTLC properly and efficiently.

1. SmarTLC System Composition

1.1 Hardware Composition

Item	Spec
CPU	INTEL P-4 2.0Ghz
MEMORY	512Mbytes
HDD	200Mb
VIDEO	1280 * 1024 16bit Color
MONITOR	1280 * 1024
INPUT DEVICE	Standard Windows Compatible Mouse

1.2 Software Composition

Item	Spec
O/S	Window 2000, Win XP
Program	IE 6.0
Program	SmarTLC