



# Logitech Gaming LED SDK V1.01

## Overview and Reference

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## Overview

The Logitech Gaming LED SDK enables applications such as games to control the backlight LEDs on supported Logitech gaming mice and keyboards.

The user has the option to block games from changing the lighting via a setting in the Logitech Gaming Software (version 8.35 and newer).

The SDK is a Windows based API for C/C++ programmers. Games based on the Microsoft Win32 API do not access hardware directly. Instead, the Logitech Gaming LED SDK interacts with supported Logitech devices on behalf of the games.

## SDK Package

The following files are included:

- LogitechLed.h: C/C++ header file containing function prototypes
- LogitechLed.lib: companion lib file to access DLL exported functions (32 and 64 bit)
- LogitechLed.dll: library of SDK functions (32 and 64 bit)

## Requirements

The Logitech Gaming LED SDK can be used on the following platforms:

- Windows XP SP2 (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)
- Windows 7 (32-bit and 64-bit)
- Windows 8 (32-bit and 64-bit)

The Logitech Gaming LED SDK is a C based interface and is designed for use by C/C++ programmers. Familiarity with Windows programming is required.

## Interfacing with the SDK

### Using LogitechLed.h and LogitechLed.lib to access LogitechLed.dll

The application can include LogitechLed.h and link to LogitechLed.lib (see "Sample usage of the SDK" further below or sample program in Samples folder). Installation folder for the DLL needs to be the same as the main executable, or needs to be part of the Path in the system environment.

### Using LogitechLed.dll directly

Alternatively the game can use the DLL directly by loading it via [LoadLibrary](#), and accessing its functions using [GetProcAddress](#) (see "Sample usage of the SDK" further below or sample program in Samples folder).

## Available colors

Different devices have different capabilities. They range from full RGB support to single color only. Details for supported devices are found further below in "Features of lighting-capable Logitech Gaming mice and keyboards".

The SDK has a single function to set the backlighting color and takes values for R(ed), G(reen) and B(lue). The way it deals with single color devices is to take whichever of the R, G, and B values is the highest and apply it. The highest value effectively defines the brightness of the single color devices. This is important to remember, because if for example rotating through colors, the game should make sure to alternate the maximum numbers as it rotates so that the effect on a single color device would be noticeable too.

## Multiple clients using the SDK at the same time

The SDK allows only one client to control backlighting at any given time. In case two applications try to initialize the SDK, only the first will succeed. The second application's initialization will fail.

## Features of lighting-capable Logitech Gaming mice and keyboards

### G710



#### Colors

Single color only. Full resolution. Highest value for R, G or B defines brightness.

### G600



#### Colors

Supports full RGB.

## G510



### *Colors*

Supports full RGB.

## G110



### *Colors*

Supports full R(ed) and B(lue), but not G(reen). When calling the SDK's LogiLedSetLighting function, values for green will be ignored.

## G19



### *Colors*

Supports full RGB.

## G105



### *Colors*

Single color only. Full resolution. Highest value for R, G or B defines brightness.

## G105 Call Of Duty



### *Colors*

Single color only. Full resolution. Highest value for R, G or B defines brightness.

## G300



### *Colors*

Supports red on/off, green on/off, blue on/off, or a combination of the three. When calling the SDK's LogiLedSetLighting function, if the percentage given is below 50, the color will be off, and when above 50, the color will be on.



## G11



### Colors

Single color only, 3 levels of brightness. When calling the SDK's LogiLedSetLighting function, if the highest RGB percentage given is below 33, the color will be off, if between 33 and 66, the brightness will be low, and when above 66, the brightness will be high.

## G13

The SDK treats this device as a keyboard.



### Colors

Supports full RGB.

## G15 v1



### Colors

Single color only, 3 levels of brightness. When calling the SDK's LogiLedSetLighting function, if the highest RGB percentage given is below 33, the color will be off, if between 33 and 66, the brightness will be low, and when above 66, the brightness will be high.

## G15 v2



### Colors

Single color only, 3 levels of brightness. When calling the SDK's LogiLedSetLighting function, if the highest RGB percentage given is below 33, the color will be off, if between 33 and 66, the brightness will be low, and when above 66, the brightness will be high.

## Do's and Don'ts

These are a few guidelines that may help you implement 'better' support in your game:

- Don't call `LogiLedSetLighting()` immediately after `LogiLedInit()`. Instead call `LogiLedInit()` during game initialization, and wait for later for other calls. Reason is that `LogiLedInit()` will communicate with the Gaming Software via `PostMessage` to figure out whether the user chose to keep games from changing lighting. And so a little time between the `LogiLedInit()` and `LogiLedSetLighting()` is necessary for the communication to complete.
- Remember that some devices have only a single color. They will work fine if flashing a red warning light for example (their color will flash), but if rotating lighting try to make sure that the max value of the three colors goes up and down so that single color devices will have their brightness go up and down.
- Whenever doing a temporary lighting effect (such as red flashing for warning), do not forget to save the current lighting (via SDK's `LogiLedSaveCurrentLighting` function) just before starting the effect, and then restoring the lighting (via SDK's `LogiLedRestoreLighting` function) right after the effect is finished.

## Sample usage of the SDK

### Using header and lib

```
#include "LogitechLed.h"

...

LogiLedInit();
// Be sure to do other things to give some time before calling LogiLedSetLighting()

...

// Save current lighting before starting some temporary effect
LogiLedSaveCurrentLighting(LOGITECH_LED_ALL);

...

int red = ...;
int green = ...;
int blue = ...;

LogiLedSetLighting(LOGITECH_LED_ALL, red, green, blue);

...

// Restore previously saved lighting when effect is finished
LogiLedRestoreLighting(LOGITECH_LED_ALL);

...

LogiLedShutdown();
```

## Using DLL directly

```
// Device types for LogiLedSaveCurrentLighting, LogiLedSetLighting,
LogiLedRestoreLighting
const int LOGITECH_LED_MOUSE = 0x0001;
const int LOGITECH_LED_KEYBOARD = 0x0002;
const int LOGITECH_LED_ALL = LOGITECH_LED_MOUSE | LOGITECH_LED_KEYBOARD;

typedef bool (* LPFNDDLINIT)();
typedef bool (* LPFNDDLSAVECURRENTLIGHTING)(int);
typedef bool (* LPFNDDLSETLIGHTING)(int, int, int, int);
typedef bool (* LPFNDDLRESTORELIGHTING)(int);
typedef void (* LPFNDDLSHUTDOWN)();

LPFNDDLINIT g_lpfnDllInit = NULL;
LPFNDDLSAVECURRENTLIGHTING g_lpfnDllSaveCurrentLighting = NULL;
LPFNDDLSETLIGHTING g_lpfnDllSetLighting = NULL;
LPFNDDLRESTORELIGHTING g_lpfnDllRestoreLighting = NULL;
LPFNDDLSHUTDOWN g_lpfnDllShutdown = NULL;

...

HINSTANCE logiDllHandle = LoadLibrary(L"LogitechLed.dll");
if (logiDllHandle != NULL)
{
    g_lpfnDllInit = (LPFNDDLINIT)GetProcAddress(logiDllHandle, "LogiLedInit");
    g_lpfnDllSaveCurrentLighting =
(LPFNDDLSAVECURRENTLIGHTING)GetProcAddress(logiDllHandle, "LogiLedSaveCurrentLighting");
    g_lpfnDllSetLighting = (LPFNDDLSETLIGHTING)GetProcAddress(logiDllHandle,
"LogiLedSetLighting");
    g_lpfnDllRestoreLighting = (LPFNDDLRESTORELIGHTING)GetProcAddress(logiDllHandle,
"LogiLedRestoreLighting");
    g_lpfnDllShutdown = (LPFNDDLSHUTDOWN)GetProcAddress(logiDllHandle, "LogiLedShutdown");

    g_lpfnDllInit();
}
// Be sure to do other things to give some time before calling LogiLedSetLighting()

...

// Save current lighting before starting some effect
g_lpfnDllSaveCurrentLighting(LOGITECH_LED_ALL);

...

int red = ...;
int green = ...;
int blue = ...;

g_lpfnDllSetLighting(LOGITECH_LED_ALL, red, green, blue);

...

// Restore previously saved lighting when effect is finished
g_lpfnDllRestoreLighting(LOGITECH_LED_ALL);
```

```
...  
g_lpfndllShutdown();
```

## Reference

### LogiLedInit

The **LogiLedInit()** function makes sure there isn't already another instance running and then makes necessary initializations. It saves the current lighting for all connected and supported devices.

```
bool LogiLedInit();
```

#### Return value

If the function succeeds, it returns true. Otherwise false.

If it returns false, it is either because there is already another application using the SDK, or because of an initialization error.

### LogiLedSaveCurrentLighting

The **LogiLedSaveCurrentLighting()** function saves the current lighting so that it can be restored after a temporary effect is finished. For example if flashing a red warning sign for a few seconds, you would call the **LogiLedSaveCurrentLighting()** function just before starting the warning effect.

```
bool LogiLedSaveCurrentLighting(int deviceType);
```

#### Parameters

- deviceType
  - LOGITECH\_LED\_MOUSE: change lighting on all connected and supported mice, but not keyboards
  - LOGITECH\_LED\_KEYBOARD: change lighting on all connected and supported keyboards, but not mice
  - LOGITECH\_LED\_ALL: change lighting on all connected and supported devices

#### Return value

If the function succeeds, it returns true. Otherwise false.

The function will return false if **LogiLedInit()** hasn't been called or because the user chose to opt out via a setting in the Logitech Gaming Software.

### LogiLedSetLighting

The **LogiLedSetLighting()** function sets the lighting on connected and supported devices.

```
bool LogiLedSetLighting(int deviceType, int redPercentage, int greenPercentage, int  
bluePercentage);
```

#### Parameters

- deviceType
  - LOGITECH\_LED\_MOUSE: change lighting on all connected and supported mice, but not keyboards

- LOGITECH\_LED\_KEYBOARD: change lighting on all connected and supported keyboards, but not mice
  - LOGITECH\_LED\_ALL: change lighting on all connected and supported devices
- redPercentage: amount of red. Range is 0 to 100.
- greenPercentage: amount of green. Range is 0 to 100.
- bluePercentage: amount of blue. Range is 0 to 100.

#### Return value

If the function succeeds, it returns true. Otherwise false.

The function will return false if **LogiLedInit()** hasn't been called or because the user chose to opt out via a setting in the Logitech Gaming Software.

#### Remarks

DO NOT call this function immediately after LogiLedInit(). Instead leave a little bit of time after LogiLedInit().

For devices that only support a single color, the highest percentage value given of the three colors will define the brightness.

### LogiLedRestoreLighting

The **LogiLedRestoreLighting()** function restores the last saved lighting. It should be called after a temporary effect is finished. For example if flashing a red warning sign for a few seconds, you would call the **LogiLedRestoreLighting ()** function right after the warning effect is finished.

```
bool LogiLedRestoreLighting(int deviceType);
```

#### Parameters

- deviceType
  - LOGITECH\_LED\_MOUSE: change lighting on all connected and supported mice, but not keyboards
  - LOGITECH\_LED\_KEYBOARD: change lighting on all connected and supported keyboards, but not mice
  - LOGITECH\_LED\_ALL: change lighting on all connected and supported devices

#### Return value

If the function succeeds, it returns true. Otherwise false.

The function will return false if **LogiLedInit()** hasn't been called or because the user chose to opt out via a setting in the Logitech Gaming Software.

### LogiLedShutdown

The **LogiLedShutdown ()** function restores the last saved lighting and frees memory used by the SDK.

```
void LogiLedShutdown();
```

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