
Keyboard Layout Services Reference

[Carbon](#) > [Events & Other Input](#)





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Keyboard Layout Services Reference

Framework:	Carbon/Carbon.h
Declared in	Keyboards.h

Overview

Keyboard Layout Services is the programming interface that lets you obtain information about available keyboard layouts, set a keyboard layout, and access a keyboard layout property list. Keyboard Layout Services fully supports Unicode ('uchr') as well as old style ('KCHR') keyboard layouts.

Functions by Task

Working With Keyboard Layouts

[KBGetLayoutType](#) (page 6)

Obtains the type of keyboard attached to the computer.

[KLGetCurrentKeyboardLayout](#) (page 13) **Deprecated in Mac OS X v10.5**

Obtains the keyboard layout for the layout currently selected in the Keyboards menu.

[KLGetKeyboardLayoutAtIndex](#) (page 13) **Deprecated in Mac OS X v10.5**

Obtains the keyboard layout reference associated with the specified index.

[KLGetKeyboardLayoutCount](#) (page 14) **Deprecated in Mac OS X v10.5**

Returns the number of keyboard layouts.

[KLGetKeyboardLayoutProperty](#) (page 15) **Deprecated in Mac OS X v10.5**

Obtains the value associated with the specified property tag for a keyboard layout.

[KLGetKeyboardLayoutWithIdentifier](#) (page 15) **Deprecated in Mac OS X v10.5**

Obtains the keyboard layout reference associated with the specified identifier.

[KLGetKeyboardLayoutWithName](#) (page 16) **Deprecated in Mac OS X v10.5**

Obtains the keyboard layout associated with the specified name.

[KLSetCurrentKeyboardLayout](#) (page 17) **Deprecated in Mac OS X v10.5**

Sets the keyboard layout.

Unsupported Functions

[KLGetIndexedKeyboardLayout](#) (page 6)

Obtains the keyboard layout reference associated with the specified index.

Functions

KBGetLayoutType

Obtains the type of keyboard attached to the computer.

```
PhysicalKeyboardLayoutType KBGetLayoutType (
    SInt16 iKeyboardType
);
```

Parameters

keyboardType

The keyboard type ID of the keyboard whose type you want to obtain. You can obtain the keyboard type ID by calling the Event Manager function `LMGetKbdType`.

Return Value

The type of the keyboard attached to the computer. See “[Physical Keyboard Layout Types](#)” (page 9) for the values that can be returned.

Discussion

You can call the function `KBGetLayoutType` to determine whether the keyboard attached to the computer is ANSI, ISO, or JIS. You should call this function in Mac OS 9 only if the Gestalt selector `gestaltKeyboardLib` is present.

Availability

Not available in CarbonLib.

Available in Mac OS X version 10.0 and later.

Declared In

`Keyboards.h`

KLGetIndexedKeyboardLayout

Obtains the keyboard layout reference associated with the specified index.

Not supported.

```
OSStatus KLGetIndexedKeyboardLayout (
    CFIndex iIndex,
    KeyboardLayoutRef * oKeyboardLayout
);
```

Availability

Unsupported. Not available in CarbonLib. Not available in Mac OS X version 10.2 and later.

Carbon Porting Notes

You should use the function [KLGetKeyboardLayoutAtIndex](#) (page 13) instead.

Declared In

`Keyboards.h`

Data Types

KeyboardLayoutRef

Specifies a reference to an opaque keyboard layout data structure.

```
typedef struct OpaqueKeyboardLayoutRef * KeyboardLayoutRef;
```

Discussion

You can use the Keyboard Layout Services functions [KLGetKeyboardLayoutAtIndex](#) (page 13), [KLGetKeyboardLayoutWithIdentifier](#) (page 15), [KLGetKeyboardLayoutWithName](#) (page 16), or [KLGetCurrentKeyboardLayout](#) (page 13) to obtain a keyboard layout reference. If you want to obtain keyboard layout data, use the function [KLGetKeyboardLayoutProperty](#) (page 15).

Availability

Available in Mac OS X v10.2 and later.

Declared In

Keyboards.h

Constants

Keyboard Layout Constants

Keyboard Layout Identifier

Specifies a layout identifier for a keyboard.

```
typedef SInt32 KeyboardLayoutIdentifier;
enum {
    kKLUSKeyboard = 0
};
```

Constants

kKLUSKeyboard

Specifies a US keyboard layout. All systems support this keyboard layout.

Available in Mac OS X v10.2 and later.

Declared in Keyboards.h.

Discussion

You can supply this constant as the `iIdentifier` parameter to the function [KLGetKeyboardLayoutWithIdentifier](#) (page 15). This constant is the property value associated with the keyboard layout property tag `kKLIdentifier`.

Keyboard Layout Formats

Specify the layout format used for a keyboard.

```
typedef SInt32 KeyboardLayoutKind;
enum {
    kCLKCHRuchrKind = 0,
    kCLKCHRKind = 1,
    kCLKLuchrKind = 2
};
```

Constants

kCLKCHRuchrKind

Specifies that both 'KCHR' and 'uchr' formats are available.

Available in Mac OS X v10.2 and later.

Declared in `Keyboards.h`.

kCLKCHRKind

Specifies that only the 'KCHR' format is available.

Available in Mac OS X v10.2 and later.

Declared in `Keyboards.h`.

kCLKLuchrKind

Specifies that only the 'uchr' format is available.

Available in Mac OS X v10.2 and later.

Declared in `Keyboards.h`.

Discussion

These values are associated with the keyboard layout property tag `kCLKKind`.

Keyboard Layout Property Tag

Specify the property tag for a keyboard layout.

```
typedef UInt32 KeyboardLayoutPropertyTag;
enum {
    kCLKCHRData = 0,
    kCLKLuchrData = 1,
    kCLKIdentifier = 2,
    kCLKIcon = 3,
    kCLKLocalizedName = 4,
    kCLKName = 5,
    kCLKGroupIdentifier = 6,
    kCLKKind = 7
};
```

Constants

kCLKCHRData

Specifies 'KCHR' layout format. The data associated with this tag is a pointer (`const void *`) to keyboard layout data formatted as 'KCHR' data. You can use 'KCHR' data with the Event Manager function `KeyTranslate`.

Available in Mac OS X v10.2 and later.

Declared in `Keyboards.h`.

`kKLUchrData`

Specifies 'uchr' layout format. The data associated with this tag is a pointer (`const void *`) to keyboard layout data formatted as 'uchr' data. You can use 'uchr' data with the Unicode Utilities function `UKeyTranslate`.

Available in Mac OS X v10.2 and later.

Declared in `Keyboards.h`.

`kKLIdentifier`

Specifies a keyboard layout identifier. The data associated with this tag is a “[Keyboard Layout Identifier](#)” (page 7) constant.

Available in Mac OS X v10.2 and later.

Declared in `Keyboards.h`.

`kKLIcon`

Specifies a keyboard layout icon. The data associated with this tag is an icon reference (`IconRef`) that specifies the icon that appears in the Keyboard menu.

Available in Mac OS X v10.2 and later.

Declared in `Keyboards.h`.

`kKLLocalizedName`

Specifies the localized keyboard layout name. The data associated with this tag is a `CFStringRef` that specifies the localized name for the keyboard layout.

Available in Mac OS X v10.2 and later.

Declared in `Keyboards.h`.

`kKLName`

Specifies the keyboard layout name. The data associated with this tag is a `CFStringRef` that specifies the name for the keyboard layout.

Available in Mac OS X v10.2 and later.

Declared in `Keyboards.h`.

`kKLGroupIdentifier`

Specifies the keyboard layout group identifier. The data associated with this tag is an `SInt32` value that specifies the grouping of a keyboard layout in the Keyboard menu.

Available in Mac OS X v10.2 and later.

Declared in `Keyboards.h`.

`kKLKind`

Specifies the keyboard layout format. The data associated with this tag is a “[Keyboard Layout Formats](#)” (page 7) constant.

Available in Mac OS X v10.2 and later.

Declared in `Keyboards.h`.

Discussion

You can supply any of these constants as the `iPropertyTag` parameter to the function `KLGetKeyboardLayoutProperty` (page 15) to retrieve the data associated with the property tag.

Physical Keyboard Layout Types

Specify the layout type associated with a physical keyboard.

```
typedef UInt32 PhysicalKeyboardLayoutType;
enum {
    kKeyboardJIS = 'JIS ',
    kKeyboardANSI = 'ANSI',
    kKeyboardISO = 'ISO ',
    kKeyboardUnknown = kUnknownType
};
```

Constants

kKeyboardJIS

Specifies a JIS keyboard.

Available in Mac OS X v10.0 and later.

Declared in `Keyboards.h`.

kKeyboardANSI

Specifies an ANSI keyboard layout.

Available in Mac OS X v10.0 and later.

Declared in `Keyboards.h`.

kKeyboardISO

Specifies an ISO keyboard layout.

Available in Mac OS X v10.0 and later.

Declared in `Keyboards.h`.

kKeyboardUnknown

Specifies the keyboard layout type is unknown.

Available in Mac OS X v10.0 and later.

Declared in `Keyboards.h`.**Discussion**

These constants are returned by the function [KBGetLayoutType](#) (page 6).

Unsupported Constants

Trap Value

Specifies a trap value for Keyboard Layout Services.

```
enum {
    _KeyboardDispatch = 0xAA7A
};
```

Discussion

This constant is not needed in Mac OS X.

PS2 Error Codes

Specify an error returned by unsupported PS2 keyboard functions.

```
enum {  
    errKBPS2KeyboardNotAvailable = -30850,  
    errKBIllegalParameters = -30851,  
    errKBFailSettingID = -30852,  
    errKBFailTranslationTable = -30853  
    errKBFailWritePreference = -30854  
};
```

Discussion

These constants are returned as error codes by the unsupported PS2 keyboard functions. They are not relevant to the functions whose prefix is 'KL'.

Deprecated Keyboard Layout Services Functions

A function identified as deprecated has been superseded and may become unsupported in the future.

Deprecated in Mac OS X v10.5

KLGetCurrentKeyboardLayout

Obtains the keyboard layout for the layout currently selected in the Keyboards menu. (Deprecated in Mac OS X v10.5.)

```
OSStatus KLGetCurrentKeyboardLayout (
    KeyboardLayoutRef *oKeyboardLayout
);
```

Parameters

oKeyboardLayout

On output, a pointer to the keyboard layout reference for keyboard layout currently selected in the Keyboard menu.

Return Value

A result code.

Availability

Not available in CarbonLib.

Available in Mac OS X version 10.2 and later.

Deprecated in Mac OS X v10.5.

Not available to 64-bit applications.

Declared In

Keyboards.h

KLGetKeyboardLayoutAtIndex

Obtains the keyboard layout reference associated with the specified index. (Deprecated in Mac OS X v10.5.)

Deprecated Keyboard Layout Services Functions

```
OSStatus KLGetKeyboardLayoutAtIndex (
    CFIndex iIndex,
    KeyboardLayoutRef *oKeyboardLayout
);
```

Parameters*iIndex*

The index of the keyboard layout whose keyboard layout reference you want to retrieve. The index must be a value from 0 through N-1, where N is the value returned in the `oCount` parameter by the function [KLGetKeyboardLayoutCount](#) (page 14).

oKeyboardLayout

On output, a pointer to the keyboard layout reference associated with the index specified by the `iIndex` parameter.

Return Value

A result code.

Discussion

You can call this function from within an iteration to access all of the available keyboard layouts.

Availability

Not available in CarbonLib.

Available in Mac OS X version 10.2 and later.

Deprecated in Mac OS X v10.5.

Not available to 64-bit applications.

Declared In

Keyboards.h

KLGetKeyboardLayoutCount

Returns the number of keyboard layouts. (Deprecated in Mac OS X v10.5.)

```
OSStatus KLGetKeyboardLayoutCount (
    CFIndex *oCount
);
```

Parameters*oCount*

On output, a pointer to a variable that specifies the number of keyboard layouts.

Return Value

A result code.

Discussion

You can call the function `KLGetKeyboardLayoutCount` when you want to obtain the number of keyboard layouts available to the user. Once you know the number of keyboard layouts, you can iterate through them by setting up a loop and calling the function [KLGetKeyboardLayoutAtIndex](#) (page 13).

Availability

Not available in CarbonLib.

Available in Mac OS X version 10.2 and later.

Deprecated in Mac OS X v10.5.

Not available to 64-bit applications.

Declared In

Keyboards.h

KLGetKeyboardLayoutProperty

Obtains the value associated with the specified property tag for a keyboard layout. (Deprecated in Mac OS X v10.5.)

```
OSStatus KLGetKeyboardLayoutProperty (
    KeyboardLayoutRef iKeyboardLayout,
    KeyboardLayoutPropertyTag iPropertyTag,
    const void **oValue
);
```

Parameters*iKeyboardLayout*

A keyboard layout reference for the keyboard layout whose property value you want to retrieve. You must pass a valid keyboard layout reference. You can obtain a keyboard layout reference by calling the functions [KLGetKeyboardLayoutAtIndex](#) (page 13), [KLGetKeyboardLayoutWithIdentifier](#) (page 15), [KLGetKeyboardLayoutWithName](#) (page 16), or [KLGetCurrentKeyboardLayout](#) (page 13).

iPropertyTag

A keyboard layout property tag that specifies the property whose value you want to retrieve. See [“Keyboard Layout Property Tag”](#) (page 8) for a list of the property tag constants you can supply.

oValue

On output, a pointer to the variable associated with the tag specified by the *iPropertyTag* parameter.

Return Value

A result code.

Discussion

You can use this function to obtain keyboard layout data, the keyboard identifier, the icon used for the keyboard menu, the keyboard layout name (including its localized name), the group identifier, and the keyboard layout kind. See [“Keyboard Layout Property Tag”](#) (page 8) for a complete list of the available property tags.

Availability

Not available in CarbonLib.

Available in Mac OS X version 10.2 and later.

Deprecated in Mac OS X v10.5.

Not available to 64-bit applications.

Declared In

Keyboards.h

KLGetKeyboardLayoutWithIdentifier

Obtains the keyboard layout reference associated with the specified identifier. (Deprecated in Mac OS X v10.5.)

Deprecated Keyboard Layout Services Functions

```
OSStatus KLGetKeyboardLayoutWithIdentifier (
    KeyboardLayoutIdentifier iIdentifier,
    KeyboardLayoutRef *oKeyboardLayout
);
```

Parameters*iIdentifier*

The keyboard layout identifier for which you want to obtain a keyboard layout reference. See “[Keyboard Layout Identifier](#)” (page 7) for a list of the constants you can supply.

oKeyboardLayout

On output, a pointer to the keyboard layout reference associated with the identifier specified by the *iIdentifier* parameter.

Return Value

A result code.

Availability

Not available in CarbonLib.

Available in Mac OS X version 10.2 and later.

Deprecated in Mac OS X v10.5.

Not available to 64-bit applications.

Declared In

Keyboards.h

KLGetKeyboardLayoutWithName

Obtains the keyboard layout associated with the specified name. (Deprecated in Mac OS X v10.5.)

```
OSStatus KLGetKeyboardLayoutWithName (
    CFStringRef iName,
    KeyboardLayoutRef *oKeyboardLayout
);
```

Parameters*iName*

A *CFStringRef* that specifies the name of the keyboard layout whose keyboard layout reference you want to obtain. This name is the nonlocalized keyboard layout name.

oKeyboardLayout

On output, a pointer to the keyboard layout reference associated with the name specified by the *iName* parameter.

Return Value

A result code.

Discussion

You can call this function when you want to obtain the keyboard layout reference for a keyboard layout other than the active keyboard layout. If you want to obtain the keyboard layout reference for the active keyboard layout, call the function [KLGetCurrentKeyboardLayout](#) (page 13).

Availability

Not available in CarbonLib.

Available in Mac OS X version 10.2 and later.

Deprecated Keyboard Layout Services Functions

Deprecated in Mac OS X v10.5.
Not available to 64-bit applications.

Declared In

Keyboards.h

KLSetCurrentKeyboardLayout

Sets the keyboard layout. (Deprecated in Mac OS X v10.5.)

```
OSStatus KLSetCurrentKeyboardLayout (
    KeyboardLayoutRef iKeyboardLayout
);
```

Parameters

iKeyboardLayout

A keyboard layout reference for the keyboard layout you want to set. You must pass a valid keyboard layout reference. You can obtain a keyboard layout reference by calling the functions [KLGetKeyboardLayoutAtIndex](#) (page 13), [KLGetKeyboardLayoutWithIdentifier](#) (page 15), [KLGetKeyboardLayoutWithName](#) (page 16), or [KLGetCurrentKeyboardLayout](#) (page 13).

Return Value

A result code.

Availability

Not available in CarbonLib.
Available in Mac OS X version 10.2 and later.
Deprecated in Mac OS X v10.5.
Not available to 64-bit applications.

Declared In

Keyboards.h

Document Revision History

This table describes the changes to *Keyboard Layout Services Reference*.

Date	Notes
2002-11-18	First version of this document.

REVISION HISTORY

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