

Technical Note TN2008

The CGDirectPalette API

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This Technote provides a reference for the CGDirectPalette API on Mac OS X.

The CGDirectPalette API is designed to provide easy access to display palettes with the help of the CGDirectDisplay API.

This Technote describes the important data types and all of the function calls in the API. A separate Technote covers the API provided by CGDirectDisplay.

Updated: [Nov 08 2000]

Definitions

Types used by the CGDirectPalette API:

Data Type	Description
CGDirectDisplayID	An opaque reference to a display (<code>kCGDirectMainDisplay</code> refers to the main display as a convenience)
CGDirectPaletteRef	An opaque reference to a palette
CGTableCount	An unsigned 32 bit value
CGByteValue	An unsigned 8 bit value used by the gamma/palette functions
CGPaletteBlendFraction	A float value between 0.0 and 1.0
CGDeviceColor	A color represented by three float values: red, green, and blue (0.0 is black and 1.0 is full on for each channel)
CGDeviceByteColor	A color represented by three unsigned byte values: red, green, and blue (0x00 is black and 0xFF is full on for each channel)

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Creating and Releasing Palettes

```
CGDirectPaletteRef CGPaletteCreateDefaultColorPalette (void);
```

- Creates a new palette object representing the default 8 bit color palette.
- Release the resulting palette using CGPaletteRelease().

```
CGDirectPaletteRef CGPaletteCreateWithDisplay(
    CGDirectDisplayID display);
```

- Creates a copy of the specified display's current palette, if any.
- Returns NULL if the current display mode does not support a palette.
- Release the resulting palette using CGPaletteRelease().

```
CGDirectPaletteRef CGPaletteCreateWithCapacity(
    CGTableCount capacity);
```

- Creates a new palette object with the specified capacity.
- Initializes the entries from the default color palette.
- Release the resulting palette using CGPaletteRelease().

```
CGDirectPaletteRef CGPaletteCreateWithSamples(
    CGDeviceColor * sampleTable,
    CGTableCount sampleCount);
```

- Creates a new palette object with the specified capacity and contents.
- Release the resulting palette using CGPaletteRelease().

```
CGDirectPaletteRef CGPaletteCreateWithByteSamples(
    CGDeviceByteColor * sampleTable,
    CGTableCount sampleCount);
```

- Creates a new palette object with the specified capacity and contents.
- Identical to CGPaletteCreateWithSamples except it takes CGDeviceByteColors instead of CGDeviceColors.
- Release the resulting palette using CGPaletteRelease().

```
void CGPaletteRelease(
    CGDirectPaletteRef palette);
```

- Releases the palette.

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Accessing Palette Information

```
CGDeviceColor CGPaletteGetColorAtIndex(
    CGDirectPaletteRef palette,
    CGTableCount index);
```

- Returns the `CGDeviceColor` at the specified index.
- Returns black (0, 0, 0) if the `index` is out of range.

```
CGTableCount CGPaletteGetIndexForColor(
    CGDirectPaletteRef palette,
    CGDeviceColor color);
```

- Returns the index that most closely matches the specified color value.
- The index returned is for the palette color with the lowest root-mean-squared (RMS) error with respect to the specified color.

```
CGTableCount CGPaletteGetNumberOfSamples(
    CGDirectPaletteRef palette);
```

- Returns the number of samples in the palette.
- Returns 0 for an invalid `CGDirectPaletteRef`.

```
void CGPaletteSetColorAtIndex(
    CGDirectPaletteRef palette,
    CGDeviceColor color,
    CGTableCount index);
```

- Sets the color value at the specified index.
- Fails if the `index` is out of range.

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Copying Palettes

```
CGDirectPaletteRef CGPaletteCreateCopy(
    CGDirectPaletteRef palette);
```

- Creates a new palette object with the same capacity and contents as the specified palette.
- Release the resulting palette using `CGPaletteRelease()`.

```
CGDirectPaletteRef CGPaletteCreateFromPaletteBlendedWithColor(
    CGDirectPaletteRef palette,
    CGPaletteBlendFraction fraction,
    CGDeviceColor color);
```

- Creates a new palette object by blending the specified palette with a fraction of the device color.
- Release the resulting palette using `CGPaletteRelease()`.

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Comparing Palettes

```
Boolean CGPaletteIsEqualToPalette(  
    CGDirectPaletteRef palette1,  
    CGDirectPaletteRef palette2);
```

- Returns TRUE if the two palettes have the same capacity and contents.
- Returns FALSE otherwise.
- Returns FALSE if either or both `CGDirectPaletteRefs` are invalid.

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Summary

This Technote covers the basic information you need to start using the `CGDirectPalette` API, including the important type definitions and function calls. Information on using the `CGDirectDisplay` API is contained in a separate Technote.

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