
CFBitVector Reference

Core Foundation



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CBitVector Reference

Derived From:	CType
Framework:	CoreFoundation/CoreFoundation.h
Companion guide	Collections Programming Topics for Core Foundation
Declared in	CBitVector.h

Overview

CBitVector and its derived mutable type, CFMutableBitVector, manage ordered collections of bit values, which are either 0 or 1. CBitVector creates static bit vectors and CFMutableBitVector creates dynamic bit vectors.

Functions by Task

Creating a Bit Vector

[CBitVectorCreate](#) (page 6)

Creates an immutable bit vector from a block of memory.

[CBitVectorCreateCopy](#) (page 7)

Creates an immutable bit vector that is a copy of another bit vector.

Getting Information About a Bit Vector

[CBitVectorContainsBit](#) (page 6)

Returns whether a bit vector contains a particular bit value.

[CBitVectorGetBitAtIndex](#) (page 8)

Returns the bit value at a given index in a bit vector.

[CBitVectorGetBits](#) (page 8)

Returns the bit values in a range of indices in a bit vector.

[CBitVectorGetCount](#) (page 8)

Returns the number of bit values in a bit vector.

[CBitVectorGetCountOfBit](#) (page 9)

Counts the number of times a certain bit value occurs within a range of bits in a bit vector.

[CFBitVectorGetFirstIndexOfBit](#) (page 9)

Locates the first occurrence of a certain bit value within a range of bits in a bit vector.

[CFBitVectorGetLastIndexOfBit](#) (page 10)

Locates the last occurrence of a certain bit value within a range of bits in a bit vector.

Getting the CFBitVector Type ID

[CFBitVectorGetTypeID](#) (page 11)

Returns the type identifier for the CFBitVector opaque type.

Functions

CFBitVectorContainsBit

Returns whether a bit vector contains a particular bit value.

```
Boolean CFBitVectorContainsBit (
    CFBitVectorRef bv,
    CFRange range,
    CFBit value
);
```

Parameters

bv
The bit vector to search.

range
The range of bits in *bv* to search.

value
The bit value for which to search.

Return Value

true if the specified range of bits in *bv* contains *value*, otherwise false.

Availability

Available in Mac OS X v10.0 and later.

Declared In

CFBitVector.h

CFBitVectorCreate

Creates an immutable bit vector from a block of memory.

```
CFBitVectorRef CFBitVectorCreate (
    CFAllocatorRef allocator,
    const UInt8 *bytes,
    CFIndex numBits
);
```

Parameters*allocator*

The allocator to use to allocate memory for the new bit vector. Pass `NULL` or `kCFAllocatorDefault` to use the current default allocator.

bytes

A pointer to the bit values to store in the new bit vector. The values are copied into the bit vector's own memory. The bit indices are numbered left-to-right with 0 being the left-most, or most-significant, bit in the byte stream.

numBits

The number of bits in the bit vector.

Return Value

A new bit vector. Ownership follows the Create Rule.

Availability

Available in Mac OS X v10.0 and later.

Declared In

`CFBitVector.h`

CFBitVectorCreateCopy

Creates an immutable bit vector that is a copy of another bit vector.

```
CFBitVectorRef CFBitVectorCreateCopy (
    CFAllocatorRef allocator,
    CFBitVectorRef bv
);
```

Parameters*allocator*

The allocator to use to allocate memory for the new bit vector. Pass `NULL` or `kCFAllocatorDefault` to use the current default allocator.

bv

The bit vector to copy.

Return Value

A new bit vector holding the same bit values as *bv*. Ownership follows the Create Rule.

Availability

Available in Mac OS X v10.0 and later.

Declared In

`CFBitVector.h`

CFBitVectorGetBitAtIndex

Returns the bit value at a given index in a bit vector.

```

CFBit CFBitVectorGetBitAtIndex (
    CFBitVectorRef bv,
    CFIndex idx
);

```

Parameters

bv
The bit vector to examine.

idx
The index of the bit value in *bv* to return.

Return Value

The bit value at index *idx* in *bv*.

Availability

Available in Mac OS X v10.0 and later.

Declared In

CFBitVector.h

CFBitVectorGetBits

Returns the bit values in a range of indices in a bit vector.

```

void CFBitVectorGetBits (
    CFBitVectorRef bv,
    CFRange range,
    UInt8 *bytes
);

```

Parameters

bv
The bit vector to examine.

range
The range of bit values to return.

bytes
On return, contains the requested bit values from *bv*. This argument must point to enough memory to hold the number of bits requested. The requested bits are left-aligned with the first requested bit stored in the left-most, or most-significant, bit of the byte stream.

Availability

Available in Mac OS X v10.0 and later.

Declared In

CFBitVector.h

CFBitVectorGetCount

Returns the number of bit values in a bit vector.


```
CFIndex CFBitVectorGetCount (
    CFBitVectorRef bv
);
```

Parameters

bv
The bit vector to examine.

Return Value

The current size of *bv*.

Availability

Available in Mac OS X v10.0 and later.

Declared In

CFBitVector.h

CFBitVectorGetCountOfBit

Counts the number of times a certain bit value occurs within a range of bits in a bit vector.

```
CFIndex CFBitVectorGetCountOfBit (
    CFBitVectorRef bv,
    CFRange range,
    CFBit value
);
```

Parameters

bv
The bit vector to examine.

range
The range of bits in *bv* to search.

value
The bit value to count.

Return Value

The number of occurrences of *value* in the specified range of *bv*.

Availability

Available in Mac OS X v10.0 and later.

Declared In

CFBitVector.h

CFBitVectorGetFirstIndexOfBit

Locates the first occurrence of a certain bit value within a range of bits in a bit vector.

```
CFIndex CFBitVectorGetFirstIndexOfBit (
    CFBitVectorRef bv,
    CFRange range,
    CFBit value
);
```

Parameters

bv
The bit vector to examine.

range
The range of bits in *bv* to search.

value
The bit value for which to search.

Return Value

The index of the first occurrence of *value* in the specified range of *bv*, or `kCFNotFound` if *value* is not present.

Availability

Available in Mac OS X v10.0 and later.

Declared In

CFBitVector.h

CFBitVectorGetLastIndexOfBit

Locates the last occurrence of a certain bit value within a range of bits in a bit vector.

```
CFIndex CFBitVectorGetLastIndexOfBit (
    CFBitVectorRef bv,
    CFRange range,
    CFBit value
);
```

Parameters

bv
The bit vector to examine.

range
The range of bits in *bv* to search.

value
The bit value for which to search.

Return Value

The index of the last occurrence of *value* in the specified range of *bv*, or `kCFNotFound` if *value* is not present.

Availability

Available in Mac OS X v10.0 and later.

Declared In

CFBitVector.h

CFBitVectorGetTypeID

Returns the type identifier for the CFBitVector opaque type.

```
CTypeID CFBitVectorGetTypeID (
    void
);
```

Return Value

The type identifier for the CFBitVector opaque type.

Discussion

CFMutableBitVector objects have the same type identifier as CFBitVector objects.

Availability

Available in Mac OS X v10.0 and later.

Declared In

CFBitVector.h

Data Types

CFBit

A binary value of either 0 or 1.

```
typedef UInt32 CFBit;
```

Availability

Available in Mac OS X v10.0 and later.

Declared In

CFBitVector.h

CFBitVectorRef

A reference to an immutable bit vector object.

```
typedef const struct __CFBitVector *CFBitVectorRef;
```

Availability

Available in Mac OS X v10.0 and later.

Declared In

CFBitVector.h

Document Revision History

This table describes the changes to *CFBitVector Reference*.

Date	Notes
2005-12-06	Clarified the return value of <code>CFBitVectorGetFirstIndexOfBit</code> and <code>CFBitVectorGetLastIndexOfBit</code> .
2005-08-11	Cosmetic changes to conform to documentation guidelines.
2003-01-01	First version of this document.

REVISION HISTORY

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