NSAppleEventDescriptor Class Reference

Developer

Contents

NSAppleEventDescriptor Class Reference

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Overview

An instance of `NSAppleEventDescriptor` represents a descriptor—the basic building block for Apple events. This class is a wrapper for the underlying Apple event descriptor data type, `AEDesc`. Scriptable Cocoa applications frequently work with instances of `NSAppleEventDescriptor`, but should rarely need to work directly with the `AEDesc` data structure.

A *descriptor* is a data structure that stores data and an accompanying four-character code. A descriptor can store a value, or it can store a list of other descriptors (which may also be lists). All the information in an Apple event is stored in descriptors and lists of descriptors, and every Apple event is itself a descriptor list that matches certain criteria.

Important: An instance of `NSAppleEventDescriptor` can represent any kind of descriptor, from a simple value descriptor, to a descriptor list, to a full-fledged Apple event.

Descriptors can be used to build arbitrarily complex containers, so that one Apple event can represent a script statement such as `tell application "TextEdit" to get word 3 of paragraph 6 of document 3`.

In working with Apple event descriptors, it can be useful to understand some of the underlying data types. You'll find terms such as descriptor, descriptor list, Apple event record, and Apple event defined in Building an Apple Event in *Apple Events Programming Guide*. You'll also find information on the four-character codes used to identify information within a descriptor. Apple event data types are defined in *Apple Event Manager Reference*. The values of many four-character codes used by Apple (and in some cases reused by developers) can be found in AppleScript Terminology and Apple Event Codes.

The most common reason to construct an Apple event with an instance of `NSAppleEventDescriptor` is to supply information in a return Apple event. The most common situation where you might need to extract information from an Apple event (as an instance of `NSAppleEventDescriptor`) is when an Apple event handler installed by your application is invoked, as described in "Installing an Apple Event Handler" in How Cocoa Applications Handle Apple Events. In addition, if you execute an AppleScript script using the `NSAppleScript` class, you get an instance of `NSAppleEventDescriptor` as the return value, from which you can extract any required information.

When you work with an instance of `NSAppleEventDescriptor`, you can access the underlying descriptor directly, if necessary, with the `aeDesc` (page 16) method. Other methods, including `descriptorWithDescriptorType:bytes:length:` (page 11) make it possible to create and initialize instances of `NSAppleEventDescriptor` without creating temporary instances of `NSData`.

The designated initializer for `NSAppleEventDescriptor` is `initWithAEDescNoCopy:` (page 22). However, it is unlikely that you will need to create a subclass of `NSAppleEventDescriptor`.

Cocoa doesn't currently provide a mechanism for applications to directly send raw Apple events (though compiling and executing an AppleScript script with `NSAppleScript` may result in Apple events being sent). However, Cocoa applications have full access to the Apple Event Manager C APIs for working with Apple events. So, for example, you might use an instance of `NSAppleEventDescriptor` to assemble an Apple event and call the Apple Event Manager function `AESend` to send it.

If you need to send Apple events, or if you need more information on some of the Apple event concepts described here, see *Apple Events Programming Guide* and *Apple Event Manager Reference*.

Adopted Protocols

NSCopying

- `copyWithZone:`

Tasks

Creating and Initializing Descriptors

`+ appleEventWithEventClass:eventID:targetDescriptor:returnID:transactionID:` (page 9)

Creates a descriptor that represents an Apple event, initialized according to the specified information.

`+ descriptorWithBoolean:` (page 10)

Creates a descriptor initialized with type `typeBoolean` that stores the specified Boolean value.

`+ descriptorWithDescriptorType:bytes:length:` (page 11)

Creates a descriptor initialized with the specified event type that stores the specified data (from a series of bytes).

`+ descriptorWithDescriptorType:data:` (page 11)

Creates a descriptor initialized with the specified event type that stores the specified data (from an instance of `NSData`).

`+ descriptorWithEnumCode:` (page 12)

Creates a descriptor initialized with type `typeEnumerated` that stores the specified enumerator data type value.

`+ descriptorWithInt32:` (page 13)

Creates a descriptor initialized with Apple event type `typeSInt32` that stores the specified integer value.

`+ descriptorWithString:` (page 13)

Creates a descriptor initialized with type `typeUnicodeText` that stores the text from the specified string.

`+ descriptorWithTypeCode:` (page 14)

Creates a descriptor initialized with type `typeType` that stores the specified type value.

`+ listDescriptor` (page 14)

Creates and initializes an empty list descriptor.

`+ nullDescriptor` (page 15)

Creates and initializes a descriptor with no parameter or attribute values set.

`+ recordDescriptor` (page 15)

Creates and initializes a descriptor for an Apple event record whose data has yet to be set.

– `initListDescriptor` (page 21)
Initializes a newly allocated instance as an empty list descriptor.

– `initRecordDescriptor` (page 21)
Initializes a newly allocated instance as a descriptor that is an Apple event record.

– `initWithAEDescNoCopy:` (page 22)
Initializes a newly allocated instance as a descriptor for the specified Carbon `AEDesc` structure.

– `initWithDescriptorType:bytes:length:` (page 23)
Initializes a newly allocated instance as a descriptor with the specified descriptor type and data (from an arbitrary sequence of bytes and a length count).

– `initWithDescriptorType:data:` (page 23)
Initializes a newly allocated instance as a descriptor with the specified descriptor type and data (from an instance of `NSData`).

– `initWithEventClass:eventID:targetDescriptor:returnID:transactionID:` (page 24)
Initializes a newly allocated instance as a descriptor for an Apple event, initialized with the specified values.

Getting Information About a Descriptor

– `aeDesc` (page 16)
Returns a pointer to the `AEDesc` structure that is encapsulated by the receiver, if it has one.

– `booleanValue` (page 16)
Returns the contents of the receiver as a Boolean value, coercing (to `typeBoolean`) if necessary.

– `coerceToDescriptorType:` (page 17)
Returns a descriptor obtained by coercing the receiver to the specified type.

– `data` (page 17)
Returns the receiver's data as an `NSData` object.

– `descriptorType` (page 19)
Returns the descriptor type of the receiver.

– `enumCodeValue` (page 19)
Returns the contents of the receiver as an enumeration type, coercing (to `typeEnumerated`) if necessary.

– `int32Value` (page 25)
Returns the contents of the receiver as an integer, coercing (to `typeSInt32`) if necessary.

– `numberOfItems` (page 26)
Returns the number of descriptors in the receiver's descriptor list.

– `stringValue` (page 31)

Returns the contents of the receiver as a Unicode text string, coercing (to `typeUnicodeText`) if necessary.

– `typeCodeValue` (page 32)

Returns the contents of the receiver as a type, coercing (to `typeType`) if necessary.

Working With List Descriptors

– `descriptorAtIndex:` (page 18)

Returns the descriptor at the specified (one-based) position in the receiving descriptor list.

– `insertDescriptor:atIndex:` (page 25)

Inserts a descriptor at the specified (one-based) position in the receiving descriptor list, replacing the existing descriptor, if any, at that position.

– `removeDescriptorAtIndex:` (page 27)

Removes the descriptor at the specified (one-based) position in the receiving descriptor list.

Working With Record Descriptors

– `descriptorForKeyword:` (page 19)

Returns the receiver's descriptor for the specified keyword.

– `keywordForDescriptorAtIndex:` (page 26)

Returns the keyword for the descriptor at the specified (one-based) position in the receiver.

– `removeDescriptorWithKeyword:` (page 28)

Removes the receiver's descriptor identified by the specified keyword.

– `setDescriptor:forKeyword:` (page 30)

Adds a descriptor, identified by a keyword, to the receiver.

Working With Apple Event Descriptors

– `attributeDescriptorForKeyword:` (page 16)

Returns a descriptor for the receiver's Apple event attribute identified by the specified keyword.

– `eventClass` (page 20)

Returns the event class for the receiver.

Class Methods

appleEventWithEventClass:eventID:targetDescriptor:returnID:transactionID:

Creates a descriptor that represents an Apple event, initialized according to the specified information.

```
+ (NSAppleEventDescriptor *)appleEventWithEventClass:(AEEventClass)eventClass
eventID:(AEEventID)eventID targetDescriptor:(NSAppleEventDescriptor
*)addressDescriptor returnID:(AEReturnID)returnID
transactionID:(AETransactionID)transactionID
```

Parameters

`eventClass`
The event class to be set in the returned descriptor.

`eventID`
The event ID to be set in the returned descriptor.

`addressDescriptor`
A pointer to a descriptor that identifies the target application for the Apple event. Passing `nil` results in an Apple event descriptor that has no `keyAddressAttr` attribute (it is valid for an Apple event to have no target address attribute).

`returnID`

The return ID to be set in the returned descriptor. If you pass a value of `kAutoGenerateReturnID`, the Apple Event Manager assigns the created Apple event a return ID that is unique to the current session. If you pass any other value, the Apple Event Manager assigns that value for the ID.

`transactionID`

The transaction ID to be set in the returned descriptor. A transaction is a sequence of Apple events that are sent back and forth between client and server applications, beginning with the client's initial request for a service. All Apple events that are part of a transaction must have the same transaction ID. You can specify `kAnyTransactionID` if the Apple event is not one of a series of interdependent Apple events.

Return Value

A descriptor for an Apple event, initialized according to the specified parameter values, or `nil` if an error occurs.

Discussion

Constants such as `kAutoGenerateReturnID` and `kAnyTransactionID` are defined in `AE.framework`, a subframework of `ApplicationServices.framework`.

Availability

Available in OS X v10.0 and later.

Related Sample Code
AttachAScript

Declared in
`NSAppleEventDescriptor.h`

descriptorWithBoolean:

Creates a descriptor initialized with type `typeBoolean` that stores the specified Boolean value.

```
+ (NSAppleEventDescriptor *)descriptorWithBoolean:(Boolean)boolean
```

Parameters

`boolean`

The Boolean value to be set in the returned descriptor.

Return Value

A descriptor with the specified Boolean value, or `nil` if an error occurs.

Availability

Available in OS X v10.2 and later.

Declared in
NSAppleEventDescriptor.h

descriptorWithDescriptorType:bytes:length:

Creates a descriptor initialized with the specified event type that stores the specified data (from a series of bytes).

```
+ (NSAppleEventDescriptor *)descriptorWithDescriptorType:(DescType)descriptorType
bytes:(const void *)bytes length:(NSUInteger)byteCount
```

Parameters

`descriptorType`

The descriptor type to be set in the returned descriptor.

`bytes`

The data, as a sequence of bytes, to be set in the returned descriptor.

`byteCount`

The length, in bytes, of the data to be set in the returned descriptor.

Return Value
A descriptor with the specified type and data, or `nil` if an error occurs.

Availability
Available in OS X v10.2 and later.

Related Sample Code
AttachAScript
Sketch
Sketch+Accessibility

Declared in
NSAppleEventDescriptor.h

descriptorWithDescriptorType:data:

Creates a descriptor initialized with the specified event type that stores the specified data (from an instance of `NSData`).

```
+ (NSAppleEventDescriptor *)descriptorWithDescriptorType:(DescType)descriptorType
data:(NSData *)data
```

Parameters

`descriptorType`

The descriptor type to be set in the returned descriptor.

`data`

The data, as an instance of `NSData`, to be set in the returned descriptor.

Return Value

A descriptor with the specified type and data, or `nil` if an error occurs.

Discussion

You can use this method to create a descriptor that you can build into a complete Apple event by calling methods such as `setAttributeDescriptor:forKeyword:` (page 29), `setDescriptor:forKeyword:` (page 30), and `setParamDescriptor:forKeyword:` (page 31).

Availability

Available in OS X v10.0 and later.

Related Sample Code

SimpleScriptingPlugin

Declared in

`NSAppleEventDescriptor.h`

descriptorWithEnumCode:

Creates a descriptor initialized with type `typeEnumerated` that stores the specified enumerator data type value.

```
+ (NSAppleEventDescriptor *)descriptorWithEnumCode:(OSType)enumerator
```

Parameters

`enumerator`

A type code that identifies the type of enumerated data to be stored in the returned descriptor.

Return Value

A descriptor with the specified enumerator data type value, or `nil` if an error occurs.

Availability

Available in OS X v10.2 and later.

Declared in

`NSAppleEventDescriptor.h`

descriptorWithInt32:

Creates a descriptor initialized with Apple event type `typeSInt32` that stores the specified integer value.

```
+ (NSAppleEventDescriptor *)descriptorWithInt32:(SInt32)signedInt
```

Parameters

`signedInt`

The integer value to be stored in the returned descriptor.

Return Value

A descriptor containing the specified integer value, or `nil` if an error occurs.

Availability

Available in OS X v10.2 and later.

Related Sample Code

AttachAScript

Declared in

`NSAppleEventDescriptor.h`

descriptorWithString:

Creates a descriptor initialized with type `typeUnicodeText` that stores the text from the specified string.

```
+ (NSAppleEventDescriptor *)descriptorWithString:(NSString *)string
```

Parameters

`string`

A string that specifies the text to be stored in the returned descriptor.

Return Value

A descriptor that contains the text from the specified string, or `nil` if an error occurs.

Availability

Available in OS X v10.2 and later.

Related Sample Code

AttachAScript

Declared in

`NSAppleEventDescriptor.h`

descriptorWithTypeCode:

Creates a descriptor initialized with type `typeType` that stores the specified type value.

```
+ (NSAppleEventDescriptor *)descriptorWithTypeCode:(OSType)typeCode
```

Parameters

`typeCode`

The type value to be set in the returned descriptor.

Return Value

A descriptor with the specified type, or `nil` if an error occurs.

Availability

Available in OS X v10.2 and later.

Declared in

`NSAppleEventDescriptor.h`

listDescriptor

Creates and initializes an empty list descriptor.

```
+ (NSAppleEventDescriptor *)listDescriptor
```

Return Value

An empty list descriptor, or `nil` if an error occurs.

Discussion

A list descriptor is a descriptor whose data consists of one or more descriptors. You can add items to the list by calling `insertDescriptor:atIndex:` (page 25) or remove them with `removeDescriptorAtIndex:` (page 27).

Invoking this method is equivalent to allocating an instance of `NSAppleEventDescriptor` and invoking `initListDescriptor` (page 21).

Availability

Available in OS X v10.0 and later.

Related Sample Code

AttachAScript

Declared in

`NSAppleEventDescriptor.h`

nullDescriptor

Creates and initializes a descriptor with no parameter or attribute values set.

```
+ (NSAppleEventDescriptor *)nullDescriptor
```

Return Value
A descriptor with no parameter or attribute values set, or `nil` if an error occurs.

Discussion
You don't typically call this method, as most `NSAppleEventDescriptor` instance methods can't be safely called on the returned empty descriptor.

Availability
Available in OS X v10.0 and later.

Declared in
`NSAppleEventDescriptor.h`

recordDescriptor

Creates and initializes a descriptor for an Apple event record whose data has yet to be set.

```
+ (NSAppleEventDescriptor *)recordDescriptor
```

Return Value
An Apple event descriptor whose data has yet to be set, or `nil` if an error occurs.

Discussion
An Apple event record is a descriptor whose data is a set of descriptors keyed by four-character codes. You can add information to the descriptor with methods such as `setAttributeDescriptor:forKeyword:` (page 29), `setDescriptor:forKeyword:` (page 30), and `setParamDescriptor:forKeyword:` (page 31).

Invoking this method is equivalent to allocating an instance of `NSAppleEventDescriptor` and invoking `initRecordDescriptor` (page 21).

Availability
Available in OS X v10.0 and later.

Declared in
`NSAppleEventDescriptor.h`

Instance Methods

aeDesc

Returns a pointer to the `AEDesc` structure that is encapsulated by the receiver, if it has one.

```
- (const AEDesc *)aeDesc
```

Return Value
If the receiver has a valid `AEDesc` structure, returns a pointer to it; otherwise returns `nil`.

Availability
Available in OS X v10.2 and later.

Declared in
`NSAppleEventDescriptor.h`

attributeDescriptorForKeyword:

Returns a descriptor for the receiver's Apple event attribute identified by the specified keyword.

```
- (NSAppleEventDescriptor *)attributeDescriptorForKeyword:(AEKeyword)keyword
```

Parameters
`keyword`
A keyword (a four-character code) that identifies the descriptor to obtain.

Return Value
The attribute descriptor for the specified keyword, or `nil` if an error occurs.

Discussion
The receiver must be an Apple event.

Availability
Available in OS X v10.0 and later.

Declared in
`NSAppleEventDescriptor.h`

booleanValue

Returns the contents of the receiver as a Boolean value, coercing (to `typeBoolean`) if necessary.

```
- (Boolean)booleanValue
```

Return Value

The contents of the descriptor, as a Boolean value, or `false` if an error occurs.

Availability

Available in OS X v10.2 and later.

Related Sample Code
Apply Firmware Password

Declared in
`NSAppleEventDescriptor.h`

coerceToDescriptorType:

Returns a descriptor obtained by coercing the receiver to the specified type.

```
- (NSAppleEventDescriptor *)coerceToDescriptorType:(DescType)descriptorType
```

Parameters

`descriptorType`

The descriptor type to coerce the receiver to.

Return Value

A descriptor of the specified type, or `nil` if an error occurs.

Availability

Available in OS X v10.0 and later.

Related Sample Code
Sketch

Sketch+Accessibility

Declared in
`NSAppleEventDescriptor.h`

data

Returns the receiver's data as an `NSData` object.

```
- (NSData *)data
```

Return Value

An instance of `NSData` containing the receiver's data, or `nil` if an error occurs.

Availability

Available in OS X v10.0 and later.

Related Sample Code

Apply Firmware Password

Sketch

Sketch+Accessibility

Declared in

`NSAppleEventDescriptor.h`

descriptorAtIndex:

Returns the descriptor at the specified (one-based) position in the receiving descriptor list.

```
- (NSAppleEventDescriptor *)descriptorAtIndex:(NSInteger)anIndex
```

Parameters

`anIndex`

The one-based descriptor list position of the descriptor to return.

Return Value

The descriptor from the specified position (one-based) in the descriptor list, or `nil` if the specified descriptor cannot be obtained.

Availability

Available in OS X v10.0 and later.

See Also

– `insertDescriptor:atIndex:` (page 25)
– `removeDescriptorAtIndex:` (page 27)

Related Sample Code

Apply Firmware Password

AttachAScript

Declared in

`NSAppleEventDescriptor.h`

descriptorForKeyword:

Returns the receiver's descriptor for the specified keyword.

```
- (NSAppleEventDescriptor *)descriptorForKeyword:(AEKeyword)keyword
```

Parameters

`keyword`

A keyword (a four-character code) that identifies the descriptor to obtain.

Return Value

A descriptor for the specified keyword, or `nil` if an error occurs.

Availability

Available in OS X v10.0 and later.

Declared in

`NSAppleEventDescriptor.h`

descriptorType

Returns the descriptor type of the receiver.

```
- (DescType)descriptorType
```

Return Value

The descriptor type of the receiver.

Availability

Available in OS X v10.0 and later.

Declared in

`NSAppleEventDescriptor.h`

enumCodeValue

Returns the contents of the receiver as an enumeration type, coercing (to `typeEnumerated`) if necessary.

```
- (OSType)enumCodeValue
```

Return Value

The contents of the descriptor, as an enumeration type, or 0 if an error occurs.

Availability
Available in OS X v10.2 and later.

Related Sample Code
Apply Firmware Password

Declared in
`NSAppleEventDescriptor.h`

eventClass

Returns the event class for the receiver.

```
- (AEEventClass)eventClass
```

Return Value
The event class (a four-character code) for the receiver, or 0 if an error occurs.

Discussion
The receiver must be an Apple event. An Apple event is identified by its event class and event ID, a pair of four-character codes stored as 32-bit integers. For example, most events in the Standard suite have the four-character code `'core'` (defined as the constant `kAECoreSuite` in `AE.framework`, a subframework of `ApplicationServices.framework`). For more information on event classes and event IDs, see Building an Apple Event in *Apple Events Programming Guide*.

Availability
Available in OS X v10.0 and later.

Related Sample Code
TextEdit

Declared in
`NSAppleEventDescriptor.h`

eventID

Returns the event ID for the receiver.

```
- (AEEventID)eventID
```

Return Value
The event ID (a four-character code) for the receiver, or 0 if an error occurs.

Discussion

The receiver must be an Apple event. An Apple event is identified by its event class and event ID, a pair of four-character codes stored as 32-bit integers. For example, the `open` Apple event from the Standard suite has the four-character code `'odoc'` (defined as the constant `kAEOpen` in `AE.framework`, a subframework of `ApplicationServices.framework`).

Availability

Available in OS X v10.0 and later.

Related Sample Code

TextEdit

Declared in

`NSAppleEventDescriptor.h`

initListDescriptor

Initializes a newly allocated instance as an empty list descriptor.

```
- (id)initListDescriptor
```

Return Value

An empty list descriptor, or `nil` if an error occurs.

Discussion

You can add items to the empty list descriptor with `insertDescriptor:atIndex:` (page 25). The list indices are one-based.

Availability

Available in OS X v10.0 and later.

See Also

`+ listDescriptor` (page 14)

Declared in

`NSAppleEventDescriptor.h`

initRecordDescriptor

Initializes a newly allocated instance as a descriptor that is an Apple event record.

```
- (id)initRecordDescriptor
```

Return Value
The initialized Apple event record, or `nil` if an error occurs.

Discussion
An Apple event record is a descriptor whose data is a set of descriptors keyed by four-character codes. You can add information to the descriptor with methods such as `setAttributeDescriptor:forKeyword:` (page 29), `setDescriptor:forKeyword:` (page 30), and `setParamDescriptor:forKeyword:` (page 31).

Availability
Available in OS X v10.0 and later.

See Also
`+ recordDescriptor` (page 15)

Declared in
`NSAppleEventDescriptor.h`

initWithAEDescNoCopy:

Initializes a newly allocated instance as a descriptor for the specified Carbon `AEDesc` structure.

```
- (id)initWithAEDescNoCopy:(const AEDesc *)aeDesc
```

Parameters
`aeDesc`
A pointer to the `AEDesc` structure to associate with the descriptor.

Return Value
An instance of `NSAppleEventDescriptor` that is associated with the structure pointed to by `aeDesc`, or `nil` if an error occurs.

Discussion
The initialized object takes responsibility for calling the `AEDisposeDesc` function on the `AEDesc` at object deallocation time. This is the designated initializer for this class.

Availability
Available in OS X v10.2 and later.

Declared in
`NSAppleEventDescriptor.h`

initWithDescriptorType:bytes:length:

Initializes a newly allocated instance as a descriptor with the specified descriptor type and data (from an arbitrary sequence of bytes and a length count).

```
- (id)initWithDescriptorType:(DescType)descriptorType bytes:(const void *)bytes
length:(NSUInteger)byteCount
```

Parameters

`descriptorType`

The descriptor type to be set in the returned descriptor.

`bytes`

The data, as a sequence of bytes, to be set in the returned descriptor.

`byteCount`

The length, in bytes, of the data to be set in the returned descriptor.

Return Value

An instance of `NSAppleEventDescriptor` with the specified type and data. Returns `nil` if an error occurs.

Availability

Available in OS X v10.2 and later.

Declared in

`NSAppleEventDescriptor.h`

initWithDescriptorType:data:

Initializes a newly allocated instance as a descriptor with the specified descriptor type and data (from an instance of `NSData`).

```
- (id)initWithDescriptorType:(DescType)descriptorType data:(NSData *)data
```

Parameters

`descriptorType`

The descriptor type to be set in the initialized descriptor.

`data`

The data to be set in the initialized descriptor.

Return Value

An instance of `NSAppleEventDescriptor` with the specified type and data. Returns `nil` if an error occurs.

Availability
Available in OS X v10.0 and later.

See Also
`+ descriptorWithDescriptorType:data:` (page 11)

Declared in
`NSAppleEventDescriptor.h`

initWithEventClass:eventID:targetDescriptor:returnID:transactionID:

Initializes a newly allocated instance as a descriptor for an Apple event, initialized with the specified values.

```
- (id)initWithEventClass:(AEEventClass)eventClass eventID:(AEEventID)eventID
targetDescriptor:(NSAppleEventDescriptor *)addressDescriptor
returnID:(AEReturnID)returnID transactionID:(AETransactionID)transactionID
```

Parameters
`eventClass`

The event class to be set in the returned descriptor.

`eventID`

The event ID to be set in the returned descriptor.

`addressDescriptor`

A pointer to a descriptor that identifies the target application for the Apple event. Passing `nil` results in an Apple event descriptor that has no `keyAddressAttr` attribute (it is valid for an Apple event to have no target address attribute).

`returnID`

The return ID to be set in the returned descriptor. If you pass a value of `kAutoGenerateReturnID`, the Apple Event Manager assigns the created Apple event a return ID that is unique to the current session. If you pass any other value, the Apple Event Manager assigns that value for the ID.

`transactionID`

The transaction ID to be set in the returned descriptor. A transaction is a sequence of Apple events that are sent back and forth between client and server applications, beginning with the client's initial request for a service. All Apple events that are part of a transaction must have the same transaction ID. You can specify `kAnyTransactionID` if the Apple event is not one of a series of interdependent Apple events.

Return Value
The initialized Apple event (an instance of `NSAppleEventDescriptor`), or `nil` if an error occurs.

Availability
Available in OS X v10.0 and later.

Declared in
`NSAppleEventDescriptor.h`

insertDescriptor:atIndex:

Inserts a descriptor at the specified (one-based) position in the receiving descriptor list, replacing the existing descriptor, if any, at that position.

```
- (void)insertDescriptor:(NSAppleEventDescriptor *)descriptor
atIndex:(NSInteger)anIndex
```

Parameters
`descriptor`

The descriptor to insert in the receiver. Specifying an index of 0 or count + 1 causes appending to the end of the list.

`anIndex`

The one-based descriptor list position at which to insert the descriptor.

Discussion
Because it actually replaces the descriptor, if any, at the specified position, this method might better be called `replaceDescriptor:atIndex:`. The receiver must be a list descriptor. The indices are one-based. Currently provides no indication if an error occurs.

Availability
Available in OS X v10.0 and later.

See Also
– `descriptorAtIndex:` (page 18)
– `removeDescriptorAtIndex:` (page 27)

Related Sample Code
AttachAScript

Declared in
`NSAppleEventDescriptor.h`

int32Value

Returns the contents of the receiver as an integer, coercing (to `typeSInt32`) if necessary.

```
- (SInt32)int32Value
```

Return Value
The contents of the descriptor, as an integer value, or 0 if an error occurs.

Availability
Available in OS X v10.2 and later.

Related Sample Code
Apply Firmware Password
AttachAScript

Declared in
`NSAppleEventDescriptor.h`

keywordForDescriptorAtIndex:

Returns the keyword for the descriptor at the specified (one-based) position in the receiver.

```
- (AEKeyword)keywordForDescriptorAtIndex:(NSInteger)anIndex
```

Parameters
`anIndex`
The one-based descriptor list position of the descriptor to get the keyword for.

Return Value
The keyword (a four-character code) for the descriptor at the one-based location specified by `anIndex`, or 0 if an error occurs.

Availability
Available in OS X v10.0 and later.

Declared in
`NSAppleEventDescriptor.h`

numberOfItems

Returns the number of descriptors in the receiver's descriptor list.

```
- (NSInteger)numberOfItems
```

Return Value
The number of descriptors in the receiver's descriptor list (possibly 0); returns 0 if an error occurs.

Availability
Available in OS X v10.0 and later.

Related Sample Code
Apply Firmware Password

Declared in
`NSAppleEventDescriptor.h`

paramDescriptorForKeyword:

Returns a descriptor for the receiver's Apple event parameter identified by the specified keyword.

```
- (NSAppleEventDescriptor *)paramDescriptorForKeyword:(AEKeyword)keyword
```

Parameters
`keyword`

A keyword (a four-character code) that identifies the parameter descriptor to obtain.

Return Value
A descriptor for the specified keyword, or `nil` if an error occurs.

Discussion
The receiver must be an Apple event.

Availability
Available in OS X v10.0 and later.

Declared in
`NSAppleEventDescriptor.h`

removeDescriptorAtIndex:

Removes the descriptor at the specified (one-based) position in the receiving descriptor list.

```
- (void)removeDescriptorAtIndex:(NSInteger)anIndex
```

Parameters
`anIndex`

The one-based position of the descriptor to remove.

Discussion

The receiver must be a list descriptor. The indices are one-based. Currently provides no indication if an error occurs.

Availability

Available in OS X v10.2 and later.

See Also

– descriptorAtIndex: (page 18)
– insertDescriptor:atIndex: (page 25)

Declared in

NSAppleEventDescriptor.h

removeDescriptorWithKeyword:

Removes the receiver's descriptor identified by the specified keyword.

```
– (void)removeDescriptorWithKeyword:(AEKeyword)keyword
```

Parameters

keyword

A keyword (a four-character code) that identifies the descriptor to remove.

Discussion

The receiver must be an Apple event or Apple event record. Currently provides no indication if an error occurs.

Availability

Available in OS X v10.0 and later.

Declared in

NSAppleEventDescriptor.h

removeParamDescriptorWithKeyword:

Removes the receiver's parameter descriptor identified by the specified keyword.

```
– (void)removeParamDescriptorWithKeyword:(AEKeyword)keyword
```

Parameters

`keyword`

A keyword (a four-character code) that identifies the parameter descriptor to remove. Currently provides no indication if an error occurs.

Discussion

The receiver must be an Apple event or Apple event record, both of which can contain parameters.

Availability

Available in OS X v10.0 and later.

Declared in

`NSAppleEventDescriptor.h`

returnID

Returns the receiver's return ID (the ID for a reply Apple event).

```
- (AEReturnID)returnID
```

Return Value

The receiver's return ID (an integer value), or 0 if an error occurs.

Discussion

The receiver must be an Apple event.

Availability

Available in OS X v10.0 and later.

Declared in

`NSAppleEventDescriptor.h`

setAttributeDescriptor:forKeyword:

Adds a descriptor to the receiver as an attribute identified by the specified keyword.

```
- (void)setAttributeDescriptor:(NSAppleEventDescriptor *)descriptor
forKeyword:(AEKeyword)keyword
```

Parameters

`descriptor`

The attribute descriptor to add to the receiver.

`keyword`

A keyword (a four-character code) that identifies the attribute descriptor to add. If a descriptor with that keyword already exists in the receiver, it is replaced.

Discussion

The receiver must be an Apple event. Currently provides no indication if an error occurs.

Availability

Available in OS X v10.0 and later.

Declared in

`NSAppleEventDescriptor.h`

setDescriptor:forKeyword:

Adds a descriptor, identified by a keyword, to the receiver.

```
- (void)setDescriptor:(NSAppleEventDescriptor *)descriptor
forKeyword:(AEKeyword)keyword
```

Parameters

`descriptor`

The descriptor to add to the receiver.

`keyword`

A keyword (a four-character code) that identifies the descriptor to add. If a descriptor with that keyword already exists in the receiver, it is replaced.

Discussion

The receiver must be an Apple event or Apple event record. Currently provides no indication if an error occurs.

Availability

Available in OS X v10.0 and later.

Related Sample Code

AttachAScript

SimpleScriptingPlugin

Declared in

`NSAppleEventDescriptor.h`

setParamDescriptor:forKeyword:

Adds a descriptor to the receiver as an Apple event parameter identified by the specified keyword.

```
- (void)setParamDescriptor:(NSAppleEventDescriptor *)descriptor
forKeyword:(AEKeyword)keyword
```

Parameters

`descriptor`

The parameter descriptor to add to the receiver.

`keyword`

A keyword (a four-character code) that identifies the parameter descriptor to add. If a descriptor with that keyword already exists in the receiver, it is replaced.

Discussion

The receiver must be an Apple event or Apple event record, both of which can contain parameters.

Availability

Available in OS X v10.0 and later.

Declared in

`NSAppleEventDescriptor.h`

stringValue

Returns the contents of the receiver as a Unicode text string, coercing (to `typeUnicodeText`) if necessary.

```
- (NSString *)stringValue
```

Return Value

The contents of the descriptor, as a string, or `nil` if an error occurs.

Availability

Available in OS X v10.2 and later.

Related Sample Code

Apply Firmware Password

AttachAScript

Declared in

`NSAppleEventDescriptor.h`

transactionID

Returns the receiver's transaction ID, if any.

```
– (AETransactionID)transactionID
```

Return Value
The receiver's transaction ID (an integer value), or 0 if an error occurs.

Discussion
The receiver must be an Apple event. Currently provides no indication if an error occurs. For more information on transactions, see the description for `appleEventWithEventClass:eventID:targetDescriptor:returnID:transactionID:` (page 9).

Availability
Available in OS X v10.0 and later.

Declared in
`NSAppleEventDescriptor.h`

typeCodeValue

Returns the contents of the receiver as a type, coercing (to `typeType`) if necessary.

```
– (OSType)typeCodeValue
```

Return Value
The contents of the descriptor, as a type, or 0 if an error occurs.

Availability
Available in OS X v10.2 and later.

Related Sample Code
Apply Firmware Password

Declared in
`NSAppleEventDescriptor.h`

Document Revision History

This table describes the changes to *NSAppleEventDescriptor Class Reference*.

Date	Notes
2007-04-10	Updated parameter declarations to reflect use of NSInteger and NSUInteger types.
2006-11-07	Added information to Class Description and revised parameter descriptions.
2006-05-23	First publication of this content as a separate document.

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