

# Functions

## Character Classification Functions

### Classify NeXTSTEP-Encoded Values

|     |  |
|-----|--|
| int | <b>NXIsAlpha</b> (unsigned int <i>c</i> )  |
| int | <b>NXIsUpper</b> (unsigned int <i>c</i> )  |
| int | <b>NXIsLower</b> (unsigned int <i>c</i> )  |
| int | <b>NXIsDigit</b> (unsigned int <i>c</i> )  |
| int | <b>NXIsXDigit</b> (unsigned int <i>c</i> ) |
| int | <b>NXIsAlNum</b> (unsigned int <i>c</i> )  |
| int | <b>NXIsSpace</b> (unsigned int <i>c</i> )  |
| int | <b>NXIsPunct</b> (unsigned int <i>c</i> )  |
| int | <b>NXIsPrint</b> (unsigned int <i>c</i> )  |
| int | <b>NXIsGraph</b> (unsigned int <i>c</i> )  |
| int | <b>NXIsCntrl</b> (unsigned int <i>c</i> )  |
| int | <b>NXIsAscii</b> (unsigned int <i>c</i> )  |

### Convert NeXTSTEP-Encoded Characters

|                 |   |
|-----------------|---|
| unsigned char * | <b>NXToAscii</b> (unsigned int <i>c</i> ) |
| int             | <b>NXToLower</b> (unsigned int <i>c</i> ) |
| int             | <b>NXToUpper</b> (unsigned int <i>c</i> ) |

## Defaults System Functions

### Set or Read Default Parameters

|              |   |
|--------------|---|
| int          | <b>NXRegisterDefaults</b> (const char * <i>owner</i> , const NXDefaultsVector <i>vector</i> )             |
| const char * | <b>NXGetDefaultValue</b> (const char * <i>owner</i> , const char * <i>name</i> )                          |
| const char * | <b>NXReadDefault</b> (const char * <i>owner</i> , const char * <i>name</i> )                              |
| int          | <b>NXRemoveDefault</b> (const char * <i>owner</i> , const char * <i>name</i> )                            |
| int          | <b>NXSetDefault</b> (const char * <i>owner</i> , const char * <i>name</i> , const char * <i>value</i> )   |
| const char * | <b>NXUpdateDefault</b> (const char * <i>owner</i> , const char * <i>name</i> )                            |
| void         | <b>NXUpdateDefaults</b> (void)  |
| int          | <b>NXWriteDefault</b> (const char * <i>owner</i> , const char * <i>name</i> , const char * <i>value</i> ) |
| int          | <b>NXWriteDefaults</b> (const char * <i>owner</i> , NXDefaultsVector <i>vector</i> )                      |
| const char * | <b>NXSetDefaultsUser</b> (const char * <i>newUser</i> )   |

## Error-Handling Functions

### Macros to Raise an Exception

|      |  |
|------|--|
| void | <b>NX_RAISE</b> (int <i>code</i> , const void * <i>data1</i> , const void * <i>data2</i> ) |
|------|--|

|      |                           |
|------|---------------------------|
| void | <b>NX_RERAISE</b> (void)  |
| val  | <b>NX_VALRETURN</b> (val) |
| void | <b>NX_VOIDRETURN</b>      |

## Set and Return an Exception Raiser

|                     |  |
|---------------------|--|
| void                | <b>NXDefaultExceptionRaiser</b> (int <i>code</i> , const void * <i>data1</i> , const void * <i>data2</i> ) |
| void                | <b>NXSetExceptionRaiser</b> (NXExceptionRaiser * <i>procedure</i> )  |
| NXExceptionRaiser * | <b>NXGetExceptionRaiser</b> (void)   |

## Macros to Handle Uncaught Exceptions

|                              |  |
|------------------------------|--|
| void                         | <b>NXSetUncaughtExceptionHandler</b> (NXUncaughtExceptionHandler * <i>proc</i> ) |
| NXUncaughtExceptionHandler * | <b>NXGetUncaughtExceptionHandler</b> (void)                                      |

## Manage the Error Data Buffer

|      |  |
|------|--|
| void | <b>NXAllocErrorData</b> (int <i>size</i> , void ** <i>data</i> ) |
| void | <b>NXResetErrorData</b> (void)                                   |

# Stream Functions

## Manipulate a Memory Stream

|            |  |
|------------|--|
| NXStream * | <b>NXOpenMemory</b> (const char * <i>address</i> , int <i>size</i> , int <i>mode</i> )                                   |
| NXStream * | <b>NXMapFile</b> (const char * <i>pathName</i> , int <i>mode</i> )   |
| int        | <b>NXSaveToFile</b> (NXStream * <i>stream</i> , const char * <i>name</i> )   |
| void       | <b>NXCloseMemory</b> (NXStream * <i>stream</i> , int <i>option</i> )   |
| void       | <b>NXGetMemoryBuffer</b> (NXStream * <i>stream</i> , char ** <i>streambuf</i> , int * <i>len</i> , int * <i>maxLen</i> ) |

## Open a File Stream or a Mach Port Stream

|            |   |
|------------|---|
| NXStream * | <b>NXOpenFile</b> (int <i>fd</i> , int <i>mode</i> )      |
| NXStream * | <b>NXOpenPort</b> (port_t <i>port</i> , int <i>mode</i> ) |

## Close a Stream

|      |  |
|------|--|
| void | <b>NXClose</b> (NXStream * <i>stream</i> ) |
|------|--|

## Read From or Write to a Stream

|     |   |
|-----|---|
| int | <b>NXRead</b> (NXStream * <i>stream</i> , void * <i>buf</i> , int <i>count</i> )        |
| int | <b>NXWrite</b> (NXStream * <i>stream</i> , const void * <i>buf</i> , int <i>count</i> ) |

## Read or Write Formatted Data from or to a Stream

|      |  |
|------|--|
| int  | <b>NXPutc</b> (NXStream * <i>stream</i> , char <i>c</i> ) /* a macro */                            |
| int  | <b>NXGetc</b> (NXStream * <i>stream</i> ) /* a macro */  |
| void | <b>NXUngetc</b> (NXStream * <i>stream</i> )  |
| int  | <b>NXScanf</b> (NXStream * <i>stream</i> , const char * <i>format</i> , ...)                       |
| void | <b>NXPrintf</b> (NXStream * <i>stream</i> , const char * <i>format</i> , ...)                      |
| int  | <b>NXVScanf</b> (NXStream * <i>stream</i> , const char * <i>format</i> , va_list <i>argList</i> )  |
| void | <b>NXVPrintf</b> (NXStream * <i>stream</i> , const char * <i>format</i> , va_list <i>argList</i> ) |

## Register a Procedure for Formatting Data Written to a Stream

```
void NXRegisterPrintfProc(char formatChar, NXPrintfProc *proc, void *procData)
```

## Flush a Stream

```
int NXFlush(NXStream *stream)
```

## Set or Report Current Position in a Stream

```
void NXSeek(NXStream *stream, long offset, int ptrName)
```

```
long      NXTell(NXStream *stream)
```

```

BOOL NXAtEOS(NXStream *stream) /* a macro */

```

## Support a User-defined Stream

NXStream \* NXStreamCreate(int mode, int createBuf)

NXStream \* NXStreamCreateFromZone(int mode, int createBuf, NXZone \*zone)

```
void NXStreamDestroy(NXStream *stream)
```

```
int NXDefaultRead(NXStream *stream, void *buf, int count)
```

```
int NXDefaultWrite(NXStream *stream, const void *buf, int count)
```

```
int NXFill(NXStream *stream)
```

```
void NXChangeBuffer(NXStream *stream)
```

# Typed Stream Functions

## Open or Close a Typed Stream

NXTypedStream\* **NXOpenTypedStream**(NXStream \**stream*, int *mode*)

```
void NXCloseTypedStream(NXTypedStream *stream)
```

**NXTypedStream\* NXOpenTypedStreamFromFile**(const char \*file\_name, int mode)

## Read or Write Objective C Objects from or to a Typed Stream

id **NXReadObject**(NXTypedStream \**stream*)

```
void NXWriteObject(NXTypedStream *stream, id object)
```

```
void NXWriteObjectReference(NXTypedStream *stream, id object)
```

```
void NXWriteRootObject(NXTypedStream *stream, id rootObject)
```

## Read or Write Arbitrary Data from or to a Typed Stream

```
void NXReadType(NXTypedStream *stream, const char *type, void *data)
```

```
void NXWriteType(NXTypedStream *stream, const char *type, const void *data)
```

```
void NXReadTypes(NXTypedStream *stream, const char *types, ...)
```

```
void NXWriteTypes(NXTypedStream *stream, const char *types, ...)
```

## Read or Write Arrays from or to a Typed Stream

```
void NXReadArray(NXTypedStream *stream, const char *dataType, int count, void
                *data)
```

```
void NXWriteArray(NXTypedStream *stream, const char *dataType, int count, const
                void *data)
```

**Read or Write an Object from or to a Typed-Stream Memory Buffer**

|        |   |
|--------|---|
| id     | <b>NXReadObjectFromBuffer</b> (const char * <i>buffer</i> , int <i>length</i> ) |
| char * | <b>NXWriteRootObjectToBuffer</b> (id <i>object</i> , int * <i>length</i> )      |
| void   | <b>NXFreeObjectBuffer</b> (char * <i>buffer</i> , int <i>length</i> )           |

**Determine Whether There's More Data to Be Read**

|      |  |
|------|--|
| BOOL | <b>NXEndOfTypedStream</b> (NXTypedStream * <i>stream</i> ) |
|------|--|

**Flush a Typed Stream**

|      |  |
|------|--|
| void | <b>NXFlushTypedStream</b> (NXTypedStream * <i>stream</i> ) |
|------|--|

**Get the Version Number of a Class**

|     |   |
|-----|---|
| int | <b>NXTypedStreamClassVersion</b> (NXTypedStream * <i>stream</i> , const char * <i>className</i> ) |
|-----|---|

**Get or Set the Zone for a Typed Stream**

|        |  |
|--------|--|
| NXZone | <b>NXGetTypedStreamZone</b> (NXTypedStream * <i>stream</i> )   |
| void   | <b>NXSetTypedStreamZone</b> (NXTypedStream * <i>stream</i> , NXZone * <i>zone</i> )                            |
| id     | <b>NXReadObjectFromBufferWithZone</b> (const char * <i>buffer</i> , int <i>length</i> , NXZone * <i>zone</i> ) |

**Memory Allocation Functions**

**Zone Memory Allocation**

|          |   |
|----------|---|
| void *   | <b>NXZoneMalloc</b> (NXZone * <i>zone</i> , size_t <i>size</i> )  |
| void *   | <b>NXZoneCalloc</b> (NXZone * <i>zone</i> , size_t <i>numElems</i> , size_t <i>numBytes</i> )                                     |
| void *   | <b>NXZoneRealloc</b> (NXZone * <i>zone</i> , void * <i>ptr</i> , size_t <i>size</i> )   |
| void     | <b>NXZoneFree</b> (NXZone * <i>zone</i> , void * <i>ptr</i> )   |
| NXZone * | <b>NXDefaultMallocZone</b> (void)   |
| NXZone * | <b>NXCreateZone</b> (size_t <i>startSize</i> , size_t <i>granularity</i> , int <i>canFree</i> )                                   |
| NXZone * | <b>NXCreateChildZone</b> (NXZone * <i>parentZone</i> , size_t <i>startSize</i> , size_t <i>granularity</i> , int <i>canFree</i> ) |
| void     | <b>NXMergeZone</b> (NXZone * <i>zone</i> )  |
| void     | <b>NXDestroyZone</b> (NXZone * <i>zone</i> )  |
| NXZone * | <b>NXZoneFromPtr</b> (void * <i>ptr</i> )   |
| void     | <b>NXZonePtrInfo</b> (void * <i>ptr</i> )   |
| int      | <b>NXMallocCheck</b> (void)   |
| void     | <b>NXNameZone</b> (NXZone * <i>zonep</i> , const char * <i>name</i> )   |

**Hash and String Table Functions**

**Create, Manipulate, and Free a Hash Table**

|               |   |
|---------------|---|
| NXHashTable * | <b>NXCreateHashTable</b> (NXHashTablePrototype <i>prototype</i> , unsigned <i>capacity</i> , const void * <i>info</i> ) |
| NXHashTable * | <b>NXCreateHashTableFromZone</b> (NXHashTablePrototype <i>prototype</i> , unsigned                                      |

|               |  |
|---------------|--|
|               | <i>capacity</i> , const void <i>*info</i> , NXZone <i>*zone</i> )                                    |
| void          | <b>NXFreeHashTable</b> (NXHashTable <i>*table</i> )  |
| void          | <b>NXEmptyHashTable</b> (NXHashTable <i>*table</i> )   |
| void          | <b>NXResetHashTable</b> (NXHashTable <i>*table</i> )   |
| NXHashTable * | <b>NXCopyHashTable</b> (NXHashTable <i>*table</i> )  |
| BOOL          | <b>NXCompareHashTables</b> (NXHashTable <i>*table1</i> , NXHashTable <i>*table2</i> )                |
| unsigned      | <b>NXPtrHash</b> (const void <i>*info</i> , const void <i>*data</i> )                                |
| unsigned      | <b>NXStrHash</b> (const void <i>*info</i> , const void <i>*data</i> )                                |
| int           | <b>NXPtrIsEqual</b> (const void <i>*info</i> , const void <i>*data1</i> , const void <i>*data2</i> ) |
| int           | <b>NXStrIsEqual</b> (const void <i>*info</i> , const void <i>*data1</i> , const void <i>*data2</i> ) |
| void          | <b>NXNoEffectFree</b> (const void <i>*info</i> , void <i>*data</i> )                                 |
| void          | <b>NXReallyFree</b> (const void <i>*info</i> , void <i>*data</i> )                                   |

### Manipulate the Elements of a Hash Table

|             |  |
|-------------|--|
| void *      | <b>NXHashInsert</b> (NXHashTable <i>*table</i> , const void <i>*data</i> )                           |
| void *      | <b>NXHashInsertIfAbsent</b> (NXHashTable <i>*table</i> , const void <i>*data</i> )                   |
| int         | <b>NXHashMember</b> (NXHashTable <i>*table</i> , const void <i>*data</i> )                           |
| void *      | <b>NXHashGet</b> (NXHashTable <i>*table</i> , const void <i>*data</i> )                              |
| void *      | <b>NXHashRemove</b> (NXHashTable <i>*table</i> , const void <i>*data</i> )                           |
| unsigned    | <b>NXCountHashTable</b> (NXHashTable <i>*table</i> )   |
| NXHashState | <b>NXInitHashState</b> (NXHashTable <i>*table</i> )  |
| int         | <b>NXNextHashState</b> (NXHashTable <i>*table</i> , NXHashState <i>*state</i> , void <i>**data</i> ) |

## String Functions

### Get Localized Versions of Strings

|              |  |
|--------------|--|
| const char * | <b>NXLocalizedString</b> (const char <i>*key</i> , const char <i>*value</i> , <i>comment</i> )   |
| const char * | <b>NXLocalizedStringFromTable</b> (const char <i>*table</i> , const char <i>*key</i> , const char <i>*value</i> , <i>comment</i> )                                   |
| const char * | <b>NXLocalizedStringFromTableInBundle</b> (const char <i>*table</i> , NXBundle <i>*bundle</i> , const char <i>*key</i> , const char <i>*value</i> , <i>comment</i> ) |
| const char * | <b>NXLoadLocalizedStringFromTableInBundle</b> (const char <i>*table</i> , NXBundle <i>*bundle</i> , const char <i>*key</i> , const char <i>*value</i> )              |

### Create a Unique String

|        |  |
|--------|--|
| NXAtom | <b>NXUniqueString</b> (const char <i>*buffer</i> )                                   |
| NXAtom | <b>NXUniqueStringWithLength</b> (const char <i>*buffer</i> , int <i>length</i> )     |
| NXAtom | <b>NXUniqueStringNoCopy</b> (const char <i>*buffer</i> )                             |
| char * | <b>NXCopyStringBuffer</b> (const char <i>*buffer</i> )                               |
| char * | <b>NXCopyStringBufferFromZone</b> (const char <i>*buffer</i> , NXZone <i>*zone</i> ) |

## Miscellaneous Functions

### Get a Pointer to the Objects Stored in a List

|      |   |
|------|---|
| id * | <b>NX_ADDRESS</b> (List <i>*aList</i> ) |
|------|---|

### Search for and Read a File

int

**NXFilePathSearch**

(const char \**envVarName*, const char \**defaultPath*, int  
*leftToRight*, const char \**fileName*, int (\**funcPtr*)(), void \**funcArg*)