

Oracle® Database

XML C API Reference



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Oracle Database XML C API Reference, Release 18c

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A Mapping of APIs used before Oracle Database 10g Release 1

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Preface

The *Oracle Database XML C API Reference* describes Oracle XML Developer's Kits (XDK) and Oracle XML DB APIs for the C programming language. It primarily lists the syntax of functions, methods, and procedures associated with these APIs.

Audience

Oracle Database XML C API Reference is intended for developers who are building XML applications in Oracle.

To use this document, you need a basic understanding of object-oriented programming concepts, familiarity with Structured Query Language (SQL), and working knowledge of application development using the C programming language.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

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Related Documents

For more information, see the following documents in the Oracle Database 12c Release 2 (12.2.0.1) documentation set:

- *Oracle Database Concepts*
- *Oracle Database SQL Language Reference*
- *Oracle Database Object-Relational Developer's Guide*
- *Oracle Database New Features Guide*
- *Oracle XML Developer's Kit Programmer's Guide*
- *Oracle XML DB Developer's Guide*
- *Oracle Database Sample Schemas*

Additional information may be found at <http://www.oracle.com/technetwork/database-features/xdk/overview/index.html>

Conventions

Oracle documentation uses font conventions to specify information type.

| Convention | Meaning |
|------------------------|--|
| boldface | Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary. |
| <i>italic</i> | Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values. |
| <code>monospace</code> | Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter. |

1

Datatypes for XML C APIs

The following table lists all C datatypes and their descriptions.

Table 1-1 Summary of Datatypes for XML C Implementation

| Datatype | Purpose |
|------------------------------|---|
| oracheck | Checkword for validating data structures. |
| oraerr | Error code: 0 is success, non-0 is failure. |
| oraprop_id | The id of property; if ≥ 0 it is valid, if < 0 , it is invalid. |
| oramemctx | Opaque memory context. |
| oraprop | Property name. |
| oraprop_t | Property value type. |
| oraprop_v | Value: union of storage for all data types. |
| orastream | Opaque stream object. |
| orastreamhdl | Storage for file handles. |
| xmlcmphow | Constant used for DOM Range comparisons. |
| xmlctx | Context shared for all documents in an XML session. |
| xmldfsrct | Specifies input types for <code>xmlDiff</code> operations |
| xmlerr | Numeric error code returned by many functions. |
| xmlevctx | XML Event context. |
| xmlhasht | The hash value of an XML tree or sub-tree; also known as a digest. |
| xmlistream | Generic user-defined input stream. |
| xmliter | Control structure for DOM2 <code>NodeIterator</code> and <code>TreeWalker</code> . |
| xmlnodetype | The numeric type code of a node. |
| xmlostream | Generic user-defined output stream. |
| xmlpoint | XPointer point location. |
| xmlrange | Controls structure for DOM2 Range. |
| xmlsoapbind | Binding for SOAP connections. |
| xmlsoapcon | SOAP connection object. |
| xmlsoapctx | Context for SOAP operations. |
| xmlsoaprole | Role for a SOAP node. |
| xmlshowbits | Bit flags used to select which node types to show. |
| xmlurlacc | This is an enumeration of the known access methods for retrieving data from a URL. |
| xmlurlhdl | This union contains the handle(s) needed to access URL data, be it a stream or <code>stdio</code> pointer, file descriptor(s), and so on. |
| xmlurlpart | This structure contains the sub-parts of a URL. |

Table 1-1 (Cont.) Summary of Datatypes for XML C Implementation

| Datatype | Purpose |
|-------------------------------|--|
| xmlptrloc | XPointer location datatype. |
| xmlptrlocset | XPointer location set datatype. |
| xmlxslobjtype | Type of XSLT object that may be returned. |
| xmlxslomethod | Type of output produced by the XSLT processor. |
| xmlxvm | An object of type <code>xmlxvm</code> is used for XML document transformation. |
| xmlxvmcomp | An object of type <code>xmlxvmcomp</code> is used for compiling XSL stylesheets. |
| xmlxvmflags | Control flags for the XSLT compiler. |
| xmlxvmobjtype | Type of XSLTVM object. |
| xpctx | XPath top-level context. |
| xpexpr | XPath expression. |
| xpobj | XPath object. |
| xsdctx | XMLSchema validator context. |
| xslctx | XSL top-level context. |
| xvmobj | XSLVM processor run-time object; contents are private and must not be accessed by users. |

1.1 oracheck

Checkword for validating data structures.

Definition

```
typedef ub4 oracheck;
```

1.2 oraerr

Error code: 0 is success, non-0 is failure.

Definition

```
typedef ub4 oraerr;
```

1.3 oraprop_id

The id of property; if ≥ 0 it is valid, if < 0 , it is invalid.

Definition

```
typedef sb2 oraprop_id;
```

1.4 oramemctx

Opaque memory context.

Definition

```
typedef struct oramemctx oramemctx;
```

1.5 oraprop

Property name.

Definition

```
typedef struct oraprop {  
    oratext    *name_oraprop;  
    oraprop_id id_oraprop;  
    oraprop_t  type_oraprop;  
    oraprop_v  value_oraprop;  
} oraprop;
```

1.6 oraprop_t

Property value type.

Definition

```
typedef enum {  
    ORAPROP_TYPE_BOOLEAN,  
    ORAPROP_TYPE_SIGNED,  
    ORAPROP_TYPE_UNSIGNED,  
    ORAPROP_TYPE_POINTER  
} oraprop_t;
```

1.7 oraprop_v

Value: union of storage for all data types.

Definition

```
typedef union oraprop_v {  
    boolean b_oraprop_v;  
    sb4     s_oraprop_v;  
    ub4     u_oraprop_v;  
    void    *p_oraprop_v;  
} oraprop_v;
```

1.8 orastream

Opaque stream object.

Definition

```
typedef struct orastream orastream;
```

1.9 orastreamhdl

Storage for file handles.

Definition

```
typedef union orastreamhdl {
    void *ptr_orastreamhdl; /* generic pointer stream/file/etc */
    struct {
        sb4 fd_orastreamhdl; /* file descriptor(s) [FTP needs all 3!] */
        sb4 fd2_orastreamhdl;
        sb4 fd3_orastreamhdl;
    } fds_lpihdl;
} orastreamhdl;
```

1.10 xmlcmphow

Constant used for DOM Range comparisons.

Definition

```
typedef enum {
    XMLDOM_START_TO_START ,
    XMLDOM_START_TO_END ,
    XMLDOM_END_TO_END ,
    XMLDOM_END_TO_START
} xmlcmphow;
```

1.11 xmlctx

Context shared for all documents in an XML session. Contains encoding information, low-level memory allocation function pointers, error message language or encoding and optional handler function, and so on. Required to load (parse) documents and create DOM, generate SAX, and so on.

Definition

```
struct xmlctx;
typedef struct xmlctx xmlctx;
```

1.12 xmldfoftype

Operation type, represents one or more operations. Used for passing the `diff` to a custom Operation Builder (OB) in `XmlDiff(XmlDiff())`.

Definition

```
typedef enum {
    XMLDF_OP_NONE, /* Should not be set to non-zero for XMLDF_NUM_OP macro below */
    XMLDF_OP_UPDATE,
    XMLDF_OP_RENAME,
    XMLDF_OP_DELETE,
    XMLDF_OP_INSERT_BEFORE,
    XMLDF_OP_APPEND
} xmldfoftype;
```


1.13 xmldfsrc

Specifies input types for XmlDiff operations.

Definition

```
typedef enum {
    XMLDF_SRCT_NONE ,      /* default is DOM */
    XMLDF_SRCT_DOM,      /* DOM: doc node must be specified */
    XMLDF_SRCT_FILE,     /* file name must be specified */
    XMLDF_SRCT_URL,      /* URL in compiler encoding */
    XMLDF_SRCT_BUFFER,   /* buffer: buffer pointer and length must be specified */
    XMLDF_SRCT_FILEP,    /* FILE */
    XMLDF_SRCT_OSTREAM,  /* orastream: stream pointer must be specified */
    XMLDF_SRCT_DOMNODE   /* DOM node, used with XmlHash() */
} xmldfsrc;
```

1.14 xmlerr

Numeric error code returned by many functions. A zero value indicates success; a nonzero value indicates error.

Definition

```
typedef enum {
    XMLERR_OK                , /* success return */
    XMLERR_NULL_PTR         , /* NULL pointer */
    XMLERR_NO_MEMORY        , /* out of memory */
    XMLERR_HASH_DUP         , /* duplicate entry in hash table */
    XMLERR_INTERNAL         , /* internal error */
    XMLERR_BUFFER_OVERFLOW , /* name/quoted string too long */
    XMLERR_BAD_CHILD        , /* invalid child for parent */
    XMLERR_EOI              , /* unexpected EndOfInformation */
    XMLERR_BAD_MEMCB        , /* invalid memory callbacks */
    XMLERR_UNICODE_ALIGN    , /* Unicode data misalignment */
    XMLERR_NODE_TYPE        , /* wrong node type */
    XMLERR_UNCLEAN          , /* context is not clean */
    XMLERR_NESTED_STRINGS   , /* internal: nested open str */
    XMLERR_PROP_NOT_FOUND   , /* property not found */
    XMLERR_SAVE_OVERFLOW    , /* save output overflowed */
    XMLERR_NOT_IMP          , /* feature not implemented */
    XMLERR-NLS_MISMATCH     , /* specify lxglo/lxd or neither*/
    XMLERR-NLS_INIT         , /* error at NLS initialization */
    XMLERR_LEH_INIT         , /* error at LEH initialization */
    XMLERR_LML_INIT         , /* error at LML initialization */
    XMLERR_LPU_INIT         , /* error at LPU initialization */
} xmlerr;
```

1.15 xmlevctx

XML Event context.

Definition

```
typedef struct {
    void *ctx_xmlevctx;    /* implementation specific context */
}
```

```

xmlevdisp disp_xmlevctx; /* dispatch table */
ub4 checkword_xmlevctx; /* checkword for integrity check */
ub4 flags_xmlevctx; /* mode; default: expand_entity */
struct xmlevctx; /* input xmlevctx; chains the XML Event context */
} xmlevctx;

```

1.16 xmlevtype

The event type for parser pull events.

Definition

```

typedef enum xmlevtype {
    XML_EVENT_FATAL_ERROR, /* Fatal Error */
    XML_EVENT_BEFORE_START, /* Before Start Document */
    XML_EVENT_START_DOCUMENT, /* Indicates Start Document */
    XML_EVENT_START_DTD, /* Start DTD */
    XML_EVENT_END_DTD, /* End DTD */
    XML_EVENT_NOTATION_DECLARATION, /* Notation Decl */
    XML_EVENT_PE_DECLARATION, /* PE Decl */
    XML_EVENT_UE_DECLARATION, /* US Decl */
    XML_EVENT_ELEMENT_DECLARATION, /* Element Decl */
    XML_EVENT_ATTLIST_DECLARATION, /* Attribute Decl */
    XML_EVENT_START_ELEMENT, /* Start Element */
    XML_EVENT_END_ELEMENT, /* End Element */
    XML_EVENT_CHARACTERS, /* Characters (text) */
    XML_EVENT_CHARACTERS_CONT, /* Characters Continued */
    XML_EVENT_PI, /* Processing Instruction */
    XML_EVENT_PI_CONT, /* Processing Instruction Continued */
    XML_EVENT_COMMENT, /* Comment */
    XML_EVENT_COMMENT_CONT, /* Comment Continued */
    XML_EVENT_SPACE, /* White Space */
    XML_EVENT_SPACE_CONT, /* White Space Continued */
    XML_EVENT_ENTITY_REFERENCE, /* Entity Reference */
    XML_EVENT_CDATA, /* CDATA */
    XML_EVENT_CDATA_CONT, /* CDATA continued */
    XML_EVENT_START_ENTITY, /* Start Entity */
    XML_EVENT_END_ENTITY, /* End Entity */
    XML_EVENT_END_DOCUMENT, /* End Document */
    XML_EVENT_ERROR /* Error */
}xmlevtype;

```

1.17 xmlhasht

The hash value of an XML tree or sub-tree; also known as a digest.

If the hash values for two XML trees are equal, the trees are considered equal, to a very high probability; uses the MD5 algorithm.

Definition

```

struct xmlhasht {
    ub4 l_xmlhasht; /* length of digest in bytes */
    ub1 d_xmlhasht[XMLDF_DIGEST_MAX]; /* the digest */
};
typedef struct xmlhasht xmlhasht;

```

1.18 xmlstream

Generic user-defined input stream. The three function pointers are required (but may be stubs). The context pointer is entirely user-defined; point it to whatever state information is required to manage the stream; it will be passed as first argument to the user functions.

Definition

```
typedef struct xmlstream {
    XML_STREAM_OPEN_F(
        (*open_xmlstream),
        xctx,
        sctx,
        path,
        parts,
        length);
    XML_STREAM_READ_F(
        (*read_xmlstream),
        xctx,
        sctx,
        path,
        dest,
        size,
        nraw, eoi);
    XML_STREAM_CLOSE_F(
        (*close_xmlstream),
        xctx,
        sctx);
    void *ctx_xmlstream;           /* user's stream context */
} xmlstream;
```

1.19 xmliter

Control structure for DOM 2 `NodeIterator` and `TreeWalker`.

Definition

```
struct xmliter {
    xmlnode *root_xmliter; /* root node of the iteration space */
    xmlnode *cur_xmliter; /* current position iterator ref node */
    ub4      show_xmliter; /* node filter mask */
    void     *filt_xmliter; /* node filter function */
    boolean  attach_xmliter; /* is iterator valid? */
    boolean  expan_xmliter; /* are external entities expanded? */
    boolean  before_xmliter; /* iter position before ref node? */
};
typedef struct xmliter xmliter;
typedef struct xmliter xmlwalk;
```

1.20 xmlnodetype

The numeric type code of a node. 0 means invalid, 1-13 are the standard numberings from DOM 1.0, and higher numbers are for internal use only.

Definition

```

typedef enum {
    XMLDOM_NONE      , /* bogus node */
    XMLDOM_ELEM      , /* element */
    XMLDOM_ATTR      , /* attribute */
    XMLDOM_TEXT      , /* char data not escaped by CDATA */
    XMLDOM_CDATA     , /* char data escaped by CDATA */
    XMLDOM_ENTREF    , /* entity reference */
    XMLDOM_ENTITY    , /* entity */
    XMLDOM_PI        , /* <?processing instructions?> */
    XMLDOM_COMMENT   , /* <!-- Comments --> */
    XMLDOM_DOC       , /* Document */
    XMLDOM_DTD       , /* DTD */
    XMLDOM_FRAG      , /* Document fragment */
    XMLDOM_NOTATION  , /* notation */

    /* Oracle extensions from here on */
    XMLDOM_ELEMDECL  , /* DTD element declaration */
    XMLDOM_ATTRDECL  , /* DTD attribute declaration */

    /* Content Particles (nodes in element's Content Model) */
    XMLDOM_CPELEM    , /* element */
    XMLDOM_CPCHOICE  , /* choice (a|b) */
    XMLDOM_CPSEQ     , /* sequence (a,b) */
    XMLDOM_CPPCDATA  , /* #PCDATA */
    XMLDOM_CPSTAR    , /* '*' (zero or more) */
    XMLDOM_CPPLUS    , /* '+' (one or more) */
    XMLDOM_CPOPT     , /* '?' (optional) */
    XMLDOM_CPEND     , /* end marker */
} xmlnodetype;

```

1.21 xmlostream

Generic user-defined output stream. The three function pointers are required (but may be stubs). The context pointer is entirely user-defined; point it to whatever state information is required to manage the stream; it will be passed as first argument to the user functions.

Definition

```

typedef struct xmlostream {
    XML_STREAM_OPEN_F(
        (*open_xmlostream),
        xctx,
        sctx,
        path,
        parts,
        length);
    XML_STREAM_WRITE_F(
        (*write_xmlostream),
        xctx,
        sctx,
        path,
        src,
        size);
    XML_STREAM_CLOSE_F(
        (*close_xmlostream),
        xctx,

```

```
    sctx);  
    void *ctx_xmlostream;    /* user's stream context */  
} xmlostream;
```

1.22 xmlpoint

XPointer point location.

Definition

```
typedef struct xmlpoint xmlpoint;
```

1.23 xmlrange

Control structure for DOM 2 Range.

Definition

```
typedef struct xmlrange {  
    xmlnode *startnode_xmlrange; /* start point container */  
    ub4     startofst_xmlrange; /* start point index */  
    xmlnode *endnode_xmlrange; /* end point container */  
    ub4     endofst_xmlrange; /* end point index */  
    xmlnode *doc_xmlrange; /* document node */  
    xmlnode *root_xmlrange; /* root node of the range */  
    boolean collapsed_xmlrange; /* is range collapsed? */  
    boolean detached_xmlrange; /* range invalid, invalidated? */  
} xmlrange;
```

1.24 xmlsoapbind

Binding for SOAP connections. SOAP does not dictate the binding (transport) used for conveying messages; however the HTTP protocol is well-defined and currently the only choice.

Definition

```
typedef enum xmlsoapbind {  
    XMLSOAP_BIND_NONE , /* none */  
    XMLSOAP_BIND_HTTP /* HTTP */ } xmlsoapbind;
```

1.25 xmlsoapcon

SOAP connection object. Each distinct connection requires an instance of this type, which contains binding and endpoint information.

Definition

```
typedef struct xmlsoapcon xmlsoapcon;
```

1.26 xmlsoapctx

Context for SOAP operations. Only a single context is needed and it can be shared by several SOAP messages.

Definition

```
typedef struct xmlsoapctx xmlsoapctx;
```

1.27 xmlsoaprole

Role for a SOAP node.

Definition

```
typedef enum xmlsoaprole {
    XMLSOAP_ROLE_UNSET, /* not specified */
    XMLSOAP_ROLE_NONE, /* "none" */
    XMLSOAP_ROLE_NEXT, /* "next" */
    XMLSOAP_ROLE_ULT, /* "ultimateReceiver" */
    XMLSOAP_ROLE_OTHER /* other - user defined */
} xmlsoaprole;
```

1.28 xmlshowbits

Bit flags used to select which nodes types to show.

Definition

```
typedef ub4 xmlshowbits;
#define XMLDOM_SHOW_ALL ~ (ub4)0
#define XMLDOM_SHOW_BIT(ntype) ((ub4)1 << (ntype))
#define XMLDOM_SHOW_ELEM XMLDOM_SHOW_BIT(XMLDOM_ELEM)
#define XMLDOM_SHOW_ATTR XMLDOM_SHOW_BIT(XMLDOM_ATTR)
#define XMLDOM_SHOW_TEXT XMLDOM_SHOW_BIT(XMLDOM_TEXT)
#define XMLDOM_SHOW_CDATA XMLDOM_SHOW_BIT(XMLDOM_CDATA)
#define XMLDOM_SHOW_ENTREF XMLDOM_SHOW_BIT(XMLDOM_ENTREF)
#define XMLDOM_SHOW_ENTITY XMLDOM_SHOW_BIT(XMLDOM_ENTITY)
#define XMLDOM_SHOW_PI XMLDOM_SHOW_BIT(XMLDOM_PI)
#define XMLDOM_SHOW_COMMENT XMLDOM_SHOW_BIT(XMLDOM_COMMENT)
#define XMLDOM_SHOW_DOC XMLDOM_SHOW_BIT(XMLDOM_DOC)
#define XMLDOM_SHOW_DTD XMLDOM_SHOW_BIT(XMLDOM_DTD)
#define XMLDOM_SHOW_FRAG XMLDOM_SHOW_BIT(XMLDOM_FRAG)
#define XMLDOM_SHOW_NOTATION XMLDOM_SHOW_BIT(XMLDOM_NOTATION)
#define XMLDOM_SHOW_DOC_TYPE XMLDOM_SHOW_BIT(XMLDOM_DOC_TYPE)
```

1.29 xmlurlacc

This is an enumeration of the known access methods for retrieving data from a URL. Open/read/close functions may be plugged in to override the default behavior.

Definition

```
typedef enum {
    XML_ACCESS_NONE, /* not specified */
    XML_ACCESS_UNKNOWN, /* specified but unknown */
    XML_ACCESS_FILE, /* filesystem access */
    XML_ACCESS_HTTP, /* HTTP */
    XML_ACCESS_FTP, /* FTP */
    XML_ACCESS_GOPHER, /* Gopher */
    XML_ACCESS_ORADB, /* Oracle DB */
}
```

```

XML_ACCESS_STREAM /* user-defined stream */
} xmlurlacc;

```

1.30 xmlurlhdl

This union contains the handle(s) needed to access URL data, be it a stream or stdio pointer, file descriptor(s), and so on.

Definition

```

typedef union xmlurlhdl {
    void *ptr_xmlurlhdl; /* generic stream/file/... handle */
    struct {
        sb4 fd1_xmlurlhdl; /* file descriptor(s) [FTP needs all 3!] */
        sb4 fd2_xmlurlhdl;
        sb4 fd3_xmlurlhdl;
    } fds_lpihdl;
} xmlurlhdl;

```

1.31 xmlurlpart

This structure contains the sub-parts of a URL. The original URL is parsed and the pieces copied (NULL-terminated) to a working buffer, then this structure is filled in to point to the parts. Given URL `http://user:pwd@baz.com:8080/pub/baz.html;quux=1?huh#fraggy`, the example component part from this URL will be shown.

Definition

```

typedef struct xmlurlpart {
    xmlurlacc access_xmlurlpart; /* access method code, XMLACCESS_HTTP */
    oratext *accbuf_xmlurlpart; /* access method name: "http" */
    oratext *host_xmlurlpart; /* hostname: "baz.com" */
    oratext *dir_xmlurlpart; /* directory: "pub" */
    oratext *file_xmlurlpart; /* filename: "baz.html" */
    oratext *uid_xmlurlpart; /* userid/username: "user" */
    oratext *passwd_xmlurlpart; /* password: "pwd" */
    oratext *port_xmlurlpart; /* port (as string): "8080" */
    oratext *frag_xmlurlpart; /* fragment: "fraggy" */
    oratext *query_xmlurlpart; /* query: "huh" */
    oratext *param_xmlurlpart; /* parameter: "quux=1" */
    ub2 portnum_xmlurlpart; /* port (as number): 8080 */
    ub1 abs_xmlurlpart; /* absolute path? TRUE */
} xmlurlpart;

```

1.32 xmlxptrloc

XPointer location data type.

Definition

```

typedef struct xmlxptrloc xmlxptrloc;

```

1.33 xmlxptrlocset

XPointer location set data type.

Definition

```
typedef struct xmlxpтрlocset xmlxpтрlocset;
```

1.34 xmlxslobjtype

Type of XSLT object that may be returned.

Definition

```
typedef enum xmlxslobjtype {  
    XMLXSL_TYPE_UNKNOWN , /* Not a defined type */  
    XMLXSL_TYPE_NDSET   , /* Node-set */  
    XMLXSL_TYPE_BOOL    , /* Boolean value */  
    XMLXSL_TYPE_NUM     , /* Numeric value (double) */  
    XMLXSL_TYPE_STR     , /* String */  
    XMLXSL_TYPE_FRAG    , /* Document Fragment */  
} xmlxslobjtype;
```

1.35 xmlxslomethod

Type of output to be produced by the XSLT processor.

Definition

```
typedef enum xmlxslomethod {  
    XMLXSL_OUTPUT_UNKNOWN , /* Not defined */  
    XMLXSL_OUTPUT_XML     , /* Produce a Document Fragment */  
    XMLXSL_OUTPUT_STREAM  , /* Stream out formatted result */  
    XMLXSL_OUTPUT_HTML    , /* Stream out HTML formatted result */  
} xmlxslomethod;
```

1.36 xmlxvm

An object of type `xmlxvm` is used for XML documents transformation. The contents of `xmlxvm` are private and must not be accessed by users.

Definition

```
struct xmlxvm;  
typedef struct xmlxvm xmlxvm;
```

1.37 xmlxvmcomp

An object of type `xmlxvmcomp` is used for compiling XSL stylesheets. The contents of `xmlxvmcomp` are private and must not be accessed by users.

Definition

```
struct xmlxvmcomp;  
typedef struct xmlxvmcomp xmlxvmcomp;
```


1.38 xmlxvmflags

Control flags for the XSLT compiler.

- `XMLXVM_DEBUG` forces compiler to insert debug information into the bytecode.
- `XMLXVM_STRIPSPACE` forces the same behavior as `xsl:strip-space elements=""`

Definition

```
typedef ub4 xmlxvmflag;
#define XMLXVM_NOFLAG
#define XMLXVM_DEBUG /* insert debug info into bytecode */
#define XMLXVM_STRIPSPACE /* same as xsl:strip-space elements="" */
```

1.39 xmlxvmobjtype

Type of XSLTVM object.

Definition

```
typedef enum xmlxvmobjtype {
    XMLXVM_TYPE_UNKNOWN ,
    XMLXVM_TYPE_NDSET ,
    XMLXVM_TYPE_BOOL ,
    XMLXVM_TYPE_NUM ,
    XMLXVM_TYPE_STR ,
    XMLXVM_TYPE_FRAG
} xmlxvmobjtype;
```

1.40 xpctx

XPath top-level context.

Definition

```
struct xpctx;
typedef struct xpctx xpctx;
```

1.41 xpexpr

XPath expression.

Definition

```
struct xpexpr;
typedef struct xpexpr xpexpr;
```

1.42 xpobj

Xpath object.

Definition

```
struct xpobj;typedef struct xpobj xpobj;
```

1.43 xsdctx

XML Schema validator context, created by `XmlSchemaCreate` and passed to most Schema functions.

Definition

```
# define XSDCTX_DEFINED
struct xsdctx; typedef struct xsdctx xsdctx;
```

1.44 xslctx

XSL top-level context.

Definition

```
struct xslctx;
typedef struct xslctx xslctx;
```

1.45 xvobj

XSLVM processor run-time object; content is private and must not be accessed by users.

Definition

```
struct xvobj;
typedef struct xvobj xvobj;
```

2

Package Callback for XML C APIs

The Callback package defines macros that declare functions (or function pointers) for XML callbacks. Callbacks are used for error-message handling, memory allocation and freeing, and stream operations.

The following table summarizes the methods available through the Callback interface.

Table 2-1 Summary of Callback Methods for XML C Implementation

| Function | Summary |
|--------------------------------------|--|
| XML_ACCESS_CLOSE_F() | User-defined access method close callback. |
| XML_ACCESS_OPEN_F() | User-defined access method open callback. |
| XML_ACCESS_READ_F() | User-defined access method read callback. |
| XML_ALLOC_F() | Low-level memory allocation. |
| XML_ERRMSG_F() | Handles error message. |
| XML_FREE_F() | Low-level memory freeing. |
| XML_STREAM_CLOSE_F() | User-defined stream close callback. |
| XML_STREAM_OPEN_F() | User-defined stream open callback. |
| XML_STREAM_READ_F() | User-defined stream read callback. |
| XML_STREAM_WRITE_F() | User-defined stream write callback. |

2.1 XML_ACCESS_CLOSE_F()

This macro defines a prototype for the close function callback used to access a URL.

2.2 XML_ACCESS_OPEN_F()

This macro defines a prototype for the open function callback used to access a URL.

2.3 XML_ACCESS_READ_F()

This macro defines a prototype for the read function callback used to access a URL.

2.4 XML_ALLOC_F()

This macro defines a prototype for the low-level memory `alloc` function provided by the user. If no allocator is provided, `malloc` is used. Memory should not be zeroed by this function. Matches [XML_FREE_F\(\)](#).

2.5 XML_ERRMSG_F()

This macro defines a prototype for the error message handling function. If no error message callback is provided at XML initialization time, errors will be printed to `stderr`. If a handler is provided, it will be invoked instead of printing to `stderr`.

2.6 XML_FREE_F()

This macro defines a prototype for the low-level memory free function provided by the user. If no allocator is provided, `free()` is used. Matches `XML_ALLOC_F()`.

2.7 XML_STREAM_CLOSE_F()

This macro defines a prototype for the close function callback, called to close an open source and free its resources.

2.8 XML_STREAM_OPEN_F()

This macro defines a prototype for the open function callback, which is called once to open the input source. This function should return `XMLERR_OK` on success.

2.9 XML_STREAM_READ_F()

This macro defines a prototype for the read function callback, called to read data from an open source into a buffer, returning the number of bytes read (< 0 on error). The `eoi` flag determines if this is the final block of data.

On EOI, the close function will be called automatically.

Syntax

```
#define XML_STREAM_READ_F(func, xctx, sctx, path, dest, size, nraw, eoi)
xmlerr func(
    xmlctx *xctx,
    void *sctx,
    oratext *path,
    oratext *dest,
    size_t size,
    sbig_ora *nraw,
    boolean *eoi);
```

| Parameter | In/Out | Description |
|-------------------|--------|--|
| <code>xctx</code> | IN | XML context |
| <code>sctx</code> | IN | user-defined stream context |
| <code>path</code> | IN | full URI of the open source (for error messages) |

| Parameter | In/Out | Description |
|-----------|--------|--|
| dest | (OUT) | destination buffer to read data into |
| size | IN | size of destination buffer |
| nraw | (OUT) | number of bytes read |
| eoi | (OUT) | signal to end of information; last chunk |

Returns

(xmlerr) numeric error code, 0 on success



See Also:

[XML_STREAM_OPEN_F\(\)](#), [XML_STREAM_CLOSE_F\(\)](#),
[XML_STREAM_WRITE_F\(\)](#)

2.10 XML_STREAM_WRITE_F()

This macro defines a prototype for the write function callback, called to write data to a user-defined stream.

Syntax

```
#define XML_STREAM_WRITE_F(func, xctx, sctx, path, src, size)
xmlerr func(
    xmlctx *xctx,
    void *sctx,
    oratext *path,
    oratext *src,
    size_t size);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| sctx | IN | user-defined stream context |
| path | IN | full URI of the open source (for error messages) |
| src | IN | source buffer to read data from |
| size | IN | size of source in bytes |

Returns

(xmlerr) numeric error code, 0 on success

See Also:

[XML_STREAM_OPEN_F\(\)](#), [XML_STREAM_CLOSE_F\(\)](#),
[XML_STREAM_READ_F\(\)](#)

3

Package DOM for XML C APIs

This implementation follows REC-DOM-Level-1-19981001. Because the DOM standard is object-oriented, some changes were made for C language adaptation.

- Reused function names have to be expanded; `getValue` in the `Attr` interface has the unique name `XmlDomGetAttrValue` that matches the pattern established by DOM 2's `getNodeValue`.
- Functions were added to extend the DOM beyond the standard; one example is `XmlDomNumChildNodes`, which returns the number of children of a node.

Note that if the `data_encoding` parameter is set to UTF-16, the APIs process wide-CHAR arrays, not `oratext` byte arrays.

3.1 Attr Interface for DOM XML C APIs

The following table summarizes the methods available through the `Attr` interface of DOM for XML C APIs.

Table 3-1 Summary of Attr DOM Methods for XML C Implementation

| Function | Summary |
|--|---|
| XmlDomGetAttrLocal() | Returns an attribute's namespace local name as NULL-terminated string. |
| XmlDomGetAttrLocalLen() | Returns an attribute's namespace local name as length-encoded string. |
| XmlDomGetAttrName() | Return attribute's name as NULL-terminated string. |
| XmlDomGetAttrNameLen() | Return attribute's name as length-encoded string. |
| XmlDomGetAttrPrefix() | Returns an attribute's namespace prefix. |
| XmlDomGetAttrSpecified() | Return flag that indicates whether an attribute was explicitly created. |
| XmlDomGetAttrURI() | Returns an attribute's namespace URI as NULL-terminated string. |
| XmlDomGetAttrURILen() | Returns an attribute's namespace URI as length-encoded string. |
| XmlDomGetAttrValue() | Return attribute's value as NULL-terminated string. |
| XmlDomGetAttrValueLen() | Return attribute's value as length-encoded string. |
| XmlDomGetAttrValueStream() | Get attribute value stream-style, i.e. chunked. |
| XmlDomGetOwnerElem() | Return an attribute's "owning" element. |
| XmlDomSetAttrValue() | Set an attribute's value. |
| XmlDomSetAttrValueStream() | Sets an attribute value stream style (chunked). |

3.1.1 XmlDocumentGetAttrLocal()

Returns an attribute's namespace local name (in the data encoding). If the attribute's name is not fully qualified (has no prefix), then the local name is the same as the name.

A length-encoded version is available as `XmlDomGetAttrURILen` which returns the local name as a pointer and length, for use if the data is known to use `XMLType` backing store.

Syntax

```
oratext* XmlDocumentGetAttrLocal(  
    xmlctx *xctx,  
    xmlattrnode *attr);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------|
| xctx | IN | XML context |
| attr | IN | attribute node |

Returns

(oratext *) attribute's local name [data encoding]



See Also:

[XmlDomGetAttrLocalLen\(\)](#), [XmlDomGetAttrName\(\)](#), [XmlDomGetAttrURI\(\)](#), [XmlDomGetAttrPrefix\(\)](#)

3.1.2 XmlDocumentGetAttrLocalLen()

Returns an attribute's namespace local name (in the data encoding). If the attribute's name is not fully qualified (has no prefix), then the local name is the same as the name.

A `NULL`-terminated version is available as `XmlDomGetAttrLocal` which returns the local name as `NULL`-terminated string. If the backing store is known to be `XMLType`, then the attribute's data will be stored internally as length-encoded. Using the length-based `GetXXX` functions will avoid having to copy and `NULL`-terminate the data.

If both the input buffer is non-`NULL` and the input buffer length is nonzero, then the value will be stored in the input buffer. Else, the implementation will return its own buffer.

If the actual length is greater than `buflen`, then a truncated value will be copied into the buffer and `len` will return the actual length.

Syntax

```
oratext* XmlDomGetAttrLocalLen(
    xmlctx *xctx,
    xmlattrnode *attr,
    oratext *buf,
    ub4 buflen,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------------------------|
| xctx | IN | XML context |
| attr | IN | attribute node |
| buf | IN | input buffer; optional |
| buflen | IN | input buffer length; optional |
| len | OUT | length of local name, in characters |

Returns

(oratext *) Attr's local name [data encoding]



See Also:

[XmlDomGetAttrLocal\(\)](#), [XmlDomGetAttrName\(\)](#), [XmlDomGetAttrURI\(\)](#), [XmlDomGetAttrPrefix\(\)](#)

3.1.3 XmlDomGetAttrName()

Returns the fully-qualified name of an attribute (in the data encoding) as a NULL-terminated string, for example `bar\0` or `foo:bar\0`.

A length-encoded version is available as `XmlDomGetAttrNameLen` which returns the attribute name as a pointer and length, for use if the data is known to use `XMLType` backing store.

Syntax

```
oratext* XmlDomGetAttrName(
    xmlctx *xctx,
    xmlattrnode *attr);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

| Parameter | In/Out | Description |
|-----------|--------|----------------|
| attr | IN | attribute node |

Returns

(oratext *) name of attribute [data encoding]



See Also:

[XmlDomGetAttrNameLen\(\)](#), [XmlDomGetAttrURI\(\)](#), [XmlDomGetAttrPrefix\(\)](#), [XmlDomGetAttrLocal\(\)](#)

3.1.4 XmlDomGetAttrNameLen()

Returns the fully-qualified name of an attribute (in the data encoding) as a length-encoded string, for example ("bar", 3) or ("foo:bar", 7).

A `NULL`-terminated version is available as `XmlDomGetAttrName` which returns the attribute name as `NULL`-terminated string. If the backing store is known to be `XMLType`, then the attribute's data will be stored internally as length-encoded. Using the length-based `GetXXX()` functions will avoid having to copy and `NULL`-terminate the data.

If both the input buffer is non-`NULL` and the input buffer length is nonzero, then the value will be stored in the input buffer. Else, the implementation will return its own buffer.

If the actual length is greater than `bufLen`, then a truncated value will be copied into the buffer and `len` will return the actual length.

Syntax

```
oratext* XmlDomGetAttrNameLen(
    xmlctx *xctx,
    xmlattrnode *attr,
    oratext *buf,
    ub4 bufLen,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------------------|
| xctx | IN | XML context |
| attr | IN | attribute node |
| buf | IN | input buffer; optional |
| bufLen | IN | input buffer length; optional |

| Parameter | In/Out | Description |
|-----------|--------|-------------------------------------|
| len | OUT | length of local name, in characters |

Returns

(oratext *) name of attribute [data encoding]

 **See Also:**

[XmlDomGetAttrName\(\)](#), [XmlDomGetAttrURI\(\)](#), [XmlDomGetAttrPrefix\(\)](#),
[XmlDomGetAttrLocal\(\)](#)

3.1.5 XmlDomGetAttrPrefix()

Returns an attribute's namespace prefix (in the data encoding). If the attribute's name is not fully qualified (has no prefix), `NULL` is returned.

Syntax

```
oratext* XmlDomGetAttrPrefix(
    xmlctx *xctx,
    xmlattrnode *attr);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------|
| xctx | IN | XML context |
| attr | IN | attribute node |

Returns

(oratext *) attribute's namespace prefix [data encoding] or `NULL`

 **See Also:**

[XmlDomGetAttrName\(\)](#), [XmlDomGetAttrURI\(\)](#), [XmlDomGetAttrLocal\(\)](#)

3.1.6 XmlDomGetAttrSpecified()

Return the 'specified' flag for an attribute. If the attribute was explicitly given a value in the original document, this is `TRUE`; otherwise, it is `FALSE`. If the node is not an attribute, returns `FALSE`. If the user sets an attribute's value through DOM, its specified flag will be `TRUE`. To return an attribute to its default value (if it has one), the attribute should be deleted; it will then be re-created automatically with the default value (and specified will be `FALSE`).

Syntax

```
boolean XmlDomGetAttrSpecified(
    xmlctx *xctx,
    xmlattrnode *attr);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------|
| xctx | IN | XML context |
| attr | IN | attribute node |

Returns

(boolean) attribute's "specified" flag

**See Also:**

[XmlDomSetAttrValue\(\)](#)

3.1.7 XmlDomGetAttrURI()

Returns an attribute's namespace URI (in the data encoding). If the attribute's name is not qualified (does not contain a namespace prefix), it will have the default namespace in effect when the node was created (which may be `NULL`).

A length-encoded version is available as `XmlDomGetAttrURILen` which returns the URI as a pointer and length, for use if the data is known to use `XMLType` backing store.

Syntax

```
oratext* XmlDomGetAttrURI(
    xmlctx *xctx,
    xmlattrnode *attr);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------|
| xctx | IN | XML context |
| attr | IN | attribute node |

Returns

(oratext *) attribute's namespace URI [data encoding] or `NULL`

**See Also:**[XmlDomGetAttrURLen\(\)](#), [XmlDomGetAttrPrefix\(\)](#), [XmlDomGetAttrLocal\(\)](#)

3.1.8 XmlDomGetAttrURLen()

Returns an attribute's namespace URI (in the data encoding) as length-encoded string. If the attribute's name is not qualified (does not contain a namespace prefix), it will have the default namespace in effect when the node was created (which may be `NULL`).

A `NULL`-terminated version is available as `XmlDomGetAttrURI` which returns the URI as `NULL`-terminated string. If the backing store is known to be `XMLType`, then the attribute's data will be stored internally as length-encoded. Using the length-based Get functions will avoid having to copy and `NULL`-terminate the data.

If both the input buffer is non-`NULL` and the input buffer length is nonzero, then the value will be stored in the input buffer. Else, the implementation will return its own buffer.

If the actual length is greater than `buflen`, then a truncated value will be copied into the buffer and `len` will return the actual length.

Syntax

```
oratext* XmlDomGetAttrURLen(  
    xmlctx *xctx,  
    xmlattrnode *attr,  
    oratext *buf,  
    ub4 buflen,  
    ub4 *len);
```

| Parameter | In/Out | Description |
|---------------------|--------|-------------------------------|
| <code>xctx</code> | IN | XML context |
| <code>attr</code> | IN | attribute node |
| <code>buf</code> | IN | input buffer; optional |
| <code>buflen</code> | IN | input buffer length; optional |
| <code>len</code> | OUT | length of URI, in characters |

Returns

(`oratext *`) attribute's namespace URI [data encoding] or `NULL`

**See Also:**[XmlDomGetAttrURI\(\)](#), [XmlDomGetAttrPrefix\(\)](#), [XmlDomGetAttrLocal\(\)](#)

3.1.9 XmlDomGetAttrValue()

Returns the "value" (character data) of an attribute (in the data encoding) as NULL-terminated string. Character and general entities will have been replaced.

A length-encoded version is available as `XmlDomGetAttrValueLen` which returns the attribute value as a pointer and length, for use if the data is known to use `XMLType` backing store.

Syntax

```
oratext* XmlDomGetAttrValue(  
    xmlctx *xctx,  
    xmlattrnode *attr);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------|
| xctx | IN | XML context |
| attr | IN | attribute node |

Returns

(oratext *) attribute's value

**See Also:**[XmlDomGetAttrValueLen\(\)](#), [XmlDomSetAttrValue\(\)](#)

3.1.10 XmlDomGetAttrValueLen()

Returns the "value" (character data) of an attribute (in the data encoding) as length-encoded string. Character and general entities will have been replaced.

A NULL-terminated version is available as `XmlDomGetAttrValue` which returns the attribute value as NULL-terminated string. If the backing store is known to be `XMLType`, then the attribute's data will be stored internally as length-encoded. Using the length-based `GetXXX()` functions will avoid having to copy and NULL-terminate the data.

If both the input buffer is non-NULL and the input buffer length is nonzero, then the value will be stored in the input buffer. Else, the implementation will return its own buffer.

If the actual length is greater than buflen, then a truncated value will be copied into the buffer and len will return the actual length.

Syntax

```
oratext* XmlDomGetAttrValueLen(
    xmlctx *xctx,
    xmlattrnode *attr,
    oratext *buf,
    ub4 buflen,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| attr | IN | attribute node |
| buf | IN | input buffer; optional |
| buflen | IN | input buffer length; optional |
| len | OUT | length of attribute's value, in characters |

Returns

(oratext *) attribute's value



See Also:

[XmlDomGetAttrValue\(\)](#), [XmlDomSetAttrValue\(\)](#)

3.1.11 XmlDomGetAttrValueStream()

Returns the large "value" (associated character data) for an attribute and sends it in pieces to the user's output stream. For very large values, it is not always possible to store them [efficiently] as a single contiguous chunk. This function is used to access chunked data of that type.

Syntax

```
xmlerr XmlDomGetAttrValueStream(
    xmlctx *xctx,
    xmlnode *attr,
    xmlostream *ostream);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------|
| xctx | IN | XML context |
| attr | IN | attribute node |

| Parameter | In/Out | Description |
|-----------|--------|----------------------|
| ostream | IN | output stream object |

Returns

(xmlerr) numeric error code, 0 on success

3.1.12 XmlDocumentGetOwnerElem()

Returns the `Element` node associated with an attribute. Each attr either belongs to an element (one and only one), or is detached and not yet part of the DOM tree. In the former case, the element node is returned; if the attr is unassigned, `NULL` is returned.

Syntax

```
xmlelemnode* XmlDocumentGetOwnerElem(
    xmlctx *xctx,
    xmlattrnode *attr);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------|
| xctx | IN | XML context |
| attr | IN | attribute node |

Returns

(xmlelemnode *) attribute's element node [or `NULL`]

**See Also:**

[XmlDomGetOwnerDocument\(\)](#)

3.1.13 XmlDocumentSetAttrValue()

Sets the given attribute's value to data. If the node is not an attribute, does nothing. Note that the new value must be in the data encoding! It is not verified, converted, or checked. The attribute's specified flag will be `TRUE` after setting a new value.

Syntax

```
void XmlDocumentSetAttrValue(
    xmlctx *xctx,
    xmlattrnode *attr,
    oratext *value);
```


| Parameter | In/Out | Description |
|-----------|--------|---------------------------------------|
| xctx | IN | XML context |
| attr | IN | attribute node |
| value | IN | new value of attribute; data encoding |



See Also:

[XmlDomGetAttrValue\(\)](#)

3.1.14 XmlDomSetAttrValueStream()

Sets the large "value" (associated character data) for an attribute piecemeal from an input stream. For very large values, it is not always possible to store them efficiently as a single contiguous chunk. This function is used to access chunked data of that type.

Syntax

```
xmlerr XmlDomSetAttrValueStream(
    xmlctx *xctx,
    xmlnode *attr,
    xmlstream *istream);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------|
| xctx | IN | XML context |
| attr | IN | attribute node |
| istream | IN | input stream |

Returns

(xmlerr) numeric error code, 0 on success

3.2 CharacterData Interface for DOM XML C APIs

The following table summarizes the methods available through the `CharacterData` interface of DOM for XML C APIs.

Table 3-2 Summary of CharacterData DOM Methods for XML C Implementation

| Function | Summary |
|------------------------------------|--|
| XmlDomAppendData() | Append data to end of node's current data. |

Table 3-2 (Cont.) Summary of CharacterData DOM Methods for XML C Implementation

| Function | Summary |
|---|---|
| XmlDomDeleteData() | Remove part of node's data. |
| XmlDomGetCharData() | Return data for node. |
| XmlDomGetCharDataLength() | Return length of data for node. |
| XmlDomInsertData() | Insert string into node's current data. |
| XmlDomReplaceData() | Replace part of node's data. |
| XmlDomSetCharData() | Set data for node. |
| XmlDomSubstringData() | Return substring of node's data. |

3.2.1 XmlDomAppendData()

Append a string to the end of a `CharacterData` node's data. If the node is not `Text`, `Comment` or `CDATA`, or if the string to append is `NULL`, does nothing. The appended data should be in the data encoding. It will not be verified, converted, or checked.

The new node data will be allocated and managed by DOM, but if the previous node value was allocated and manager by the user, they are responsible for freeing it, which is why it is returned.

Syntax

```
void XmlDomAppendData(
    xmlctx *xctx,
    xmlnode *node,
    oratext *data,
    oratext **old);
```

| Parameter | In/Out | Description |
|-------------------|--------|---------------------------------------|
| <code>xctx</code> | IN | XML context |
| <code>node</code> | IN | <code>CharacterData</code> node |
| <code>data</code> | IN | data to append; data encoding |
| <code>old</code> | OUT | previous data for node; data encoding |



See Also:

[XmlDomGetCharData\(\)](#), [XmlDomInsertData\(\)](#), [XmlDomDeleteData\(\)](#), [XmlDomReplaceData\(\)](#), [XmlDomSplitText\(\)](#)

3.2.2 XmlDomDeleteData()

Remove a range of characters from a `CharacterData` node's data. If the node is not text, comment or `CDATA`, or if the offset is outside of the original data, does nothing. The `offset` is zero-based, so offset zero refers to the start of the data. Both `offset` and `count` are in characters, not bytes. If the sum of `offset` and `count` exceeds the data length then all characters from `offset` to the end of the data are deleted.

The new node data will be allocated and managed by DOM, but if the previous node value was allocated and managed by the user, they are responsible for freeing it, which is why it is returned.

Syntax

```
void XmlDomDeleteData(
    xmlctx *xctx,
    xmlnode *node,
    ub4 offset,
    ub4 count,
    oratext **old);
```

| Parameter | In/Out | Description |
|---------------------|--------|--|
| <code>xctx</code> | IN | XML context |
| <code>node</code> | IN | <code>CharacterData</code> node |
| <code>offset</code> | IN | character offset where to start removing |
| <code>count</code> | IN | number of characters to delete |
| <code>old</code> | OUT | previous data for node; data encoding |

See Also:

[XmlDomGetCharData\(\)](#), [XmlDomAppendData\(\)](#), [XmlDomInsertData\(\)](#),
[XmlDomReplaceData\(\)](#), [XmlDomSplitText\(\)](#)

3.2.3 XmlDomGetCharData()

Returns the data for a `CharacterData` node (type text, comment or `CDATA`) in the data encoding. For other node types, or if there is no data, returns `NULL`.

Syntax

```
oratext* XmlDomGetCharData(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| node | IN | CharacterData node ; Text, Comment or CDATA |

Returns

(or text *) character data of node [data encoding]

See Also:

[XmlDomSetCharData\(\)](#), [XmlDomCreateText\(\)](#), [XmlDomCreateComment\(\)](#),
[XmlDomCreateCDATA\(\)](#)

3.2.4 XmlDomGetCharDataLength()

Returns the length of the data for a `CharacterData` node, type `Text`, `Comment` or `CDATA`) in characters, not bytes. For other node types, returns 0.

Syntax

```
ub4 XmlDomGetCharDataLength(
    xmlctx *xctx,
    xmlnode *cdata);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| node | IN | CharacterData node ; Text, Comment or CDATA |

Returns

(ub4) length in characters, not bytes, of node's data

See Also:

[XmlDomGetCharData\(\)](#)

3.2.5 XmlDomInsertData()

Insert a string into a `CharacterData` node's data at the specified position. If the node is not `Text`, `Comment` or `CDATA`, or if the data to be inserted is `NULL`, or the offset is outside the original data, does nothing. The inserted data must be in the data encoding. It will

not be verified, converted, or checked. The offset is specified as characters, not bytes. The offset is zero-based, so inserting at offset zero prepends the data.

The new node data will be allocated and managed by DOM, but if the previous node value was allocated and managed by the user, they are responsible for freeing it (which is why it's returned).

Syntax

```
void XmlDomInsertData(
    xmlctx *xctx,
    xmlnode *node,
    ub4 offset,
    oratext *arg,
    oratext **old);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| node | IN | CharacterData node; Text, Comment, or CDATA |
| offset | IN | character offset where to start inserting |
| arg | IN | data to insert |
| old | OUT | previous data for node; data encoding |

See Also:

[XmlDomGetCharData\(\)](#), [XmlDomAppendData\(\)](#), [XmlDomDeleteData\(\)](#),
[XmlDomReplaceData\(\)](#), [XmlDomSplitText\(\)](#)

3.2.6 XmlDomReplaceData()

Replaces a range of characters in a `CharacterData` node's data with a new string. If the node is not text, comment or `CDATA`, or if the offset is outside of the original data, or if the replacement string is `NULL`, does nothing. If the count is zero, acts just as `XmlDomInsertData`. The offset is zero-based, so offset zero refers to the start of the data. The replacement data must be in the data encoding. It will not be verified, converted, or checked. The offset and count are both in characters, not bytes. If the sum of offset and count exceeds length, then all characters to the end of the data are replaced.

The new node data will be allocated and managed by DOM, but if the previous node value was allocated and managed by the user, they are responsible for freeing it, which is why it is returned.

Syntax

```
void XmlDomReplaceData(
    xmlctx *xctx,
```

```
xmlnode *node,
ub4 offset,
ub4 count,
oratext *arg,
oratext **old);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| node | IN | CharacterData node ; Text, Comment, or CDATA |
| offset | IN | character offset where to start replacing |
| count | IN | number of characters to replace |
| arg | IN | replacement substring; data encoding |
| old | OUT | previous data for node; data encoding |



See Also:

[XmlDomGetCharData\(\)](#), [XmlDomAppendData\(\)](#), [XmlDomInsertData\(\)](#),
[XmlDomDeleteData\(\)](#), [XmlDomSplitText\(\)](#)

3.2.7 XmlDomSetCharData()

Sets data for a `CharacterData` node (type text, comment or CDATA), replacing the old data. For other node types, does nothing. The new data is not verified, converted, or checked; it should be in the data encoding.

Syntax

```
void XmlDomSetCharData(
    xmlctx *xctx,
    xmlnode *node,
    oratext *data);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| node | IN | CharacterData node ; Text, Comment, or CDATA |
| data | IN | new data for node |

 **See Also:**[XmlDomGetCharData\(\)](#)

3.2.8 XmlDomSubstringData()

Returns a range of character data from a `CharacterData` node, type `Text`, `Comment` or `CDATA`. For other node types, or if count is zero, returns `NULL`. Since the data is in the data encoding, offset and count are in characters, not bytes. The beginning of the string is offset 0. If the sum of offset and count exceeds the length, then all characters to the end of the data are returned.

The substring is permanently allocated in the node's document's memory pool. To free the substring, use `XmlDomFreeString`.

Syntax

```
oratext* XmlDomSubstringData(  
    xmlctx *xctx,  
    xmlnode *node,  
    ub4 offset,  
    ub4 count);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| node | IN | <code>CharacterData</code> node; <code>Text</code> , <code>Comment</code> , or <code>CDATA</code> |
| offset | IN | character offset where to start extraction of substring |
| count | IN | number of characters to extract |

Returns

(oratext *) specified substring.

 **See Also:**

[XmlDomAppendData\(\)](#), [XmlDomInsertData\(\)](#), [XmlDomDeleteData\(\)](#),
[XmlDomReplaceData\(\)](#), [XmlDomSplitText\(\)](#), [XmlDomFreeString\(\)](#)

3.3 Document Interface for DOM XML C APIs

The following table summarizes the methods available through the `Document` interface of DOM for XML C APIs.

Table 3-3 Summary of Document DOM Methods for XML C Implementation

| Function | Summary |
|---|--|
| <code>XmlDomCreateAttr()</code> | Create attribute node. |
| <code>XmlDomCreateAttrNS()</code> | Create attribute node with namespace information. |
| <code>XmlDomCreateCDATA()</code> | Create <code>CDATA</code> node. |
| <code>XmlDomCreateComment()</code> | Create comment node. |
| <code>XmlDomCreateElem()</code> | Create an element node. |
| <code>XmlDomCreateElemNS()</code> | Create an element node with namespace information. |
| <code>XmlDomCreateEntityRef()</code> | Create entity reference node. |
| <code>XmlDomCreateFragment()</code> | Create a document fragment. |
| <code>XmlDomCreatePI()</code> | Create PI node. |
| <code>XmlDomCreateText()</code> | Create text node. |
| <code>XmlDomFreeString()</code> | Frees a string allocated by <code>XmlDomSubstringData</code> , and others. |
| <code>XmlDomGetBaseURI()</code> | Returns the base URI for a document. |
| <code>XmlDomGetDTD()</code> | Get DTD for document. |
| <code>XmlDomGetDecl()</code> | Returns a document's <code>XMLDecl</code> information. |
| <code>XmlDomGetDocElem()</code> | Get top-level element for document. |
| <code>XmlDomGetDocElemByID()</code> | Get document element given ID. |
| <code>XmlDomGetDocElemsByTag()</code> | Obtain document elements. |
| <code>XmlDomGetDocElemsByTagNS()</code> | Obtain document elements (namespace aware version). |
| <code>XmlDomGetLastError()</code> | Return last error code for document. |
| <code>XmlDomGetSchema()</code> | Returns URI of schema associated with document. |
| <code>XmlDomImportNode()</code> | Import a node from another DOM. |
| <code>XmlDomIsSchemaBased()</code> | Indicate whether a schema is associated with a document. |
| <code>XmlDomSaveString()</code> | Saves a string permanently in a document's memory pool. |
| <code>XmlDomSaveString2()</code> | Saves a Unicode string permanently in a document's memory pool. |
| <code>XmlDomSetDTD()</code> | Sets DTD for document. |
| <code>XmlDomSetDocOrder()</code> | Set document order for all nodes. |
| <code>XmlDomSetLastError()</code> | Sets last error code for document. |
| <code>XmlDomSync()</code> | Synchronizes the persistent version of a document with its DOM. |

3.3.1 `XmlDomCreateAttr()`

Creates an attribute node with the given name and value (in the data encoding). Note this function differs from the DOM specification, which does not allow the initial value of the attribute to be set (see `XmlDomSetAttrValue`). The name is required, but the value may be `NULL`; neither is verified, converted, or checked.

This is the non-namespace aware function (see `XmlDomCreateAttrNS`): the new attribute will have `NULL` namespace URI and prefix, and its local name will be the same as its name, even if the name specified is a qualified name.

If given an initial value, the attribute's specified flag will be `TRUE`.

The new node is an orphan with no parent; it must be added to the DOM tree with `XmlDomAppendChild`, and so on.

See `XmlDomSetAttr` which creates and adds an attribute in a single operation.

The name and value are not copied, their pointers are just stored. The user is responsible for persistence and freeing of that data.

Syntax

```
xmlattrnode* XmlDomCreateAttr(
    xmlctx *xctx,
    xmldocnode *doc,
    oratext *name,
    oratext *value);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| doc | IN | XML document node |
| name | IN | new node's name; data encoding; user control |
| value | IN | new node's value; data encoding; user control |

Returns

(xmlattrnode *) new Attr node.



See Also:

[XmlDomSetAttrValue\(\)](#), [XmlDomCreateAttrNS\(\)](#), [XmlDomSetAttr\(\)](#), [XmlDomCleanNode\(\)](#), [XmlDomFreeNode\(\)](#)

3.3.2 XmlDomCreateAttrNS()

Creates an attribute node with the given namespace URI and qualified name; this is the namespace-aware version of `XmlDomCreateAttr`. Note this function differs from the DOM specification, which does not allow the initial value of the attribute to be set (see `XmlDomSetAttrValue`). The name is required, but the value may be `NULL`; neither is verified, converted, or checked.

If given an initial value, the attribute's specified flag will be `TRUE`.

The new node is an orphan with no parent; it must be added to the DOM tree with `XmlDomAppendChild`, and so on. See `XmlDomSetAttr` which creates and adds an attribute in a single operation.

The URI, qualified name and value are not copied, their pointers are just stored. The user is responsible for persistence and freeing of that data.

Syntax

```
xmlattrnode* XmlDomCreateAttrNS(
    xmlctx *xctx,
    xmldocnode *doc,
    oratext *uri,
    oratext *qname,
    oratext *value);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| doc | IN | XML document node |
| uri | IN | node's namespace URI; data encoding; user control |
| qname | IN | node's qualified name; data encoding; user control |
| value | IN | new node's value; data encoding; user control |

Returns

(xmlattrnode *) new Attr node.



See Also:

[XmlDomSetAttrValue\(\)](#), [XmlDomCreateAttr\(\)](#), [XmlDomSetAttr\(\)](#),
[XmlDomCleanNode\(\)](#), [XmlDomFreeNode\(\)](#)

3.3.3 XmlDomCreateCDATA()

Creates a `CDATASection` node with the given initial data (which should be in the data encoding). A `CDATASection` is considered verbatim and is never parsed; it will not be joined with adjacent `Text` nodes by the normalize operation. The initial data may be `NULL`; if provided, it is not verified, converted, or checked. The name of a `CDATA` node is always `"#cdata-section"`.

The new node is an orphan with no parent; it must be added to the DOM tree with `XmlDomAppendChild` and so on.

The `CDATA` is not copied, its pointer is just stored. The user is responsible for persistence and freeing of that data.

Syntax

```
xmlcdataNode* XmlDomCreateCDATA(
    xmlctx *xctx,
    xmlDocNode *doc,
    oratext *data);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| doc | IN | XML document node |
| data | IN | new node's CDATA; data encoding; user control |

Returns

(xmlcdataNode *) new CDATA node.



See Also:

[XmlDomCreateText\(\)](#), [XmlDomCleanNode\(\)](#), [XmlDomFreeNode\(\)](#)

3.3.4 XmlDomCreateComment()

Creates a `Comment` node with the given initial data (which must be in the data encoding). The data may be `NULL`; if provided, it is not verified, converted, or checked. The name of a `Comment` node is always `"#comment"`.

The new node is an orphan with no parent; it must be added to the DOM tree with `XmlDomAppendChild` and so on.

The comment data is not copied, its pointer is just stored. The user is responsible for persistence and freeing of that data.

Syntax

```
xmlcommentNode* XmlDomCreateComment(
    xmlctx *xctx,
    xmlDocNode *doc,
    oratext *data);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| doc | IN | XML document node |
| data | IN | new node's comment; data encoding; user control |

Returns

(xmlcommentnode *) new Comment node.

**See Also:**

[XmlDomCleanNode\(\)](#), [XmlDomFreeNode\(\)](#)

3.3.5 XmlDomCreateElem()

Creates an element node with the given tag name (which should be in the data encoding). Note that the tag name of an element is case sensitive. This is the non-namespace aware function: the new node will have `NULL` namespace URI and prefix, and its local name will be the same as its tag name, even if the tag name specified is a qualified name.

The new node is an orphan with no parent; it must be added to the DOM tree with `XmlDomAppendChild` and so on.

The `tagname` is not copied, its pointer is just stored. The user is responsible for persistence and freeing of that data.

Syntax

```
xmllemnode* XmlDomCreateElem(
    xmlctx *xctx,
    xmlnode *doc,
    oratext *tagname);
```

| Parameter | In/Out | Description |
|----------------------|--------|--|
| <code>xctx</code> | IN | XML context |
| <code>doc</code> | IN | XML document node |
| <code>tagname</code> | IN | new node's name; data encoding; user control |

Returns

(xmllemnode *) new Element node.

**See Also:**

[XmlDomCreateElemNS\(\)](#), [XmlDomCleanNode\(\)](#), [XmlDomFreeNode\(\)](#)

3.3.6 XmlDomCreateElemNS()

Creates an element with the given namespace URI and qualified name. Note that element names are case sensitive, and the qualified name is required though the URI may be `NULL`. The qualified name will be split into prefix and local parts, retrievable with `XmlDomGetNodePrefix`, `XmlDomGetNodeLocal`, and so on; the `tagName` will be the full qualified name.

The new node is an orphan with no parent; it must be added to the DOM tree with `XmlDomAppendChild` and so on.

The URI and qualified name are not copied, their pointers are just stored. The user is responsible for persistence and freeing of that data.

Syntax

```
xmlelemnode* XmlDomCreateElemNS(
    xmlctx *xctx,
    xmldocnode *doc,
    oratext *uri,
    oratext *qname);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| doc | IN | XML document node |
| uri | IN | new node's namespace URI; data encoding, user control |
| qname | IN | new node's qualified name; data encoding; user control |

Returns

(xmlelemnode *) new Element node.



See Also:

[XmlDomCreateElem\(\)](#), [XmlDomCleanNode\(\)](#), [XmlDomFreeNode\(\)](#)

3.3.7 XmlDomCreateEntityRef()

Creates an `EntityReference` node; the name (which should be in the data encoding) is the name of the entity to be referenced. The named entity does not have to exist. The name is not verified, converted, or checked.

`EntityReference` nodes are never generated by the parser; instead, entity references are expanded as encountered. On output, an entity reference node will turn into a "&name;" style reference.

The new node is an orphan with no parent; it must be added to the DOM tree with `XmlDomAppendChild`, and so on.

The entity reference name is not copied, its pointer is just stored. The user is responsible for persistence and freeing of that data.

Syntax

```
xmlentrefnode* XmlDomCreateEntityRef(
    xmlctx *xctx,
    xmldocnode *doc,
    oratext *name);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| doc | IN | XML document node |
| name | IN | name of referenced entity; data encoding; user control |

Returns

(xmlentrefnode *) new EntityReference node.

3.3.8 XmlDomCreateFragment()

Creates an empty `DocumentFragment` node. A document fragment is treated specially when it is inserted into a DOM tree: the children of the fragment are inserted in order instead of the fragment node itself. After insertion, the fragment node will still exist, but have no children. See `XmlDomInsertBefore`, `XmlDomReplaceChild`, `XmlDomAppendChild`, and so on. The name of a fragment node is always "#document-fragment".

Syntax

```
xmlfragnode* XmlDomCreateFragment(
    xmlctx *xctx,
    xmldocnode *doc);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| xctx | IN | XML context |
| doc | IN | XML document node |

Returns

(xmlfragnode *) new empty `DocumentFragment` node

 **See Also:**[XmlDomInsertBefore\(\)](#), [XmlDomReplaceChild\(\)](#), [XmlDomAppendChild\(\)](#)

3.3.9 XmlDomCreatePI()

Creates a `ProcessingInstruction` node with the given target and data (which should be in the data encoding). The data may be `NULL` initially, and may be changed later (with `XmlDomSetPIData`), but the target is required and cannot be changed. Note the target and data are not verified, converted, or checked. The name of a PI node is the same as the target.

The new node is an orphan with no parent; it must be added to the DOM tree with `XmlDomAppendChild` and so on.

The PI's target and data are not copied, their pointers are just stored. The user is responsible for persistence and freeing of that data.

Syntax

```
xmlpinode* XmlDomCreatePI(  
    xmlctx *xctx  
    xmldocnode *doc,  
    oratext *target,  
    oratext *data);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| doc | IN | XML document node |
| target | IN | new node's target; data encoding; user control |
| data | IN | new node's data; data encoding; user control |

Returns

(`xmlpinode *`) new PI node.

 **See Also:**[XmlDomGetPITarget\(\)](#), [XmlDomGetPIData\(\)](#), [XmlDomSetPIData\(\)](#), [XmlDomCleanNode\(\)](#), [XmlDomFreeNode\(\)](#)

3.3.10 XmlDocumentCreateText()

Creates a `Text` node with the given initial data (which must be non-NULL and in the data encoding). The data may be NULL; if provided, it is not verified, converted, checked, or parsed (entities will not be expanded). The name of a fragment node is always "#text". New data for a `Text` node can be set; see the `CharacterData` interface for editing methods.

The new node is an orphan with no parent; it must be added to the DOM tree with `XmlDomAppendChild` and so on.

The text data is not copied, its pointer is just stored. The user is responsible for persistence and freeing of that data.

Syntax

```
xmltextnode* XmlDocumentCreateText(
    xmlctx *xctx,
    xmldocnode *doc,
    oratext *data);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| doc | IN | XML document node |
| data | IN | new node's text; data encoding; user control |

Returns

(xmltextnode *) new `Text` node.

See Also:

[XmlDomCreateCDATA\(\)](#), [XmlDomSetNodeValue\(\)](#), [XmlDomGetNodeValue\(\)](#),
[XmlDomSetCharData\(\)](#), [XmlDomGetCharData\(\)](#),
[XmlDomGetCharDataLength\(\)](#), [XmlDomSubstringData\(\)](#),
[XmlDomAppendData\(\)](#), [XmlDomInsertData\(\)](#), [XmlDomDeleteData\(\)](#),
[XmlDomReplaceData\(\)](#), [XmlDomCleanNode\(\)](#), [XmlDomFreeNode\(\)](#)

3.3.11 XmlDocumentFreeString()

Frees the string allocated by `XmlDomSubstringData` or similar functions. Note that strings explicitly saved with `XmlDomSaveString` are not freeable individually.

Syntax

```
void XmlDocumentFreeString(
    xmlctx *xctx,
```



```
xmlDocnode *doc,
oratext *str);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------------------|
| xctx | IN | XML context |
| doc | IN | document where the string belongs |
| str | IN | string to free |



See Also:

[XmlDomSaveString\(\)](#), [XmlDomSaveString2\(\)](#)

3.3.12 XmlDomGetBaseURI()

Returns the base URI for a document. Usually only documents that were loaded from a URI will automatically have a base URI; documents loaded from other sources (`stdin`, `buffer`, and so on) will not naturally have a base URI, but a base URI may have been set for them using `XmlDomSetBaseURI`, for the purposes of resolving relative URIs in inclusion.

Syntax

```
oratext *XmlDomGetBaseURI(
    xmlctx *xctx,
    xmlDocnode *doc);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| xctx | IN | XML context |
| doc | IN | XML document node |

Returns

(`oratext *`) document's base URI [or `NULL`]



See Also:

[XmlDomSetBaseURI\(\)](#)

3.3.13 XmlDocumentGetDTD()

Returns the DTD node associated with current document; if there is no DTD, returns `NULL`. The DTD cannot be edited, but its children may be retrieved with `XmlDomGetChildNodes` as for other node types.

Syntax

```
xmltdnode* XmlDocumentGetDTD(
    xmlctx *xctx,
    xmlnode *doc);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| xctx | IN | XML context |
| doc | IN | XML document node |

Returns

(xmltdnode *) DTD node for document [or `NULL`]



See Also:

[XmlDomSetDTD\(\)](#), [XmlCreateDTD\(\)](#) and [XmlCreate\(\)](#) in Package XML APIs for C, [XmlDomGetDTDName\(\)](#), [XmlDomGetDTDEntities\(\)](#), and [XmlDomGetDTDNotations\(\)](#)

3.3.14 XmlDocumentGetDecl()

Returns the information from a document's `XMLDecl`. If there is no `XMLDecl`, returns `XMLERR_NO_DECL`. Returned are the XML version# ("1.0" or "2.0"), the specified encoding, and the standalone value. If encoding is not specified, `NULL` will be set. The standalone flag is three-state: `< 0` if standalone was not specified, `0` if it was specified and `FALSE`, `> 0` if it was specified and `TRUE`.

Syntax

```
xmlerr XmlDocumentGetDecl(
    xmlctx *xctx,
    xmlnode *doc,
    oratext **ver,
    oratext **enc,
    sb4 *std);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| doc | IN | XML document node |
| ver | OUT | XML version |
| enc | OUT | encoding specification |
| std | OUT | standalone specification |

Returns

(xmlerr) XML error code, perhaps version/encoding/standalone set

3.3.15 XmlDocumentGetDocElem()

Returns the root element (node) of the DOM tree, or `NULL` if there is none. Each document has only one uppermost `Element` node, called the root element. It is created after a document is parsed successfully, or manually by `XmlDomCreateElem` then `XmlDomAppendChild`, and so on.

Syntax

```
xmlelemnode* XmlDocumentGetDocElem(
    xmlctx *xctx,
    xmldocnode *doc);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| xctx | IN | XML context |
| doc | IN | XML document node |

Returns

(xmlelemnode *) root element [or `NULL`]



See Also:

[XmlDomCreateElem\(\)](#)

3.3.16 XmlDocumentGetDocElemByID()

Returns the element node which has the given ID. If no such ID is defined, returns `NULL`. Note that attributes named "ID" are not automatically of type ID; ID attributes (which can have any name) must be declared as type ID in the DTD.

The given ID should be in the data encoding or it might not match.

Syntax

```
xmlelemnode* XmlDomGetDocElemByID(
    xmlctx *xctx,
    xmldocnode *doc,
    oratext *id);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------------|
| xctx | IN | XML context |
| doc | IN | XML document node |
| id | IN | element's unique ID; data encoding |

Returns

(xmlelemnode *) matching element.



See Also:

[XmlDomGetDocElemsByTag\(\)](#), [XmlDomGetDocElemsByTagNS\(\)](#)

3.3.17 XmlDomGetDocElemsByTag()

Returns a list of all elements in the document tree rooted at the root node with a given tag name, in document order (the order in which they would be encountered in a preorder traversal of the tree). If root is `NULL`, the entire document is searched.

The special name "*" matches all tag names; a `NULL` name matches nothing. Note that tag names are case sensitive, and should be in the data encoding or a mismatch might occur.

This function is not namespace aware; the full tag names are compared. If two qualified names with two different prefixes both of which map to the same URI are compared, the comparison will fail. See [XmlDomGetElemsByTagNS](#) for the namespace-aware version.

The list should be freed with `XmlDomFreeNodeList` when it is no longer needed.

The list is not live, it is a snapshot. That is, if a new node which matched the tag name were added to the DOM after the list was returned, the list would not automatically be updated to include the node.

Syntax

```
xmlodelist* XmlDomGetDocElemsByTag(
    xmlctx *xctx,
    xmldocnode *doc,
    oratext *name);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| doc | IN | XML document node |
| name | IN | tagname to match; data encoding; * for all |

Returns

(xmlnodelist *) new NodeList containing all matched Elements.

See Also:

[XmlDomGetDocElemById\(\)](#), [XmlDomGetDocElemsByTagNS\(\)](#),
[XmlDomFreeNodeList\(\)](#)

3.3.18 XmlDomGetDocElemsByTagNS()

Returns a list of all elements (in the document tree rooted at the given node) with a given namespace URI and local name, in the order in which they would be encountered in a preorder traversal of the tree. If root is `NULL`, the entire document is searched.

The URI and local name should be in the data encoding. The special local name "*" matches all local names; a `NULL` local name matches nothing. Namespace URIs must always match, however, no wildcard is allowed. Note that comparisons are case sensitive. See [XmlDomGetDocElemsByTag](#) for the non-namespace aware version.

The list should be freed with [XmlDomFreeNodeList](#) when it is no longer needed.

The list is not live, it is a snapshot. That is, if a new node which matched the tag name were added to the DOM after the list was returned, the list would not automatically be updated to include the node.

Syntax

```
xmlnodelist* XmlDomGetDocElemsByTagNS(
    xmlctx *xctx,
    xmldocnode *doc,
    oratext *uri,
    oratext *local);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| xctx | IN | XML context |
| doc | IN | XML document node |

| Parameter | In/Out | Description |
|-----------|--------|--|
| uri | IN | namespace URI to match; data encoding; * matches all |
| local | IN | local name to match; data encoding; * matches all |

Returns

(xmlnodeList *) new NodeList containing all matched Elements.

**See Also:**

[XmlDomGetDocElemByID\(\)](#), [XmlDomGetDocElemsByTag\(\)](#),
[XmlDomFreeNodeList\(\)](#)

3.3.19 XmlDomGetLastError()

Returns the error code of the last error which occurred in the given document.

Syntax

```
xmlerr XmlDomGetLastError(
    xmlctx *xctx,
    xmldocnode *doc);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| xctx | IN | XML context |
| doc | IN | XML document node |

Returns

(xmlerr) numeric error code, 0 if no error

3.3.20 XmlDomGetSchema()

Returns URI of schema associated with document, if there is one, else returns `NULL`. The `XmlLoadDom` functions take a schema location hint (URI); the schema is used for efficient layout of `XMLType` data. If a schema was provided at load time, this function returns `TRUE`.

Syntax

```
oratext* XmlDomGetSchema(
    xmlctx *xctx,
    xmldocnode *doc);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| xctx | IN | XML context |
| doc | IN | XML document node |

Returns

(oratext *) Schema URI or NULL



See Also:

[XmlDomIsSchemaBased\(\)](#), [XmlLoadDom\(\)](#) in Package XML APIs for C

3.3.21 XmlDomImportNode()

Imports a node from one `Document` to another. The new node is an orphan and has no parent; it must be added to the DOM tree with `XmlDomAppendChild`, and so on. The original node is not modified in any way or removed from its document; instead, a new node is created with copies of all the original node's qualified name, prefix, namespace URI, and local name.

As with `XmlDomCloneNode`, the `deep` controls whether the children of the node are recursively imported. If `FALSE`, only the node itself is imported, and it will have no children. If `TRUE`, all descendents of the node will be imported as well, and an entire new subtree created.

`Document` and `DocumentType` nodes cannot be imported. Imported attributes will have their specified flags set to `TRUE`. Elements will have only their specified attributes imported; non-specified (default) attributes are omitted. New default attributes (for the destination document) are then added.

Syntax

```
xmlnode* XmlDomImportNode(
    xmlctx *xctx,
    xmldocnode *doc,
    xmlctx *nctx,
    xmlnode *node,
    boolean deep);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------|
| xctx | IN | XML context |
| doc | IN | XML document node |
| nctx | IN | XML context of imported node |

| Parameter | In/Out | Description |
|-----------|--------|--|
| node | IN | node to import |
| deep | IN | TRUE to import the subtree recursively |

Returns

(xmlnode *) newly imported node (in this Document).

**See Also:**

[XmlDomCloneNode\(\)](#)

3.3.22 XmlDomIsSchemaBased()

Returns flag specifying whether there is a schema associated with this document. The `XmlLoadDom` functions take a schema location hint (URI); the schema is used for efficient layout of `XMLType` data. If a schema was provided at load time, this function returns `TRUE`.

Syntax

```
boolean XmlDomIsSchemaBased(
    xmlctx *xctx,
    xmldocnode *doc);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| xctx | IN | XML context |
| doc | IN | XML document node |

Returns

(boolean) `TRUE` if there is a schema associated with the document

**See Also:**

[XmlDomGetSchema\(\)](#), [XmlLoadDom\(\)](#) in Package XML APIs for C

3.3.23 XmlDomSaveString()

Copies the given string into the document's memory pool, so that it persists for the life of the document. The individual string will not be freeable, and the storage will be

returned only when the entire document is freed. Works on single-byte or multibyte encodings; for Unicode strings, use `XmlDomSaveString2`.

Syntax

```
oralex * XmlDomSaveString(
    xmlctx *xctx,
    xmldocnode *doc,
    oralex *str);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| doc | IN | XML document node |
| str | IN | string to save; data encoding; single- or multi-byte only |

Returns

(oralex *) saved copy of string



See Also:

[XmlDomSaveString2\(\)](#), [XmlFreeDocument\(\)](#) in [Package XML APIs for C](#)

3.3.24 XmlDomSaveString2()

Copies the given string into the document's memory pool, so that it persists for the life of the document. The individual string will not be freeable, and the storage will be returned only when the entire document is free. Works on Unicode strings only; for single-byte or multibyte strings, use `XmlDomSaveString`.

Syntax

```
ub2* XmlDomSaveString2(
    xmlctx *xctx,
    xmldocnode *doc,
    ub2 *ustr);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| doc | IN | XML document node |
| ustr | IN | string to save; data encoding; Unicode only |

Returns`(ub2 *)` saved copy of string**See Also:**[XmlDomSaveString\(\)](#), [XmlFreeDocument\(\)](#) in [Package XML APIs for C](#)

3.3.25 XmlDomSetBaseURI()

Only documents that were loaded from a URI will automatically have a base URI; documents loaded from other sources (stdin, buffer, and so on) will not naturally have a base URI, so this API is used to set a base URI, for the purposes of relative URI resolution in includes. The base URI should be in the data encoding, and a copy will be made.

Syntax

```
xmlerr XmlDomSetBaseURI(  
    xmlctx *xctx,  
    xmldocnode *doc,  
    oratext *uri);
```

| Parameter | In/Out | Description |
|-------------------|--------|--------------------------------|
| <code>xctx</code> | IN | XML context |
| <code>doc</code> | IN | XML document node |
| <code>uri</code> | IN | base URI to set; data encoding |

Returns`(xmlerr)` XML error code**See Also:**[XmlDomGetBaseURI\(\)](#)

3.3.26 XmlDomSetDTD()

Sets the DTD for document. Note this call may only be used for a blank document, before any parsing has taken place. A single DTD can be set for multiple documents, so when a document with a set DTD is freed, the set DTD is not also freed.

Syntax

```
xmlerr XmlDomSetDTD(
    xmlctx *xctx,
    xmlDocnode *doc,
    xmldtdnode *dtdnode);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| xctx | IN | XML context |
| doc | IN | XML document node |
| dtdnode | IN | DocumentType node to set |

Returns

(xmlerr) numeric error code, 0 on success

**See Also:**

[XmlDomGetDTD\(\)](#), [XmlDomGetDTDName\(\)](#), [XmlDomGetDTDEntities\(\)](#),
[XmlDomGetDTDNotations\(\)](#)

3.3.27 XmlDomSetDocOrder()

Sets the document order for each node in the current document. Must be called once on the final document before XSLT processing can occur. Note this is called automatically by the XSLT processor, so ordinarily the user need not make this call.

Syntax

```
ub4 XmlDomSetDocOrder(
    xmlctx *xctx,
    xmlDocnode *doc,
    ub4 start_id);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| xctx | IN | XML context |
| doc | IN | XML document node |
| start_id | IN | string ID number |

Returns

(ub4) highest ordinal assigned

3.3.28 XmlDomSetLastError()

Sets the Last Error code for the given document. If `doc` is `NULL`, sets the error code for the XML context.

Syntax

```
xmlerr XmlDomSetLastError(
    xmlctx *xctx,
    xmldocnode *doc,
    xmlerr errcode);
```

| Parameter | In/Out | Description |
|----------------------|--------|-------------------------------------|
| <code>xctx</code> | IN | XML context |
| <code>doc</code> | IN | XML document node |
| <code>errcode</code> | IN | error code to set, 0 to clear error |

Returns

(`xmlerr`) original error code

3.3.29 XmlDomSync()

Causes a modified DOM to be written back out to its original source, synchronizing the persistent store and in-memory versions.

Syntax

```
xmlerr XmlDomSync(
    xmlctx *xctx,
    xmldocnode *doc);
```

| Parameter | In/Out | Description |
|-------------------|--------|-------------------|
| <code>xctx</code> | IN | XML context |
| <code>doc</code> | IN | XML document node |

Returns

(`xmlerr`) numeric error code, 0 on success

3.4 DocumentType Interface for DOM XML C APIs

The following table summarizes the methods available through the `DocumentType` interface of DOM for XML C APIs.

Table 3-4 Summary of DocumentType DOM Methods for XML C Implementation

| Function | Summary |
|--|----------------------------|
| XmlDomGetDTDEntities() | Get entities of DTD. |
| XmlDomGetDTDInternalSubset() | Get DTD's internal subset. |
| XmlDomGetDTDName() | Get name of DTD. |
| XmlDomGetDTDNotations() | Get notations of DTD. |
| XmlDomGetDTDPubID() | Get DTD's public ID. |
| XmlDomGetDTDSysID() | Get DTD's system ID. |

3.4.1 XmlDomGetDTDEntities()

Returns a named node map of general entities defined by the DTD. If the node is not a DTD, or has no general entities, returns `NULL`.

Syntax

```
xmlnamedmap* XmlDomGetDTDEntities(
    xmlctx *xctx,
    xmldtdnode *dtd);
```

| Parameter | In/Out | Description |
|-------------------|--------|-------------|
| <code>xctx</code> | IN | XML context |
| <code>dtd</code> | IN | DTD node |

Returns

(`xmlnamedmap *`) named node map containing entities declared in DTD



See Also:

[XmlDomGetDTD\(\)](#), [XmlDomGetDTDName\(\)](#), [XmlDomGetDTDNotations\(\)](#), [XmlDomGetDTDSysID\(\)](#), [XmlDomGetDTDInternalSubset\(\)](#)

3.4.2 XmlDomGetDTDInternalSubset()

Returns the content model for an element. If there is no DTD, returns `NULL`.

Syntax

```
xmlnode* XmlDomGetDTDInternalSubset(
    xmlctx *xctx,
    xmldtdnode *dtd,
    oratext *name);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------------|
| xctx | IN | XML context |
| dtd | IN | DTD node |
| name | IN | name of Element; data encoding |

Returns

(xmlnode *) content model subtree



See Also:

[XmlDomGetDTD\(\)](#), [XmlDomGetDTDName\(\)](#), [XmlDomGetDTDEntities\(\)](#), [XmlDomGetDTDNotations\(\)](#), [XmlDomGetDTDPubID\(\)](#)

3.4.3 XmlDomGetDTDName()

Returns a DTD's name (specified immediately after the DOCTYPE keyword), or NULL if the node is not type DTD.

Syntax

```
oratext* XmlDomGetDTDName(
    xmlctx *xctx,
    xmldtdnode *dtd);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| dtd | IN | DTD node |

Returns

(oratext *) name of DTD



See Also:

[XmlDomGetDTD\(\)](#), [XmlDomGetDTDEntities\(\)](#), [XmlDomGetDTDNotations\(\)](#), [XmlDomGetDTDSysID\(\)](#), [XmlDomGetDTDInternalSubset\(\)](#)

3.4.4 XmlDocumentGetDTDNotations()

Returns named node map of notations declared by the DTD. If the node is not a DTD or has no `NotationS`, returns `NULL`.

Syntax

```
xmlNamedmap* XmlDocumentGetDTDNotations(
    xmlctx *xctx,
    xmldtdnode *dtd);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| dtd | IN | DTD node |

Returns

(`xmlNamedmap *`) named node map containing notations declared in DTD



See Also:

[XmlDomGetDTD\(\)](#), [XmlDomGetDTDName\(\)](#), [XmlDomGetDTDEntities\(\)](#), [XmlDomGetDTDSysID\(\)](#), [XmlDomGetDTDInternalSubset\(\)](#)

3.4.5 XmlDocumentGetDTDPubID()

Returns a DTD's public identifier.

Syntax

```
oratext* XmlDocumentGetDTDPubID(
    xmlctx *xctx,
    xmldtdnode *dtd);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| dtd | IN | DTD node |

Returns

(`oratext *`) DTD's public identifier [data encoding]



See Also:

[XmlDomGetDTD\(\)](#), [XmlDomGetDTDName\(\)](#), [XmlDomGetDTDEntities\(\)](#), [XmlDomGetDTDSysID\(\)](#), [XmlDomGetDTDInternalSubset\(\)](#)

3.4.6 XmlDomGetDTDSysID()

Returns a DTD's system identifier.

Syntax

```
oracext* XmlDomGetDTDSysID(
    xmlctx *xctx,
    xmldtdnode *dtd);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| dtd | IN | DTD node |

Returns

(oracext *) DTD's system identifier [data encoding]



See Also:

[XmlDomGetDTD\(\)](#), [XmlDomGetDTDName\(\)](#), [XmlDomGetDTDEntities\(\)](#), [XmlDomGetDTDPubID\(\)](#), [XmlDomGetDTDInternalSubset\(\)](#)

3.5 Element Interface for DOM XML C APIs

The following table summarizes the methods available through the `Element` Interface of DOM for XML C APIs.

Table 3-5 Summary of Element DOM Methods for XML C Implementation

| Function | Summary |
|---------------------------------------|--|
| XmlDomGetAttr() | Return attribute's value given its name. |
| XmlDomGetAttrNS() | Return attribute's value given its URI and local name. |
| XmlDomGetAttrNode() | Get attribute by name. |
| XmlDomGetAttrNodeNS() | Get attribute by name (namespace aware version). |

Table 3-5 (Cont.) Summary of Element DOM Methods for XML C Implementation

| Function | Summary |
|--|--|
| XmlDomGetChildrenByTag() | Get children of element with given tag name (non-namespace aware). |
| XmlDomGetChildrenByTagNS() | Get children of element with tag name (namespace aware version). |
| XmlDomGetDocElemsByTag() | Obtain doc elements. |
| XmlDomGetDocElemsByTagNS() | Obtain doc elements (namespace aware version). |
| XmlDomGetTag() | Return an element node's tag name. |
| XmlDomHasAttr() | Does named attribute exist? |
| XmlDomHasAttrNS() | Does named attribute exist (namespace aware version)? |
| XmlDomRemoveAttr() | Remove attribute with specified name. |
| XmlDomRemoveAttrNS() | Remove attribute with specified URI and local name. |
| XmlDomRemoveAttrNode() | Remove attribute node. |
| XmlDomSetAttr() | Set new attribute for element. |
| XmlDomSetAttrNS() | Set new attribute for element (namespace aware version). |
| XmlDomSetAttrNode() | Set attribute node. |
| XmlDomSetAttrNodeNS() | Set attribute node (namespace aware version). |

3.5.1 XmlDomGetAttr()

Returns the value of an element's attribute (specified by name). Note that an attribute may have the empty string as its value, but cannot be `NULL`. If the element does not have an attribute with the given name, `NULL` is returned.

Syntax

```
oracore* XmlDomGetAttr(
    xmlctx *xctx,
    xmlelemnode *elem,
    oracore *name);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------|
| xctx | IN | XML context |
| elem | IN | element node |
| name | IN | attribute's name |

Returns

(oratext *) named attribute's value [data encoding; may be `NULL`]

**See Also:**

[XmlDomGetAttrNS\(\)](#), [XmlDomGetAttrs\(\)](#), [XmlDomGetAttrNode\(\)](#)

3.5.2 XmlDomGetAttrNS()

Returns the value of an element's attribute (specified by URI and local name). Note that an attribute may have the empty string as its value, but cannot be `NULL`. If the element does not have an attribute with the given name, `NULL` is returned.

Syntax

```
oratext* XmlDomGetAttrNS(  
    xmlctx *xctx,  
    xmlelemnode *elem,  
    oratext *uri,  
    oratext *local);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| elem | IN | element node |
| uri | IN | attribute's namespace URI; data encoding |
| local | IN | attribute's local name; data encoding |

Returns

(oratext *) named attribute's value [data encoding; may be `NULL`]

**See Also:**

[XmlDomGetAttr\(\)](#), [XmlDomGetAttrs\(\)](#), [XmlDomGetAttrNode\(\)](#)

3.5.3 XmlDomGetAttrNode()

Returns an element's attribute specified by name. If the node is not an element or the named attribute does not exist, returns `NULL`.

Syntax

```
xmlattrnode* XmlDomGetAttrNode(
    xmlctx *xctx,
    xmlemnode *elem,
    oratext *name);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------|
| xctx | IN | XML context |
| elem | IN | element node |
| name | IN | attribute's name; data encoding |

Returns

(xmlattrnode *) attribute with the specified name [or NULL]

**See Also:**

[XmlDomGetAttrNodeNS\(\)](#), [XmlDomGetAttr\(\)](#)

3.5.4 XmlDomGetAttrNodeNS()

Returns an element's attribute specified by URI and localname. If the node is not an element or the named attribute does not exist, returns NULL.

Syntax

```
xmlattrnode* XmlDomGetAttrNodeNS(
    xmlctx *xctx,
    xmlemnode *elem,
    oratext *uri,
    oratext *local);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| elem | IN | element node |
| uri | IN | attribute's namespace URI; data encoding |
| local | IN | attribute's local name; data encoding |

Returns

(xmlattrnode *) attribute node with the given URI/local name [or NULL]

**See Also:**[XmlDomGetAttrNode\(\)](#), [XmlDomGetAttr\(\)](#)

3.5.5 XmlDomGetChildrenByTag()

Returns a list of children of an element with the given tag name, in the order in which they would be encountered in a preorder traversal of the tree. The tag name should be in the data encoding. The special name "*" matches all tag names; a NULL name matches nothing. Note that tag names are case sensitive. This function is not namespace aware; the full tag names are compared. If two prefixes which map to the same URI are compared, the comparison will fail. See [XmlDomGetChildrenByTagNS](#) for the namespace-aware version. The returned list can be freed with [XmlDomFreeNodeList](#).

Syntax

```
xmlodelist* XmlDomGetChildrenByTag(
    xmlctx *xctx,
    xmlelemnode *elem,
    oratext *name);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| elem | IN | element node |
| name | IN | tag name to match; data encoding; * for all |

Returns

(xmlodelist *) node list of matching children

**See Also:**[XmlDomGetChildrenByTagNS\(\)](#), [XmlDomFreeNodeList\(\)](#)

3.5.6 XmlDomGetChildrenByTagNS()

Returns a list of children of an element with the given URI and local name, in the order in which they would be encountered in a preorder traversal of the tree. The URI and local name should be in the data encoding. The special name "*" matches all URIs or tag names; a NULL name matches nothing. Note that names are case sensitive. See [XmlDomGetChildrenByTag](#) for the non-namespace version. The returned list can be freed with [XmlDomFreeNodeList](#).

Syntax

```
xmlnodelist* XmlDomGetChildrenByTagNS(
    xmlctx *xctx,
    xmlelemnode *elem,
    oratext *uri,
    oratext *local);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| elem | IN | element node |
| uri | IN | namespace URI to match; data encoding; * matches all |
| local | IN | local name to match; data encoding; * matches all |

Returns

(xmlnodelist *) node list of matching children



See Also:

[XmlDomGetChildrenByTag\(\)](#), [XmlDomFreeNodeList\(\)](#)

3.5.7 XmlDomGetElemsByTag()

Returns a list of all elements (in the document tree rooted at the root node) with a given tag name, in the order in which they would be encountered in a preorder traversal of the tree. If root is NULL, the entire document is searched. The tag name should be in the data encoding. The special name "*" matches all tag names; a NULL name matches nothing. Note that tag names are case sensitive. This function is not namespace aware; the full tag names are compared. If two prefixes which map to the same URI are compared, the comparison will fail. See [XmlDomGetElemsByTagNS](#) for the namespace-aware version. The returned list can be freed with [XmlDomFreeNodeList](#).

Syntax

```
xmlnodelist* XmlDomGetElemsByTag(
    xmlctx *xctx,
    xmlelemnode *elem,
    oratext *name);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| xctx | IN | XML context |
| elem | IN | element node |

| Parameter | In/Out | Description |
|-----------|--------|---|
| name | IN | tag name to match; data encoding; * for all |

Returns

(xmlnodelist *) node list of matching elements

**See Also:**

[XmlDomGetElemsByTagNS\(\)](#), [XmlDomFreeNodeList\(\)](#)

3.5.8 XmlDomGetElemsByTagNS()

Returns a list of all elements (in the document tree rooted at the root node) with a given URI and localname, in the order in which they would be encountered in a preorder traversal of the tree. If root is `NULL`, the entire document is searched. The tag name should be in the data encoding. The special name "*" matches all tag names; a `NULL` name matches nothing. Note that tag names are case sensitive. This function is not namespace aware; the full tag names are compared. If two prefixes which map to the same URI are compared, the comparison will fail. The returned list can be freed with `XmlDomFreeNodeList`.

Syntax

```
xmlnodelist* XmlDomGetElemsByTagNS(
    xmlctx *xctx,
    xmlelemnode *elem,
    oratext *uri,
    oratext *local);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| elem | IN | element node |
| uri | IN | namespace URI to match; data encoding; * for all |
| local | IN | local name to match; data encoding; * for all |

Returns

(xmlnodelist *) node list of matching elements

 **See Also:**[XmlDomGetDocElemsByTag\(\)](#), [XmlDomFreeNodeList\(\)](#)

3.5.9 XmlDomGetTag()

Returns the `tagName` of a node, which is the same as its name. DOM 1.0 states "...even though there is a generic `nodeName` attribute on the `Node` interface, there is still a `tagName` attribute on the `Element` interface; these two attributes must contain the same value, but the Working Group considers it worthwhile to support both, given the different constituencies the DOM API must satisfy."

Syntax

```
oratext* XmlDomGetTag(
    xmlctx *xctx,
    xmlelemnode *elem);
```

| Parameter | In/Out | Description |
|-------------------|--------|--------------|
| <code>xctx</code> | IN | XML context |
| <code>elem</code> | IN | Element node |

Returns

(`oratext *`) element's name [data encoding]

 **See Also:**[XmlDomGetNodeName\(\)](#)

3.5.10 XmlDomHasAttr()

Determines if an element has an attribute with the given name. Returns `TRUE` if so, `FALSE` if not.

Syntax


```
boolean XmlDomHasAttr(
    xmlctx *xctx,
    xmlelemnode *elem,
    oratext *name);
```

| Parameter | In/Out | Description |
|-------------------|--------|-------------|
| <code>xctx</code> | IN | XML context |

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------|
| elem | IN | Element node |
| name | IN | attribute's name; data encoding |

Returns

(boolean) TRUE if element has attribute with given name

 **See Also:**
[XmlDomHasAttrNS\(\)](#)

3.5.11 XmlDomHasAttrNS()

Determines if an element has an attribute with the given URI and localname. Returns TRUE if so, FALSE if not.


Syntax

```
boolean XmlDomHasAttrNS(
    xmlctx *xctx,
    xmlelemnode *elem,
    oratext *uri,
    oratext *local);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| elem | IN | Element node |
| uri | IN | attribute's namespace URI; data encoding |
| local | IN | attribute's local name; data encoding |

Returns

(boolean) TRUE if element has attribute with given URI/localname

 **See Also:**
[XmlDomHasAttr\(\)](#)

3.5.12 XmlDomRemoveAttr()

Removes an attribute (specified by name). If the removed attribute has a default value it is immediately re-created with that default. Note that the attribute is removed from the element's list of attributes, but the attribute node itself is not destroyed.

Syntax

```
void XmlDomRemoveAttr(
    xmlctx *xctx,
    xmlelemnode *elem,
    oratext *name);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------|
| xctx | IN | XML context |
| elem | IN | element node |
| name | IN | attribute's name; data encoding |



See Also:

[XmlDomRemoveAttrNS\(\)](#), [XmlDomRemoveAttrNode\(\)](#)

3.5.13 XmlDomRemoveAttrNS()

Removes an attribute (specified by URI and local name). If the removed attribute has a default value it is immediately re-created with that default. Note that the attribute is removed from the element's list of attributes, but the attribute node itself is not destroyed.

Syntax

```
void XmlDomRemoveAttrNS(
    xmlctx *xctx,
    xmlelemnode *elem,
    oratext *uri,
    oratext *local);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| xctx | IN | XML context |
| elem | IN | element node |
| uri | IN | attribute's namespace URI |

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| local | IN | attribute's local name |



See Also:

[XmlDomRemoveAttr\(\)](#), [XmlDomRemoveAttrNode\(\)](#)

3.5.14 XmlDomRemoveAttrNode()

Removes an attribute from an element. If the attribute has a default value, it is immediately re-created with that value (Specified set to `FALSE`). Returns the removed attribute on success, else `NULL`.

Syntax

```
xmlattrnode* XmlDomRemoveAttrNode(
    xmlctx *xctx,
    xmlelemnode *elem,
    xmlattrnode *oldAttr);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| xctx | IN | XML context |
| elem | IN | element node |
| oldAttr | IN | attribute node to remove |

Returns

(xmlattrnode *) replaced attribute node [or `NULL`]



See Also:

[XmlDomRemoveAttr\(\)](#)

3.5.15 XmlDomSetAttr()

Creates a new attribute for an element with the given name and value (which should be in the data encoding). If the named attribute already exists, its value is simply replaced. The name and value are not verified, converted, or checked. The value is not parsed, so entity references will not be expanded. The attribute's specified flag will be set.

Syntax

```
void XmlDomSetAttr(
    xmlctx *xctx,
    xmlelemnode *elem,
    oratext *name,
    oratext *value);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------------------|
| xctx | IN | XML context |
| elem | IN | element node |
| name | IN | attribute's name; data encoding |
| value | IN | attribute's value; data encoding |

**See Also:**

[XmlDomSetAttrNS\(\)](#), [XmlDomCreateAttr\(\)](#), [XmlDomSetAttrValue\(\)](#), [XmlDomRemoveAttr\(\)](#)

3.5.16 XmlDomSetAttrNS()

Creates a new attribute for an element with the given URI, localname and value (which should be in the data encoding). If the named attribute already exists, its value is simply replaced. The name and value are not verified, converted, or checked.

The value is not parsed, so entity references will not be expanded.

The attribute's specified flag will be set.

Syntax

```
void XmlDomSetAttrNS(
    xmlctx *xctx,
    xmlelemnode *elem,
    oratext *uri,
    oratext *qname,
    oratext *value);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| elem | IN | element node |
| uri | IN | attribute's namespace URI; data encoding |

| Parameter | In/Out | Description |
|-----------|--------|---|
| qname | IN | attribute's qualified name; data encoding |
| value | IN | attribute's value; data encoding |



See Also:

[XmlDomSetAttr\(\)](#), [XmlDomCreateAttr\(\)](#), [XmlDomSetAttrValue\(\)](#),
[XmlDomRemoveAttr\(\)](#)

3.5.17 XmlDomSetAttrNode()

Adds a new attribute to an element. If an attribute with the given name already exists, it is replaced and the old attribute returned through `oldNode`. If the attribute is new, it is added to the element's list and `oldNode` set to `NULL`.

Syntax

```
xmlattrnode* XmlDomSetAttrNode(
    xmlctx *xctx,
    xmlemnode *elem,
    xmlattrnode *newAttr);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------|
| xctx | IN | XML context |
| elem | IN | element node |
| newAttr | IN | attribute node to add |

Returns

(`xmlattrnode *`) replaced attribute node (or `NULL`)



See Also:

[XmlDomSetAttrNodeNS\(\)](#), [XmlDomCreateAttr\(\)](#), [XmlDomSetAttrValue\(\)](#)

3.5.18 XmlDomSetAttrNodeNS()

Adds a new attribute to an element. If an attribute with `newNode`'s URI and localname already exists, it is replaced and the old attribute returned through `oldNode`. If the attribute is new, it is added to the element's list and `oldNode` set to `NULL`.

Syntax

```
xmlattrnode* XmlDomSetAttrNodeNS(
    xmlctx *xctx,
    xmlelemnode *elem,
    xmlattrnode *newAttr);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------|
| xctx | IN | XML context |
| elem | IN | element node |
| newAttr | IN | attribute node to add |

Returns

(xmlattrnode *) replaced attribute node [or NULL]

**See Also:**

[XmlDomSetAttrNode\(\)](#), [XmlDomCreateAttr\(\)](#), [XmlDomSetAttrValue\(\)](#)

3.6 Entity Interface for DOM XML C APIs

The following table summarizes the methods available through the `Entity` interface of DOM for XML C APIs.

Table 3-6 Summary of Entity DOM Methods for XML C Implementation

| Function | Summary |
|---|-------------------------|
| XmlDomGetEntityNotation() | Get entity's notation. |
| XmlDomGetEntityPubID() | Get entity's public ID. |
| XmlDomGetEntitySysID() | Get entity's system ID. |
| XmlDomGetEntityType() | Get entity's type. |

3.6.1 XmlDomGetEntityNotation()

For unparsed entities, returns the name of its notation (in the data encoding). For parsed entities and other node types, returns `NULL`.

Syntax

```
orertext* XmlDomGetEntityNotation(
    xmlctx *xctx,
    xmlentnode *ent);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| ent | IN | entity node |

Returns

(oratext *) entity's notation [data encoding; may be NULL]

**See Also:**

[XmlDomGetEntityPubID\(\)](#), [XmlDomGetEntitySysID\(\)](#)

3.6.2 XmlDomGetEntityPubID()

Returns an entity's public identifier (in the data encoding). If the node is not an entity, or has no defined public ID, returns NULL.

Syntax

```
oratext* XmlDomGetEntityPubID(
    xmlctx *xctx,
    xmlentnode *ent);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| ent | IN | entity node |

Returns

(oratext *) entity's public identifier [data encoding; may be NULL]

**See Also:**

[XmlDomGetEntitySysID\(\)](#), [XmlDomGetEntityNotation\(\)](#)

3.6.3 XmlDomGetEntitySysID()

Returns an entity's system identifier (in the data encoding). If the node is not an entity, or has no defined system ID, returns NULL.

Syntax

```
oratext* XmlDomGetEntitySysID(
    xmlctx *xctx,
    xmlentnode *ent);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| ent | IN | entity node |

Returns

(oratext *) entity's system identifier [data encoding; may be NULL]

**See Also:**

[XmlDomGetEntityPubID\(\)](#), [XmlDomGetEntityNotation\(\)](#)

3.6.4 XmlDomGetEntityType()

Returns a boolean for an entity describing whether it is general (`TRUE`) or parameter (`FALSE`).

Syntax

```
boolean XmlDomGetEntityType(
    xmlctx *xctx,
    xmlentnode *ent);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| ent | IN | entity node |

Returns

(boolean) `TRUE` for general entity, `FALSE` for parameter entity

**See Also:**

[XmlDomGetEntityPubID\(\)](#), [XmlDomGetEntitySysID\(\)](#),
[XmlDomGetEntityNotation\(\)](#)

3.7 NamedNodeMap Interface for DOM XML C APIs

The following table summarizes the methods available through the `NamedNodeMap` interface of DOM for XML C APIs.

Table 3-7 Summary of NamedNodeMap DOM Methods for XML C Implementation

| Function | Summary |
|--|--|
| <code>XmlDomGetNamedItem()</code> | Return named node from list. |
| <code>XmlDomGetNamedItemNS()</code> | Return named node from list (namespace aware version). |
| <code>XmlDomGetNodeMapItem()</code> | Return n^{th} node in list. |
| <code>XmlDomGetNodeMapLength()</code> | Return length of named node map. |
| <code>XmlDomRemoveNamedItem()</code> | Remove node from named node map. |
| <code>XmlDomRemoveNamedItemNS()</code> | Remove node from named node map (namespace aware version). |
| <code>XmlDomSetNamedItem()</code> | Set node in named node list. |
| <code>XmlDomSetNamedItemNS()</code> | Set node in named node list (namespace aware version). |

3.7.1 XmlDomGetNamedItem()

Retrieves an item from a `NamedNodeMap`, specified by name (which should be in the data encoding). This is a non-namespace-aware function; it just matches (case sensitively) on the whole qualified name. Note this function differs from the DOM spec in that the index of the matching item is also returned.

Syntax

```
xmlnode* XmlDomGetNamedItem(
    xmlctx *xctx,
    xmlnamedmap *map,
    oratext *name);
```

| Parameter | In/Out | Description |
|-------------------|--------|------------------------------|
| <code>xctx</code> | IN | XML context |
| <code>map</code> | IN | <code>NamedNodeMap</code> |
| <code>name</code> | IN | name of the node to retrieve |

Returns

(`xmlnode *`) Node with the specified name [or `NULL`]

 **See Also:**

[XmlDomGetNamedItemNS\(\)](#), [XmlDomGetNodeMapItem\(\)](#),
[XmlDomGetNodeMapLength\(\)](#)

3.7.2 XmlDomGetNamedItemNS()

Retrieves an item from a `NamedNodeMap`, specified by URI and localname (which should be in the data encoding). Note this function differs from the DOM spec in that the index of the matching item is also returned.

Syntax

```
xmlnode* XmlDomGetNamedItemNS(  
    xmlctx *xctx,  
    xmlnamedmap *map,  
    oratext *uri,  
    oratext *local);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| map | IN | NamedNodeMap |
| uri | IN | namespace URI of the node to retrieve; data encoding |
| local | IN | local name of the node to retrieve; data encoding |

Returns

(xmlnode *) node with given local name and namespace URI [or NULL]

 **See Also:**

[XmlDomGetNamedItem\(\)](#), [XmlDomGetNodeMapItem\(\)](#),
[XmlDomGetNodeMapLength\(\)](#)

3.7.3 XmlDomGetNodeMapItem()

Retrieves an item from a `NamedNodeMap`, specified by name (which should be in the data encoding). This is a non-namespace-aware function; it just matches (case sensitively) on the whole qualified name. Note this function differs from the DOM specification in that the index of the matching item is also returned. Named "item" in W3C specification.

Syntax

```
xmlnode* XmlDomGetNodeMapItem(
    xmlctx *xctx,
    xmlnamedmap *map,
    ub4 index);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| xctx | IN | XML context |
| map | IN | NamedNodeMap |
| index | IN | 0-based index for the map |

Returns

(xmlnode *) node at the nth position in the map (or NULL)

**See Also:**

[XmlDomGetNamedItem\(\)](#), [XmlDomSetNamedItem\(\)](#),
[XmlDomRemoveNamedItem\(\)](#), [XmlDomGetNodeMapLength\(\)](#)

3.7.4 XmlDomGetNodeMapLength()

Returns the number of nodes in a `NamedNodeMap` (the length). Note that nodes are referred to by index, and the range of valid indexes is 0 through length-1.

Syntax

```
ub4 XmlDomGetNodeMapLength(
    xmlctx *xctx,
    xmlnamedmap *map);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| xctx | IN | XML context |
| map | IN | NamedNodeMap |

Returns

(ub4) number of nodes in `NamedNodeMap`

 **See Also:**[XmlDomGetNodeMapItem\(\)](#), [XmlDomGetNamedItem\(\)](#)

3.7.5 XmlDomRemoveNamedItem()

Removes a node from a `NamedNodeMap`, specified by name. This is a non-namespace-aware function; it just matches (case sensitively) on the whole qualified name. If the removed node is an attribute with default value (not specified), it is immediately replaced. The removed node is returned; if no removal took place, `NULL` is returned.

Syntax

```
xmlnode* XmlDomRemoveNamedItem(
    xmlctx *xctx,
    xmlnamedmap *map,
    oratext *name);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| xctx | IN | XML context |
| map | IN | NamedNodeMap |
| name | IN | name of node to remove |

Returns

(xmlnode *) node removed from this map

 **See Also:**[XmlDomRemoveNamedItemNS\(\)](#), [XmlDomGetNamedItem\(\)](#),
[XmlDomGetNamedItemNS\(\)](#), [XmlDomSetNamedItem\(\)](#),
[XmlDomSetNamedItemNS\(\)](#)

3.7.6 XmlDomRemoveNamedItemNS()

Removes a node from a `NamedNodeMap`, specified by URI and localname. If the removed node is an attribute with default value (not specified), it is immediately replaced. The removed node is returned; if no removal took place, `NULL` is returned.

Syntax

```
xmlnode* XmlDomRemoveNamedItemNS(
    xmlctx *xctx,
    xmlnamedmap *map,
    oratext *uri,
    oratext *local);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| map | IN | NamedNodeMap |
| uri | IN | namespace URI of the node to remove; data encoding |
| local | IN | local name of the node to remove; data encoding |

Returns

(xmlnode *) node removed from this map

**See Also:**

[XmlDomRemoveNamedItem\(\)](#), [XmlDomGetNamedItem\(\)](#),
[XmlDomGetNamedItemNS\(\)](#), [XmlDomSetNamedItem\(\)](#),
[XmlDomSetNamedItemNS\(\)](#)

3.7.7 XmlDomSetNamedItem()

Adds a new node to a `NamedNodeMap`. If a node already exists with the given name, replaces the old node and returns it. If no such named node exists, adds the new node to the map and sets `old` to `NULL`. This is a non-namespace-aware function; it just matches (case sensitively) on the whole qualified name. Since some node types have fixed names (`Text`, `Comment`, and so on), trying to set another of the same type will always cause replacement.

Syntax

```
xmlnode* XmlDomSetNamedItem(
    xmlctx *xctx,
    xmlnamedmap *map,
    xmlnode *newNode);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| xctx | IN | XML context |
| map | IN | NamedNodeMap |
| newNode | IN | new node to store in map |

Returns

(xmlnode *) the replaced node (or `NULL`)

 **See Also:**

[XmlDomSetNamedItemNS\(\)](#), [XmlDomGetNamedItem\(\)](#),
[XmlDomGetNamedItemNS\(\)](#), [XmlDomGetNodeMapItem\(\)](#),
[XmlDomGetNodeMapLength\(\)](#)

3.7.8 XmlDomSetNamedItemNS()

Adds a new node to a `NamedNodeMap`. If a node already exists with the given URI and localname, replaces the old node and returns it. If no such named node exists, adds the new node to the map and sets old to `NULL`. Since some node types have fixed names (`Text`, `Comment`, and so on), trying to set another of the same type will always cause replacement.

Syntax

```
xmlnode* XmlDomSetNamedItemNS(
    xmlctx *xctx,
    xmlnamedmap *map,
    xmlnode *newNode);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| xctx | IN | XML context |
| map | IN | NamedNodeMap |
| newNode | IN | new node to store in map |

Returns

(xmlnode *) replaced Node [or NULL]

 **See Also:**

[XmlDomSetNamedItem\(\)](#), [XmlDomGetNamedItem\(\)](#),
[XmlDomGetNamedItemNS\(\)](#), [XmlDomGetNodeMapItem\(\)](#),
[XmlDomGetNodeMapLength\(\)](#)

3.8 Node Interface for DOM XML C APIs

The following table summarizes the methods available through the `Node` interface of DOM for XML C APIs.

Table 3-8 Summary of Node DOM Methods for XML C Implementation

| Function | Summary |
|---|--|
| <code>XmlDomAppendChild()</code> | Append new child to node's list of children. |
| <code>XmlDomCleanNode()</code> | Clean a node (free DOM allocations). |
| <code>XmlDomCloneNode()</code> | Clone a node. |
| <code>XmlDomFreeNode()</code> | Free a node allocated with <code>XmlDomCreateXXX</code> . |
| <code>XmlDomGetAttrs()</code> | Return attributes of node. |
| <code>XmlDomGetChildNodes()</code> | Return children of node. |
| <code>XmlDomGetDefaultNS()</code> | Get default namespace for node. |
| <code>XmlDomGetFirstChild()</code> | Returns first child of node. |
| <code>XmlDomGetFirstPfnPair()</code> | Get first prefix namespace pair. |
| <code>XmlDomGetLastChild()</code> | Returns last child of node. |
| <code>XmlDomGetNextPfnPair()</code> | Get subsequent prefix namespace pair. |
| <code>XmlDomGetNextSibling()</code> | Return next sibling of node. |
| <code>XmlDomGetNodeLocal()</code> | Get local part of node's qualified name as <code>NULL</code> -terminated string. |
| <code>XmlDomGetNodeLocalLen()</code> | Get local part of node's qualified name as length-encoded string. |
| <code>XmlDomGetNodeName()</code> | Get node's name as <code>NULL</code> -terminated string. |
| <code>XmlDomGetNodeNameLen()</code> | Get node's name as length-encoded string. |
| <code>XmlDomGetNodePrefix()</code> | Return namespace prefix of node. |
| <code>XmlDomGetNodeType()</code> | Get node's numeric type code. |
| <code>XmlDomGetNodeURI()</code> | Return namespace URI of node as a <code>NULL</code> -terminated string. |
| <code>XmlDomGetNodeURILen()</code> | Return namespace URI of node as length-encoded string. |
| <code>XmlDomGetNodeValue()</code> | Get node's value as <code>NULL</code> -terminated string. |
| <code>XmlDomGetNodeValueLen()</code> | Get node value as length-encoded string. |
| <code>XmlDomGetNodeValueStream()</code> | Returns the large data for a node and sends it in pieces to the user's output stream. |
| <code>XmlDomGetOwnerDocument()</code> | Get the owner document of node. |
| <code>XmlDomGetParentNode()</code> | Get parent node. |
| <code>XmlDomGetPrevSibling()</code> | Return previous sibling of node. |
| <code>XmlDomGetPullNodeAsBinaryStream()</code> | Returns the address of a binary stream using the pull paradigm. |
| <code>XmlDomGetPullNodeAsCharacterStream()</code> | Returns the address of a character stream using the pull paradigm. |
| <code>XmlDomGetPushNodeAsBinaryStream()</code> | Returns the address of a binary stream, as an <code>OUT ostream</code> parameter, using the push paradigm. |

Table 3-8 (Cont.) Summary of Node DOM Methods for XML C Implementation

| Function | Summary |
|--|--|
| XmlDomGetPushNodeAsCharacterStream() | Returns the address of a character stream, as an <code>OUT ostream</code> parameter, using the push paradigm. |
| XmlDomGetSourceEntity() | Return the entity node if the input file is an external entity. |
| XmlDomGetSourceLine() | Return source line number of node. |
| XmlDomGetSourceLocation() | Return source location (path, URI, and so on) of node. |
| XmlDomHasAttr() | Does named attribute exist? |
| XmlDomHasChildNodes() | Test if node has children. |
| XmlDomInsertBefore() | Insert new child in to node's list of children. |
| XmlDomNormalize() | Normalize a node by merging adjacent text nodes. |
| XmlDomNumAttrs() | Return number of attributes of element. |
| XmlDomNumChildNodes() | Return number of children of node. |
| XmlDomPrefixToURI() | Get namespace URI for prefix. |
| XmlDomRemoveChild() | Remove an existing child node. |
| XmlDomRenameNode() | Updates the name of a node, for element and attribute nodes only. |
| XmlDomRenameNodeNS() | Updates the name and URI of a node, for element and attribute nodes only. |
| XmlDomReplaceChild() | Replace an existing child of a node. |
| XmlDomSetDefaultNS() | Set default namespace for node. |
| XmlDomSetNodePrefix() | Set namespace prefix of node. |
| XmlDomSetNodeValue() | Set node value. |
| XmlDomSetNodeValueLen() | Set node value as length-encoded string. |
| XmlDomSetNodeValueStream() | Sets the large "value" (character data) for a node piecemeal from an input stream. |
| XmlDomSetPullNodeAsBinaryStream() | Returns the address of a binary input stream, as an <code>OUT istream</code> parameter, using the pull paradigm. |
| XmlDomSetPullNodeAsCharacterStream() | Returns the address of an input character stream, as an <code>OUT istream</code> parameter, using the pull paradigm. |
| XmlDomSetPushNodeAsBinaryStream() | Returns the address of an input binary stream using the push paradigm. |
| XmlDomSetPushNodeAsCharacterStream() | Returns the address of a character stream using the push paradigm. |
| XmlDomValidate() | Validate a node against current DTD. |

3.8.1 XmlDomAppendChild()

Appends the node to the end of the parent's list of children and returns the new node. If `newChild` is a `DocumentFragment`, all of its children are appended in original order; the `DocumentFragment` node itself is not.

Syntax

```
xmlnode* XmlDomAppendChild(
    xmlctx *xctx,
    xmlnode *parent,
    xmlnode *newChild);
```

| Parameter | In/Out | Description |
|-----------------------|--------|------------------------------|
| <code>xctx</code> | IN | XML context |
| <code>parent</code> | IN | parent to receive a new node |
| <code>newChild</code> | IN | node to add |

Returns

(`xmlnode *`) node added



See Also:

[XmlDomInsertBefore\(\)](#), [XmlDomReplaceChild\(\)](#)

3.8.2 XmlDomCleanNode()

Frees parts of the node which were allocated by DOM itself, but does not recurse to children or touch the node's attributes. After freeing part of the node (such as name), a DOM call to get that part (such as `XmlDomGetNodeName`) should return a `NULL` pointer. Used to manage the allocations of a node parts of which are controlled by DOM, and part by the user. Calling `clean` frees all allocations may by DOM and leaves the user's allocations alone. The user is responsible for freeing their own allocations.

Syntax

```
void XmlDomCleanNode(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-------------------|--------|-------------|
| <code>xctx</code> | IN | XML context |

| Parameter | In/Out | Description |
|-----------|--------|---------------|
| node | IN | node to clean |

 **See Also:**
[XmlDomFreeNode\(\)](#)

3.8.3 XmlDomCloneNode()

Creates and returns a duplicate of a node. The duplicate node has no parent. Cloning an element copies all attributes and their values, including those generated by the XML processor to represent defaulted attributes, but it does not copy any text it contains unless it is a deep clone, since the text is contained in a child text node. Cloning any other type of node simply returns a copy of the node. Note that a clone of an unspecified attribute node is specified. If `deep` is `TRUE`, all children of the node are recursively cloned, and the cloned node will have cloned children; a non-deep clone will have no children.

Syntax

```
xmlnode* XmlDomCloneNode(
    xmlctx *xctx,
    xmlnode *node,
    boolean deep);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| node | IN | XML node |
| deep | IN | <code>TRUE</code> to recursively clone children |

Returns

(xmlnode *) duplicate (cloned) node

 **See Also:**
[XmlDomImportNode\(\)](#)

3.8.4 XmlDomFreeNode()

Free a node allocated with `XmlDomCreateXXX`. Frees all resources associated with a node, then frees the node itself. Certain parts of the node are under DOM control, and some parts may be under user control. DOM keeps flags tracking who owns what, and only frees its own allocations. The user is responsible for freeing their own parts of the node before calling `XmlDomFreeNode`.

Syntax

```
void XmlDomFreeNode(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------|
| xctx | IN | XML context |
| node | IN | XML node to free |



See Also:

[XmlDomCleanNode\(\)](#)

3.8.5 XmlDomGetAttrs()

Returns a `NamedNodeMap` of attributes of an element node, or `NULL` if it has no attributes. For other node types, `NULL` is returned. Note that if an element once had attributes, but they have all been removed, an empty list will be returned. So, presence of the list does not mean the element has attributes. You must check the size of the list with `XmlDomNumAttrs` or use `XmlDomHasChildNodes` first.

Syntax

```
xmlnamedmap* XmlDomGetAttrs(
    xmlctx *xctx,
    xmlelemnode *elem);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------|
| xctx | IN | XML context |
| elem | IN | XML element node |

Returns

(`xmlnamedmap *`) `NamedNodeMap` of node's attributes

**See Also:**[XmlDomNumAttrs\(\)](#), [XmlDomHasChildNodes\(\)](#)

3.8.6 XmlDomGetChildNodes()

Returns a list of the node's children, or `NULL` if it has no children. Only `Element`, `Document`, `DTD`, and `DocumentFragment` nodes may have children; all other types will return `NULL`.

Note that an empty list may be returned if the node once had children, but all have been removed! That is, the list may exist but have no members. So, presence of the list alone does not mean the node has children. You must check the size of the list with `XmlDomNumChildNodes` or use `XmlDomHasChildNodes` first.

The `xmlodelist` structure is opaque and can only be manipulated with functions in the `NodeList` interface.

The returned list is live; all changes in the original node are reflected immediately.

Syntax

```
xmlodelist* XmlDomGetChildNodes(  
    xmlctx *xctx,  
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-------------------|--------|-------------|
| <code>xctx</code> | IN | XML context |
| <code>node</code> | IN | XML node |

Returns

(`xmlodelist *`) live `NodeList` containing all children of node

3.8.7 XmlDomGetDefaultNS()

Gets the default namespace for a node.

Syntax

```
orertext* XmlDomGetDefaultNS(  
    xmlctx *xctx,  
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-------------------|--------|-------------------------------|
| <code>xctx</code> | IN | XML context |
| <code>node</code> | IN | element or attribute DOM node |

Returns

(orertext *) default namespace for node [data encoding; may be NULL]

3.8.8 XmlDocumentGetFirstChild()

Returns the first child of a node, or NULL if the node has no children. Only `Element`, `Document`, `DTD`, and `DocumentFragment` nodes may have children; all other types will return NULL.

Syntax

```
xmlnode* XmlDocumentGetFirstChild(  
    xmlctx *xctx,  
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(xmlnode *) first child of node

**See Also:**

[XmlDomGetLastChild\(\)](#), [XmlDomHasChildNodes\(\)](#), [XmlDomGetChildNodes\(\)](#), [XmlDomNumChildNodes\(\)](#)

3.8.9 XmlDocumentGetFirstPfnsPair()

This function is to allow implementations an opportunity to speedup the iteration of all available prefix-URI bindings available on a given node. It returns a state structure and the prefix and URI of the first prefix-URI mapping. The state structure should be passed to `XmlDomGetNextPfnsPair` on the remaining pairs.

Syntax

```
xmlpfnspair* XmlDocumentGetFirstPfnsPair(  
    xmlctx *xctx,  
    xmlnode *node,  
    orertext **prefix,  
    orertext **uri);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

| Parameter | In/Out | Description |
|-----------|--------|--|
| node | IN | XML node |
| prefix | OUT | prefix of first mapping; data encoding |
| uri | OUT | URI of first mapping; data encoding |

Returns

(xmlpfnspair *) iterating object or NULL of no prefixes

3.8.10 XmlDomGetLastChild()

Returns the last child of a node, or NULL if the node has no children. Only `Element`, `Document`, `DTD`, and `DocumentFragment` nodes may have children; all other types will return NULL.

Syntax

```
xmlnode* XmlDomGetLastChild(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(xmlnode *) last child of node

 **See Also:**

[XmlDomGetFirstChild\(\)](#), [XmlDomHasChildNodes\(\)](#), [XmlDomGetChildNodes\(\)](#), [XmlDomNumChildNodes\(\)](#)

3.8.11 XmlDomGetNextPfnsPair()

This function is to allow implementations an opportunity to speedup the iteration of all available prefix-URI bindings available on a given node. Given an iterator structure from `XmlDomGetFirstPfnsPair`, returns the next prefix-URI mapping; repeat calls to `XmlDomGetNextPfnsPair` until NULL is returned.

Syntax

```
xmlpfnspair* XmlDomGetNextPfnPair(
    xmlctx *xctx,
    xmlpfnspair *pfns,
    oratext **prefix,
    oratext **uri);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------------|
| xctx | IN | XML context |
| node | IN | XML node |
| prefix | OUT | prefix of next mapping; data encoding |
| uri | OUT | URI of next mapping; data encoding |

Returns

(xmlpfnspair *) iterating object, NULL when no more pairs

3.8.12 XmlDomGetNextSibling()

Returns the node following a node at the same level in the DOM tree. That is, for each child of a parent node, the next sibling of that child is the child which comes after it. If a node is the last child of its parent, or has no parent, NULL is returned.

Syntax

```
xmlnode* XmlDomGetNextSibling(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(xmlnode *) node immediately following node at same level

**See Also:**

[XmlDomGetPrevSibling\(\)](#)

3.8.13 XmlDocumentGetNodeLocal()

Returns the namespace local name for a node as a `NULL`-terminated string. If the node's name is not fully qualified (has no prefix), then the local name is the same as the name.

A length-encoded version is available as `XmlDomGetNodeLocalLen` which returns the local name as a pointer and length, for use if the data is known to use `XMLType` backing store.

Syntax

```
oratext* XmlDocumentGetNodeLocal(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(oratext *) local name of node [data encoding]



See Also:

[XmlDomGetNodeLocalLen\(\)](#), [XmlDomGetNodePrefix\(\)](#), [XmlDomGetNodeURI\(\)](#)

3.8.14 XmlDocumentGetNodeLocalLen()

Returns the namespace local name for a node as a length-encoded string. If the node's name is not fully qualified (has no prefix), then the local name is the same as the name.

A `NULL`-terminated version is available as `XmlDomGetNodeLocal` which returns the local name as `NULL`-terminated string. If the backing store is known to be `XMLType`, then the node's data will be stored internally as length-encoded. Using the length-based Get functions will avoid having to copy and `NULL`-terminate the data.

If both the input buffer is non-`NULL` and the input buffer length is nonzero, then the value will be stored in the input buffer. Else, the implementation will return its own buffer.

If the actual length is greater than `buflen`, then a truncated value will be copied into the buffer and `len` will return the actual length.

Syntax

```
oratext* XmlDocumentGetNodeLocalLen(
    xmlctx *xctx,
```

```
xmlnode *node,
oratext *buf,
ub4 buflen,
ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------------------------|
| xctx | IN | XML context |
| node | IN | XML node |
| buf | IN | input buffer; optional |
| buflen | IN | input buffer length; optional |
| len | OUT | length of local name, in characters |

Returns

(oratext *) local name of node [data encoding]



See Also:

[XmlDomGetNodeLocal\(\)](#), [XmlDomGetNodePrefix\(\)](#), [XmlDomGetNodeURILen\(\)](#)

3.8.15 XmlDomGetNodeName()

Returns the (fully-qualified) name of a node (in the data encoding) as a NULL-terminated string, for example `bar\0` Or `foo:bar\0`.

Note that some node types have fixed names: `"#text"`, `"#cdata-section"`, `"#comment"`, `"#document"`, `"#document-fragment"`.

A node's name cannot be changed once it is created, so there is no matching `SetNodeName` function.

A length-based version is available as `XmlDomGetNodeNameLen` which returns the node name as a pointer and length, for use if the data is known to use `XMLType` backing store.

Syntax

```
oratext* XmlDomGetNodeName(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| node | IN | XML node |

Returns

(oratext *) name of node [data encoding]

**See Also:**

[XmlDomGetNodeNameLen\(\)](#)

3.8.16 XmlDomGetNodeNameLen()

Returns the (fully-qualified) name of a node (in the data encoding) as a length-encoded string, for example "bar", 3 or "foo:bar", 7.

Note that some node types have fixed names: "#text", "#cdata-section", "#comment", "#document", "#document-fragment".

A node's name cannot be changed once it is created, so there is no matching SetNodeName function.

A NULL-terminated version is available as XmlDomGetNodeName which returns the node name as NULL-terminated string. If the backing store is known to be XMLType, then the node's name will be stored internally as length-encoded. Using the length-encoded GetXXX functions will avoid having to copy and NULL-terminate the name.

If both the input buffer is non-NULL and the input buffer length is nonzero, then the value will be stored in the input buffer. Else, the implementation will return its own buffer.

If the actual length is greater than buflen, then a truncated value will be copied into the buffer and len will return the actual length.

Syntax

```
oratext* XmlDomGetNodeNameLen(
    xmlctx *xctx,
    xmlnode *node,
    oratext *buf,
    ub4 buflen,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

| Parameter | In/Out | Description |
|-----------|--------|-------------------------------|
| buf | IN | input buffer; optional |
| buflen | IN | input buffer length; optional |
| len | OUT | length of name, in characters |

Returns

(oratext *) name of node, with length of name set in 'len'



See Also:

[XmlDomGetNodeName\(\)](#)

3.8.17 XmlDomGetNodePrefix()

Returns the namespace prefix for a node (as a `NULL`-terminated string). If the node's name is not fully qualified (has no prefix), `NULL` is returned.

Syntax

```
oratext* XmlDomGetNodePrefix(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(oratext *) namespace prefix of node [data encoding; may be `NULL`]

3.8.18 XmlDomGetNodeType()

Returns the type code of a node. The type names and numeric values match the DOM specification:

- `ELEMENT_NODE=1`
- `ATTRIBUTE_NODE=2`
- `TEXT_NODE=3`
- `CDATA_SECTION_NODE=4`

- ENTITY_REFERENCE_NODE=5
- ENTITY_NODE=6
- PROCESSING_INSTRUCTION_NODE=7
- COMMENT_NODE=8
- DOCUMENT_NODE=9
- DOCUMENT_TYPE_NODE=10
- DOCUMENT_FRAGMENT_NODE=11
- NOTATION_NODE=12

Additional Oracle extension node types are as follows:

- ELEMENT_DECL_NODE
- ATTR_DECL_NODE
- CP_ELEMENT_NODE
- CP_CHOICE_NODE
- CP_PCDATA_NODE
- CP_STAR_NODE
- CP_PLUS_NODE
- CP_OPT_NODE

Syntax

```
xmlnodetype XmlDomGetNodeType(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(xmlnodetype) numeric type-code of the node

3.8.19 XmlDomGetNodeURI()

Returns the namespace URI for a node (in the data encoding) as a NULL-terminated string. If the node's name is not qualified (does not contain a namespace prefix), it will have the default namespace in effect when the node was created (which may be NULL).

A length-encoded version is available as `XmlDomGetNodeURILen` which returns the URI as a pointer and length, for use if the data is known to use `XMLType` backing store.

Syntax

```
orertext* XmlDomGetNodeURI(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(orertext *) namespace URI of node [data encoding; may be `NULL`]

**See Also:**

[XmlDomGetNodeURILen\(\)](#), [XmlDomGetNodePrefix\(\)](#), [XmlDomGetNodeLocal\(\)](#)

3.8.20 XmlDomGetNodeURILen()

Returns the namespace URI for a node (in the data encoding) as length-encoded string. If the node's name is not qualified (does not contain a namespace prefix), it will have the default namespace in effect when the node was created (which may be `NULL`).

A `NULL`-terminated version is available as `XmlDomGetNodeURI` which returns the URI value as `NULL`-terminated string. If the backing store is known to be `XMLType`, then the node's data will be stored internally as length-encoded. Using the length-based Get functions will avoid having to copy and `NULL`-terminate the data.

If both the input buffer is non-`NULL` and the input buffer length is nonzero, then the value will be stored in the input buffer. Else, the implementation will return its own buffer.

If the actual length is greater than `buflen`, then a truncated value will be copied into the buffer and `len` will return the actual length.

Syntax

```
orertext* XmlDomGetNodeURILen(
    xmlctx *xctx,
    xmlnode *node,
    orertext *buf,
    ub4 buflen,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

| Parameter | In/Out | Description |
|-----------|--------|-------------------------------|
| node | IN | XML node |
| buf | IN | input buffer; optional |
| buflen | IN | input buffer length; optional |
| len | OUT | length of URI, in characters |

Returns

(oratext *) namespace URI of node [data encoding; may be NULL]

**See Also:**

[XmlDomGetNodeURI\(\)](#), [XmlDomGetNodePrefix\(\)](#), [XmlDomGetNodeLocal\(\)](#)

3.8.21 XmlDomGetNodeValue()

Returns the "value" (associated character data) for a node as a NULL-terminated string. Character and general entities will have been replaced. Only `Attr`, `CDATA`, `Comment`, `ProcessingInstruction` and `Text` nodes have values, all other node types have NULL value.

A length-encoded version is available as `XmlDomGetNodeValueLen` which returns the node value as a pointer and length, for use if the data is known to use `XMLType` backing store.

Syntax

```
oratext* XmlDomGetNodeValue(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(oratext *) value of node

**See Also:**[XmlDomSetNodeValue\(\)](#), [XmlDomGetNodeValueLen\(\)](#)

3.8.22 XmlDomGetNodeValueLen()

Returns the "value" (associated character data) for a node as a length-encoded string. Character and general entities will have been replaced. Only `Attr`, `CDATA`, `Comment`, `PI` and `Text` nodes have values, all other node types have `NULL` value.

A `NULL`-terminated version is available as `XmlDomGetNodeValue` which returns the node value as `NULL`-terminated string. If the backing store is known to be `XMLType`, then the node's data will be stored internally as length-encoded. Using the length-based `Get` functions will avoid having to copy and `NULL`-terminate the data.

If both the input buffer is non-`NULL` and the input buffer length is nonzero, then the value will be stored in the input buffer. Else, the implementation will return its own buffer.

If the actual length is greater than `buflen`, then a truncated value will be copied into the buffer and `len` will return the actual length.

Syntax

```
oratext* XmlDomGetNodeValueLen(
    xmlctx *xctx,
    xmlnode *node,
    oratext *buf,
    ub4 buflen,
    ub4 *len);
```

| Parameter | In/Out | Description |
|---------------------|--------|-------------------------------|
| <code>xctx</code> | IN | XML context |
| <code>node</code> | IN | XML node |
| <code>buf</code> | IN | input buffer; optional |
| <code>buflen</code> | IN | input buffer length; optional |
| <code>len</code> | OUT | length of value, in bytes |

Returns

(`oratext *`) value of node

 **See Also:**[XmlDomSetNodeValueLen\(\)](#), [XmlDomGetNodeValue\(\)](#)

3.8.23 XmlDomGetNodeValueStream()

Returns the large data for a node and sends it in pieces to the user's output stream. For very large values, it is not always possible to store them [efficiently] as a single contiguous chunk. This function is used to access chunked data of that type. Only `XMLType` chunks its data (sometimes); XDK's data is always contiguous.

Syntax

```
xmlerr XmlDomGetNodeValueStream(  
    xmlctx *xctx,  
    xmlnode *node,  
    xmlostream *ostream);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------|
| xctx | IN | XML context |
| node | IN | XML node |
| ostream | IN | output stream object |

Returns

(`xmlerr`) numeric error code, 0 on success

 **See Also:**[XmlDomSetNodeValueStream\(\)](#), [XmlDomGetNodeValue\(\)](#),
[XmlDomGetNodeValueLen\(\)](#)

3.8.24 XmlDomGetOwnerDocument()

Returns the `Document` node associated with a node. Each node may belong to only one document, or may not be associated with any document at all (such as immediately after `XmlDomCreateElem`, and so on). The "owning" document [node] is returned, or `NULL` for an orphan node.

Syntax

```
xmlDocnode* XmlDomGetOwnerDocument(  
    xmlctx *xctx,  
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(xmlDocNode *) document node is in

3.8.25 XmlDomGetParentNode()

Returns a node's parent node. All nodes types except `Attr`, `Document`, `DocumentFragment`, `Entity`, and `Notation` may have a parent (these five exceptions always have a `NULL` parent). If a node has just been created but not yet added to the DOM tree, or if it has been removed from the DOM tree, its parent is also `NULL`.

Syntax

```
xmlnode* XmlDomGetParentNode(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(xmlnode *) parent of node

3.8.26 XmlDomGetPrevSibling()

Returns the node preceding a node at the same level in the DOM tree. That is, for each child of a parent node, the previous sibling of that child is the child which came before it. If a node is the first child of its parent, or has no parent, `NULL` is returned.

Syntax

```
xmlnode* XmlDomGetPrevSibling(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(xmlnode *) node immediately preceding node at same level

**See Also:**

[XmlDomGetNextSibling\(\)](#)

3.8.27 XmlDomGetPullNodeAsBinaryStream()

Returns the address of a binary stream using the pull paradigm.

Syntax

```
orastream *XmlDomGetPullNodeAsBinaryStream(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| node | IN | XML node; may be RAW or BLOB, otherwise the function returns NULL |

Returns

(orastream *) the readable binary stream; use OraStreamRead() on the output, not OraStreamReadChar()

3.8.28 XmlDomGetPullNodeAsCharacterStream()

Returns the address of a character stream using the pull paradigm.

Syntax

```
orastream *XmlDomGetPullNodeAsCharacterStream(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| node | IN | XML node; may be any type supported by XML DB |

Returns

(orastream *) the readable character stream; use OraStreamReadChar() on the output, not OraStreamRead().

3.8.29 XmlDomGetPushNodeAsBinaryStream()

Returns the address of a binary stream, as an `OUT ostream` parameter, using the push paradigm.

Syntax

```
xmlerr XmlDomGetPushNodeAsBinaryStream(
    xmlctx *xctx,
    xmlnode *node,
    ostream *ostream);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| node | IN | XML node; may be RAW or BLOB, otherwise returns an error |
| ostream | OUT | application implementation of ostream; use OraStreamWrite() to write the value, not OraStreamWriteChar() |

Returns

(xmlerr *) error code, XMLERR_OK [] on success

3.8.30 XmlDomGetPushNodeAsCharacterStream()

Returns the address of a character stream, as an `OUT ostream` parameter, using the push paradigm.

Syntax

```
xmlerr XmlDomGetPushNodeAsCharacterStream(
    xmlctx *xctx,
    xmlnode *node,
    ostream *ostream);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| node | IN | XML node; any type supported by XML DB |
| ostream | IN | application implementation of ostream; use OraStreamWriteChar() to write the value, not OraStreamWrite() |

Returns

(xmlerr *) error code, XMLERR_OK [] on success

3.8.31 XmlDocumentGetSourceEntity()

Returns the external entity node whose inclusion caused the creation of the given node.

Syntax

```
xmlentnode* XmlDocumentGetSourceEntity(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(xmlentnode *) entity node if the input is from an external entity

3.8.32 XmlDocumentGetSourceLine()

Returns the line# in the original source where the node started. The first line in every input is line #1.

Syntax

```
ub4 XmlDocumentGetSourceLine(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(ub4) line number of node in original input source

3.8.33 XmlDocumentGetSourceLocation()

Return source location (path, URI, and so on) of node. Note this will be in the compiler encoding, not the data encoding!

Syntax

```
oratext* XmlDocumentGetSourceLocation(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(oracext *) full path of input source [in compiler encoding]

3.8.34 XmlDocumentHasAttrs()

Test if an element has attributes. Returns `TRUE` if any attributes of any sort are defined (namespace or regular).

Syntax

```
boolean XmlDocumentHasAttrs(
    xmlctx *xctx,
    xmlelemnode *elem);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------|
| xctx | IN | XML context |
| elem | IN | XML element node |

Returns

(boolean) `TRUE` if element has attributes

3.8.35 XmlDocumentHasChildNodes()

Test if a node has children. Only `Element`, `Document`, `DTD`, and `DocumentFragment` nodes may have children. Note that just because `XmlDomGetChildNodes` returns a list does not mean the node actually has children, since the list may be empty, so a non-NULL return from `XmlDomGetChildNodes` should not be used as a test.

Syntax

```
boolean XmlDocumentHasChildNodes(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(boolean) TRUE if the node has any children

3.8.36 XmlDomInsertBefore()

Inserts the node `newChild` before the existing child node `refChild` in the parent node. If `refChild` is `NULL`, appends to parent's children as for each `XmlDomAppendChild`; otherwise it must be a child of the given parent. If `newChild` is a `DocumentFragment`, all of its children are inserted (in the same order) before `refChild`; the `DocumentFragment` node itself is not. If `newChild` is already in the DOM tree, it is first removed from its current position.

Syntax

```
xmlnode* XmlDomInsertBefore(
    xmlctx *xctx,
    xmlnode *parent,
    xmlnode *newChild,
    xmlnode *refChild);
```

| Parameter | In/Out | Description |
|-----------------------|--------|----------------------------------|
| <code>xctx</code> | IN | XML context |
| <code>parent</code> | IN | parent that receives a new child |
| <code>newChild</code> | IN | node to insert |
| <code>refChild</code> | IN | reference node |

Returns

(xmlnode *) node being inserted

**See Also:**

[XmlDomAppendChild\(\)](#), [XmlDomReplaceChild\(\)](#), [XmlDomRemoveChild\(\)](#)

3.8.37 XmlDomNormalize()

Normalizes the subtree rooted at an element, merges adjacent `Text` nodes children of elements. Note that adjacent `Text` nodes will never be created during a normal parse, only after manipulation of the document with DOM calls.

Syntax

```
void XmlDomNormalize(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

3.8.38 XmlDocumentNumAttrs()

Returns the number of attributes of an element. Note that just because a list is returned by `XmlDomGetAttrs` does not mean it contains any attributes; it may be an empty list with zero length.

Syntax

```
ub4 XmlDocumentNumAttrs(
    xmlctx *xctx,
    xmlelemnode *elem);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------|
| xctx | IN | XML context |
| elem | IN | XML element node |

Returns

(ub4) number of attributes of node

3.8.39 XmlDocumentNumChildNodes()

Returns the number of children of a node. Only `Element`, `Document`, `DTD`, and `DocumentFragment` nodes may have children, all other types return 0. Note that just because `XmlDomGetChildNodes` returns a list does not mean that it contains any children; it may be an empty list with zero length.

Syntax

```
ub4 XmlDocumentNumChildNodes(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |
| node | IN | XML node |

Returns

(ub4) number of children of node

3.8.40 XmlDomPrefixToURI()

Given a namespace prefix and a node, returns the namespace URI mapped to that prefix. If the given node doesn't have a matching prefix, its parent is tried, then its parent, and so on, all the way to the root node. If the prefix is undefined, `NULL` is returned.

Syntax

```
oratext* XmlDomPrefixToURI(  
    xmlctx *xctx,  
    xmlnode *node,  
    oratext *prefix);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------|
| xctx | IN | XML context |
| node | IN | XML node |
| prefix | IN | prefix to map |

Returns

(oratext *) URI for prefix [data encoding; `NULL` if no match]

3.8.41 XmlDomRemoveChild()

Removes a node from its parent's list of children and returns it. The node is orphaned; its parent will be `NULL` after removal.

Syntax

```
xmlnode* XmlDomRemoveChild(  
    xmlctx *xctx,  
    xmlnode *oldChild);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------|
| xctx | IN | XML context |
| oldChild | IN | node to remove |

Returns

(xmlnode *) node removed

**See Also:**[XmlDomAppendChild\(\)](#), [XmlDomInsertBefore\(\)](#), [XmlDomReplaceChild\(\)](#)

3.8.42 XmlDomRenameNode()

Updates the name of a node, for element and attribute nodes only.

If the prefix does not have a current mapping, the user should add the mapping by creating an `xmlns` attribute and associating it with this element node by calling [XmlDomSetAttrNodeNS\(\)](#)[XmlDomSetAttrNodeNS\(\)](#). A namespace attribute node cannot be modified.

Syntax

```
xmlnode* XmlDomRenameNode(  
    xmlctx *xctx,  
    xmlnode *node,  
    oratext *tagname);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------|
| xctx | IN | XML context |
| node | IN | XML node |
| tagname | IN | The new tagname |

Returns

(`xmlnode *`) the changed node

**See Also:**[XmlDomSetAttrNodeNS\(\)](#)

3.8.43 XmlDomRenameNodeNS()

Updates the name and URI of a node, for element and attribute nodes only.

If the prefix does not have a current mapping, the user should add the mapping by creating an `xmlns` attribute and associating it with this element node by calling [XmlDomSetAttrNodeNS\(\)](#)[XmlDomSetAttrNodeNS\(\)](#). A namespace attribute node cannot be modified.

Syntax

```
xmlnode* XmlDomRenameNodeNS(  
    xmlctx *xctx,
```



```
xmlnode *node,
oratext *uri,
oratext *tagname);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| node | IN | XML node |
| uri | IN | The new URI; if NULL, retains existing URI |
| tagname | IN | The new tagname |

Returns

(xmlnode *) the changed node.



See Also:

[XmlDomSetAttrNodeNS\(\)](#)

3.8.44 XmlDomReplaceChild()

Replaces the child node `oldChild` with the new node `newChild` in `oldChild`'s parent, and returns `oldChild` (which is now orphaned, with a NULL parent). If `newChild` is a `DocumentFragment`, all of its children are inserted in place of `oldChild`; the `DocumentFragment` node itself is not. If `newChild` is already in the DOM tree, it is first removed from its current position.

Syntax

```
xmlnode* XmlDomReplaceChild(
    xmlctx *xctx,
    xmlnode *newChild,
    xmlnode *oldChild);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------|
| xctx | IN | XML context |
| newChild | IN | new node that is substituted |
| oldChild | IN | old node that is replaced |

Returns

(xmlnode *) node replaced

**See Also:**[XmlDomAppendChild\(\)](#), [XmlDomInsertBefore\(\)](#), [XmlDomRemoveChild\(\)](#)

3.8.45 XmlDomSetDefaultNS()

Set the default namespace for a node

Syntax

```
void XmlDomSetDefaultNS(
    xmlctx *xctx,
    xmlnode *node,
    oratext *defns);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------------|
| xctx | IN | XML context |
| node | IN | element or attribute DOM node |
| defns | IN | new default namespace for the node |

3.8.46 XmlDomSetNodePrefix()

Sets the namespace prefix of node (as `NULL`-terminated string). Does not verify the prefix is defined. Just causes a new qualified name to be formed from the new prefix and the old local name; the new qualified name will be under DOM control and should not be managed by the user.

Syntax

```
void XmlDomSetNodePrefix(
    xmlctx *xctx,
    xmlnode *node,
    oratext *prefix);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------|
| xctx | IN | XML context |
| node | IN | XML node |
| prefix | OUT | new namespace prefix |

3.8.47 XmlDomSetNodeValue()

Sets a node's value (character data) as a `NULL`-terminated string. Does not allow setting the value to `NULL`. Only `Attr`, `CDATA`, `Comment`, `PI` and `Text` nodes have values; trying to set the value of another type of node is a no-op. The new value must be in the data encoding. It is not verified, converted, or checked.

The value is not copied, its pointer is just stored. The user is responsible for persistence and freeing of that data.

Syntax

```
xmlerr XmlDomSetNodeValue(
    xmlctx *xctx,
    xmlnode *node,
    oratext *value);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| node | IN | XML node |
| value | IN | node's new value; data encoding; user control |

Returns

(`xmlerr`) numeric error code, 0 on success



See Also:

[XmlDomGetNodeValue\(\)](#), [XmlDomSetNodeValueLen\(\)](#)

3.8.48 XmlDomSetNodeValueLen()

Sets the value (associated character data) for a node as a length-encoded string.

A `NULL`-terminated version is available as `XmlDomSetNodeValue` which takes the node value as a `NULL`-terminated string. If the backing store is known to be `XMLType`, then the node's data will be stored internally as length-encoded. Using the length-based Set functions will avoid having to copy and `NULL`-terminate the data.

Syntax

```
xmlerr XmlDomSetNodeValueLen(
    xmlctx *xctx,
    xmlnode *node,
    oratext *value,
    ub4 len);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| node | IN | XML node |
| value | IN | node's new value; data encoding; user control |
| len | IN | length of value, in bytes |

Returns

(xmlerr) numeric error code, 0 on success



See Also:

[XmlDomSetNodeValueLen\(\)](#), [XmlDomSetNodeValue\(\)](#)

3.8.49 XmlDomSetNodeValueStream()

Sets the large "value" (character data) for a node piecemeal from an input stream. For very large values, it is not always possible to store them [efficiently] as a single contiguous chunk. This function is used to store chunked data of that type. Used only for XMLType data; XDK's data is always contiguous.

Syntax

```
xmlerr XmlDomSetNodeValueStream(
    xmlctx *xctx,
    xmlnode *node,
    xmlstream *istream);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| xctx | IN | XML context |
| node | IN | XML node |
| istream | IN | input stream object |

Returns

(xmlerr) numeric error code, 0 on success

 **See Also:**[XmlDomGetNodeValueStream\(\)](#), [XmlDomSetNodeValue\(\)](#)

3.8.50 XmlDomSetPullNodeAsBinaryStream()

Returns the address of a binary input stream, as an `OUT istream` parameter, using the pull paradigm.

Syntax

```
xmlerr *XmlDomSetPullNodeAsBinaryStream(  
    xmlctx *xctx,  
    xmlnode *node  
    orastream *istream);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| node | IN | XML node; may be RAW or BLOB, otherwise returns an error |
| istream | OUT | input stream object; the method <code>OraStreamRead()</code> must be used to read this value, not <code>OraStreamReadChar()</code> |

Returns

(xmlerr *) error code, XMLERR_OK [] on success

3.8.51 XmlDomSetPullNodeAsCharacterStream()

Returns the address of an input character stream, as an `OUT istream` parameter, using the pull paradigm.

Syntax

```
xmlerr *XmlDomSetPullNodeAsCharacterStream(  
    xmlctx *xctx,  
    xmlnode *node  
    orcharacterinputstream *istream);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| node | IN | XML node; may be any type supported by XML DB |
| istream | OUT | input stream object; the method <code>OraStreamReadChar()</code> must be used to read this value, not <code>OraStreamRead()</code> . |

Returns

(xmlerr *) error code, XMLERR_OK [] on success

3.8.52 XmlDomSetPushNodeAsBinaryStream()

Returns the address of an input binary stream using the push paradigm.

Syntax

```
orastream* XmlDomSetPushNodeAsBinaryStream(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------|
| xctx | IN | XML context |
| node | IN | XML node; may be RAW or BLOB |

Returns

(orastream *) the binary stream; to read the output, use OraStreamWrite() instead of OraStreamWriteChar()

3.8.53 XmlDomSetPushNodeAsCharacterStream()

Returns the address of a character stream using the push paradigm.

Syntax

```
orastream *XmlDomSetPushNodeAsCharacterStream(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| node | IN | XML node; any type supported by XML DB |

Returns

(orastream *) the character stream; to read the output, use OraStreamWriteChar() instead of OraStreamWrite()

3.8.54 XmlDomValidate()

Given a root node, validates it against the current DTD.

Syntax

```
xmlerr XmlDomValidate(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------|
| xctx | IN | XML context |
| node | IN | node to validate |

Returns

(xmlerr) error code, XMLERR_OK [0] means node is valid

3.9 NodeList Interface for DOM XML C APIs

The following table summarizes the methods available through the `NodeList` interface of DOM for XML C APIs.

Table 3-9 Summary of NodeList DOM Methods for XML C Implementation

| Function | Summary |
|---|--|
| XmlDomFreeNodeList() | Free a node list returned by <code>XmlDomGetElemsByTag</code> , and so on. |
| XmlDomGetNodeListItem() | Return n^{th} node in list. |
| XmlDomGetNodeListLength() | Return length of node list. |

3.9.1 XmlDomFreeNodeList()

Free a node list returned by `XmlDomGetElemsByTag` or related functions, releasing all resources associated with it. If given a node list that is part of the DOM proper (such as the children of a node), does nothing.

Syntax

```
void XmlDomFreeNodeList(
    xmlctx *xctx,
    xmlnodelist *list);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------|
| xctx | IN | XML context |
| list | IN | NodeList to free |

**See Also:**

[XmlDomGetElemsByTag\(\)](#), [XmlDomGetElemsByTagNS\(\)](#),
[XmlDomGetChildrenByTag\(\)](#), [XmlDomGetChildrenByTagNS\(\)](#)

3.9.2 XmlDomGetNodeListItem()

Return nth node in a node list. The first item is index 0.

Syntax

```
xmlnode* XmlDomGetNodeListItem(  
    xmlctx *xctx,  
    xmlnodelist *list,  
    ub4 index);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------|
| xctx | IN | XML context |
| list | IN | NodeList |
| index | IN | index into list |

Returns

(xmlnode *) node at the nth position in node list [or NULL]

**See Also:**

[XmlDomGetNodeListLength\(\)](#), [XmlDomFreeNodeList\(\)](#)

3.9.3 XmlDomGetNodeListLength()

Returns the number of nodes in a node list (its length). Note that nodes are referred to by index, so the range of valid indexes is 0 through length-1.

Syntax

```
ub4 XmlDomGetNodeListLength(  
    xmlctx *xctx,  
    xmlnodelist *list);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| list | IN | NodeList |

Returns

(ub4) number of nodes in node list

**See Also:**

[XmlDomGetNodeListItem\(\)](#), [XmlDomFreeNodeList\(\)](#)

3.10 Notation Interface for DOM XML C APIs

The following table summarizes the methods available through the `Notation` interface of DOM for XML C APIs.

Table 3-10 Summary of NodeList DOM Methods for XML C Implementation

| Function | Summary |
|--|---------------------------|
| XmlDomGetNotationPubID() | Get notation's public ID |
| XmlDomGetNotationSysID() | Get notation's system ID. |

3.10.1 XmlDomGetNotationPubID()

Return a notation's public identifier (in the data encoding).

Syntax

```
oratext* XmlDomGetNotationPubID(
    xmlctx *xctx,
    xmlnotenode *note);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------|
| xctx | IN | XML context |
| note | IN | Notation node |

Returns

(oratext *) notation's public identifier [data encoding; may be NULL]

**See Also:**[XmlDomGetNotationSysID\(\)](#)

3.10.2 XmlDomGetNotationSysID()

Return a notation's system identifier (in the data encoding).

Syntax

```
orertext* XmlDomGetNotationSysID(  
    xmlctx *xctx,  
    xmlnotenode *note);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------|
| xctx | IN | XML context |
| note | IN | Notation node |

Returns

(orertext *) notation's system identifier [data encoding; may be NULL]

**See Also:**[XmlDomGetNotationPubID\(\)](#)

3.11 ProcessingInstruction Interface for DOM XML C APIs

The following table summarizes the methods available through the `ProcessingInstruction` interface of DOM for XML C APIs.

Table 3-11 Summary of ProcessingInstruction DOM Package Methods for XML C Implementation

| Function | Summary |
|-------------------------------------|------------------------------------|
| XmlDomGetPIData() | Get processing instruction's data. |
| XmlDomGetPITarget() | Get PI's target. |
| XmlDomSetPIData() | Set processing instruction's data. |

3.11.1 XmlDomGetPIData()

Returns the content (data) of a processing instruction (in the data encoding). If the node is not a `ProcessingInstruction`, returns `NULL`. The content is the part from the first non-whitespace character after the target until the ending "`?>`".

Syntax

```
oratext* XmlDomGetPIData(
    xmlctx *xctx,
    xmlpinode *pi);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------------|
| xctx | IN | XML context |
| pi | IN | ProcessingInstruction node |

Returns

(oratext *) processing instruction's data [data encoding]



See Also:

[XmlDomGetPITarget\(\)](#), [XmlDomSetPIData\(\)](#)

3.11.2 XmlDomGetPITarget()

Returns a processing instruction's target string. If the node is not a `ProcessingInstruction`, returns `NULL`. The target is the first token following the markup that begins the `ProcessingInstruction`. All `ProcessingInstructions` must have a target, though the data part is optional.

Syntax

```
oratext* XmlDomGetPITarget(
    xmlctx *xctx,
    xmlpinode *pi);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------------|
| xctx | IN | XML context |
| pi | IN | ProcessingInstruction node |

Returns

(oratext *) processing instruction's target [data encoding]



See Also:

[XmlDomGetPIData\(\)](#), [XmlDomSetPIData\(\)](#)

3.11.3 XmlDomSetPIData()

Sets a `ProcessingInstruction`'s content, which must be in the data encoding. It is not permitted to set the data to `NULL`. If the node is not a `ProcessingInstruction`, does nothing. The new data is not verified, converted, or checked.

Syntax

```
void XmlDomSetPIData(
    xmlctx *xctx,
    xmlpinode *pi,
    oratext *data);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| pi | IN | <code>ProcessingInstruction</code> node |
| data | IN | <code>ProcessingInstruction</code> 's new data; data encoding |



See Also:

[XmlDomGetPITarget\(\)](#), [XmlDomGetPIData\(\)](#)

3.12 Text Interface for DOM XML C APIs

The following table summarizes the methods available through the `Text` interface of DOM for XML C APIs.

Table 3-12 Summary of Text DOM Methods for XML C Implementation

| Function | Summary |
|-----------------------------------|----------------------------|
| XmlDomSplitText() | Split text node in to two. |

3.12.1 XmlDomSplitText()

Splits a single text node into two text nodes; the original data is split between them. If the given node is not type `text`, or the offset is outside of the original data, does nothing and returns `NULL`. The offset is zero-based, and is in characters, not bytes. The original node is retained, its data is just truncated. A new text node is created which contains the remainder of the original data, and is inserted as the next sibling of the original. The new text node is returned.

Syntax

```
xmltextnode* XmlDomSplitText(  
    xmlctx *xctx,  
    xmltextnode *textnode,  
    ub4 offset);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| textnode | IN | Text node |
| offset | IN | 0-based character count at which to split text |

Returns

(xmltextnode *) new text node



See Also:

[XmlDomGetCharData\(\)](#), [XmlDomAppendData\(\)](#), [XmlDomInsertData\(\)](#),
[XmlDomDeleteData\(\)](#), [XmlDomReplaceData\(\)](#)

4

Package Event for XML C APIs

The following table summarizes the methods available through the `Event` interface for XML C APIs.

Table 4-1 Summary of Event Methods for XML C Implementation

| Function | Summary |
|---|--|
| <code>XmlEvCleanPPCtx()</code> | Cleans up internal structures related to a parse operation. This will not destroy the event context. The event context can be reused after this call. |
| <code>XmlEvCreatePPCtx()</code> | Creates an Event context in pull-parse mode. |
| <code>XmlEvCreateSVCtx()</code> | Creates an event context for the streaming validator. |
| <code>XmlEvDestroyPPCtx()</code> | Destroys the event context. Terminates parsing. May be called at any time during a parsing operation. |
| <code>XmlEvDestroySVCtx()</code> | Terminates an event context created by a streaming validator. |
| <code>XmlEvGetAttrCount()</code> | Retrieves the number of attributes for the <code>XML_EVENT_START_ELEMENT</code> event. |
| <code>XmlEvGetAttrDeclBody()</code> | Retrieves the attribute body in attribute declaration <code>XML_EVENT_ATTLIST_DECLARATION</code> . Also, provides the length as an <code>OUT len</code> parameter. |
| <code>XmlEvGetAttrDeclBody0()</code> | Retrieves the NULL-terminated attribute body in attribute declaration <code>XML_EVENT_ATTLIST_DECLARATION</code> . |
| <code>XmlEvGetAttrDeclCount()</code> | Retrieves the number of attributes in attribute declaration <code>XML_EVENT_ATTLIST_DECLARATION</code> . |
| <code>XmlEvGetAttrDeclEName()</code> | Retrieves the element name in attribute declaration <code>XML_EVENT_ATTLIST_DECLARATION</code> . Also, provides the length as an <code>OUT len</code> parameter. |
| <code>XmlEvGetAttrDeclEName0()</code> | Retrieves the NULL-terminated element name in attribute declaration <code>XML_EVENT_ATTLIST_DECLARATION</code> . |
| <code>XmlEvGetAttrDeclLocalName()</code> | Retrieves the local name in attribute declaration <code>XML_EVENT_ATTLIST_DECLARATION</code> . Also, provides the length as an <code>OUT len</code> parameter. |
| <code>XmlEvGetAttrDeclLocalName0()</code> | Retrieves the NULL-terminated local name in attribute declaration <code>XML_EVENT_ATTLIST_DECLARATION</code> . |
| <code>XmlEvGetAttrDeclName()</code> | Retrieves the attribute name in attribute declaration <code>XML_EVENT_ATTLIST_DECLARATION</code> . Also, provides the length as an <code>OUT len</code> parameter. |
| <code>XmlEvGetAttrDeclName0()</code> | Retrieves the NULL-terminated attribute name in attribute declaration <code>XML_EVENT_ATTLIST_DECLARATION</code> . |
| <code>XmlEvGetAttrDeclPrefix()</code> | Retrieves the attribute prefix in attribute declaration <code>XML_EVENT_ATTLIST_DECLARATION</code> . Also, provides the length as an <code>OUT len</code> parameter. |

Table 4-1 (Cont.) Summary of Event Methods for XML C Implementation

| Function | Summary |
|--|---|
| <code>XmlEvGetAttrDeclPrefix0()</code> | Retrieves the NULL-terminated attribute prefix in attribute declaration <code>XML_EVENT_ATTLIST_DECLARATION</code> . |
| <code>XmlEvGetAttrID()</code> | Retrieves the ID for the attribute's <code>QNAME</code> , for <code>XML_EVENT_START_ELEMENT</code> events. |
| <code>XmlEvGetAttrLocalName()</code> | Retrieves the attribute local name for the <code>XML_EVENT_START_ELEMENT</code> events. Also, provides the length as an <code>OUT len</code> parameter. |
| <code>XmlEvGetAttrLocalName0()</code> | Retrieves the NULL-terminated attribute name for the <code>XML_EVENT_START_ELEMENT</code> events. |
| <code>XmlEvGetAttrName()</code> | Retrieves the attribute name for the <code>XML_EVENT_START_ELEMENT</code> events. Also, provides the length as an <code>OUT len</code> parameter. |
| <code>XmlEvGetAttrName0()</code> | Retrieves the NULL-terminated attribute name for the <code>XML_EVENT_START_ELEMENT</code> events. |
| <code>XmlEvGetAttrPrefix()</code> | Retrieves the prefix tag for <code>XML_EVENT_START_ELEMENT</code> events, and also returns the length of the event as an <code>OUT len</code> parameter. |
| <code>XmlEvGetAttrPrefix0()</code> | Retrieves the NULL-terminated attribute prefix for the <code>XML_EVENT_START_ELEMENT</code> events. |
| <code>XmlEvGetAttrURI()</code> | Retrieves the attribute URI for the <code>XML_EVENT_START_ELEMENT</code> events. Also, provides the length as an <code>OUT len</code> parameter. |
| <code>XmlEvGetAttrURI0()</code> | Retrieves the NULL-terminated attribute URI for the <code>XML_EVENT_START_ELEMENT</code> events. |
| <code>XmlEvGetAttrUriID()</code> | Retrieves the ID for the attribute's URI, for <code>XML_EVENT_START_ELEMENT</code> events. |
| <code>XmlEvGetAttrValue()</code> | Retrieves the attribute value for one of the <code>XML_EVENT_START_ELEMENT</code> events, and also returns the length of the event as an <code>OUT len</code> parameter. |
| <code>XmlEvGetAttrValue0()</code> | Retrieves the NULL-terminated attribute value for the <code>XML_EVENT_START_ELEMENT</code> events. |
| <code>XmlEvGetEIDeclContent()</code> | Retrieves the element declaration content for <code>XML_EVENT_ELEMENT_DECLARATION</code> . Also, provides the length as an <code>OUT len</code> parameter. |
| <code>XmlEvGetEIDeclContent0()</code> | Retrieves the element declaration content for <code>XML_EVENT_ELEMENT_DECLARATION</code> . |
| <code>XmlEvGetEncoding()</code> | Returns the value of the encoding specified. |
| <code>XmlEvGetError()</code> | Retrieves the error number when the <code>XML_EVENT_FATAL_ERROR</code> or <code>XML_EVENT_ERROR</code> event is returned by an <code>XmlEvNext()</code> |
| <code>XmlEvGetName()</code> | Retrurns the name of for either <code>XML_EVENT_START_ELEMENT</code> or <code>XML_EVENT_END_ELEMENT</code> events, and the length of the event in the <code>OUT len</code> parameter. |

Table 4-1 (Cont.) Summary of Event Methods for XML C Implementation

| Function | Summary |
|-----------------------------------|--|
| <code>XmlEvGetName0()</code> | Retrieves a NULL-terminated name for either <code>XML_EVENT_START_ELEMENT</code> or <code>XML_EVENT_END_ELEMENT</code> events |
| <code>XmlEvGetLocalName()</code> | Retrieves the local name tag for either <code>XML_EVENT_START_ELEMENT</code> or <code>XML_EVENT_END_ELEMENT</code> events, and also returns the length of the event as an <code>OUT len</code> parameter: |
| <code>XmlEvGetLocalName0()</code> | Retrieves a NULL-terminated local name tag for either <code>XML_EVENT_START_ELEMENT</code> or <code>XML_EVENT_END_ELEMENT</code> events, and also returns the length of the event as an <code>OUT len</code> parameter: |
| <code>XmlEvGetLocation()</code> | Retrieves the location during parsing, as <code>OUT</code> parameters for the line number of the input stream and its path. |
| <code>XmlEvGetPIData()</code> | Retrieves the text for <code>XML_EVENT_PI</code> or <code>XML_EVENT_PI_CONT</code> events, and also returns the length of the event as an <code>OUT len</code> parameter. |
| <code>XmlEvGetPIData0()</code> | Retrieves NULL-terminated text for <code>XML_EVENT_PI</code> or <code>XML_EVENT_PI_CONT</code> events. |
| <code>XmlEvGetPITarget()</code> | Retrieves the target for <code>XML_EVENT_PI</code> and <code>XML_EVENT_PI_CONT</code> events, and also returns the length of the event as an <code>OUT len</code> parameter. |
| <code>XmlEvGetPITarget0()</code> | Retrieves the NULL-terminated target for <code>XML_EVENT_PI</code> and <code>XML_EVENT_PI_CONT</code> events. |
| <code>XmlEvGetPEIsGen()</code> | Determines if the general entity was declared, <code>XML_EVENT_PE_DECLARATION</code> . |
| <code>XmlEvGetPERepl()</code> | Retrieves the replacement text of PE declaration, <code>XML_EVENT_PE_DECLARATION</code> . Also, provides the length as an <code>OUT len</code> parameter. |
| <code>XmlEvGetPERepl0()</code> | Retrieves the NULL-terminated replacement text of PE declaration, <code>XML_EVENT_PE_DECLARATION</code> . |
| <code>XmlEvGetPrefix()</code> | Retrieves the prefix tag for one of either <code>XML_EVENT_START_ELEMENT</code> or <code>XML_EVENT_END_ELEMENT</code> events, and also returns the length of the event as an <code>OUT len</code> parameter. |
| <code>XmlEvGetPrefix0()</code> | Retrieves the prefix tag for one of either <code>XML_EVENT_START_ELEMENT</code> or <code>XML_EVENT_END_ELEMENT</code> events.. |
| <code>XmlEvGetPubId()</code> | Retrieves the public id for <code>XML_EVENT_PE_DECLARATION</code> , <code>XML_EVENT_UE_DECLARATION</code> , or <code>XML_EVENT_NOTATION_DECLARATION</code> events; also, provides the length as an <code>OUT len</code> parameter. |
| <code>XmlEvGetPubId0()</code> | Retrieves the NULL-terminated public id for <code>XML_EVENT_PE_DECLARATION</code> , <code>XML_EVENT_UE_DECLARATION</code> , or <code>XML_EVENT_NOTATION_DECLARATION</code> events. |

Table 4-1 (Cont.) Summary of Event Methods for XML C Implementation

| Function | Summary |
|---|---|
| <code>XmlEvGetSysId()</code> | Retrieves the system id for <code>XML_EVENT_PE_DECLARATION</code> , <code>XML_EVENT_UE_DECLARATION</code> , or <code>XML_EVENT_NOTATION_DECLARATION</code> events; also, provides the length as an <code>OUT len</code> parameter. |
| <code>XmlEvGetSysId0()</code> | Retrieves the NULL-terminated system id for <code>XML_EVENT_PE_DECLARATION</code> , <code>XML_EVENT_UE_DECLARATION</code> , or <code>XML_EVENT_NOTATION_DECLARATION</code> events. |
| <code>XmlEvGetTagID()</code> | Retrieves the ID for the tag's <code>QNAME</code> , for <code>XML_EVENT_START_ELEMENT</code> events. |
| <code>XmlEvGetTagUriID()</code> | Retrieves the ID for the tag's URI, for <code>XML_EVENT_START_ELEMENT</code> and <code>XML_EVENT_END_ELEMENT</code> events. |
| <code>XmlEvGetText()</code> | Retrieves the text for <code>XML_EVENT_CHARACTERS</code> , <code>XML_EVENT_CHARACTERS_CONT</code> , <code>XML_EVENT_SPACE</code> , <code>XML_EVENT_SPACE_CONT</code> , <code>XML_EVENT_COMMENT</code> , <code>XML_EVENT_COMMENT_CONT</code> , <code>XML_EVENT_CDATA</code> , and <code>XML_EVENT_CDATA_CONT</code> events, and also returns the length of the event as an <code>OUT len</code> parameter. |
| <code>XmlEvGetText0()</code> | Retrieves the NULL-terminated text for <code>XML_EVENT_CHARACTERS</code> , <code>XML_EVENT_CHARACTERS_CONT</code> , <code>XML_EVENT_SPACE</code> , <code>XML_EVENT_SPACE_CONT</code> , <code>XML_EVENT_COMMENT</code> , <code>XML_EVENT_COMMENT_CONT</code> , <code>XML_EVENT_CDATA</code> , and <code>XML_EVENT_CDATA_CONT</code> events. |
| <code>XmlEvGetUENdata()</code> | Retrieves the <code>ndata</code> for <code>XML_EVENT_UE_DECLARATION</code> event, and also returns the length of the event as an <code>OUT len</code> parameter. |
| <code>XmlEvGetUENdata0()</code> | Retrieves the NULL-terminated <code>ndata</code> for <code>XML_EVENT_UE_DECLARATION</code> event. |
| <code>XmlEvGetURI()</code> | Retrieves the URI tag for <code>XML_EVENT_START_ELEMENT</code> or <code>XML_EVENT_END_ELEMENT</code> events, and also returns the length of the event as an <code>OUT len</code> parameter. |
| <code>XmlEvGetURI0()</code> | Retrieves the NULL-terminated URI tag for <code>XML_EVENT_START_ELEMENT</code> or <code>XML_EVENT_END_ELEMENT</code> events. |
| <code>XmlEvGetVersion()</code> | Provides information about version specification in XML declaration for the <code>XML_EVENT_START_DOCUMENT</code> event. |
| <code>XmlEvisEncodingSpecified()</code> | Provides information about encoding specification in XML declaration for the <code>XML_EVENT_START_DOCUMENT</code> event. |
| <code>XmlEvisNamespaceAttr()</code> | Determines if an attribute is a namespace attribute for <code>XML_EVENT_START_ELEMENT</code> event. |
| <code>XmlEvisStandalone()</code> | Provides information about standalone specification in XML declaration for the <code>XML_EVENT_START_DOCUMENT</code> event. |
| <code>XmlEvNext()</code> | Gets the next event and advances the parser. |

Table 4-1 (Cont.) Summary of Event Methods for XML C Implementation

| Function | Summary |
|---------------------------------------|--|
| XmlEvNextTag() | Advances the parser to the next tag event. |
| XmlEvLoadPPDoc() | Loads a new document and configures it for pull parsing. |
| XmlEvSchemaValidate() | Validates XML documents represented by events. |

4.1 XmlEvCleanPPCtx()

Cleans up internal structures related to a parse operation. This will not destroy the event context. The event context can be reused after this call.

Syntax

```
xmlerr XmlEvCleanPPCtx(
    xmlctx *xctx,
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| xctx | IN | XML context |
| evtx | IN | XmlEvents context |

Returns

(xmlerr) the error number

4.2 XmlEvCreatePPCtx()

Creates an Event context in pull-parse mode.

The document is loaded using [XmlEvLoadPPDoc](#). The actual parsing is driven by multiple calls to [XmlEvNext\(\)](#). After each call, relevant information may be retrieved by calls to the various [XmlEvGetXXX\(\)](#) functions. Basic set of properties are the same as for [XmlLoadDom](#). Input source should be specified with [XmlEvLoadPPDoc\(\)](#) call.

Syntax

```
xmlevctx *XmlEvCreatePPCtx(
    xmlctx *xctx,
    xmlerr *xerr,
    list);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

| Parameter | In/Out | Description |
|-------------------|--------|---|
| <code>xerr</code> | IN | numeric error code, <code>XMLERR_OK[0]</code> on success |
| <code>list</code> | IN | <p>These additional properties should be supplied with a terminal NULL:</p> <ul style="list-style-type: none"> (<code>"expand_entities"</code>, boolean) that, when <code>FALSE</code>, causes parsed non-parameter entity references not be expanded. By default such references are expanded. (<code>"use_buffer"</code>, <code>buffer</code>) is the address of a buffer that when specified, will use the buffer to collect data that should be returned back to the user. The <code>getXXX()</code> functions will return this buffer as a data pointer. (<code>"use_buffer_len"</code>, <code>lengthOfBuffer</code>) is the number of bytes in a buffer, the actual length of the buffer, and no more than the specified length is collected. In the case, only part of the data is collected, generating the <code>CONT</code> flavor of the event is generated. Subsequent calls to <code>XmlEventsNext</code> provide additional data. Sequence of <code>CONT</code>-flavored events is always terminated by a non <code>-CONT</code> event. The buffer may be only partially filled. (<code>"get_id_callback"</code>, <code>function</code>) is the address for the callback function, to convert text base names to 8-byte IDs. Once such function is supplied, the user is allowed to use <code>XmlEvGetTagID</code>, <code>XmlEvGetAttrID</code>, <code>XmlEvGetTagUriID</code>, and <code>XmlEvGetAttrUriID</code>. (<code>"raw_buffer_len"</code>, <code>length</code>) is the number of bytes in a buffer. By default, this parameter is 256K. Raw buffer is used to read the input data and perform character conversion, and also to convert CRLFs and CRs to LFs. (<code>"error_callback"</code>, <code>callback</code>) provides the address of a callback function that is invoked to signal illegal use of an API for that event. <p>These optional parameters should be used in the following manner:</p> <pre>xmlEvCtx *XmlEvCreatePPCtx(xmlCtx *xctx, xmlErr *xerr, ("expand_entities", mode), ("use_buffer", buffer), ("use_buffer_len", length), ("get_id_callback", function), ("raw_buffer_len", length), ("error_callback", callback));</pre> |

Returns

(`xmlEvCtx`) Event context to be passed on subsequent calls to [XmlEvNext\(\)](#)

4.3 XmlEvCreateSVCtx()

Creates an event context for the streaming validator. Initializes the streaming validator and returns an event context that can be used in subsequent calls.

Use in conjunction with [XmlEvDestroySVCtx\(\)](#)[XmlEvDestroySVCtx\(\)](#). This is a transparent method. An alternate approach would be to use the opaque [XmlEvSchemaValidate\(\)](#)[XmlEvSchemaValidate\(\)](#).

Syntax

```
xmlEvCtx *XmlEvCreateSVCtx(
    xmlCtx *xctx,
    xsdCtx *sctx,
    xmlEvCtx *docEvCtx,
    xmlErr *err);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context; must be valid |
| sctx | IN | Schema context; must be valid |
| docEvCtx | IN | Event context for the document that is validated |
| err | OUT | numeric error code, XMLERR_OK[0] on success |

Returns

(xmlEvCtx) Event context to be passed on subsequent calls to [XmlEvNext\(\)](#)[XmlEvNext\(\)](#)

4.4 XmlEvDestroyPPCtx()

Destroys the event context. Terminates parsing. May be called at any time during a parsing operation.

Syntax

```
void XmlEvDestroyPPCtx(
    xmlEvCtx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

4.5 XmlEvDestroySVCtx()

Terminates an event context created by a streaming validator. Returns XMLERR_OK[0] on success, or a numeric error code on failure.

Use in conjunction with [XmlEvCreateSVCtx\(\)](#)[XmlEvCreateSVCtx\(\)](#). This is a transparent method. An alternate approach would be to use the opaque [XmlEvSchemaValidate\(\)](#)[XmlEvSchemaValidate\(\)](#).

Syntax

```
xmlerr XmlEvDestroySVCtx(
    xmlctx *xctx,
    xmlevctx *evCtx);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| evCtx | IN | Event context that should be terminated |

Returns

(xmlerr) the error number

4.6 XmlEvGetAttrCount()

Retrieves the number of attributes for the XML_EVENT_START_ELEMENT event.

Syntax

```
ub4 XmlEvGetAttrCount(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(ub4) the number of attributes

4.7 XmlEvGetAttrDeclBody()

Retrieves the attribute body in attribute declaration XML_EVENT_ATTLIST_DECLARATION. Also, provides the length as an OUT len parameter.

Syntax

```
oratext *XmlEvGetAttrDeclBody(
    xmlevctx *evctx,
    ub4 index,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| len | OUT | the length |

Returns

(oratext*) the declaration body

4.8 XmlEvGetAttrDeclBody0()

Retrieves the NULL-terminated attribute body in attribute declaration
XML_EVENT_ATTLLIST_DECLARATION.

Syntax

```
oratext *XmlEvGetAttrDeclBody0(
    xmlevctx *evctx,
    ub4 index);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |

Returns

(oratext*) the declaration body

4.9 XmlEvGetAttrDeclCount()

Retrieves the number of attributes in attribute declaration
XML_EVENT_ATTLLIST_DECLARATION.

Syntax

```
ub4 XmlEvGetAttrDeclCount(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(ub4) number of attributes

4.10 XmlEvGetAttrDeclElName()

Retrieves the element name in attribute declaration XML_EVENT_ATTLLIST_DECLARATION. Also, provides the length as an OUT len parameter.

Syntax

```
oratext *XmlEvGetAttrDeclElName(  
    xmlevctx *evctx,  
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |
| len | OUT | the length |

Returns

(oratext*) the element name

4.11 XmlEvGetAttrDeclElName0()

Retrieves the NULL-terminated element name in attribute declaration XML_EVENT_ATTLLIST_DECLARATION.

Syntax

```
oratext *XmlEvGetAttrDeclElName0(  
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) the element name

4.12 XmlEvGetAttrDeclLocalName()

Retrieves the local name of the attribute declaration event, XML_EVENT_ATTLLIST_DECLARATION. Also, provides the length as an OUT len parameter.

Syntax

```
oratext *XmlEvGetAttrDeclLocalName(  
    xmlevctx *evctx,  
    ub4 index  
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |
| len | OUT | the length |

Returns

(oratext*) the local name

4.13 XmlEvGetAttrDeclLocalName0()

Retrieves the NULL-terminated local name in attribute declaration event, XML_EVENT_ATTLIST_DECLARATION.

Syntax

```
oratext *XmlEvGetAttrDeclLocalName0(
    xmlevctx *evctx,
    ub4 index);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |

Returns

(oratext*) the local name

4.14 XmlEvGetAttrDeclName()

Retrieves the attribute name in attribute declaration XML_EVENT_ATTLIST_DECLARATION. Also, provides the length as an OUT len parameter.

Syntax

```
oratext *XmlEvGetAttrDeclName(
    xmlevctx *evctx,
    ub4 index
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| index | IN | index of the attribute |
| len | OUT | the length |

Returns

(oratext*) the attribute name

4.15 XmlEvGetAttrDeclName0()

Retrieves the `NULL`-terminated attribute name in attribute declaration

`XML_EVENT_ATTLIST_DECLARATION`.

Syntax

```
oratext *XmlEvGetAttrDeclName0(
    xmlevctx *evctx,
    ub4 index);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |

Returns

(oratext*) the attribute name

4.16 XmlEvGetAttrDeclPrefix()

Retrieves the attribute prefix in attribute declaration `XML_EVENT_ATTLIST_DECLARATION`. Also, provides the length as an `OUT` `len` parameter.

Syntax

```
oratext *XmlEvGetAttrDeclPrefix(
    xmlevctx *evctx,
    ub4 index
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| len | OUT | the length |

Returns

(oratext*) the attribute prefix

4.17 XmlEvGetAttrDeclPrefix0()

Retrieves the NULL-terminated attribute prefix in attribute declaration XML_EVENT_ATTLLIST_DECLARATION.

Syntax

```
oratext *XmlEvGetAttrDeclPrefix0(
    xmlevctx *evctx,
    ub4 index);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |

Returns

(oratext*) the attribute prefix

4.18 XmlEvGetAttrID()

Retrieves the ID for the attribute's QNAME, for XML_EVENT_START_ELEMENT events. Invokes the user-supplied ID callback specified in [XmlEvCreatePPCtx\(\)](#); if the callback is not specified, returns 0.

Syntax

```
sb8 XmlEvGetAttrID(
    xmlevctx *evctx
    ub4 index);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------|
| evctx | IN | XML Event context |
| index | IN | index of attribute |

Returns

(sb8) the ID

4.19 XmlEvGetAttrLocalName()

Retrieves the attribute local name for the `XML_EVENT_START_ELEMENT` events. Also, provides the length as an `OUT len` parameter.

Syntax

```
oratext *XmlEvGetAttrLocalName(
    xmlevctx *evctx,
    ub4 index
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| evctx | IN | XML Event context |
| index | IN | index of the attribute; ignored for <code>XML_EVENT_START_ATTR</code> |
| len | OUT | the length |

Returns

(oratext*) the attribute name

4.20 XmlEvGetAttrLocalName0()

Retrieves the `NULL`-terminated attribute local name for the `XML_EVENT_START_ELEMENT` events.

Syntax

```
oratext *XmlEvGetAttrLocalName0(
    xmlevctx *evctx,
    ub4 index);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| evctx | IN | XML Event context |
| index | IN | index of the attribute; ignored for <code>XML_EVENT_START_ATTR</code> |

Returns

(oratext*) the attribute name

4.21 XmlEvGetAttrName()

Retrieves the attribute name for the `XML_EVENT_START_ELEMENT` events. Also, provides the length as an `OUT len` parameter.

Syntax

```
oratext *XmlEvGetAttrName(
    xmlevctx *evctx,
    ub4 index
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| evctx | IN | XML Event context |
| index | IN | index of the attribute; ignored for XML_EVENT_START_ATTR |
| len | OUT | the length |

Returns

(oratext*) the attribute name

4.22 XmlEvGetAttrName0()

Retrieves the NULL-terminated attribute name for the XML_EVENT_START_ELEMENT events.

Syntax

```
oratext *XmlEvGetAttrName0(
    xmlevctx *evctx,
    ub4 index);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| evctx | IN | XML Event context |
| index | IN | index of the attribute; ignored for XML_EVENT_START_ATTR |

Returns

(oratext*) the attribute name

4.23 XmlEvGetAttrPrefix()

Retrieves the prefix tag for XML_EVENT_START_ELEMENT events, and also returns the length of the event as an OUT len parameter.

Syntax

```
oratext *XmlEvGetAttrPrefix(
    xmlevctx *evctx,
    ub4 index,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |
| len | OUT | length of the event name |

Returns

(oratext*) the attribute prefix

4.24 XmlEvGetAttrPrefix0()

Retrieves the NULL-terminated attribute prefix for the `XML_EVENT_START_ELEMENT` events.

Syntax

```
oratext *XmlEvGetAttrPrefix0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |

Returns

(oratext*) the attribute prefix

4.25 XmlEvGetAttrURI()

Retrieves the attribute URI for the `XML_EVENT_START_ELEMENT` events. Also, provides the length as an `OUT len` parameter.

Syntax

```
oratext *XmlEvGetAttrURI(
    xmlevctx *evctx,
    ub4 index
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| len | OUT | the length |

Returns

(oratext*) the attribute URI

4.26 XmlEvGetAttrURI()

Retrieves the NULL-terminated attribute URI for the XML_EVENT_START_ELEMENT events.

Syntax

```
oratext *XmlEvGetAttrURI0(
    xmlevctx *evctx,
    ub4 index);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |

Returns

(oratext*) the attribute URI

4.27 XmlEvGetAttrUriID()

Retrieves the ID for the attribute's URI, for XML_EVENT_START_ELEMENT events. Invokes the user-supplied ID callback specified in [XmlEvCreatePPCtx\(\)](#); if the callback is not specified, returns 0.

Syntax

```
sb8 XmlEvGetAttrUriID(
    xmlevctx *evctx,
    ub4 index);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------|
| evctx | IN | XML Event context |
| index | IN | index of attribute |

Returns

(sb8) the ID

4.28 XmlEvGetAttrValue()

Retrieves the attribute value for one of the `XML_EVENT_START_ELEMENT` events, and also returns the length of the event as an `OUT len` parameter.

Syntax

```
oratext *XmlEvGetAttrValue(
    xmlevctx *evctx,
    ub4 index,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |
| len | OUT | length of the event name |

Returns

(oratext*) the attribute value

4.29 XmlEvGetAttrValue0()

Retrieves the `NULL`-terminated attribute value for the `XML_EVENT_START_ELEMENT` events.

Syntax

```
oratext *XmlEvGetAttrValue0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |

Returns

(oratext*) the attribute value

4.30 XmlEvGetElDeclContent()

Retrieves the element declaration content for `XML_EVENT_ELEMENT_DECLARATION`. Also, provides the length as an `OUT len` parameter.

Syntax

```
oratext *XmlEvGetElDeclContent(
    xmlevctx *evctx,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |
| len | OUT | the length |

Returns

(oratext*) the declaration content

4.31 XmlEvGetElDeclContent0()

Retrieves the element declaration content for XML_EVENT_ELEMENT_DECLARATION.

Syntax

```
oratext *XmlEvGetElDeclContent0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) the declaration content

4.32 XmlEvGetEncoding()

Returns the value of the encoding specified in either [XmlEvCreatePPCtx\(\)](#) call or [XmlEvCreateSVCtx\(\)](#) call.

Syntax

```
oratext *XmlEvGetEncoding(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) the encoding value in out-encoding; NULL if no encoding is specified

4.33 XmlEvGetError()

Retrieves the error number when the `XML_EVENT_FATAL_ERROR` or `XML_EVENT_ERROR` event is returned by a `XmlEvNext()` call.

Syntax

```
xmlerr XmlEvGetError(
    xmlevctx *evctx
    oratext **message);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |
| message | IN | the error message |

Returns

(xmlerr) the error number

4.34 XmlEvGetName()

Returns the name of the events, and the length of the event in the `OUT len` parameter. The event name could be on of the following:

- `XML_EVENT_START_ELEMENT`
- `XML_EVENT_END_ELEMENT`
- `XML_EVENT_START_ENTITY`
- `XML_EVENT_ENTITY_REFERENCE`
- `XML_EVENT_ELEMENT_DECLARATION`
- `XML_EVENT_PE_DECLARATION`
- `XML_EVENT_UE_DECLARATION`
- `XML_EVENT_NOTATTION_DECLARATION`

Syntax

```
oratext *XmlEvGetName(
    xmlevctx *evctx,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------|
| evctx | IN | XML Event context |
| len | OUT | length of the name |

Returns

(oratext*) The name

4.35 XmlEvGetName0()

Retrieves a NULL-terminated name for one of the following events:

- XML_EVENT_START_ELEMENT
- XML_EVENT_END_ELEMENT
- XML_EVENT_START_ENTITY
- XML_EVENT_ENTITY_REFERENCE
- XML_EVENT_ELEMENT_DECLARATION
- XML_EVENT_PE_DECLARATION
- XML_EVENT_UE_DECLARATION
- XML_EVENT_NOTATION_DECLARATION

Syntax

```
oratext *XmlEventGetName0(
    xmleventctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) The name

4.36 XmlEvGetLocalName()

Retrieves the local name tag for one of the following events, and also returns the length of the event as an OUT len parameter:

- XML_EVENT_START_ELEMENT
- XML_EVENT_END_ELEMENT

Syntax

```
oratext *XmlEvGetLocalName(
    xmlevctx *evctx,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| len | OUT | length of the event name |

Returns

(oratext*) local name tag

4.37 XmlEvGetLocalName0()

Retrieves the NULL-terminated local name tag for one of the following events:

- XML_EVENT_START_ELEMENT
- XML_EVENT_END_ELEMENT

Syntax

```
oratext *XmlEvGetLocalName0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) local name tag

4.38 XmlEvGetLocation()

Retrieves the location during parsing, as OUT parameters for the line number of the input stream and its path. Can be used at any time during the parsing processes.

Syntax

```
void *XmlEvGetLocation(
    xmlevctx *evctx,
    ub4 *line,
    oratext **path);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |
| line | OUT | line number |
| path | OUT | URL or file name |

4.39 XmlEvGetPIData()

Retrieves the text for one of the following events, and also returns the length of the event as an `OUT len` parameter:

- `XML_EVENT_PI`
- `XML_EVENT_PI_CONT`

Syntax

```
oratext *XmlEvGetPIData(
    xmlevctx *evctx
    ub4 *len);
```

| Parameter | In/Out | Description |
|--------------------|--------|--------------------------|
| <code>evctx</code> | IN | XML Event context |
| <code>len</code> | OUT | length of the event name |

Returns

(`oratext*`) data

4.40 XmlEvGetPIData0()

Retrieves the `NULL`-terminated data for one of the following events:

- `XML_EVENT_PI`
- `XML_EVENT_PI_CONT`

Syntax

```
oratext *XmlEvGetPIData0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|--------------------|--------|-------------------|
| <code>evctx</code> | IN | XML Event context |

Returns

(`oratext*`) data

4.41 XmlEvGetPITarget()

Retrieves the target for one of the following events, and also returns the length of the event as an `OUT len` parameter:

- `XML_EVENT_PI`

- XML_EVENT_PI_CONT

Syntax

```
oratext *XmlEvGetPITarget(
    xmlevctx *evctx
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| evctx | IN | XML Event context |
| len | OUT | length of the event name |

Returns

(oratext*) target

4.42 XmlEvGetPITarget0()

Retrieves the NULL-terminated target for one of the following events:

- XML_EVENT_PI
- XML_EVENT_PI_CONT

Syntax

```
oratext *XmlEvGetPITarget0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) target

4.43 XmlEvGetPEIsGen()

Determines if the general entity was declared, XML_EVENT_PE_DECLARATION.

Syntax

```
boolean XmlEvGetPEIsGen(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

TRUE for a general entity, FALSE if a parameter

4.44 XmlEvGetPERepl()

Retrieves the replacement text of PE declaration, XML_EVENT_PE_DECLARATION. Also, provides the length as an OUT len parameter.

Syntax

```
oratext *XmlEvGetPERepl(
    xmlevctx *evctx,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |
| len | OUT | the length |

Returns

(oratext*) PE replacement text

4.45 XmlEvGetPERepl0()

Retrieves the NULL-terminated replacement text of PE declaration, XML_EVENT_PE_DECLARATION.

Syntax

```
oratext *XmlEvGetPERepl0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) PE replacement text

4.46 XmlEvGetPrefix()

Retrieves the prefix tag for one of the following events, and also returns the length of the event as an OUT len parameter:

- XML_EVENT_START_ELEMENT
- XML_EVENT_END_ELEMENT

Syntax

```
oratext *XmlEvGetPrefix(
    xmlevctx *evctx,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------|
| evctx | IN | XML Event context |
| len | OUT | length of the prefix |

Returns

(oratext*) the prefix tag

4.47 XmlEvGetPrefix0()

Retrieves the NULL-terminated prefix tag for one of the following events:

- XML_EVENT_START_ELEMENT
- XML_EVENT_END_ELEMENT

Syntax

```
oratext *XmlEvGetPrefix0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) the prefix tag

4.48 XmlEvGetPubId()

Retrieves the public id for one of the following events; also, provides the length as an OUT len parameter:

- XML_EVENT_PE_DECLARATION
- XML_EVENT_UE_DECLARATION
- XML_EVENT_NOTATION_DECLARATION

Syntax

```
oratext *XmlEvGetPubId(
    xmlevctx *evctx,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |
| len | OUT | the length |

Returns

(oratext*) public id

4.49 XmlEvGetPubId()

Retrieves the `NULL`-terminated public id for one of the following events:

- `XML_EVENT_PE_DECLARATION`
- `XML_EVENT_UE_DECLARATION`
- `XML_EVENT_NOTATION_DECLARATION`

Syntax

```
oratext *XmlEvGetPubId0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returnsb

(oratext*) public id

4.50 XmlEvGetSysId()

Retrieves the system id for one of the following events; also, provides the length as an `OUT len` parameter:

- `XML_EVENT_PE_DECLARATION`
- `XML_EVENT_UE_DECLARATION`
- `XML_EVENT_NOTATION_DECLARATION`

Syntax

```
oratext *XmlEvGetSysId(
    xmlevctx *evctx,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| len | OUT | the length |

Returns

(oratext*) system id

4.51 XmlEvGetSysId0()

Retrieves the NULL-terminated system id for one of the following events:

- XML_EVENT_PE_DECLARATION
- XML_EVENT_UE_DECLARATION
- XML_EVENT_NOTATION_DECLARATION

Syntax

```
oratext *XmlEvGetSysId0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) system id

4.52 XmlEvGetTagID()

Retrieves the ID for the tag's QNAME, for XML_EVENT_START_ELEMENT events. Invokes the user-supplied ID callback specified in [XmlEvCreatePPCtx\(\)](#); if the callback is not specified, returns 0.

Syntax

```
sb8 XmlEvGetTagID(
    xmlevctx *evctx)
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(sb8) the ID

4.53 XmlEvGetTagUriID()

Retrieves the ID for the tag's URI, for `XML_EVENT_START_ELEMENT` and `XML_EVENT_END_ELEMENT` events. Invokes the user-supplied ID callback specified in [XmlEvCreatePPCtx\(\)](#); if the callback is not specified, returns 0.

Syntax

```
sb8 XmlEvGetTagUriID(
    xmlEvctx *evctx)
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(sb8) the ID

4.54 XmlEvGetText()

Retrieves the text for one of the following events, and also returns the length of the event as an `OUT len` parameter:

- `XML_EVENT_CHARACTERS`
- `XML_EVENT_CHARACTERS_CONT`
- `XML_EVENT_SPACE`
- `XML_EVENT_SPACE_CONT`
- `XML_EVENT_COMMENT`
- `XML_EVENT_COMMENT_CONT`
- `XML_EVENT_CDATA`
- `XML_EVENT_CDATA_CONT`

Syntax

```
orertext *XmlEvGetText(
    xmlEvctx *evctx
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| evctx | IN | XML Event context |
| len | OUT | length of the event name |

Returns

(orertext*) event text

4.55 XmlEvGetText0()

Retrieves the NULL-terminated text for one of the following events:

- XML_EVENT_CHARACTERS
- XML_EVENT_CHARACTERS_CONT
- XML_EVENT_SPACE
- XML_EVENT_SPACE_CONT
- XML_EVENT_COMMENT
- XML_EVENT_COMMENT_CONT
- XML_EVENT_CDATA
- XML_EVENT_CDATA_CONT

Syntax

```
oratext *XmlEvGetText0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) event text

4.56 XmlEvGetUENdata()

Retrieves the ndata for XML_EVENT_UE_DECLARATION event, and also returns the length of the event as an OUT len parameter.

Syntax

```
oratext *XmlEvGetUENdata(
    xmlevctx *evctx,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| evctx | IN | XML Event context |
| len | OUT | length of the event name |

Returns

(oratext*) ndata

4.57 XmlEvGetUENdata0()

Retrieves the `NULL`-terminated `ndata` for `XML_EVENT_UE_DECLARATION` event.

Syntax

```
oratext *XmlEvGetUENdata0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) `ndata`

4.58 XmlEvGetURI()

Retrieves the URI tag for one of the following events, and also returns the length of the event as an `OUT len` parameter:

- `XML_EVENT_START_ELEMENT`
- `XML_EVENT_END_ELEMENT`

Syntax

```
oratext *XmlEvGetURI(
    xmlevctx *evctx,
    ub4 *len);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| evctx | IN | XML Event context |
| len | OUT | length of the event name |

Returns

(oratext*) URI tag

4.59 XmlEvGetURI0()

Retrieves the `NULL`-terminated URI tag for one of the following events:

- `XML_EVENT_START_ELEMENT`
- `XML_EVENT_END_ELEMENT`

Syntax

```
oratext *XmlEvGetURI0(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) URI tag

4.60 XmlEvGetVersion()

Provides information about version specification in XML declaration for the `XML_EVENT_START_DOCUMENT` event.

Syntax

```
oratext *XmlEvGetVersion(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(oratext*) version string from the XML declaration.

4.61 XmlEvIsEncodingSpecified()

Provides information about encoding specification in XML declaration for the `XML_EVENT_START_DOCUMENT` event.

Syntax

```
boolean XmlEvIsEncodingSpecified(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

`TRUE` if encoding was specified in XML declaration, `FALSE` otherwise

4.62 XmlEvIsNamespaceAttr()

Determines if an attribute is a namespace attribute for XML_EVENT_START_ELEMENT event.

Syntax

```
boolean XmlEvIsNamespaceAttr(
    xmlevctx *evctx,
    ub4 index);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------|
| evctx | IN | XML Event context |
| index | IN | index of the attribute |

Returns

TRUE if an attribute is a namespace attribute, FALSE otherwise

4.63 XmlEvIsStandalone()

Provides information about standalone specification in XML declaration for the XML_EVENT_START_DOCUMENT event.

Syntax

```
sword XmlEvIsStandalone(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| evctx | IN | XML Events contextt |

Returns

(sword) -1 if standalone was not specified in the XML declaration, 0 if FALSE was specified for standalone, and 1 if TRUE was specified for standalone

4.64 XmlEvNext()

Gets the next event; advances the parser.

Syntax

```
xmlevtype XmlEvNext(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(xmlevtype) the event

4.65 XmlEvNextTag()

Advances the parser to the next tag event, such as `XML_EVENT_START_ELEMENT`, `XML_EVENT_END_ELEMENT`, and `XML_EVENT_END_DOCUMENT`.

Syntax

```
xmlevtype XmlEvNextTag(
    xmlevctx *evctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| evctx | IN | XML Event context |

Returns

(xmlevtype) the event

4.66 XmlEvLoadPPDoc()

Loads a new document and sets it up for pull parsing. Prepares to start parsing the XML document from an input source in pull-parse mode. Input sources are the same as for `XmlLoadDom()``XmlLoadDom()` and `XmlLoadSax()``XmlLoadSax()` of [Package XML APIs for C](#). The actual parsing is driven by multiple calls to `XmlEvNext()`.

Syntax

```
xmlerr XmlEvLoadPPDoc(
    xmlctx *xctx,
    xmlevctx *evctx,
    oratext *inputType,
    void *input,
    ub4 inputLen,
    oratext *inputEncoding);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| evctx | IN | XML Events contextt |
| inputType | IN | type of input, such as file, buffer, uri, stream, or stdio |

| Parameter | In/Out | Description |
|---------------|--------|------------------------------------|
| input | IN | the input |
| inputLen | IN | input length for buffer input type |
| inputEncoding | IN | input encoding |

Returns

(xmlerr) the error code

4.67 XmlEvSchemaValidate()

Validates XML documents represented by events. Initializes the stream validator.

This is an opaque method. An alternate approach would be to use the transparent [XmlEvCreateSVCtx\(\)](#)[XmlEvCreateSVCtx\(\)](#) and [XmlEvDestroySVCtx\(\)](#)[XmlEvDestroySVCtx\(\)](#).

Syntax

```
xmlerr XmlEvSchemaValidate(
    xmlctx *xctx,
    xsdctx *sctx,
    xmlevctx *docEvCtx,
    oratext **errmsg);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| sctx | IN | Schema context |
| docEvCtx | IN | Event context for the document that is validated |
| errmsg | OUT | The error message that corresponds to the error code |

Returns

(xmlerr) the error code

5

Package Orastream for XML C APIs

`Orastream` APIs support handling of text and binary nodes that exceed 64K in an XML document.

The data types used by `Orastream` are found in [Datatypes for C](#); they include [oracheck](#), [oraerr](#), [oraprop_id](#), [oramemctx](#), [oraprop](#), [oraprop_t](#), [oraprop_v](#), [orastream](#), and [orastreamhdl](#).

The error codes for the `Orastream` interfaces are described in [Table 5-1](#).

Table 5-1 Orastream Error Codes for XML C Implementation

| Error Code | Description |
|---|---|
| <code>ORASTREAM_ERR_NULL_POINTER</code> | Null pointer encountered. |
| <code>ORASTREAM_ERR_BAD_STREAM</code> | Invalid stream object. |
| <code>ORASTREAM_ERR_WRONG_DIRECTION</code> | Stream object is defined for the opposite I/O direction. |
| <code>ORASTREAM_ERR_UNKNOWN_PROPERTY</code> | Unknown creation property. |
| <code>ORASTREAM_ERR_NO_DIRECTION</code> | The I/O direction of the stream is undefined. |
| <code>ORASTREAM_ERR_BI_DIRECTION</code> | The stream direction is incorrectly defined as using both I/O directions. |
| <code>ORASTREAM_ERR_NOT_OPEN</code> | The stream is not open. |
| <code>ORASTREAM_ERR_WRONG_MODE</code> | The stream is defined for the opposite char/byte mode. |
| <code>ORASTREAM_ERR_CANT_OPEN</code> | The stream cannot be opened. |
| <code>ORASTREAM_ERR_CANT_CLOSE</code> | The stream cannot be closed. |

The `Orastream` methods, listed in the following table, support unidirectional streams used to move data piecewise. The direction and mode of the stream is determined by the parameters that initialize the stream in the [OraStreamInit\(\)](#) method.

Table 5-2 Summary of OraStream Methods for XML C Implementation

| Function | Summary |
|-------------------------------------|---------------------------------------|
| OraStreamClose() | Closes the stream. |
| OraStreamHandle() | Returns the handle to the stream. |
| OraStreamInit() | Initializes the stream. |
| OraStreamIsOpen() | Determines if the stream is open. |
| OraStreamOpen() | Opens the stream. |
| OraStreamRead() | Reads bytes from the stream. |
| OraStreamReadable() | Determines if the stream is readable. |
| OraStreamReadChar() | Reads characters from the stream. |

Table 5-2 (Cont.) Summary of OraStream Methods for XML C Implementation

| Function | Summary |
|--------------------------------------|---------------------------------------|
| OraStreamSid() | Sets the SID of a stream. |
| OraStreamTerm() | Destroys the stream. |
| OraStreamWrite() | Writes bytes to the stream. |
| OraStreamWritable() | Determines if the stream is writable. |
| OraStreamWriteChar() | Writes characters to the stream. |

**See Also:***Oracle XML Developer's Kit Programmer's Guide*

5.1 OraStreamClose()

Closes the `orastream` object.

The function is used to close the given stream by calling the 'close' callback function of the stream.

Returns `ORAERR_OK` for success, or the error code for failure.

Syntax

```
oraerr OraStreamClose(
    orastream *stream);
```

| Parameter | In/Out | Description |
|---------------------|--------|-----------------------|
| <code>stream</code> | IN | Stream that is closed |

5.2 OraStreamHandle()

Returns the handle of the `orastream` object.

The handle contains the generic pointers and file descriptors.

Syntax

```
orastreamhdl *OraStreamHandle(
    orastream *stream);
```

| Parameter | In/Out | Description |
|---------------------|--------|---------------------------------|
| <code>stream</code> | IN | Stream whose handle is returned |

5.3 OraStreamInit()

Creates and initializes a `orastream` object.

Syntax

```
orastream *OraStreamInit(
    void *sctx,
    void *sid,
    oraerr *err,
    list);
```

| Parameter | In/Out | Description |
|-------------------|--------|---|
| <code>sctx</code> | IN | The input context; may be NULL |
| <code>sid</code> | IN | The user-defined stream context identifier |
| <code>err</code> | OUT | The error, if any. <code>ORAERR_OK</code> for success, or the error code for failure. |
| <code>list</code> | IN | <p>NULL-terminated list of name-value pairs of arguments that specify the properties of the new <code>orastream</code> object. These are:</p> <ul style="list-style-type: none"> The <code>open</code> property name is for the open function, and its value follows. <code>ORASTREAM_OPEN_F(*), sctx, sid, hdl, length)</code> The <code>close</code> property name is for the close function, and its value follows. <code>ORASTREAM_CLOSE_F(*), sctx, sid, hdl)</code> The <code>read</code> property name is for reading byte data from the stream to the buffer. Note that <code>nread</code> returns the number of bytes actually read. <code>ORASTREAM_READ_F(*), sctx, sid, hdl, dest, size, start, nread, eoi)</code> The <code>write</code> property name is for writing byte data from the buffer to the stream. Note that <code>written</code> returns the number of bytes actually written. <code>ORASTREAM_WRITE_F(*), sctx, sid, hdl, src, size, written)</code> The <code>read_char</code> property name is for reading character data from the stream to the buffer. Note that <code>nread</code> returns the number of characters actually read. <code>ORASTREAM_READ_F(*), sctx, sid, hdl, dest, size, start, nread, eoi)</code> The <code>write_char</code> property name is for writing character data from the buffer to the stream. Note that <code>written</code> returns the number of characters actually written. <code>ORASTREAM_WRITE_F(*), sctx, sid, hdl, src, size, written)</code> |

5.4 OraStreamIsOpen()

Determines if the `orastream` is open. Returns `TRUE` or `FALSE`.

Note that the stream must be open to perform read and write operations.

Syntax

```
boolean OraStreamIsOpen(
    orastream *stream);
```

| Parameter | In/Out | Description |
|---------------------|--------|---|
| <code>stream</code> | IN | The stream that should be open for reads or writes. |

5.5 OraStreamOpen()

Opens the `orastream` object.

The function opens the stream by calling the 'open' callback function of the stream.

Returns `ORAERR_OK` for success, or the error code for failure.

Syntax

```
oraerr OraStreamOpen(
    orastream *stream,
    ubig_ora *length)
```

| Parameter | In/Out | Description |
|---------------------|--------|------------------------------|
| <code>stream</code> | IN | The stream that is open |
| <code>length</code> | OUT | Optional parameter; not used |

5.6 OraStreamRead()

Reads `bytes` from the `orastream` object.

The function is used to read the data from the stream into the specified buffer. It also returns `TRUE` for the `eoi` parameter if the end of stream is reached.

Returns `ORAERR_OK` for success, or the error code for failure.

Syntax

```
oraerr OraStreamRead(
    orastream *stream,
    oratext *dest,
    ubig_ora size,
    oratext **start,
    ubig_ora *nread,
    ubl *eoi);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| stream | IN | Stream that is being read |
| dest | IN | The destination buffer |
| size | IN | The size of the data to be read |
| start | OUT | Pointer to the start of data being read |
| nread | OUT | Number of bytes actually read from the stream |
| eoi | OUT | Returns TRUE if end of the stream is reached; FALSE otherwise |

5.7 OraStreamReadable()

Determines if an existing `orastream` object is readable.

Returns TRUE OR FALSE.

Syntax

```
boolean OraStreamReadable(
    orastream *stream);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| stream | IN | Stream that is checked for readability |

5.8 OraStreamReadChar()

Reads `chars` from the `orastream` object.

The function is used to read the data from the stream into the specified buffer. It also returns TRUE for the `eoi` parameter if the end of stream is reached.

Returns `ORAERR_OK` for success, or the error code for failure.

Syntax

```
oraerr OraStreamReadChar(
    orastream *stream,
    oratext *dest,
    ubig_ora size,
    oratext **start,
    ubig_ora *nread,
    ubl *eoi);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| stream | IN | Stream that is being read |
| dest | IN | The destination buffer |
| size | IN | The size of the data to be read |
| start | OUT | Pointer to the start of data being read |
| nread | OUT | Number of characters actually read from the stream |
| eoi | OUT | Returns TRUE if end of the stream is reached; FALSE otherwise |

5.9 OraStreamSid()

Assigns an SID to an existing `orastream` object. Returns the old SID through the `OUT` parameter `osid`.

Returns `ORAERR_OK` for success, or the error code for failure.

Syntax

```
oraerr OraStreamSid(
    orastream *stream,
    void *sid,
    void **osid);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------|
| stream | IN | The stream whose SID is changed |
| sid | IN | The new SID |
| osid | OUT | The previous SID of the stream |

5.10 OraStreamTerm()

Destroys a `orastream` object and frees its associated memory.

Returns `ORAERR_OK` for success, or the error code for failure.

Syntax

```
oraerr OraStreamTerm(
    orastream *stream);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| stream | IN | Stream that is destroyed |

5.11 OraStreamWrite()

Writes `bytes` to the `orastream` object.

The number of bytes actually read are stored by the `OUT` parameter `nwrote`.

Returns `ORAERR_OK` for success, or the error code for failure.

Syntax

```
oraerr OraStreamWrite(
    orastream *stream,
    oratext *src,
    ubig_ora size,
    ubig_ora *nwrote);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------------|
| stream | IN | Stream where the data is written |
| src | IN | Buffer from which the data is written |
| size | IN | Size of data to be written |
| nwrote | OUT | Number of bytes written to the stream |

5.12 OraStreamWritable()

Determines if an existing `orastream` object is writable.

Returns `TRUE` OR `FALSE`.

Syntax

```
boolean OraStreamWritable(
    orastream *stream);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| stream | IN | Stream that is checked for writability. |

5.13 OraStreamWriteChar()

Writes `chars` to the `orastream` object.

The number of characters actually written are stored by the `OUT` parameter `nwrote`.

Returns `ORAERR_OK` for success, or the error code for failure.

Syntax

```
oraerr OraStreamWriteChar(  
    orastream *stream,  
    oratext *src,  
    ubig_ora size,  
    ubig_ora *nwrote);
```

| Parameter | In/Out | Description |
|---------------------|--------|--|
| <code>stream</code> | IN | Stream where the data is written |
| <code>src</code> | IN | Buffer from which the data is written |
| <code>size</code> | IN | Size of data to be written |
| <code>nwrote</code> | OUT | Number of characters written to the stream |

6

Package Range for XML C APIs

The following table summarizes the methods available through the `Range` interface for XML C APIs.

Table 6-1 Summary of Range Methods for XML C Implementation

| Function | Summary |
|---|---|
| <code>XmlDomCreateRange()</code> | Create <code>Range</code> object. |
| <code>XmlDomRangeClone()</code> | Clone a range. |
| <code>XmlDomRangeCloneContents()</code> | Clone contents selected by a range. |
| <code>XmlDomRangeCollapse()</code> | Collapse range to either start point or end point. |
| <code>XmlDomRangeCompareBoundaryPoints()</code> | Compare boundary points of two ranges. |
| <code>XmlDomRangeDeleteContents()</code> | Delete content selected by a range. |
| <code>XmlDomRangeDetach()</code> | Detach a range. |
| <code>XmlDomRangeExtractContents()</code> | Extract contents selected by a range. |
| <code>XmlDomRangeGetCollapsed()</code> | Return whether the range is collapsed. |
| <code>XmlDomRangeGetCommonAncestor()</code> | Return deepest common ancestor node of two boundary points. |
| <code>XmlDomRangeGetDetached()</code> | Return whether the range is detached. |
| <code>XmlDomRangeGetEndContainer()</code> | Return range end container node. |
| <code>XmlDomRangeGetEndOffset()</code> | Return range end offset. |
| <code>XmlDomRangeGetStartContainer()</code> | Return range start container node. |
| <code>XmlDomRangeGetStartOffset()</code> | Return range start offset. |
| <code>XmlDomRangeIsConsistent()</code> | Return whether the range is consistent. |
| <code>XmlDomRangeSelectNode()</code> | Select a node as a range. |
| <code>XmlDomRangeSelectNodeContents()</code> | Define range to select node contents. |
| <code>XmlDomRangeSetEnd()</code> | Set the end point. |
| <code>XmlDomRangeSetEndBefore()</code> | Set the end point before a node. |
| <code>XmlDomRangeSetStart()</code> | Set the start point. |
| <code>XmlDomRangeSetStartAfter()</code> | Set the start point after a node. |
| <code>XmlDomRangeSetStartBefore()</code> | Set the start point before a node. |

6.1 `XmlDomCreateRange()`

The only one method of `DocumentRange` interface, used to create a `Range` object.

Syntax

```
xmlrange* XmlDomCreateRange(
    xmlctx *xctx,
    xmlrange *range,
    xmldocnode *doc);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| range | IN | existing NodeIterator, or NULL to allocate new |
| doc | IN | document to which the new Range is attached |

Returns

(xmlrange *) original or new Range object.

6.2 XmlDomRangeClone()

Clone a Range. Clones the range without affecting the content selected by the original range. Returns NULL if an error.

Syntax

```
xmlrange* XmlDomRangeClone(
    xmlctx *xctx,
    xmlrange *range,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| xctx | IN | XML context |
| range | IN | range object |
| xerr | OUT | numeric return code |

Returns

(xmlrange *) new range that clones the old one

6.3 XmlDomRangeCloneContents()

Clone contents selected by a range. Clones but does not delete contents selected by a range. Performs the range consistency check and sets `retval` to an error code if an error.

Syntax

```
xmlnode* XmlDomRangeCloneContents(
    xmlctx *xctx,
    xmlrange *range,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| xctx | IN | XML context |
| range | IN | range object |
| xerr | OUT | numeric return code |

Returns

(xmlnode *) cloned contents

6.4 XmlDomRangeCollapse()

Collapses the range to either start point or end point. The point where it is collapsed to is assumed to be a valid point in the document which this range is attached to.

Syntax

```
xmlerr XmlDomRangeCollapse(
    xmlctx *xctx,
    xmlrange *range,
    boolean tostart);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| range | IN | range object |
| tosstart | IN | indicates whether to collapse to start (TRUE) or to end (FALSE) |

Returns

(xmlerr) numeric return code

6.5 XmlDomRangeCompareBoundaryPoints()

Compares two boundary points of two different ranges. Returns -1, 0, 1 depending on whether the corresponding boundary point of the range (range) is before, equal, or after the corresponding boundary point of the second range (srange). It returns ~(int)0 if two ranges are attached to two different documents or if one of them is detached.

Syntax

```
sb4 XmlDomRangeCompareBoundaryPoints(
    xmlctx *xctx,
    xmlrange *range,
    xmlcmphow how,
    xmlrange *srange,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------------|
| xctx | IN | XML context |
| range | IN | range object |
| how | IN | xmlcmphow value; how to compare |
| srange | IN | range object with which to compare |
| xerr | OUT | numeric return code |

Returns

(sb4) strcmp-like comparison result

6.6 XmlDomRangeDeleteContents()

Deletes content selected by a range. Performs the range consistency check and sets `retval` to an error code if an error.

Syntax

```
xmlerr XmlDomRangeDeleteContents(
    xmlctx *xctx,
    xmlrange *range);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| xctx | IN | XML context |
| range | IN | range object |

Returns

(xmlerr) numeric return code

6.7 XmlDomRangeDetach()

Detaches the range from the document and places it (range) in invalid state.

Syntax

```
xmlerr XmlDomRangeDetach(
    xmlctx *xctx,
    xmlrange *range);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| xctx | IN | XML context |
| range | IN | range object |

Returns

(xmlerr) numeric return code

6.8 XmlDomRangeExtractContents()

Extract contents selected by a range. Clones and deletes contents selected by a range. Performs the range consistency check and sets `retval` to an error code if an error.

Syntax

```
xmlnode* XmlDomRangeExtractContents(
    xmlctx *xctx,
    xmlrange *range,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| xctx | IN | XML context |
| range | IN | range object |
| xerr | OUT | numeric return code |

Returns

(xmlnode *) extracted

6.9 XmlDomRangeGetCollapsed()

Returns `TRUE` if the range is collapsed and is not detached, otherwise returns `FALSE`.

Syntax

```
boolean XmlDomRangeGetCollapsed(
    xmlctx *xctx,
    xmlrange *range,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| xctx | IN | XML context |
| range | IN | range object |
| xerr | OUT | numeric return code |

Returns

(boolean) TRUE if the range is collapsed, FALSE otherwise

6.10 XmlDomRangeGetCommonAncestor()

Returns deepest common ancestor node of two boundary points of the range if the range is not detached, otherwise returns NULL. It is assumed that the range is in a consistent state.

Syntax

```
xmlnode* XmlDomRangeGetCommonAncestor(
    xmlctx *xctx,
    xmlrange *range,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| xctx | IN | XML context |
| range | IN | range object |
| xerr | OUT | numeric return code |

Returns

(xmlnode *) deepest common ancestor node [or NULL]

6.11 XmlDomRangeGetDetached()

Return whether the range is detached. Returns TRUE if the range is detached and is not NULL. Otherwise returns FALSE.

Syntax

```
ub1 XmlDomRangeGetDetached(
    xmlctx *xctx,
    xmlrange *range);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| xctx | IN | XML context |
| range | IN | range object |

Returns

(ub1) TRUE if the range is detached, FALSE otherwise

6.12 XmlDomRangeGetEndContainer()

Returns range end container node if the range is not detached, otherwise returns NULL.

Syntax

```
xmlnode* XmlDomRangeGetEndContainer(
    xmlctx *xctx,
    xmlrange *range,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| xctx | IN | XML context |
| range | IN | range object |
| xerr | OUT | numeric return code |

Returns

(xmlnode *) range end container node [or NULL]

6.13 XmlDomRangeGetEndOffset()

Returns range end offset if the range is not detached, otherwise returns ~(ub4)0 [the maximum ub4 value].

Syntax

```
ub4 XmlDomRangeGetEndOffset(
    xmlctx *xctx,
    xmlrange *range,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| range | IN | range object |
| xerr | OUT | numeric return code |

Returns

(ub4) range end offset [or ub4 maximum]

6.14 XmlDomRangeGetStartContainer()

Returns range start container node if the range is valid and is not detached, otherwise returns `NULL`.

Syntax

```
xmlnode* XmlDomRangeGetStartContainer(
    xmlctx *xctx,
    xmlrange *range,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| xctx | IN | XML context |
| range | IN | range object |
| xerr | OUT | numeric return code |

Returns

(xmlnode *) range start container node

6.15 XmlDomRangeGetStartOffset()

Returns range start offset if the range is not detached, otherwise returns `~(ub4)0` [the maximum ub4 value].

Syntax

```
ub4 XmlDomRangeGetStartOffset(
    xmlctx *xctx,
    xmlrange *range,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| range | IN | range object |
| xerr | OUT | numeric return code |

Returns

(ub4) range start offset [or ub4 maximum]

6.16 XmlDomRangelsConsistent()

Return whether the range is consistent. Returns `TRUE` if the range is consistent: both points are under the same root and the start point is before or equal to the end point. Otherwise returns `FALSE`.

Syntax

```
boolean XmlDomRangeIsConsistent(
    xmlctx *xctx,
    xmlrange *range,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| xctx | IN | XML context |
| range | IN | range object |
| xerr | OUT | numeric return code |

Returns

(ub1) `TRUE` if the range is consistent, `FALSE` otherwise

6.17 XmlDomRangeSelectNode()

Sets the range end point and start point so that the parent node of this node becomes the container node, and the offset is the offset of this node among the children of its parent. The range becomes collapsed. It is assumed that the node is a valid node of its document. If the range is detached, it is ignored, and the range becomes attached.

Syntax

```
xmlerr XmlDomRangeSelectNode(
    xmlctx *xctx,
    xmlrange *range,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| xctx | IN | XML context |
| range | IN | range object |
| node | IN | XML node |

Returns

(xmlerr) numeric return code

6.18 XmlDomRangeSelectNodeContents()

Sets the range start point to the start of the node contents and the end point to the end of the node contents. It is assumed that the node is a valid document node. If the range is detached, it is ignored, and the range becomes attached.

Syntax

```
xmlerr XmlDomRangeSelectNodeContents(
    xmlctx *xctx,
    xmlrange *range,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| xctx | IN | XML context |
| range | IN | range object |
| node | IN | XML node |

Returns

(xmlerr) numeric return code

6.19 XmlDomRangeSetEnd()

Sets the range end point. If it has a root container other than the current one for the range, the range is collapsed to the new position. If the end is set to be at a position before the start, the range is collapsed to that position. Returns xmlerr value. according to the description where this type is defined. It is assumed that the start point of the range is a valid start point.

Syntax

```
xmlerr XmlDomRangeSetEnd(
    xmlctx *xctx,
    xmlrange *range,
```

```
xmlnode *node,
ub4 offset);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------|
| xctx | IN | XML context |
| range | IN | range object |
| node | IN | XML node |
| offset | IN | ending offset |

Returns

(xmlerr) numeric return code

6.20 XmlDomRangeSetEndBefore()

Sets the range end point before a node. If it has a root container other than the current one for the range, the range is collapsed to the new position. If the before node sets the end to be at a position before the start, the range is collapsed to new position. Returns xmlerr value according to the description where this type is defined. It is assumed that the start point of the range is a valid start point.

Syntax

```
xmlerr XmlDomRangeSetEndBefore(
xmlctx *xctx,
xmlrange *range,
xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| xctx | IN | XML context |
| range | IN | range object |
| node | IN | XML node |

Returns

(xmlerr) numeric return code

6.21 XmlDomRangeSetStart()

Sets the range start point. If it has a root container other than the current one for the range, the range is collapsed to the new position. If the start is set to be at a position after the end, the range is collapsed to that position. Returns xmlerr value according to the description where this type is defined. It is assumed that the end point of the range is a valid end point.

Syntax

```
xmlerr XmlDomRangeSetStart(
    xmlctx *xctx,
    xmlrange *range,
    xmlnode *node,
    ub4 offset);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------|
| xctx | IN | XML context |
| range | IN | range object |
| node | IN | XML node |
| offset | IN | starting offset |

Returns

(xmlerr) numeric return code

6.22 XmlDomRangeSetStartAfter()

Sets the range start point after a node. If it has a root container other than the current one, the range is collapsed to the new position. If the previous node sets the start after the end, the range is collapsed to a new position. It is assumed that the end point of the range is a valid end point.

Syntax

```
xmlerr XmlDomRangeSetStartAfter(
    xmlctx *xctx,
    xmlrange *range,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| xctx | IN | XML context |
| range | IN | range object |
| node | IN | XML node |

Returns

(xmlerr) numeric return code

6.23 XmlDomRangeSetStartBefore()

Sets the range start point before a node. If it has a root container other than the current one, the range is collapsed to the new position with offset 0. If the previous node sets the start after the end, the range is collapsed to a new position. It is assumed that the end point of the range is a valid end point.

Syntax

```
xmlerr XmlDomRangeSetStartBefore(  
    xmlctx *xctx,  
    xmlrange *range,  
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| xctx | IN | XML context |
| range | IN | range object |
| node | IN | XML node |

Returns

(xmlerr) numeric return code

7

Package SAX for XML C APIs

SAX is a standard interface for event-based XML parsing, developed collaboratively by the members of the XML-DEV mailing list. To use SAX, an `xmlsaxcb` structure is initialized with function pointers and passed to one of the `xmlLoadSax` calls. A pointer to a user-defined context structure is also provided, and will be passed to each SAX function.

For event-based schema validation APIs, refer to [Package Event APIs for C](#).

The following table summarizes the methods available through the `SAX` interface for XML C APIs.

Table 7-1 Summary of SAX Methods for XML C Implementation

| Function | Summary |
|--|---|
| XmlSaxAttributeDecl() | Receives SAX notification of an attribute's declaration. |
| XmlSaxCDATA() | Receives SAX notification of <code>CDATA</code> . Oracle extension. |
| XmlSaxCharacters() | Receives SAX notification of character data |
| XmlSaxComment() | Receives SAX notification of a comment. |
| XmlSaxElementDecl() | Receives SAX notification of an element's declaration. Oracle extension. |
| XmlSaxEndDocument() | Receives SAX end-of-document notification. |
| XmlSaxEndElement() | Receives SAX end-of-element notification. |
| XmlSaxNotationDecl() | Receives SAX notification of a notation declaration. |
| XmlSaxPI() | Receives SAX notification of a processing instruction. |
| XmlSaxParsedEntityDecl() | Receives SAX notification of a parsed entity declaration. Oracle extension. |
| XmlSaxStartDocument() | Receives SAX start-of-document notification. |
| XmlSaxStartElement() | Receives SAX start-of-element notification. |
| XmlSaxStartElementNS() | Receives SAX namespace-aware start-of-element notification. |
| XmlSaxUnparsedEntityDecl() | Receives SAX notification of an unparsed entity declaration. |
| XmlSaxWhitespace() | Receives SAX notification of ignorable (whitespace) data. |
| XmlSaxXmlDecl() | Receives SAX notification of an XML declaration. Oracle extension. |

7.1 XmlSaxAttributeDecl()

This event marks an element declaration in the DTD. The element's name and content will be in the data encoding. Note that an attribute may be declared before the element it belongs to!

Syntax

```
xmlerr XmlSaxAttributeDecl(
    void *ctx,
    oratext *elem,
    oratext *attr,
    oratext *body);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| ctx | IN | user's SAX context |
| elem | IN | element for which the attribute is declared; data encoding |
| attr | IN | attribute's name; data encoding |
| body | IN | body of an attribute declaration |

Returns

(xmlerr) **error code**, XMLERR_OK [0] for success

**See Also:**

[XmlSaxAttributeDecl\(\)](#)

7.2 XmlSaxBeginGen()

This call creates an XML generation context from the specified XML meta context. This context is used by the SAX calls to generate an incremental XML document.

Syntax

```
void *XmlSaxBeginGen(
    XmlCtx *xctx);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------|
| xctx | IN | the XML meta context |

7.3 XmlSaxCDATA()

This event handles CDATA, as distinct from Text. If no XmlSaxCDATA callback is provided, the Text callback will be invoked. The data will be in the data encoding, and the returned length is in characters, not bytes. See also XmlSaxWhitespace, which receiving notification about ignorable (whitespace formatting) character data.

Syntax

```
xmlerr XmlSaxCDATA(
    void *ctx,
    oratext *ch,
    size_t len);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------|
| ctx | IN | user's SAX context |
| ch | IN | pointer to CDATA; data encoding |
| len | IN | length of CDATA, in characters |

Returns

(xmlerr) error code, XMLERR_OK [0] for success

**See Also:**

[XmlSaxWhitespace\(\)](#)

7.4 XmlSaxCharacters()

This event marks character data, either `Text` or `CDATA`. If an `XmlSaxCDATA` callback is provided, then `CDATA` will be send to that instead; with no `XmlSaxCDATA` callback, both `Text` and `CDATA` go to the `XmlSaxCharacters` callback. The data will be in the data encoding, and the returned length is in characters, not bytes. See also `XmlSaxWhitespace`, which receiving notification about ignorable (whitespace formatting) character data.

Syntax

```
xmlerr XmlSaxCharacters(
    void *ctx,
    oratext *ch,
    size_t len);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------------|
| ctx | IN | user's SAX context |
| ch | IN | pointer to data; data encoding |
| len | IN | length of data, in characters |

Returns

(xmlerr) error code, XMLERR_OK [0] for success

**See Also:**

[XmlSaxWhitespace\(\)](#)

7.5 XmlSaxComment()

This event marks a comment in the XML document. The comment's data will be in the data encoding. Oracle extension, not in SAX standard.

Syntax

```
xmlerr XmlSaxComment(
    void *ctx,
    oratext *data);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------------------|
| ctx | IN | user's SAX context |
| data | IN | comment's data; data encoding |

Returns

(xmlerr) error code, XMLERR_OK [0] for success

7.6 XmlSaxElementDecl()

This event marks an element declaration in the DTD. The element's name and content will be in the data encoding.

Syntax

```
xmlerr XmlSaxElementDecl(
    void *ctx,
    oratext *name,
    oratext *content);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------------|
| ctx | IN | user's SAX context |
| name | IN | element's name |
| content | IN | element's context model |

Returns

(xmlerr) error code, XMLERR_OK [0] for success

**See Also:**[XmlSaxAttributeDecl\(\)](#)

7.7 XmlSaxEndDocument()

The last SAX event, called once for each document, indicating the end of the document. Matching event is `XmlSaxStartDocument`.

Syntax

```
xmlerr XmlSaxEndDocument(  
    void *ctx);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------|
| ctx | IN | user's SAX context |

Returns

(xmlerr) error code, XMLERR_OK [0] for success

**See Also:**[XmlSaxStartDocument\(\)](#)

7.8 XmlSaxEndElement()

This event marks the close of an element; it matches the `XmlSaxStartElement` or `XmlSaxStartElementNS` events. The name is the `tagName` of the element (which may be a qualified name for namespace-aware elements) and is in the data encoding.

7.9 XmlSaxEndGen()

Completes the generation of an incrementally constructed XML document, and returns it to the application.

Syntax

```
orastream *XmlSaxEndGen(  
    void *genCtx);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| genCtx | IN | the generation context used to create the XML document; see XmlSaxBeginGen() XmlSaxBeginGen() t |

Return

(orastream*) the stream containing the generated XML document

7.10 XmlSaxNotationDecl()

The event marks the declaration of a notation in the DTD. The notation's name, public ID, and system ID will all be in the data encoding. Both IDs are optional and may be NULL.

7.11 XmlSaxPI()

This event marks a `ProcessingInstruction`. The `ProcessingInstruction`s target and data will be in the data encoding. There is always a target, but the data may be NULL.

Syntax

```
xmlerr XmlSaxPI(
    void *ctx,
    oratext *target,
    oratext *data);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------------------------|
| ctx | IN | user's SAX context |
| target | IN | PI's target; data encoding |
| data | IN | PI's data as data encoding, or NULL |

Returns

(xmlerr) error code, XMLERR_OK [0] for success

7.12 XmlSaxParsedEntityDecl()

Marks an parsed entity declaration in the DTD. The parsed entity's name, public ID, system ID, and notation name will all be in the data encoding.

Syntax

```
xmlerr XmlSaxParsedEntityDecl(
    void *ctx,
    oratext *name,
    oratext *value,
    oratext *pubId,
```

```

    oratext *sysId,
    boolean general);

```

| Parameter | In/Out | Description |
|-----------|--------|---|
| ctx | IN | user's SAX context |
| name | IN | entity's name; data encoding |
| value | IN | entity's value; data encoding |
| pubId | IN | entity's public ID as data encoding, or NULL |
| sysId | IN | entity's system ID; data encoding |
| general | IN | TRUE if general entity, FALSE if parameter entity |

Returns

(xmlerr) error code, XMLERR_OK [0] for success



See Also:

[XmlSaxUnparsedEntityDecl\(\)](#)

7.13 XmlSaxStartDocument()

The first SAX event, called once for each document, indicating the start of the document. Matching event is `XmlSaxEndDocument`.

Syntax

```

xmlerr XmlSaxStartDocument(
    void *ctx);

```

| Parameter | In/Out | Description |
|-----------|--------|--------------------|
| ctx | IN | user's SAX context |

Returns

(xmlerr) error code, XMLERR_OK [0] for success



See Also:

[XmlSaxEndDocument\(\)](#)

7.14 XmlSaxStartElement()

This event marks the start of an element. Note this is the original SAX 1 non-namespace-aware version; `XmlSaxStartElementNS` is the SAX 2 namespace-aware version. If both are registered, only the NS version will be called. The element's name will be in the data encoding, as are all the attribute parts. See the functions in the `NamedNodeMap` interface for operating on the attributes map. The matching function is `XmlSaxEndElement` (there is no namespace aware version of this function).

Syntax

```
xmlerr XmlSaxStartElement(
    void *ctx,
    oratext *name,
    xmlnodelist *attrs);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| ctx | IN | user's SAX context |
| name | IN | element's name; data encoding |
| attrs | IN | <code>NamedNodeMap</code> of element's attributes |

Returns

(xmlerr) error code, `XMLERR_OK [0]` for success



See Also:

[XmlSaxEndElement\(\)](#), [XmlDomGetNodeMapLength\(\)](#) and [XmlDomRemoveNamedItem\(\)](#) in [Package DOM APIs for C](#)

7.15 XmlSaxStartElementNS()

This event marks the start of an element. Note this is the new SAX 2 namespace-aware version; `XmlSaxStartElement` is the SAX 1 non-namespace-aware version. If both are registered, only the NS version will be called. The element's qualified name, local name, and namespace URI will be in the data encoding, as are all the attribute parts. See the functions in the `NamedNodeMap` interface for operating on the attributes map. The matching function is `XmlSaxEndElement` (there is no namespace aware version of this function).

Syntax

```
xmlerr XmlSaxStartElementNS(
    void *ctx,
    oratext *qname,
    oratext *local,
```

```

    oratext *nsp,
    xmlnodelist *attrs);

```

| Parameter | In/Out | Description |
|-----------|--------|---|
| ctx | IN | user's SAX context |
| qname | IN | element's qualified name; data encoding |
| local | IN | element's namespace local name; data encoding |
| nsp | IN | element's namespace URI; data encoding |
| attrs | IN | NodeList of element's attributes, or NULL |

Returns

(xmlerr) error code, XMLERR_OK [0] for success

See Also:

[XmlSaxStartElement\(\)](#), [XmlSaxEndElement\(\)](#), [XmlDomGetNodeMapLength\(\)](#) and [XmlDomRemoveNamedItem\(\)](#) in [Package DOM APIs for C](#)

7.16 XmlSaxUnparsedEntityDecl()

Marks an unparsed entity declaration in the DTD, see [XmlSaxParsedEntityDecl](#) for the parsed entity version. The unparsed entity's name, public ID, system ID, and notation name will all be in the data encoding.

Syntax

```

xmlerr XmlSaxUnparsedEntityDecl(
    void *ctx,
    oratext *name,
    oratext *pubId,
    oratext *sysId,
    oratext *note);

```

| Parameter | In/Out | Description |
|-----------|--------|--|
| ctx | IN | user's SAX context |
| name | IN | entity's name; data encoding |
| pubId | IN | entity's public ID as data encoding, or NULL |
| sysId | IN | entity's system ID; data encoding |

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------------|
| note | IN | entity's notation name; data encoding |

Returns

(xmlerr) error code, XMLERR_OK [0] for success

**See Also:**

[XmlSaxParsedEntityDecl\(\)](#)

7.17 XmlSaxWhitespace()

This event marks ignorable whitespace data such as newlines, and indentation between lines. The matching function is `XmlSaxCharacters`, which receives notification of normal character data. The data is in the data encoding, and the returned length is in characters, not bytes.

Syntax

```
xmlerr XmlSaxWhitespace(
    void *ctx,
    oratext *ch,
    size_t len);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------------|
| ctx | IN | user's SAX context |
| ch | IN | pointer to data; data encoding |
| len | IN | length of data, in characters |

Returns

(xmlerr) error code, XMLERR_OK [0] for success

**See Also:**

[XmlSaxCharacters\(\)](#)

7.18 XmlSaxXmlDecl()

This event marks an XML declaration. The `XmlSaxStartDocument` event is always first; if this callback is registered and an `XMLDecl` exists, it will be the second event. The encoding flag says whether an encoding was specified. Since the document's own encoding specification may be overridden (or wrong), and the input will be converted to the data encoding anyway, the actual encoding specified in the document is not provided. For the standalone flag, -1 will be returned if it was not specified, otherwise 0 for FALSE, 1 for TRUE.

Syntax

```
xmlerr XmlSaxXmlDecl(  
    void *ctx,  
    oratext *version,  
    boolean encoding,  
    sword standalone);
```

| Parameter | In/Out | Description |
|------------|--------|--|
| ctx | IN | user's SAX context |
| version | IN | version string from XMLDecl; data encoding |
| encoding | IN | whether encoding was specified |
| standalone | IN | value of the standalone document; < 0 if not specified |

Returns

(xmlerr) error code, XMLERR_OK [0] for success

8

Package Schema for XML C APIs

This C implementation of the XML schema validator follows the W3C XML Schema specification, rev REC-xmlschema-1-20010502. It implements the required behavior of a schema validator for multiple schema documents to be assembled into a schema. This resulting schema can be used to validate a specific instance document.

For event-based schema validation, see the methods documented in [Package Event APIs for C](#).

The following table summarizes the methods available through the `Schema` interface for XML C APIs.

Table 8-1 Summary of Schema Methods for XML C Implementation

| Function | Summary |
|---|--|
| XmlSchemaClean() | Cleans up loaded schemas in a schema context and recycle the schema context. |
| XmlSchemaCreate() | Creates and returns a schema context. |
| XmlSchemaDestroy() | Destroys a schema context. |
| XmlSchemaErrorWhere() | Returns the location where an error occurred. |
| XmlSchemaLoad() | Loads a schema document. |
| XmlSchemaLoadedList() | Returns the size and/or list of loaded schema documents. |
| XmlSchemaSetErrorHandler() | Sets an error message handler and its associated context in a schema context |
| XmlSchemaSetValidateOptions() | Sets option(s) to be used in the next validation session. |
| XmlSchemaTargetNamespace() | Returns target namespace of a given schema document. |
| XmlSchemaUnload() | Unloads a schema document. |
| XmlSchemaValidate() | Validates an element node against a schema. |
| XmlSchemaVersion() | Returns the version of this schema implementation. |

8.1 XmlSchemaCreate()

Return a schema context to be used in other validator APIs. This needs to be paired with an `XmlSchemaDestroy`.

Syntax

```
xsdctx *XmlSchemaCreate(  
    xmlctx *xctx,  
    xmlerr *err,  
    list);
```

| Parameter | In/Out | Description |
|-------------------|--------|--|
| <code>xctx</code> | IN | XML context |
| <code>err</code> | OUT | returned error code |
| <code>list</code> | IN | NULL-terminated list of variable arguments |

Returns

(`xsctx *`) schema context

**See Also:**

[XmlSchemaDestroy\(\)](#), [XmlCreate\(\)](#) in [Package XML APIs for C](#)

8.2 XmlSchemaDestroy()

Destroy a schema context and free up all its resources.

Syntax

```
void XmlSchemaDestroy(
    xsctx *sctx);
```

| Parameter | In/Out | Description |
|-------------------|--------|----------------------------|
| <code>sctx</code> | IN | schema context to be freed |

**See Also:**

[XmlSchemaCreate\(\)](#)

8.3 XmlSchemaErrorWhere()

Returns the location (line#, path) where an error occurred.

Syntax

```
xmlerr XmlSchemaErrorWhere(
    xsctx *sctx,
    ub4 *line,
    oratext **path);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------------|
| sctx | IN | schema context |
| line | IN/OUT | line number where error occurred |
| path | IN/OUT | URL or filespace where error occurred |

Returns

(xmlerr) error code



See Also:

[XmlSchemaSetErrorHandler\(\)](#)

8.4 XmlSchemaLoad()

Load up a schema document to be used in the next validation session. Schema documents can be incrementally loaded into a schema context as long as every loaded schema document is valid. When the last loaded schema turns out to be invalid, you need to clean up the schema context by calling [XmlSchemaClean\(\)](#) and reload everything all over again including the last schema with appropriate correction.

Given a schema document, this function converts the DOM representation into an internal schema representation. The schema document can be provided as a URI or directly a DOM representation. In the URI case, this function reads the input stream and builds a DOM representation of the schema before converting it into internal representation. In the DOM case, the application can provide a DOM representation of the schema, which will be used to create the internal schema representation.

Syntax

```
xmlerr XmlSchemaLoad(
    xsdctx *sctx,
    oratext *uri,
    list);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xsctx | IN | schema context |
| uri | IN | URL of schema document; compiler encoding |
| list | IN | NULL-terminated list of variable arguments |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

**See Also:**

[XmlSchemaUnload\(\)](#), [XmlSchemaLoadedList\(\)](#)

8.5 XmlSchemaLoadedList()

Return only the size of loaded schema documents if `list` is `NULL`. If `list` is not `NULL`, a list of URL pointers are returned in the user-provided pointer buffer. Note that its user's responsibility to provide a buffer with big enough size.

Syntax

```
ub4 XmlSchemaLoadedList(
    xsdctx *sctx,
    oratext **list);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| sctx | IN | schema context |
| list | IN | address of pointer buffer |

Returns

(ub4) list size

**See Also:**

[XmlSchemaLoad\(\)](#), [XmlSchemaUnload\(\)](#)

8.6 XmlSchemaSetErrorHandler()

Sets an error message handler and its associated context in a schema context. To retrieve useful location information on errors, the address of the schema context must be provided in the error handler context.

Syntax

```
xmlerr XmlSchemaSetErrorHandler(
    xsdctx *sctx,
    XML_ERRMSG_F(
        *errhdl),
    ectx,
    msg,
```

```
err),
void *errctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------|
| sctx | IN | schema context |
| errhdl | IN | error message handler |
| errctx | IN | error handler context |

Returns

(xmlerr) error code



See Also:

[XmlSchemaCreate\(\)](#), [XmlSchemaErrorWhere\(\)](#), and [XML_ERRMSG_F\(\)](#) in Package Callback APIs for C

8.7 XmlSchemaSetValidateOptions()

Set options to be used in the next validation session. Previously set options will remain effective until they are overwritten or reset.

Syntax

```
xmlerr XmlSchemaSetValidateOptions(
    xsdctx *sctx,
    list);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| sctx | IN | schema context |
| list | IN | NULL-terminated list of variable argument |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success



See Also:

[XmlSchemaValidate\(\)](#)

8.8 XmlSchemaTargetNamespace()

Return target namespace of a given schema document identified by its URI. All currently loaded schema documents can be queried. Currently loaded schema documents include the ones loaded through `XmlSchemaLoadS` and the ones loaded through `schemaLocation` OR `noNamespaceSchemaLocation` hints.

Syntax

```
oratext *XmlSchemaTargetNamespace(
    xsdctx *sctx,
    oratext *uri);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| sctx | IN | XML context |
| uri | IN | URL of the schema document to be queried |

Returns

(oratext *) target namespace string; NULL if given document not



See Also:

[XmlSchemaLoadedList\(\)](#)

8.9 XmlSchemaUnload()

Unload a schema document from the validator. All previously loaded schema documents will remain loaded until they are unloaded. To unload all loaded schema documents, set URI to be NULL (this is equivalent to `XmlSchemaClean`). Note that all children schemas associated with the given schema are also unloaded. In this implementation, it only support the following scenarios:

- load, load, ...
- load, load, load, unload, unload, unload, clean, and then repeat.

It doesn't not support: load, load, unload, load,

Syntax

```
xmlerr XmlSchemaUnload(
    xsdctx *sctx,
    oratext *uri,
    list);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| sctx | IN | schema context |
| uri | IN | URL of the schema document; compiler encoding |
| list | IN | NULL-terminated list of variable argument |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

See Also:

[XmlSchemaLoad\(\)](#), [XmlSchemaLoadedList\(\)](#)

8.10 XmlSchemaValidate()

Validates an element node against a schema. Schemas used in current session consists of all schema documents specified through `XmlSchemaLoad` and provided as hint(s) through `schemaLocation` or `noNamespaceSchemaLocation` in the instance document. After the invocation of this routine, all loaded schema documents remain loaded and can be queried by `XmlSchemaLoadedList`. However, they will remain inactive. In the next validation session, inactive schema documents can be activated by specifying them through `XmlSchemaLoad` or providing them as hint(s) through `schemaLocation` or `noNamespaceSchemaLocation` in the new instance document. To unload a schema document and all its descendants (documents included or imported in a nested manner), use `XmlSchemaUnload`.

Syntax

```
xmlerr XmlSchemaValidate(
    xsdctx *sctx,
    xmlctx *xctx,
    xmlelemnode *elem);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| sctx | IN | schema context |
| xctx | IN | XML top-level context |
| elem | IN | element node in the doc, to be validated |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

**See Also:**[XmlSchemaSetValidateOptions\(\)](#)

8.11 XmlSchemaVersion()

Return the version of this schema implementation.

Syntax

```
oratext *XmlSchemaVersion();
```

Returns

(oratext *) version string [compiler encoding]

8.12 XmlSchemaClean()

Clean up loaded schemas in a schema context and recycle the schema context.

Syntax

```
void XmlSchemaClean(  
    xsdctx *sctx);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------|
| sctx | IN | schema context to be cleaned |

**See Also:**[XmlSchemaCreate\(\)](#), [XmlSchemaDestroy\(\)](#)

9

Package SOAP for XML C APIs

SOAP is a lightweight protocol for exchange of information in a decentralized, distributed environment. It is an XML based protocol that consists of three parts: an envelope that defines a framework for describing what is in a message and how to process it, a set of encoding rules for expressing instances of application-defined datatypes, and a convention for representing remote procedure calls and responses.

Attachments are not allowed in Soap 1.1. In Soap 1.2, body may not have other elements if Fault is present.

The structure of a SOAP message is illustrated in the following section of code.

```
[SOAP message (XML document)
  [SOAP envelope
    [SOAP header?
      element*
    ]
    [SOAP body
      (element* | Fault)?
    ]
  ]
]
```

The following table summarizes the methods available through the SOAP package for XML C APIs.

Table 9-1 Summary of SOAP Methods for XML C Implementation

| Function | Summary |
|--|---|
| XmlSoapAddBodyElement() | Adds an element to a SOAP message body. |
| XmlSoapAddFaultReason() | Adds additional Reason to Fault. |
| XmlSoapAddFaultSubDetail() | Adds additional child to Fault Detail. |
| XmlSoapAddHeaderElement() | Adds an element to a SOAP header. |
| XmlSoapCall() | Sends a SOAP message then waits for a reply. |
| XmlSoapCreateConnection() | Creates a SOAP connection object. |
| XmlSoapCreateCtx() | Creates and returns a SOAP context. |
| XmlSoapCreateMsg() | Creates and returns an empty SOAP message. |
| XmlSoapDestroyConnection() | Destroys a SOAP connection object. |
| XmlSoapDestroyCtx() | Destroys a SOAP context. |
| XmlSoapDestroyMsg() | Destroys a SOAP message created with XmlSoapCreateMsg . |
| XmlSoapError() | Gets a human readable error code. |
| XmlSoapGetBody() | Return a SOAP message's envelope body. |
| XmlSoapGetBodyElement() | Gets an element from a SOAP body. |
| XmlSoapGetEnvelope() | Returns a SOAP part's envelope. |

Table 9-1 (Cont.) Summary of SOAP Methods for XML C Implementation

| Function | Summary |
|--|---|
| XmlSoapGetFault() | Returns Fault code, reason, and details. |
| XmlSoapGetHeader() | Returns a SOAP message's envelope header. |
| XmlSoapGetHeaderElement() | Gets an element from a SOAP header. |
| XmlSoapGetMustUnderstand() | Gets mustUnderstand attribute from SOAP header element. |
| XmlSoapGetReasonLang() | Gets the language of a reason with the specified index. |
| XmlSoapGetReasonNum() | Determines the number of reasons in Fault element. |
| XmlSoapGetRelay() | Gets Relay attribute from SOAP header element. |
| XmlSoapGetRole() | Gets role from SOAP header element. |
| XmlSoapHasFault() | Determines if SOAP message contains Fault object. |
| XmlSoapSetFault() | Sets Fault in SOAP message. |
| XmlSoapSetMustUnderstand() | Sets mustUnderstand attribute for SOAP header element. |
| XmlSoapSetRelay() | Sets Relay attribute for a SOAP header element. |
| XmlSoapSetRole() | Sets role for SOAP header element. |

9.1 XmlSoapAddBodyElement()

Adds an element to a SOAP message body. Sets the numeric error code.

Syntax

```
xmlElemnode *XmlSoapAddBodyElement(
    xmlsoapctx *ctx,
    xmlDocnode *msg,
    oratext *qname,
    oratext *uri,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------|
| ctx | IN | SOAP context |
| msg | IN/OUT | SOAP message |
| qname | IN | QName of element to add |
| uri | IN | Namespace URI of element to add |
| xerr | IN/OUT | Error code |

Returns

(xmlElemnode *) created element

 **See Also:**[XmlSoapAddHeaderElement\(\)](#)

9.2 XmlSoapAddFaultReason()

Add additional Reason to Fault. The same reason text may be provided in different languages. When the fault is created, the primary language/reason is added at that time; use this function to add additional translations of the reason.

Syntax

```
xmlerr XmlSoapAddFaultReason(  
    xmlsoapctx *ctx,  
    xmldocnode *msg,  
    ratext *reason,  
    oratext *lang);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------------|
| ctx | IN | SOAP context |
| msg | IN/OUT | SOAP message |
| reason | IN | Human-readable fault Reason |
| lang | IN | Language of reason |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

 **See Also:**[XmlSoapSetFault\(\)](#)

9.3 XmlSoapAddFaultSubDetail()

Adds an additional child to Fault Detail. `XmlSoapSetFault` allows for creation of a Deatail element with only one child. Extra children could be added with this function.

Syntax

```
xmlerr XmlSoapAddFaultSubDetail(  
    xmlsoapctx *ctx,  
    xmldocnode *msg,  
    xmlelemnode *sub);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------|
| ctx | IN | SOAP context |
| msg | IN/OUT | SOAP message |
| sub | IN | subdetail tree |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

**See Also:**

[XmlSoapGetReasonLang\(\)](#)

9.4 XmlSoapAddHeaderElement()

Adds an element to a SOAP header.

Syntax

```
xmlelemnode *XmlSoapAddHeaderElement(
    xmlsoapctx *ctx,
    xmldocnode *msg,
    oratext *qname,
    oratext *uri,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------|
| ctx | IN | SOAP context |
| msg | IN/OUT | SOAP message |
| qname | IN | QName of element to add |
| uri | IN | Namespace URI of element to add |
| xerr | IN/OUT | error code |

Returns

(xmlelemnode *) created element

 **See Also:**[XmlSoapAddBodyElement\(\)](#), [XmlSoapGetHeaderElement\(\)](#)

9.5 XmlSoapCall()

Send a SOAP message over a connection and wait for the response; the message reply (an XML document) is parsed and returned as a SOAP message (equivalent to a DOM).

The message buffer is first used to serialize the outgoing message; if it's too small (overflow occurs), `xerr` gets `XMLERR_SAVE_OVERFLOW` and `NULL` is returned. The same buffer is then re-used to receive the replied SOAP message.

Opening the connection object is expected to cause an active SOAP handler to appear on the end-point; how this happens is up to the user. For HTTP, the URL should invoke a cgi-bin, or detect the `application/soap+xml` content-type.

Syntax

```
xmlDocnode *XmlSoapCall(
    xmlsoapctx *ctx,
    xmlsoapcon *con,
    xmlDocnode *msg,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-------------------|--------|-------------------------|
| <code>ctx</code> | IN | SOAP context |
| <code>con</code> | IN | SOAP connection object |
| <code>msg</code> | IN | SOAP message to send |
| <code>xerr</code> | IN | numeric code of failure |

Returns

(`xmlDocnode *`) returned message, or `NULL` on failure with `xerr` set

 **See Also:**[XmlSoapCreateMsg\(\)](#), [XmlSoapCreateConnection\(\)](#),
[XmlSoapDestroyConnection\(\)](#)

9.6 XmlSoapCreateConnection()

Create a SOAP connection object, specifying the binding (transport) and endpoint. The binding is an enum of type `xmlsoapbind`, and the endpoint depends on the binding.

Currently only HTTP binding is supported, and the endpoint is a URL. That URL should be active, i.e. a cgi-bin script or some mechanism to trigger SOAP message processing based on the Content-type of the incoming message ("application/soap+xml").

To control the HTTP access method (GET or POST), use the `web-method` property named `XMLSOAP_PROP_WEB_METHOD` which can have possible values `XMLSOAP_WEB_METHOD_GET` and `XMLSOAP_WEB_METHOD_POST`.

(`conbuf`, `consiz`) is the connection buffer used with LPU; for sending, it contains only the HTTP header, but on reception it holds the entire reply, including HTTP header and the full SOAP body. If no buffer is provided, one will be allocated for you. If size is zero, the default size (64K) will be used.

(`msgbuf`, `msgsiz`) is the message buffer used to form SOAP messages for sending. It needs to be large enough to contain the largest message which will be sent. If no buffer is specified, one will be allocated for you. If the size is zero, the default size (64K) will be used.

Two buffers are needed for sending since the SOAP message needs to be formed first in order to determine its size; then, the HTTP header can be formed, since the Content-Length is now known.

Syntax

```
xmlsoapcon *XmlSoapCreateConnection(
    xmlsoapctx *ctx,
    xmlerr *xerr,
    xmlsoapbind bind,
    void *endp,
    oratext *conbuf,
    ubig_ora consiz,
    oratext *msgbuf,
    ubig_ora msgsiz,
    ...);
```

| Parameter | In/Out | Description |
|---------------------|--------|---|
| <code>ctx</code> | IN | SOAP context |
| <code>xerr</code> | OUT | numeric error code on failure |
| <code>bind</code> | IN | connection binding |
| <code>endp</code> | IN | connection endpoint |
| <code>conbuf</code> | IN/OUT | connection buffer (or NULL to have one allocated) |

| Parameter | In/Out | Description |
|-----------|--------|---|
| consiz | IN | size of connection buffer (or 0 for default size) |
| msgbuf | IN/OUT | message buffer (or NULL to have one allocated) |
| msgsiz | IN | size of message buffer (or 0 for default size) |
| ... | IN | additional HTTP headers to set, followed by NULL |

Returns

(xmlsoapcon *) connect object, or NULL on error with xerr set

**See Also:**

[XmlSoapDestroyConnection\(\)](#), [XmlSoapCall\(\)](#)

9.7 XmlSoapCreateCtx()

Creates and returns a SOAP context. This context must be passed to all XmlSoap APIs. Note the name provided should be unique and is used to identify the context when debugging. Options are specified as (name, value) pairs, ending with a NULL, same as for XmlCreate. If no options are desired, the NULL is still needed. Options are: debug_level (enables SOAP debug output to stderr), numeric level (the higher the level, the more detailed extensive the output), 0 for no debug (this is the default setting).

Syntax

```
xmlsoapctx *XmlSoapCreateCtx(
    xmlctx *xctx,
    xmlerr *xerr,
    oratext *name,
    ...);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| xctx | IN | XML context |
| xerr | OUT | error return code on failure |
| name | IN | name of context; used for debugging |
| ... | IN | options, as (name, value) pairs, followed by NULL |

Returns

(xmlsoapctx *) SOAP context, or NULL on failure (w/xerr set)

**See Also:**

[XmlSoapDestroyCtx\(\)](#)

9.8 XmlSoapCreateMsg()

Creates and returns an empty SOAP message. The SOAP message will consist of an Envelope. The Envelope contains an empty Header and Body. A SOAP message is an XML document represented by a DOM, and is no different from any other XML document. All DOM operations are valid on the document, but be sure not to harm the overall structure. Changes should be restricted to creating and modifying elements inside the Header and Body.

Syntax

```
xmlDocNode *XmlSoapCreateMsg(  
    xmlsoapctx *ctx,  
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------|
| ctx | IN | SOAP context |
| xerr | OUT | error retrun code on failure |

Returns

(xmlDocNode *) SOAP message, or NULL on failure (w/xerr set)

**See Also:**

[XmlSoapDestroyMsg\(\)](#)

9.9 XmlSoapDestroyConnection()

Destroys a SOAP connection object made with XmlSoapCreateConnection and frees all allocated resources.

Syntax

```
xmlerr XmlSoapDestroyConnection(  
    xmlsoapctx *ctx,  
    xmlsoapcon *con);
```


| Parameter | In/Out | Description |
|-----------|--------|-----------------|
| ctx | IN | SOAP context |
| con | IN | SOAP connection |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

**See Also:**

[XmlSoapCreateConnection\(\)](#), [XmlSoapCall\(\)](#)

9.10 XmlSoapDestroyCtx()

Destroys a SOAP context created with XmlSoapCreateCtx. All memory allocated will be freed, and all connections closed.

Syntax

```
xmlerr XmlSoapDestroyCtx(
    xmlsoapctx *ctx);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| ctx | IN | SOAP context |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

**See Also:**

[XmlSoapCreateCtx\(\)](#)

9.11 XmlSoapDestroyMsg()

Destroys a SOAP message created with XmlSoapCreateMsg; this is the same as calling XmlFreeDocument.

Syntax

```
xmlerr XmlSoapDestroyMsg(
    xmlsoapctx *ctx,
    xmldocnode *msg);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------|
| ctx | IN | SOAP connection |
| msg | IN | SOAP message |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

**See Also:**

[XmlSoapCreateMsg\(\)](#)

9.12 XmlSoapError()

Retrieves human readable representation of the error code. Optionally, retrieves the information about the error code of the underlying layer.

Syntax

```
oratext *XmlSoapError(
    xmlsoapctx *ctx,
    xmlsoapcon *con,
    xmlerr err,
    uword *suberr,
    oratext **submsg);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| ctx | IN | SOAP context |
| con | IN | Connection about which additional info is requested |
| err | IN | Error code for which human readable information will be returned. |
| suberr | OUT | Error code from con |
| submsg | OUT | Human readable information about con error |

Returns

(oratext *) error code

9.13 XmlSoapGetBody()

Returns a SOAP message's envelope body.

Syntax

```
xmlelemnode *XmlSoapGetBody(
    xmlsoapctx *ctx,
    xmldocnode *msg,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| ctx | IN | SOAP context |
| msg | IN | SOAP message |
| xmlerr | IN/OUT | error code |

Returns

(xmlelemnode *) SOAP Body



See Also:

[XmlSoapGetHeader\(\)](#)

9.14 XmlSoapGetBodyElement()

Gets an element from a SOAP body.

Syntax

```
xmlelemnode *XmlSoapGetBodyElement(
    xmlsoapctx *ctx,
    xmldocnode *msg,
    oratext *uri,
    oratext *local,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------|
| ctx | IN | SOAP context |
| msg | IN | SOAP message |
| uri | IN | Namespace URI of element to get |
| local | IN | Local name of element to get |
| xerr | IN/OUT | error code |

Returns

(xmlelemnode *) named element, or NULL on error

**See Also:**[XmlSoapAddBodyElement\(\)](#)

9.15 XmlSoapGetEnvelope()

Returns a SOAP part's envelope

Syntax

```
xmlelemnode *XmlSoapGetEnvelope(
    mlsoapctx *ctx,
    xmldocnode *msg,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| ctx | IN | SOAP context |
| msg | IN | SOAP message |
| xerr | IN/OUT | error code |

Returns

(xmlelemnode *) SOAP envelope

9.16 XmlSoapGetFault()

Returns Fault code, reason, and details. Fetches the Fault information and returns through user variables. NULL may be supplied for any part which is not needed. For lang, if the pointed-to variable is NULL, it will be set to the default language (that of the first reason).

Syntax

```
xmlerr XmlSoapGetFault(
    mlsoapctx *ctx,
    xmldocnode *msg,
    oratext **code,
    oratext **reason,
    oratext **lang,
    oratext **node,
    oratext **role,
    xmlelemnode **detail);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| ctx | IN | SOAP context |
| msg | IN/OUT | SOAP message |
| code | OUT | Code (1.2), faultcode (1.1) |
| reason | OUT | Human-readable fault Reason (1.2), faultreason (1.1) |
| lang | IN | Desired language for reason (1.2), not used (NULL in 1.1) |
| node | OUT | Fault node |
| role | OUT | Role: next, none, or ultimate receiver. Not used in 1.1 |
| detail | OUT | User-defined details |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

 **See Also:**
[XmlSoapSetFault\(\)](#)

9.17 XmlSoapGetHeader()

Returns a SOAP message's envelope header.

Syntax

```
xmlemnode *XmlSoapGetHeader(
    xmlsoapctx *ctx,
    xmldocnode *msg,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| ctx | IN | SOAP context |
| msg | IN | SOAP message |
| xerr | IN/OUT | error code |

Returns`(xmlelemnode *)` SOAP header**See Also:**[XmlSoapGetBody\(\)](#)

9.18 XmlSoapGetHeaderElement()

Gets an element from a SOAP header. Sets a numeric error code.

Syntax

```
xmlelemnode *XmlSoapGetHeaderElement(
    xmlsoapctx *ctx,
    xmldocnode *msg,
    oratext *uri,
    oratext *local,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|--------------------|--------|---------------------------------|
| <code>ctx</code> | IN | SOAP context |
| <code>msg</code> | IN | SOAP message |
| <code>uri</code> | IN | Namespace URI of element to get |
| <code>local</code> | IN | Local name of element to get |
| <code>xerr</code> | IN/OUT | Error code |

Returns`(xmlelemnode *)` named element, or NULL on error**See Also:**[XmlSoapAddHeaderElement\(\)](#), [XmlSoapGetBodyElement\(\)](#)

9.19 XmlSoapGetMustUnderstand()

Gets `mustUnderstand` attribute from SOAP header element. The absence of this attribute is not an error and treated as value FALSE. To indicate the absence of an attribute, the error code XMLERR_SOAP_NO_MUST_UNDERSTAND is returned in

this case, XMLERR_OK (0) is returned if the attribute is present. Other appropriate error codes might be returned. User supplied `mustUnderstand` value is set accordingly.

Syntax

```
xmlerr XmlSoapGetMustUnderstand(
    xmlsoapctx *ctx,
    xmlelemnode *elem,
    boolean *mustUnderstand);
```

| Parameter | In/Out | Description |
|----------------|--------|----------------------------------|
| ctx | IN | SOAP context |
| elem | IN | SOAP header element |
| mustUnderstand | OUT | mustUnderstand value, TRUE FALSE |

Returns

(`xmlerr`) numeric error code, XMLERR_OK [0] on success



See Also:

[XmlSoapAddBodyElement\(\)](#), [XmlSoapSetMustUnderstand\(\)](#)

9.20 XmlSoapGetReasonLang()

Gets the language of a reason with a particular index.

Syntax

```
xmlerr XmlSoapGetReasonLang(
    xmlsoapctx *ctx,
    xmldocnode *msg,
    ub4 index,
    oratext **lang);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------|
| ctx | IN | SOAP context |
| msg | IN | SOAP message |
| indx | IN | Index of fault reason |
| lang | IN | Reason language |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

**See Also:**

[XmlSoapGetFault\(\)](#), [XmlSoapHasFault\(\)](#), [XmlSoapGetReasonNum\(\)](#)

9.21 XmlSoapGetReasonNum()

Determines the number of reasons in Fault element. Returns 0 if Fault is not present.

Syntax

```
ub4 XmlSoapGetReasonNum(
    xmlsoapctx *ctx,
    xmldocnode *msg);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| ctx | IN | SOAP context |
| msg | IN | SOAP message |

Returns

(ub4 *) #num reasons

**See Also:**

[XmlSoapGetFault\(\)](#), [XmlSoapHasFault\(\)](#)

9.22 XmlSoapGetRelay()

Gets Relay attribute from SOAP header element.

Syntax

```
xmlerr XmlSoapGetRelay(
    xmlsoapctx *ctx,
    xmlelemnode *elem,
    boolean *Relay);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| ctx | IN | SOAP context |

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| elem | IN | SOAP header element |
| Relay | OUT | Relay value |

Returns

xmlerr numeric error code, XMLERR_OK on success



See Also:

[XmlSoapAddBodyElement\(\)](#), [XmlSoapSetRelay\(\)](#)

9.23 XmlSoapGetRole()

Gets role from SOAP header element. If the element has no role, XMLERR_SOAP_NO_ROLE is returned, otherwise XMLERR_OK (0) is returned and the user's role is set accordingly. If the element has no role, then according to the standard, the user's role is set to XMLSOAP_ROLE_ULT.

Syntax

```
xmlerr XmlSoapGetRole(
    xmlsoapctx *ctx,
    xmlelemnode *elem,
    xmlsoaprole *role);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| ctx | IN | SOAP context |
| elem | IN | SOAP header element |
| role | OUT | Role value |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success



See Also:

[XmlSoapSetMustUnderstand\(\)](#), [XmlSoapSetRole\(\)](#)

9.24 XmlSoapHasFault()

Determines if SOAP message contains Fault object.

Syntax

```
boolean XmlSoapHasFault(
    xmlsoapctx *ctx,
    xmldocnode *msg,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| ctx | IN | SOAP context |
| msg | IN | SOAP message |
| xerr | IN/OUT | Error code |

Returns

(boolean) TRUE if there's a Fault, FALSE if not



See Also:

[XmlSoapGetFault\(\)](#)

9.25 XmlSoapSetFault()

Sets Fault in SOAP message.

- In version 1.2, only one Fault is allowed for each message, and it must be the only child of the Body. If the Body has children, they are first removed and freed. The Fault is then added with children code - "env:Code" (required), reason - "env:Reason" (required), node - "env:Node" (optional), role - "env:role"(optional), and detail - "env:Detail" (optional). The primary-language reason should be added first; calls to XmlSoapGetFault which pass a NULL language will pick this reason. Detail is the user-defined subtree to be spliced into the Fault.
- In version 1.1, only one Fault is allowed per message. If the Body already has Fault, it is first removed and freed. The Fault is then added with children code - "faultcode" (required), reason - "faultstring" (required), node - "faultactor" (optional), and detail - "detail" (optional). Detail is the user-defined subtree to be spliced into the Fault. role and lang are not used in ver 1.1

Syntax

```
xmlerr XmlSoapSetFault(
    xmlsoapctx *ctx,
    xmldocnode *msg,
```

```

oratext *node,
oratext *code,
oratext *reason,
oratext *lang,
oratext *role,
xmlelemnode *detail);

```

| Parameter | In/Out | Description |
|-----------|--------|---|
| ctx | IN | SOAP context |
| msg | IN/OUT | SOAP message |
| node | IN | URI of SOAP node which faulted, Node (1.2), faultactor(1.1) |
| code | IN | Code (1.2), faultcode (1.1) |
| reason | IN | Human-readable fault Reason (1.2), faultreason (1.1) |
| lang | IN | Language of reason (1.2), unused (1.1) |
| role | IN | URI representing role, Role (1.2), unused (1.1) |
| detail | IN | detail elements (user-defined) |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success



See Also:

[XmlSoapAddFaultReason\(\)](#)

9.26 XmlSoapSetMustUnderstand()

Sets `mustUnderstand` attribute for SOAP header element. According to the standard, if the value is `FALSE`, the attribute is not set.

Syntax

```

xmlerr XmlSoapSetMustUnderstand(
    xmlsoapctx *ctx,
    xmlelemnode *elem,
    boolean mustUnderstand);


```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| ctx | IN | SOAP context |

| Parameter | In/Out | Description |
|----------------|--------|----------------------------------|
| elem | IN/OUT | SOAP header element |
| mustUnderstand | IN | mustUnderstand value, TRUE FALSE |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

 **See Also:**
[XmlSoapSetRole\(\)](#)

9.27 XmlSoapSetRelay()

Sets Relay attribute for a SOAP header element. If the value is FALSE, the attribute is not set.


Syntax

```
xmlerr XmlSoapSetRelay(
    xmlsoapctx *ctx,
    xmlelemnode *elem,  boolean Relay);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| ctx | IN | SOAP context |
| elem | IN/OUT | SOAP header element |
| Relay | IN | Relay; TRUE FALSE |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

 **See Also:**
[XmlSoapGetRelay\(\)](#)

9.28 XmlSoapSetRole()

Sets role for SOAP header element. If the role specified is XMLSOAP_ROLE_ULT, then according to the standard the attribute is not set.

Syntax

```
xmlerr XmlSoapSetRole(  
    xmlsoapctx *ctx,  
    xmlelemnode *elem,  
    xmlsoaprole role);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| ctx | IN | SOAP context |
| elem | IN/OUT | SOAP header element |
| role | IN | Role value |

Returns

xmlerr numeric error code, XMLERR_OK on success



See Also:

[XmlSoapSetMustUnderstand\(\)](#)

10

Package Traversal for XML C APIs

Package Traversal contains APIs that implement the rules and behavior of traversal. For convenience, we grouped the APIs under four general interfaces types:

- [DocumentTraversal Interface](#)
- [NodeFilter Interface](#)
- [NodeIterator Interface](#)
- [TreeWalker Interface](#)

10.1 DocumentTraversal Interface for Traversal XML C APIs

The following table summarizes the methods available through the `DocumentTraversal` interface of `Traversal` for XML C APIs.

Table 10-1 Summary of DocumentTraversal Traversal Methods for XML C Implementation

| Function | Summary |
|--|------------------------------|
| XmlDomCreateNodeIter() | Create node iterator object. |
| XmlDomCreateTreeWalker() | Create a tree walker object. |

10.1.1 XmlDomCreateNodeIter()

One of two methods of `DocumentTraversal` interface, used to create a `NodeIterator` object. This method is identical to [XmlDomCreateTreeWalker\(\)](#) except for the type of object returned.

The `whatToShow` argument is a mask of flag bits, one for each node type. The value `XMLDOM_SHOW_ALL` passes all node types through, otherwise only the types whose bits are set will be passed.

Entity reference expansion is controlled by the `entrefExpansion` flag. If `TRUE`, entity references are replaced with their final content; if `FALSE`, entity references are left as nodes.

Syntax

```
xmliter* XmlDomCreateNodeIter(  
    xmlctx *xctx,  
    xmliter *iter,  
    xmlnode *root,  
    xmlshowbits whatToShow,  
    XMLDOM_ACCEPT_NODE_F(  
        (*nodeFilter),  
        xctx,  
    )  
);
```

```
node),
boolean entrefExpand);
```

| Parameter | In/Out | Description |
|------------|--------|--|
| xctx | IN | XML context |
| iter | IN | existing NodeIterator to set, NULL to create |
| xerr | IN | root node for NodeIterator |
| whatToShow | IN | mask of XMLDOM_SHOW_XXX flag bits |
| nodeFilter | IN | node filter to be used, NULL if none |
| xerr | IN | whether to expand entity reference nodes |

Returns

(xmliter *) original or new NodeIterator object



See Also:

[XmlDomCreateTreeWalker\(\)](#)

10.1.2 XmlDomCreateTreeWalker()

One of two methods of DocumentTraversal interface, used to create a `TreeWalker` object. This method is identical to [XmlDomCreateNodeIterator\(\)](#) except for the type of object returned.

The `whatToShow` argument is a mask of flag bits, one for each node type. The value `XMLDOM_SHOW_ALL` passes all node types through, otherwise only the types whose bits are set will be passed.

Entity reference expansion is controlled by the `entrefExpansion` flag. If `TRUE`, entity references are replaced with their final content; if `FALSE`, entity references are left as nodes.

Syntax

```
xmlwalk* XmlDomCreateTreeWalker(
    xmlctx *xctx,
    xmlwalk* walker,
    xmlnode *root,
    xmlshowbits whatToShow,
    XMLDOM_ACCEPT_NODE_F(
        (*nodeFilter),
        xctx,
        node),
    boolean entrefExpansion);
```

| Parameter | In/Out | Description |
|------------|--------|--|
| xctx | IN | XML context |
| walker | IN | existing <code>TreeWalker</code> to set, <code>NULL</code> to create |
| xerr | IN | root node for <code>TreeWalker</code> |
| whatToShow | IN | mask of <code>XMLDOM_SHOW_XXX</code> flag bits |
| nodeFilter | IN | node filter to be used, <code>NULL</code> if none |
| xerr | IN | whether to expand entity reference nodes |

Returns

(xmlwalk *) new `TreeWalker` object

**See Also:**

[XmlDomCreateNodeFilter\(\)](#)

10.2 NodeFilter Interface for Traversal XML C APIs

The following table summarizes the methods available through the `NodeFilter` interface of `Traversal` for XML C APIs.

Table 10-2 Summary of NodeFilter Traversal Methods for XML C Implementation

| Function | Summary |
|--|---|
| XMLDOM_ACCEPT_NODE_F() | Determines the filtering action based on node and filter. |

10.2.1 XMLDOM_ACCEPT_NODE_F()

Sole method of `NodeFilter` interface. Given a node and a filter, determines the filtering action to perform.

This function pointer is passed to the node iterator/tree walker methods, as needed.

Values for `xmlerr` are:

- `XMLERR_OK` Accept the node. Navigation methods defined for `NodeIterator` or `TreeWalker` will return this node.

- `XMLERR_FILTER_REJECT` Reject the node. Navigation methods defined for `NodeIterator` or `TreeWalker` will not return this node. For `TreeWalker`, the children of this node will also be rejected. `NodeIterator`s treat this as a synonym for `XMLDOM_FILTER_SKIP`
- `XMLERR_FILTER_SKIP` Skip this single node. Navigation methods defined for `NodeIterator` or `TreeWalker` will not return this node. For both `NodeIterator` and `TreeWalker`, the children of this node will still be considered.

Syntax

```
#define XMLDOM_ACCEPT_NODE_F(func, xctx, node)
xmlerr func(
    xmlctx *xctx,
    xmlnode *node);
```

| Parameter | In/Out | Description |
|-------------------|--------|--------------|
| <code>xctx</code> | IN | XML context |
| <code>node</code> | IN | node to test |

Returns

(`xmlerr`) filtering result

10.3 Nodelerator Interface for Traversal XML C APIs

The following table summarizes the methods available through the `NodeIterator` interface of Traversal for XML C APIs.

Table 10-3 Summary of Nodelerator Traversal Methods for XML C Implementation

| Function | Summary |
|--------------------------------------|---|
| XmlDomIterDetach() | Detach a node iterator (deactivate it). |
| XmlDomIterNextNode() | Returns next node for iterator. |
| XmlDomIterPrevNode() | Returns previous node for iterator. |

10.3.1 XmlDomIterDetach()

Detaches the `NodeIterator` from the set which it iterated over, releasing any resources and placing the iterator in the `INVALID` state. After detach has been invoked, calls to `XmlDomIterNextNode` or `XmlDomIterPrevNode` will raise the exception `XMLERR_ITER_DETACHED`.

Syntax

```
xmlerr XmlDomIterDetach(
    xmlctx *xctx,
    xmliter *iter);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------|
| xctx | IN | XML context |
| iter | IN | node iterator object |



See Also:

[XmlDomIterNextNode\(\)](#), [XmlDomIterPrevNode\(\)](#)

10.3.2 XmlDomIterNextNode()

Returns the next node in the set and advances the position of the iterator in the set. After a node iterator is created, the first call to `XmlDomIterNextNode` returns the first node in the set. It assumed that the reference node (current iterator position) is never deleted. Otherwise, changes in the underlying DOM tree do not invalidate the iterator.

Syntax

```
xmlnode* XmlDomIterNextNode(
    xmlctx *xctx,
    xmliter *iter,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| xctx | IN | XML context |
| iter | IN | node iterator object |
| xerr | OUT | numeric return error code |

Returns

(xmlnode *) next node in set being iterated over [or NULL]



See Also:

[XmlDomIterPrevNode\(\)](#), [XmlDomIterDetach\(\)](#)

10.3.3 XmlDomIterPrevNode()

Returns the previous node in the set and moves the position of the iterator backward in the set.

Syntax

```
xmlnode* XmlDomIterPrevNode(
    xmlctx *xctx,
    xmliter *iter,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| xctx | IN | XML context |
| iter | IN | node iterator object |
| xerr | OUT | numeric return error code |

Returns

(xmlnode *) previous node in set being iterated over [or NULL]



See Also:

[XmlDomIterNextNode\(\)](#), [XmlDomIterDetach\(\)](#)

10.4 TreeWalker Interface for Traversal XML C APIs

Table 10-4 summarizes the methods available through the `TreeWalker` interface of `Traversal` for XML C APIs.

Table 10-4 Summary of TreeWalker Traversal Methods for XML C Implementation

| Function | Summary |
|--|---|
| XmlDomWalkerFirstChild() | Return first visible child of current node. |
| XmlDomWalkerGetCurrentNode() | Return current node. |
| XmlDomWalkerGetRoot() | Return root node. |
| XmlDomWalkerLastChild() | Return last visible child of current node. |
| XmlDomWalkerNextNode() | Return next visible node. |
| XmlDomWalkerNextSibling() | Return next sibling node. |
| XmlDomWalkerParentNode() | Return parent node. |
| XmlDomWalkerPrevNode() | Return previous node. |
| XmlDomWalkerPrevSibling() | Return previous sibling node. |
| XmlDomWalkerSetCurrentNode() | Set current node. |
| XmlDomWalkerSetRoot() | Set the root node. |

10.4.1 XmlDomWalkerFirstChild()

Moves the `TreeWalker` to the first visible child of the current node, and returns the new node. If the current node has no visible children, returns `NULL`, and retains the current node.

Syntax

```
xmlnode* XmlDomWalkerFirstChild(  
    xmlctx *xctx,  
    xmlwalk *walker,  
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| xctx | IN | XML context |
| walker | IN | TreeWalker object |
| xerr | OUT | numeric return error code |

Returns

(xmlnode *) first visible child [or NULL]



See Also:

[XmlDomWalkerLastChild\(\)](#)

10.4.2 XmlDomWalkerGetCurrentNode()

Return (get) current node, or `NULL` on error.

Syntax

```
xmlnode* XmlDomWalkerGetCurrentNode(  
    xmlctx *xctx,  
    xmlwalk *walker,  
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| xctx | IN | XML context |
| walker | IN | TreeWalker object |
| xerr | OUT | numeric return error code |

Returns`(xmlnode *)` current node

10.4.3 XmlDocumentWalkerGetRoot()

Return (get) root node, or `NULL` on error. Since the current node can be removed from under the root node together with a subtree where it belongs to, the current root node in a walker might have no relation to the current node any more. The `TreeWalker` iterations are based on the current node. However, the root node defines the space of an iteration. This function checks if the root node is still in the root node (ancestor) relation to the current node. If so, it returns this root node. Otherwise, it finds the root of the tree where the current node belongs to, and sets and returns this root as the root node of the walker. It returns `NULL` if the walker is a `NULL` pointer.

Syntax

```
xmlnode* XmlDocumentWalkerGetRoot(
    xmlctx *xctx,
    xmlwalk *walker,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|---------------------|--------|---------------------------|
| <code>xctx</code> | IN | XML context |
| <code>walker</code> | IN | TreeWalker object |
| <code>xerr</code> | OUT | numeric return error code |

Returns`(xmlnode *)` root node

10.4.4 XmlDocumentWalkerLastChild()

Moves the `TreeWalker` to the last visible child of the current node, and returns the new node. If the current node has no visible children, returns `NULL`, and retains the current node.

Syntax

```
xmlnode* XmlDocumentWalkerLastChild(
    xmlctx *xctx,
    xmlwalk *walker,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-------------------|--------|-------------|
| <code>xctx</code> | IN | XML context |

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| walker | IN | TreeWalker object |
| xerr | OUT | numeric return error code |

Returns

(xmlnode *) last visible children [or NULL]

10.4.5 XmlDomWalkerNextNode()

Moves the `TreeWalker` to the next visible node in document order relative to the current node, and returns the new node. If the current node has no next node, or if the search for the next node attempts to step upward from the `TreeWalker`'s root node, returns `NULL`, and retains the current node.

Syntax

```
xmlnode* XmlDomWalkerNextNode(
    xmlctx *xctx,
    xmlwalk *walker,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| xctx | IN | XML context |
| walker | IN | TreeWalker object |
| xerr | OUT | numeric return error code |

Returns

(xmlnode *) next node [or NULL]

**See Also:**

[XmlDomWalkerPrevNode\(\)](#), [XmlDomWalkerNextSibling\(\)](#),
[XmlDomWalkerPrevSibling\(\)](#)

10.4.6 XmlDomWalkerNextSibling()

Moves the `TreeWalker` to the next sibling of the current node, and returns the new node. If the current node has no visible next sibling, returns `NULL`, and retains the current node.

Syntax

```
xmlnode* XmlDomWalkerNextSibling(
    xmlctx *xctx,
    xmlwalk *walker,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| xctx | IN | XML context |
| walker | IN | TreeWalker object |
| xerr | OUT | numeric return error code |

Returns

(xmlnode *) next sibling [or NULL]

**See Also:**

[XmlDomWalkerNextNode\(\)](#), [XmlDomWalkerPrevNode\(\)](#),
[XmlDomWalkerPrevSibling\(\)](#)

10.4.7 XmlDomWalkerParentNode()

Moves to and returns the closest visible ancestor node of the current node. If the search for the parent node attempts to step upward from the `TreeWalker`'s root node, or if it fails to find a visible ancestor node, this method retains the current position and returns null.

Syntax

```
xmlnode* XmlDomWalkerParentNode(
    xmlctx *xctx,
    xmlwalk *walker,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| xctx | IN | XML context |
| walker | IN | TreeWalker object |
| xerr | OUT | numeric return error code |

Returns

(xmlnode *) parent node [or NULL]

10.4.8 XmlDomWalkerPrevNode()

Moves the `TreeWalker` to the previous visible node in document order relative to the current node, and returns the new node. If the current node has no previous node, or if the search for the previous node attempts to step upward from the `TreeWalker`'s root node, returns `NULL`, and retains the current node.

Syntax

```
xmlnode* XmlDomWalkerPrevNode(
    xmlctx *xctx,
    xmlwalk *walker,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| xctx | IN | XML context |
| walker | IN | TreeWalker object |
| xerr | OUT | numeric return error code |

Returns

(xmlnode *) previous node [or `NULL`]



See Also:

[XmlDomWalkerNextNode\(\)](#), [XmlDomWalkerNextSibling\(\)](#),
[XmlDomWalkerPrevSibling\(\)](#)

10.4.9 XmlDomWalkerPrevSibling()

Moves the `TreeWalker` to the previous sibling of the current node, and returns the new node. If the current node has no visible previous sibling, returns `NULL`, and retains the current node.

Syntax

```
xmlnode* XmlDomWalkerPrevSibling(
    xmlctx *xctx,
    xmlwalk *walker,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| walker | IN | TreeWalker object |
| xerr | OUT | numeric return error code |

Returns

(xmlnode *) previous sibling [or NULL]



See Also:

[XmlDomWalkerNextNode\(\)](#), [XmlDomWalkerPrevNode\(\)](#),
[XmlDomWalkerNextSibling\(\)](#)

10.4.10 XmlDomWalkerSetCurrentNode()

Sets and returns new current node. It also checks if the root node is an ancestor of the new current node. If not it does not set the current node, returns NULL, and sets retval to XMLDOM_WALKER_BAD_NEW_CUR. Returns NULL if an error.

Syntax

```
xmlnode* XmlDomWalkerSetCurrentNode(
    xmlctx *xctx,
    xmlwalk *walker,
    xmlnode *node,
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| xctx | IN | XML context |
| walker | IN | TreeWalker object |
| node | IN | new current node |
| xerr | OUT | numeric return error code |

Returns

(xmlnode *) new current node

10.4.11 XmlDomWalkerSetRoot()

Set the root node. Returns new root node if it is an ancestor of the current node. If not it signals an error and checks if the current root node is an ancestor of the current node. If yes it returns it. Otherwise it sets the root node to and returns the root of the

tree where the current node belongs to. It returns `NULL` if the walker or the root node parameter is a `NULL` pointer.

Syntax

```
xmlnode* XmlDomWalkerSetRoot(  
    xmlctx *xctx,  
    xmlwalk *walker,  
    xmlnode *node,  
    xmlerr *xerr);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| xctx | IN | XML context |
| walker | IN | TreeWalker object |
| node | IN | new root node |
| xerr | OUT | numeric return error code |

Returns

(xmlnode *) new root node

11

Package XML for XML C APIs

This C implementation of the XML processor (or parser) follows the W3C XML specification (rev REC-xml-19980210) and implements the required behavior of an XML processor in terms of how it must read XML data and the information it must provide to the application.

The following table summarizes the methods available through the `XML` package for XML C APIs.

Table 11-1 Summary of XML Methods for XML C Implementation

| Function | Summary |
|-------------------------------------|--|
| XmlAccess() | Set access method callbacks for URL. |
| XmlCreate() | Create an XML Developer's Toolkit <code>xmlctx</code> . |
| XmlCreateDTD() | Create DTD. |
| XmlCreateDocument() | Create Document (node). |
| XmlDestroy() | Destroy an <code>xmlctx</code> . |
| XmlDiff() | Compares two XML documents. |
| XmlFreeDocument() | Free a document (releases all resources). |
| XmlGetEncoding() | Returns data encoding in use by XML context. |
| XmlHasFeature() | Determine if DOM feature is implemented. |
| XmlIsSimple() | Returns single-byte (simple) character set flag. |
| XmlIsUnicode() | Returns <code>XmlIsUnicode</code> (simple) character set flag. |
| XmlLoadDom() | Load (parse) an XML document and produce a DOM. |
| XmlLoadSax() | Load (parse) an XML document from and produce SAX events. |
| XmlLoadSaxVA() | Load (parse) an XML document from and produce SAX events [<code>varargs</code>]. |
| XmlSaveDom() | Saves (serializes, formats) an XML document. |
| XmlVersion() | Returns version string for XDK. |

11.1 XmlAccess()

Sets the open/read/close callbacks used to load data for a specific URL access method. Overrides the built-in data loading functions for HTTP, FTP, and so on, or provides functions to handle new types, such as `UNKNOWN`.

Syntax

```
xmlerr XmlAccess(  
    xmlctx *xctx,  
    xmlurlacc access,  
    void *userctx,
```

```

XML_ACCESS_OPEN_F(
    (*openf),
    ctx,
    uri,
    parts,
    length,
    uh),
XML_ACCESS_READ_F(
    (*readf),
    ctx,
    uh,
    data,
    nraw,
    eoi),
XML_ACCESS_CLOSE_F(
    (*closef),
    ctx,
    uh));

```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| access | IN | URL access method |
| userctx | IN | user-defined context passed to callbacks |
| openf | IN | open-access callback function |
| readf | IN | read-access callback function |
| closef | IN | close-access callback function |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success



See Also:

[XmlLoadDom\(\)](#), [XmlLoadSax\(\)](#)

11.2 XmlCreate()

Create an XML Developer's Toolkit `xmlctx`.

Syntax

```

xmlctx *XmlCreate(
    xmlerr *err,
    oratext *name,
    list);

```

| Parameter | In/Out | Description |
|------------------|---------------|--------------------------------|
| err | OUT | returned error code |
| access | IN | name of context, for debugging |

| Parameter | In/Out | Description |
|-------------|--------|---|
| <i>list</i> | IN | <p>NULL-terminated list of variable arguments. Properties common to all <code>xmlctx</code>'s, both XDK and XMLType, are:</p> <ul style="list-style-type: none"> • <code>data_encoding</code> is the data encoding in which XML data will be presented through DOM and SAX. Default is UTF-8 and UTF-E on EBCDIC platforms. Single-byte encodings are substantially faster than multibyte encodings; Unicode (UTF-16) uses more memory but has better performance than multibyte. If the <code>data_encoding</code> parameter is set to UTF-16, the APIs process wide-CHAR arrays, not <code>oratext</code> byte arrays. • <code>default_input_encoding</code> is the default input encoding). If the encoding of an input document cannot be automatically determined through other methods, this encoding will be the default. • <code>error_language</code> is the language (and optional encoding) in which error messages are created. Default is American with UTF-8 encoding. To specify only the language, give the name of the language ("American"). To also specify the encoding, add the period and the Oracle name of the encoding ("American.WE8ISO8859P1"). • <code>error_handler</code> is the function pointer; see <code>XML_ERRMSG_F</code>. By default, errors output the formatted message to <code>stderr</code>. If an error handler is provided, message will be passed to it, and not printed. • <code>error_context</code> is user-defined context for error handler, a context pointer to be passed to the error handler function. It is user-defined; it is just specified here and passed along when an error occurs. • <code>input_encoding</code> is the name of a forced input encoding for input documents. Use it to override a document's <code>XMLDecl</code>, and always interpret it in the given encoding. It should be not necessary in normal use, as existing BOMs and <code>XMLDecls</code> should be correct. • <code>memory_alloc</code> is a low-level memory allocation function, if not using <code>malloc</code>. If used, the matching free function must also be given. See <code>XML_ALLOC_F</code>. • <code>memory_free</code> is a low-level memory freeing function, if not using <code>free</code>. Matches the <code>memory_alloc</code> function. • <code>memory_context</code> is a user-defined memory context passed to the <code>alloc</code> and <code>free</code> functions. Its definition and use is entirely up to the user; it is just set here and passed to the callbacks. |

The XDK has additional properties:

- `input_buffer_size` is the basic I/O buffer size. Default is 256K; the range is 4K to 4MB. Depending on the encoding, 1, 2 or 3 of these buffers may be needed. Note that size is in characters, not bytes. If the buffer holds Unicode data, it will be twice as large.
- `memory_block_size` is the size of chunk the high-level memory package will request from the low-level allocator; it is the basic unit of memory allocation. Default is 64K; the range is 16K to 256K.

These optional parameters should be used in the following manner:

```
xmlctx *XmlCreate(
    xmlerr *err,
    oratext *name,
    ("data_encoding", dataEncoding),
    ("default_data_encoding", defaultDataEncoding),
    ("error_language", errorLanguage),
    ("error_handler", errorHandler),
    ("error_context", errorContext)
    ("input_encoding", inputEncoding),
    ("memory_alloc", memAlloc),
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| | | <pre> ("memory_free", memFree), ("memory_context", memContext), ("input_buffer_seize", inputBufSize), ("memory_block_size", memBlockSize)); </pre> |

Returns

(xmlctx *) created xmlctx [or NULL on error with err set]

**See Also:**

[XmlDestroy\(\)](#), [XML_ERRMSG_F\(\)](#) in [Package Callback APIs for C](#)

11.3 XmlCreateDTD()

Create DTD.

Syntax

```

xmlDocNode* XmlCreateDTD(
    xmlctx *xctx
    oratext *qname,
    oratext *pubid,
    oratext *sysid,
    xmlerr *err);

```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------------------|
| xctx | IN | XML context |
| qname | IN | qualified name |
| pubid | IN | external subset public identifier |
| sysid | IN | external subset system identifier |
| err | OUT | returned error code |

Returns

(xmlDtdNode *) new DTD node

11.4 XmlCreateDocument()

Creates the initial top-level `DOCUMENT` node and its supporting infrastructure. If a qualified name is provided, a an element with that name is created and set as the document's root element.

Syntax

```
xmlDocnode* XmlCreateDocument(
    xmlctx *xctx,
    oratext *uri,
    oratext *qname,
    xmlDtdnode *dtd,
    xmlerr *err);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| uri | IN | namespace URI of root element to create, or NULL |
| qname | IN | qualified name of root element, or NULL if none |
| dtd | IN | associated DTD node |
| err | OUT | returned error code |

Returns

(xmlDocnode *) new Document object.

11.5 XmlDestroy()

Destroys an XML context.

Syntax

```
void XmlDestroy(
    xmlctx *xctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |



See Also:

[XmlCreate\(\)](#)

11.6 XmlDiff()

Compares two XML documents, specified either as DOM Trees, files, URIs, `orastreams`, and so on, and returns its document node. If input documents are not supplied as DOM trees, DOM trees will be created for them.

If the inputs are DOMs, that memory will not be freed when the call completes.

Data(DOM) encoding of both the documents must be the same as the data encoding in the XML context. The DOM for the diff will be created in the data encoding specified by the XML context.

Syntax

```
xmlDocNode *XmlDiff(
    xmlCtx *xctx,
    xmlErr *err,
    ub4 flags,
    xmlDfsrct firstSourceType,
    void *firstSource,
    void *firstSourceExtra,
    xmlDfsrct secondSourceType,
    void *secondSource,
    void *secondSourceExtra,
    uword hashLevel);
```

| Parameter | In/Out | Description |
|-------------------------------|--------|---|
| <code>xctx</code> | IN | XML context |
| <code>err</code> | OUT | numeric error code, <code>XMLERR_OK [0]</code> on success |
| <code>flags</code> | IN | Comparison options. By default, global algorithm and snapshot model are used. <ul style="list-style-type: none"> <code>XMLDF_FL_DEFAULTS (=0)</code> chooses defaults <code>XMLDF_FL_ALGORITHM_GLOBAL</code> is the global algorithm; it will generate the minimal diff using <code>INSERT</code>, <code>APPEND</code>, <code>DELETE</code> and <code>UPDATE</code>, and needs more memory and time than <code>XMLDF_FL_ALGORITHM_LOCAL</code> <code>XMLDF_FL_ALGORITHM_LOCAL</code> is the local algorithm; it may not generate the minimal diff, but it is faster and uses less space than <code>XMLDF_FL_ALGORITHM_GLOBAL</code> <code>XMLDF_FL_DISABLE_UPDATE</code> disables update operations with global algorithms <code>XMLDF_FL_OUTPUT_SNAPSHOT</code> uses the snapshot model |
| <code>firstSourceType</code> | IN | Source type for the first document. If 0, assumed to be a DOM document node. |
| <code>firstSource</code> | IN | Pointer to the first document source |
| <code>firstSourceExtra</code> | IN | An additional pointer to the first document source; used for the buffer length pointer. |
| <code>secondSourceType</code> | IN | Source type for the second document. If 0, assumed to be a DOM document node. |

| Parameter | In/Out | Description |
|-------------------|--------|---|
| secondSource | IN | Pointer to the second document source |
| secondSourceExtra | IN | An additional pointer to the second document source; used for the buffer length pointer. |
| hashLevel | IN | <p>1-based depth (counting from the root), where hashing should be used for subtrees. Values less than or equal to 1 indicate no hashing. This value must be specified programmatically.</p> <p>The hash value for every element node is associated with the entire subtree rooted at that node. During the computation of the diff, there is no further drilling down into the tree beyond hash level depth.</p> <ul style="list-style-type: none"> • If hashing is used with <code>XMLDF_FL_ALGORITHM_GLOBAL</code>, it will speed up diff computation significantly, but may reduce the quality of the diff. • With <code>XMLDF_FL_ALGORITHM_LOCAL</code>, it improves the quality of the diff |

11.7 XmlFreeDocument()

Destroys a document created by `XmlCreateDocument` or through one of the Load functions. Releases all resources associated with the document, which is then invalid.

Syntax

```
void XmlFreeDocument(
    xmlctx *xctx,
    xmldocnode *doc);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------|
| xctx | IN | XML context |
| doc | IN | document to free |



See Also:

[XmlCreateDocument\(\)](#), [XmlLoadDom\(\)](#)

11.8 XmlGetEncoding()

Returns data encoding in use by XML context. Ordinarily, the data encoding is chosen by the user, so this function is not needed. However, if the data encoding is not specified, and allowed to default, this function can be used to return the name of that default encoding.

Syntax

```
oratext *XmlGetEncoding(
    xmlctx *xctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

Returns

(oratext *) name of data encoding

**See Also:**

[XmlIsSimple\(\)](#), [XmlIsUnicode\(\)](#)

11.9 XmlHasFeature()

Determine if a DOM feature is implemented. Returns `TRUE` if the feature is implemented in the specified version, `FALSE` otherwise.

In level 1, the legal values for package are 'HTML' and 'XML' (case-insensitive), and the version is the string "1.0". If the version is not specified, supporting any version of the feature will cause the method to return `TRUE`.

- DOM 1.0 features are "XML" and "HTML".
- DOM 2.0 features are "Core", "XML", "HTML", "Views", "StyleSheets", "CSS", "CSS2", "Events", "UIEvents", "MouseEvents", "MutationEvents", "HTMLEvents", "Range", "Traversal"

Syntax

```
boolean XmlHasFeature(
    xmlctx *xctx,
    oratext *feature,
    oratext *version);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| feature | IN | package name of the feature to test |
| version | IN | version number of the package name to test |

Returns

(boolean) feature is implemented?

11.10 XmlIsSimple()

Returns a flag saying whether the context's data encoding is "simple", single-byte for each character, like ASCII or EBCDIC.

Syntax

```
boolean XmlIsSimple(  
    xmlctx *xctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

Returns

(boolean) TRUE of data encoding is "simple", FALSE otherwise



See Also:

[XmlGetEncoding\(\)](#), [XmlIsUnicode\(\)](#)

11.11 XmlIsUnicode()

Returns a flag saying whether the context's data encoding is Unicode, UTF-16, with two-byte for each character.

Syntax

```
boolean XmlIsUnicode(  
    xmlctx *xctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

Returns

(boolean) TRUE of data encoding is Unicode, FALSE otherwise



See Also:

[XmlGetEncoding\(\)](#), [XmlIsSimple\(\)](#)

11.12 XmlLoadDom()

Loads (parses) an XML document from an input source and creates a DOM. The root document node is returned on success, or `NULL` on failure (with err set).

The function takes two fixed arguments, the `xmlctx` and an error return code, then zero or more (property, value) pairs, then `NULL`.

SOURCE Input source is set by one of the following mutually exclusive properties (choose one):

- ("uri", document URI) [compiler encoding]
- ("file", document filesystem path) [compiler encoding]
- ("buffer", address of buffer, "buffer_length", # bytes in buffer)
- ("stream", address of stream object, "stream_context", pointer to stream object's context)
- ("stdio", FILE* stream)

PROPERTIES Additional properties:

- ("dtd", DTD node) DTD for document
- ("base_uri", document base URI) for documents loaded from other sources than a URI, sets the effective base URI. the document's base URI is needed in order to resolve relative URI include, import, and so on.
- ("input_encoding", encoding name) forced input encoding [name]
- ("default_input_encoding", encoding_name) default input encoding to assume if document is not self-describing (no BOM, protocol header, XMLDecl, and so on)
- ("schema_location", string) schemaLocation of schema for this document. used to figure optimal layout when loading documents into a database
- ("validate", boolean) when `TRUE`, turns on DTD validation; by default, only well-formedness is checked. note that schema validation is a separate beast.
- ("discard_whitespace", boolean) when `TRUE`, formatting whitespace between elements (newlines and indentation) in input documents is discarded. by default, ALL input characters are preserved.
- ("dtd_only", boolean) when `TRUE`, parses an external DTD, not a complete XML document.
- ("stop_on_warning", boolean) when `TRUE`, warnings are treated the same as errors and cause parsing, validation, and so on, to stop immediately. by default, warnings are issued but the game continues.
- ("warn_duplicate_entity", boolean) when `TRUE`, entities which are declared more than once will cause warnings to be issued. the default is to accept the first declaration and silently ignore the rest.
- ("no_expand_char_ref", boolean) when `TRUE`, causes character references to be left unexpanded in the DOM data. ordinarily, character references are replaced by the character they represent. however, when a document is saved those characters entities do not reappear. to way to ensure they remain through load and save is to not expand them.

- ("no_check_chars", boolean) when TRUE, omits the test of XML [2] Char production: all input characters will be accepted as valid

Syntax

```
xmlDocnode *XmlLoadDom(
    xmlctx *xctx,
    xmlerr *err,
    list);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| err | OUT | returned error code |
| list | IN | NULL-terminated list of variable arguments |

Returns

(xmlDocnode *) document node on success [NULL on failure with err set]



See Also:

[XmlSaveDom\(\)](#)

11.13 XmlLoadSax()

Loads (parses) an XML document from an input source and generates a set of SAX events (as user callbacks). Input sources and basic set of properties is the same as for XmlLoadDom.

Syntax

```
xmlerr XmlLoadSax(
    xmlctx *xctx,
    xmlsaxcb *saxcb,
    void *saxctx,
    list);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| saxcb | IN | SAX callback structure |
| saxctx | IN | context passed to SAX callbacks |
| list | IN | NULL-terminated list of variable arguments |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

11.14 XmlLoadSaxVA()

Loads (parses) an XML document from an input source and generates a set of SAX events (as user callbacks). Input sources and basic set of properties is the same as for XmlLoadDom.

Syntax

```
xmlerr XmlLoadSaxVA(
    xmlctx *xctx,
    xmlsaxcb *saxcb,
    void *saxctx,
    va_list va);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| saxcb | IN | SAX callback structure |
| saxctx | IN | context passed to SAX callbacks |
| va | IN | NULL-terminated list of variable arguments |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

11.15 XmlSaveDom()

Serializes document or subtree to the given destination and returns the number of bytes written; if no destination is provided, just returns formatted size but does not output.

If an output encoding is specified, the document will be re-encoded on output; otherwise, it will be in its existing encoding.

The top level is indented step*level spaces, the next level step*(level+1) spaces, and so on.

When saving to a buffer, if the buffer overflows, 0 is returned and err is set to XMLERR_SAVE_OVERFLOW.

DESTINATION Output destination is set by one of the following mutually exclusive properties (choose one):

- ("uri", document URI) POST, PUT? [compiler encoding]
- ("file", document filesystem path) [compiler encoding]

- ("buffer", address of buffer, "buffer_length", # bytes in buffer)
- ("stream", address of stream object, "stream_context", pointer to stream object's context)

PROPERTIES Additional properties:

- ("output_encoding", encoding name) name of final encoding for document. unless specified, saved document will be in same encoding as xmlctx.
- ("indent_step", unsigned) spaces to indent each level of output. default is 4, 0 means no indentation.
- ("indent_level", unsigned) initial indentation level. default is 0, which means no indentation, flush left.
- ("xmldecl", boolean) include an XMLDecl in the output document. ordinarily an XMLDecl is output for a complete document (root node is DOC).
- ("bom", boolean) input a BOM in the output document. usually the BOM is only needed for certain encodings (UTF-16), and optional for others (UTF-8). causes optional BOMs to be output.
- ("prune", boolean) prunes the output like the unix 'find' command; does not descend to children, just prints the one node given.

Syntax

```
ubig_ora XmlSaveDom(
    xmlctx *xctx,
    xmlerr *err,
    xmlnode *root,
    list);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| xctx | IN | XML context |
| err | OUT | error code on failure |
| root | IN | root node or subtree to save |
| list | IN | NULL-terminated list of variable arguments |

Returns

(ubig_ora) number of bytes written to destination



See Also:

[XmlLoadDom\(\)](#)

11.16 XmlVersion()

Returns the version string for the XDK

Syntax

```
oratext *XmlVersion();
```

Returns

(oratext *) version string

12

Package XmlDiff for XML C APIs

The methods of the package `XmlDiff` allow you to compare and modify XML documents. The `XmlDiff()` and `XmlPatch()` methods are generally equivalent to UNIX commands `diff` and `patch`, and in addition are optimized for, and aware of, XML.

The following table summarizes the methods available through the `XmlDiff` package for XML C APIs.

Table 12-1 Summary of XmlDiff Methods for XML C Implementation

| Function | Summary |
|-------------------------|---|
| <code>XmlDiff()</code> | Determines the changes between two XML documents. |
| <code>XmlHash()</code> | Computes a hash value for an XML document or a node in DOM. |
| <code>XmlPatch()</code> | Applies changes on input XML document. |



See Also:

Oracle XML Developer's Kit Programmer's Guide

12.1 XmlDiff()

Determines the changes between two XML documents.

`XmlDiff()` captures the `diff` between two documents in an XML format that conforms to the `xdiff` XML schema; you can customize this output.

These input documents can be specified either as DOM Trees, files, URI, `orastream`, and so on. DOM trees for both the inputs will be created if they are not supplied as DOM trees. The DOM for the diff document is created, and the `doc` node is returned.

If the caller supplies inputs as DOMs, the memory for the DOMs will not be freed.

Data (DOM) encoding of both documents must be the same as the data encoding in `xctx`. The diff DOM will be created in the data encoding specified in `xctx`.

There are four algorithms that can be run in `XmlDiff()`: global, local, global with hashing, and local with hashing. The `diff` may be different in the four cases.

The global algorithm will generate minimal `diff` using insert, append, delete and update operations. It needs more memory and time than the local algorithm. The local algorithm may not generate minimal diff, but is faster and uses less space than the global algorithm.

Hashing can be used with both global and local algorithms. If hashing is used with the global algorithm, it will speed up diff computation significantly, but may reduce the quality of diff. With local algorithm, it improves the quality of the diff.

You must specify a depth at which to use hashing. In hashing, the hash value for every element node is associated with a digest for the entire subtree rooted at that node. The tree is not investigated beyond the specified hash level depth while computing the diff.

The output of the global algorithm with or without hashing meets 'operations-in-docorder' requirement (the nodes must appear in same order as a preorder traversal of the document tree), but the output of the local algorithm does not.

The namespace prefixes `XmlDiff()` will use in the `xdiff` document may be same as those in either the first or second `doc`, depending on which prefix was seen first while processing. The NS URI will be bound to the prefix in the output appropriately. If this NS does not have a prefix in both `docS`, a new prefix will be generated and bound to the NS in `xdiff` doc.

Syntax

```
xmlDocNode *XmlDiff(
    xmlctx *xctx,
    xmlerr *err,
    ub4 flags,
    xmlDfsrct firstSourceType,
    void *firstSource,
    void *firstSourceExtra,
    xmlDfsrct secondSourceType,
    void *secondSource,
    void *secondSourceExtra,
    uword hashLevel,
    oraprop *properties);
```

| Parameter | In/Out | Description |
|-------------------------------|--------|---|
| <code>xctx</code> | IN | XML context |
| <code>xmlerr</code> | OUT | numeric error code, <code>XMLERR_OK</code> on success |
| <code>flags</code> | IN | The following options are available: <ul style="list-style-type: none"> <code>XMLDF_FL_DEFAULTS (=0)</code> chooses defaults <code>XMLDF_FL_ALGORITHM_GLOBAL</code> is the global algorithm <code>XMLDF_FL_ALGORITHM_LOCAL</code> is the local algorithm <code>XMLDF_FL_DISABLE_UPDATE</code> indicates a disable update operation, with the global algorithm By default, global algorithm is used. |
| <code>firstSourceType</code> | IN | Type of source for first document; if zero, <code>firstSource</code> is assumed to be a DOM doc node. |
| <code>firstSource</code> | IN | Pointer to the source for the first document |
| <code>firstSourceExtra</code> | IN | An additional pointer to the source for the first document; used for buffer length pointer |
| <code>secondSourceType</code> | IN | Type of source for second document; if zero, <code>secondSource</code> is assumed to be a DOM doc node. |

| Parameter | In/Out | Description |
|-------------------|--------|--|
| secondSource | IN | Pointer to the source for the second document |
| secondSourceExtra | IN | An additional pointer to the source for the second document; used for buffer length pointer |
| hashLevel | IN | The depth (counting from 1 for the root) at which to use hashing for sub trees; <=1 means not to use hashing |
| properties | IN | Used for Output Builder |

Returns

(xmlDocnode) Doc node for the diff document, or NULL on error

12.2 XmlHash()

Computes a hash value for an XML document or a node in DOM.

If the hash values for two XML subtrees are equal, the corresponding subtrees are equal to a very high probability. Computes the hash value using the Message Digest algorithm 5 (MD5), a widely-used cryptographic hash function with a 128-bit hash value, so there is a very small probability that two different inputs might map to same MD5 digest.

The source can be specified as a file, a URL, and so on. It can also be a Document node in DOM, or any other DOM node, and must be specified using the `inputSource` parameter. If `inputSource` is a non-Document DOM node, `inputSourceExtra` must point to the Document node for the DOM.

Syntax

```
xmlerr XmlHash(
    xmlctx *xctx,
    xmlhasht *digest,
    ub4 flags,
    xmldfsrct inputSourceType,
    void *inputSource,
    void *inputSourceExtra,
    oraprop *properties);
```

| Parameter | In/Out | Description |
|-----------------|--------|--|
| xctx | IN | XML context |
| digest | OUT | The hash value for the XML sub-tree |
| flags | IN | Not used |
| inputSourceType | IN | Type of source for the input document; if zero, <code>inputSource</code> is assumed to be a DOM doc node |

| Parameter | In/Out | Description |
|------------------|--------|--|
| inputSource | IN | Pointer to the source for the input document |
| inputSourceExtra | IN | An additional pointer to the source for the input document; if used for a node pointer in a DOM, <code>inputSource</code> must be a document node. |
| properties | IN | Not used |

Returns

(`xmlerr`) numeric error code, `XMLERR_OK` on success

12.3 XmlPatch()

`XmlPatch()` applies `xdiff` schema-conforming changes to an input document. The input document and the `diff` document can be specified either as a DOM tree, file, URI, or buffer.

DOMs are built for both the input and `diff` document if they are not supplied as DOMs.

Data(DOM) encoding of both input and `diff` documents must be the same as the data encoding in `xctx`. The patched DOM will be in the data encoding specified in `xctx`.

Only the simple XPath is supported in the snapshot model. The `XPath` should identify a node with a position predicate in abbreviated syntax, such as `/a[1]/b[2]`. The `XPaths` generated by `XmlDiff()` meet this requirement. Also, 'operations-in-document-order' condition must be `TRUE`; the nodes must appear in same order as a preorder traversal of the document tree. Global (with or without hashing) meets this requirement. Local does not.

The programming interface should specify the output model used in the `diff` doc. The `oracle-xmldif` should be the first child of the top level `xdiff` element. It should also use flags to specify if operations are in document order (`TRUE` or `FALSE`), and whether the output model is a snapshot or current.

Syntax

```
xmlDocNode *XmlPatch(
    xmlCtx *xctx,
    xmlerr *err,
    ub4 flags,
    xmlDfsrct inputSourceType,
    void *inputSource,
    void *inputSourceExtra,
    xmlDfsrct diffSourceType,
    void *diffSource,
    void *diffSourceExtra,
    oraprop *properties);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

| Parameter | In/Out | Description |
|------------------|--------|---|
| xmlerr | OUT | numeric error code, XMLERR_OK on success |
| flags | IN | The following option is available: <ul style="list-style-type: none"> XMLDF_FL_DEFAULTS(=0) chooses defaults |
| inputSourceType | IN | Type of source for the input document; if zero, <code>inputSource</code> is assumed to be a DOM doc node. |
| inputSource | IN | Pointer to the source for the input document |
| inputSourceExtra | IN | An additional pointer to the source for the input document; used for buffer length pointer |
| diffSourceType | IN | Type of source for <code>diff</code> document; if zero, <code>secondSource</code> is assumed to be a DOM doc node. |
| diffsSource | IN | Pointer to the source for the <code>diff</code> document |
| diffSourceExtra | IN | An additional pointer to the source for the <code>diff</code> document; used for buffer length pointer |
| properties | IN | Not used |

Returns

(xmldocnode) Doc node for the pathed DOM, or NULL on error

13

Package XPath for XML C APIs

XPath methods process XPath related types and interfaces.

The following table summarizes the methods available through the `xPath` package for XML C APIs.

Table 13-1 Summary of XPath Methods for XML C Implementation

| Function | Summary |
|---|---|
| XmlXPathCreateCtx() | Create an XPath context. |
| XmlXPathDestroyCtx() | Destroy an XPath context. |
| XmlXPathEval() | Evaluate XPath expression. |
| XmlXPathGetObjectBoolean() | Get boolean value of XPath object. |
| XmlXPathGetObjectFragment() | Get fragment value of XPath object. |
| XmlXPathGetObjectNSetNode() | Get node from nodeset type XPath object. |
| XmlXPathGetObjectNSetNum() | Get number of nodes in nodeset type XPath object. |
| XmlXPathGetObjectNumber() | Get number from XPath object. |
| XmlXPathGetObjectString() | Get string from XPath object. |
| XmlXPathGetObjectType() | Get XPath object type. |
| XmlXPathParse() | Parse XPath expression. |

13.1 XmlXPathCreateCtx()

Create an XPath context

Syntax

```
xpctx* XmlXPathCreateCtx(  
    xmlctx *xsl,  
    oratext *baseuri,  
    xmlnode *ctxnode,  
    ub4 ctxpos,  
    ub4 ctxsize);
```

| Parameter | In/Out | Description |
|----------------------|--------|--|
| <code>xsl</code> | IN | XSL stylesheet as <code>xmlDoc</code> object |
| <code>baseuri</code> | IN | base URI used by document, if any |
| <code>ctxnode</code> | IN | current context position |

| Parameter | In/Out | Description |
|-----------|--------|----------------------|
| ctxpos | IN | current context size |
| ctxsize | IN | current context node |

Returns

(xpctx *) XPath context or `NULL` on error

13.2 XmlXPathDestroyCtx()

Destroy an XPath context.

Syntax

```
void XmlXPathDestroyCtx(
    xpctx *xslxpctx);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------|
| xslxpctx | IN | XPath context object |

13.3 XmlXPathEval()

Evaluate XPath expression.

Syntax

```
xpobj *XmlXPathEval(
    xpctx *xctx,
    xpexpr *exptree,
    xmlerr *err);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------|
| xctx | IN | XPath context |
| exptree | IN | parsed XPath expression tree |
| err | OUT | error code |

Returns

(xpobj *) result XPath object or `NULL` on error

13.4 XmlXPathGetObjectBoolean()

Get boolean value of XPath object

Syntax

```
boolean XmlXPathGetObjectBoolean(
    xproj *obj);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| obj | IN | XPath object |

Returns

(boolean) truth value

 **See Also:**

[XmlXPathGetObjectNodeType\(\)](#), [XmlXPathGetObjectNSetNum\(\)](#),
[XmlXPathGetObjectNSetNode\(\)](#), [XmlXPathGetObjectNumber\(\)](#),
[XmlXPathGetObjectBoolean\(\)](#)

13.5 XmlXPathGetObjectFragment()

Get boolean value of XPath object

Syntax

```
xmlnode* XmlXPathGetObjectFragment(
    xproj *obj);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| obj | IN | XPath object |

Returns

(boolean) truth value

 **See Also:**

[XmlXPathGetObjectNodeType\(\)](#), [XmlXPathGetObjectNSetNum\(\)](#),
[XmlXPathGetObjectNSetNode\(\)](#), [XmlXPathGetObjectNumber\(\)](#),
[XmlXPathGetObjectBoolean\(\)](#)

13.6 XmlXPathGetObjectNSetNode()

Get node from nodeset-type XPath object

Syntax

```
xmlnode *XmlXPathGetObjectNSetNode(
    xpobj *obj,
    ub4 i);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------|
| obj | IN | XPath object |
| i | IN | node index in nodeset |

Returns

(xmlnode *) The object type or values.

 **See Also:**

[XmlXPathGetObjectType\(\)](#), [XmlXPathGetObjectNSetNum\(\)](#),
[XmlXPathGetObjectString\(\)](#), [XmlXPathGetObjectNumber\(\)](#),
[XmlXPathGetObjectBoolean\(\)](#)

13.7 XmlXPathGetObjectNSetNum()

Get number of nodes in nodeset-type XPath object

Syntax

```
ub4 XmlXPathGetObjectNSetNum(
    xpobj *obj);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| obj | IN | XPath object |

Returns

(ub4) number of nodes in nodeset

 **See Also:**

[XmlXPathGetObjectType\(\)](#), [XmlXPathGetObjectNSetNode\(\)](#),
[XmlXPathGetObjectString\(\)](#), [XmlXPathGetObjectNumber\(\)](#),
[XmlXPathGetObjectBoolean\(\)](#)

13.8 XmlXPathGetObjectNumber()

Get number from XPath object

Syntax

```
double XmlXPathGetObjectNumber(
    xpobj *obj);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| obj | IN | XPath object |

Returns

(double) number



See Also:

[XmlXPathGetObjectNum\(\)](#), [XmlXPathGetObjectNSetNum\(\)](#),
[XmlXPathGetObjectNSetNode\(\)](#), [XmlXPathGetObjectString\(\)](#),
[XmlXPathGetObjectBoolean\(\)](#)

13.9 XmlXPathGetObjectString()

Get string from XPath object

Syntax

```
oratext *XmlXPathGetObjectString(
    xpobj *obj);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| obj | IN | XPath object |

Returns

(oratext *) string



See Also:

[XmlXPathGetObjectNum\(\)](#), [XmlXPathGetObjectNSetNum\(\)](#),
[XmlXPathGetObjectNSetNode\(\)](#), [XmlXPathGetObjectNumber\(\)](#),
[XmlXPathGetObjectBoolean\(\)](#)

13.10 XmlXPathGetObjectType()

Get XPath object type

Syntax

```
xmlxslobjtype XmlXPathGetObjectType(
  xpobj *obj);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| obj | IN | XPath object |

Returns

(xmlxslobjtype) type-code for object



See Also:

[XmlXPathGetObjectNSetNum\(\)](#), [XmlXPathGetObjectNSetNode\(\)](#),
[XmlXPathGetObjectString\(\)](#), [XmlXPathGetObjectNumber\(\)](#),
[XmlXPathGetObjectBoolean\(\)](#)

13.11 XmlXPathParse()

Parse XPath expression.

Syntax

```
xpexpr* XmlXPathParse(
  xpctx *xctx,
  oratext *expr,
  xmlerr *err);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------|
| xctx | IN | XPath context object |
| expr | IN | XPath expression |
| err | OUT | error code |

Returns

(xpexpr *) XPath expression parse tree or NULL on error

14

Package XPointer for XML C APIs

Package `XPointer` methods implement XML pointers for XML C APIs. They are grouped into three interface types:

- [XPointer Interface](#)
- [XPtrLoc Interface](#)
- [XPtrLocSet Interface](#)

14.1 XPointer Interface for XPointer XML C APIs

The following table summarizes the methods available through the `XPointer` interface of `XPointer` for XML C APIs.

Table 14-1 Summary of XPointer XPointer Methods for XML C Implementation

| Function | Summary |
|-----------------------------------|----------------------------|
| XmlXPointerEval() | Evaluates XPointer string. |

14.1.1 XmlXPointerEval()

Parses and evaluates xpointer string and calculates locations in the document.

Syntax

```
xmlxptrlocset* XmlXPointerEval(  
    xmldocnode* doc,  
    oratext* xptrstr);
```

| Parameter | In/Out | Description |
|----------------------|--------|---|
| <code>doc</code> | IN | document node of the corresponding DOM tree |
| <code>xptrstr</code> | IN | xpointer string |

Returns

(`xmlxptrlocset *`) calculated location set

14.2 XPtrLoc Interface for XPointer XML C APIs

The following table summarizes the methods available through the `XPtrLoc` interface of `XPointer` for XML C API.

Table 14-2 Summary of XPtrLoc XPointer Methods for XML C Implementation

| Function | Summary |
|--------------------------------------|---------------------------------|
| XmlXPtrLocGetNode() | Returns Xml node from XPtrLoc. |
| XmlXPtrLocGetPoint() | Returns Xml point from XPtrLoc. |
| XmlXPtrLocGetRange() | Returns Xml range from XPtrLoc. |
| XmlXPtrLocGetType() | Returns type of XPtrLoc. |
| XmlXPtrLocToString() | Returns string for a location. |

14.2.1 XmlXPtrLocGetNode()

Returns node from location

Syntax

```
xmlnode* XmlXPtrLocGetNode(
    xmlxptrloc* loc);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| loc | IN | location |

Returns

(xmlnode *) Node from location

14.2.2 XmlXPtrLocGetPoint()

Returns point from location

Syntax

```
xmlpoint* XmlXPtrLocGetPoint(
    xmlxptrloc* loc);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| loc | IN | location |

Returns

(xmlpoint *) Point from location

14.2.3 XmlXPtrLocGetRange()

Returns range from location.

Syntax

```
xmlrange* XmlXPtrLocGetRange(
    xmlxptrloc* loc);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| loc | IN | location |

Returns

(xmlrange *) Range from location

14.2.4 XmlXPtrLocGetType()

Returns type of location

Syntax

```
xmlxptrloctype XmlXPtrLocGetType(
    xmlxptrloc* loc);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| loc | IN | location |

Returns

(xmlxptrloctype) Type of location

14.2.5 XmlXPtrLocToString()

Returns string for a location:

- node name: name of the container node
- names of container nodes: "not a location" otherwise

Syntax

```
oratext* XmlXPtrLocToString(
    xmlxptrloc* loc);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| loc | IN | location |

Returns

(oratext *) string

14.3 XPtrLocSet Interface for XPointer XML C APIs

The following table summarizes the methods available through the `XPtrLocSet` interface of `XPointer` for XML C APIs.

Table 14-3 Summary of XPtrLocSet XPointer Methods for XML C Implementation

| Function | Summary |
|--|--|
| XmlXPtrLocSetFree() | Free a location set |
| XmlXPtrLocSetGetItem() | Returns location with <code>idx</code> position in <code>XPtrLocSet</code> |
| XmlXPtrLocSetGetLength() | Returns length of <code>XPtrLocSet</code> . |

14.3.1 XmlXPtrLocSetFree()

It is user's responsibility to call this function on every location set returned by `XPointer` or `XPtrLocSet` interfaces

Syntax

```
void XmlXPtrLocSetFree(
    xmlxptrlocset* locset);
```

| Parameter | In/Out | Description |
|---------------------|--------|--------------|
| <code>locset</code> | IN | location set |

14.3.2 XmlXPtrLocSetGetItem()

Returns location with `idx` position in the location set. First position is 1.

Syntax

```
xmlxptrloc* XmlXPtrLocSetGetItem(
    xmlxptrlocset* locset,
    ub4 idx);
```

| Parameter | In/Out | Description |
|---------------------|--------|----------------|
| <code>locset</code> | IN | location set |
| <code>idx</code> | IN | location index |

Returns

(`xmlxptrloc *`) location with the position `idx`

14.3.3 XmlXPathLocSetGetLength()

Returns the number of locations in the location set

Syntax

```
ub4 XmlXPathLocSetGetLength(  
    xmlXPathLocSet* locset);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------|
| locset | IN | location set |

Returns

(ub4) number of nodes in locset

15

Package XSLT for XML C APIs

Package XSLT implements types and methods related to XSL processing.

The following table summarizes the methods available through the `XSLT` package for XML C APIs.

Table 15-1 Summary of XSLT Methods for XML C Implementation

| Function | Summary |
|---|---|
| XmlXslCreate() | Create an XSL context. |
| XmlXslDestroy() | Destroy an XSL context. |
| XmlXslGetBaseURI() | Get the XSL processor base URI. |
| XmlXslGetOutput() | Get the XSL result fragment. |
| XmlXslGetStylesheetDom() | Get the XSL stylesheet document. |
| XmlXslGetTextParam() | Get the XSL text parameter value. |
| XmlXslProcess() | Perform XSL processing on an instance document. |
| XmlXslResetAllParams() | Reset XSL processor parameters. |
| XmlXslSetOutputDom() | Set the XSL context output DOM. |
| XmlXslSetOutputEncoding() | Set the XSL context output encoding. |
| XmlXslSetOutputMethod() | Set the XSL context output method. |
| XmlXslSetOutputSax() | Set the XSL context output SAX. |
| XmlXslSetOutputStream() | Set the XSL context output stream. |
| XmlXslSetTextParam() | Set the XSL context output text parameter. |

15.1 XmlXslCreate()

Create an XSLT context

Syntax

```
xslctx *XmlXslCreate(  
    xmlctx *ctx,  
    xmldocnode *xsl,  
    oratext *baseuri,  
    xmlerr *err);
```

| Parameter | In/Out | Description |
|------------------|--------|--------------------------------|
| <code>ctx</code> | IN | XSL context object |
| <code>xsl</code> | IN | XSL stylesheet document object |

| Parameter | In/Out | Description |
|-----------|--------|--|
| baseuri | IN | base URI for including and importing documents |
| err | IN/OUT | returned error code |

Returns

(xslctx *) XSLT context

 **See Also:**
[XmlXslDestroy\(\)](#)

15.2 XmlXslDestroy()

Destroy an XSL context


Syntax

```
xmlerr XmlXslDestroy(
    xslctx *ctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| ctx | IN | XSL context |

Returns

(xmlerr) error code

 **See Also:**
[XmlXslCreate\(\)](#)

15.3 XmlXslGetBaseURI()

Get the XSL processor base URI

Syntax

```
oratext *XmlXslGetBaseURI(
    xslctx *ctx);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------|
| ctx | IN | XSL context object |

Returns

(oratext *) base URI

15.4 XmlXslGetOutput()

Get the XSL result fragment

Syntax

```
xmlfragnode *XmlXslGetOutput(
    xslctx *ctx);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------|
| ctx | IN | XSL context object |

Returns

(xmlfragnode *) result fragment

15.5 XmlXslGetStylesheetDom()

Get the XSL stylesheet document

Syntax

```
xmldocnode *XmlXslGetStylesheetDom(
    xslctx *ctx);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------|
| ctx | IN | XSL context object |

Returns

(xmldocnode *) stylesheet document

15.6 XmlXslGetTextParam()

Get the XSL text parameter value

Syntax

```
oratext *XmlXslGetTextParam(
    xslctx *ctx,
    oratext *name);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------------------|
| ctx | IN | XML context object |
| name | IN | name of the top-level parameter value |

Returns

(oratext *) parameter value

**See Also:**[XmlXslSetTextParam\(\)](#)

15.7 XmlXslProcess()

Do XSL processing on an instance document

Syntax

```
xmlerr XmlXslProcess(
    xslctx *ctx,
    xmldocnode *xml,
    boolean normalize);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| ctx | IN | XSL context object |
| xml | IN | instance document to process |
| normalize | IN | if TRUE, force the XSL processor to normalize the document |

Returns

(xmlerr) error code

15.8 XmlXslResetAllParams()

Reset all the top level parameters added

Syntax

```
xmlerr XmlXslResetAllParams(
    xslctx *ctx);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------|
| ctx | IN | XSL context object |

Returns

(xmlerr) error code, XMLERR_SUCC [0] on success.

**See Also:**

[XmlXslSetTextParam\(\)](#)

15.9 XmlXslSetOutputDom()

Set the xslctx output DOM

15.10 XmlXslSetOutputEncoding()

Set the xslctx output encoding

Syntax

```
xmlerr XmlXslSetOutputEncoding(
    xslctx *ctx,
    oratext* encoding);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------|
| ctx | IN | XML context object |
| encoding | IN | output encoding |

Returns

(xmlerr) error code, XMLERR_SUCC [0] on success.

15.11 XmlXslSetOutputMethod()

Set the xslctx output method

Syntax

```
xmlerr XmlXslSetOutputMethod(
    xslctx *ctx,
    xmlxslomethod method);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------|
| ctx | IN | XML context object |
| encoding | IN | XSL output method |

Returns

(xmlerr) error code, XMLERR_SUCC [0] on success.

15.12 XmlXslSetOutputSax()

Set the xslctx output SAX

Syntax

```
xmlerr XmlXslSetOutputSax(
    xslctx *ctx,
    xmlsaxcb* saxcb,
    void *saxctx);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------|
| ctx | IN | XSL context object |
| saxcb | IN | SAX callback object |
| saxctx | IN | SAX callback context |

Returns

(xmlerr) error code, XMLERR_SUCC [0] on success.

15.13 XmlXslSetOutputStream()

Syntax

```
xmlerr XmlXslSetOutputStream(
    xslctx *ctx,
    xmlostream *stream);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------|
| ctx | IN | XSL context object |
| stream | IN | output stream object |

Returns

(xmlxsl) error code, XMLXSL_SUCC [0] on success.

15.14 XmlXslSetTextParam()

Set the xslctx output text parameter.

Syntax

```
xmlerr XmlXslSetTextParam(  
    xslctx *ctx,  
    oratext *name,  
    oratext *value);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------|
| ctx | IN | XSL context object |
| name | IN | name of top level parameter |
| value | IN | value of top level parameter |

Returns

(xmlerr) error code, XMLERR_SUCC [0] on success.

 **See Also:**

[XmlXslGetTextParam\(\)](#)

16

Package XSLTVM for XML C APIs

Package XSLTVM implements the XSL Transformation (XSLT) language for XML C APIs, as specified in W3C Recommendation 16 November 1999. For convenience, we grouped XSLTVM methods into two interface types.

- [XSLTC Interface](#)
- [XSLTVM Interface](#)

16.1 XSLTC Interface of XSLTVM for XML C APIs

The following table summarizes the methods available through the `XSLTC` interface of `XSLTVM` for XML C APIs.

Table 16-1 Summary of XSLTC XSLTVM Methods for XML C Implementation

| Function | Summary |
|---|---|
| XmlXvmCompileBuffer() | Compile an XSLT stylesheet from buffer into bytecode. |
| XmlXvmCompileDom() | Compile an XSLT stylesheet from DOM into bytecode. |
| XmlXvmCompileFile() | Compile an XSLT stylesheet from file into bytecode. |
| XmlXvmCompileURI() | Compile XSLT stylesheet from URI into bytecode. |
| XmlXvmCompileXPath() | Compile an XPath expression. |
| XmlXvmCreateComp() | Create an XSLT compiler. |
| XmlXvmDestroyComp() | Destroy an XSLT compiler object. |
| XmlXvmGetBytecodeLength() | Returns the bytecode length. |

16.1.1 XmlXvmCompileBuffer()

Compile an XSLT stylesheet from buffer into bytecode. Compiler flags could be one or more of the following:

- `XMLXVM_DEBUG` forces compiler to include debug information into the bytecode
- `XMLXVM_STRIPSPACE` is equivalent to `<xsl:strip-space elements="*" />`.

The generated bytecode resides in a compiler buffer which is freed when next stylesheet is compiled or when compiler object is deleted. Hence, if the bytecode is to be reused it should be copied into another location.

16.1.2 XmlXvmCompileDom()

Compile an XSLT stylesheet from DOM into bytecode. Compiler flags could be one or more of the following:

- `XMLXVM_DEBUG` forces compiler to include debug information into the bytecode
- `XMLXVM_STRIPSPACE` is equivalent to `<xsl:strip-space elements="*" />`.

The generated bytecode resides in a compiler buffer which is freed when next stylesheet is compiled or when compiler object is deleted. Hence, if the bytecode is to be reused it should be copied into another location.

Syntax

```
ub2 *XmlXvmCompileDom(
    xmlxvmcomp *comp,
    xmldocnode *root,
    xmlxvmflag flags,
    xmlerr *error);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------------|
| comp | IN | compiler object |
| root | IN | root element of the stylesheet DOM |
| flags | IN | flags for the current compilation |
| error | OUT | returned error code |

Returns

(ub2 *) bytecode or NULL on error



See Also:

[XmlXvmCompileFile\(\)](#), [XmlXvmCompileBuffer\(\)](#), [XmlXvmCompileURI\(\)](#)

16.1.3 XmlXvmCompileFile()

Compile XSLT stylesheet from file into bytecode. Compiler flags could be one or more of the following:

- `XMLXVM_DEBUG` forces compiler to include debug information into the bytecode
- `XMLXVM_STRIPSPACE` is equivalent to `<xsl:strip-space elements="*" />`.

The generated bytecode resides in a compiler buffer which is freed when next stylesheet is compiled or when compiler object is deleted. Hence, if the bytecode is to be reused it should be copied into another location.

Syntax

```
ub2 *XmlXvmCompileFile(
    xmlxvmcomp *comp,
    oratext *path,
    oratext *baseURI,
    xmlxvmflag flags,
    xmlerr *error);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------------------|
| comp | IN | compiler object |
| path | IN | path of XSL stylesheet file |
| baseuri | IN | base URI of the document |
| flags | IN | flags for the current compilation |
| error | OUT | returned error code |

Returns

(ub2 *) bytecode or NULL on error



See Also:

[XmlXvmCompileURI\(\)](#), [XmlXvmCompileBuffer\(\)](#), [XmlXvmCompileDom\(\)](#)

16.1.4 XmlXvmCompileURI()

Compile XSLT stylesheet from URI into bytecode. Compiler flags could be one or more of the following:

- `XMLXVM_DEBUG` forces compiler to include debug information into the bytecode
- `XMLXVM_STRIPSPACE` is equivalent to `<xsl:strip-space elements="*" />`.

The generated bytecode resides in a compiler buffer which is freed when next stylesheet is compiled or when compiler object is deleted. Hence, if the bytecode is to be reused it should be copied into another location.

Syntax

```
ub2 *XmlXvmCompileURI(
    xmlxvmcomp *comp,
    oratext *uri,
    xmlxvmflag flags,
    xmlerr *error);
```

| Parameter | In/Out | Description |
|-----------|--------|--|
| comp | IN | compiler object |
| uri | IN | URI of the file that contains the XSL stylesheet |
| flags | IN | flags for the current compilation |
| error | OUT | returned error code |

Returns

(ub2 *) bytecode or NULL on error

**See Also:**

[XmlXvmCompileFile\(\)](#), [XmlXvmCompileBuffer\(\)](#), [XmlXvmCompileDom\(\)](#)

16.1.5 XmlXvmCompileXPath()

Compiles an XPath expression. The optional `pfxmap` is used to map namespace prefixes to URIs in the XPath expression. It is an array of prefix, URI values, ending in NULL, and so on.

Syntax

```
ub2 *XmlXvmCompileXPath(
    xmlxvmcomp *comp,
    oratext *xpath,
    oratext **pfxmap,
    xmlerr *error);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------|
| comp | IN | compiler object |
| xpath | IN | XPath expression |
| pfxmap | IN | array of prefix-URI mappings |
| error | OUT | returned error code |

Returns

(ub2 *) XPath expression bytecode or NULL on error

16.1.6 XmlXvmCreateComp()

Create an XSLT compiler object. The XSLT compiler is used to compile XSLT stylesheets into bytecode.

Syntax

```
xmlxvmcomp *XmlXvmCreateComp(  
    xmlctx *xctx);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| xctx | IN | XML context |

Returns

(xmlxvmcomp *) XSLT compiler object, or `NULL` on error



See Also:

[XmlXvmDestroyComp\(\)](#)

16.1.7 XmlXvmDestroyComp()

Destroys an XSLT compiler object

Syntax

```
void XmlXvmDestroyComp(  
    xmlxvmcomp *comp);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------|
| comp | IN | XSLT compiler object |



See Also:

[XmlXvmCreateComp\(\)](#)

16.1.8 XmlXvmGetBytecodeLength()

The bytecode length is needed when the bytecode is to be copied or when it is set into XSLTVM.

Syntax

```
ub4 XmlXvmGetBytecodeLength(
    ub2 *bytecode,
    xmlerr *error);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| bytecode | IN | bytecode buffer |
| error | OUT | returned error code |

Returns

(ub4) The bytecode length in bytes.

16.2 XSLTVM Interface of XSLTVM for XML C APIs

The following table summarizes the methods available through the XSLTVM interface of XSLTVM for XML C APIs.

Table 16-2 Summary of XSLTVM XSLTVM Methods for XML C Implementation

| Function | Summary |
|---|--|
| XMLXVM_DEBUG_F() | XMLXSLTVM debug function. |
| XmlXvmCreate() | Create an XSLT virtual machine. |
| XmlXvmDestroy() | Destroys an XSLT virtual machine. |
| XmlXvmEvaluateXPath() | Evaluate already-compiled XPath expression. |
| XmlXvmGetObjectBoolean() | Get boolean value of XPath object. |
| XmlXvmGetObjectNSetNode() | Get node from nodeset type XPathobject. |
| XmlXvmGetObjectNSetNum() | Get number of nodes in nodeset type XPathobject. |
| XmlXvmGetObjectNumber() | Get number from XPath object. |
| XmlXvmGetObjectString() | Get string from XPath object. |
| XmlXvmGetObjectType() | Get XPath object type. |
| XmlXvmGetOutputDom() | Returns the output DOM. |
| XmlXvmResetParams() | Resets the stylesheet top level text parameters. |
| XmlXvmSetBaseURI() | Sets the base URI for the XLTVM. |
| XmlXvmSetBytecodeBuffer() | Set the compiled bytecode. |
| XmlXvmSetBytecodeFile() | Set the compiled byte code from file. |
| XmlXvmSetBytecodeURI() | Set the compiled bytecode. |
| XmlXvmSetDebugFunc() | Set a callback function for debugging. |
| XmlXvmSetOutputDom() | Sets the XSLTVM to output document node. |
| XmlXvmSetOutputEncoding() | Sets the encoding for the XSLTVM output. |
| XmlXvmSetOutputSax() | Sets XSLTVM to output SAX. |

Table 16-2 (Cont.) Summary of XSLTVM XSLTVM Methods for XML C Implementation

| Function | Summary |
|---|---|
| XmlXvmSetOutputStream() | Set the XSLTVM output to a user-defined stream. |
| XmlXvmSetTextParam() | Set the stylesheet top-level text parameter. |
| XmlXvmTransformBuffer() | Run compiled XSLT stylesheet on XML document in memory. |
| XmlXvmTransformDom() | Run compiled XSLT stylesheet on XML document as DOM. |
| XmlXvmTransformFile() | Run compiled XSLT stylesheet on XML document in file. |
| XmlXvmTransformURI() | Run compiled XSLT stylesheet on XML document from URI. |

16.2.1 XMLXVM_DEBUG_F()

Debug callback function for XSLT VM.

Syntax

```
#define XMLXVM_DEBUG_F(func, line, file, obj, n)
void func(
    ub2 line,
    oratext *file,
    xvobj *obj,
    ub4 n)
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------------------|
| line | IN | source stylesheet line number |
| file | IN | stylesheet filename |
| obj | IN | current VM object |
| n | IN | index of current node |



See Also:

[XmlXvmSetDebugFunc\(\)](#)

16.2.2 XmlXvmCreate()

Create an XSLT virtual machine. Zero or more of the following XSLTVM properties could be set by using this API:

- "VMStack", `size` sets the size[Kbyte] of the main VM stack; default size is 4K.
- "NodeStack", `size` sets the size[Kbyte] of the node-stack; default size is 16K.
- "StringStack", `size` sets the size[Kbyte] of the string-stack; default size is 64K.

If the stack size is not specified the default size is used. The explicit stack size setting is needed when XSLTVM terminates with "Stack Overflow" message or when smaller memory footprints are required.

Syntax

```
xmlxvm *XmlXvmCreate(
    xmlctx *xctx,
    list);
```

| Parameter | In/Out | Description |
|-------------------|--------|---|
| <code>xctx</code> | IN | XML context |
| <code>list</code> | IN | NULL-terminated list of properties to set; can be empty |

Returns

(`xmlxvm *`) XSLT virtual machine object, or `NULL` on error



See Also:

[XmlXvmDestroy\(\)](#)

16.2.3 XmlXvmDestroy()

Destroys an XSLT virtual machine

Syntax

```
void XmlXvmDestroy(
    xmlxvm *vm);
```

| Parameter | In/Out | Description |
|-----------------|--------|-------------|
| <code>vm</code> | IN | VM object |



See Also:

[XmlXvmCreate\(\)](#)

16.2.4 XmlXvmEvaluateXPath()

Evaluate already-compiled XPath expression

Syntax

```
xvmobj *XmlXvmEvaluateXPath(
    xmlxvm *vm,
    ub2 *bytecode,
    ub4 ctxpos,
    ub4 ctxsize,
    xmlnode *ctxnode);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------------|
| vm | IN | XSLTVM object |
| bytecode | IN | XPath expression bytecode |
| ctxpos | IN | current context position |
| ctxsize | IN | current context size |
| ctxnode | IN | current context node |

Returns

(xvmobj *) XPath object

16.2.5 XmlXvmGetObjectBoolean()

Get boolean value of XPath object

Syntax

```
boolean XmlXvmGetObjectBoolean(
    xvmobj *obj);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| obj | IN | object |

Returns

(boolean) value of an XPath object

 **See Also:**

[XmlXvmGetObjectType\(\)](#), [XmlXvmGetObjectNSetNum\(\)](#),
[XmlXvmGetObjectNSetNode\(\)](#), [XmlXvmGetObjectNumber\(\)](#),
[XmlXvmGetObjectBoolean\(\)](#)

16.2.6 XmlXvmGetObjectNSetNode()

Get node from nodeset-type XPath object

Syntax

```
xmlnode *XmlXvmGetObjectNSetNode(
    xvmobj *obj,
    ub4 i);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------|
| obj | IN | object |
| i | IN | node index in nodeset |

Returns

(xmlnode *) The object type or values.

 **See Also:**

[XmlXvmGetObjectType\(\)](#), [XmlXvmGetObjectNSetNum\(\)](#),
[XmlXvmGetObjectString\(\)](#), [XmlXvmGetObjectNumber\(\)](#),
[XmlXvmGetObjectBoolean\(\)](#)

16.2.7 XmlXvmGetObjectNSetNum()

Get number of nodes in nodeset-type XPath object

Syntax

```
ub4 XmlXvmGetObjectNSetNum(
    xvmobj *obj);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| obj | IN | object |

Returns

(ub4) number of nodes in nodeset

 **See Also:**

[XmlXvmGetObjectType\(\)](#), [XmlXvmGetObjectNSetNode\(\)](#),
[XmlXvmGetObjectString\(\)](#), [XmlXvmGetObjectNumber\(\)](#),
[XmlXvmGetObjectBoolean\(\)](#)

16.2.8 XmlXvmGetObjectNumber()

Get number from XPath object.

Syntax

```
double XmlXvmGetObjectNumber(
    xvml_obj *obj);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| obj | IN | object |

Returns

(double) number

 **See Also:**

[XmlXvmGetObjectType\(\)](#), [XmlXvmGetObjectNSetNum\(\)](#),
[XmlXvmGetObjectNSetNode\(\)](#), [XmlXvmGetObjectString\(\)](#),
[XmlXvmGetObjectBoolean\(\)](#)

16.2.9 XmlXvmGetObjectString()

Get string from XPath object.

Syntax

```
oraxml_text *XmlXvmGetObjectString(
    xvml_obj *obj);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| obj | IN | object |

Returns

(oraxml_text *) string

 **See Also:**

[XmlXvmGetObjectType\(\)](#), [XmlXvmGetObjectNSetNum\(\)](#),
[XmlXvmGetObjectNSetNode\(\)](#), [XmlXvmGetObjectNumber\(\)](#),
[XmlXvmGetObjectBoolean\(\)](#)

16.2.10 XmlXvmGetObjectType()

Get XPath object type

Syntax

```
xmlxvmobjtype XmlXvmGetObjectType(
    xvmobj *obj);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| obj | IN | object |

Returns

(xmlxvmobjtype) type-code for object

 **See Also:**

[XmlXvmGetObjectNSetNum\(\)](#), [XmlXvmGetObjectNSetNode\(\)](#),
[XmlXvmGetObjectString\(\)](#), [XmlXvmGetObjectNumber\(\)](#),
[XmlXvmGetObjectBoolean\(\)](#)

16.2.11 XmlXvmGetOutputDom()

Returns the root node of the result DOM tree (if any). `XmlXvmSetOutputDom` has to be used before transformation to set the VM to output a DOM tree (the default VM output is a stream).

Syntax

```
xmlfragnode *XmlXvmGetOutputDom(
    xmlxvm *vm);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| vm | IN | VM object |

Returns

(xmlfragnode *) output DOM, or `NULL` in a case of SAX or Stream output.

**See Also:**[XmlXvmSetOutputDom\(\)](#)

16.2.12 XmlXvmResetParams()

Resets the stylesheet top-level parameters with their default values.

Syntax

```
void XmlXvmResetParams(  
    xmlxvm *vm);
```

| Parameter | In/Out | Description |
|-----------|--------|-------------|
| vm | IN | VM object |

16.2.13 XmlXvmSetBaseURI()

Sets the base URI for the XSLTVM. The baseuri is used by VM to the compose the path XML documents to be loaded for transformation using `document` or `XmlXvmTransformFile`.

Syntax

```
xmlerr XmlXvmSetBaseURI(  
    xmlxvm *vm,  
    oratext *baseuri);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| vm | IN | VM object |
| baseuri | IN | VM base URI for reading and writing documents |

Returns

(xmlerr) error code.

16.2.14 XmlXvmSetBytecodeBuffer()

Set the compiled bytecode from buffer. Any previously set bytecode is replaced. An XML transformation can't be performed if the stylesheet bytecode is not set. The VM doesn't copy the bytecode into internal buffer, hence the it shouldn't be freed before VM finishes using it.

Syntax

```
xmlerr XmlXvmSetBytecodeBuffer(  
    xmlxvm *vm,
```

```
ub2 *buffer,  
size_t buflen);
```

| Parameter | In/Out | Description |
|-----------|--------|--------------------------|
| vm | IN | XSLT VM context |
| buffer | IN | user's buffer |
| buflen | IN | size of buffer, in bytes |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success



See Also:

[XmlXvmSetBytecodeFile\(\)](#), [XmlXvmSetBytecodeURI\(\)](#)

16.2.15 XmlXvmSetBytecodeFile()

Set the compiled bytecode from file. Any previously set bytecode is replaced. An XML transformation can't be performed if the stylesheet bytecode is not set.

Syntax

```
xmlerr XmlXvmSetBytecodeFile(  
    xmlxvm *vm,  
    oratext *path);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------|
| vm | IN | XSLT VM context |
| path | IN | path of bytecode file |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success



See Also:

[XmlXvmSetBytecodeURI\(\)](#), [XmlXvmSetBytecodeBuffer\(\)](#)

16.2.16 XmlXvmSetBytecodeURI()

Set the compiled bytecode from URI. Any previously set bytecode is replaced. An XML transformation can't be performed if the stylesheet bytecode is not set.

Syntax

```
xmlerr XmlXvmSetBytecodeURI(  
    xmlxvm *vm,  
    oratext *uri);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------|
| vm | IN | XSLT VM context |
| uri | IN | path of bytecode file |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success



See Also:

[XmlXvmSetBytecodeFile\(\)](#), [XmlXvmSetBytecodeBuffer\(\)](#)

16.2.17 XmlXvmSetDebugFunc()

The user callback function is invoked by VM every time the execution reaches a new line in the XSLT stylesheet. The VM passes to the user the stylesheet file name, the line number, the current context nodes-set and the current node index in the node-set. IMPORTANT - the stylesheet has to be compiled with flag XMLXVM_DEBUG.

Syntax

```
#define XMLXVM_DEBUG_FUNC(func)  
void func (ub2 line, oratext *filename, xvobj *obj, ub4 n)  
xmlerr XmlXvmSetDebugFunc(  
    xmlxvm *vm,  
    XMLXVM_DEBUG_FUNC(debugcallback));
```

| Parameter | In/Out | Description |
|-----------|--------|-------------------|
| vm | IN | XSLT VM context |
| func | IN | callback function |

Returns

(xmlerr) numeric error code, XMLERR_OK [0] on success

16.2.18 XmlXvmSetOutputDom()

Sets the XSLTVM to output DOM. If `xmlDocnode==NULL`, then the result DOM tree belongs to the VM object and is deleted when a new transformation is performed or when the VM object is deleted. If the result DOM tree is to be used for longer period of time then an `xmlDocnode` has to be created and set to the VM object.

Syntax

```
xmlerr XmlXvmSetOutputDom(
    xmlxvm *vm,
    xmlDocnode *doc);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------|
| vm | IN | VM object |
| doc | IN | empty document |

Returns

(`xmlerr`) error code

16.2.19 XmlXvmSetOutputEncoding()

Sets the encoding for the XSLTVM stream output. If the input (data) encoding is different from the one set by this APIs then encoding conversion is performed. This APIs overrides the encoding set in the XSLT stylesheet (if any).

Syntax

```
xmlerr XmlXvmSetOutputEncoding(
    xmlxvm *vm,
    oratext *encoding);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------|
| vm | IN | VM object |
| encoding | IN | output encoding |

Returns

(`xmlerr`) error code.

16.2.20 XmlXvmSetOutputSax()

Set XSLTVM to output SAX. If the SAX callback interface object is provided the VM outputs the result document in a form of SAX events using the user specified callback functions.

Syntax

```
xmlerr XmlXvmSetOutputSax(
    xmlxvm *vm,
    xmlsaxcb *saxcb,
    void *saxctx);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------------|
| vm | IN | VM object |
| saxcb | IN | SAX callback object |
| saxctx | IN | SAX context |

Returns

(xmlerr) error code

16.2.21 XmlXvmSetOutputStream()

Set the XSLTVM output to a user-defined stream. The default XSLTVM output is a stream. This APIs overrides the default stream with user specified APIs for writing.

Syntax

```
xmlerr XmlXvmSetOutputStream(
    xmlxvm *vm,
    xmlostream *ostream);
```

| Parameter | In/Out | Description |
|-----------|--------|---------------|
| vm | IN | VM object |
| ostream | IN | stream object |

Returns

(xmlerr) error code.

16.2.22 XmlXvmSetTextParam()

Set the stylesheet top-level text parameter. The parameter value set in the XSLT stylesheet is overwritten. Since the top-level parameters are reset with stylesheet values after each transformation, this APIs has to be called again.

Syntax

```
xmlerr XmlXvmSetTextParam(
    xmlxvm *vm,
    oratext *name,
    oratext *value);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------|
| vm | IN | VM object |
| name | IN | name of top-level parameter |
| value | IN | value of top-level parameter |

Returns

(xmlerr) error code, XMLERR_SUCC [0] on success.

16.2.23 XmlXvmTransformBuffer()

Run compiled XSLT stylesheet on XML document in memory. The compiled XSLT stylesheet (bytecode) should be set using `XmlXvmSetBytecodeXXX` prior to this call.

Syntax

```
xmlerr XmlXvmTransformBuffer(
    xmlxvm *vm,
    oratext *buffer,
    ub4 length,
    oratext *baseURI);
```

| Parameter | In/Out | Description |
|-----------|--------|---|
| vm | IN | VM object |
| buffer | IN | NULL-terminated buffer that contains the XML document |
| length | IN | length of the XML document |
| baseURI | IN | base URI of XML document |

Returns

(xmlerr) error code.

**See Also:**

[XmlXvmTransformFile\(\)](#), [XmlXvmTransformURI\(\)](#), [XmlXvmTransformDom\(\)](#)

16.2.24 XmlXvmTransformDom()

Run compiled XSLT stylesheet on XML document as DOM. The compiled XSLT stylesheet (bytecode) should be set using `XmlXvmSetBytecodeXXX` prior to this call.

Syntax

```
xmlerr XmlXvmTransformDom(
    xmlxvm *vm,
    xmlDocnode *root);
```

| Parameter | In/Out | Description |
|-----------|--------|------------------------------------|
| vm | IN | VM object |
| root | IN | root element of XML document's DOM |

Returns

(xmlerr) error code.

**See Also:**

[XmlXvmTransformFile\(\)](#), [XmlXvmTransformURI\(\)](#), [XmlXvmTransformBuffer\(\)](#)

16.2.25 XmlXvmTransformFile()

Run compiled XSLT stylesheet on XML document in file. The compiled XSLT stylesheet (bytecode) should be set using `XmlXvmSetBytecodeXXX` prior to this call.

Syntax

```
xmlerr XmlXvmTransformFile(
    xmlxvm *vm,
    oratext *path,
    oratext *baseURI);
```

| Parameter | In/Out | Description |
|-----------|--------|-----------------------------------|
| vm | IN | VM object |
| path | IN | path of XML document to transform |
| baseURI | IN | base URI of XML document |

Returns

(xmlerr) error code

**See Also:**

[XmlXvmTransformURI\(\)](#), [XmlXvmTransformBuffer\(\)](#), [XmlXvmTransformDom\(\)](#)

16.2.26 XmlXvmTransformURI()

Run compiled XSLT stylesheet on XML document from URI. The compiled XSLT stylesheet (bytecode) should be set using `XmlXvmSetBytecodeXXX` prior to this call.

Syntax

```
xmlerr XmlXvmTransformURI(  
    xmlxvm *vm,  
    oratext *uri);
```

| Parameter | In/Out | Description |
|-----------|--------|----------------------------------|
| vm | IN | VM object |
| uri | IN | URI of XML document to transform |

Returns

(xmlerr) error code.



See Also:

[XmlXvmTransformFile\(\)](#), [XmlXvmTransformBuffer\(\)](#), [XmlXvmTransformDom\(\)](#)

A

Mapping of APIs used before Oracle Database 10g Release 1

Here are the mappings between XML C APIs that were available in Oracle Database Oracle9i Release, and the current Unified XML C APIs that became available in subsequent Oracle Database.



See Also:

Format Models in *Oracle XML Developer's Kit Programmer's Guide*

A.1 C Package Changes

Pre-existing C APIs were available through the `oraxml` package. It had the following characteristics:

- Specification is limited to a one-to-one mapping between the xml context (`xmlctx`) and an xml document. Only one document can be accessed by DOM at any one time, however the data of multiple documents can be concurrent.
- The APIs are not always consistent, and don't always follow the declarations of the `xmlctx`.

In contrast, the new unified C APIs solve these problems:

- Multiple independent documents share the `xmlctx`.
- All APIs conform to the declarations of the `xmlctx`.
- Each document can be accessed simultaneously by DOM until explicitly destroyed by an `XmlDestroy()` call.

A.2 Initializing and Parsing Sequence Changes

The initialization and parsing of documents has changed in the Unified C API.

Example A-1 Initializing and Parsing Sequence for the Pre-Unified C API, One Document at a Time

The following pseudo-code demonstrates how to initialize and parse documents, one at a time, using the old C APIs. Contrast this with [Example A-2](#).

```
#include <oraxml.h>
uword err;
xmlctx *ctx = xmlinit(&err, options);
for (;;)
{
    err = xmlparse(ctx, URI, options);
    ...
}
```

```

    /* DOM operations */
    ...
    /* recycle memory from document */
    xmlclean(ctx);
}
xmlterm(ctx);

```

Example A-2 Initializing and Parsing Sequence for the Unified C API, One Document at a Time

The following pseudo-code demonstrates how to initialize and parse documents, one at a time, using the new C APIs. Contrast this with [Example A-1](#).

```

#include <xml.h>
xmlerr err;
xmlDocNode *doc;
xmlctx *xctx = XmlCreate(&err, options, NULL);
for (;;)
{
    doc = XmlLoadDom(xctx, &err, "URI", URI, NULL);
    ...
    /* DOM operations */
    ...
    XmlFreeDocument(xctx, doc);
}
XmlDestroy(xctx);

```

Example A-3 Initializing and Parsing Sequence for the Pre-Unified C API, Multiple Documents and Simultaneous DOM Access

The following pseudo-code demonstrates how to initialize and parse multiple documents with simultaneous DOM access using the old C APIs. Contrast this with [Example A-4](#).

```

xmlctx *ctx1 = xmlinitenc(&err, options);
xmlctx *ctx2 = xmlinitenc(&err, options);
err = xmlparse(ctx1, URI_1, options);
err = xmlparse(ctx2, URI_2, options);
...
/* DOM operations for both documents */
...
xmlterm(ctx1);
xmlterm(ctx2);

```

Example A-4 Initializing and Parsing Sequence for the Unified C API, Multiple Documents and Simultaneous DOM Access

The following pseudo-code example demonstrates how to initialize and parse multiple documents with simultaneous DOM access using the new C APIs. Contrast this with [Example A-3](#).

```

xmlDocNode *doc1;
xmlDocNode *doc2;
xmlctx *xctx = XmlCreate(&err, options, NULL);
doc1 = XmlLoadDom(xctx, &err, "URI", URI_1, NULL);
doc2 = XmlLoadDom(xctx, &err, "URI", URI_2, NULL);
...
/* DOM operations for both documents*/
...
XmlFreeDocument(xctx, doc1);
XmlFreeDocument(xctx, doc2);

```

```
...
XmlDestroy(xctx);
```

A.3 Datatype Mapping between oraxml and xml Packages

Table A-1 outlines the changes made to datatypes for the new C API.

Table A-1 Datatypes Supported by oraxml Package versus xml Package

| oraxml Supported Datatype | xml Supported Datatype |
|---------------------------|-----------------------------------|
| uword | xmlerr |
| xmlacctype | xmlurlacc |
| xmlattrnode | xmlattrnode |
| xmlcdatanode | xmlcdatanode |
| xmlcommentnode | xmlcommentnode |
| xmlctx | xmlctx |
| xmldocnode | xmldocnode |
| xmlDOMimp | Obsolete. Use xmlctx. |
| xmlDTDnode | xmlDTDnode |
| xmlelemnode | xmlelemnode |
| xmlentnode | xmlentnode |
| xmlentrefnode | xmlentrefnode |
| xmlflags | ub4 |
| xmlfragnode | xmlfragnode |
| xmlhdl | xmlurlhdl |
| xmlmemcb | Use individual function pointers. |
| xmlnode | xmlnode |
| xmlnodes | xmlodelist, xmlnamedmap |

Table A-1 (Cont.) Datatypes Supported by oraxml Package versus xml Package

| oraxml Supported Datatype | xml Supported Datatype |
|---------------------------|---|
| xmlnotenode | xmlnotenode |
| xmlntype | xmlnodetype |
| xmlepflags | ub4 |
| xmlepinode | xmlepinode |
| xmlepaxcb | xmlepaxcb |
| xmlstream | xmllistream, xmliostream |
| xmltextnode | xmltextnode |
| xpctx | xpctx |
| xpexpr | xpexpr |
| xpnset | Obsolete. Use XmlXPathGetObjectNSetsNum() and XmlXPathGetObjectNSetsNode(). |
| xpnsetele | Obsolete. Use XmlXPathGetObjectNSetsNum() and XmlXPathGetObjectNSetsNode(). |
| xpobj | xpobj |
| xpobjtyp | xmlxslobjtype |
| xslctx | xslctx |
| xsloutputmethod | xmlxsloutputmethod |

A.4 Method Mapping between oraxml and xml Packages

Table A-2 outlines the changes made to the methods of the new C API.

Table A-2 Methods of the oraxml Package versus the xml Package

| Package oraxml Method | Package xml Method(s) |
|-----------------------|-----------------------|
| appendChild() | XmlDomAppendChild() |
| appendData() | XmlDomAppendData() |

Table A-2 (Cont.) Methods of the oraxml Package versus the xml Package

| Package oraxml Method | Package xml Method(s) |
|--|--|
| <code>cloneNode()</code> | <code>XmlDomCloneNode()</code> |
| <code>createAttribute()</code> | <code>XmlDomCreateAttr()</code> |
| <code>createAttributeNS()</code> | <code>XmlDomCreateAttrNS()</code> |
| <code>createCDATASection()</code> | <code>XmlDomCreateCDATA()</code> |
| <code>createComment()</code> | <code>XmlDomCreateComment()</code> |
| <code>createDocument()</code> | <code>XmlCreateDocument()</code> |
| <code>createDocumentFragment()</code> | <code>XmlDomCreateFragment()</code> |
| <code>createDocumentNS()</code> | <code>XmlCreateDocument()</code> |
| <code>createDocumentType()</code> | <code>XmlCreateDTD()</code> |
| <code>createElement()</code> | <code>XmlDomCreateElem()</code> |
| <code>createElementNS()</code> | <code>XmlDomCreateElemNS()</code> |
| <code>createEntityReference()</code> | <code>XmlDomCreateEntityRef()</code> |
| <code>createProcessingInstruction()</code> | <code>XmlDomCreatePI()</code> |
| <code>createTextNode()</code> | <code>XmlDomCreateText()</code> |
| <code>deleteData()</code> | <code>XmlDomDeleteData()</code> |
| <code>freeElements()</code> | <code>XmlDomFreeNodeList()</code> |
| <code>getAttribute()</code> | <code>XmlDomGetAttr()</code> |
| <code>getAttributeIndex()</code> | <code>XmlDomGetAttrs(), XmlDomGetNodeMapItem()</code> |
| <code>getAttributeNode()</code> | <code>XmlDomGetAttrNode()</code> |
| <code>getAttributes()</code> | <code>XmlDomGetAttrs()</code> |
| <code>getAttrLocal()</code> | <code>XmlDomGetAttrLocal(), XmlDomGetAttrLocalLen()</code> |

Table A-2 (Cont.) Methods of the oraxml Package versus the xml Package

| Package oraxml Method | Package xml Method(s) |
|--------------------------|--|
| getAttrName() | XmlDomGetAttrName() |
| getAttrNamespace() | XmlDomGetAttrURI(), XmlDomGetAttrURILen() |
| getAttrPrefix() | XmlDomGetAttrPrefix() |
| getAttrQualifiedName() | XmlDomGetAttrName() |
| getAttrSpecified() | XmlDomGetAttrSpecified() |
| getAttrValue() | XmlDomGetAttrValue() |
| getCharData() | XmlDomGetCharData() |
| getChildNode() | XmlDomGetChildNode() |
| getChildNodes() | XmlDomGetChildNodes() |
| getContentModel() | XmlDomGetContentModel() |
| getDocType() | XmlDomGetDTD() |
| getDocTypeEntities() | XmlDomGetDTDEntities() |
| getDocTypeName() | XmlDomGetDTDName() |
| getDocTypeNotations() | XmlDomGetDTDNotations() |
| getDocument() | Obsolete; document returned by XmlLoadDom(<code>xml</code>) calls |
| getDocumentElement() | XmlDomGetDoctElem() |
| getElementById() | XmlDomGetElemById() |
| getElementsByTagName() | XmlDomGetElemsByTag() |
| getElementsByTagNameNS() | XmlDomGetElemsByTag() |
| getEncoding() | XmlDomGetEncoding() |
| getEntityNotation() | XmlDomGetEntityNotation() |

Table A-2 (Cont.) Methods of the oraxml Package versus the xml Package

| Package oraxml Method | Package xml Method(s) |
|------------------------|--|
| getEntityPubID() | XmlDomGetEntityPubID() |
| getEntitySysID() | XmlDomGetEntitySysID() |
| getFirstChild() | XmlDomGetFirstChild() |
| getImplementation() | Obsolete; use xmlctx instead of DOMImplementation |
| getLastChild() | XmlDomGetLastChild() |
| getNamedItem() | XmlDomGetNamedItem() |
| getNextSibling() | XmlDomGetNextSibling() |
| getNodeLocal() | XmlDomGetNodeLocal(), XmlDomGetNodeLocalLen() |
| getNodeMapLength() | XmlDomGetNodeMapLength() |
| getNodeName() | XmlDomGetNodeName(), XmlDomGetNodeNameLen() |
| getNodeNamespace() | XmlDomGetNodeURI(), XmlDomGetNodeURILen() |
| getNodePrefix() | XmlDomGetNodePrefix() |
| getNodeQualifiedName() | XmlDomGetNodedName(), XmlDomGetNodedNameLen() |
| getNodeType() | XmlDomGetNodeType() |
| getNodeValue() | XmlDomGetNodeValue(), XmlDomGetNodeValueLen() |
| getNotationPubID() | XmlDomGetNotationPubID() |
| getNotationSysID() | XmlDomGetNotationSysID() |
| getOwnerDocument() | XmlDomGetOwnerDocument() |
| getParentNode() | XmlDomGetParentNode() |
| getPIData() | XmlDomGetPIData() |
| getPITarget() | XmlDomGetPITarget() |

Table A-2 (Cont.) Methods of the oraxml Package versus the xml Package

| Package oraxml Method | Package xml Method(s) |
|------------------------------|------------------------------|
| getPreviousSibling() | XmlDomGetPrevSibling() |
| getTagName() | XmlDomGetTagName() |
| hasAttributes() | XmlDomHasAttrs() |
| hasChildNodes() | XmlDomHasChildNodes() |
| hasFeature() | XmlHasFeature() |
| importNode() | XmlDomImportNode() |
| insertBefore() | XmlDomInsertBefore() |
| insertData() | XmlDomInsertData() |
| isSingleChar() | XmlIsSimple() |
| isStandalone() | XmlDomGetDecl() |
| isUnicode() | XmlDomIsUnicode() |
| nodeValid() | XmlDomValidate() |
| normalize() | XmlDomNormalize() |
| numAttributes() | XmlDomNumAttrs() |
| numChildNodes() | XmlDomNumChildNodes() |
| prefixToURI() | XmlDomPrefixToURI() |
| printBuffer() | XmlSaveDomBuffer() |
| printBufferEnc() | XmlSaveDomBuffer() |
| printCallback() | XmlSaveDomStream() |
| printCallbackEnc() | XmlSaveDomStream() |
| printSize() | XmlSaveDomSize() |

Table A-2 (Cont.) Methods of the oraxml Package versus the xml Package

| Package oraxml Method | Package xml Method(s) |
|------------------------------|---|
| printSizeEnc() | XmlSaveDomSize() |
| printStream() | XmlSaveDomStdio() |
| printStreamEnc() | XmlSaveDomStdio() |
| removeAttribute() | XmlDomRemoveAttr() |
| removeAttributeNode() | XmlDomRemoveAttrNode() |
| removeChild() | XmlDomRemoveChild() |
| removeNamedItem() | XmlDomRemoveNamedItem() |
| replaceChild() | XmlDomReplaceChild() |
| replaceData() | XmlDomReplaceData() |
| saveString2() | XmlDomSaveString2() |
| saveString() | XmlDomSaveString() |
| setAttribute() | XmlDomSetAttr() |
| setAttributeNode() | XmlDomSetAttrNode() |
| setAttrValue() | XmlDomSetAttrValue() |
| setCharData() | XmlDomSetCharData() |
| setNamedItem() | XmlDomSetNamedItem() |
| setNodeValue() | XmlDomSetNodeValue(), XmlDomSetNodeValueLen() |
| setPIData() | XmlDomSetPIData() |
| splitText() | XmlDomSplitText() |
| substringData() | XmlDomSubstringData() |
| xmlaccess() | XmlAccess() |

Table A-2 (Cont.) Methods of the oraxml Package versus the xml Package

| Package oraxml Method | Package xml Method(s) |
|-----------------------|---|
| xmlinit() | XmlCreate() |
| xmlinitenc() | XmlCreate() |
| xmlparse() | XmlLoadDomURI() |
| xmlparsebuf() | XmlLoadDomBuffer() |
| xmlparsedtd() | Obsolete; use XML_LOAD_FLAG_DTD_ONLY flag in XmlLoadXXX() calls. |
| xmlparsefile() | XmlLoadDomFile() |
| xmlparsestream() | XmlLoadDomStream() |
| xmlterm() | XmlDestroy() |
| xpevalxpathexpr() | XmlXPathEval() |
| xpfreexpathctx() | XmlXPathDeleteCtx() |
| xpgetbooleanval() | XmlXPathGetObjectBoolean() |
| xpgetfirstnsetelem() | XmlXPathGetObjectNSetNum() |
| xpgetnextnsetelem() | XmlXPathGetObjectNSetNum() |
| xpgetnsetelemnode() | XmlXPathGetObjectNSetNum() |
| xpgetnsetval() | XmlXPathGetObjectNSetNum() |
| xpgetnumval() | XmlXPathGetObjectNumber() |
| xpgetrtfragval() | XmlXPathGetObjectFragment() |
| xpgetstrval() | XmlXPathGetObjectString() |
| xpgetxpobjtyp() | XmlXPathGetObjectType() |
| xpmakexpathctx() | XmlXPathCreateCtx() |
| xpparsexpathexpr() | XmlXPathParse() |

Table A-2 (Cont.) Methods of the oraxml Package versus the xml Package

| Package oraxml Method | Package xml Method(s) |
|------------------------------|------------------------------|
| xslgetbaseuri() | XmlXslGetBaseURI() |
| xslgetoutputdomctx() | XmlXslGetOutputDom() |
| xslgetoutputsax() | Unnecessary |
| xslgetoutputstream() | Unnecessary |
| xslgetresultdocfrag() | XmlXslGetOutputFragment() |
| xslgettextparam() | XmlXslGetTextParam() |
| xslgetxslctx() | Unnecessary |
| xslinit() | XmlXslCreateCtx() |
| xslprocess() | XmlXslProcess() |
| xslprocessex() | XmlXslProcess() |
| xslprocessxml() | XmlXslProcess() |
| xslprocessxmlfrag() | XmlXslProcess() |
| xslresetallparams() | XmlXslResetAllParams() |
| xslsetoutputdomctx() | XmlXslSetOutputDom() |
| xslsetoutputencoding() | XmlXslSetOutputEncoding() |
| xslsetoutputmethod() | XmlXslSetOutputMethod() |
| xslsetoutputsax() | XmlXslSetOutputSax() |
| xslsetoutputsaxctx() | XmlXslSetOutputSax() |
| xslsetoutputstream() | XmlXslSetOutputStream() |
| xslsettextparam() | XmlXslSetTextParam() |
| xslterm() | XmlXslDeleteCtx() |

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