ASN1C

ASN.1 Compiler
Version 7.3
XML Runtime
Reference Manual

Objective Systems, Inc. version 7.3 — January 2019

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C XML Runtime Library Functions

The **C run-time XML library** contains functions used to encode/decode XML data. These functions are identified by their *rtXml* prefixes.

The categories of functions provided are as follows:

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- Functions functions to encode C types to XML.
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  This function decodes the contents of an ASN.1 REAL type.
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  This function encodes a variable of the ASN.1 GeneralizedTime type.
- EXTERNXML int rtAsn1XmlEncUTCTime (OSCTXT *pctxt, const char *value, const OSUTF8CHAR *elemName, const OSUTF8CHAR *nsPrefix)

  This function encodes a variable of the ASN.1 UTCTime type.
- EXTERNXML int rtAsn1XmlEncObjId (OSCTXT *pctxt, const ASN1OBJID *pvalue, const OSUTF8CHAR *elemName, const OSUTF8CHAR *nsPrefix)

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  This function encodes a variable of the ASN.1 RELATIVE-OID type.

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  This function encodes a variable of the ASN.1 UNIVERSAL string type.
- EXTERNXML int rtAsn1XmlFmtAttrStr (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8CHAR *value, OSUTF8CHAR **pAttrStr)

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- EXTERNXML int rtAsn1XmlpDecRelOID (OSCTXT *pctxt, ASN1OBJID *pvalue)

  This function decodes the contents of an ASN.1 RELATIVE-OID type.

6.1.1 Detailed Description

6.1.2 Function Documentation

6.1.2.1 rtAsn1XmlAddAnyAttr()

```
EXTERNXML int rtAsn1XmlAddAnyAttr (
              OSCTXT * pctxt,
              const OSUTF8CHAR * name,
              const OSUTF8CHAR * value,
              OSRTDList * plist )
```

This function formats an attribute string and adds it to the attribute list.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
name	The name of the new attribute.
value	The value of the new attribute.
plist	The attribute list.

6.1.2.2 rtAsn1XmlEncGenTime()

```
EXTERNXML int rtAsn1XmlEncGenTime (
             OSCTXT * pctxt,
             const char * value,
             const OSUTF8CHAR * elemName,
             const OSUTF8CHAR * nsPrefix )
```

This function encodes a variable of the ASN.1 GeneralizedTime type.

It performs conversion from ASN.1 time format into the XML dateTime format.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
value	A pointer to a null-terminated C character string to be encoded. It should contain UTCTime in ASN.1 format.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
nsPrefix	XML namespace prefix. If not null, will be prepended to elemName to form a qualified name.

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

6.1.2.3 rtAsn1XmlEncObjId()

```
EXTERNXML int rtAsn1XmlEncObjId (
             OSCTXT * pctxt,
             const ASN1OBJID * pvalue,
             const OSUTF8CHAR * elemName,
             const OSUTF8CHAR * nsPrefix )
```

This function encodes a variable of the ASN.1 OBJECT IDENTIFIER type.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to an object identifier structure. This structure contains an integer to hold the number of subidentifers in the object and an array to hold the subidentifier values.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
nsPrefix	XML namespace prefix. If not null, will be prepended to elemName to form a qualified name.

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

6.1.2.4 rtAsn1XmlEncOpenType()

```
EXTERNXML int rtAsn1XmlEncOpenType (
             OSCTXT * pctxt,
             const OSOCTET * data,
             OSSIZE nocts,
             const OSUTF8CHAR * elemName,
             const OSUTF8CHAR * nsPrefix )
```

This function encodes a variable of the ASN.1 open type.

It copies the data as it exists in the structure to the encode buffer or stream.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
data	A pointer to a buffer containing the open type data.
nocts	Number of bytes in the data buffer to encode.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
nsPrefix	XML namespace prefix. If not null, will be prepended to elemName to form a qualified name.

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

6.1.2.5 rtAsn1XmlEncOpenTypeExt()

```
EXTERNXML int rtAsn1XmlEncOpenTypeExt (
             OSCTXT * pctxt,
             OSRTDList * pElemList )
```

This function encodes an ASN.1 open type extension.

This occurs in a SEQUENCE or SET type when a ... is present. The type is represented as a list of open type structures.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pElemList	Linked list of ASN.1 open type structures.

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

6.1.2.6 rtAsn1XmlEncReal()

```
EXTERNXML int rtAsn1XmlEncReal (
             OSCTXT * pctxt,
             OSREAL value,
             const OSUTF8CHAR * elemName,
             const OSUTF8CHAR * nsPrefix )
```

This function encodes a variable of the ASN.1 REAL type.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to OSREAL value.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
nsPrefix	XML namespace prefix. If not null, will be prepended to elemName to form a qualified name.

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

6.1.2.7 rtAsn1XmlEncRelOID()

```
EXTERNXML int rtAsn1XmlEncRelOID (
             OSCTXT * pctxt,
```

```
            const ASN1OBJID * pvalue,
            const OSUTF8CHAR * elemName,
            const OSUTF8CHAR * nsPrefix )
```

This function encodes a variable of the ASN.1 RELATIVE-OID type.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to an object identifier structure. This structure contains an integer to hold the number of subidentifers in the object and an array to hold the subidentifier values.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
nsPrefix	XML namespace prefix. If not null, will be prepended to elemName to form a qualified name.

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

6.1.2.8 rtAsn1XmlEncUnivStr()

```
EXTERNXML int rtAsn1XmlEncUnivStr (
            OSCTXT * pctxt,
            const OS32BITCHAR * value,
            OSSIZE nchars,
            const OSUTF8CHAR * elemName,
            OSXMLNamespace * pNS )
```

This function encodes a variable of the ASN.1 UNIVERSAL string type.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
value	Array of universal characters to be encoded. Each character is represented as a 32-bit integer.
nchars	Number of characters to encode.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

6.1.2.9 rtAsn1XmlEncUTCTime()

```
EXTERNXML int rtAsn1XmlEncUTCTime (
             OSCTXT * pctxt,
             const char * value,
             const OSUTF8CHAR * elemName,
             const OSUTF8CHAR * nsPrefix )
```

This function encodes a variable of the ASN.1 UTCTime type.

It performs conversion from ASN.1 time format into the XML dateTime format.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
value	A pointer to a null-terminated C character string to be encoded. It should contain UTCTime in ASN.1 format.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
nsPrefix	XML namespace prefix. If not null, will be prepended to elemName to form a qualified name.

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

6.1.2.10 rtAsn1XmlFmtAttrStr()

```
EXTERNXML int rtAsn1XmlFmtAttrStr (
             OSCTXT * pctxt,
             const OSUTF8CHAR * name,
             const OSUTF8CHAR * value,
             OSUTF8CHAR ** pAttrStr )
```

This function formats a name-value XML pair into a name="value" attribute string.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
name	A pointer to an XML element name. A name must be provided.
value	A pointer to the corresponding element value.
pAttrStr	The resulting name="value" string.

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

6.1.2.11 rtAsn1XmlParseAttrStr()

```
EXTERNXML int rtAsn1XmlParseAttrStr (
             OSCTXT * pctxt,
             const OSUTF8CHAR * pAttrStr,
             OSUTF8NVP * pNVPair )
```

This function parses an XML name-value pair from an attribute string.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pAttrStr	The name-value string to be parsed.
pNVPair	A pointer to an XML name-value pair structure filled in by invoking this method.

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

6.1.2.12 rtAsn1XmlpDecDynBitStr()

```
EXTERNXML int rtAsn1XmlpDecDynBitStr (
             OSCTXT * pctxt,
             ASN1DynBitStr * pvalue )
```

This function decodes a bit string value.

The string consists of a series of '1' and '0' characters. This is the dynamic version in which memory is allocated for the returned binary string variable. Bits are stored from MSB to LSB order.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to a variable to receive the decoded value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.1.2.13 rtAsn1XmlpDecDynBitStr64()

```
EXTERNXML int rtAsn1XmlpDecDynBitStr64 (
             OSCTXT * pctxt,
             ASN1DynBitStr64 * pvalue )
```

This function decodes a bit string value.

The string consists of a series of '1' and '0' characters. This is the dynamic version in which memory is allocated for the returned binary string variable. Bits are stored from MSB to LSB order.

This version of the function can hold strings with lengths up to 64 bits in size.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to a variable to receive the decoded value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.1.2.14 rtAsn1XmlpDecGenTime()

```
EXTERNXML int rtAsn1XmlpDecGenTime (
             OSCTXT * pctxt,
             const char ** outdata )
```

This function decodes the contents of an ASN.1 Generalized type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser. The encoding is expected to be in xsd:dateTime format (not in the XER format).

Parameters

pctxt	Pointer to context block structure.
outdata	Pointer to a pointer to receive decoded UTF-8 string. Memory is allocated for this string using the run-time memory manager.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.1.2.15 rtAsn1XmlpDecObjId()

```
EXTERNXML int rtAsn1XmlpDecObjId (
             OSCTXT * pctxt,
             ASN1OBJID * pvalue )
```

This function decodes the contents of an ASN.1 OBJECT IDENTIFIER type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to ASN.1 object identifier value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.1.2.16 rtAsn1XmlpDecOpenType()

```
EXTERNXML int rtAsn1XmlpDecOpenType (
             OSCTXT * pctxt,
             ASN1OpenType * pOpenType )
```

This function decodes a variable of the ASN.1 open type.

If the XML open type is in the form of an xmlhstring (see X.681, clause 14.6), it is converted to binary forma and stored in the open type structure. Otherwise, the textual representation is saved as-is.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pOpenType	A pointer to an open type structure to receive the decoded data.

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

6.1.2.17 rtAsn1XmlpDecReal()

```
EXTERNXML int rtAsn1XmlpDecReal (
             OSCTXT * pctxt,
             OSREAL * pvalue )
```

This function decodes the contents of an ASN.1 REAL type.

Input is expected to be returned by an XML pull parser.

This method recognizes the basic-XER encoding for a REAL, which consists of the elements <PLUS-INFINITY/>, <MINUS-INFINITY/>, and <NOT-A-NUMBER/>, and realnumber with an optional negative sign.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to OSREAL to value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,

- negative return value is error.

6.1.2.18 rtAsn1XmlpDecRelOID()

```
EXTERNXML int rtAsn1XmlpDecRelOID (
             OSCTXT * pctxt,
             ASN1OBJID * pvalue )
```

This function decodes the contents of an ASN.1 RELATIVE-OID type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to ASN.1 object identifier value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.1.2.19 rtAsn1XmlpDecUnivStr()

```
EXTERNXML int rtAsn1XmlpDecUnivStr (
             OSCTXT * pctxt,
             const OS32BITCHAR ** ppdata,
             OSSIZE * pnchars )
```

This function decodes the contents of an ASN.1 UNIVERSAL string type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
ppdata	Pointer to 32-bit character string value to receive decoded result.
pnchars	Pointer to length value to recieve decoded length in characters.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.1.2.20 rtAsn1XmlpDecUTCTime()

```
EXTERNXML int rtAsn1XmlpDecUTCTime (
             OSCTXT * pctxt,
             const char ** outdata )
```

This function decodes the contents of an ASN.1 UTCTime type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser. The encoding is expected to be in xsd:dateTime format (not in the XER format).

Parameters

pctxt	Pointer to context block structure.
outdata	Pointer to a pointer to receive decoded UTF-8 string. Memory is allocated for this string using the run-time memory manager.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.1.2.21 rtXmlpDecListOfASN1DynBitStr()

```
EXTERNXML int rtXmlpDecListOfASN1DynBitStr (
             OSCTXT * pctxt,
             OSRTDList * plist )
```

This function decodes a list of space-separated bit strings and returns each bit string as a separate item on the given list.

The string consists of a series of '1' and '0' characters. Memory is allocated for the list nodes and token values using the rtx memory management functions. Bits are stored from MSB to LSB order.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
plist	A pointer to a linked list structure to which the parsed bit string values will be added.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2 XML decode functions.

Functions

- EXTERNXML int rtXmlDecBase64Binary (OSRTMEMBUF *pMemBuf, const OSUTF8CHAR *inpdata, OSSIZE length)

  This function decodes the contents of a Base64-encoded binary data type into a memory buffer.
- EXTERNXML int rtXmlDecBase64Str (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, OSINT32 bufsize)

  This function decodes a contents of a Base64-encode binary string into a static memory structure.
- EXTERNXML int rtXmlDecBase64Str64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, OSSIZE bufsize)

  This function is identical to rtXmlDecBase64Str except that is supports a 64-bit integer length on 64-bit systems.
- EXTERNXML int rtXmlDecBase64StrValue (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, OSSIZE bufSize, OSSIZE srcDataLen)

  This function decodes a contents of a Base64-encode binary string into the specified octet array.
- EXTERNXML int rtXmlDecBase64StrValue64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, OSSIZE bufSize, OSSIZE srcDataLen)

  This function decodes is identical to rtXmlDecBase64StrValue except that it supports a 64-bit integer length on 64-bit systems.
- EXTERNXML int rtXmlDecBigInt (OSCTXT *pctxt, const OSUTF8CHAR **ppvalue)

  This function will decode a variable of the XSD integer type.
- EXTERNXML int rtXmlDecBool (OSCTXT *pctxt, OSBOOL *pvalue)

  This function decodes a variable of the boolean type.
- EXTERNXML int rtXmlDecDate (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'date' type.
- EXTERNXML int rtXmlDecTime (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'time' type.
- EXTERNXML int rtXmlDecDateTime (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'dateTime' type.
- EXTERNXML int rtXmlDecDecimal (OSCTXT *pctxt, OSREAL *pvalue)

  This function decodes the contents of a decimal data type.
- EXTERNXML int rtXmlDecDouble (OSCTXT *pctxt, OSREAL *pvalue)

  This function decodes the contents of a float or double data type.
- EXTERNXML int rtXmlDecDynBase64Str (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a contents of a Base64-encode binary string.
- EXTERNXML int rtXmlDecDynBase64Str64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)

  This function is identical to rtXmlDecDynBase64Str except that it supports a 64-bit integer length on 64-bit systems.
- EXTERNXML int rtXmlDecDynHexStr (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a contents of a hexBinary string.
- EXTERNXML int rtXmlDecDynHexStr64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)

  This function is identical to rtXmlDecDynHexStr except that it supports a 64-bit integer length on 64-bit systems.
- EXTERNXML int rtXmlDecEmptyElement (OSCTXT *pctxt)

  This function is used to enforce a requirement that an element be empty.
- EXTERNXML int rtXmlDecUTF8Str (OSCTXT *pctxt, OSUTF8CHAR *outdata, OSSIZE max_len)

  This function decodes the contents of a UTF-8 string data type.
- EXTERNXML int rtXmlDecDynUTF8Str (OSCTXT *pctxt, const OSUTF8CHAR **outdata)

This function decodes the contents of a UTF-8 string data type.

- EXTERNXML int rtXmlDecHexBinary (OSRTMEMBUF *pMemBuf, const OSUTF8CHAR *inpdata, OSSIZE length)

  This function decodes the contents of a hex-encoded binary data type into a memory buffer.
- EXTERNXML int rtXmlDecHexStr (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, OSINT32 bufsize)

  This function decodes the contents of a hexBinary string into a static memory structure.
- EXTERNXML int rtXmlDecHexStr64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, OSSIZE bufsize)

  This function is identical to rtXmlDecHexStr except that it supports a 64-bit integer length on 64-bit systems.
- EXTERNXML int **rtXmlDecHexStrValue** (OSCTXT *pctxt, const OSUTF8CHAR *const inpdata, OSSIZE nbytes, OSOCTET *pvalue, OSUINT32 *pnbits, OSINT32 bufsize)
- EXTERNXML int **rtXmlDecHexStrValue64** (OSCTXT *pctxt, const OSUTF8CHAR *const inpdata, OSSIZE nbytes, OSOCTET *pvalue, OSSIZE *pnbits, OSSIZE bufsize)
- EXTERNXML int rtXmlDecGYear (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gYear' type.
- EXTERNXML int rtXmlDecGYearMonth (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gYearMonth' type.
- EXTERNXML int rtXmlDecGMonth (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gMonth' type.
- EXTERNXML int rtXmlDecGMonthDay (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gMonthDay' type.
- EXTERNXML int rtXmlDecGDay (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gDay' type.
- EXTERNXML int rtXmlDecInt (OSCTXT *pctxt, OSINT32 *pvalue)

  This function decodes the contents of a 32-bit integer data type.
- EXTERNXML int rtXmlDecInt8 (OSCTXT *pctxt, OSINT8 *pvalue)

  This function decodes the contents of an 8-bit integer data type (i.e.
- EXTERNXML int rtXmlDecInt16 (OSCTXT *pctxt, OSINT16 *pvalue)

  This function decodes the contents of a 16-bit integer data type.
- EXTERNXML int rtXmlDecInt64 (OSCTXT *pctxt, OSINT64 *pvalue)

  This function decodes the contents of a 64-bit integer data type.
- EXTERNXML int rtXmlDecUInt (OSCTXT *pctxt, OSUINT32 *pvalue)

  This function decodes the contents of an unsigned 32-bit integer data type.
- EXTERNXML int rtXmlDecUInt8 (OSCTXT *pctxt, OSUINT8 *pvalue)

  This function decodes the contents of an unsigned 8-bit integer data type (i.e.
- EXTERNXML int rtXmlDecUInt16 (OSCTXT *pctxt, OSUINT16 *pvalue)

  This function decodes the contents of an unsigned 16-bit integer data type.
- EXTERNXML int rtXmlDecUInt64 (OSCTXT *pctxt, OSUINT64 *pvalue)

  This function decodes the contents of an unsigned 64-bit integer data type.
- EXTERNXML int rtXmlDecNSAttr (OSCTXT *pctxt, const OSUTF8CHAR *attrName, const OSUTF8CHAR *attrValue, OSRTDList *pNSAttrs, const OSUTF8CHAR *nsTable[ ], OSUINT32 nsTableRowCount)

  This function decodes an XML namespac attribute (xmlns).
- EXTERNXML const OSUTF8CHAR * rtXmlDecQName (OSCTXT *pctxt, const OSUTF8CHAR *qname, const OSUTF8CHAR **prefix)

  This function decodes an XML qualified name string (QName) type.
- EXTERNXML int rtXmlDecXSIAttr (OSCTXT *pctxt, const OSUTF8CHAR *attrName, const OSUTF8CHAR *attrValue)

  This function decodes XML schema instance (XSI) attribute.
- EXTERNXML int rtXmlDecXSIAttrs (OSCTXT *pctxt, const OSUTF8CHAR *const *attrs, const char *typeName)

This function decodes XML schema instance (XSI) attributes.

- EXTERNXML int rtXmlDecXmlStr (OSCTXT *pctxt, OSXMLSTRING *outdata)

  This function decodes the contents of an XML string data type.

- EXTERNXML int rtXmlParseElementName (OSCTXT *pctxt, OSUTF8CHAR **ppName)

  This function parses the initial tag from an XML message.

- EXTERNXML int rtXmlParseElemQName (OSCTXT *pctxt, OSXMLQName *pQName)

  This function parses the initial tag from an XML message.

6.2.1 Detailed Description

6.2.2 Function Documentation

6.2.2.1 rtXmlDecBase64Binary()

```
EXTERNXML int rtXmlDecBase64Binary (
             OSRTMEMBUF * pMemBuf,
             const OSUTF8CHAR * inpdata,
             OSSIZE length )
```

This function decodes the contents of a Base64-encoded binary data type into a memory buffer.

Input is expected to be a string of UTF-8 characters returned by an XML parser. The decoded data will be put into the memory buffer starting from the current position and bit offset. After all data is decoded the octet string may be fetched out.

This function is normally used in the 'characters' SAX handler.

Parameters

pMemBuf	Memory buffer to which decoded binary data is to be appended.
inpdata	Pointer to a source string to be decoded.
length	Length of the source string (in characters).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.2 rtXmlDecBase64Str()

```
EXTERNXML int rtXmlDecBase64Str (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSUINT32 * pnocts,
             OSINT32 bufsize )
```

This function decodes a contents of a Base64-encode binary string into a static memory structure.

The octet string must be Base64 encoded. This function call is used to decode a sized base64Binary string production.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a variable to receive the decoded bit string. This is assumed to be a static array large enough to hold the number of octets specified in the bufsize input parameter.
pnocts	A pointer to an integer value to receive the decoded number of octets.
bufsize	The size (in octets) of the sized octet string. An error will occur if the number of octets in the decoded string is larger than this value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.3 rtXmlDecBase64Str64()

```
EXTERNXML int rtXmlDecBase64Str64 (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSSIZE * pnocts,
             OSSIZE bufsize )
```

This function is identical to rtXmlDecBase64Str except that is supports a 64-bit integer length on 64-bit systems.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a variable to receive the decoded bit string. This is assumed to be a static array large enough to hold the number of octets specified in the bufsize input parameter.
pnocts	A pointer to an integer value to receive the decoded number of octets.
bufsize	The size (in octets) of the sized octet string. An error will occur if the number of octets in the decoded string is larger than this value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.4 rtXmlDecBase64StrValue()

```
EXTERNXML int rtXmlDecBase64StrValue (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSUINT32 * pnocts,
             OSSIZE bufSize,
             OSSIZE srcDataLen )
```

This function decodes a contents of a Base64-encode binary string into the specified octet array.

The octet string must be Base64 encoded. This function call is used internally to decode both sized and non-sized base64binary string production.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a variable to receive the decoded bit string. This is assumed to be a static array large enough to hold the number of octets specified in the bufsize input parameter.
pnocts	A pointer to an integer value to receive the decoded number of octets.
bufSize	A maximum size (in octets) of `pvalue` buffer. An error will occur if the number of octets in the decoded string is larger than this value.
srcDataLen	An actual source data length (in octets) without whitespaces.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.5 rtXmlDecBase64StrValue64()

```
EXTERNXML int rtXmlDecBase64StrValue64 (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
```

```
            OSSIZE * pnocts,
            OSSIZE bufSize,
            OSSIZE srcDataLen )
```

This function decodes is identical to rtXmlDecBase64StrValue except that it supports a 64-bit integer length on 64-bit systems.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a variable to receive the decoded bit string. This is assumed to be a static array large enough to hold the number of octets specified in the bufsize input parameter.
pnocts	A pointer to an integer value to receive the decoded number of octets.
bufSize	A maximum size (in octets) of `pvalue` buffer. An error will occur if the number of octets in the decoded string is larger than this value.
srcDataLen	An actual source data length (in octets) without whitespaces.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.6 rtXmlDecBigInt()

```
EXTERNXML int rtXmlDecBigInt (
            OSCTXT * pctxt,
            const OSUTF8CHAR ** ppvalue )
```

This function will decode a variable of the XSD integer type.

In this case, the integer is assumed to be of a larger size than can fit in a C or C++ long type (normally 32 or 64 bits). For example, parameters used to calculate security values are typically larger than these sizes.

These variables are stored in character string constant variables. The radix should be 10. If it is necessary to convert to another radix, then use rtxBigIntSetStr or rtxBigIntToString functions.

Parameters

pctxt	Pointer to context block structure.
ppvalue	Pointer to a pointer to receive decoded UTF-8 string. Dynamic memory is allocated for the variable using the rtMemAlloc function. The decoded variable is represented as a string starting with appropriate prefix.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.7 rtXmlDecBool()

```
EXTERNXML int rtXmlDecBool (
             OSCTXT * pctxt,
             OSBOOL * pvalue )
```

This function decodes a variable of the boolean type.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to a variable to receive the decoded boolean value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.8 rtXmlDecDate()

```
EXTERNXML int rtXmlDecDate (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'date' type.

Input is expected to be a string of characters returned by an XML parser. The string should have CCYY-MM-DD format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.9 rtXmlDecDateTime()

```
EXTERNXML int rtXmlDecDateTime (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'dateTime' type.

Input is expected to be a string of characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.10 rtXmlDecDecimal()

```
EXTERNXML int rtXmlDecDecimal (
             OSCTXT * pctxt,
             OSREAL * pvalue )
```

This function decodes the contents of a decimal data type.

Input is expected to be a string of characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 64-bit double value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.11 rtXmlDecDouble()

```
EXTERNXML int rtXmlDecDouble (
             OSCTXT * pctxt,
             OSREAL * pvalue )
```

This function decodes the contents of a float or double data type.

Input is expected to be a string of characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 64-bit double value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.12 rtXmlDecDynBase64Str()

```
EXTERNXML int rtXmlDecDynBase64Str (
             OSCTXT * pctxt,
             OSDynOctStr * pvalue )
```

This function decodes a contents of a Base64-encode binary string.

The octet string must be Base64 encoded. This function will allocate dynamic memory to store the decoded result.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a dynamic octet string structure to receive the decoded octet string. Dynamic memory is allocated to hold the string using the ::rtxMemAlloc function.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.13 rtXmlDecDynBase64Str64()

```
EXTERNXML int rtXmlDecDynBase64Str64 (
             OSCTXT * pctxt,
             OSDynOctStr64 * pvalue )
```

This function is identical to rtXmlDecDynBase64Str except that it supports a 64-bit integer length on 64-bit systems.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a dynamic octet string structure to receive the decoded octet string. Dynamic memory is allocated to hold the string using the ::rtxMemAlloc function.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.14 rtXmlDecDynHexStr()

```
EXTERNXML int rtXmlDecDynHexStr (
             OSCTXT * pctxt,
             OSDynOctStr * pvalue )
```

This function decodes a contents of a hexBinary string.

This function will allocate dynamic memory to store the decoded result.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a dynamic octet string structure to receive the decoded octet string. Dynamic memory is allocated to hold the string using the ::rtxMemAlloc function.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.15 rtXmlDecDynHexStr64()

```
EXTERNXML int rtXmlDecDynHexStr64 (
             OSCTXT * pctxt,
             OSDynOctStr64 * pvalue )
```

This function is identical to rtXmlDecDynHexStr except that it supports a 64-bit integer length on 64-bit systems.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a dynamic octet string structure to receive the decoded octet string. Dynamic memory is allocated to hold the string using the ::rtxMemAlloc function.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.16 rtXmlDecDynUTF8Str()

```
EXTERNXML int rtXmlDecDynUTF8Str (
             OSCTXT * pctxt,
             const OSUTF8CHAR ** outdata )
```

This function decodes the contents of a UTF-8 string data type.

Input is expected to be a string of UTF-8 or Unicode characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
outdata	Pointer to a pointer to receive decoded UTF-8 string. Memory is allocated for this string using the run-time memory manager.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.17 rtXmlDecEmptyElement()

```
EXTERNXML int rtXmlDecEmptyElement (
             OSCTXT * pctxt )
```

This function is used to enforce a requirement that an element be empty.

An error is returned in the current element has any element or character children. The last event must be the start tag.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.18 rtXmlDecGDay()

```
EXTERNXML int rtXmlDecGDay (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'gDay' type.

Input is expected to be a string of characters returned by an XML parser. The string should have —DD[-+hh:mm|Z] format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.19 rtXmlDecGMonth()

```
EXTERNXML int rtXmlDecGMonth (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'gMonth' type.

Input is expected to be a string of characters returned by an XML parser. The string should have –MM[-+hh:mm|Z] format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.20 rtXmlDecGMonthDay()

```
EXTERNXML int rtXmlDecGMonthDay (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'gMonthDay' type.

Input is expected to be a string of characters returned by an XML parser. The string should have –MM-DD[-+hh:mm|Z] format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.21 rtXmlDecGYear()

```
EXTERNXML int rtXmlDecGYear (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'gYear' type.

Input is expected to be a string of characters returned by an XML parser. The string should have CCYY[-+hh:mm|Z] format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.22 rtXmlDecGYearMonth()

```
EXTERNXML int rtXmlDecGYearMonth (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'gYearMonth' type.

Input is expected to be a string of characters returned by an XML parser. The string should have CCYY-MM[-+hh:mm|Z] format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.23 rtXmlDecHexBinary()

```
EXTERNXML int rtXmlDecHexBinary (
             OSRTMEMBUF * pMemBuf,
             const OSUTF8CHAR * inpdata,
             OSSIZE length )
```

This function decodes the contents of a hex-encoded binary data type into a memory buffer.

Input is expected to be a string of UTF-8 characters returned by an XML parser. The decoded data will be put into the given memory buffer starting from the current position and bit offset. After all data is decoded the octet string may be fetched out.

This function is normally used in the 'characters' SAX handler.

Parameters

pMemBuf	Pointer to memory buffer onto which the decoded binary data will be appended.
inpdata	Pointer to a source string to be decoded.
length	Length of the source string (in characters).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.24 rtXmlDecHexStr()

```
EXTERNXML int rtXmlDecHexStr (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSUINT32 * pnocts,
             OSINT32 bufsize )
```

This function decodes the contents of a hexBinary string into a static memory structure.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a variable to receive the decoded bit string. This is assumed to be a static array large enough to hold the number of octets specified in the bufsize input parameter.
pnocts	A pointer to an integer value to receive the decoded number of octets.
bufsize	The size (in octets) of the sized octet string. An error will occur if the number of octets in the decoded string is larger than this value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.25 rtXmlDecHexStr64()

```
EXTERNXML int rtXmlDecHexStr64 (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSSIZE * pnocts,
             OSSIZE bufsize )
```

This function is identical to rtXmlDecHexStr except that it supports a 64-bit integer length on 64-bit systems.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a variable to receive the decoded bit string. This is assumed to be a static array large enough to hold the number of octets specified in the bufsize input parameter.
pnocts	A pointer to an integer value to receive the decoded number of octets.
bufsize	The size (in octets) of the sized octet string. An error will occur if the number of octets in the decoded string is larger than this value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.26 rtXmlDecInt()

```
EXTERNXML int rtXmlDecInt (
             OSCTXT * pctxt,
             OSINT32 * pvalue )
```

This function decodes the contents of a 32-bit integer data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 32-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.27 rtXmlDecInt16()

```
EXTERNXML int rtXmlDecInt16 (
             OSCTXT * pctxt,
             OSINT16 * pvalue )
```

This function decodes the contents of a 16-bit integer data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 16-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.28 rtXmlDecInt64()

```
EXTERNXML int rtXmlDecInt64 (
             OSCTXT * pctxt,
             OSINT64 * pvalue )
```

This function decodes the contents of a 64-bit integer data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 64-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.29 rtXmlDecInt8()

```
EXTERNXML int rtXmlDecInt8 (
             OSCTXT * pctxt,
             OSINT8 * pvalue )
```

This function decodes the contents of an 8-bit integer data type (i.e.

a signed byte type in the range of -128 to 127). Input is expected to be a string of OSUTF8CHAR characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 8-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.30 rtXmlDecNSAttr()

```
EXTERNXML int rtXmlDecNSAttr (
             OSCTXT * pctxt,
             const OSUTF8CHAR * attrName,
             const OSUTF8CHAR * attrValue,
             OSRTDList * pNSAttrs,
             const OSUTF8CHAR * nsTable[],
             OSUINT32 nsTableRowCount )
```

This function decodes an XML namespac attribute (xmlns).

It is assumed that the given attribute name is either 'xmlns' or 'xmlns:prefix'. The XML namespace prefix and URI are added to the given attribute list structure. The parsed namespace is also added to the namespace stack in the given context.

Parameters

pctxt	Pointer to context structure.
attrName	Name of the XML namespace attribute. This is assumed to contain either 'xmlns' (a default namespace declaration) or 'xmlns:prefix' where prefix is a namespace prefix.
attrValue	XML namespace attribute value (a URI).
pNSAttrs	List to receive parsed namespace values.
nsTable	Namespace URI's parsed from schema.
nsTableRowCount	Number of rows (URI's) in namespace table.

Returns

Zero if success or negative error code.

6.2.2.31 rtXmlDecQName()

```
EXTERNXML const OSUTF8CHAR* rtXmlDecQName (
             OSCTXT * pctxt,
             const OSUTF8CHAR * qname,
             const OSUTF8CHAR ** prefix )
```

This function decodes an XML qualified name string (QName) type.

This is a type that contains an optional namespace prefix followed by a colon and the local part of the name:

[NS 5] QName ::= (Prefix ':')? LocalPart

[NS 6] Prefix ::= NCName

[NS 7] LocalPart ::= NCName

Parameters

pctxt	Pointer to context block structure.
qname	String containing XML QName to be decoded.
prefix	Pointer to string pointer to receive decoded prefix. This is optional. If NULL, the prefix will not be returned. If not-NULL, the prefix will be returned in memory allocated using `rtxMemAlloc` which must be freed using one of the `rtxMemFree` functions.

Returns

Pointer to local part of string. This is pointer to a location within the given string (i.e. a pointer to the character after the ':' or to the beginning of the string if it contains no colon). This pointer does not need to be freed.

6.2.2.32 rtXmlDecTime()

```
EXTERNXML int rtXmlDecTime (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'time' type.

Input is expected to be a string of characters returned by an XML parser. The string should have one of following formats:

```
(1) hh-mm-ss.ss  used if tz_flag = false
(2) hh-mm-ss.ssZ used if tz_flag = false and tzo = 0
(3) hh-mm-ss.ss+HH:MM if tz_flag = false and tzo > 0
(4) hh-mm-ss.ss-HH:MM-HH:MM
                      if tz_flag = false and tzo < 0
```

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.33 rtXmlDecUInt()

```
EXTERNXML int rtXmlDecUInt (
             OSCTXT * pctxt,
             OSUINT32 * pvalue )
```

This function decodes the contents of an unsigned 32-bit integer data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to unsigned 32-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.34 rtXmlDecUInt16()

```
EXTERNXML int rtXmlDecUInt16 (
             OSCTXT * pctxt,
             OSUINT16 * pvalue )
```

This function decodes the contents of an unsigned 16-bit integer data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to unsigned 16-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.35 rtXmlDecUInt64()

```
EXTERNXML int rtXmlDecUInt64 (
             OSCTXT * pctxt,
             OSUINT64 * pvalue )
```

This function decodes the contents of an unsigned 64-bit integer data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to unsigned 64-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.36 rtXmlDecUInt8()

```
EXTERNXML int rtXmlDecUInt8 (
             OSCTXT * pctxt,
             OSUINT8 * pvalue )
```

This function decodes the contents of an unsigned 8-bit integer data type (i.e.

a signed byte type in the range of 0 to 255). Input is expected to be a string of OSUTF8CHAR characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to unsigned 8-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.37 rtXmlDecUTF8Str()

```
EXTERNXML int rtXmlDecUTF8Str (
             OSCTXT * pctxt,
             OSUTF8CHAR * outdata,
             OSSIZE max_len )
```

This function decodes the contents of a UTF-8 string data type.

Input is expected to be a string of UTF-8 or Unicode characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
outdata	Pointer to a block of memory to receive decoded UTF8 string.
max_len	Size of memory block.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.38 rtXmlDecXmlStr()

```
EXTERNXML int rtXmlDecXmlStr (
             OSCTXT * pctxt,
             OSXMLSTRING * outdata )
```

This function decodes the contents of an XML string data type.

This type contains a pointer to a UTF-8 characer string plus flags that can be set to alter the encoding of the string (for example, the cdata flag allows the string to be encoded in a CDATA section). Input is expected to be a string of UTF-8 characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
outdata	Pointer to an XML string structure to receive the decoded string. Memory is allocated for the string using the run-time memory manager.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.39 rtXmlDecXSIAttr()

```
EXTERNXML int rtXmlDecXSIAttr (
             OSCTXT * pctxt,
             const OSUTF8CHAR * attrName,
             const OSUTF8CHAR * attrValue )
```

This function decodes XML schema instance (XSI) attribute.

These attributes include the XSI namespace declaration, the XSD schema location attribute, and the XSD no namespace schema location attribute.

Parameters

pctxt	Pointer to context block structure.
attrName	Attribute's name to be decoded
attrValue	Attribute's value to be decoded

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.40 rtXmlDecXSIAttrs()

```
EXTERNXML int rtXmlDecXSIAttrs (
             OSCTXT * pctxt,
             const OSUTF8CHAR *const * attrs,
             const char * typeName )
```

This function decodes XML schema instance (XSI) attributes.

These attributes include the XSI namespace declaration, the XSD schema location attribute, and the XSD no namespace schema location attribute.

Parameters

pctxt	Pointer to context block structure.
attrs	Attributes-values array [attr, value]. Should be null-terminated.
typeName	Name of parent type to add in error log, if would be necessary.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.41 rtXmlParseElementName()

```
EXTERNXML int rtXmlParseElementName (
             OSCTXT * pctxt,
             OSUTF8CHAR ** ppName )
```

This function parses the initial tag from an XML message.

If the tag is a QName, only the local part of the name is returned.

Parameters

pctxt	Pointer to OSCTXT structure
ppName	Pointer to a pointer to receive decoded UTF-8 string. Dynamic memory is allocated for the variable using the rtxMemAlloc function.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.2.2.42 rtXmlParseElemQName()

```
EXTERNXML int rtXmlParseElemQName (
             OSCTXT * pctxt,
             OSXMLQName * pQName )
```

This function parses the initial tag from an XML message.

Parameters

pctxt	Pointer to OSCTXT structure
pQName	Pointer to a QName structure to receive parsed name prefix and local name. Dynamic memory is allocated for both name parts using the rtxMemAlloc function.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3 XML encode functions.

Macros

- #define **rtxPrintNSAttrs**(name, data) rtXmlPrintNSAttrs(name,&data)
- #define **rtXmlFinalizeMemBuf**(pMemBuf)
- #define rtXmlGetEncBufPtr(pctxt) (pctxt)->buffer.data

  This macro returns the start address of the encoded XML message.
- #define rtXmlGetEncBufLen(pctxt) (pctxt)->buffer.byteIndex

  This macro returns the length of the encoded XML message.

Functions

- EXTERNXML int rtXmlEncAny (OSCTXT *pctxt, OSXMLSTRING *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD any type.
- EXTERNXML int **rtXmlEncAnyStr** (OSCTXT *pctxt, const OSUTF8CHAR *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)
- EXTERNXML int rtXmlEncAnyTypeValue (OSCTXT *pctxt, const OSUTF8CHAR *pvalue)

  This function encodes a variable of the XSD anyType type.
- EXTERNXML int rtXmlEncAnyAttr (OSCTXT *pctxt, OSRTDList *pAnyAttrList)

  This function encodes a list of OSAnyAttr attributes in which the name and value are given as a UTF-8 string.
- EXTERNXML int rtXmlEncBase64Binary (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *value, const OS↩ UTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD base64Binary type.
- EXTERNXML int rtXmlEncBase64BinaryAttr (OSCTXT *pctxt, OSUINT32 nocts, const OSOCTET *value, const OSUTF8CHAR *attrName, OSSIZE attrNameLen)

  This function encodes a variable of the XSD base64Binary type as an attribute.
- EXTERNXML int rtXmlEncBase64StrValue (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *value)

  This function encodes a variable of the XSD base64Binary type.
- EXTERNXML int rtXmlEncBigInt (OSCTXT *pctxt, const OSUTF8CHAR *value, const OSUTF8CHAR *elem↩ Name, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int rtXmlEncBigIntAttr (OSCTXT *pctxt, const OSUTF8CHAR *value, const OSUTF8CHAR *attr↩ Name, OSSIZE attrNameLen)

  This function encodes an XSD integer attribute value.
- EXTERNXML int rtXmlEncBigIntValue (OSCTXT *pctxt, const OSUTF8CHAR *value)

  This function encodes an XSD integer attribute value.
- EXTERNXML int rtXmlEncBitString (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *value, const OSUTF8↩ CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the ASN.1 BIT STRING type.
- EXTERNXML int rtXmlEncBitStringExt (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *value, OSSIZE data↩ Size, const OSOCTET *extValue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the ASN.1 BIT STRING type.
- EXTERNXML int rtXmlEncBinStrValue (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data)

  This function encodes a binary string value as a sequence of '1's and '0's.

- EXTERNXML int rtXmlEncBool (OSCTXT *pctxt, OSBOOL value, const OSUTF8CHAR *elemName, OSXML↩ Namespace *pNS)

  This function encodes a variable of the XSD boolean type.
- EXTERNXML int rtXmlEncBoolValue (OSCTXT *pctxt, OSBOOL value)

  This function encodes a variable of the XSD boolean type.
- EXTERNXML int rtXmlEncBoolAttr (OSCTXT *pctxt, OSBOOL value, const OSUTF8CHAR *attrName, OSSIZE attrNameLen)

  This function encodes an XSD boolean attribute value.
- EXTERNXML int rtXmlEncCanonicalSort (OSCTXT *pctxt, OSCTXT *pBufCtxt, OSRTSList *pList)

  Sort (as for CXER, Canonical-XER) and encode previously encoded SET OF components.
- EXTERNXML int rtXmlEncComment (OSCTXT *pctxt, const OSUTF8CHAR *comment)

  This function encodes an XML comment.
- EXTERNXML int rtXmlEncDate (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD 'date' type as a string.
- EXTERNXML int rtXmlEncDateValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a variable of the XSD 'date' type as a string.
- EXTERNXML int rtXmlEncTime (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD 'time' type as an string.
- EXTERNXML int rtXmlEncTimeValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a variable of the XSD 'time' type as an string.
- EXTERNXML int rtXmlEncDateTime (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a numeric date/time value into an XML string representation.
- EXTERNXML int rtXmlEncDateTimeValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric date/time value into an XML string representation.
- EXTERNXML int rtXmlEncDecimal (OSCTXT *pctxt, OSREAL value, const OSUTF8CHAR *elemName, OSX↩ MLNamespace *pNS, const OSDecimalFmt *pFmtSpec)

  This function encodes a variable of the XSD decimal type.
- EXTERNXML int rtXmlEncDecimalAttr (OSCTXT *pctxt, OSREAL value, const OSUTF8CHAR *attrName, OS↩ SIZE attrNameLen, const OSDecimalFmt *pFmtSpec)

  This function encodes a variable of the XSD decimal type as an attribute.
- EXTERNXML int rtXmlEncDecimalValue (OSCTXT *pctxt, OSREAL value, const OSDecimalFmt *pFmtSpec, char *pDestBuf, OSSIZE destBufSize)

  This function encodes a value of the XSD decimal type.
- EXTERNXML int rtXmlEncDouble (OSCTXT *pctxt, OSREAL value, const OSUTF8CHAR *elemName, OSX↩ MLNamespace *pNS, const OSDoubleFmt *pFmtSpec)

  This function encodes a variable of the XSD double type.
- EXTERNXML int rtXmlEncDoubleAttr (OSCTXT *pctxt, OSREAL value, const OSUTF8CHAR *attrName, OS↩ SIZE attrNameLen, const OSDoubleFmt *pFmtSpec)

  This function encodes a variable of the XSD double type as an attribute.
- EXTERNXML int rtXmlEncDoubleNormalValue (OSCTXT *pctxt, OSREAL value, const OSDoubleFmt *pFmt↩ Spec, int defaultPrecision)

  This function encodes a normal (not +/-INF or NaN) value of the XSD double or float type.
- EXTERNXML int rtXmlEncDoubleValue (OSCTXT *pctxt, OSREAL value, const OSDoubleFmt *pFmtSpec, int defaultPrecision)

  This function encodes a value of the XSD double or float type.

- EXTERNXML int rtXmlEncEmptyElement (OSCTXT *pctxt, const OSUTF8CHAR *elemName, OSXML↩ Namespace *pNS, OSRTDList *pNSAttrs, OSBOOL terminate)

  This function encodes an enpty element tag value (<elemName/>).
- EXTERNXML int rtXmlEncEndDocument (OSCTXT *pctxt)

  This function adds trailor information and a null terminator at the end of the XML document being encoded.
- EXTERNXML int rtXmlEncEndElement (OSCTXT *pctxt, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes an end element tag value (</elemName>).
- EXTERNXML int rtXmlEncEndSoapEnv (OSCTXT *pctxt)

  This function encodes a SOAP envelope end element tag (<SOAP-ENV:Envelope/>).
- EXTERNXML int rtXmlEncEndSoapElems (OSCTXT *pctxt, OSXMLSOAPMsgType msgtype)

  This function encodes SOAP end element tags.
- EXTERNXML int rtXmlEncFloat (OSCTXT *pctxt, OSREAL value, const OSUTF8CHAR *elemName, OSXML↩ Namespace *pNS, const OSDoubleFmt *pFmtSpec)

  This function encodes a variable of the XSD float type.
- EXTERNXML int rtXmlEncFloatAttr (OSCTXT *pctxt, OSREAL value, const OSUTF8CHAR *attrName, OSSIZE attrNameLen, const OSDoubleFmt *pFmtSpec)

  This function encodes a variable of the XSD float type as an attribute.
- EXTERNXML int rtXmlEncGYear (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a numeric gYear element into an XML string representation.
- EXTERNXML int rtXmlEncGYearMonth (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a numeric gYearMonth element into an XML string representation.
- EXTERNXML int rtXmlEncGMonth (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a numeric gMonth element into an XML string representation.
- EXTERNXML int rtXmlEncGMonthDay (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a numeric gMonthDay element into an XML string representation.
- EXTERNXML int rtXmlEncGDay (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a numeric gDay element into an XML string representation.
- EXTERNXML int rtXmlEncGYearValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gYear value into an XML string representation.
- EXTERNXML int rtXmlEncGYearMonthValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gYearMonth value into an XML string representation.
- EXTERNXML int rtXmlEncGMonthValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gMonth value into an XML string representation.
- EXTERNXML int rtXmlEncGMonthDayValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gMonthDay value into an XML string representation.
- EXTERNXML int rtXmlEncGDayValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gDay value into an XML string representation.
- EXTERNXML int rtXmlEncHexBinary (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *value, const OSUT↩ F8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD hexBinary type.
- EXTERNXML int rtXmlEncHexBinaryAttr (OSCTXT *pctxt, OSUINT32 nocts, const OSOCTET *value, const O↩ SUTF8CHAR *attrName, OSSIZE attrNameLen)

This function encodes a variable of the XSD hexBinary type as an attribute.

- EXTERNXML int rtXmlEncHexStrValue (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *data)

  This function encodes a variable of the XSD hexBinary type.
- EXTERNXML int rtXmlEncIndent (OSCTXT *pctxt)

  This function adds indentation whitespace to the output stream.
- EXTERNXML int rtXmlEncInt (OSCTXT *pctxt, OSINT32 value, const OSUTF8CHAR *elemName, OSXML↩ Namespace *pNS)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int rtXmlEncIntValue (OSCTXT *pctxt, OSINT32 value)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int rtXmlEncIntAttr (OSCTXT *pctxt, OSINT32 value, const OSUTF8CHAR *attrName, OSSIZE attrNameLen)

  This function encodes a variable of the XSD integer type as an attribute (name="value").
- EXTERNXML int rtXmlEncIntPattern (OSCTXT *pctxt, OSINT32 value, const OSUTF8CHAR *elemName, OS↩ XMLNamespace *pNS, const OSUTF8CHAR *pattern)

  This function encodes a variable of the XSD integer type using a pattern to specify the format of the integer value.
- EXTERNXML int **rtXmlEncIntPatternValue** (OSCTXT *pctxt, OSINT32 value, const OSUTF8CHAR *pattern)
- EXTERNXML int **rtXmlEncUIntPattern** (OSCTXT *pctxt, OSUINT32 value, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS, const OSUTF8CHAR *pattern)
- EXTERNXML int **rtXmlEncUIntPatternValue** (OSCTXT *pctxt, OSUINT32 value, const OSUTF8CHAR *pattern)
- EXTERNXML int rtXmlEncInt64 (OSCTXT *pctxt, OSINT64 value, const OSUTF8CHAR *elemName, OSXML↩ Namespace *pNS)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int **rtXmlEncInt64Pattern** (OSCTXT *pctxt, OSINT64 value, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS, const OSUTF8CHAR *pattern)
- EXTERNXML int rtXmlEncInt64Value (OSCTXT *pctxt, OSINT64 value)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int **rtXmlEncInt64PatternValue** (OSCTXT *pctxt, OSINT64 value, const OSUTF8CHAR *pattern)
- EXTERNXML int rtXmlEncInt64Attr (OSCTXT *pctxt, OSINT64 value, const OSUTF8CHAR *attrName, OSSIZE attrNameLen)

  This function encodes a variable of the XSD integer type as an attribute (name="value").
- EXTERNXML int rtXmlEncNamedBits (OSCTXT *pctxt, const OSBitMapItem *pBitMap, OSSIZE nbits, const OSOCTET *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the ASN.1 BIT STRING type.
- EXTERNXML int **rtXmlEncNamedBitsValue** (OSCTXT *pctxt, const OSBitMapItem *pBitMap, OSSIZE nbits, const OSOCTET *pvalue)
- EXTERNXML int rtXmlEncNSAttrs (OSCTXT *pctxt, OSRTDList *pNSAttrs)

  This function encodes namespace declaration attributes at the beginning of an XML document.
- EXTERNXML int rtXmlPrintNSAttrs (const char *name, const OSRTDList *data)

  This function prints a list of namespace attributes.
- EXTERNXML int rtXmlEncReal10 (OSCTXT *pctxt, const OSUTF8CHAR *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the ASN.1 REAL base 10 type.
- EXTERNXML int rtXmlEncSoapArrayTypeAttr (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8↩ CHAR *value, OSSIZE itemCount)

  This function encodes the special SOAP encoding attrType attribute which specifies the number and type of elements in a SOAP array.
- EXTERNXML int **rtXmlEncSoapArrayTypeAttr2** (OSCTXT *pctxt, const OSUTF8CHAR *name, OSSIZE nameLen, const OSUTF8CHAR *value, OSSIZE valueLen, OSSIZE itemCount)

- EXTERNXML int rtXmlEncStartDocument (OSCTXT *pctxt)

  This function encodes the XML header text at the beginning of an XML document.
- EXTERNXML int rtXmlEncBOM (OSCTXT *pctxt)

  This function encodes the Unicode byte order mark header at the start of the document.
- EXTERNXML int rtXmlEncStartElement (OSCTXT *pctxt, const OSUTF8CHAR *elemName, OSXML↩ Namespace *pNS, OSRTDList *pNSAttrs, OSBOOL terminate)

  This function encodes a start element tag value (<elemName>).
- EXTERNXML int rtXmlEncStartSoapEnv (OSCTXT *pctxt, OSRTDList *pNSAttrs)

  This function encodes a SOAP envelope start element tag.
- EXTERNXML int rtXmlEncStartSoapElems (OSCTXT *pctxt, OSXMLSOAPMsgType msgtype)

  This function encodes a SOAP envelope start element tag and an optional SOAP body or fault tag.
- EXTERNXML int rtXmlEncString (OSCTXT *pctxt, OSXMLSTRING *pxmlstr, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD string type.
- EXTERNXML int rtXmlEncStringValue (OSCTXT *pctxt, const OSUTF8CHAR *value)

  This function encodes a variable of the XSD string type.
- EXTERNXML int rtXmlEncStringValue2 (OSCTXT *pctxt, const OSUTF8CHAR *value, OSSIZE valueLen)

  This function encodes a variable of the XSD string type.
- EXTERNXML int rtXmlEncTermStartElement (OSCTXT *pctxt)

  This function terminates a currently open XML start element by adding either a '>' or '/>' (if empty) terminator.
- EXTERNXML int rtXmlEncUnicodeStr (OSCTXT *pctxt, const OSUNICHAR *value, OSSIZE nchars, const O↩ SUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a Unicode string value.
- EXTERNXML int rtXmlEncUTF8Attr (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8CHAR *value)

  This function encodes an attribute in which the name and value are given as a null-terminated UTF-8 strings.
- EXTERNXML int rtXmlEncUTF8Attr2 (OSCTXT *pctxt, const OSUTF8CHAR *name, OSSIZE nameLen, const OSUTF8CHAR *value, OSSIZE valueLen)

  This function encodes an attribute in which the name and value are given as a UTF-8 strings with lengths.
- EXTERNXML int rtXmlEncUTF8Str (OSCTXT *pctxt, const OSUTF8CHAR *value, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a UTF-8 string value.
- EXTERNXML int rtXmlEncUInt (OSCTXT *pctxt, OSUINT32 value, const OSUTF8CHAR *elemName, OSXM↩ LNamespace *pNS)

  This function encodes a variable of the XSD unsigned integer type.
- EXTERNXML int rtXmlEncUIntValue (OSCTXT *pctxt, OSUINT32 value)

  This function encodes a variable of the XSD unsigned integer type.
- EXTERNXML int rtXmlEncUIntAttr (OSCTXT *pctxt, OSUINT32 value, const OSUTF8CHAR *attrName, OSSIZE attrNameLen)

  This function encodes a variable of the XSD unsigned integer type as an attribute (name="value").
- EXTERNXML int rtXmlEncUInt64 (OSCTXT *pctxt, OSUINT64 value, const OSUTF8CHAR *elemName, OSX↩ MLNamespace *pNS)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int **rtXmlEncUInt64Pattern** (OSCTXT *pctxt, OSUINT64 value, const OSUTF8CHAR *elem↩ Name, OSXMLNamespace *pNS, const OSUTF8CHAR *pattern)
- EXTERNXML int rtXmlEncUInt64Value (OSCTXT *pctxt, OSUINT64 value)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int **rtXmlEncUInt64PatternValue** (OSCTXT *pctxt, OSUINT64 value, const OSUTF8CHAR *pattern)

- EXTERNXML int rtXmlEncUInt64Attr (OSCTXT *pctxt, OSUINT64 value, const OSUTF8CHAR *attrName, O↩ SSIZE attrNameLen)

  This function encodes a variable of the XSD integer type as an attribute (name="value").
- EXTERNXML int rtXmlEncXSIAttrs (OSCTXT *pctxt, OSBOOL needXSI)

  This function encodes XML schema instance (XSI) attributes at the beginning of an XML document.
- EXTERNXML int rtXmlEncXSITypeAttr (OSCTXT *pctxt, const OSUTF8CHAR *value)

  This function encodes an XML schema instance (XSI) type attribute value (xsi:type="value").
- EXTERNXML int rtXmlEncXSITypeAttr2 (OSCTXT *pctxt, const OSUTF8CHAR *typeNsUri, const OSUTF8C↩ HAR *typeName)

  This function encodes an XML schema instance (XSI) type attribute value (xsi:type="pfx:value").
- EXTERNXML int rtXmlEncXSINilAttr (OSCTXT *pctxt)

  This function encodes an XML nil attribute (xsi:nil="true").
- EXTERNXML int rtXmlFreeInputSource (OSCTXT *pctxt)

  This function closes an input source that was previously created with one of the create input source functions such as 'rtXmlCreateFileInputSource'.
- EXTERNXML OSBOOL **rtXmlStrCmpAsc** (const OSUTF8CHAR *text1, const char *text2)
- EXTERNXML OSBOOL **rtXmlStrnCmpAsc** (const OSUTF8CHAR *text1, const char *text2, OSSIZE len)
- EXTERNXML int rtXmlSetEncBufPtr (OSCTXT *pctxt, OSOCTET *bufaddr, OSSIZE bufsiz)

  This function is used to set the internal buffer within the run-time library encoding context.
- EXTERNXML int rtXmlGetIndent (OSCTXT *pctxt)

  This function returns current XML output indent value.
- EXTERNXML OSBOOL rtXmlGetWriteBOM (OSCTXT *pctxt)

  This function returns whether the Unicode byte order mark will be encoded.
- EXTERNXML int rtXmlGetIndentChar (OSCTXT *pctxt)

  This function returns current XML output indent character value (default is space).

6.3.1 Detailed Description

6.3.2 Macro Definition Documentation

6.3.2.1 rtXmlFinalizeMemBuf

```
#define rtXmlFinalizeMemBuf(
              pMemBuf )
```

Value:

```
do { \
(pMemBuf)->pctxt->buffer.data = (pMemBuf)->buffer + (pMemBuf)->startidx; \
(pMemBuf)->pctxt->buffer.size =                                          \
((pMemBuf)->usedcnt - (pMemBuf)->startidx);                              \
(pMemBuf)->pctxt->buffer.dynamic = FALSE;                                \
(pMemBuf)->pctxt->buffer.byteIndex = 0;                                  \
rtxMemBufReset (pMemBuf);                                                \
} while(0)
```

Definition at line 2606 of file osrtxml.h.

6.3.2.2 rtXmlGetEncBufLen

```
#define rtXmlGetEncBufLen(
              pctxt ) (pctxt)->buffer.byteIndex
```

This macro returns the length of the encoded XML message.

Parameters

pctxt	Pointer to a context structure.

Definition at line 2658 of file osrtxml.h.

6.3.2.3 rtXmlGetEncBufPtr

```
#define rtXmlGetEncBufPtr(
              pctxt ) (pctxt)->buffer.data
```

This macro returns the start address of the encoded XML message.

If a static buffer was used, this is simply the start address of the buffer. If dynamic encoding was done, this will return the start address of the dynamic buffer allocated by the encoder.

Parameters

pctxt	Pointer to a context structure.

Definition at line 2651 of file osrtxml.h.

6.3.3 Function Documentation

6.3.3.1 rtXmlEncAny()

```
EXTERNXML int rtXmlEncAny (
             OSCTXT * pctxt,
             OSXMLSTRING * pvalue,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the XSD any type.

This is considered to be a fully-wrapped element of any type (for example: <myType>myData</myType>)

Parameters

pctxt	Pointer to context block structure.
pvalue	Value to be encoded. This is a string containing the fully-encoded XML text to be copied to the output stream.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	Pointer to namespace structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.2 rtXmlEncAnyAttr()

```
EXTERNXML int rtXmlEncAnyAttr (
             OSCTXT * pctxt,
             OSRTDList * pAnyAttrList )
```

This function encodes a list of OSAnyAttr attributes in which the name and value are given as a UTF-8 string.

Parameters

pctxt	Pointer to context block structure.
pAnyAttrList	List of attributes.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.3 rtXmlEncAnyTypeValue()

```
EXTERNXML int rtXmlEncAnyTypeValue (
             OSCTXT * pctxt,
             const OSUTF8CHAR * pvalue )
```

This function encodes a variable of the XSD anyType type.

This is considered to be a fully-wrapped element of any type, possibly containing attributes. (for example: * <my↩ Type>myData</myType>)

Parameters

pctxt	Pointer to context block structure.
pvalue	Value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.4 rtXmlEncBase64Binary()

```
EXTERNXML int rtXmlEncBase64Binary (
             OSCTXT * pctxt,
             OSSIZE nocts,
             const OSOCTET * value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the XSD base64Binary type.

Parameters

pctxt	Pointer to context block structure.
nocts	Number of octets in the value string.
value	Value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	Pointer to namespace structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.5 rtXmlEncBase64BinaryAttr()

```
EXTERNXML int rtXmlEncBase64BinaryAttr (
             OSCTXT * pctxt,
```

```
            OSUINT32 nocts,
            const OSOCTET * value,
            const OSUTF8CHAR * attrName,
            OSSIZE attrNameLen )
```

This function encodes a variable of the XSD base64Binary type as an attribute.

Parameters

pctxt	Pointer to context block structure.
nocts	Number of octets in the value string.
value	Value to be encoded.
attrName	XML attribute name. A name must be provided.
attrNameLen	Length in bytes of the attribute name.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.6 rtXmlEncBase64StrValue()

```
EXTERNXML int rtXmlEncBase64StrValue (
            OSCTXT * pctxt,
            OSSIZE nocts,
            const OSOCTET * value )
```

This function encodes a variable of the XSD base64Binary type.

It just puts the encoded value in the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
nocts	Number of octets in the value string.
value	Value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.7 rtXmlEncBigInt()

```
EXTERNXML int rtXmlEncBigInt (
             OSCTXT * pctxt,
             const OSUTF8CHAR * value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the XSD integer type.

In this case, the integer is assumed to be of a larger size than can fit in a C or C++ long type (normally 32 or 64 bits). For example, parameters used to calculate security values are typically larger than these sizes.

Items of this type are stored in character string constant variables. They can be represented as decimal strings (with no prefixes), as hexadecimal strings starting with a "0x" prefix, as octal strings starting with a "0o" prefix or as binary strings starting with a "0b" prefix. Other radixes are currently not supported.

Parameters

pctxt	Pointer to context block structure.
value	A pointer to a character string containing the value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	Pointer to namespace structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.8 rtXmlEncBigIntAttr()

```
EXTERNXML int rtXmlEncBigIntAttr (
             OSCTXT * pctxt,
             const OSUTF8CHAR * value,
             const OSUTF8CHAR * attrName,
             OSSIZE attrNameLen )
```

This function encodes an XSD integer attribute value.

In this case, the integer is assumed to be of a larger size than can fit in a C or C++ long type (normally 32 or 64 bits).

Parameters

pctxt	Pointer to context block structure.
value	A pointer to a character string containing the value to be encoded.
attrName	XML attribute name. A name must be provided.
attrNameLen	Length in bytes of the attribute name.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.9 rtXmlEncBigIntValue()

```
EXTERNXML int rtXmlEncBigIntValue (
             OSCTXT * pctxt,
             const OSUTF8CHAR * value )
```

This function encodes an XSD integer attribute value.

In this case, the integer is assumed to be of a larger size than can fit in a C or C++ long type (normally 32 or 64 bits). This function just puts the encoded value in the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
value	A pointer to a character string containing the value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.10 rtXmlEncBinStrValue()

```
EXTERNXML int rtXmlEncBinStrValue (
             OSCTXT * pctxt,
             OSSIZE nbits,
             const OSOCTET * data )
```

This function encodes a binary string value as a sequence of '1's and '0's.

Parameters

pctxt	Pointer to context block structure.
nbits	Number of bits in the value string.
data	Value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.11 rtXmlEncBitString()

```
EXTERNXML int rtXmlEncBitString (
             OSCTXT * pctxt,
             OSSIZE nbits,
             const OSOCTET * value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the ASN.1 BIT STRING type.

The encoded data is a sequence of '1's and '0's. This is only used if named bits are not specified in the string (

See also

rtXmlEncNamedBits).

Parameters

pctxt	Pointer to context block structure.
nbits	Number of bits in the bit string.
value	Value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	Pointer to namespace structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.12 rtXmlEncBitStringExt()

```
EXTERNXML int rtXmlEncBitStringExt (
             OSCTXT * pctxt,
```

```
            OSSIZE nbits,
            const OSOCTET * value,
            OSSIZE dataSize,
            const OSOCTET * extValue,
            const OSUTF8CHAR * elemName,
            OSXMLNamespace * pNS )
```

This function encodes a variable of the ASN.1 BIT STRING type.

The encoded data is a sequence of '1's and '0's. This is used for BIT STRINGs with extdata member present.

Parameters

pctxt	Pointer to context block structure.
nbits	Number of bits in the bit string.
value	Value to be encoded.
dataSize	Size of data member.
extValue	Value of extdata to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	Pointer to namespace structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.13 rtXmlEncBOM()

```
EXTERNXML int rtXmlEncBOM (
            OSCTXT * pctxt )
```

This function encodes the Unicode byte order mark header at the start of the document.

It is called by rtXmlEncStartDocument and does not need to be called manually.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,

- negative return value is error.

6.3.3.14 rtXmlEncBool()

```
EXTERNXML int rtXmlEncBool (
             OSCTXT * pctxt,
             OSBOOL value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the XSD boolean type.

Parameters

pctxt	Pointer to context block structure.
value	Boolean value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	Pointer to namespace structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.15 rtXmlEncBoolAttr()

```
EXTERNXML int rtXmlEncBoolAttr (
             OSCTXT * pctxt,
             OSBOOL value,
             const OSUTF8CHAR * attrName,
             OSSIZE attrNameLen )
```

This function encodes an XSD boolean attribute value.

Parameters

pctxt	Pointer to context block structure.
value	Boolean value to be encoded.
attrName	XML attribute name. A name must be provided.
attrNameLen	Length in bytes of the attribute name.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.16 rtXmlEncBoolValue()

```
EXTERNXML int rtXmlEncBoolValue (
             OSCTXT * pctxt,
             OSBOOL value )
```

This function encodes a variable of the XSD boolean type.

It just puts the encoded value in the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
value	Boolean value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.17 rtXmlEncCanonicalSort()

```
EXTERNXML int rtXmlEncCanonicalSort (
             OSCTXT * pctxt,
             OSCTXT * pBufCtxt,
             OSRTSList * pList )
```

Sort (as for CXER, Canonical-XER) and encode previously encoded SET OF components.

Parameters

pctxt	Context to use to encode the sorted encoding
pBufCtxt	Context previously used to encode the components which are to be sorted.
pList	List of OSRTBufLocDescr identifying the location of each of the components' encodings within pBufCtxt.

6.3.3.18 rtXmlEncComment()

```
EXTERNXML int rtXmlEncComment (
             OSCTXT * pctxt,
             const OSUTF8CHAR * comment )
```

This function encodes an XML comment.

The given text will be inserted in between XML comment start and end elements ().

Parameters

pctxt	Pointer to context block structure.
comment	The comment text.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.19 rtXmlEncDate()

```
EXTERNXML int rtXmlEncDate (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the XSD 'date' type as a string.

This version of the function is used to encode an OSXSDDateTime value into CCYY-MM-DD format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	Pointer to namespace structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.20 rtXmlEncDateTime()

```
EXTERNXML int rtXmlEncDateTime (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a numeric date/time value into an XML string representation.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	Pointer to namespace structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.21 rtXmlEncDateTimeValue()

```
EXTERNXML int rtXmlEncDateTimeValue (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a numeric date/time value into an XML string representation.

It just puts the encoded value in the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.22 rtXmlEncDateValue()

```
EXTERNXML int rtXmlEncDateValue (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a variable of the XSD 'date' type as a string.

This version of the function is used to encode an OSXSDDateTime value into CCYY-MM-DD format. This function just puts the encoded value in the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.23 rtXmlEncDecimal()

```
EXTERNXML int rtXmlEncDecimal (
             OSCTXT * pctxt,
             OSREAL value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS,
             const OSDecimalFmt * pFmtSpec )
```

This function encodes a variable of the XSD decimal type.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	Pointer to namespace structure.
pFmtSpec	Pointer to format specification structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.24 rtXmlEncDecimalAttr()

```
EXTERNXML int rtXmlEncDecimalAttr (
             OSCTXT * pctxt,
             OSREAL value,
             const OSUTF8CHAR * attrName,
             OSSIZE attrNameLen,
             const OSDecimalFmt * pFmtSpec )
```

This function encodes a variable of the XSD decimal type as an attribute.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
attrName	XML attribute name. A name must be provided.
attrNameLen	Length of XML attribute name.
pFmtSpec	Pointer to format specification structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.25 rtXmlEncDecimalValue()

```
EXTERNXML int rtXmlEncDecimalValue (
             OSCTXT * pctxt,
             OSREAL value,
             const OSDecimalFmt * pFmtSpec,
             char * pDestBuf,
             OSSIZE destBufSize )
```

This function encodes a value of the XSD decimal type.

It just puts the encoded value in the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
pFmtSpec	Pointer to format specification structure.
pDestBuf	Pointer to a destination buffer. If NULL (destBufSize should be 0) the encoded value will be put in pctxt->buffer or in stream associated with the pctxt.
destBufSize	The size of the destination buffer. Must be 0, if pDestBuf is NULL.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.26 rtXmlEncDouble()

```
EXTERNXML int rtXmlEncDouble (
             OSCTXT * pctxt,
             OSREAL value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS,
             const OSDoubleFmt * pFmtSpec )
```

This function encodes a variable of the XSD double type.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	Pointer to namespace structure.
pFmtSpec	Pointer to format specification structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.27 rtXmlEncDoubleAttr()

```
EXTERNXML int rtXmlEncDoubleAttr (
             OSCTXT * pctxt,
             OSREAL value,
             const OSUTF8CHAR * attrName,
             OSSIZE attrNameLen,
             const OSDoubleFmt * pFmtSpec )
```

This function encodes a variable of the XSD double type as an attribute.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
attrName	XML attribute name. A name must be provided.
attrNameLen	Length of XML attribute name.
pFmtSpec	Pointer to format specification structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.28 rtXmlEncDoubleNormalValue()

```
EXTERNXML int rtXmlEncDoubleNormalValue (
             OSCTXT * pctxt,
             OSREAL value,
             const OSDoubleFmt * pFmtSpec,
             int defaultPrecision )
```

This function encodes a normal (not +/-INF or NaN) value of the XSD double or float type.

It just puts the encoded value in the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
pFmtSpec	Pointer to format specification structure.
defaultPrecision	Default precision of the value. For float, it is 6, for double it is 15.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.29 rtXmlEncDoubleValue()

```
EXTERNXML int rtXmlEncDoubleValue (
             OSCTXT * pctxt,
             OSREAL value,
             const OSDoubleFmt * pFmtSpec,
             int defaultPrecision )
```

This function encodes a value of the XSD double or float type.

It just puts the encoded value in the destination buffer or stream without any tags. Special real values +/-INF and NaN are encoded as "INF", "-INF", and "NaN", respectively.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
pFmtSpec	Pointer to format specification structure.
defaultPrecision	Default precision of the value. For float, it is 6, for double it is 15.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.30 rtXmlEncEmptyElement()

```
EXTERNXML int rtXmlEncEmptyElement (
             OSCTXT * pctxt,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS,
             OSRTDList * pNSAttrs,
             OSBOOL terminate )
```

This function encodes an enpty element tag value (<elemName/>).

Parameters

pctxt	Pointer to context block structure.
elemName	XML element name.
pNS	XML namespace information (prefix and URI).
pNSAttrs	List of namespace attributes to be added to element.
terminate	Add closing '>' character.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.31 rtXmlEncEndDocument()

```
EXTERNXML int rtXmlEncEndDocument (
             OSCTXT * pctxt )
```

This function adds trailor information and a null terminator at the end of the XML document being encoded.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.32 rtXmlEncEndElement()

```
EXTERNXML int rtXmlEncEndElement (
             OSCTXT * pctxt,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes an end element tag value (</elemName>).

Parameters

pctxt	Pointer to context block structure.
elemName	XML element name.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.33 rtXmlEncEndSoapElems()

```
EXTERNXML int rtXmlEncEndSoapElems (
             OSCTXT * pctxt,
             OSXMLSOAPMsgType msgtype )
```

This function encodes SOAP end element tags.

If will add a SOAP body or fault end tag based on the SOAP message type argument. It will then add an envelope end element tag.

Parameters

pctxt	Pointer to context block structure.
msgtype	SOAP message type (body, fault, or none)

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.34 rtXmlEncEndSoapEnv()

```
EXTERNXML int rtXmlEncEndSoapEnv (
             OSCTXT * pctxt )
```

This function encodes a SOAP envelope end element tag (<SOAP-ENV:Envelope/>).

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.35 rtXmlEncFloat()

```
EXTERNXML int rtXmlEncFloat (
             OSCTXT * pctxt,
             OSREAL value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS,
             const OSDoubleFmt * pFmtSpec )
```

This function encodes a variable of the XSD float type.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).
pFmtSpec	Pointer to format specification structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.36 rtXmlEncFloatAttr()

```
EXTERNXML int rtXmlEncFloatAttr (
             OSCTXT * pctxt,
```

```
            OSREAL value,
            const OSUTF8CHAR * attrName,
            OSSIZE attrNameLen,
            const OSDoubleFmt * pFmtSpec )
```

This function encodes a variable of the XSD float type as an attribute.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
attrName	XML attribute name. A name must be provided.
attrNameLen	Length of XML attribute name.
pFmtSpec	Pointer to format specification structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.37 rtXmlEncGDay()

```
EXTERNXML int rtXmlEncGDay (
            OSCTXT * pctxt,
            const OSXSDDateTime * pvalue,
            const OSUTF8CHAR * elemName,
            OSXMLNamespace * pNS )
```

This function encodes a numeric gDay element into an XML string representation.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.38 rtXmlEncGDayValue()

```
EXTERNXML int rtXmlEncGDayValue (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a numeric gDay value into an XML string representation.

It just puts the encoded value into the buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.39 rtXmlEncGMonth()

```
EXTERNXML int rtXmlEncGMonth (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a numeric gMonth element into an XML string representation.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.40 rtXmlEncGMonthDay()

```
EXTERNXML int rtXmlEncGMonthDay (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a numeric gMonthDay element into an XML string representation.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.41 rtXmlEncGMonthDayValue()

```
EXTERNXML int rtXmlEncGMonthDayValue (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a numeric gMonthDay value into an XML string representation.

It just puts the encoded value into the buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.42 rtXmlEncGMonthValue()

```
EXTERNXML int rtXmlEncGMonthValue (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a numeric gMonth value into an XML string representation.

It just puts the encoded value into the buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.43 rtXmlEncGYear()

```
EXTERNXML int rtXmlEncGYear (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a numeric gYear element into an XML string representation.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.44 rtXmlEncGYearMonth()

```
EXTERNXML int rtXmlEncGYearMonth (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a numeric gYearMonth element into an XML string representation.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.45 rtXmlEncGYearMonthValue()

```
EXTERNXML int rtXmlEncGYearMonthValue (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a numeric gYearMonth value into an XML string representation.

It just puts the encoded value into the buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.46 rtXmlEncGYearValue()

```
EXTERNXML int rtXmlEncGYearValue (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a numeric gYear value into an XML string representation.

It just puts the encoded value into the buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.47 rtXmlEncHexBinary()

```
EXTERNXML int rtXmlEncHexBinary (
             OSCTXT * pctxt,
             OSSIZE nocts,
             const OSOCTET * value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the XSD hexBinary type.

Parameters

pctxt	Pointer to context block structure.
nocts	Number of octets in the value string.
value	Value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.48 rtXmlEncHexBinaryAttr()

```
EXTERNXML int rtXmlEncHexBinaryAttr (
             OSCTXT * pctxt,
             OSUINT32 nocts,
             const OSOCTET * value,
             const OSUTF8CHAR * attrName,
             OSSIZE attrNameLen )
```

This function encodes a variable of the XSD hexBinary type as an attribute.

Parameters

pctxt	Pointer to context block structure.
nocts	Number of octets in the value string.
value	Value to be encoded.
attrName	XML attribute name. A name must be provided.
attrNameLen	Length of XML attribute name.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.49 rtXmlEncHexStrValue()

```
EXTERNXML int rtXmlEncHexStrValue (
             OSCTXT * pctxt,
             OSSIZE nocts,
             const OSOCTET * data )
```

This function encodes a variable of the XSD hexBinary type.

It just puts the encoded value in the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
nocts	Number of octets in the value string.
data	Value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.50 rtXmlEncIndent()

```
EXTERNXML int rtXmlEncIndent (
             OSCTXT * pctxt )
```

This function adds indentation whitespace to the output stream.

The amount of indentation to add is determined by the level member variable in the context structure and the OSXM↩ LINDENT constant value.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.51 rtXmlEncInt()

```
EXTERNXML int rtXmlEncInt (
             OSCTXT * pctxt,
             OSINT32 value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the XSD integer type.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.52 rtXmlEncInt64()

```
EXTERNXML int rtXmlEncInt64 (
             OSCTXT * pctxt,
             OSINT64 value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the XSD integer type.

This version of the function is used for 64-bit integer values.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.53 rtXmlEncInt64Attr()

```
EXTERNXML int rtXmlEncInt64Attr (
             OSCTXT * pctxt,
             OSINT64 value,
             const OSUTF8CHAR * attrName,
             OSSIZE attrNameLen )
```

This function encodes a variable of the XSD integer type as an attribute (name="value").

This version of the function is used for 64-bit integer values.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
attrName	XML attribute name.
attrNameLen	Length (in bytes) of the attribute name.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.54 rtXmlEncInt64Value()

```
EXTERNXML int rtXmlEncInt64Value (
             OSCTXT * pctxt,
             OSINT64 value )
```

This function encodes a variable of the XSD integer type.

This version of the function is used for 64-bit integer values. It just puts the encoded value in the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.

Returns

Completion status of operation:

- 0 = success,

- negative return value is error.

6.3.3.55 rtXmlEncIntAttr()

```
EXTERNXML int rtXmlEncIntAttr (
             OSCTXT * pctxt,
             OSINT32 value,
             const OSUTF8CHAR * attrName,
             OSSIZE attrNameLen )
```

This function encodes a variable of the XSD integer type as an attribute (name="value").

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
attrName	XML attribute name.
attrNameLen	Length (in bytes) of the attribute name.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.56 rtXmlEncIntPattern()

```
EXTERNXML int rtXmlEncIntPattern (
             OSCTXT * pctxt,
             OSINT32 value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS,
             const OSUTF8CHAR * pattern )
```

This function encodes a variable of the XSD integer type using a pattern to specify the format of the integer value.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).
pattern	Pattern of the encoded value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.57 rtXmlEncIntValue()

```
EXTERNXML int rtXmlEncIntValue (
             OSCTXT * pctxt,
             OSINT32 value )
```

This function encodes a variable of the XSD integer type.

It just puts the encoded value in the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.58 rtXmlEncNamedBits()

```
EXTERNXML int rtXmlEncNamedBits (
             OSCTXT * pctxt,
             const OSBitMapItem * pBitMap,
             OSSIZE nbits,
             const OSOCTET * pvalue,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the ASN.1 BIT STRING type.

In this case, a set of named bits was provided in the schema for the bit values. The encoding is a list of the named bit identifers corresponding to each set bit in the bit string value.

Parameters

pctxt	Pointer to context block structure.
pBitMap	Bit map equating symbolic bit names to bit numbers.
nbits	Number of bits in the sit string value.
pvalue	Bit string value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	Pointer to namespace structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.59 rtXmlEncNSAttrs()

```
EXTERNXML int rtXmlEncNSAttrs (
             OSCTXT * pctxt,
             OSRTDList * pNSAttrs )
```

This function encodes namespace declaration attributes at the beginning of an XML document.

The attributes to be encoded are stored in the namespace list provided, or within the context if a NULL pointer is passed for pNSAttrs. Namespaces are added to this list by using the namespace utility functions.

Parameters

pctxt	Pointer to context block structure.
pNSAttrs	Pointer to list of namespace attributes.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.60 rtXmlEncReal10()

```
EXTERNXML int rtXmlEncReal10 (
             OSCTXT * pctxt,
```

```
            const OSUTF8CHAR * pvalue,
            const OSUTF8CHAR * elemName,
            OSXMLNamespace * pNS )
```

This function encodes a variable of the ASN.1 REAL base 10 type.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to an REAL base 10 value.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

6.3.3.61 rtXmlEncSoapArrayTypeAttr()

```
EXTERNXML int rtXmlEncSoapArrayTypeAttr (
            OSCTXT * pctxt,
            const OSUTF8CHAR * name,
            const OSUTF8CHAR * value,
            OSSIZE itemCount )
```

This function encodes the special SOAP encoding attrType attribute which specifies the number and type of elements in a SOAP array.

The form of this attribute is 'attrType="\<type\>[count]"'.

Parameters

pctxt	Pointer to context block structure.
name	Attribute name (NS prefix + arrayType)
value	UTF-8 string value to be encoded.
itemCount	Count of the number of elements in the array.

Returns

Completion status of operation:

- 0 = success,

- negative return value is error.

6.3.3.62 rtXmlEncStartDocument()

```
EXTERNXML int rtXmlEncStartDocument (
             OSCTXT * pctxt )
```

This function encodes the XML header text at the beginning of an XML document.

This is normally the following:

<?xml version="1.0" encoding="UTF-8"?>

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.63 rtXmlEncStartElement()

```
EXTERNXML int rtXmlEncStartElement (
             OSCTXT * pctxt,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS,
             OSRTDList * pNSAttrs,
             OSBOOL terminate )
```

This function encodes a start element tag value (<elemName>).

Parameters

pctxt	Pointer to context block structure.
elemName	XML element name. Empty string and null are treated equivalently.
pNS	XML namespace information (prefix and URI). If the prefix is NULL, this method will search the context's namespace stack for a prefix to use.
pNSAttrs	List of namespace attributes to be added to element.
terminate	Add closing '>' character.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.64 rtXmlEncStartSoapElems()

```
EXTERNXML int rtXmlEncStartSoapElems (
             OSCTXT * pctxt,
             OSXMLSOAPMsgType msgtype )
```

This function encodes a SOAP envelope start element tag and an optional SOAP body or fault tag.

This includes all of the standard SOAP namespace attributes.

Parameters

pctxt	Pointer to context block structure.
msgtype	SOAP message type (body, fault, or none)

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.65 rtXmlEncStartSoapEnv()

```
EXTERNXML int rtXmlEncStartSoapEnv (
             OSCTXT * pctxt,
             OSRTDList * pNSAttrs )
```

This function encodes a SOAP envelope start element tag.

This includes all of the standard SOAP namespace attributes.

Parameters

pctxt	Pointer to context block structure.
pNSAttrs	List of namespace attributes to be added to SOAP envelope.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.66 rtXmlEncString()

```
EXTERNXML int rtXmlEncString (
             OSCTXT * pctxt,
             OSXMLSTRING * pxmlstr,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the XSD string type.

Parameters

pctxt	Pointer to context block structure.
pxmlstr	XML string value to be encoded.
elemName	XML element name. If either null or empty string is passed, no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.67 rtXmlEncStringValue()

```
EXTERNXML int rtXmlEncStringValue (
             OSCTXT * pctxt,
             const OSUTF8CHAR * value )
```

This function encodes a variable of the XSD string type.

Parameters

pctxt	Pointer to context block structure.
value	XML string value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.68 rtXmlEncStringValue2()

```
EXTERNXML int rtXmlEncStringValue2 (
             OSCTXT * pctxt,
             const OSUTF8CHAR * value,
             OSSIZE valueLen )
```

This function encodes a variable of the XSD string type.

Parameters

pctxt	Pointer to context block structure.
value	XML string value to be encoded.
valueLen	UTF-8 string value length (in octets).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.69 rtXmlEncTermStartElement()

```
EXTERNXML int rtXmlEncTermStartElement (
             OSCTXT * pctxt )
```

This function terminates a currently open XML start element by adding either a '>' or '/>' (if empty) terminator.

It will also add XSI attributes to the element.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.70 rtXmlEncTime()

```
EXTERNXML int rtXmlEncTime (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the XSD 'time' type as an string.

This version of the function is used to encode OSXSDDateTime value into any of following format in different condition as stated below. (1) hh-mm-ss.ss used if tz_flag = false (2) hh-mm-ss.ssZ used if tz_flag = false and tzo = 0 (3) hh-mm-ss.ss+HH:MM if tz_flag = false and tzo $>$ 0 (4) hh-mm-ss.ss-HH:MM-HH:MM if tz_flag = false and tzo $<$ 0

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	Pointer to namespace structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.71 rtXmlEncTimeValue()

```
EXTERNXML int rtXmlEncTimeValue (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a variable of the XSD 'time' type as an string.

This version of the function just puts the encoded value in the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.72 rtXmlEncUInt()

```
EXTERNXML int rtXmlEncUInt (
             OSCTXT * pctxt,
             OSUINT32 value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a variable of the XSD unsigned integer type.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.73 rtXmlEncUInt64()

```
EXTERNXML int rtXmlEncUInt64 (
             OSCTXT * pctxt,
             OSUINT64 value,
```

```
            const OSUTF8CHAR * elemName,
            OSXMLNamespace * pNS )
```

This function encodes a variable of the XSD integer type.

This version of the function is used when constraints cause an unsigned 64-bit integer variable to be used.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.74 rtXmlEncUInt64Attr()

```
EXTERNXML int rtXmlEncUInt64Attr (
             OSCTXT * pctxt,
             OSUINT64 value,
             const OSUTF8CHAR * attrName,
             OSSIZE attrNameLen )
```

This function encodes a variable of the XSD integer type as an attribute (name="value").

This version of the function is used for unsigned 64-bit integer values.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
attrName	XML attribute name.
attrNameLen	Length (in bytes) of the attribute name.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.75 rtXmlEncUInt64Value()

```
EXTERNXML int rtXmlEncUInt64Value (
             OSCTXT * pctxt,
             OSUINT64 value )
```

This function encodes a variable of the XSD integer type.

This version of the function is used when constraints cause an unsigned 64-bit integer variable to be used. It writes the encoded value to the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.76 rtXmlEncUIntAttr()

```
EXTERNXML int rtXmlEncUIntAttr (
             OSCTXT * pctxt,
             OSUINT32 value,
             const OSUTF8CHAR * attrName,
             OSSIZE attrNameLen )
```

This function encodes a variable of the XSD unsigned integer type as an attribute (name="value").

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
attrName	XML attribute name.
attrNameLen	Length (in bytes) of the attribute name.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.77 rtXmlEncUIntValue()

```
EXTERNXML int rtXmlEncUIntValue (
             OSCTXT * pctxt,
             OSUINT32 value )
```

This function encodes a variable of the XSD unsigned integer type.

It just puts the encoded value in the destination buffer or stream without any tags.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.78 rtXmlEncUnicodeStr()

```
EXTERNXML int rtXmlEncUnicodeStr (
             OSCTXT * pctxt,
             const OSUNICHAR * value,
             OSSIZE nchars,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a Unicode string value.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded. This is a pointer to an array of 16-bit integer values.
nchars	Number of characters in value array.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.79 rtXmlEncUTF8Attr()

```
EXTERNXML int rtXmlEncUTF8Attr (
             OSCTXT * pctxt,
             const OSUTF8CHAR * name,
             const OSUTF8CHAR * value )
```

This function encodes an attribute in which the name and value are given as a null-terminated UTF-8 strings.

Parameters

pctxt	Pointer to context block structure.
name	Attribute name.
value	UTF-8 string value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.80 rtXmlEncUTF8Attr2()

```
EXTERNXML int rtXmlEncUTF8Attr2 (
             OSCTXT * pctxt,
             const OSUTF8CHAR * name,
             OSSIZE nameLen,
             const OSUTF8CHAR * value,
             OSSIZE valueLen )
```

This function encodes an attribute in which the name and value are given as a UTF-8 strings with lengths.

Parameters

pctxt	Pointer to context block structure.
name	Attribute name.
nameLen	Attribute name length (in octets).
value	UTF-8 string value to be encoded.
valueLen	UTF-8 string value length (in octets).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.81 rtXmlEncUTF8Str()

```
EXTERNXML int rtXmlEncUTF8Str (
             OSCTXT * pctxt,
             const OSUTF8CHAR * value,
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS )
```

This function encodes a UTF-8 string value.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
elemName	XML element name. A name must be provided. If an empty string is passed (""), no element tag is added to the encoded value.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.82 rtXmlEncXSIAttrs()

```
EXTERNXML int rtXmlEncXSIAttrs (
             OSCTXT * pctxt,
             OSBOOL needXSI )
```

This function encodes XML schema instance (XSI) attributes at the beginning of an XML document.

The encoded attributes include the XSI namespace declaration, the XSD schema location attribute, and the XSD no namespace schema location attribute.

The XSI namespace declaration will only be added to the document if schema location attributes exist or the 'needXSI' flag (see below) is set.

Parameters

pctxt	Pointer to context block structure.
needXSI	This flag is set to true to indicate the XSI namespace declaration is required to support XML items in the main document body such as xsi:type or xsi:nil.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.83 rtXmlEncXSINilAttr()

```
EXTERNXML int rtXmlEncXSINilAttr (
             OSCTXT * pctxt )
```

This function encodes an XML nil attribute (xsi:nil="true").

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.84 rtXmlEncXSITypeAttr()

```
EXTERNXML int rtXmlEncXSITypeAttr (
             OSCTXT * pctxt,
             const OSUTF8CHAR * value )
```

This function encodes an XML schema instance (XSI) type attribute value (xsi:type="value").

Parameters

pctxt	Pointer to context block structure.
value	XSI type attribute value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.85 rtXmlEncXSITypeAttr2()

```
EXTERNXML int rtXmlEncXSITypeAttr2 (
             OSCTXT * pctxt,
             const OSUTF8CHAR * typeNsUri,
             const OSUTF8CHAR * typeName )
```

This function encodes an XML schema instance (XSI) type attribute value (xsi:type="pfx:value").

This will encode namespace declarations for the xsi namespace and for the typeNsUri namespace, if needed.

Parameters

pctxt	Pointer to context block structure.
typeNsUri	The type's namespace URI. Either null or empty if none.
typeName	The type's name.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.86 rtXmlFreeInputSource()

```
EXTERNXML int rtXmlFreeInputSource (
             OSCTXT * pctxt )
```

This function closes an input source that was previously created with one of the create input source functions such as 'rtXmlCreateFileInputSource'.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.87 rtXmlGetIndent()

```
EXTERNXML int rtXmlGetIndent (
             OSCTXT * pctxt )
```

This function returns current XML output indent value.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

Current indent value (>= 0) if OK, negative status code if error.

6.3.3.88 rtXmlGetIndentChar()

```
EXTERNXML int rtXmlGetIndentChar (
             OSCTXT * pctxt )
```

This function returns current XML output indent character value (default is space).

Parameters

pctxt	Pointer to OSCTXT structure

Returns

Current indent character (> 0) if OK, negative status code if error.

6.3.3.89 rtXmlGetWriteBOM()

```
EXTERNXML OSBOOL rtXmlGetWriteBOM (
             OSCTXT * pctxt )
```

This function returns whether the Unicode byte order mark will be encoded.

Parameters

pctxt	Pointer to OSCTXT structure.

Returns

TRUE if BOM is to be encoded, FALSE if not or if context uninitialized.

6.3.3.90 rtXmlPrintNSAttrs()

```
EXTERNXML int rtXmlPrintNSAttrs (
             const char * name,
             const OSRTDList * data )
```

This function prints a list of namespace attributes.

Parameters

name	Name to print.
data	List of namespace attributes.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.3.3.91 rtXmlSetEncBufPtr()

```
EXTERNXML int rtXmlSetEncBufPtr (
             OSCTXT * pctxt,
             OSOCTET * bufaddr,
             OSSIZE bufsiz )
```

This function is used to set the internal buffer within the run-time library encoding context.

It must be called after the context variable is initialized by the rtxInitContext function and before any other compiler generated or run-time library encode function.

This function should not be called with a context that has an associated stream open, but if it is, the stream may be automatically closed.

Parameters

pctxt	Pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
bufaddr	A pointer to a memory buffer to use to encode a message. The buffer should be declared as an array of unsigned characters (OCTETs). This parameter can be set to NULL to specify dynamic encoding (i.e., the encode functions will dynamically allocate a buffer to hold the encoded message).
bufsiz	The length of the memory buffer in bytes. Should be set to zero if NULL was specified for bufaddr (i.e. dynamic encoding was selected).

6.4 XML utility functions.

Functions

- EXTERNXML int rtXmlWriteToFile (OSCTXT ∗pctxt, const char ∗filename)

  This function writes the encoded XML message stored in the context message buffer out to a file.
- EXTERNXML int **rtXmlWriteUTF16ToFile** (OSCTXT ∗pctxt, const char ∗filename)
- EXTERNXML void **rtXmlTreatWhitespaces** (OSCTXT ∗pctxt, int whiteSpaceType)
- EXTERNXML int **rtXmlCheckBuffer** (OSCTXT ∗pctxt, OSSIZE byte_count)

6.4.1 Detailed Description

6.4.2 Function Documentation

6.4.2.1 rtXmlWriteToFile()

```
EXTERNXML int rtXmlWriteToFile (
             OSCTXT * pctxt,
             const char * filename )
```

This function writes the encoded XML message stored in the context message buffer out to a file.

Parameters

pctxt	Pointer to OSCTXT structure.
filename	Full path to file to which XML is to be written.

Returns

0 - if success, negative value if error.

6.5 XML pull-parser decode functions.

Macros

- #define **OSXMLREALENC_OBJSYS** 0x1F /* Obj-Sys XML encoding rules */
- #define **OSXMLREALENC_BXER** 0x10 /* basic-XER */
- #define **OSXMLREALENC_EXERMODS** 0x1B /* extended-XER with MODIFIED-ENCODINGS */
- #define **OSXMLREALENC_EXERDECIMAL** 0x03 /* extended-XER with DECIMAL */

Functions

- EXTERNXML int rtXmlpDecAny (OSCTXT *pctxt, const OSUTF8CHAR **pvalue)

  This function decodes an arbitrary XML section of code as defined by the XSD any type (xsd:any).
- EXTERNXML int rtXmlpDecAny2 (OSCTXT *pctxt, OSUTF8CHAR **pvalue)

  This version of the rtXmlpDecAny function returns the string in a mutable buffer.
- EXTERNXML int rtXmlpDecAnyAttrStr (OSCTXT *pctxt, const OSUTF8CHAR **ppAttrStr, OSSIZE attrIndex)

  This function decodes an any attribute string.
- EXTERNXML int rtXmlpDecAnyElem (OSCTXT *pctxt, const OSUTF8CHAR **pvalue)

  This function decodes an arbitrary XML section of code as defined by the XSD any type (xsd:any).
- EXTERNXML int rtXmlpDecBase64Str (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, OSSIZE bufsize)

  This function decodes a contents of a Base64-encode binary string into a static memory structure.
- EXTERNXML int rtXmlpDecBase64Str64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, OSSIZE bufsize)

  This function is identical to rtXmlpDecBase64Str except that it supports 64-bit integer lengths on 64-bit systems.
- EXTERNXML int rtXmlpDecBigInt (OSCTXT *pctxt, const OSUTF8CHAR **pvalue)

  This function will decode a variable of the XSD integer type.
- EXTERNXML int rtXmlpDecBitString (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnbits, OSUINT32 bufsize)

  This function decodes a bit string value.
- EXTERNXML int rtXmlpDecBitString64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnbits, OSSIZE bufsize)

  This function is identical to rtXmlpDecBitString except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNXML int rtXmlpDecBitStringExt (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnbits, OSOCTET **ppextdata, OSUINT32 bufsize)

  This function decodes a bit string value.
- EXTERNXML int rtXmlpDecBitStringExt64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnbits, OSOCTET **ppextdata, OSSIZE bufsize)

  This function is identical to rtXmlpDecBitStringExt except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNXML int rtXmlpDecBool (OSCTXT *pctxt, OSBOOL *pvalue)

  This function decodes a variable of the boolean type.
- EXTERNXML int rtXmlpDecDate (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'date' type.
- EXTERNXML int rtXmlpDecDateTime (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'dateTime' type.
- EXTERNXML int rtXmlpDecDecimal (OSCTXT *pctxt, OSREAL *pvalue, int totalDigits, int fractionDigits)

  This function decodes the contents of a decimal data type.
- EXTERNXML int rtXmlpDecDouble (OSCTXT *pctxt, OSREAL *pvalue)

This function decodes the contents of a float or double data type.

- EXTERNXML int rtXmlpDecDoubleExt (OSCTXT *pctxt, OSUINT8 flags, OSREAL *pvalue)

  This function decodes the contents of a float or double data type.
- EXTERNXML int rtXmlpDecDynBase64Str (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a contents of a Base64-encode binary string.
- EXTERNXML int rtXmlpDecDynBase64Str64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)

  This function is identical to rtXmlpDecDynBase64Str except that it supports 64-bit integer lengths on 64-bit systems.
- EXTERNXML int rtXmlpDecDynBitString (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a bit string value.
- EXTERNXML int rtXmlpDecDynHexStr (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a contents of a hexBinary string.
- EXTERNXML int rtXmlpDecDynHexStr64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)

  This function is identical to the rtXmlpDecDynHexStr except that it supports lengths up to 64 bits in size on 64-bit systems.
- EXTERNXML int rtXmlpDecDynUnicodeStr (OSCTXT *pctxt, const OSUNICHAR **ppdata, OSSIZE *pnchars)

  This function decodes a Unicode string data type.
- EXTERNXML int rtXmlpDecDynUTF8Str (OSCTXT *pctxt, const OSUTF8CHAR **outdata)

  This function decodes the contents of a UTF-8 string data type.
- EXTERNXML int rtXmlpDecUTF8Str (OSCTXT *pctxt, OSUTF8CHAR *out, OSSIZE max_len)

  This function decodes the contents of a UTF-8 string data type.
- EXTERNXML int rtXmlpDecGDay (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gDay' type.
- EXTERNXML int rtXmlpDecGMonth (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gMonth' type.
- EXTERNXML int rtXmlpDecGMonthDay (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gMonthDay' type.
- EXTERNXML int rtXmlpDecGYear (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gYear' type.
- EXTERNXML int rtXmlpDecGYearMonth (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gYearMonth' type.
- EXTERNXML int rtXmlpDecHexStr (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, OSSIZE bufsize)

  This function decodes the contents of a hexBinary string into a static memory structure.
- EXTERNXML int rtXmlpDecHexStr64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, OSSIZE bufsize)

  This function is identical to rtXmlpDecHexStr except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNXML int rtXmlpDecInt (OSCTXT *pctxt, OSINT32 *pvalue)

  This function decodes the contents of a 32-bit integer data type.
- EXTERNXML int rtXmlpDecInt8 (OSCTXT *pctxt, OSINT8 *pvalue)

  This function decodes the contents of an 8-bit integer data type (i.e.
- EXTERNXML int rtXmlpDecInt16 (OSCTXT *pctxt, OSINT16 *pvalue)

  This function decodes the contents of a 16-bit integer data type.
- EXTERNXML int rtXmlpDecInt64 (OSCTXT *pctxt, OSINT64 *pvalue)

  This function decodes the contents of a 64-bit integer data type.
- EXTERNXML int rtXmlpDecNamedBits (OSCTXT *pctxt, const OSBitMapItem *pBitMap, OSOCTET *pvalue, OSUINT32 *pnbits, OSUINT32 bufsize)

  This function decodes the contents of a named bit field.
- EXTERNXML int rtXmlpDecNamedBits64 (OSCTXT *pctxt, const OSBitMapItem *pBitMap, OSOCTET *pvalue, OSSIZE *pnbits, OSSIZE bufsize)

  This function decodes the contents of a named bit field.

- EXTERNXML int rtXmlpDecStrList (OSCTXT *pctxt, OSRTDList *plist)

  This function decodes a list of space-separated tokens and returns each token as a separate item on the given list.
- EXTERNXML int rtXmlpDecTime (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'time' type.
- EXTERNXML int rtXmlpDecUInt (OSCTXT *pctxt, OSUINT32 *pvalue)

  This function decodes the contents of an unsigned 32-bit integer data type.
- EXTERNXML int rtXmlpDecUInt8 (OSCTXT *pctxt, OSOCTET *pvalue)

  This function decodes the contents of an unsigned 8-bit integer data type (i.e.
- EXTERNXML int rtXmlpDecUInt16 (OSCTXT *pctxt, OSUINT16 *pvalue)

  This function decodes the contents of an unsigned 16-bit integer data type.
- EXTERNXML int rtXmlpDecUInt64 (OSCTXT *pctxt, OSUINT64 *pvalue)

  This function decodes the contents of an unsigned 64-bit integer data type.
- EXTERNXML int rtXmlpDecXmlStr (OSCTXT *pctxt, OSXMLSTRING *outdata)

  This function decodes the contents of an XML string data type.
- EXTERNXML int rtXmlpDecXmlStrList (OSCTXT *pctxt, OSRTDList *plist)

  This function decodes a list of space-separated tokens and returns each token as a separate item on the given list.
- EXTERNXML int rtXmlpDecXSIAttr (OSCTXT *pctxt, const OSXMLNameFragments *attrName)

  This function decodes XSI (XML Schema Instance) attributes that may be present in any arbitrary XML element within a document.
- EXTERNXML int rtXmlpDecXSITypeAttr (OSCTXT *pctxt, const OSXMLNameFragments *attrName, const O↩ SUTF8CHAR **ppAttrValue)

  This function decodes the contents of an XSI (XML Schema Instance) type attribute (xsi:type).
- EXTERNXML int rtXmlpGetAttributeID (const OSXMLStrFragment *attrName, OSINT16 nsidx, OSSIZE nAttr, const OSXMLAttrDescr attrNames[ ], OSUINT32 attrPresent[ ])

  This function finds an attribute in the descriptor table.
- EXTERNXML int rtXmlpGetNextElem (OSCTXT *pctxt, OSXMLElemDescr *pElem, OSINT32 level)

  This function parse the next element start tag.
- EXTERNXML int rtXmlpGetNextElemID (OSCTXT *pctxt, const OSXMLElemIDRec *tab, OSSIZE nrows, OSI↩ NT32 level, OSBOOL continueParse)

  This function parses the next start tag and finds the index of the element name in the descriptor table.
- EXTERNXML int rtXmlpMarkLastEventActive (OSCTXT *pctxt)

  This function marks current tag as unprocessed.
- EXTERNXML int rtXmlpMatchStartTag (OSCTXT *pctxt, const OSUTF8CHAR *elemLocalName, OSINT16 nsidx)

  This function parses the next start tag that matches with given name.
- EXTERNXML int rtXmlpMatchEndTag (OSCTXT *pctxt, OSINT32 level)

  This function parse next end tag that matches with given name.
- EXTERNXML OSBOOL rtXmlpHasAttributes (OSCTXT *pctxt)

  This function checks accessibility of attributes.
- EXTERNXML int rtXmlpGetAttributeCount (OSCTXT *pctxt)

  This function returns number of attributes in last processed start tag.
- EXTERNXML int rtXmlpSelectAttribute (OSCTXT *pctxt, OSXMLNameFragments *pAttr, OSINT16 *nsidx, O↩ SSIZE attrIndex)

  This function selects attribute to decode.
- EXTERNXML OSINT32 rtXmlpGetCurrentLevel (OSCTXT *pctxt)

  This function returns current nesting level.
- EXTERNXML void rtXmlpSetWhiteSpaceMode (OSCTXT *pctxt, OSXMLWhiteSpaceMode whiteSpaceMode)

  Sets the whitespace treatment mode.

- EXTERNXML OSBOOL rtXmlpSetMixedContentMode (OSCTXT *pctxt, OSBOOL mixedContentMode)

  Sets mixed content mode.
- EXTERNXML void rtXmlpSetListMode (OSCTXT *pctxt)

  Sets list mode.
- EXTERNXML OSBOOL rtXmlpListHasItem (OSCTXT *pctxt)

  Check for end of decoded token list.
- EXTERNXML void rtXmlpCountListItems (OSCTXT *pctxt, OSSIZE *itemCnt)

  Count tokens in list.
- EXTERNXML int rtXmlpGetNextSeqElemID2 (OSCTXT *pctxt, const OSXMLElemIDRec *tab, const OSXML↩GroupDesc *pGroup, int groups, int curID, int lastMandatoryID, OSBOOL groupMode, OSBOOL checkRepeat)

  This function parses the next start tag and finds index of element name in descriptor table.
- EXTERNXML int rtXmlpGetNextSeqElemID (OSCTXT *pctxt, const OSXMLElemIDRec *tab, const OSXML↩GroupDesc *pGroup, int curID, int lastMandatoryID, OSBOOL groupMode)

  This function parses the next start tag and finds index of element name in descriptor table.
- EXTERNXML int rtXmlpGetNextSeqElemIDExt (OSCTXT *pctxt, const OSXMLElemIDRec *tab, const OSXML↩GroupDesc *ppGroup, const OSBOOL *extRequired, int postExtRootID, int curID, int lastMandatoryID, OSBOOL groupMode)

  This is an ASN.1 extension-supporting version of rtXmlpGetNextSeqElemID.
- EXTERNXML int rtXmlpGetNextAllElemID (OSCTXT *pctxt, const OSXMLElemIDRec *tab, OSSIZE nrows, const OSUINT8 *pOrder, OSSIZE nOrder, OSSIZE maxOrder, int anyID)

  This function parses the next start tag and finds index of element name in descriptor table.
- EXTERNXML int rtXmlpGetNextAllElemID16 (OSCTXT *pctxt, const OSXMLElemIDRec *tab, OSSIZE nrows, const OSUINT16 *pOrder, OSSIZE nOrder, OSSIZE maxOrder, int anyID)

  This function parses the next start tag and finds index of element name in descriptor table.
- EXTERNXML int rtXmlpGetNextAllElemID32 (OSCTXT *pctxt, const OSXMLElemIDRec *tab, OSSIZE nrows, const OSUINT32 *pOrder, OSSIZE nOrder, OSSIZE maxOrder, int anyID)

  This function parses the next start tag and finds index of element name in descriptor table.
- EXTERNXML void rtXmlpSetNamespaceTable (OSCTXT *pctxt, const OSUTF8CHAR *namespaceTable[ ], O↩SSIZE nmNamespaces)

  Sets user namespace table.
- EXTERNXML int rtXmlpCreateReader (OSCTXT *pctxt)

  Creates pull parser reader structure within the context.
- EXTERNXML void rtXmlpHideAttributes (OSCTXT *pctxt)

  Disable access to attributes.
- EXTERNXML OSBOOL rtXmlpNeedDecodeAttributes (OSCTXT *pctxt)

  This function checks if attributes were previously decoded.
- EXTERNXML void rtXmlpMarkPos (OSCTXT *pctxt)

  Save current decode position.
- EXTERNXML void rtXmlpRewindToMarkedPos (OSCTXT *pctxt)

  Rewind to saved decode position.
- EXTERNXML void rtXmlpResetMarkedPos (OSCTXT *pctxt)

  Reset saved decode position.
- EXTERNXML int rtXmlpGetXSITypeAttr (OSCTXT *pctxt, const OSUTF8CHAR **ppAttrValue, OSINT16 *nsidx, OSSIZE *pLocalOffs)

  This function decodes the contents of an XSI (XML Schema Instance) type attribute (xsi:type).
- EXTERNXML int rtXmlpGetXmlnsAttrs (OSCTXT *pctxt, OSRTDList *pNSAttrs)

  This function decodes namespace attributes from start tag and adds them to the given list.
- EXTERNXML int rtXmlpDecXSIAttrs (OSCTXT *pctxt)

This function decodes XSI (XML Schema Instance) that may be present in any arbitrary XML element within a document.

- EXTERNXML OSBOOL rtXmlpIsEmptyElement (OSCTXT *pctxt)

  Check element content: empty or not.
- EXTERNXML int rtXmlEncAttrC14N (OSCTXT *pctxt)

  This function used only in C14 mode.
- EXTERNXML struct OSXMLReader * rtXmlpGetReader (OSCTXT *pctxt)

  This function fetches the XML reader structure from the context for use in low-level pull parser calls.
- EXTERNXML OSBOOL rtXmlpIsLastEventDone (OSCTXT *pctxt)

  Check processing status of current tag.
- EXTERNXML int rtXmlpGetXSITypeIndex (OSCTXT *pctxt, const OSXMLItemDescr typetab[ ], OSSIZE typetabsiz)

  This function decodes the contents of an XSI (XML Schema Instance) type attribute (xsi:type) and find type index in descriptor table.
- EXTERNXML int rtXmlpLookupXSITypeIndex (OSCTXT *pctxt, const OSUTF8CHAR *pXsiType, OSINT16 xsi↩ TypeIdx, const OSXMLItemDescr typetab[ ], OSSIZE typetabsiz)

  This function find index of XSI (XML Schema Instance) type in descriptor table.
- EXTERNXML void rtXmlpForceDecodeAsGroup (OSCTXT *pctxt)

  Disable skipping of unknown elements in optional sequence tail.
- EXTERNXML OSBOOL rtXmlpIsDecodeAsGroup (OSCTXT *pctxt)

  This function checks if "decode as group" mode was forced.
- EXTERNXML OSBOOL rtXmlpIsUTF8Encoding (OSCTXT *pctxt)

  This function checks if the encoding specified in XML header is UTF-8.
- EXTERNXML int rtXmlpReadBytes (OSCTXT *pctxt, OSOCTET *pbuf, OSSIZE nbytes)

  This function reads the specified number of bytes directly from the underlying XML parser stream.

6.5.1 Detailed Description

6.5.2 Function Documentation

6.5.2.1 rtXmlEncAttrC14N()

```
EXTERNXML int rtXmlEncAttrC14N (
             OSCTXT * pctxt )
```

This function used only in C14 mode.

It provide atributes sorting.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.2 rtXmlpCountListItems()

```
EXTERNXML void rtXmlpCountListItems (
             OSCTXT * pctxt,
             OSSIZE * itemCnt )
```

Count tokens in list.

Parameters

pctxt	Pointer to context block structure.
itemCnt	Pointer to number of elements in list.

Returns

Token number. For element content function check accessed part of content only. Returned value may be below then real token number.

6.5.2.3 rtXmlpCreateReader()

```
EXTERNXML int rtXmlpCreateReader (
             OSCTXT * pctxt )
```

Creates pull parser reader structure within the context.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.4 rtXmlpDecAny()

```
EXTERNXML int rtXmlpDecAny (
             OSCTXT * pctxt,
             const OSUTF8CHAR ** pvalue )
```

This function decodes an arbitrary XML section of code as defined by the XSD any type (xsd:any).

The decoded XML fragment is returned as a string in the form as it appears in the document. Memory is allocated for the string using the rtxMemAlloc function.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to UTF8 character string pointer to receive decoded XML fragment. Memory is allocated for the string using the run-time memory manager.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.5 rtXmlpDecAny2()

```
EXTERNXML int rtXmlpDecAny2 (
             OSCTXT * pctxt,
             OSUTF8CHAR ** pvalue )
```

This version of the rtXmlpDecAny function returns the string in a mutable buffer.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to UTF8 character string pointer to receive decoded XML fragment. Memory is allocated for the string using the run-time memory manager.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.6 rtXmlpDecAnyAttrStr()

```
EXTERNXML int rtXmlpDecAnyAttrStr (
             OSCTXT * pctxt,
             const OSUTF8CHAR ** ppAttrStr,
             OSSIZE attrIndex )
```

This function decodes an any attribute string.

The full attribute string (name="value") is decoded and returned on the string output argument. Memory is allocated for the string using the rtxMemAlloc function.

Parameters

pctxt	Pointer to context block structure.
ppAttrStr	Pointer to UTF8 character string pointer to receive decoded attribute string. Memory is allocated for the string using the run-time memory manager.
attrIndex	Index of attribute.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.7 rtXmlpDecAnyElem()

```
EXTERNXML int rtXmlpDecAnyElem (
             OSCTXT * pctxt,
             const OSUTF8CHAR ** pvalue )
```

This function decodes an arbitrary XML section of code as defined by the XSD any type (xsd:any).

The decoded XML fragment is returned as a string in the form as it appears in the document. Memory is allocated for the string using the rtxMemAlloc function. The difference between this function and rtXmlpDecAny is that this function preserves the full encoded XML fragment including the start and end elements tags and attributes. rtXmlpDecAny decodes the contents within the start and end tags.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to UTF8 character string pointer to receive decoded XML fragment. Memory is allocated for the string using the run-time memory manager.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.8 rtXmlpDecBase64Str()

```
EXTERNXML int rtXmlpDecBase64Str (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSUINT32 * pnocts,
             OSSIZE bufsize )
```

This function decodes a contents of a Base64-encode binary string into a static memory structure.

The octet string must be Base64 encoded. This function call is used to decode a sized base64Binary string production. Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a variable to receive the decoded bit string. This is assumed to be a static array large enough to hold the number of octets specified in the bufsize input parameter.
pnocts	A pointer to an integer value to receive the decoded number of octets.
bufsize	The size (in octets) of the sized octet string. An error will occur if the number of octets in the decoded string is larger than this value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.9 rtXmlpDecBase64Str64()

```
EXTERNXML int rtXmlpDecBase64Str64 (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSSIZE * pnocts,
             OSSIZE bufsize )
```

This function is identical to rtXmlpDecBase64Str except that it supports 64-bit integer lengths on 64-bit systems.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a variable to receive the decoded bit string. This is assumed to be a static array large enough to hold the number of octets specified in the bufsize input parameter.
pnocts	A pointer to an integer value to receive the decoded number of octets.
bufsize	The size (in octets) of the sized octet string. An error will occur if the number of octets in the decoded string is larger than this value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.10 rtXmlpDecBigInt()

```
EXTERNXML int rtXmlpDecBigInt (
             OSCTXT * pctxt,
             const OSUTF8CHAR ** pvalue )
```

This function will decode a variable of the XSD integer type.

In this case, the integer is assumed to be of a larger size than can fit in a C or C++ long type (normally 32 or 64 bits). For example, parameters used to calculate security values are typically larger than these sizes.

These variables are stored in character string constant variables. The radix should be 10. If it is necessary to convert to another radix, then use rtxBigIntSetStr or rtxBigIntToString functions. Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to a pointer to receive decoded UTF-8 string. Dynamic memory is allocated for the variable using the rtMemAlloc function. The decoded variable is represented as a string starting with appropriate prefix.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.11 rtXmlpDecBitString()

```
EXTERNXML int rtXmlpDecBitString (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSUINT32 * pnbits,
             OSUINT32 bufsize )
```

This function decodes a bit string value.

The string consists of a series of '1' and '0' characters. This is the static version in which the user provides a pre-allocated memory buffer to receive the decoded data. One byte in a memory buffer can hold 8 characters of encoded data. Bits are stored from MSB to LSB order.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to a variable to receive the decoded boolean value.
pnbits	Pointer to hold decoded number of bits.
bufsize	Size of buffer passed in pvalue argument.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.12 rtXmlpDecBitString64()

```
EXTERNXML int rtXmlpDecBitString64 (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSSIZE * pnbits,
             OSSIZE bufsize )
```

This function is identical to rtXmlpDecBitString except that it supports lengths up to 64-bits in size on 64-bit machines.

This function decodes a bit string value. The string consists of a series of '1' and '0' characters. This is the static version in which the user provides a pre-allocated memory buffer to receive the decoded data. One byte in a memory buffer can hold 8 characters of encoded data. Bits are stored from MSB to LSB order.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to a variable to receive the decoded boolean value.
pnbits	Pointer to hold decoded number of bits.
bufsize	Size of buffer passed in pvalue argument.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

See also

rtXmlpDecBitString

6.5.2.13 rtXmlpDecBitStringExt()

```
EXTERNXML int rtXmlpDecBitStringExt (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSUINT32 * pnbits,
             OSOCTET ** ppextdata,
             OSUINT32 bufsize )
```

This function decodes a bit string value.

The string consists of a series of '1' and '0' characters. This is the static version in which the user provides a pre-allocated memory buffer to receive the decoded data. One byte in a memory buffer can hold 8 characters of encoded data. Bits are stored from MSB to LSB order. This version supports BIT STRINGs with the extdata member present.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to a variable to receive the decoded boolean value.
pnbits	Pointer to hold decoded number of bits.
ppextdata	Pointer to byte array containing extension data.
bufsize	Size of buffer passed in pvalue argument.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.14 rtXmlpDecBitStringExt64()

```
EXTERNXML int rtXmlpDecBitStringExt64 (
             OSCTXT * pctxt,
```

```
            OSOCTET * pvalue,
            OSSIZE * pnbits,
            OSOCTET ** ppextdata,
            OSSIZE bufsize )
```

This function is identical to rtXmlpDecBitStringExt except that it supports lengths up to 64-bits in size on 64-bit machines.

This function decodes a bit string value. The string consists of a series of '1' and '0' characters. This is the static version in which the user provides a pre-allocated memory buffer to receive the decoded data. One byte in a memory buffer can hold 8 characters of encoded data. Bits are stored from MSB to LSB order. This version supports BIT STRINGs with the extdata member present.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to a variable to receive the decoded boolean value.
pnbits	Pointer to hold decoded number of bits.
ppextdata	Pointer to byte array containing extension data.
bufsize	Size of buffer passed in pvalue argument.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

See also

rtXmlpDecBitStringExt

6.5.2.15 rtXmlpDecBool()

```
EXTERNXML int rtXmlpDecBool (
            OSCTXT * pctxt,
            OSBOOL * pvalue )
```

This function decodes a variable of the boolean type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to a variable to receive the decoded boolean value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.16 rtXmlpDecDate()

```
EXTERNXML int rtXmlpDecDate (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'date' type.

Input is expected to be a string of characters returned by an XML pull parser. The string should have CCYY-MM-DD format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.17 rtXmlpDecDateTime()

```
EXTERNXML int rtXmlpDecDateTime (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'dateTime' type.

Input is expected to be a string of characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.18 rtXmlpDecDecimal()

```
EXTERNXML int rtXmlpDecDecimal (
             OSCTXT * pctxt,
             OSREAL * pvalue,
             int totalDigits,
             int fractionDigits )
```

This function decodes the contents of a decimal data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 64-bit double value to receive decoded result.
totalDigits	Number of total digits in the decimal number from XSD totalDigits facet value. Argument should be set to -1 if facet not given.
fractionDigits	Number of fraction digits in the decimal number from XSD fractionDigits facet value. Argument should be set to -1 if facet not given.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.19 rtXmlpDecDouble()

```
EXTERNXML int rtXmlpDecDouble (
             OSCTXT * pctxt,
             OSREAL * pvalue )
```

This function decodes the contents of a float or double data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 64-bit double value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.20 rtXmlpDecDoubleExt()

```
EXTERNXML int rtXmlpDecDoubleExt (
             OSCTXT * pctxt,
             OSUINT8 flags,
             OSREAL * pvalue )
```

This function decodes the contents of a float or double data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
flags	Specifies alternatives allowed in the lexical value. See OSXMLREALENC∗ constants. bit 0 (rightmost) set: recognize INF, -INF, NaN text values bit 1 set: recognize leading '+' on normal reals bit 2 set: recognize leading '+' on INF bit 3 set: recognize leading zeros in exponent bit 4 set: recognize exponents
pvalue	Pointer to 64-bit double value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.21 rtXmlpDecDynBase64Str()

```
EXTERNXML int rtXmlpDecDynBase64Str (
             OSCTXT * pctxt,
             OSDynOctStr * pvalue )
```

This function decodes a contents of a Base64-encode binary string.

The octet string must be Base64 encoded. This function will allocate dynamic memory to store the decoded result. Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a dynamic octet string structure to receive the decoded octet string. Dynamic memory is allocated for the string using the ::rtxMemAlloc function.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.22 rtXmlpDecDynBase64Str64()

```
EXTERNXML int rtXmlpDecDynBase64Str64 (
             OSCTXT * pctxt,
             OSDynOctStr64 * pvalue )
```

This function is identical to rtXmlpDecDynBase64Str except that it supports 64-bit integer lengths on 64-bit systems.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a dynamic octet string structure to receive the decoded octet string. Dynamic memory is allocated for the string using the ::rtxMemAlloc function.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.23 rtXmlpDecDynBitString()

```
EXTERNXML int rtXmlpDecDynBitString (
             OSCTXT * pctxt,
             OSDynOctStr * pvalue )
```

This function decodes a bit string value.

The string consists of a series of '1' and '0' characters. This is the dynamic version in which memory is allocated for the returned binary string variable. Bits are stored from MSB to LSB order.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to a variable to receive the decoded boolean value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.24 rtXmlpDecDynHexStr()

```
EXTERNXML int rtXmlpDecDynHexStr (
             OSCTXT * pctxt,
             OSDynOctStr * pvalue )
```

This function decodes a contents of a hexBinary string.

This function will allocate dynamic memory to store the decoded result. Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a dynamic octet string structure to receive the decoded octet string. Dynamic memory is allocated to hold the string using the ::rtxMemAlloc function.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.25 rtXmlpDecDynHexStr64()

```
EXTERNXML int rtXmlpDecDynHexStr64 (
             OSCTXT * pctxt,
             OSDynOctStr64 * pvalue )
```

This function is identical to the rtXmlpDecDynHexStr except that it supports lengths up to 64 bits in size on 64-bit systems.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a dynamic octet string structure to receive the decoded octet string. Dynamic memory is allocated to hold the string using the ::rtxMemAlloc function.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.26 rtXmlpDecDynUnicodeStr()

```
EXTERNXML int rtXmlpDecDynUnicodeStr (
             OSCTXT * pctxt,
             const OSUNICHAR ** ppdata,
             OSSIZE * pnchars )
```

This function decodes a Unicode string data type.

The input is assumed to be in UTF-8 format. This function reads each character and converts it into its Unicode equivalent.

Parameters

pctxt	Pointer to context block structure.
ppdata	Pointer to Unicode character string. A Unicode character string is represented as an array of unsigned 16-bit integers in C. Memory is allocated for the string using the run-time memory manager.
pnchars	Pointer to integer variables to receive the number of characters in the string.

Returns

Completion status of operation:

- 0 = success,

- negative return value is error.

6.5.2.27 rtXmlpDecDynUTF8Str()

```
EXTERNXML int rtXmlpDecDynUTF8Str (
             OSCTXT * pctxt,
             const OSUTF8CHAR ** outdata )
```

This function decodes the contents of a UTF-8 string data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
outdata	Pointer to a pointer to receive decoded UTF-8 string. Memory is allocated for this string using the run-time memory manager.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.28 rtXmlpDecGDay()

```
EXTERNXML int rtXmlpDecGDay (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'gDay' type.

Input is expected to be a string of characters returned by an XML pull parser. The string should have —DD[-+hh:mm|Z] format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.29 rtXmlpDecGMonth()

```
EXTERNXML int rtXmlpDecGMonth (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'gMonth' type.

Input is expected to be a string of characters returned by an XML pull parser. The string should have –MM[-+hh:mm|Z] format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.30 rtXmlpDecGMonthDay()

```
EXTERNXML int rtXmlpDecGMonthDay (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'gMonthDay' type.

Input is expected to be a string of characters returned by an XML pull parser. The string should have –MM-DD[-+hh↩
:mm|Z] format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.31 rtXmlpDecGYear()

```
EXTERNXML int rtXmlpDecGYear (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'gYear' type.

Input is expected to be a string of characters returned by an XML pull parser. The string should have CCYY[-+hh:mm|Z] format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.32 rtXmlpDecGYearMonth()

```
EXTERNXML int rtXmlpDecGYearMonth (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'gYearMonth' type.

Input is expected to be a string of characters returned by an XML pull parser. The string should have CCYY-MM[-+hh↩
:mm|Z] format.

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.33 rtXmlpDecHexStr()

```
EXTERNXML int rtXmlpDecHexStr (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSUINT32 * pnocts,
             OSSIZE bufsize )
```

This function decodes the contents of a hexBinary string into a static memory structure.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a variable to receive the decoded bit string. This is assumed to be a static array large enough to hold the number of octets specified in the bufsize input parameter.
pnocts	A pointer to an integer value to receive the decoded number of octets.
bufsize	The size (in octets) of the sized octet string. An error will occur if the number of octets in the decoded string is larger than this value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.34 rtXmlpDecHexStr64()

```
EXTERNXML int rtXmlpDecHexStr64 (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSSIZE * pnocts,
             OSSIZE bufsize )
```

This function is identical to rtXmlpDecHexStr except that it supports lengths up to 64-bits in size on 64-bit machines.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
pvalue	A pointer to a variable to receive the decoded bit string. This is assumed to be a static array large enough to hold the number of octets specified in the bufsize input parameter.
pnocts	A pointer to an integer value to receive the decoded number of octets.
bufsize	The size (in octets) of the sized octet string. An error will occur if the number of octets in the decoded string is larger than this value.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

See also

rtXmlpDecHexStr

6.5.2.35 rtXmlpDecInt()

```
EXTERNXML int rtXmlpDecInt (
             OSCTXT * pctxt,
             OSINT32 * pvalue )
```

This function decodes the contents of a 32-bit integer data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 32-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.36 rtXmlpDecInt16()

```
EXTERNXML int rtXmlpDecInt16 (
             OSCTXT * pctxt,
             OSINT16 * pvalue )
```

This function decodes the contents of a 16-bit integer data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 16-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.37 rtXmlpDecInt64()

```
EXTERNXML int rtXmlpDecInt64 (
             OSCTXT * pctxt,
             OSINT64 * pvalue )
```

This function decodes the contents of a 64-bit integer data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 64-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.38 rtXmlpDecInt8()

```
EXTERNXML int rtXmlpDecInt8 (
             OSCTXT * pctxt,
             OSINT8 * pvalue )
```

This function decodes the contents of an 8-bit integer data type (i.e.

a signed byte type in the range of -128 to 127). Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 8-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.39 rtXmlpDecNamedBits()

```
EXTERNXML int rtXmlpDecNamedBits (
             OSCTXT * pctxt,
             const OSBitMapItem * pBitMap,
             OSOCTET * pvalue,
             OSUINT32 * pnbits,
             OSUINT32 bufsize )
```

This function decodes the contents of a named bit field.

This is a space-separated list of token values in which each token corresponds to a bit field in a bit map.

Parameters

pctxt	Pointer to context block structure.
pBitMap	Pointer to bit map structure that defined token to bit mappings.
pvalue	Pointer to buffer to recieve decoded bit map.
pnbits	Number of bits in decoded bit map.
bufsize	Size of buffer passed in to received decoded bit values.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.40 rtXmlpDecNamedBits64()

```
EXTERNXML int rtXmlpDecNamedBits64 (
             OSCTXT * pctxt,
             const OSBitMapItem * pBitMap,
             OSOCTET * pvalue,
             OSSIZE * pnbits,
             OSSIZE bufsize )
```

This function decodes the contents of a named bit field.

This is a space-separated list of token values in which each token corresponds to a bit field in a bit map.

Parameters

pctxt	Pointer to context block structure.
pBitMap	Pointer to bit map structure that defined token to bit mappings.
pvalue	Pointer to buffer to recieve decoded bit map.
pnbits	Number of bits in decoded bit map.
bufsize	Size of buffer passed in to received decoded bit values.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.41 rtXmlpDecStrList()

```
EXTERNXML int rtXmlpDecStrList (
             OSCTXT * pctxt,
             OSRTDList * plist )
```

This function decodes a list of space-separated tokens and returns each token as a separate item on the given list.

Memory is allocated for the list nodes and token values using the rtx memory management functions.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
plist	A pointer to a linked list structure to which the parsed token values will be added.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.42 rtXmlpDecTime()

```
EXTERNXML int rtXmlpDecTime (
             OSCTXT * pctxt,
             OSXSDDateTime * pvalue )
```

This function decodes a variable of the XSD 'time' type.

Input is expected to be a string of characters returned by an XML pull parser. The string should have one of following formats:

```
(1) hh-mm-ss.ss  used if tz_flag = false
(2) hh-mm-ss.ssZ used if tz_flag = false and tzo = 0
(3) hh-mm-ss.ss+HH:MM if tz_flag = false and tzo > 0
(4) hh-mm-ss.ss-HH:MM-HH:MM
                      if tz_flag = false and tzo < 0
```

Parameters

pctxt	Pointer to context block structure.
pvalue	OSXSDDateTime type pointer points to a OSXSDDateTime value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.43 rtXmlpDecUInt()

```
EXTERNXML int rtXmlpDecUInt (
             OSCTXT * pctxt,
             OSUINT32 * pvalue )
```

This function decodes the contents of an unsigned 32-bit integer data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to unsigned 32-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.44 rtXmlpDecUInt16()

```
EXTERNXML int rtXmlpDecUInt16 (
             OSCTXT * pctxt,
             OSUINT16 * pvalue )
```

This function decodes the contents of an unsigned 16-bit integer data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to unsigned 16-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.45 rtXmlpDecUInt64()

```
EXTERNXML int rtXmlpDecUInt64 (
             OSCTXT * pctxt,
             OSUINT64 * pvalue )
```

This function decodes the contents of an unsigned 64-bit integer data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to unsigned 64-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.46 rtXmlpDecUInt8()

```
EXTERNXML int rtXmlpDecUInt8 (
             OSCTXT * pctxt,
             OSOCTET * pvalue )
```

This function decodes the contents of an unsigned 8-bit integer data type (i.e.

a signed byte type in the range of 0 to 255). Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to unsigned 8-bit integer value to receive decoded result.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.47 rtXmlpDecUTF8Str()

```
EXTERNXML int rtXmlpDecUTF8Str (
             OSCTXT * pctxt,
             OSUTF8CHAR * out,
             OSSIZE max_len )
```

This function decodes the contents of a UTF-8 string data type.

Input is expected to be a string of OSUTF8CHAR characters returned by an XML pull parser.

Parameters

pctxt	Pointer to context block structure.
out	Pointer to an array of OSUTF8CHAR to receive decoded UTF-8 string.
max_len	Length of out array.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.48 rtXmlpDecXmlStr()

```
EXTERNXML int rtXmlpDecXmlStr (
             OSCTXT * pctxt,
             OSXMLSTRING * outdata )
```

This function decodes the contents of an XML string data type.

This type contains a pointer to a UTF-8 characer string plus flags that can be set to alter the encoding of the string (for example, the cdata flag allows the string to be encoded in a CDATA section). Input is expected to be a string of UTF-8 characters returned by an XML parser.

Parameters

pctxt	Pointer to context block structure.
outdata	Pointer to an XML string structure to receive the decoded string. Memory is allocated for the string using the run-time memory manager.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.49 rtXmlpDecXmlStrList()

```
EXTERNXML int rtXmlpDecXmlStrList (
             OSCTXT * pctxt,
             OSRTDList * plist )
```

This function decodes a list of space-separated tokens and returns each token as a separate item on the given list.

Memory is allocated for the list nodes and token values using the rtx memory management functions. List contains OSXMLSTRING structures.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
plist	A pointer to a linked list structure to which the parsed token values will be added.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.50 rtXmlpDecXSIAttr()

```
EXTERNXML int rtXmlpDecXSIAttr (
             OSCTXT * pctxt,
             const OSXMLNameFragments * attrName )
```

This function decodes XSI (XML Schema Instance) attributes that may be present in any arbitrary XML element within a document.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
attrName	A pointer to a structure holding various parts of an attribute name. The parts are in the form of string fragments meaning they are not null terminated. The user must be careful to use the value and length when working with them.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.51 rtXmlpDecXSIAttrs()

```
EXTERNXML int rtXmlpDecXSIAttrs (
             OSCTXT * pctxt )
```

This function decodes XSI (XML Schema Instance) that may be present in any arbitrary XML element within a document.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.52 rtXmlpDecXSITypeAttr()

```
EXTERNXML int rtXmlpDecXSITypeAttr (
             OSCTXT * pctxt,
             const OSXMLNameFragments * attrName,
             const OSUTF8CHAR ** ppAttrValue )
```

This function decodes the contents of an XSI (XML Schema Instance) type attribute (xsi:type).

Prior to calling this function, use rtXmlpSelectAttribute to select the attribute. After calling this function, if you want to read the same attribute again, you will need to call rtXmlpSelectAttribute again.

Parameters

pctxt	A pointer to a context structure. This provides a storage area for the function to store all working variables that must be maintained between function calls.
attrName	A pointer to a structure holding various parts of an attribute name. The parts are in the form of string fragments meaning they are not null terminated. The user must be careful to use the value and length when working with them.
ppAttrValue	A pointer to a pointer to a UTF8 character string to received the decoded XSI type name.

Returns

Completion status of operation:

- 0 = success,
- 1 = OK, but attrName was not xsi:type (i.e. no attribute match)
- negative return value is error.

6.5.2.53 rtXmlpForceDecodeAsGroup()

```
EXTERNXML void rtXmlpForceDecodeAsGroup (
             OSCTXT * pctxt )
```

Disable skipping of unknown elements in optional sequence tail.

Function used in outer types to break decode on first unknown element after decoding mandatory sequence part.

Parameters

pctxt	Pointer to context block structure.

6.5.2.54 rtXmlpGetAttributeCount()

```
EXTERNXML int rtXmlpGetAttributeCount (
             OSCTXT * pctxt )
```

This function returns number of attributes in last processed start tag.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- zero or positive value is atributes number,
- negative return value is error.

6.5.2.55 rtXmlpGetAttributeID()

```
EXTERNXML int rtXmlpGetAttributeID (
             const OSXMLStrFragment * attrName,
             OSINT16 nsidx,
             OSSIZE nAttr,
             const OSXMLAttrDescr attrNames[],
             OSUINT32 attrPresent[] )
```

This function finds an attribute in the descriptor table.

Parameters

attrName	A pointer to a structure holding various parts of an attribute name. The parts are in the form of string fragments meaning they are not null terminated. The user must be careful to use the value and length when working with them.
nsidx	Namespace index: • 0 = attribute is unqualified, • positive value is user namespace from generated namespace table, • negative value is predefined namespace like XSD instance and ect.
nAttr	Number of descriptors in table.
attrNames	Attributes descriptor table.
attrPresent	Bit array to mark already decoded attributes. It is used to identify duplicate attributes.

Returns

Completion status of operation:

- positive or zero return value is attribute index in descriptor table,
- negative return value is error.

6.5.2.56 rtXmlpGetCurrentLevel()

```
EXTERNXML OSINT32 rtXmlpGetCurrentLevel (
             OSCTXT * pctxt )
```

This function returns current nesting level.

Parameters

pctxt	Pointer to context block structure.

Returns

Current nesting level.

6.5.2.57 rtXmlpGetNextAllElemID()

```
EXTERNXML int rtXmlpGetNextAllElemID (
             OSCTXT * pctxt,
             const OSXMLElemIDRec * tab,
             OSSIZE nrows,
             const OSUINT8 * pOrder,
             OSSIZE nOrder,
             OSSIZE maxOrder,
             int anyID )
```

This function parses the next start tag and finds index of element name in descriptor table.

It used for decode "all" content model in strict mode.

Parameters

pctxt	Pointer to context block structure.
tab	Elements descriptor table.
nrows	Number of descriptors in table.
pOrder	Pointer to array to receive elements order.
nOrder	Last element's index in order array.
maxOrder	Size of order array.
anyID	Identifier of xsd:any element.

Returns

Completion status of operation:

- positive or zero value is element identifier,
- negative return value is error.

6.5.2.58 rtXmlpGetNextAllElemID16()

```
EXTERNXML int rtXmlpGetNextAllElemID16 (
             OSCTXT * pctxt,
             const OSXMLElemIDRec * tab,
             OSSIZE nrows,
             const OSUINT16 * pOrder,
```

```
            OSSIZE nOrder,
            OSSIZE maxOrder,
            int anyID )
```

This function parses the next start tag and finds index of element name in descriptor table.

It used for decode "all" content model in strict mode. This variant used when xsd:all has above 256 elements.

Parameters

pctxt	Pointer to context block structure.
tab	Elements descriptor table.
nrows	Number of descriptors in table.
pOrder	Pointer to array to receive elements order.
nOrder	Last element's index in order array.
maxOrder	Size of order array.
anyID	Identifier of xsd:any element.

Returns

Completion status of operation:

- positive or zero value is element identifier,
- negative return value is error.

6.5.2.59 rtXmlpGetNextAllElemID32()

```
EXTERNXML int rtXmlpGetNextAllElemID32 (
            OSCTXT * pctxt,
            const OSXMLElemIDRec * tab,
            OSSIZE nrows,
            const OSUINT32 * pOrder,
            OSSIZE nOrder,
            OSSIZE maxOrder,
            int anyID )
```

This function parses the next start tag and finds index of element name in descriptor table.

It used for decode "all" content model in strict mode.

Parameters

pctxt	Pointer to context block structure.
tab	Elements descriptor table.
nrows	Number of descriptors in table.
pOrder	Pointer to array to receive elements order.
nOrder	Last element's index in order array.
maxOrder	Size of order array.
anyID	Identifier of xsd:any element.

Returns

Completion status of operation:

- positive or zero value is element identifier,
- negative return value is error.

6.5.2.60 rtXmlpGetNextElem()

```
EXTERNXML int rtXmlpGetNextElem (
             OSCTXT * pctxt,
             OSXMLElemDescr * pElem,
             OSINT32 level )
```

This function parse the next element start tag.

Parameters

pctxt	Pointer to context block structure.
pElem	Pointer to a structure to receive the decoded element descriptor.
level	Nesting level of parsed start tag. When value equal -1 parsed next start tag.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.61 rtXmlpGetNextElemID()

```
EXTERNXML int rtXmlpGetNextElemID (
             OSCTXT * pctxt,
             const OSXMLElemIDRec * tab,
             OSSIZE nrows,
             OSINT32 level,
             OSBOOL continueParse )
```

This function parses the next start tag and finds the index of the element name in the descriptor table.

If this reaches the closing tag for the current level, it returns XML_OK_EOB. If this encounters an unexpected element and !continueParse, it returns RTERR_UNEXPELEM (without logging it).

Parameters

pctxt	Pointer to context block structure.
tab	Elements descriptor table.
nrows	Number of descriptors in table.
level	Nesting level of parsed start tag. When value equal -1 function parse next start tag.
continueParse	When value equals TRUE function skips unrecognized elements; skipped elements are logged, but an error is not returned.

Returns

Completion status of operation:

- positive or zero value is element identifier,
- negative return value is error.

6.5.2.62 rtXmlpGetNextSeqElemID()

```
EXTERNXML int rtXmlpGetNextSeqElemID (
             OSCTXT * pctxt,
             const OSXMLElemIDRec * tab,
             const OSXMLGroupDesc * pGroup,
             int curID,
             int lastMandatoryID,
             OSBOOL groupMode )
```

This function parses the next start tag and finds index of element name in descriptor table.

It is used to decode sequences in strict mode.

Handling of unexpected elements:

- If the current decode group includes an any case, unexpected elements will be matched against it (the any case id will be returned).
- Otherwise, if groupMode is true, and the element identified by lastMandatoryID has been reached, XML_OK_EOB is returned. The unexpected element may belong to something following the elements in tab.
- If neither of the above applies, unknown elements will be logged and skipped over, with this method continuing as if the unexpected element were not present. Handling of the case of reaching closing tag for current level:
- If the last mandatory element is reached, return XML_OK_EOB.
- Otherwise, log and return XML_E_ELEMSMISRQ.

This function is equivalent to: rtXmlpGetNextSeqElemID2(pctxt, tab, pGroup, curID, lastMandatoryID, groupMode, F↩ ALSE);

Parameters

pctxt	Pointer to context block structure.
tab	Elements descriptor table.
pGroup	Decode groups table.
curID	Current decode group.
lastMandatoryID	Identifier of last mandatory element.
groupMode	This parameter must be setted to TRUE when decoding groups or base types.

Returns

Completion status of operation:

- positive or zero value is element identifier,
- negative return value is error.

6.5.2.63 rtXmlpGetNextSeqElemID2()

```
EXTERNXML int rtXmlpGetNextSeqElemID2 (
             OSCTXT * pctxt,
             const OSXMLElemIDRec * tab,
             const OSXMLGroupDesc * pGroup,
             int groups,
             int curID,
             int lastMandatoryID,
             OSBOOL groupMode,
             OSBOOL checkRepeat )
```

This function parses the next start tag and finds index of element name in descriptor table.

It is used to decode sequences in strict mode.

Parameters

pctxt	Pointer to context block structure.
tab	Elements descriptor table.
pGroup	Decode groups table.
groups	Number of groups in groups table. If checkRepeat is FALSE, you can pass 0 for this if the value is unknown.
curID	Current decode group.
lastMandatoryID	Identifier of last mandatory element.
groupMode	This parameter must be setted to TRUE when decode groups or base types.
checkRepeat	If true, this method is being called to check for a repeat of curID. In this case, we do not treat curID as being required. Otherwise, curID is required if curId <= lastMandatoryID.

Returns

Completion status of operation:

- positive or zero value is element identifier,
- negative return value is error.

6.5.2.64 rtXmlpGetNextSeqElemIDExt()

```
EXTERNXML int rtXmlpGetNextSeqElemIDExt (
             OSCTXT * pctxt,
             const OSXMLElemIDRec * tab,
             const OSXMLGroupDesc * ppGroup,
             const OSBOOL * extRequired,
             int postExtRootID,
             int curID,
             int lastMandatoryID,
             OSBOOL groupMode )
```

This is an ASN.1 extension-supporting version of rtXmlpGetNextSeqElemID.

It allows required extension elements to be absent, except that when an extension group is present, all required extension elements in that group must be present. It otherwise behaves the same as rtXmlpGetNextSeqElemID.

Parameters

pctxt	Pointer to context block structure.
tab	Elements descriptor table.
pGroup	Decode groups table.
extRequired	extRequired[i] corresponds to pGroup[i]. This is TRUE if and only if the decode group ends with a non-optional, non-default extension element that must be present in the encoding (because it is inside an extension group for which some element has already been decoded).
postExtRootID	This is the group id corresponding to the decode group that begins with the first root element that follows the extension additions. If there is no such element, this is -1.
curID	Current decode group.
lastMandatoryID	Identifier of last mandatory element.
groupMode	This parameter must be setted to TRUE when decoding groups or base types.

Returns

Completion status of operation:

- positive or zero value is element identifier,
- negative return value is error.

6.5.2.65 rtXmlpGetReader()

```
EXTERNXML struct OSXMLReader* rtXmlpGetReader (
             OSCTXT * pctxt )
```

This function fetches the XML reader structure from the context for use in low-level pull parser calls.

If the reader structure does not exist, it is created and initialized.

Parameters

pctxt	Pointer to context block structure.

Returns

Pointer to XML reader structure or NULL if an error occurred.

6.5.2.66 rtXmlpGetXmlnsAttrs()

```
EXTERNXML int rtXmlpGetXmlnsAttrs (
             OSCTXT * pctxt,
             OSRTDList * pNSAttrs )
```

This function decodes namespace attributes from start tag and adds them to the given list.

Parameters

pctxt	Pointer to context block structure.
pNSAttrs	A pointer to a linked list of OSXMLNamespace structures.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.67 rtXmlpGetXSITypeAttr()

```
EXTERNXML int rtXmlpGetXSITypeAttr (
             OSCTXT * pctxt,
```

```
const OSUTF8CHAR ** ppAttrValue,
OSINT16 * nsidx,
OSSIZE * pLocalOffs )
```

This function decodes the contents of an XSI (XML Schema Instance) type attribute (xsi:type).

Parameters

pctxt	Pointer to context block structure.
ppAttrValue	A pointer to a pointer to a UTF8 character string to received the decoded XSI type QName.
nsidx	A pointer to OSINT16 value to received the decoded XSI type namespace index.
pLocalOffs	A pointer to size_t value to received the local name offset in ppAttrValue. When pLocalOffs value equal NULL function return in ppAttrValue local name only.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.68 rtXmlpGetXSITypeIndex()

```
EXTERNXML int rtXmlpGetXSITypeIndex (
             OSCTXT * pctxt,
             const OSXMLItemDescr typetab[],
             OSSIZE typetabsiz )
```

This function decodes the contents of an XSI (XML Schema Instance) type attribute (xsi:type) and find type index in descriptor table.

Parameters

pctxt	Pointer to context block structure.
typetab	XSI types descriptor table.
typetabsiz	Number of descriptors in table.

Returns

Completion status of operation:

- positive or zero value is type index,
- negative return value is error.

6.5.2.69 rtXmlpHasAttributes()

```
EXTERNXML OSBOOL rtXmlpHasAttributes (
             OSCTXT * pctxt )
```

This function checks accessibility of attributes.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- TRUE = attributes are present and access is enabled,
- FALSE = attributes are absent or access is disabled.

6.5.2.70 rtXmlpHideAttributes()

```
EXTERNXML void rtXmlpHideAttributes (
             OSCTXT * pctxt )
```

Disable access to attributes.

Function used in derived types to disable repeated decode in base type.

Parameters

pctxt	Pointer to context block structure.

6.5.2.71 rtXmlpIsDecodeAsGroup()

```
EXTERNXML OSBOOL rtXmlpIsDecodeAsGroup (
             OSCTXT * pctxt )
```

This function checks if "decode as group" mode was forced.

Parameters

pctxt	Pointer to context block structure.

Returns

State of mode:

- TRUE = need decode as group,
- FALSE = normal sequence decoding.

6.5.2.72 rtXmlpIsEmptyElement()

```
EXTERNXML OSBOOL rtXmlpIsEmptyElement (
             OSCTXT * pctxt )
```

Check element content: empty or not.

Parameters

pctxt	Pointer to context block structure.

Returns

Status of element content:

- TRUE = element is empty,
- FALSE = element has content.

6.5.2.73 rtXmlpIsLastEventDone()

```
EXTERNXML OSBOOL rtXmlpIsLastEventDone (
             OSCTXT * pctxt )
```

Check processing status of current tag.

Parameters

pctxt	Pointer to context block structure.

Returns

Status of element content:

- TRUE = tag marked as processed,
- FALSE = tag will be processed again.

6.5.2.74 rtXmlpIsUTF8Encoding()

```
EXTERNXML OSBOOL rtXmlpIsUTF8Encoding (
             OSCTXT * pctxt )
```

This function checks if the encoding specified in XML header is UTF-8.

Parameters

pctxt	Pointer to context block structure.

Returns

State of mode:

- TRUE = is in UTF-8 encoding,
- FALSE = is not in UTF-8 encoding.

6.5.2.75 rtXmlpListHasItem()

```
EXTERNXML OSBOOL rtXmlpListHasItem (
             OSCTXT * pctxt )
```

Check for end of decoded token list.

Parameters

pctxt	Pointer to context block structure.

Returns

State of decoded list:

- TRUE = list is not finished,
- FALSE = all tokens was decoded.

6.5.2.76 rtXmlpLookupXSITypeIndex()

```
EXTERNXML int rtXmlpLookupXSITypeIndex (
             OSCTXT * pctxt,
             const OSUTF8CHAR * pXsiType,
             OSINT16 xsiTypeIdx,
             const OSXMLItemDescr typetab[],
             OSSIZE typetabsiz )
```

This function find index of XSI (XML Schema Instance) type in descriptor table.

Parameters

pctxt	Pointer to context block structure.
pXsiType	A pointer to XSI type name.
xsiTypeIdx	A XSI type namespace index.
typetab	XSI types descriptor table.
typetabsiz	Number of descriptors in table.

Returns

Completion status of operation:

- positive or zero value is type index,
- negative return value is error.

6.5.2.77 rtXmlpMarkLastEventActive()

```
EXTERNXML int rtXmlpMarkLastEventActive (
             OSCTXT * pctxt )
```

This function marks current tag as unprocessed.

This will cause the element to be processed again in the next pull-parser function.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.78 rtXmlpMarkPos()

```
EXTERNXML void rtXmlpMarkPos (
             OSCTXT * pctxt )
```

Save current decode position.

Parameters

pctxt	Pointer to context block structure.

6.5.2.79 rtXmlpMatchEndTag()

```
EXTERNXML int rtXmlpMatchEndTag (
```

```
            OSCTXT * pctxt,
            OSINT32 level )
```

This function parse next end tag that matches with given name.

Parameters

pctxt	Pointer to context block structure.
level	Nesting level of parsed start tag. When value equal -1 function parse next end tag with current level.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.80 rtXmlpMatchStartTag()

```
EXTERNXML int rtXmlpMatchStartTag (
            OSCTXT * pctxt,
            const OSUTF8CHAR * elemLocalName,
            OSINT16 nsidx )
```

This function parses the next start tag that matches with given name.

Parameters

pctxt	Pointer to context block structure.
elemLocalName	Name of parsed element.
nsidx	Namespace index: • 0 = attribute is unqualified, • positive value is user namespace from generated namespace table, • negative value is predefined namespace like XSD instance and ect.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

6.5.2.81 rtXmlpNeedDecodeAttributes()

```
EXTERNXML OSBOOL rtXmlpNeedDecodeAttributes (
             OSCTXT * pctxt )
```

This function checks if attributes were previously decoded.

Parameters

pctxt	Pointer to context block structure.

Returns

State of attributes:

- TRUE = attributes was not decoded,
- FALSE = attributes had been decoded.

6.5.2.82 rtXmlpReadBytes()

```
EXTERNXML int rtXmlpReadBytes (
             OSCTXT * pctxt,
             OSOCTET * pbuf,
             OSSIZE nbytes )
```

This function reads the specified number of bytes directly from the underlying XML parser stream.

It has no effect on any of the parser state variables.

Parameters

pctxt	Pointer to context block structure.
pbuf	Pointer to static buffer (byte array) to receive data. The buffer must be at least large enough to hold the requested number of bytes.
nbytes	Number of bytes to read.

Returns

State of mode:

- TRUE = is in UTF-8 encoding,
- FALSE = is not in UTF-8 encoding.

6.5.2.83 rtXmlpResetMarkedPos()

```
EXTERNXML void rtXmlpResetMarkedPos (
             OSCTXT * pctxt )
```

Reset saved decode position.

Parameters

pctxt	Pointer to context block structure.

6.5.2.84 rtXmlpRewindToMarkedPos()

```
EXTERNXML void rtXmlpRewindToMarkedPos (
             OSCTXT * pctxt )
```

Rewind to saved decode position.

Parameters

pctxt	Pointer to context block structure.

6.5.2.85 rtXmlpSelectAttribute()

```
EXTERNXML int rtXmlpSelectAttribute (
             OSCTXT * pctxt,
             OSXMLNameFragments * pAttr,
             OSINT16 * nsidx,
             OSSIZE attrIndex )
```

This function selects attribute to decode.

Parameters

pctxt	Pointer to context block structure.
pAttr	Pointer to structure to receive the various parts of an attribute name.
nsidx	Pointer to value to receive namespace index: • 0 = attribute is unqualified, • positive value is user namespace from generated namespace table, • negative value is predefined namespace like XSD instance and ect (see enum OSXMLNsIndex)
attrIndex	Index of selected attribute.

Returns

Completion status of operation:

- positive or zero return value is attribute index in descriptor table,
- negative return value is error.

6.5.2.86 rtXmlpSetListMode()

```
EXTERNXML void rtXmlpSetListMode (
             OSCTXT * pctxt )
```

Sets list mode.

Attribute value or element content is decoded by tokens.

Parameters

pctxt	Pointer to context block structure.

6.5.2.87 rtXmlpSetMixedContentMode()

```
EXTERNXML OSBOOL rtXmlpSetMixedContentMode (
             OSCTXT * pctxt,
             OSBOOL mixedContentMode )
```

Sets mixed content mode.

Parameters

pctxt	Pointer to context block structure.
mixedContentMode	Enable/disable mixed mode.

Returns

Previously state of mixed mode.

6.5.2.88 rtXmlpSetNamespaceTable()

```
EXTERNXML void rtXmlpSetNamespaceTable (
             OSCTXT * pctxt,
```

```
            const OSUTF8CHAR * namespaceTable[],
            OSSIZE nmNamespaces )
```

Sets user namespace table.

Parameters

pctxt	Pointer to context block structure.
namespaceTable	Array of namespace URI strings.
nmNamespaces	Number of namespaces in table.

6.5.2.89 rtXmlpSetWhiteSpaceMode()

```
EXTERNXML void rtXmlpSetWhiteSpaceMode (
            OSCTXT * pctxt,
            OSXMLWhiteSpaceMode whiteSpaceMode )
```

Sets the whitespace treatment mode.

This mode affects the content and attribute values reading. For example, if OSXMLWSM_COLLAPSE mode is set then all spaces in returned data will be already collapsed.

Parameters

pctxt	Pointer to context block structure.
whiteSpaceMode	White space mode.

Returns

Previously set whitespace mode.

6.6 XML run-time error status codes.

This is a list of status codes that can be returned by XML run-time functions and generated code.

Macros

- #define XML_OK_EOB 0x7fffffff

  End of block marker.
- #define XML_OK_FRAG XML_OK_EOB

  Maintained for backward compatibility.
- #define XML_E_BASE -200

  Error base.
- #define XML_E_GENERR (XML_E_BASE)

  General error.
- #define XML_E_INVSYMBOL (XML_E_BASE-1)

  An invalid XML symbol (character) was detected at the given point in the parse stream.
- #define XML_E_TAGMISMATCH (XML_E_BASE-2)

  Start/end tag mismatch.
- #define XML_E_DUPLATTR (XML_E_BASE-3)

  Duplicate attribute found.
- #define XML_E_BADCHARREF (XML_E_BASE-4)

  Bad character reference found.
- #define XML_E_INVMODE (XML_E_BASE-5)

  Invalid mode.
- #define XML_E_UNEXPEOF (XML_E_BASE-6)

  Unexpected end of file (document).
- #define XML_E_NOMATCH (XML_E_BASE-7)

  Current tag is not matched to specified one.
- #define XML_E_ELEMMISRQ (XML_E_BASE-8)

  Missing required element.
- #define XML_E_ELEMSMISRQ (XML_E_BASE-9)

  Missing required elements.
- #define XML_E_TOOFEWELEMS (XML_E_BASE-10)

  The number of elements in a repeating collection was less than the number of elements specified in the XSD minOccurs facet for this type or element.
- #define XML_E_UNEXPSTARTTAG (XML_E_BASE-11)

  Unexpected start tag.
- #define XML_E_UNEXPENDTAG (XML_E_BASE-12)

  Unexpected end tag.
- #define XML_E_IDNOTFOU (XML_E_BASE-13)

  Expected identifier not found.
- #define XML_E_INVTYPEINFO (XML_E_BASE-14)

  Unknown xsi:type.
- #define XML_E_NSURINOTFOU (XML_E_BASE-15)

  Namespace URI not defined for given prefix.
- #define XML_E_KEYNOTFOU (XML_E_BASE-16)

Keyref constraint has some key that not present in refered constraint.

- #define XML_E_DUPLKEY (XML_E_BASE-17)

  Key or unique constraint has duplicated key.
- #define XML_E_FLDABSENT (XML_E_BASE-18)

  Some key has no full set of fields.
- #define XML_E_DUPLFLD (XML_E_BASE-19)

  Some key has more than one value for field.
- #define XML_E_NOTEMPTY (XML_E_BASE-20)

  An element was not empty when expected.

6.6.1 Detailed Description

This is a list of status codes that can be returned by XML run-time functions and generated code.

In many cases, additional information and parameters for the different errors are stored in the context structure at the time the error in raised. This additional information can be output using the `rtxErrPrint` or `rtxErrLogUsingCB` run-time functions.

6.6.2 Macro Definition Documentation

6.6.2.1 XML_E_BASE

```
#define XML_E_BASE -200
```

Error base.

XML specific errors start at this base number to distinguish them from common and other error types.

Definition at line 60 of file rtXmlErrCodes.h.

6.6.2.2 XML_E_ELEMMISRQ

```
#define XML_E_ELEMMISRQ (XML_E_BASE-8)
```

Missing required element.

This status code is returned by the decoder when the decoder knows exactly which element is absent.

Definition at line 121 of file rtXmlErrCodes.h.

6.6.2.3 XML_E_ELEMSMISRQ

```
#define XML_E_ELEMSMISRQ (XML_E_BASE-9)
```

Missing required elements.

This status code is returned by the decoder when the number of elements decoded for a given content model group is less then the required number of elements as specified in the schema.

Definition at line 128 of file rtXmlErrCodes.h.

6.6.2.4 XML_E_FLDABSENT

```
#define XML_E_FLDABSENT (XML_E_BASE-18)
```

Some key has no full set of fields.

It is not valid for key constraint.

Definition at line 199 of file rtXmlErrCodes.h.

6.6.2.5 XML_E_NOMATCH

```
#define XML_E_NOMATCH (XML_E_BASE-7)
```

Current tag is not matched to specified one.

Informational code.

Definition at line 115 of file rtXmlErrCodes.h.

6.6.2.6 XML_E_NSURINOTFOU

```
#define XML_E_NSURINOTFOU (XML_E_BASE-15)
```

Namespace URI not defined for given prefix.

A namespace URI was not defined using an xmlns attribute for the given prefix.

Definition at line 166 of file rtXmlErrCodes.h.

6.6.2.7 XML_E_TAGMISMATCH

```
#define XML_E_TAGMISMATCH (XML_E_BASE-2)
```

Start/end tag mismatch.

The parsed end tag does not match the start tag that was parsed earlier at this level. Indicates document is not well-formed.

Definition at line 90 of file rtXmlErrCodes.h.

6.6.2.8 XML_OK_EOB

```
#define XML_OK_EOB 0x7fffffff
```

End of block marker.

Definition at line 51 of file rtXmlErrCodes.h.

6.6.2.9 XML_OK_FRAG

```
#define XML_OK_FRAG XML_OK_EOB
```

Maintained for backward compatibility.

Definition at line 54 of file rtXmlErrCodes.h.

Chapter 7

Data Structure Documentation

7.1 OSIntegerFmt Struct Reference

Data Fields

- OSINT8 **integerMaxDigits**
- OSBOOL **signPresent**

7.1.1 Detailed Description

Definition at line 273 of file osrtxml.h.

The documentation for this struct was generated from the following file:

- osrtxml.h

7.2 OSXMLCtxtInfo Struct Reference

Data Fields

- OSFreeCtxtAppInfoPtr **pFreeFunc**
- OSResetCtxtAppInfoPtr **pResetFunc**
- OSUTF8CHAR * **schemaLocation**
- OSUTF8CHAR * **noNSSchemaLoc**
- OSUTF8CHAR * **xsiTypeAttr**
- OSXMLEncoding **encoding**
- OSRTDList **namespaceList**
- OSRTDList **encodedNSList**
- OSRTDList **sortedAttrList**
- OSXMLNSPfxLinkStack **nsPfxLinkStack**

- OSXMLNSURITable **nsURITable**
- OSRTMEMBUF **memBuf**
- OSINT32 **mSaxLevel**
- OSINT32 **mSkipLevel**
- OSUINT32 **maxSaxErrors**
- OSUINT32 **errorsCnt**
- OSUINT8 **indent**
- OSBOOL **mbCdataProcessed**
- char **indentChar**
- OSUINT8 **soapVersion**
- OSXMLFacets **facets**
- const OSUTF8CHAR * **encodingStr**
- OSXMLBOM **byteOrderMark**
- struct OSXMLReader * **pXmlPPReader**
- OSRTBuffer **savedBuffer**
- OSRTFLAGS **savedFlags**
- OSOCTET * **attrsBuff**
- OSSIZE **attrsBuffSize**
- OSSIZE **attrStartPos**

7.2.1 Detailed Description

Definition at line 207 of file osrtxml.h.

The documentation for this struct was generated from the following file:

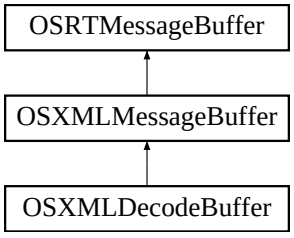
- osrtxml.h

7.3 OSXMLDecodeBuffer Class Reference

The OSXMLDecodeBuffer class is derived from the OSXMLMessageBuffer base class.

```
#include <OSXMLDecodeBuffer.h>
```

Inheritance diagram for OSXMLDecodeBuffer:



Public Member Functions

- OSXMLDecodeBuffer (const char *xmlFile)

  This version of the OSXMLDecodeBuffer constructor takes a name of a file that contains XML data to be decoded and constructs a buffer.
- OSXMLDecodeBuffer (const OSOCTET *msgbuf, size_t bufsiz)

  This version of the OSXMLDecodeBuffer constructor takes parameters describing a message in memory to be decoded and constructs a buffer.
- OSXMLDecodeBuffer (OSRTInputStream &inputStream)

  This version of the OSXMLDecodeBuffer constructor takes a reference to the OSInputStream object.
- EXTXMLMETHOD int decodeXML (OSXMLReaderClass *pReader)

  This method decodes an XML message associated with this buffer.
- virtual EXTXMLMETHOD int init ()

  This method initializes the decode message buffer.
- EXTXMLMETHOD OSBOOL isWellFormed ()

  This method determines if an XML fragment is well-formed.
- EXTXMLMETHOD int parseElementName (OSUTF8CHAR **ppName)

  This method parses the initial tag from an XML message.
- EXTXMLMETHOD int parseElemQName (OSXMLQName *pQName)

  This method parses the initial tag from an XML message.
- EXTXMLMETHOD OSUINT32 setMaxErrors (OSUINT32 maxErrors)

  This method sets the maximum number of errors returned by the SAX parser.
- virtual OSBOOL isA (Type bufferType)

  This is a virtual method that must be overridden by derived classes to allow identification of the class.

Protected Attributes

- OSRTInputStream * mpInputStream

  Input source for message to be decoded.
- OSBOOL mbOwnStream

  This is set to true if this object creates the underlying stream object.

Additional Inherited Members

7.3.1 Detailed Description

The OSXMLDecodeBuffer class is derived from the OSXMLMessageBuffer base class.

It contains variables and methods specific to decoding XML messages. It is used to manage an input buffer or stream containing a message to be decoded.

Note that the XML decode buffer object does not take a message buffer argument because buffer management is handled by the XML parser.

Definition at line 45 of file OSXMLDecodeBuffer.h.

7.3.2 Constructor & Destructor Documentation

7.3.2.1 OSXMLDecodeBuffer() [1/3]

```
OSXMLDecodeBuffer::OSXMLDecodeBuffer (
            const char * xmlFile )
```

This version of the OSXMLDecodeBuffer constructor takes a name of a file that contains XML data to be decoded and constructs a buffer.

Parameters

xmlFile	A pointer to name of file to be decoded.

7.3.2.2 OSXMLDecodeBuffer() [2/3]

```
OSXMLDecodeBuffer::OSXMLDecodeBuffer (
            const OSOCTET * msgbuf,
            size_t bufsiz )
```

This version of the OSXMLDecodeBuffer constructor takes parameters describing a message in memory to be decoded and constructs a buffer.

Parameters

msgbuf	A pointer to a buffer containing an XML message.
bufsiz	Size of the message buffer.

7.3.2.3 OSXMLDecodeBuffer() [3/3]

```
OSXMLDecodeBuffer::OSXMLDecodeBuffer (
            OSRTInputStream & inputStream )
```

This version of the OSXMLDecodeBuffer constructor takes a reference to the OSInputStream object.

The stream is assumed to have been previuously initialized to point at an encoded XML message.

Parameters

inputStream	reference to the OSInputStream object

7.3.3 Member Function Documentation

7.3.3.1 decodeXML()

```
EXTXMLMETHOD int OSXMLDecodeBuffer::decodeXML (
            OSXMLReaderClass * pReader )
```

This method decodes an XML message associated with this buffer.

Returns

stat Status of the operation. Possible values are 0 if successful or one of the negative error status codes defined in Appendix A of the C/C++ runtime Common Functions Reference Manual.

Parameters

pReader	Pointer to OSXMLReaderClass object.

Returns

Completion status.

7.3.3.2 init()

```
virtual EXTXMLMETHOD int OSXMLDecodeBuffer::init ( )  [virtual]
```

This method initializes the decode message buffer.

Returns

Completion status of operation:

- 0 (0) = success,
- negative return value is error.

7.3.3.3 isA()

```
virtual OSBOOL OSXMLDecodeBuffer::isA (
            Type bufferType )  [inline], [virtual]
```

This is a virtual method that must be overridden by derived classes to allow identification of the class.

The base class variant is abstract. This method matches an enumerated identifier defined in the base class. One identifier is declared for each of the derived classes.

Parameters

bufferType	Enumerated identifier specifying a derived class. This type is defined as a public access type in the OSRTMessageBufferIF base interface. Possible values include BEREncode, BERDecode, PEREncode, PERDecode, XMLEncode, and XMLDecode.

Returns

Boolean result of the match operation. True if the `bufferType` argument is `XMLDecode`. argument.

Definition at line 169 of file OSXMLDecodeBuffer.h.

7.3.3.4 isWellFormed()

```
EXTXMLMETHOD OSBOOL OSXMLDecodeBuffer::isWellFormed ( )
```

This method determines if an XML fragment is well-formed.

The stream is reset to the start position following the test.

Returns

Boolean result true if fragment well-formed; false otherwise.

7.3.3.5 parseElementName()

```
EXTXMLMETHOD int OSXMLDecodeBuffer::parseElementName (
            OSUTF8CHAR ** ppName )
```

This method parses the initial tag from an XML message.

If the tag is a QName, only the local part of the name is returned.

Parameters

ppName	Pointer to a pointer to receive decoded UTF-8 string. Dynamic memory is allocated for the variable using the rtxMemAlloc function.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

7.3.3.6 parseElemQName()

```
EXTXMLMETHOD int OSXMLDecodeBuffer::parseElemQName (
             OSXMLQName * pQName )
```

This method parses the initial tag from an XML message.

Parameters

pQName	Pointer to a QName structure to receive parsed name prefix and local name. Dynamic memory is allocated for both name parts using the rtxMemAlloc function.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

7.3.3.7 setMaxErrors()

```
EXTXMLMETHOD OSUINT32 OSXMLDecodeBuffer::setMaxErrors (
             OSUINT32 maxErrors )
```

This method sets the maximum number of errors returned by the SAX parser.

Parameters

maxErrors	The desired number of maximum errors.

Returns

The previously set maximum number of errors.

7.3.4 Field Documentation

7.3.4.1 mbOwnStream

```
OSBOOL OSXMLDecodeBuffer::mbOwnStream  [protected]
```

This is set to true if this object creates the underlying stream object.

In this case, the stream will be deleted in the object's destructor.

Definition at line 57 of file OSXMLDecodeBuffer.h.

The documentation for this class was generated from the following file:

- OSXMLDecodeBuffer.h

7.4 OSXMLElemIDRec Struct Reference

Data Fields

- OSXMLElemDescr **descr**
- OSUINT16 **id**

7.4.1 Detailed Description

Definition at line 126 of file osrtxml.h.

The documentation for this struct was generated from the following file:

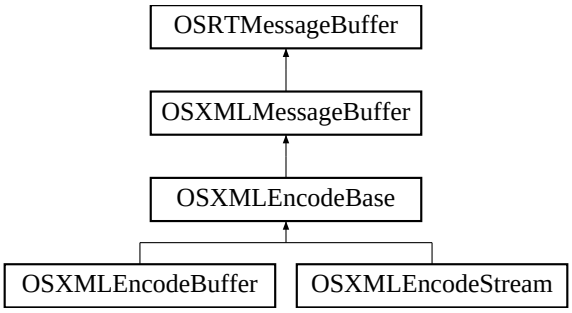
- osrtxml.h

7.5 OSXMLEncodeBase Class Reference

OSXMLEncodeBase is a base class for the XML encode buffer and stream classes, OSXMLEncodeBuffer and OSXMLEncodeStream.

`#include <OSXMLMessageBuffer.h>`

Inheritance diagram for OSXMLEncodeBase:



Public Member Functions

- EXTXMLMETHOD int encodeAttr (const OSUTF8CHAR *name, const OSUTF8CHAR *value)

  This function encodes an attribute in which the name and value are given as null-terminated UTF-8 strings.
- EXTXMLMETHOD int encodeText (const OSUTF8CHAR *value)

  This method encodes XML textual content.
- EXTXMLMETHOD int endDocument ()

  This method ends an XML document by flushing any remaining data to the stream.
- EXTXMLMETHOD int endElement (const OSUTF8CHAR *elemName, OSXMLNamespace *pNS=0)

  This method encodes an end element tag value (</elemName>).
- EXTXMLMETHOD int startDocument ()

  This method writes information to start an XML document to the encode stream.
- EXTXMLMETHOD int startElement (const OSUTF8CHAR *elemName, OSXMLNamespace *pNS=0, OSRTDList *pNSAttrs=0, OSBOOL terminate=FALSE)

  This method writes information to start an XML element to the encode stream.
- EXTXMLMETHOD int termStartElement ()

  This metod terminates a currently open XML start element by adding either a '>' or '/>' (if empty) terminator.

Protected Member Functions

- EXTXMLMETHOD OSXMLEncodeBase (OSRTContext *pContext=0)

  The protected constructor creates a new context and sets the buffer class type.

7.5.1 Detailed Description

OSXMLEncodeBase is a base class for the XML encode buffer and stream classes, OSXMLEncodeBuffer and OSXMLEncodeStream.

Definition at line 153 of file OSXMLMessageBuffer.h.

7.5.2 Constructor & Destructor Documentation

7.5.2.1 OSXMLEncodeBase()

```
EXTXMLMETHOD OSXMLEncodeBase::OSXMLEncodeBase (
             OSRTContext * pContext = 0 )  [protected]
```

The protected constructor creates a new context and sets the buffer class type.

Parameters

pContext	Pointer to a context to use. If NULL, new context will be allocated.

7.5.3 Member Function Documentation

7.5.3.1 encodeAttr()

```
EXTXMLMETHOD int OSXMLEncodeBase::encodeAttr (
             const OSUTF8CHAR * name,
             const OSUTF8CHAR * value )
```

This function encodes an attribute in which the name and value are given as null-terminated UTF-8 strings.

Parameters

name	Attribute name.
value	UTF-8 string value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

7.5.3.2 encodeText()

```
EXTXMLMETHOD int OSXMLEncodeBase::encodeText (
             const OSUTF8CHAR * value )
```

This method encodes XML textual content.

XML metadata characters such as '<' are escaped. The input value is specified in UTF-8 character format but may be transformed if a different character encoding is enabled.

Parameters

value	UTF-8 string value to be encoded.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

7.5.3.3 endElement()

```
EXTXMLMETHOD int OSXMLEncodeBase::endElement (
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS = 0 )
```

This method encodes an end element tag value (</elemName>).

Parameters

elemName	XML element name.
pNS	XML namespace information (prefix and URI).

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

7.5.3.4 startDocument()

```
EXTXMLMETHOD int OSXMLEncodeBase::startDocument ( )
```

This method writes information to start an XML document to the encode stream.

This includes the XML header declaration.

7.5.3.5 startElement()

```
EXTXMLMETHOD int OSXMLEncodeBase::startElement (
             const OSUTF8CHAR * elemName,
             OSXMLNamespace * pNS = 0,
             OSRTDList * pNSAttrs = 0,
             OSBOOL terminate = FALSE )
```

This method writes information to start an XML element to the encode stream.

It can leave the element open so that attributes can be added.

Parameters

elemName	XML element name.
pNS	XML namespace information (prefix and URI). If the prefix is NULL, this method will search the context's namespace stack for a prefix to use.
pNSAttrs	List of namespace attributes to be added to element.
terminate	Add closing '>' character.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

7.5.3.6 termStartElement()

```
EXTXMLMETHOD int OSXMLEncodeBase::termStartElement ( )
```

This metod terminates a currently open XML start element by adding either a '>' or '/>' (if empty) terminator.

It will also add XSI attributes to the element. Note that is important to use this method to terminate the element rather than writng a closing angle bracket text to the stream directly due to the way state is maintained in the context.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

The documentation for this class was generated from the following file:

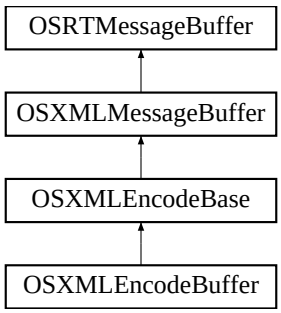
- OSXMLMessageBuffer.h

7.6 OSXMLEncodeBuffer Class Reference

The OSXMLEncodeBuffer class is derived from the OSXMLEncodeBase class.

`#include <OSXMLEncodeBuffer.h>`

Inheritance diagram for OSXMLEncodeBuffer:



Public Member Functions

- EXTXMLMETHOD OSXMLEncodeBuffer ()

  Default constructor.
- EXTXMLMETHOD OSXMLEncodeBuffer (OSOCTET *pMsgBuf, size_t msgBufLen)

  This constructor allows a static message buffer to be specified to receive the encoded message.
- int addXMLHeader (const OSUTF8CHAR *version=OSUTF8("1.0"), const OSUTF8CHAR *encoding=OSUT↩ F8(OSXMLHDRUTF8), OSBOOL newLine=TRUE)

  This method adds XML header text to the output buffer with the given version number and encoding attributes.
- EXTXMLMETHOD int addXMLText (const OSUTF8CHAR *text)

  This method adds encoded XML text to the encode buffer.
- virtual size_t getMsgLen ()

  This method returns the length of a previously encoded XML message.
- virtual EXTXMLMETHOD int init ()

  This method reinitializes the encode buffer to allow a new message to be encoded.
- virtual OSBOOL isA (Type bufferType)

  This is a virtual method that must be overridden by derived classes to allow identification of the class.
- void nullTerminate ()

  This method adds a null-terminator character ('\0') at the current buffer position.
- EXTXMLMETHOD void setFragment (OSBOOL value=TRUE)

  This method sets a flag indicating that the data is to be encoded as ax XML fragment instead of as a complete XML document (i.e.
- virtual EXTXMLMETHOD long write (const char *filename)

  This method writes the encoded message to the given file.
- virtual EXTXMLMETHOD long write (FILE *fp)

  This version of the write method writes to a file that is specified by a FILE pointer.

Protected Member Functions

- **OSXMLEncodeBuffer** (OSRTContext *pContext)

7.6.1 Detailed Description

The OSXMLEncodeBuffer class is derived from the OSXMLEncodeBase class.

It contains variables and methods specific to encoding XML messages. It is used to manage the buffer into which a message is to be encoded.

Definition at line 38 of file OSXMLEncodeBuffer.h.

7.6.2 Constructor & Destructor Documentation

7.6.2.1 OSXMLEncodeBuffer()

```
EXTXMLMETHOD OSXMLEncodeBuffer::OSXMLEncodeBuffer (
             OSOCTET * pMsgBuf,
             size_t msgBufLen )
```

This constructor allows a static message buffer to be specified to receive the encoded message.

Parameters

pMsgBuf	A pointer to a fixed size message buffer to receive the encoded message.
msgBufLen	Size of the fixed-size message buffer.

7.6.3 Member Function Documentation

7.6.3.1 addXMLHeader()

```
int OSXMLEncodeBuffer::addXMLHeader (
             const OSUTF8CHAR * version = OSUTF8("1.0"),
             const OSUTF8CHAR * encoding = OSUTF8(OSXMLHDRUTF8),
             OSBOOL newLine = TRUE )
```

This method adds XML header text to the output buffer with the given version number and encoding attributes.

Parameters

version	XML version (default is 1.0)
encoding	Character encoding (default is UTF-8)
newLine	Add newline char at end of header

Returns

Zero if success or negative error code.

7.6.3.2 addXMLText()

```
EXTXMLMETHOD int OSXMLEncodeBuffer::addXMLText (
            const OSUTF8CHAR * text )
```

This method adds encoded XML text to the encode buffer.

It is assumed that the user has already processed the text to do character escaping, etc.. The text is copied directly to the buffer as-is.

Parameters

text	Encoded XML text to be added to the buffer.

Returns

Zero if success or negative error code.

7.6.3.3 getMsgLen()

```
virtual size_t OSXMLEncodeBuffer::getMsgLen ( )  [inline], [virtual]
```

This method returns the length of a previously encoded XML message.

Returns

Length of the XML message encapsulated within this buffer object.

Definition at line 90 of file OSXMLEncodeBuffer.h.

7.6.3.4 init()

```
virtual EXTXMLMETHOD int OSXMLEncodeBuffer::init ( )  [virtual]
```

This method reinitializes the encode buffer to allow a new message to be encoded.

This makes it possible to reuse one message buffer object in a loop to encode multiple messages. After this method is called, any previously encoded message in the buffer will be overwritten on the next encode call.

7.6.3.5 isA()

```
virtual OSBOOL OSXMLEncodeBuffer::isA (
            Type bufferType )  [inline], [virtual]
```

This is a virtual method that must be overridden by derived classes to allow identification of the class.

The base class variant is abstract. This method matches an enumerated identifier defined in the base class. One identifier is declared for each of the derived classes.

Parameters

bufferType	Enumerated identifier specifying a derived class. This type is defined as a public access type in the OSRTMessageBufferIF base interface. Possible values include BEREncode, BERDecode, PEREncode, PERDecode, XMLEncode, and XMLDecode.

Returns

Boolean result of the match operation. True if the `bufferType` argument is `XMLEncode`. argument.

Definition at line 118 of file OSXMLEncodeBuffer.h.

7.6.3.6 setFragment()

```
EXTXMLMETHOD void OSXMLEncodeBuffer::setFragment (
            OSBOOL value = TRUE )
```

This method sets a flag indicating that the data is to be encoded as ax XML fragment instead of as a complete XML document (i.e.

an XML header will not be added).

7.6.3.7 write() [1/2]

```
virtual EXTXMLMETHOD long OSXMLEncodeBuffer::write (
            const char * filename )  [virtual]
```

This method writes the encoded message to the given file.

Parameters

filename	The name of file to which the encoded message will be written.

Returns

Number of octets actually written. This value may be less than the actual message length if an error occurs.

7.6.3.8 write() [2/2]

```
virtual EXTXMLMETHOD long OSXMLEncodeBuffer::write (
            FILE * fp )  [virtual]
```

This version of the write method writes to a file that is specified by a FILE pointer.

Parameters

fp	Pointer to FILE structure to which the encoded message will be written.

Returns

Number of octets actually written. This value may be less than the actual message length if an error occurs.

The documentation for this class was generated from the following file:

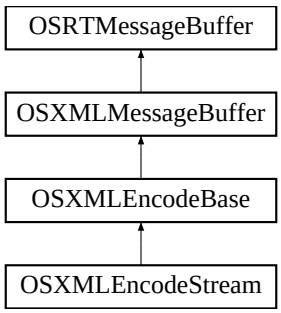
- OSXMLEncodeBuffer.h

7.7 OSXMLEncodeStream Class Reference

The OSXMLEncodeStream class is derived from the OSXMLEncodeBase class.

`#include <OSXMLEncodeStream.h>`

Inheritance diagram for OSXMLEncodeStream:



Public Member Functions

- EXTXMLMETHOD OSXMLEncodeStream (OSRTOutputStream &outputStream)

  This version of the OSXMLEncodeStream constructor takes a reference to the OSOutputStream object.
- OSXMLEncodeStream (OSRTOutputStream *pOutputStream, OSBOOL ownStream=TRUE)

  This version of the OSXMLEncodeStream constructor takes a pointer to the OSRTOutputStream object.
- virtual EXTXMLMETHOD int init ()

  This method reinitializes the encode stream to allow a new message to be encoded.
- virtual OSBOOL isA (Type bufferType)

  This is a virtual method that must be overridden by derived classes to allow identification of the class.
- virtual const OSOCTET * getMsgPtr ()

  This is a virtual method that must be overridden by derived classes to allow access to the stored message.
- OSRTOutputStream * getStream () const

  This method returns the output stream associated with the object.

Protected Attributes

- OSRTOutputStream * mpStream

  A pointer to an OSRTOutputStream object.
- OSBOOL mbOwnStream

  TRUE if the OSXMLEncodeStream object will close and free the stream in the destructor.

Additional Inherited Members

7.7.1 Detailed Description

The OSXMLEncodeStream class is derived from the OSXMLEncodeBase class.

It contains variables and methods specific to streaming encoding XML messages. It is used to manage the stream into which a message is to be encoded.

Definition at line 40 of file OSXMLEncodeStream.h.

7.7.2 Constructor & Destructor Documentation

7.7.2.1 OSXMLEncodeStream() [1/2]

```
EXTXMLMETHOD OSXMLEncodeStream::OSXMLEncodeStream (
             OSRTOutputStream & outputStream )
```

This version of the OSXMLEncodeStream constructor takes a reference to the OSOutputStream object.

The stream is assumed to have been previously initialized.

Parameters

outputStream	reference to the OSOutputStream object

7.7.2.2 OSXMLEncodeStream() [2/2]

```
OSXMLEncodeStream::OSXMLEncodeStream (
            OSRTOutputStream * pOutputStream,
            OSBOOL ownStream = TRUE )
```

This version of the OSXMLEncodeStream constructor takes a pointer to the OSRTOutputStream object.

The stream is assumed to have been previously initialized. If ownStream is set to TRUE, then stream will be closed and freed in the destructor.

Parameters

pOutputStream	reference to the OSOutputStream object
ownStream	set ownership for the passed stream object.

7.7.3 Member Function Documentation

7.7.3.1 getMsgPtr()

```
virtual const OSOCTET* OSXMLEncodeStream::getMsgPtr ( )  [inline], [virtual]
```

This is a virtual method that must be overridden by derived classes to allow access to the stored message.

The base class implementation returns a null value.

Returns

A pointer to the stored message.

Definition at line 106 of file OSXMLEncodeStream.h.

7.7.3.2 getStream()

```
OSRTOutputStream* OSXMLEncodeStream::getStream ( ) const  [inline]
```

This method returns the output stream associated with the object.

Returns

A pointer to the output stream.

Definition at line 113 of file OSXMLEncodeStream.h.

7.7.3.3 init()

```
virtual EXTXMLMETHOD int OSXMLEncodeStream::init ( )  [virtual]
```

This method reinitializes the encode stream to allow a new message to be encoded.

This makes it possible to reuse one stream object in a loop to encode multiple messages.

7.7.3.4 isA()

```
virtual OSBOOL OSXMLEncodeStream::isA (
            Type bufferType )  [inline], [virtual]
```

This is a virtual method that must be overridden by derived classes to allow identification of the class.

The base class variant is abstract. This method matches an enumerated identifier defined in the base class. One identifier is declared for each of the derived classes.

Parameters

bufferType	Enumerated identifier specifying a derived class. This type is defined as a public access type in the OSRTMessageBufferIF base interface. Possible values include BEREncode, BERDecode, PEREncode, PERDecode, XMLEncode, and XMLDecode.

Returns

Boolean result of the match operation. True if the `bufferType` argument is `XMLEncode` or `Stream`.

Definition at line 95 of file OSXMLEncodeStream.h.

7.7.4 Field Documentation

7.7.4.1 mbOwnStream

```
OSBOOL OSXMLEncodeStream::mbOwnStream  [protected]
```

TRUE if the OSXMLEncodeStream object will close and free the stream in the destructor.

Definition at line 47 of file OSXMLEncodeStream.h.

7.7.4.2 mpStream

```
OSRTOutputStream* OSXMLEncodeStream::mpStream  [protected]
```

A pointer to an OSRTOutputStream object.

Definition at line 43 of file OSXMLEncodeStream.h.

The documentation for this class was generated from the following file:

- OSXMLEncodeStream.h

7.8 OSXMLFacets Struct Reference

Data Fields

- int **totalDigits**
- int **fractionDigits**

7.8.1 Detailed Description

Definition at line 102 of file osrtxml.h.

The documentation for this struct was generated from the following file:

- osrtxml.h

7.9 OSXMLGroupDesc Struct Reference

OSXMLGroupDesc describes how entries in an OSXMLElemIDRec array make up a group.

```
#include <osrtxml.h>
```

Data Fields

- int **row**
- int **num**
- int **anyCase**

7.9.1 Detailed Description

OSXMLGroupDesc describes how entries in an OSXMLElemIDRec array make up a group.

Here, "group" means a set of elements, any of which may be matched next. This does not correspond directly to an XSD group.

For example, if elementA is optional and followed by non-optional elementB, then there will be a group that contains both elements. There will also be a group that contains only elementB; this will be the group of interest after elementA is matched.

Definition at line 141 of file osrtxml.h.

The documentation for this struct was generated from the following file:

- osrtxml.h

7.10 OSXMLItemDescr Struct Reference

Data Fields

- OSXMLStrFragment **localName**
- OSINT16 **nsidx**

7.10.1 Detailed Description

Definition at line 118 of file osrtxml.h.

The documentation for this struct was generated from the following file:

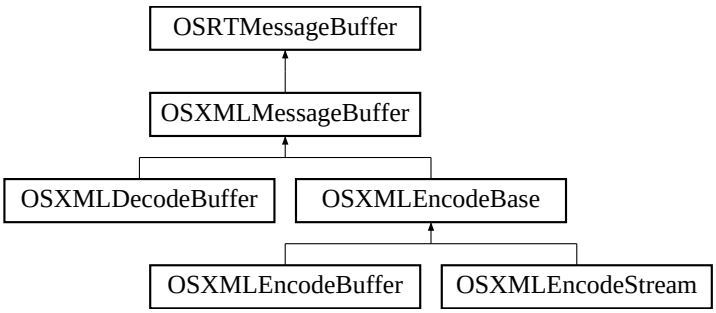
- osrtxml.h

7.11 OSXMLMessageBuffer Class Reference

The XML message buffer class is derived from the OSMessageBuffer base class.

`#include <OSXMLMessageBuffer.h>`

Inheritance diagram for OSXMLMessageBuffer:



Public Member Functions

- virtual EXTXMLMETHOD void * getAppInfo ()

  The getAppInfo method returns the pointer to application context information.
- EXTXMLMETHOD int getIndent ()

  This method returns current XML output indent value.
- EXTXMLMETHOD int getIndentChar ()

  This method returns current XML output indent character value (default is space).
- EXTXMLMETHOD OSBOOL getWriteBOM ()

  This function returns whether writing the Unicode BOM is currently enabled or disabled.
- virtual EXTXMLMETHOD void setNamespace (const OSUTF8CHAR *prefix, const OSUTF8CHAR *uri, OSR↩ TDList *pNSAttrs=0)

  This method sets a namespace in the context namespace list.
- virtual EXTXMLMETHOD void setAppInfo (void *pXMLInfo)

  This method sets application specific context information within the common context structure.
- EXTXMLMETHOD void setFormatting (OSBOOL doFormatting)

  This method sets XML output formatting to the given value.
- EXTXMLMETHOD void setIndent (OSUINT8 indent)

  This method sets XML output indent to the given value.
- EXTXMLMETHOD void setIndentChar (char indentChar)

  This method sets XML output indent character to the given value.
- EXTXMLMETHOD void setWriteBOM (OSBOOL write)

  This method sets whether to write the Unicode byte order mark before the XML header.

Protected Member Functions

- EXTXMLMETHOD OSXMLMessageBuffer (Type bufferType, OSRTContext *pContext=0)

  The protected constructor creates a new context and sets the buffer class type.

7.11.1 Detailed Description

The XML message buffer class is derived from the OSMessageBuffer base class.

It is the base class for the OSXMLEncodeBuffer and OSXMLDecodeBuffer classes. It contains variables and methods specific to encoding or decoding XML messages. It is used to manage the buffer into which a message is to be encoded or decoded.

Definition at line 42 of file OSXMLMessageBuffer.h.

7.11.2 Constructor & Destructor Documentation

7.11.2.1 OSXMLMessageBuffer()

```
EXTXMLMETHOD OSXMLMessageBuffer::OSXMLMessageBuffer (
             Type bufferType,
             OSRTContext * pContext = 0 )  [protected]
```

The protected constructor creates a new context and sets the buffer class type.

Parameters

bufferType	Type of message buffer that is being created (for example, XMLEncode or XMLDecode).
pContext	Pointer to a context to use. If NULL, new context will be allocated.

7.11.3 Member Function Documentation

7.11.3.1 getIndent()

```
EXTXMLMETHOD int OSXMLMessageBuffer::getIndent ( )
```

This method returns current XML output indent value.

Returns

Current indent value (>= 0) if OK, negative status code if error.

7.11.3.2 getIndentChar()

```
EXTXMLMETHOD int OSXMLMessageBuffer::getIndentChar ( )
```

This method returns current XML output indent character value (default is space).

Returns

Current indent character (> 0) if OK, negative status code if error.

7.11.3.3 getWriteBOM()

```
EXTXMLMETHOD OSBOOL OSXMLMessageBuffer::getWriteBOM ( )
```

This function returns whether writing the Unicode BOM is currently enabled or disabled.

Returns

TRUE if writing BOM is enabled, FALSE otherwise.

7.11.3.4 setAppInfo()

```
virtual EXTXMLMETHOD void OSXMLMessageBuffer::setAppInfo (
            void * pXMLInfo )  [virtual]
```

This method sets application specific context information within the common context structure.

For XML encoding/decoding, this is a structure of type *OSXMLCtxtInfo*.

Parameters

pXMLInfo	Pointer to context information.

7.11.3.5 setFormatting()

```
EXTXMLMETHOD void OSXMLMessageBuffer::setFormatting (
            OSBOOL doFormatting )
```

This method sets XML output formatting to the given value.

If TRUE (the default), the XML document is formatted with indentation and newlines. If FALSE, all whitespace between elements is suppressed. Turning formatting off can provide more compressed documents and also a more canonical representation which is important for security applications.

Parameters

doFormatting	Boolean value indicating if formatting is to be done

Returns

Status of operation: 0 if OK, negative status code if error.

7.11.3.6 setIndent()

```
EXTXMLMETHOD void OSXMLMessageBuffer::setIndent (
             OSUINT8 indent )
```

This method sets XML output indent to the given value.

Parameters

indent	Number of spaces per indent. Default is 3.

7.11.3.7 setIndentChar()

```
EXTXMLMETHOD void OSXMLMessageBuffer::setIndentChar (
             char indentChar )
```

This method sets XML output indent character to the given value.

Parameters

indentChar	Indent character. Default is space.

7.11.3.8 setNamespace()

```
virtual EXTXMLMETHOD void OSXMLMessageBuffer::setNamespace (
```

```
            const OSUTF8CHAR * prefix,
            const OSUTF8CHAR * uri,
            OSRTDList * pNSAttrs = 0 )  [virtual]
```

This method sets a namespace in the context namespace list.

If the given namespace URI does not exist in the list, the namespace is added. If the URI is found, the value of the namespace prefix will be changed to the given prefix.

Parameters

prefix	Namespace prefix
uri	Namespace URI
pNSAttrs	Namespace list to which namespace is to be added

7.11.3.9 setWriteBOM()

```
EXTXMLMETHOD void OSXMLMessageBuffer::setWriteBOM (
            OSBOOL write )
```

This method sets whether to write the Unicode byte order mark before the XML header.

Parameters

write	TRUE if BOM should be written, FALSE otherwise.

The documentation for this class was generated from the following file:

- OSXMLMessageBuffer.h

7.12 OSXMLNameFragments Struct Reference

Data Fields

- OSXMLStrFragment **mQName**
- OSXMLStrFragment **mLocalName**
- OSXMLStrFragment **mPrefix**

7.12.1 Detailed Description

Definition at line 112 of file osrtxml.h.

The documentation for this struct was generated from the following file:

- osrtxml.h

7.13 OSXMLQName Struct Reference

Data Fields

- const OSUTF8CHAR * **nsPrefix**
- const OSUTF8CHAR * **ncName**

7.13.1 Detailed Description

Definition at line 266 of file osrtxml.h.

The documentation for this struct was generated from the following file:

- osrtxml.h

7.14 OSXMLSortedAttrOffset Struct Reference

Data Fields

- OSSIZE **offset**
- OSSIZE **length**
- OSSIZE **prefixLength**
- OSSIZE **nameLength**

7.14.1 Detailed Description

Definition at line 281 of file osrtxml.h.

The documentation for this struct was generated from the following file:

- osrtxml.h

7.15 OSXMLStrFragment Struct Reference

Data Fields

- const OSUTF8CHAR * **value**
- OSSIZE **length**

7.15.1 Detailed Description

Definition at line 107 of file osrtxml.h.

The documentation for this struct was generated from the following file:

- osrtxml.h

7.16 OSXSDAnyType Struct Reference

Data Fields

- OSXMLSTRING **value**
- OSRTDList **attrs**

7.16.1 Detailed Description

Definition at line 159 of file osrtxml.h.

The documentation for this struct was generated from the following file:

- osrtxml.h

Chapter 8

File Documentation

8.1 osrtxml.h File Reference

XML low-level C encode/decode functions.

```
#include "rtxsrc/rtxCommon.h"
#include "rtxmlsrc/rtSaxDefs.h"
#include "rtxsrc/rtxDList.h"
#include "rtxsrc/rtxMemBuf.h"
#include "rtxmlsrc/rtXmlExternDefs.h"
#include "rtxmlsrc/rtXmlErrCodes.h"
#include "rtxmlsrc/rtXmlNamespace.h"
```

Data Structures

- struct OSXMLFacets
- struct OSXMLStrFragment
- struct OSXMLNameFragments
- struct OSXMLItemDescr
- struct OSXMLElemIDRec
- struct OSXMLGroupDesc

  OSXMLGroupDesc describes how entries in an OSXMLElemIDRec array make up a group.
- struct OSXSDAnyType
- struct OSXMLCtxtInfo
- struct OSXMLQName
- struct OSIntegerFmt
- struct OSXMLSortedAttrOffset

Macros

- #define **OSXMLNS12**
- #define **OSUPCASE** 0x00008000 /* convert characters to upper case */
- #define **OSTERMSTART** 0x00004000 /* term for start elem (>) needed */
- #define **OSEMPTYELEM** 0x00002000 /* element is empty (no content) */
- #define **OSQUALATTR** 0x00001000 /* qualified attribute */
- #define **OSXMLFRAG** 0x00000800 /* XML fragment (not full doc) */
- #define **OSXMLNSSET** 0x00000400 /* Indicates namespaces are set */
- #define **OSXMLC14N**
- #define **OSXSIATTR** 0x00000100 /* add xsi ns decl to encoded msg */
- #define **OSXMLNOCMPNS** 0x00000080 /* match local names only */
- #define **OSXSINIL** 0x00000040 /* add xsi:nil decl to encoded msg */
- #define **OSHASDEFAULT**
- #define **OSASN1XER**
- #define **OSXMLFRAGSEQUAL**(frag1, frag2) (frag1.length==frag2.length && !memcmp(frag1.value,frag2.↩ value,frag1.length))
- #define **OSXMLQNAMEEQUALS**(xnamefrag, qnametext)
- #define **OSXMLSETUTF8DECPTR**(pctxt, str)
- #define **IS_XMLNSATTR**(name)
- #define **IS_XSIATTR**(name)
- #define **OSXMLINDENT** 3
- #define **rtXmlErrAddStrParm** rtxErrAddStrParm
- #define **rtxPrintNSAttrs**(name, data) rtXmlPrintNSAttrs(name,&data)
- #define **rtXmlFinalizeMemBuf**(pMemBuf)
- #define rtXmlGetEncBufPtr(pctxt) (pctxt)->buffer.data

  This macro returns the start address of the encoded XML message.
- #define rtXmlGetEncBufLen(pctxt) (pctxt)->buffer.byteIndex

  This macro returns the length of the encoded XML message.
- #define **OSXMLREALENC_OBJSYS** 0x1F /* Obj-Sys XML encoding rules */
- #define **OSXMLREALENC_BXER** 0x10 /* basic-XER */
- #define **OSXMLREALENC_EXERMODS** 0x1B /* extended-XER with MODIFIED-ENCODINGS */
- #define **OSXMLREALENC_EXERDECIMAL** 0x03 /* extended-XER with DECIMAL */

Typedefs

- typedef struct OSXMLFacets **OSXMLFacets**
- typedef struct OSXMLItemDescr **OSXMLItemDescr**
- typedef OSXMLItemDescr **OSXMLAttrDescr**
- typedef OSXMLItemDescr **OSXMLElemDescr**
- typedef struct OSXMLElemIDRec **OSXMLElemIDRec**
- typedef struct OSXMLGroupDesc OSXMLGroupDesc

  OSXMLGroupDesc describes how entries in an OSXMLElemIDRec array make up a group.
- typedef struct OSXSDAnyType **OSXSDAnyType**
- typedef struct OSXMLQName **OSXMLQName**
- typedef struct OSIntegerFmt **OSIntegerFmt**

Enumerations

- enum **OSXMLEncoding** {
  OSXMLUTF8, **OSXMLUTF16**, **OSXMLUTF16BE**, **OSXMLUTF16LE**,
  OSXMLLATIN1 }
- enum **OSXMLSOAPMsgType** { **OSSOAPNONE**, **OSSOAPHEADER**, **OSSOAPBODY**, **OSSOAPFAULT** }
- enum **OSXMLBOM** {
  OSXMLBOM_NO_BOM, **OSXMLBOM_UTF32_BE**, **OSXMLBOM_UTF32_LE**, **OSXMLBOM_UTF16_BE**,
  OSXMLBOM_UTF16_LE, **OSXMLBOM_UTF8**, **OSXMLBOM_CHECK** }
- enum **OSXMLNsIndex** {
  OSXMLNSI_UNQUALIFIED = 0, **OSXMLNSI_UNKNOWN** = -1, **OSXMLNSI_UNCHECKED** = -2, **OSXMLNSI↩_XSI** = -3,
  OSXMLNSI_XMLNS = -4, **OSXMLNSI_XML** = -5, **OSXMLNSI_SOAP_ENVELOPE** = -6, **OSXMLNSI_XSD** = -7
  }
- enum **OSXMLREALEncoding** { **OSXMLREALOBJSYS**, **OSXMLREALBXER**, **OSXMLREALEXERMODS**, **O↩SXMLREALEXERDEC** }
- enum **OSXMLState** {
  OSXMLINIT, **OSXMLHEADER**, **OSXMLSTART**, **OSXMLATTR**,
  OSXMLDATA, **OSXMLEND**, **OSXMLCOMMENT** }
- enum OSXMLWhiteSpaceMode { **OSXMLWSM_PRESERVE** = 0, **OSXMLWSM_REPLACE**, **OSXMLWSM_C↩OLLAPSE** }

  Whitespace treatment options.

Functions

- EXTERNXML int rtXmlInitContext (OSCTXT ∗pctxt)

  This function initializes a context variable for XML encoding or decoding.
- EXTERNXML int rtXmlInitContextUsingKey (OSCTXT ∗pctxt, const OSOCTET ∗key, OSSIZE keylen)

  This function initializes a context using a run-time key.
- EXTERNXML int rtXmlInitCtxtAppInfo (OSCTXT ∗pctxt)

  This function initializes the XML application info section of the given context.
- EXTERNXML int rtXmlCreateFileInputSource (OSCTXT ∗pctxt, const char ∗filepath)

  This function creates an XML document file input source.
- EXTERNXML OSBOOL **rtXmlCmpQName** (const OSUTF8CHAR ∗qname1, const OSUTF8CHAR ∗name2, const OSUTF8CHAR ∗nsPrefix2)
- EXTERNXML int **rtXmlGetBase64StrDecodedLen** (const OSUTF8CHAR ∗inpdata, OSSIZE srcDataSize, O↩SSIZE ∗pNumOcts, OSSIZE ∗pSrcDataLen)
- EXTERNXML void rtXmlMemFreeAnyAttrs (OSCTXT ∗pctxt, OSRTDList ∗pAnyAttrList)

  This function frees a list of anyAttribute that is a member of OSXSDAnyType structure.
- EXTERNXML int rtXmlDecBase64Binary (OSRTMEMBUF ∗pMemBuf, const OSUTF8CHAR ∗inpdata, OSSIZE length)

  This function decodes the contents of a Base64-encoded binary data type into a memory buffer.
- EXTERNXML int rtXmlDecBase64Str (OSCTXT ∗pctxt, OSOCTET ∗pvalue, OSUINT32 ∗pnocts, OSINT32 bufsize)

  This function decodes a contents of a Base64-encode binary string into a static memory structure.
- EXTERNXML int rtXmlDecBase64Str64 (OSCTXT ∗pctxt, OSOCTET ∗pvalue, OSSIZE ∗pnocts, OSSIZE bufsize)

  This function is identical to rtXmlDecBase64Str except that is supports a 64-bit integer length on 64-bit systems.
- EXTERNXML int rtXmlDecBase64StrValue (OSCTXT ∗pctxt, OSOCTET ∗pvalue, OSUINT32 ∗pnocts, OSSIZE bufSize, OSSIZE srcDataLen)

This function decodes a contents of a Base64-encode binary string into the specified octet array.

- EXTERNXML int rtXmlDecBase64StrValue64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, OSSIZE bufSize, OSSIZE srcDataLen)

  This function decodes is identical to rtXmlDecBase64StrValue except that it supports a 64-bit integer length on 64-bit systems.
- EXTERNXML int rtXmlDecBigInt (OSCTXT *pctxt, const OSUTF8CHAR **ppvalue)

  This function will decode a variable of the XSD integer type.
- EXTERNXML int rtXmlDecBool (OSCTXT *pctxt, OSBOOL *pvalue)

  This function decodes a variable of the boolean type.
- EXTERNXML int rtXmlDecDate (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'date' type.
- EXTERNXML int rtXmlDecTime (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'time' type.
- EXTERNXML int rtXmlDecDateTime (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'dateTime' type.
- EXTERNXML int rtXmlDecDecimal (OSCTXT *pctxt, OSREAL *pvalue)

  This function decodes the contents of a decimal data type.
- EXTERNXML int rtXmlDecDouble (OSCTXT *pctxt, OSREAL *pvalue)

  This function decodes the contents of a float or double data type.
- EXTERNXML int rtXmlDecDynBase64Str (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a contents of a Base64-encode binary string.
- EXTERNXML int rtXmlDecDynBase64Str64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)

  This function is identical to rtXmlDecDynBase64Str except that it supports a 64-bit integer length on 64-bit systems.
- EXTERNXML int rtXmlDecDynHexStr (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a contents of a hexBinary string.
- EXTERNXML int rtXmlDecDynHexStr64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)

  This function is identical to rtXmlDecDynHexStr except that it supports a 64-bit integer length on 64-bit systems.
- EXTERNXML int rtXmlDecEmptyElement (OSCTXT *pctxt)

  This function is used to enforce a requirement that an element be empty.
- EXTERNXML int rtXmlDecUTF8Str (OSCTXT *pctxt, OSUTF8CHAR *outdata, OSSIZE max_len)

  This function decodes the contents of a UTF-8 string data type.
- EXTERNXML int rtXmlDecDynUTF8Str (OSCTXT *pctxt, const OSUTF8CHAR **outdata)

  This function decodes the contents of a UTF-8 string data type.
- EXTERNXML int rtXmlDecHexBinary (OSRTMEMBUF *pMemBuf, const OSUTF8CHAR *inpdata, OSSIZE length)

  This function decodes the contents of a hex-encoded binary data type into a memory buffer.
- EXTERNXML int rtXmlDecHexStr (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, OSINT32 bufsize)

  This function decodes the contents of a hexBinary string into a static memory structure.
- EXTERNXML int rtXmlDecHexStr64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, OSSIZE bufsize)

  This function is identical to rtXmlDecHexStr except that it supports a 64-bit integer length on 64-bit systems.
- EXTERNXML int **rtXmlDecHexStrValue** (OSCTXT *pctxt, const OSUTF8CHAR *const inpdata, OSSIZE nbytes, OSOCTET *pvalue, OSUINT32 *pnbits, OSINT32 bufsize)
- EXTERNXML int **rtXmlDecHexStrValue64** (OSCTXT *pctxt, const OSUTF8CHAR *const inpdata, OSSIZE nbytes, OSOCTET *pvalue, OSSIZE *pnbits, OSSIZE bufsize)
- EXTERNXML int rtXmlDecGYear (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gYear' type.
- EXTERNXML int rtXmlDecGYearMonth (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gYearMonth' type.

- EXTERNXML int rtXmlDecGMonth (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gMonth' type.
- EXTERNXML int rtXmlDecGMonthDay (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gMonthDay' type.
- EXTERNXML int rtXmlDecGDay (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gDay' type.
- EXTERNXML int rtXmlDecInt (OSCTXT *pctxt, OSINT32 *pvalue)

  This function decodes the contents of a 32-bit integer data type.
- EXTERNXML int rtXmlDecInt8 (OSCTXT *pctxt, OSINT8 *pvalue)

  This function decodes the contents of an 8-bit integer data type (i.e.
- EXTERNXML int rtXmlDecInt16 (OSCTXT *pctxt, OSINT16 *pvalue)

  This function decodes the contents of a 16-bit integer data type.
- EXTERNXML int rtXmlDecInt64 (OSCTXT *pctxt, OSINT64 *pvalue)

  This function decodes the contents of a 64-bit integer data type.
- EXTERNXML int rtXmlDecUInt (OSCTXT *pctxt, OSUINT32 *pvalue)

  This function decodes the contents of an unsigned 32-bit integer data type.
- EXTERNXML int rtXmlDecUInt8 (OSCTXT *pctxt, OSUINT8 *pvalue)

  This function decodes the contents of an unsigned 8-bit integer data type (i.e.
- EXTERNXML int rtXmlDecUInt16 (OSCTXT *pctxt, OSUINT16 *pvalue)

  This function decodes the contents of an unsigned 16-bit integer data type.
- EXTERNXML int rtXmlDecUInt64 (OSCTXT *pctxt, OSUINT64 *pvalue)

  This function decodes the contents of an unsigned 64-bit integer data type.
- EXTERNXML int rtXmlDecNSAttr (OSCTXT *pctxt, const OSUTF8CHAR *attrName, const OSUTF8CHAR *attrValue, OSRTDList *pNSAttrs, const OSUTF8CHAR *nsTable[ ], OSUINT32 nsTableRowCount)

  This function decodes an XML namespac attribute (xmlns).
- EXTERNXML const OSUTF8CHAR * rtXmlDecQName (OSCTXT *pctxt, const OSUTF8CHAR *qname, const OSUTF8CHAR **prefix)

  This function decodes an XML qualified name string (QName) type.
- EXTERNXML int rtXmlDecXSIAttr (OSCTXT *pctxt, const OSUTF8CHAR *attrName, const OSUTF8CHAR *attrValue)

  This function decodes XML schema instance (XSI) attribute.
- EXTERNXML int rtXmlDecXSIAttrs (OSCTXT *pctxt, const OSUTF8CHAR *const *attrs, const char *typeName)

  This function decodes XML schema instance (XSI) attributes.
- EXTERNXML int rtXmlDecXmlStr (OSCTXT *pctxt, OSXMLSTRING *outdata)

  This function decodes the contents of an XML string data type.
- EXTERNXML int rtXmlParseElementName (OSCTXT *pctxt, OSUTF8CHAR **ppName)

  This function parses the initial tag from an XML message.
- EXTERNXML int rtXmlParseElemQName (OSCTXT *pctxt, OSXMLQName *pQName)

  This function parses the initial tag from an XML message.
- EXTERNXML int rtXmlEncAny (OSCTXT *pctxt, OSXMLSTRING *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD any type.
- EXTERNXML int **rtXmlEncAnyStr** (OSCTXT *pctxt, const OSUTF8CHAR *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)
- EXTERNXML int rtXmlEncAnyTypeValue (OSCTXT *pctxt, const OSUTF8CHAR *pvalue)

  This function encodes a variable of the XSD anyType type.
- EXTERNXML int rtXmlEncAnyAttr (OSCTXT *pctxt, OSRTDList *pAnyAttrList)

  This function encodes a list of OSAnyAttr attributes in which the name and value are given as a UTF-8 string.

- EXTERNXML int rtXmlEncBase64Binary (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *value, const OS↩ UTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD base64Binary type.
- EXTERNXML int rtXmlEncBase64BinaryAttr (OSCTXT *pctxt, OSUINT32 nocts, const OSOCTET *value, const OSUTF8CHAR *attrName, OSSIZE attrNameLen)

  This function encodes a variable of the XSD base64Binary type as an attribute.
- EXTERNXML int rtXmlEncBase64StrValue (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *value)

  This function encodes a variable of the XSD base64Binary type.
- EXTERNXML int rtXmlEncBigInt (OSCTXT *pctxt, const OSUTF8CHAR *value, const OSUTF8CHAR *elem↩ Name, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int rtXmlEncBigIntAttr (OSCTXT *pctxt, const OSUTF8CHAR *value, const OSUTF8CHAR *attr↩ Name, OSSIZE attrNameLen)

  This function encodes an XSD integer attribute value.
- EXTERNXML int rtXmlEncBigIntValue (OSCTXT *pctxt, const OSUTF8CHAR *value)

  This function encodes an XSD integer attribute value.
- EXTERNXML int rtXmlEncBitString (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *value, const OSUTF8↩ CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the ASN.1 BIT STRING type.
- EXTERNXML int rtXmlEncBitStringExt (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *value, OSSIZE data↩ Size, const OSOCTET *extValue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the ASN.1 BIT STRING type.
- EXTERNXML int rtXmlEncBinStrValue (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data)

  This function encodes a binary string value as a sequence of '1's and '0's.
- EXTERNXML int rtXmlEncBool (OSCTXT *pctxt, OSBOOL value, const OSUTF8CHAR *elemName, OSXML↩ Namespace *pNS)

  This function encodes a variable of the XSD boolean type.
- EXTERNXML int rtXmlEncBoolValue (OSCTXT *pctxt, OSBOOL value)

  This function encodes a variable of the XSD boolean type.
- EXTERNXML int rtXmlEncBoolAttr (OSCTXT *pctxt, OSBOOL value, const OSUTF8CHAR *attrName, OSSIZE attrNameLen)

  This function encodes an XSD boolean attribute value.
- EXTERNXML int rtXmlEncCanonicalSort (OSCTXT *pctxt, OSCTXT *pBufCtxt, OSRTSList *pList)

  Sort (as for CXER, Canonical-XER) and encode previously encoded SET OF components.
- EXTERNXML int rtXmlEncComment (OSCTXT *pctxt, const OSUTF8CHAR *comment)

  This function encodes an XML comment.
- EXTERNXML int rtXmlEncDate (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD 'date' type as a string.
- EXTERNXML int rtXmlEncDateValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a variable of the XSD 'date' type as a string.
- EXTERNXML int rtXmlEncTime (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD 'time' type as an string.
- EXTERNXML int rtXmlEncTimeValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a variable of the XSD 'time' type as an string.
- EXTERNXML int rtXmlEncDateTime (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

This function encodes a numeric date/time value into an XML string representation.

- EXTERNXML int rtXmlEncDateTimeValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric date/time value into an XML string representation.

- EXTERNXML int rtXmlEncDecimal (OSCTXT *pctxt, OSREAL value, const OSUTF8CHAR *elemName, OSX↩ MLNamespace *pNS, const OSDecimalFmt *pFmtSpec)

  This function encodes a variable of the XSD decimal type.

- EXTERNXML int rtXmlEncDecimalAttr (OSCTXT *pctxt, OSREAL value, const OSUTF8CHAR *attrName, OS↩ SIZE attrNameLen, const OSDecimalFmt *pFmtSpec)

  This function encodes a variable of the XSD decimal type as an attribute.

- EXTERNXML int rtXmlEncDecimalValue (OSCTXT *pctxt, OSREAL value, const OSDecimalFmt *pFmtSpec, char *pDestBuf, OSSIZE destBufSize)

  This function encodes a value of the XSD decimal type.

- EXTERNXML int rtXmlEncDouble (OSCTXT *pctxt, OSREAL value, const OSUTF8CHAR *elemName, OSX↩ MLNamespace *pNS, const OSDoubleFmt *pFmtSpec)

  This function encodes a variable of the XSD double type.

- EXTERNXML int rtXmlEncDoubleAttr (OSCTXT *pctxt, OSREAL value, const OSUTF8CHAR *attrName, OS↩ SIZE attrNameLen, const OSDoubleFmt *pFmtSpec)

  This function encodes a variable of the XSD double type as an attribute.

- EXTERNXML int rtXmlEncDoubleNormalValue (OSCTXT *pctxt, OSREAL value, const OSDoubleFmt *pFmt↩ Spec, int defaultPrecision)

  This function encodes a normal (not +/-INF or NaN) value of the XSD double or float type.

- EXTERNXML int rtXmlEncDoubleValue (OSCTXT *pctxt, OSREAL value, const OSDoubleFmt *pFmtSpec, int defaultPrecision)

  This function encodes a value of the XSD double or float type.

- EXTERNXML int rtXmlEncEmptyElement (OSCTXT *pctxt, const OSUTF8CHAR *elemName, OSXML↩ Namespace *pNS, OSRTDList *pNSAttrs, OSBOOL terminate)

  This function encodes an enpty element tag value (<elemName/>).

- EXTERNXML int rtXmlEncEndDocument (OSCTXT *pctxt)

  This function adds trailor information and a null terminator at the end of the XML document being encoded.

- EXTERNXML int rtXmlEncEndElement (OSCTXT *pctxt, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes an end element tag value (</elemName>).

- EXTERNXML int rtXmlEncEndSoapEnv (OSCTXT *pctxt)

  This function encodes a SOAP envelope end element tag (<SOAP-ENV:Envelope/>).

- EXTERNXML int rtXmlEncEndSoapElems (OSCTXT *pctxt, OSXMLSOAPMsgType msgtype)

  This function encodes SOAP end element tags.

- EXTERNXML int rtXmlEncFloat (OSCTXT *pctxt, OSREAL value, const OSUTF8CHAR *elemName, OSXML↩ Namespace *pNS, const OSDoubleFmt *pFmtSpec)

  This function encodes a variable of the XSD float type.

- EXTERNXML int rtXmlEncFloatAttr (OSCTXT *pctxt, OSREAL value, const OSUTF8CHAR *attrName, OSSIZE attrNameLen, const OSDoubleFmt *pFmtSpec)

  This function encodes a variable of the XSD float type as an attribute.

- EXTERNXML int rtXmlEncGYear (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a numeric gYear element into an XML string representation.

- EXTERNXML int rtXmlEncGYearMonth (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a numeric gYearMonth element into an XML string representation.

- EXTERNXML int rtXmlEncGMonth (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a numeric gMonth element into an XML string representation.
- EXTERNXML int rtXmlEncGMonthDay (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a numeric gMonthDay element into an XML string representation.
- EXTERNXML int rtXmlEncGDay (OSCTXT *pctxt, const OSXSDDateTime *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a numeric gDay element into an XML string representation.
- EXTERNXML int rtXmlEncGYearValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gYear value into an XML string representation.
- EXTERNXML int rtXmlEncGYearMonthValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gYearMonth value into an XML string representation.
- EXTERNXML int rtXmlEncGMonthValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gMonth value into an XML string representation.
- EXTERNXML int rtXmlEncGMonthDayValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gMonthDay value into an XML string representation.
- EXTERNXML int rtXmlEncGDayValue (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gDay value into an XML string representation.
- EXTERNXML int rtXmlEncHexBinary (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *value, const OSUT↩F8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD hexBinary type.
- EXTERNXML int rtXmlEncHexBinaryAttr (OSCTXT *pctxt, OSUINT32 nocts, const OSOCTET *value, const O↩SUTF8CHAR *attrName, OSSIZE attrNameLen)

  This function encodes a variable of the XSD hexBinary type as an attribute.
- EXTERNXML int rtXmlEncHexStrValue (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *data)

  This function encodes a variable of the XSD hexBinary type.
- EXTERNXML int rtXmlEncIndent (OSCTXT *pctxt)

  This function adds indentation whitespace to the output stream.
- EXTERNXML int rtXmlEncInt (OSCTXT *pctxt, OSINT32 value, const OSUTF8CHAR *elemName, OSXML↩Namespace *pNS)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int rtXmlEncIntValue (OSCTXT *pctxt, OSINT32 value)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int rtXmlEncIntAttr (OSCTXT *pctxt, OSINT32 value, const OSUTF8CHAR *attrName, OSSIZE attrNameLen)

  This function encodes a variable of the XSD integer type as an attribute (name="value").
- EXTERNXML int rtXmlEncIntPattern (OSCTXT *pctxt, OSINT32 value, const OSUTF8CHAR *elemName, OS↩XMLNamespace *pNS, const OSUTF8CHAR *pattern)

  This function encodes a variable of the XSD integer type using a pattern to specify the format of the integer value.
- EXTERNXML int **rtXmlEncIntPatternValue** (OSCTXT *pctxt, OSINT32 value, const OSUTF8CHAR *pattern)
- EXTERNXML int **rtXmlEncUIntPattern** (OSCTXT *pctxt, OSUINT32 value, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS, const OSUTF8CHAR *pattern)
- EXTERNXML int **rtXmlEncUIntPatternValue** (OSCTXT *pctxt, OSUINT32 value, const OSUTF8CHAR *pattern)
- EXTERNXML int rtXmlEncInt64 (OSCTXT *pctxt, OSINT64 value, const OSUTF8CHAR *elemName, OSXML↩Namespace *pNS)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int **rtXmlEncInt64Pattern** (OSCTXT *pctxt, OSINT64 value, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS, const OSUTF8CHAR *pattern)

- EXTERNXML int rtXmlEncInt64Value (OSCTXT *pctxt, OSINT64 value)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int **rtXmlEncInt64PatternValue** (OSCTXT *pctxt, OSINT64 value, const OSUTF8CHAR *pattern)
- EXTERNXML int rtXmlEncInt64Attr (OSCTXT *pctxt, OSINT64 value, const OSUTF8CHAR *attrName, OSSIZE attrNameLen)

  This function encodes a variable of the XSD integer type as an attribute (name="value").
- EXTERNXML int rtXmlEncNamedBits (OSCTXT *pctxt, const OSBitMapItem *pBitMap, OSSIZE nbits, const OSOCTET *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the ASN.1 BIT STRING type.
- EXTERNXML int **rtXmlEncNamedBitsValue** (OSCTXT *pctxt, const OSBitMapItem *pBitMap, OSSIZE nbits, const OSOCTET *pvalue)
- EXTERNXML int rtXmlEncNSAttrs (OSCTXT *pctxt, OSRTDList *pNSAttrs)

  This function encodes namespace declaration attributes at the beginning of an XML document.
- EXTERNXML int rtXmlPrintNSAttrs (const char *name, const OSRTDList *data)

  This function prints a list of namespace attributes.
- EXTERNXML int rtXmlEncReal10 (OSCTXT *pctxt, const OSUTF8CHAR *pvalue, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the ASN.1 REAL base 10 type.
- EXTERNXML int rtXmlEncSoapArrayTypeAttr (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8↩ CHAR *value, OSSIZE itemCount)

  This function encodes the special SOAP encoding attrType attribute which specifies the number and type of elements in a SOAP array.
- EXTERNXML int **rtXmlEncSoapArrayTypeAttr2** (OSCTXT *pctxt, const OSUTF8CHAR *name, OSSIZE nameLen, const OSUTF8CHAR *value, OSSIZE valueLen, OSSIZE itemCount)
- EXTERNXML int rtXmlEncStartDocument (OSCTXT *pctxt)

  This function encodes the XML header text at the beginning of an XML document.
- EXTERNXML int rtXmlEncBOM (OSCTXT *pctxt)

  This function encodes the Unicode byte order mark header at the start of the document.
- EXTERNXML int rtXmlEncStartElement (OSCTXT *pctxt, const OSUTF8CHAR *elemName, OSXML↩ Namespace *pNS, OSRTDList *pNSAttrs, OSBOOL terminate)

  This function encodes a start element tag value (<elemName>).
- EXTERNXML int rtXmlEncStartSoapEnv (OSCTXT *pctxt, OSRTDList *pNSAttrs)

  This function encodes a SOAP envelope start element tag.
- EXTERNXML int rtXmlEncStartSoapElems (OSCTXT *pctxt, OSXMLSOAPMsgType msgtype)

  This function encodes a SOAP envelope start element tag and an optional SOAP body or fault tag.
- EXTERNXML int rtXmlEncString (OSCTXT *pctxt, OSXMLSTRING *pxmlstr, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a variable of the XSD string type.
- EXTERNXML int rtXmlEncStringValue (OSCTXT *pctxt, const OSUTF8CHAR *value)

  This function encodes a variable of the XSD string type.
- EXTERNXML int rtXmlEncStringValue2 (OSCTXT *pctxt, const OSUTF8CHAR *value, OSSIZE valueLen)

  This function encodes a variable of the XSD string type.
- EXTERNXML int rtXmlEncTermStartElement (OSCTXT *pctxt)

  This function terminates a currently open XML start element by adding either a '>' or '/>' (if empty) terminator.
- EXTERNXML int rtXmlEncUnicodeStr (OSCTXT *pctxt, const OSUNICHAR *value, OSSIZE nchars, const O↩ SUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a Unicode string value.
- EXTERNXML int rtXmlEncUTF8Attr (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8CHAR *value)

This function encodes an attribute in which the name and value are given as a null-terminated UTF-8 strings.

- EXTERNXML int rtXmlEncUTF8Attr2 (OSCTXT *pctxt, const OSUTF8CHAR *name, OSSIZE nameLen, const OSUTF8CHAR *value, OSSIZE valueLen)

  This function encodes an attribute in which the name and value are given as a UTF-8 strings with lengths.
- EXTERNXML int rtXmlEncUTF8Str (OSCTXT *pctxt, const OSUTF8CHAR *value, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS)

  This function encodes a UTF-8 string value.
- EXTERNXML int rtXmlEncUInt (OSCTXT *pctxt, OSUINT32 value, const OSUTF8CHAR *elemName, OSXM↩ LNamespace *pNS)

  This function encodes a variable of the XSD unsigned integer type.
- EXTERNXML int rtXmlEncUIntValue (OSCTXT *pctxt, OSUINT32 value)

  This function encodes a variable of the XSD unsigned integer type.
- EXTERNXML int rtXmlEncUIntAttr (OSCTXT *pctxt, OSUINT32 value, const OSUTF8CHAR *attrName, OSSIZE attrNameLen)

  This function encodes a variable of the XSD unsigned integer type as an attribute (name="value").
- EXTERNXML int rtXmlEncUInt64 (OSCTXT *pctxt, OSUINT64 value, const OSUTF8CHAR *elemName, OSX↩ MLNamespace *pNS)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int **rtXmlEncUInt64Pattern** (OSCTXT *pctxt, OSUINT64 value, const OSUTF8CHAR *elemName, OSXMLNamespace *pNS, const OSUTF8CHAR *pattern)
- EXTERNXML int rtXmlEncUInt64Value (OSCTXT *pctxt, OSUINT64 value)

  This function encodes a variable of the XSD integer type.
- EXTERNXML int **rtXmlEncUInt64PatternValue** (OSCTXT *pctxt, OSUINT64 value, const OSUTF8CHAR *pattern)
- EXTERNXML int rtXmlEncUInt64Attr (OSCTXT *pctxt, OSUINT64 value, const OSUTF8CHAR *attrName, O↩ SSIZE attrNameLen)

  This function encodes a variable of the XSD integer type as an attribute (name="value").
- EXTERNXML int rtXmlEncXSIAttrs (OSCTXT *pctxt, OSBOOL needXSI)

  This function encodes XML schema instance (XSI) attributes at the beginning of an XML document.
- EXTERNXML int rtXmlEncXSITypeAttr (OSCTXT *pctxt, const OSUTF8CHAR *value)

  This function encodes an XML schema instance (XSI) type attribute value (xsi:type="value").
- EXTERNXML int rtXmlEncXSITypeAttr2 (OSCTXT *pctxt, const OSUTF8CHAR *typeNsUri, const OSUTF8C↩ HAR *typeName)

  This function encodes an XML schema instance (XSI) type attribute value (xsi:type="pfx:value").
- EXTERNXML int rtXmlEncXSINilAttr (OSCTXT *pctxt)

  This function encodes an XML nil attribute (xsi:nil="true").
- EXTERNXML int rtXmlFreeInputSource (OSCTXT *pctxt)

  This function closes an input source that was previously created with one of the create input source functions such as 'rtXmlCreateFileInputSource'.
- EXTERNXML OSBOOL **rtXmlStrCmpAsc** (const OSUTF8CHAR *text1, const char *text2)
- EXTERNXML OSBOOL **rtXmlStrnCmpAsc** (const OSUTF8CHAR *text1, const char *text2, OSSIZE len)
- EXTERNXML int rtXmlSetEncBufPtr (OSCTXT *pctxt, OSOCTET *bufaddr, OSSIZE bufsiz)

  This function is used to set the internal buffer within the run-time library encoding context.
- EXTERNXML int rtXmlGetIndent (OSCTXT *pctxt)

  This function returns current XML output indent value.
- EXTERNXML OSBOOL rtXmlGetWriteBOM (OSCTXT *pctxt)

  This function returns whether the Unicode byte order mark will be encoded.
- EXTERNXML int rtXmlGetIndentChar (OSCTXT *pctxt)

  This function returns current XML output indent character value (default is space).

- EXTERNXML int rtXmlPrepareContext (OSCTXT *pctxt)

  This function prepares the context for another encode by setting the state back to OSXMLINIT and moving the buffer's cursor back to the beginning of the buffer.
- EXTERNXML int rtXmlSetEncC14N (OSCTXT *pctxt, OSBOOL value)

  This function sets the option to encode in C14N mode.
- EXTERNXML int rtXmlSetEncXSINamespace (OSCTXT *pctxt, OSBOOL value)

  This function sets a flag in the context that indicates the XSI namespace declaration (xmlns:xsi) should be added to the encoded XML instance.
- EXTERNXML int rtXmlSetEncXSINilAttr (OSCTXT *pctxt, OSBOOL value)

  This function sets a flag in the context that indicates the XSI attribute declaration (xmlns:xsi) should be added to the encoded XML instance.
- EXTERNXML int **rtXmlSetDigitsFacets** (OSCTXT *pctxt, int totalDigits, int fractionDigits)
- EXTERNXML int rtXmlSetEncDocHdr (OSCTXT *pctxt, OSBOOL value)

  This function sets the option to add the XML document header (i.e.
- EXTERNXML int rtXmlSetEncodingStr (OSCTXT *pctxt, const OSUTF8CHAR *encodingStr)

  This function sets the XML output encoding to the given value.
- EXTERNXML int rtXmlSetFormatting (OSCTXT *pctxt, OSBOOL doFormatting)

  This function sets XML output formatting to the given value.
- EXTERNXML int rtXmlSetIndent (OSCTXT *pctxt, OSUINT8 indent)

  This function sets XML output indent to the given value.
- EXTERNXML int rtXmlSetIndentChar (OSCTXT *pctxt, char indentChar)

  This function sets XML output indent character to the given value.
- EXTERNXML void rtXmlSetNamespacesSet (OSCTXT *pctxt, OSBOOL value)

  This function sets the context 'namespaces are set' flag.
- EXTERNXML int rtXmlSetNSPrefixLinks (OSCTXT *pctxt, OSRTDList *pNSAttrs)

  This function sets namespace prefix/URI links in the namspace prefix stack in the context structure.
- EXTERNXML int rtXmlSetSchemaLocation (OSCTXT *pctxt, const OSUTF8CHAR *schemaLocation)

  This function sets the XML Schema Instance (xsi) schema location attribute to be added to an encoded document.
- EXTERNXML int rtXmlSetNoNSSchemaLocation (OSCTXT *pctxt, const OSUTF8CHAR *schemaLocation)

  This function sets the XML Schema Instance (xsi) no namespace schema location attribute to be added to an encoded document.
- EXTERNXML void rtXmlSetSoapVersion (OSCTXT *pctxt, OSUINT8 version)

  This function sets the SOAP version number.
- EXTERNXML int rtXmlSetXSITypeAttr (OSCTXT *pctxt, const OSUTF8CHAR *xsiType)

  This function sets the XML Schema Instance (xsi) type attribute value.
- EXTERNXML int rtXmlSetWriteBOM (OSCTXT *pctxt, OSBOOL write)

  This function sets whether the Unicode byte order mark is encoded.
- EXTERNXML int rtXmlMatchHexStr (OSCTXT *pctxt, OSSIZE minLength, OSSIZE maxLength)

  This function tests the context buffer for containing a correct hexadecimal string.
- EXTERNXML int rtXmlMatchBase64Str (OSCTXT *pctxt, OSSIZE minLength, OSSIZE maxLength)

  This function tests the context buffer for containing a correct base64 string.
- EXTERNXML int rtXmlMatchDate (OSCTXT *pctxt)

  This function tests the context buffer for containing a correct date string.
- EXTERNXML int rtXmlMatchTime (OSCTXT *pctxt)

  This function tests the context buffer for containing a correct time string.
- EXTERNXML int rtXmlMatchDateTime (OSCTXT *pctxt)

  This function tests the context buffer for containing a correct dateTime string.
- EXTERNXML int rtXmlMatchGYear (OSCTXT *pctxt)

This function tests the context buffer for containing a correct gYear string.

- EXTERNXML int rtXmlMatchGYearMonth (OSCTXT *pctxt)

  This function tests the context buffer for containing a correct gYearMonth string.
- EXTERNXML int rtXmlMatchGMonth (OSCTXT *pctxt)

  This function tests the context buffer for containing a correct gMonth string.
- EXTERNXML int rtXmlMatchGMonthDay (OSCTXT *pctxt)

  This function tests the context buffer for containing a correct gMonthDay string.
- EXTERNXML int rtXmlMatchGDay (OSCTXT *pctxt)

  This function tests the context buffer for containing a correct gDay string.
- EXTERNXML OSUTF8CHAR * rtXmlNewQName (OSCTXT *pctxt, const OSUTF8CHAR *localName, const OSUTF8CHAR *prefix)

  This function creates a new QName given the localName and prefix parts.
- EXTERNXML OSBOOL rtXmlCmpBase64Str (OSUINT32 nocts1, const OSOCTET *data1, const OSUTF8CHAR *data2)

  This function compares an array of octets to a base64 string.
- EXTERNXML OSBOOL rtXmlCmpHexStr (OSUINT32 nocts1, const OSOCTET *data1, const OSUTF8CHAR *data2)

  This function compares an array of octets to a hex string.
- EXTERNXML OSBOOL **rtXmlCmpHexChar** (OSUTF8CHAR ch, OSOCTET hexval)
- EXTERNXML int **rtSaxGetAttributeID** (const OSUTF8CHAR *attrName, OSSIZE nAttr, const OSUTF8CHAR *attrNames[ ], OSUINT32 attrPresent[ ])
- EXTERNXML const OSUTF8CHAR * rtSaxGetAttrValue (const OSUTF8CHAR *attrName, const OSUTF8CHAR *const *attrs)

  This function looks up an attribute in the attribute array returned by SAX to the startElement function.
- EXTERNXML OSINT16 rtSaxGetElemID (OSINT16 *pState, OSINT16 prevElemIdx, const OSUTF8CHAR *localName, OSINT32 nsidx, const OSSAXElemTableRec idtab[ ], const OSINT16 *fstab, OSINT16 fstabRows, OSINT16 fstabCols)

  This function looks up a sequence element name in the given element info array.
- EXTERNXML OSINT16 rtSaxGetElemID8 (OSINT16 *pState, OSINT16 prevElemIdx, const OSUTF8CHAR *localName, OSINT32 nsidx, const OSSAXElemTableRec idtab[ ], const OSINT8 *fstab, OSINT16 fstabRows, OSINT16 fstabCols)

  This function is a space optimized version of `rtSaxGetElemID`.
- EXTERNXML OSINT16 **rtSaxFindElemID** (OSINT16 *pState, OSINT16 prevElemIdx, const OSUTF8CHAR *localName, OSINT32 nsidx, const OSSAXElemTableRec idtab[ ], const OSINT16 *fstab, OSINT16 fstabRows, OSINT16 fstabCols)
- EXTERNXML OSINT16 **rtSaxFindElemID8** (OSINT16 *pState, OSINT16 prevElemIdx, const OSUTF8CHAR *localName, OSINT32 nsidx, const OSSAXElemTableRec idtab[ ], const OSINT8 *fstab, OSINT16 fstabRows, OSINT16 fstabCols)
- EXTERNXML OSBOOL rtSaxHasXMLNSAttrs (const OSUTF8CHAR *const *attrs)

  This function checks if the given attribute list contains one or more XML namespace attributes (xmlns).
- EXTERNXML OSBOOL rtSaxIsEmptyBuffer (OSCTXT *pctxt)

  This function checks if the buffer in the context is empty or not.
- EXTERNXML OSINT16 **rtSaxLookupElemID** (OSCTXT *pctxt, OSINT16 *pState, OSINT16 prevElemIdx, const OSUTF8CHAR *localName, const OSUTF8CHAR *qName, OSINT32 nsidx, const OSSAXElemTable↩ Rec idtab[ ], const OSINT16 *fstab, OSINT16 fstabRows, OSINT16 fstabCols)
- EXTERNXML OSINT16 **rtSaxLookupElemID8** (OSCTXT *pctxt, OSINT16 *pState, OSINT16 prevElemIdx, const OSUTF8CHAR *localName, const OSUTF8CHAR *qName, OSINT32 nsidx, const OSSAXElemTable↩ Rec idtab[ ], const OSINT8 *fstab, OSINT16 fstabRows, OSINT16 fstabCols)
- EXTERNXML int rtSaxStrListParse (OSCTXT *pctxt, OSRTMEMBUF *pMemBuf, OSRTDList *pvalue)

  This function parses the list of strings.

- EXTERNXML int rtSaxSortAttrs (OSCTXT *pctxt, const OSUTF8CHAR *const *attrs, OSUINT16 **order)

  This function sorts a SAX attribute list in ascending order based on attribute name.
- EXTERNXML int rtSaxStrListMatch (OSCTXT *pctxt)

  This function mathes the list of strings.
- EXTERNXML OSBOOL **rtSaxTestFinal** (OSINT16 state, OSINT16 currElemIdx, const int *fstab, int fstabRows, int fstabCols)
- EXTERNXML OSBOOL **rtSaxTestFinal8** (OSINT16 state, OSINT16 currElemIdx, const OSINT8 *fstab, int fstabRows, int fstabCols)
- EXTERNXML int **rtSaxSetSkipLevelToCurrent** (OSCTXT *pctxt, int stat)
- EXTERNXML OSUINT32 **rtSaxSetMaxErrors** (OSCTXT *pctxt, OSUINT32 maxErrors)
- EXTERNXML OSUINT32 **rtSaxGetMaxErrors** (OSCTXT *pctxt)
- EXTERNXML int **rtSaxTestAttributesPresent** (OSCTXT *pctxt, const OSUINT32 *attrPresent, const OSUINT32 *reqAttrMask, const OSUTF8CHAR *const *attrNames, OSSIZE numOfAttrs, const char *parentTypeName)
- EXTERNXML OSBOOL **rtSaxIncErrors** (OSCTXT *pctxt)
- EXTERNXML int **rtSaxReportUnexpAttrs** (OSCTXT *pctxt, const OSUTF8CHAR *const *attrs, const char *typeName)
- EXTERNXML int rtXmlWriteToFile (OSCTXT *pctxt, const char *filename)

  This function writes the encoded XML message stored in the context message buffer out to a file.
- EXTERNXML int **rtXmlWriteUTF16ToFile** (OSCTXT *pctxt, const char *filename)
- EXTERNXML void **rtXmlTreatWhitespaces** (OSCTXT *pctxt, int whiteSpaceType)
- EXTERNXML int **rtXmlCheckBuffer** (OSCTXT *pctxt, OSSIZE byte_count)
- EXTERNXML void **rtErrXmlInit** (OSVOIDARG)
- EXTERNXML int **rtXmlPutChar** (OSCTXT *pctxt, const OSUTF8CHAR value)
- EXTERNXML int **rtXmlWriteChars** (OSCTXT *pctxt, const OSUTF8CHAR *value, OSSIZE len)
- EXTERNXML int rtXmlpDecAny (OSCTXT *pctxt, const OSUTF8CHAR **pvalue)

  This function decodes an arbitrary XML section of code as defined by the XSD any type (xsd:any).
- EXTERNXML int rtXmlpDecAny2 (OSCTXT *pctxt, OSUTF8CHAR **pvalue)

  This version of the rtXmlpDecAny function returns the string in a mutable buffer.
- EXTERNXML int rtXmlpDecAnyAttrStr (OSCTXT *pctxt, const OSUTF8CHAR **ppAttrStr, OSSIZE attrIndex)

  This function decodes an any attribute string.
- EXTERNXML int rtXmlpDecAnyElem (OSCTXT *pctxt, const OSUTF8CHAR **pvalue)

  This function decodes an arbitrary XML section of code as defined by the XSD any type (xsd:any).
- EXTERNXML int rtXmlpDecBase64Str (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, OSSIZE bufsize)

  This function decodes a contents of a Base64-encode binary string into a static memory structure.
- EXTERNXML int rtXmlpDecBase64Str64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, OSSIZE bufsize)

  This function is identical to rtXmlpDecBase64Str except that it supports 64-bit integer lengths on 64-bit systems.
- EXTERNXML int rtXmlpDecBigInt (OSCTXT *pctxt, const OSUTF8CHAR **pvalue)

  This function will decode a variable of the XSD integer type.
- EXTERNXML int rtXmlpDecBitString (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnbits, OSUINT32 bufsize)

  This function decodes a bit string value.
- EXTERNXML int rtXmlpDecBitString64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnbits, OSSIZE bufsize)

  This function is identical to rtXmlpDecBitString except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNXML int rtXmlpDecBitStringExt (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnbits, OSOCTET **ppextdata, OSUINT32 bufsize)

  This function decodes a bit string value.

- EXTERNXML int rtXmlpDecBitStringExt64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnbits, OSOCTET **ppextdata, OSSIZE bufsize)

  This function is identical to rtXmlpDecBitStringExt except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNXML int rtXmlpDecBool (OSCTXT *pctxt, OSBOOL *pvalue)

  This function decodes a variable of the boolean type.
- EXTERNXML int rtXmlpDecDate (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'date' type.
- EXTERNXML int rtXmlpDecDateTime (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'dateTime' type.
- EXTERNXML int rtXmlpDecDecimal (OSCTXT *pctxt, OSREAL *pvalue, int totalDigits, int fractionDigits)

  This function decodes the contents of a decimal data type.
- EXTERNXML int rtXmlpDecDouble (OSCTXT *pctxt, OSREAL *pvalue)

  This function decodes the contents of a float or double data type.
- EXTERNXML int rtXmlpDecDoubleExt (OSCTXT *pctxt, OSUINT8 flags, OSREAL *pvalue)

  This function decodes the contents of a float or double data type.
- EXTERNXML int rtXmlpDecDynBase64Str (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a contents of a Base64-encode binary string.
- EXTERNXML int rtXmlpDecDynBase64Str64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)

  This function is identical to rtXmlpDecDynBase64Str except that it supports 64-bit integer lengths on 64-bit systems.
- EXTERNXML int rtXmlpDecDynBitString (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a bit string value.
- EXTERNXML int rtXmlpDecDynHexStr (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a contents of a hexBinary string.
- EXTERNXML int rtXmlpDecDynHexStr64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)

  This function is identical to the rtXmlpDecDynHexStr except that it supports lengths up to 64 bits in size on 64-bit systems.
- EXTERNXML int rtXmlpDecDynUnicodeStr (OSCTXT *pctxt, const OSUNICHAR **ppdata, OSSIZE *pnchars)

  This function decodes a Unicode string data type.
- EXTERNXML int rtXmlpDecDynUTF8Str (OSCTXT *pctxt, const OSUTF8CHAR **outdata)

  This function decodes the contents of a UTF-8 string data type.
- EXTERNXML int rtXmlpDecUTF8Str (OSCTXT *pctxt, OSUTF8CHAR *out, OSSIZE max_len)

  This function decodes the contents of a UTF-8 string data type.
- EXTERNXML int rtXmlpDecGDay (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gDay' type.
- EXTERNXML int rtXmlpDecGMonth (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gMonth' type.
- EXTERNXML int rtXmlpDecGMonthDay (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gMonthDay' type.
- EXTERNXML int rtXmlpDecGYear (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gYear' type.
- EXTERNXML int rtXmlpDecGYearMonth (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'gYearMonth' type.
- EXTERNXML int rtXmlpDecHexStr (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, OSSIZE bufsize)

  This function decodes the contents of a hexBinary string into a static memory structure.
- EXTERNXML int rtXmlpDecHexStr64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, OSSIZE bufsize)

  This function is identical to rtXmlpDecHexStr except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNXML int rtXmlpDecInt (OSCTXT *pctxt, OSINT32 *pvalue)

  This function decodes the contents of a 32-bit integer data type.

- EXTERNXML int rtXmlpDecInt8 (OSCTXT *pctxt, OSINT8 *pvalue)

  This function decodes the contents of an 8-bit integer data type (i.e.
- EXTERNXML int rtXmlpDecInt16 (OSCTXT *pctxt, OSINT16 *pvalue)

  This function decodes the contents of a 16-bit integer data type.
- EXTERNXML int rtXmlpDecInt64 (OSCTXT *pctxt, OSINT64 *pvalue)

  This function decodes the contents of a 64-bit integer data type.
- EXTERNXML int rtXmlpDecNamedBits (OSCTXT *pctxt, const OSBitMapItem *pBitMap, OSOCTET *pvalue, OSUINT32 *pnbits, OSUINT32 bufsize)

  This function decodes the contents of a named bit field.
- EXTERNXML int rtXmlpDecNamedBits64 (OSCTXT *pctxt, const OSBitMapItem *pBitMap, OSOCTET *pvalue, OSSIZE *pnbits, OSSIZE bufsize)

  This function decodes the contents of a named bit field.
- EXTERNXML int rtXmlpDecStrList (OSCTXT *pctxt, OSRTDList *plist)

  This function decodes a list of space-separated tokens and returns each token as a separate item on the given list.
- EXTERNXML int rtXmlpDecTime (OSCTXT *pctxt, OSXSDDateTime *pvalue)

  This function decodes a variable of the XSD 'time' type.
- EXTERNXML int rtXmlpDecUInt (OSCTXT *pctxt, OSUINT32 *pvalue)

  This function decodes the contents of an unsigned 32-bit integer data type.
- EXTERNXML int rtXmlpDecUInt8 (OSCTXT *pctxt, OSOCTET *pvalue)

  This function decodes the contents of an unsigned 8-bit integer data type (i.e.
- EXTERNXML int rtXmlpDecUInt16 (OSCTXT *pctxt, OSUINT16 *pvalue)

  This function decodes the contents of an unsigned 16-bit integer data type.
- EXTERNXML int rtXmlpDecUInt64 (OSCTXT *pctxt, OSUINT64 *pvalue)

  This function decodes the contents of an unsigned 64-bit integer data type.
- EXTERNXML int rtXmlpDecXmlStr (OSCTXT *pctxt, OSXMLSTRING *outdata)

  This function decodes the contents of an XML string data type.
- EXTERNXML int rtXmlpDecXmlStrList (OSCTXT *pctxt, OSRTDList *plist)

  This function decodes a list of space-separated tokens and returns each token as a separate item on the given list.
- EXTERNXML int rtXmlpDecXSIAttr (OSCTXT *pctxt, const OSXMLNameFragments *attrName)

  This function decodes XSI (XML Schema Instance) attributes that may be present in any arbitrary XML element within a document.
- EXTERNXML int rtXmlpDecXSITypeAttr (OSCTXT *pctxt, const OSXMLNameFragments *attrName, const O↩ SUTF8CHAR **ppAttrValue)

  This function decodes the contents of an XSI (XML Schema Instance) type attribute (xsi:type).
- EXTERNXML int rtXmlpGetAttributeID (const OSXMLStrFragment *attrName, OSINT16 nsidx, OSSIZE nAttr, const OSXMLAttrDescr attrNames[ ], OSUINT32 attrPresent[ ])

  This function finds an attribute in the descriptor table.
- EXTERNXML int rtXmlpGetNextElem (OSCTXT *pctxt, OSXMLElemDescr *pElem, OSINT32 level)

  This function parse the next element start tag.
- EXTERNXML int rtXmlpGetNextElemID (OSCTXT *pctxt, const OSXMLElemIDRec *tab, OSSIZE nrows, OSI↩ NT32 level, OSBOOL continueParse)

  This function parses the next start tag and finds the index of the element name in the descriptor table.
- EXTERNXML int rtXmlpMarkLastEventActive (OSCTXT *pctxt)

  This function marks current tag as unprocessed.
- EXTERNXML int rtXmlpMatchStartTag (OSCTXT *pctxt, const OSUTF8CHAR *elemLocalName, OSINT16 nsidx)

  This function parses the next start tag that matches with given name.
- EXTERNXML int rtXmlpMatchEndTag (OSCTXT *pctxt, OSINT32 level)

This function parse next end tag that matches with given name.

- EXTERNXML OSBOOL rtXmlpHasAttributes (OSCTXT *pctxt)

  This function checks accessibility of attributes.

- EXTERNXML int rtXmlpGetAttributeCount (OSCTXT *pctxt)

  This function returns number of attributes in last processed start tag.

- EXTERNXML int rtXmlpSelectAttribute (OSCTXT *pctxt, OSXMLNameFragments *pAttr, OSINT16 *nsidx, OSSIZE attrIndex)

  This function selects attribute to decode.

- EXTERNXML OSINT32 rtXmlpGetCurrentLevel (OSCTXT *pctxt)

  This function returns current nesting level.

- EXTERNXML void rtXmlpSetWhiteSpaceMode (OSCTXT *pctxt, OSXMLWhiteSpaceMode whiteSpaceMode)

  Sets the whitespace treatment mode.

- EXTERNXML OSBOOL rtXmlpSetMixedContentMode (OSCTXT *pctxt, OSBOOL mixedContentMode)

  Sets mixed content mode.

- EXTERNXML void rtXmlpSetListMode (OSCTXT *pctxt)

  Sets list mode.

- EXTERNXML OSBOOL rtXmlpListHasItem (OSCTXT *pctxt)

  Check for end of decoded token list.

- EXTERNXML void rtXmlpCountListItems (OSCTXT *pctxt, OSSIZE *itemCnt)

  Count tokens in list.

- EXTERNXML int rtXmlpGetNextSeqElemID2 (OSCTXT *pctxt, const OSXMLElemIDRec *tab, const OSXMLGroupDesc *pGroup, int groups, int curID, int lastMandatoryID, OSBOOL groupMode, OSBOOL checkRepeat)

  This function parses the next start tag and finds index of element name in descriptor table.

- EXTERNXML int rtXmlpGetNextSeqElemID (OSCTXT *pctxt, const OSXMLElemIDRec *tab, const OSXMLGroupDesc *pGroup, int curID, int lastMandatoryID, OSBOOL groupMode)

  This function parses the next start tag and finds index of element name in descriptor table.

- EXTERNXML int rtXmlpGetNextSeqElemIDExt (OSCTXT *pctxt, const OSXMLElemIDRec *tab, const OSXMLGroupDesc *ppGroup, const OSBOOL *extRequired, int postExtRootID, int curID, int lastMandatoryID, OSBOOL groupMode)

  This is an ASN.1 extension-supporting version of rtXmlpGetNextSeqElemID.

- EXTERNXML int rtXmlpGetNextAllElemID (OSCTXT *pctxt, const OSXMLElemIDRec *tab, OSSIZE nrows, const OSUINT8 *pOrder, OSSIZE nOrder, OSSIZE maxOrder, int anyID)

  This function parses the next start tag and finds index of element name in descriptor table.

- EXTERNXML int rtXmlpGetNextAllElemID16 (OSCTXT *pctxt, const OSXMLElemIDRec *tab, OSSIZE nrows, const OSUINT16 *pOrder, OSSIZE nOrder, OSSIZE maxOrder, int anyID)

  This function parses the next start tag and finds index of element name in descriptor table.

- EXTERNXML int rtXmlpGetNextAllElemID32 (OSCTXT *pctxt, const OSXMLElemIDRec *tab, OSSIZE nrows, const OSUINT32 *pOrder, OSSIZE nOrder, OSSIZE maxOrder, int anyID)

  This function parses the next start tag and finds index of element name in descriptor table.

- EXTERNXML void rtXmlpSetNamespaceTable (OSCTXT *pctxt, const OSUTF8CHAR *namespaceTable[], OSSIZE nmNamespaces)

  Sets user namespace table.

- EXTERNXML int rtXmlpCreateReader (OSCTXT *pctxt)

  Creates pull parser reader structure within the context.

- EXTERNXML void rtXmlpHideAttributes (OSCTXT *pctxt)

  Disable access to attributes.

- EXTERNXML OSBOOL rtXmlpNeedDecodeAttributes (OSCTXT *pctxt)

  This function checks if attributes were previously decoded.

- EXTERNXML void rtXmlpMarkPos (OSCTXT *pctxt)

  Save current decode position.
- EXTERNXML void rtXmlpRewindToMarkedPos (OSCTXT *pctxt)

  Rewind to saved decode position.
- EXTERNXML void rtXmlpResetMarkedPos (OSCTXT *pctxt)

  Reset saved decode position.
- EXTERNXML int rtXmlpGetXSITypeAttr (OSCTXT *pctxt, const OSUTF8CHAR **ppAttrValue, OSINT16 *nsidx, OSSIZE *pLocalOffs)

  This function decodes the contents of an XSI (XML Schema Instance) type attribute (xsi:type).
- EXTERNXML int rtXmlpGetXmlnsAttrs (OSCTXT *pctxt, OSRTDList *pNSAttrs)

  This function decodes namespace attributes from start tag and adds them to the given list.
- EXTERNXML int rtXmlpDecXSIAttrs (OSCTXT *pctxt)

  This function decodes XSI (XML Schema Instance) that may be present in any arbitrary XML element within a document.
- EXTERNXML OSBOOL rtXmlpIsEmptyElement (OSCTXT *pctxt)

  Check element content: empty or not.
- EXTERNXML int rtXmlEncAttrC14N (OSCTXT *pctxt)

  This function used only in C14 mode.
- EXTERNXML struct OSXMLReader * rtXmlpGetReader (OSCTXT *pctxt)

  This function fetches the XML reader structure from the context for use in low-level pull parser calls.
- EXTERNXML OSBOOL rtXmlpIsLastEventDone (OSCTXT *pctxt)

  Check processing status of current tag.
- EXTERNXML int rtXmlpGetXSITypeIndex (OSCTXT *pctxt, const OSXMLItemDescr typetab[ ], OSSIZE typetabsiz)

  This function decodes the contents of an XSI (XML Schema Instance) type attribute (xsi:type) and find type index in descriptor table.
- EXTERNXML int rtXmlpLookupXSITypeIndex (OSCTXT *pctxt, const OSUTF8CHAR *pXsiType, OSINT16 xsi↩ TypeIdx, const OSXMLItemDescr typetab[ ], OSSIZE typetabsiz)

  This function find index of XSI (XML Schema Instance) type in descriptor table.
- EXTERNXML void rtXmlpForceDecodeAsGroup (OSCTXT *pctxt)

  Disable skipping of unknown elements in optional sequence tail.
- EXTERNXML OSBOOL rtXmlpIsDecodeAsGroup (OSCTXT *pctxt)

  This function checks if "decode as group" mode was forced.
- EXTERNXML OSBOOL rtXmlpIsUTF8Encoding (OSCTXT *pctxt)

  This function checks if the encoding specified in XML header is UTF-8.
- EXTERNXML int rtXmlpReadBytes (OSCTXT *pctxt, OSOCTET *pbuf, OSSIZE nbytes)

  This function reads the specified number of bytes directly from the underlying XML parser stream.

8.1.1 Detailed Description

XML low-level C encode/decode functions.

8.1.2 Macro Definition Documentation

8.1.2.1 IS_XMLNSATTR

```
#define IS_XMLNSATTR(
              name )
```

Value:

```
((OSUTF8LEN(name) >= 5) && name[0] == 'x' && name[1] == 'm' && \
 name[2] == 'l' && name[3] == 'n' && name[4] == 's')
```

Definition at line 187 of file osrtxml.h.

8.1.2.2 IS_XSIATTR

```
#define IS_XSIATTR(
              name )
```

Value:

```
((OSUTF8LEN(name) >= 4) && name[0] == 'x' && name[1] == 's' && \
 name[2] == 'i' && name[3] == ':')
```

Definition at line 191 of file osrtxml.h.

8.1.2.3 OSASN1XER

```
#define OSASN1XER
```

Value:

```
0x00000008  /* if true, -xml code and runtime
                                    should produce XER encodings
                                    instead of Obj-Sys encodings     */
```

Definition at line 76 of file osrtxml.h.

8.1.2.4 OSHASDEFAULT

```
#define OSHASDEFAULT
```

Value:

```
0x00000010  /* decode should accept values which
                                    are empty after whitespace processing
                                    because the element has a default
                                    value                              */
```

Definition at line 72 of file osrtxml.h.

8.1.2.5 OSXMLC14N

```
#define OSXMLC14N
```

Value:

```
0x00000200  /* Flag used to indicate XML canonical
                                    encode when OSASN1XER is not set, or
                                    canonical XER when OSASN1XER is set. */
```

Definition at line 66 of file osrtxml.h.

8.1.2.6 OSXMLQNAMEEQUALS

```
#define OSXMLQNAMEEQUALS(
               xnamefrag,
               qnametext )
```

Value:

```
rtxUTF8StrnEqual \
(xnamefrag.mQName.value, OSUTF8(qnametext), xnamefrag.mQName.length)
```

Definition at line 180 of file osrtxml.h.

8.1.2.7 OSXMLSETUTF8DECPTR

```
#define OSXMLSETUTF8DECPTR(
              pctxt,
              str )
```

Value:

```
rtxInitContextBuffer (pctxt, OSRTSAFECONSTCAST (OSOCTET*, str), \
OSUTF8LEN (str))
```

Definition at line 183 of file osrtxml.h.

8.1.3 Typedef Documentation

8.1.3.1 OSXMLGroupDesc

```
typedef struct OSXMLGroupDesc OSXMLGroupDesc
```

OSXMLGroupDesc describes how entries in an OSXMLElemIDRec array make up a group.

Here, "group" means a set of elements, any of which may be matched next. This does not correspond directly to an XSD group.

For example, if elementA is optional and followed by non-optional elementB, then there will be a group that contains both elements. There will also be a group that contains only elementB; this will be the group of interest after elementA is matched.

8.1.4 Function Documentation

8.1.4.1 rtSaxGetAttrValue()

```
EXTERNXML const OSUTF8CHAR* rtSaxGetAttrValue (
             const OSUTF8CHAR * attrName,
             const OSUTF8CHAR *const * attrs )
```

This function looks up an attribute in the attribute array returned by SAX to the startElement function.

Parameters

attrName	Name of the attribute to find.
attrs	Attribute array returned in SAX startElement function. This is an array of character strings containing name1, value1, name2, value2, ... List is terminated by a null name.

Returns

Pointer to character string containing attribute value or NULL if attrName not found.

8.1.4.2 rtSaxGetElemID()

```
EXTERNXML OSINT16 rtSaxGetElemID (
             OSINT16 * pState,
             OSINT16 prevElemIdx,
             const OSUTF8CHAR * localName,
             OSINT32 nsidx,
             const OSSAXElemTableRec idtab[],
             const OSINT16 * fstab,
             OSINT16 fstabRows,
             OSINT16 fstabCols )
```

This function looks up a sequence element name in the given element info array.

If ensures elements are received in the correct order and also sets the required element count variable.

Parameters

pState	The pointer to state variable to be changed.
prevElemIdx	Previous index of element. The search will be started from this element for better performance.
localName	Local name of XML element
nsidx	Namespace index
idtab	Element ID table
fstab	Finite state table
fstabRows	Number of rows in `fstab`.
fstabCols	Number of columns in `fstab`.

8.1.4.3 rtSaxGetElemID8()

```
EXTERNXML OSINT16 rtSaxGetElemID8 (
             OSINT16 * pState,
             OSINT16 prevElemIdx,
             const OSUTF8CHAR * localName,
             OSINT32 nsidx,
             const OSSAXElemTableRec idtab[],
             const OSINT8 * fstab,
             OSINT16 fstabRows,
             OSINT16 fstabCols )
```

This function is a space optimized version of `rtSaxGetElemID`.

It operates with array of 8-bit integers (OSINT8) instead of 32-bit integers (int).

Parameters

pState	The pointer to state variable to be changed.
prevElemIdx	Previous index of element. The search will be started from this element + 1 for better performance.
localName	Local name of XML element
nsidx	Namespace index
idtab	Element ID table
fstab	Finite state table (array of 8-bit integers)
fstabRows	Number of rows in `fstab`.
fstabCols	Number of columns in `fstab`.

8.1.4.4 rtSaxHasXMLNSAttrs()

```
EXTERNXML OSBOOL rtSaxHasXMLNSAttrs (
             const OSUTF8CHAR *const * attrs )
```

This function checks if the given attribute list contains one or more XML namespace attributes (xmlns).

Parameters

attrs	Attribute list in form passed by parser into SAX startElement function.

Returns

TRUE, if xmlns attribute found in list.

8.1.4.5 rtSaxIsEmptyBuffer()

```
EXTERNXML OSBOOL rtSaxIsEmptyBuffer (
             OSCTXT * pctxt )
```

This function checks if the buffer in the context is empty or not.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

TRUE, if the buffer contains empty string.

8.1.4.6 rtSaxSortAttrs()

```
EXTERNXML int rtSaxSortAttrs (
             OSCTXT * pctxt,
             const OSUTF8CHAR *const * attrs,
             OSUINT16 ** order )
```

This function sorts a SAX attribute list in ascending order based on attribute name.

It currently only supports unqualified attributes.

Parameters

pctxt	Pointer to OSCTXT structure.
attrs	Standard SAX attribute list. Entry i is attribute name and i+1 is value. List is terminated by a null name.
order	Order array containing the order of sorted attributes. This array is allocated using rtxMemAlloc, it can be freed using rtxMemFreePtr or will be freed when the context is freed. The list holds indicies to name items in the attribute list that is passed in.

Returns

If success, positive value contains number of attributes in attrs; if failure, negative status code.

8.1.4.7 rtSaxStrListMatch()

```
EXTERNXML int rtSaxStrListMatch (
             OSCTXT * pctxt )
```

This function mathes the list of strings.

It is used for matching NMTOKENS, IDREFS, NMENTITIES.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

0 - if success, negative value is error.

8.1.4.8 rtSaxStrListParse()

```
EXTERNXML int rtSaxStrListParse (
             OSCTXT * pctxt,
             OSRTMEMBUF * pMemBuf,
             OSRTDList * pvalue )
```

This function parses the list of strings.

It is used for parsing NMTOKENS, IDREFS, NMENTITIES.

Parameters

pctxt	Pointer to OSCTXT structure. Can be NULL, if pMemBuf is not NULL.
pMemBuf	Pointer to memory buffer structure. Can be NULL, if pctxt is not NULL.
pvalue	Doubly-linked list for parsed strings.

Returns

0 - if success, negative value is error.

8.1.4.9 rtXmlCmpBase64Str()

```
EXTERNXML OSBOOL rtXmlCmpBase64Str (
             OSUINT32 nocts1,
             const OSOCTET * data1,
             const OSUTF8CHAR * data2 )
```

This function compares an array of octets to a base64 string.

Parameters

nocts1	Number of octets in data1.
data1	Pointer to array of OSOCTET.
data2	Pointer to null-terminated array of OSUTF8CHAR.

Returns

TRUE if data2 is a base64 string representation of data1, false otherwise.

8.1.4.10 rtXmlCmpHexStr()

```
EXTERNXML OSBOOL rtXmlCmpHexStr (
             OSUINT32 nocts1,
             const OSOCTET * data1,
             const OSUTF8CHAR * data2 )
```

This function compares an array of octets to a hex string.

Parameters

nocts1	Number of octets in data1.
data1	Pointer to array of OSOCTET.
data2	Pointer to null-terminated array of OSUTF8CHAR.

Returns

TRUE if data2 is a hex string representation of data1, false otherwise.

8.1.4.11 rtXmlCreateFileInputSource()

```
EXTERNXML int rtXmlCreateFileInputSource (
             OSCTXT * pctxt,
             const char * filepath )
```

This function creates an XML document file input source.

The document can then be decoded by invoking an XML decode function.

Parameters

pctxt	Pointer to context block structure.
filepath	Full pathname of XML document file to open.

Returns

Completion status of operation:

- 0 = success,
- negative return value is error.

8.1.4.12 rtXmlInitContext()

```
EXTERNXML int rtXmlInitContext (
             OSCTXT * pctxt )
```

This function initializes a context variable for XML encoding or decoding.

Parameters

pctxt	Pointer to OSCTXT structure

8.1.4.13 rtXmlInitContextUsingKey()

```
EXTERNXML int rtXmlInitContextUsingKey (
             OSCTXT * pctxt,
             const OSOCTET * key,
             OSSIZE keylen )
```

This function initializes a context using a run-time key.

This form is required for evaluation and limited distribution software. The compiler will generate a macro for rtXmlInit↩ Context in the rtkey.h file that will invoke this function with the generated run-time key.

Parameters

pctxt	The pointer to the context structure variable to be initialized.
key	Key data generated by ASN1C compiler.
keylen	Key data field length.

Returns

Completion status of operation:

- 0 (ASN_OK) = success,
- negative return value is error.

8.1.4.14 rtXmlInitCtxtAppInfo()

```
EXTERNXML int rtXmlInitCtxtAppInfo (
             OSCTXT * pctxt )
```

This function initializes the XML application info section of the given context.

Parameters

pctxt	Pointer to OSCTXT structure

8.1.4.15 rtXmlMatchBase64Str()

```
EXTERNXML int rtXmlMatchBase64Str (
             OSCTXT * pctxt,
             OSSIZE minLength,
             OSSIZE maxLength )
```

This function tests the context buffer for containing a correct base64 string.

It does not decode the value.

Parameters

pctxt	Pointer to OSCTXT structure
minLength	A minimal length of expected string.
maxLength	A maximal length of expected string.

Returns

If the string in the context buffer is a correct one, function returns zero. Error code (negative) will be returned otherwise. Note, error record will NOT be added in the error's list of the context.

8.1.4.16 rtXmlMatchDate()

```
EXTERNXML int rtXmlMatchDate (
             OSCTXT * pctxt )
```

This function tests the context buffer for containing a correct date string.

It does not decode the value.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

If the string in the context buffer is a correct one, function returns zero. Error code (negative) will be returned otherwise. Note, error record will NOT be added in the error's list of the context.

8.1.4.17 rtXmlMatchDateTime()

```
EXTERNXML int rtXmlMatchDateTime (
             OSCTXT * pctxt )
```

This function tests the context buffer for containing a correct dateTime string.

It does not decode the value.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

If the string in the context buffer is a correct one, function returns zero. Error code (negative) will be returned otherwise. Note, error record will NOT be added in the error's list of the context.

8.1.4.18 rtXmlMatchGDay()

```
EXTERNXML int rtXmlMatchGDay (
             OSCTXT * pctxt )
```

This function tests the context buffer for containing a correct gDay string.

It does not decode the value.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

If the string in the context buffer is a correct one, function returns zero. Error code (negative) will be returned otherwise. Note, error record will NOT be added in the error's list of the context.

8.1.4.19 rtXmlMatchGMonth()

```
EXTERNXML int rtXmlMatchGMonth (
             OSCTXT * pctxt )
```

This function tests the context buffer for containing a correct gMonth string.

It does not decode the value.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

If the string in the context buffer is a correct one, function returns zero. Error code (negative) will be returned otherwise. Note, error record will NOT be added in the error's list of the context.

8.1.4.20 rtXmlMatchGMonthDay()

```
EXTERNXML int rtXmlMatchGMonthDay (
             OSCTXT * pctxt )
```

This function tests the context buffer for containing a correct gMonthDay string.

It does not decode the value.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

If the string in the context buffer is a correct one, function returns zero. Error code (negative) will be returned otherwise. Note, error record will NOT be added in the error's list of the context.

8.1.4.21 rtXmlMatchGYear()

```
EXTERNXML int rtXmlMatchGYear (
             OSCTXT * pctxt )
```

This function tests the context buffer for containing a correct gYear string.

It does not decode the value.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

If the string in the context buffer is a correct one, function returns zero. Error code (negative) will be returned otherwise. Note, error record will NOT be added in the error's list of the context.

8.1.4.22 rtXmlMatchGYearMonth()

```
EXTERNXML int rtXmlMatchGYearMonth (
             OSCTXT * pctxt )
```

This function tests the context buffer for containing a correct gYearMonth string.

It does not decode the value.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

If the string in the context buffer is a correct one, function returns zero. Error code (negative) will be returned otherwise. Note, error record will NOT be added in the error's list of the context.

8.1.4.23 rtXmlMatchHexStr()

```
EXTERNXML int rtXmlMatchHexStr (
             OSCTXT * pctxt,
             OSSIZE minLength,
             OSSIZE maxLength )
```

This function tests the context buffer for containing a correct hexadecimal string.

It does not decode the value.

Parameters

pctxt	Pointer to OSCTXT structure
minLength	A minimal length of expected string.
maxLength	A maximal length of expected string.

Returns

If the string in the context buffer is a correct one, function returns zero. Error code (negative) will be returned otherwise. Note, error record will NOT be added in the error's list of the context.

8.1.4.24 rtXmlMatchTime()

```
EXTERNXML int rtXmlMatchTime (
             OSCTXT * pctxt )
```

This function tests the context buffer for containing a correct time string.

It does not decode the value.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

If the string in the context buffer is a correct one, function returns zero. Error code (negative) will be returned otherwise. Note, error record will NOT be added in the error's list of the context.

8.1.4.25 rtXmlMemFreeAnyAttrs()

```
EXTERNXML void rtXmlMemFreeAnyAttrs (
             OSCTXT * pctxt,
             OSRTDList * pAnyAttrList )
```

This function frees a list of anyAttribute that is a member of OSXSDAnyType structure.

Parameters

pctxt	Pointer to context block structure.
pAnyAttrList	Pointer to list of anyAttribute that is to be freed.

8.1.4.26 rtXmlNewQName()

```
EXTERNXML OSUTF8CHAR* rtXmlNewQName (
             OSCTXT * pctxt,
```

```
            const OSUTF8CHAR * localName,
            const OSUTF8CHAR * prefix )
```

This function creates a new QName given the localName and prefix parts.

Parameters

pctxt	Pointer to a context structure.
localName	Element local name.
prefix	Namespace prefix.

Returns

QName value. Memory for the value will have been allocated by rtxMemAlloc and thus must be freed using one of the rtxMemFree functions. The value will be NULL if no dynamic memory was available.

8.1.4.27 rtXmlPrepareContext()

```
EXTERNXML int rtXmlPrepareContext (
            OSCTXT * pctxt )
```

This function prepares the context for another encode by setting the state back to OSXMLINIT and moving the buffer's cursor back to the beginning of the buffer.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

0 if OK, negative status code if error.

8.1.4.28 rtXmlSetEncC14N()

```
EXTERNXML int rtXmlSetEncC14N (
            OSCTXT * pctxt,
            OSBOOL value )
```

This function sets the option to encode in C14N mode.

Parameters

pctxt	Pointer to OSCTXT structure
value	Boolean value: true = C14N mode enabled.

Returns

Status of operation: 0 if OK, negative status code if error.

8.1.4.29 rtXmlSetEncDocHdr()

```
EXTERNXML int rtXmlSetEncDocHdr (
             OSCTXT * pctxt,
             OSBOOL value )
```

This function sets the option to add the XML document header (i.e.

<?xml version="1.0" encoding="UTF-8"?>) to the XML output stream.

Parameters

pctxt	Pointer to OSCTXT structure
value	Boolean value: true = add document header

Returns

Status of operation: 0 if OK, negative status code if error.

8.1.4.30 rtXmlSetEncodingStr()

```
EXTERNXML int rtXmlSetEncodingStr (
             OSCTXT * pctxt,
             const OSUTF8CHAR * encodingStr )
```

This function sets the XML output encoding to the given value.

Currently, UTF-8/UTF-16/ISO-8859-1 encodings are supported.

Parameters

pctxt	Pointer to OSCTXT structure
encodingStr	XML output encoding format

Returns

Status of operation: 0 if OK, negative status code if error.

8.1.4.31 rtXmlSetEncXSINamespace()

```
EXTERNXML int rtXmlSetEncXSINamespace (
             OSCTXT * pctxt,
             OSBOOL value )
```

This function sets a flag in the context that indicates the XSI namespace declaration (xmlns:xsi) should be added to the encoded XML instance.

Parameters

pctxt	Pointer to OSCTXT structure
value	Boolean value: true = encode XSI namespace attribute.

Returns

Status of operation: 0 if OK, negative status code if error.

8.1.4.32 rtXmlSetEncXSINilAttr()

```
EXTERNXML int rtXmlSetEncXSINilAttr (
             OSCTXT * pctxt,
             OSBOOL value )
```

This function sets a flag in the context that indicates the XSI attribute declaration (xmlns:xsi) should be added to the encoded XML instance.

Parameters

pctxt	Pointer to OSCTXT structure
value	Boolean value: true = encode xsi:nil attribute.

Returns

Status of operation: 0 if OK, negative status code if error.

8.1.4.33 rtXmlSetFormatting()

```
EXTERNXML int rtXmlSetFormatting (
             OSCTXT * pctxt,
             OSBOOL doFormatting )
```

This function sets XML output formatting to the given value.

If TRUE (the default), the XML document is formatted with indentation and newlines. If FALSE, all whitespace between elements is suppressed. Turning formatting off can provide more compressed documents and also a more canonical representation which is important for security applications. Also the function 'rtXmlSetIndent' might be used to set the exact size of identation.

Parameters

pctxt	Pointer to OSCTXT structure
doFormatting	Boolean value indicating if formatting is to be done

Returns

Status of operation: 0 if OK, negative status code if error.

8.1.4.34 rtXmlSetIndent()

```
EXTERNXML int rtXmlSetIndent (
             OSCTXT * pctxt,
             OSUINT8 indent )
```

This function sets XML output indent to the given value.

Parameters

pctxt	Pointer to OSCTXT structure
indent	Number of spaces per indent. Default is 3.

Returns

Status of operation: 0 if OK, negative status code if error.

8.1.4.35 rtXmlSetIndentChar()

```
EXTERNXML int rtXmlSetIndentChar (
             OSCTXT * pctxt,
             char indentChar )
```

This function sets XML output indent character to the given value.

Parameters

pctxt	Pointer to OSCTXT structure
indentChar	Indent character. Default is space.

Returns

Status of operation: 0 if OK, negative status code if error.

8.1.4.36 rtXmlSetNamespacesSet()

```
EXTERNXML void rtXmlSetNamespacesSet (
             OSCTXT * pctxt,
             OSBOOL value )
```

This function sets the context 'namespaces are set' flag.

This indicates that namespace declarations have been set either by the decoder or externally by the end user. It is used by the encoder to know not to set the default namespaces specified in the schema before starting encoding.

Parameters

pctxt	Pointer to OSCTXT structure.
value	Boolean value to which flag is to be set.

8.1.4.37 rtXmlSetNoNSSchemaLocation()

```
EXTERNXML int rtXmlSetNoNSSchemaLocation (
             OSCTXT * pctxt,
             const OSUTF8CHAR * schemaLocation )
```

This function sets the XML Schema Instance (xsi) no namespace schema location attribute to be added to an encoded document.

This attribute is optional: if not set, no xsi:noNamespaceSchemaLocation attribute will be added.

Parameters

pctxt	Pointer to OSCTXT structure
schemaLocation	Schema location attribute value

Returns

Status of operation: 0 if OK, negative status code if error.

8.1.4.38 rtXmlSetNSPrefixLinks()

```
EXTERNXML int rtXmlSetNSPrefixLinks (
             OSCTXT * pctxt,
             OSRTDList * pNSAttrs )
```

This function sets namespace prefix/URI links in the namspace prefix stack in the context structure.

Parameters

pctxt	Pointer to OSCTXT structure.
pNSAttrs	List of namespace attributes.

Returns

Status of operation: 0 if OK, negative status code if error.

8.1.4.39 rtXmlSetSchemaLocation()

```
EXTERNXML int rtXmlSetSchemaLocation (
             OSCTXT * pctxt,
             const OSUTF8CHAR * schemaLocation )
```

This function sets the XML Schema Instance (xsi) schema location attribute to be added to an encoded document.

This attribute is optional: if not set, no xsi:schemaLocation attribute will be added.

Parameters

pctxt	Pointer to OSCTXT structure
schemaLocation	Schema location attribute value

Returns

Status of operation: 0 if OK, negative status code if error.

8.1.4.40 rtXmlSetSoapVersion()

```
EXTERNXML void rtXmlSetSoapVersion (
             OSCTXT * pctxt,
             OSUINT8 version )
```

This function sets the SOAP version number.

Parameters

pctxt	Pointer to OSCTXT structure
version	SOAP version number as 2 digit integer (for example, 11 is SOAP version 1.1, 12 is version 1.2, etc.)

8.1.4.41 rtXmlSetWriteBOM()

```
EXTERNXML int rtXmlSetWriteBOM (
             OSCTXT * pctxt,
             OSBOOL write )
```

This function sets whether the Unicode byte order mark is encoded.

Parameters

pctxt	Pointer to OSCTXT structure
write	TRUE to encode BOM, FALSE to not encode BOM.

Returns

Status of operation: 0 if OK, negative status code if error.

8.1.4.42 rtXmlSetXSITypeAttr()

```
EXTERNXML int rtXmlSetXSITypeAttr (
             OSCTXT * pctxt,
             const OSUTF8CHAR * xsiType )
```

This function sets the XML Schema Instance (xsi) type attribute value.

This will cause an xsi:type attribute to be added to the top level element in an encoded XML instance.

Parameters

pctxt	Pointer to OSCTXT structure
xsiType	xsi:type attribute value

Returns

Status of operation: 0 if OK, negative status code if error.

8.2 OSXMLDecodeBuffer.h File Reference

XML decode buffer or stream class definition.

```
#include "rtxsrc/OSRTInputStream.h"
#include "rtxmlsrc/OSXMLMessageBuffer.h"
#include "rtxmlsrc/rtSaxCppParserIF.h"
```

Data Structures

- class OSXMLDecodeBuffer

  The OSXMLDecodeBuffer class is derived from the OSXMLMessageBuffer base class.

8.2.1 Detailed Description

XML decode buffer or stream class definition.

8.3 OSXMLEncodeBuffer.h File Reference

XML encode message buffer class definition.

```
#include "rtxmlsrc/OSXMLMessageBuffer.h"
```

Data Structures

- class OSXMLEncodeBuffer

  The OSXMLEncodeBuffer class is derived from the OSXMLEncodeBase class.

8.3.1 Detailed Description

XML encode message buffer class definition.

8.4 OSXMLEncodeStream.h File Reference

XML encode stream class definition.

```
#include "rtxsrc/OSRTOutputStream.h"
#include "rtxmlsrc/OSXMLMessageBuffer.h"
```

Data Structures

- class OSXMLEncodeStream

  The OSXMLEncodeStream class is derived from the OSXMLEncodeBase class.

8.4.1 Detailed Description

XML encode stream class definition.

8.5 OSXMLMessageBuffer.h File Reference

XML encode/decode buffer and stream base class.

```
#include "rtxsrc/OSRTMsgBuf.h"
#include "rtxmlsrc/osrtxml.h"
```

Data Structures

- class OSXMLMessageBuffer

  The XML message buffer class is derived from the OSMessageBuffer base class.
- class OSXMLEncodeBase

  OSXMLEncodeBase is a base class for the XML encode buffer and stream classes, OSXMLEncodeBuffer and OSXML↩ EncodeStream.

8.5.1 Detailed Description

XML encode/decode buffer and stream base class.

8.6 rtXmlErrCodes.h File Reference

List of numeric status codes that can be returned by ASN1C run-time functions and generated code.

```
#include "rtxsrc/rtxErrCodes.h"
```

Macros

- #define XML_OK_EOB 0x7fffffff

  End of block marker.
- #define XML_OK_FRAG XML_OK_EOB

  Maintained for backward compatibility.
- #define XML_E_BASE -200

  Error base.
- #define XML_E_GENERR (XML_E_BASE)

  General error.
- #define XML_E_INVSYMBOL (XML_E_BASE-1)

  An invalid XML symbol (character) was detected at the given point in the parse stream.
- #define XML_E_TAGMISMATCH (XML_E_BASE-2)

  Start/end tag mismatch.
- #define XML_E_DUPLATTR (XML_E_BASE-3)

  Duplicate attribute found.
- #define XML_E_BADCHARREF (XML_E_BASE-4)

  Bad character reference found.
- #define XML_E_INVMODE (XML_E_BASE-5)

  Invalid mode.
- #define XML_E_UNEXPEOF (XML_E_BASE-6)

  Unexpected end of file (document).
- #define XML_E_NOMATCH (XML_E_BASE-7)

  Current tag is not matched to specified one.
- #define XML_E_ELEMMISRQ (XML_E_BASE-8)

  Missing required element.
- #define XML_E_ELEMSMISRQ (XML_E_BASE-9)

  Missing required elements.
- #define XML_E_TOOFEWELEMS (XML_E_BASE-10)

  The number of elements in a repeating collection was less than the number of elements specified in the XSD minOccurs facet for this type or element.
- #define XML_E_UNEXPSTARTTAG (XML_E_BASE-11)

  Unexpected start tag.
- #define XML_E_UNEXPENDTAG (XML_E_BASE-12)

  Unexpected end tag.
- #define XML_E_IDNOTFOU (XML_E_BASE-13)

  Expected identifier not found.
- #define XML_E_INVTYPEINFO (XML_E_BASE-14)

  Unknown xsi:type.
- #define XML_E_NSURINOTFOU (XML_E_BASE-15)

Namespace URI not defined for given prefix.

- #define XML_E_KEYNOTFOU (XML_E_BASE-16)

  Keyref constraint has some key that not present in refered constraint.
- #define XML_E_DUPLKEY (XML_E_BASE-17)

  Key or unique constraint has duplicated key.
- #define XML_E_FLDABSENT (XML_E_BASE-18)

  Some key has no full set of fields.
- #define XML_E_DUPLFLD (XML_E_BASE-19)

  Some key has more than one value for field.
- #define XML_E_NOTEMPTY (XML_E_BASE-20)

  An element was not empty when expected.

8.6.1 Detailed Description

List of numeric status codes that can be returned by ASN1C run-time functions and generated code.

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