XBinder

XML Schema Compiler
Version 2.6
C JSON Runtime
Reference Manual

Objective Systems, Inc. — June 2018

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  This function encodes a variable of the XSD float type.
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  This function encodes a variable of the ASN.1 Bit string type.
- EXTERNJSON int rtJsonEncIndent (OSCTXT *pctxt)

  This function adds indentation whitespace to the output stream.
- EXTERNJSON int rtJsonEncStringObject (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8CHAR *value)

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  This function encodes a JSON object containing a string value.
- EXTERNJSON int rtJsonEncStringPair (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8CHAR *value)

  This function encodes a name/value pair.
- EXTERNJSON int rtJsonEncStringPair2 (OSCTXT *pctxt, const OSUTF8CHAR *name, size_t nameLen, const OSUTF8CHAR *value, size_t valueLen)

  This function encodes a name/value pair.
- EXTERNJSON int rtJsonEncStringValue (OSCTXT *pctxt, const OSUTF8CHAR *value)

  This function encodes a variable of the XSD string type.
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  This function encodes a variable of the XSD string type.
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  This function encodes an asn.1 NULL type as string.
- EXTERNJSON int rtJsonEncStringRaw (OSCTXT *pctxt, const OSUTF8CHAR *value)

  This function encodes a raw string without any quotation.
- EXTERNJSON int rtJsonEncUnicodeData (OSCTXT *pctxt, const OSUNICHAR *value, OSSIZE nchars)

  This function encodes a variable that contains UCS-2 / UTF-16 characters.
- EXTERNJSON int rtJsonEncUCS4Data (OSCTXT *pctxt, const OS32BITCHAR *value, OSSIZE nchars)

  This function encodes a variable that contains UCS-4 / UTF-32 characters.
- EXTERNJSON int rtJsonEncUIntValue (OSCTXT *pctxt, OSUINT32 value)

  This function encodes a variable of the XSD unsigned integer type.
- EXTERNJSON int rtJsonEncUInt64Value (OSCTXT *pctxt, OSUINT64 value)

  This function encodes a variable of the XSD integer type.
- EXTERNJSON int rtJsonEncStartObject (OSCTXT *pctxt, const OSUTF8CHAR *name, OSBOOL noComma)

  This function encodes the beginning of a JSON object.
- EXTERNJSON int rtJsonEncEndObject (OSCTXT *pctxt)

  This function encodes the end of a JSON object.
- EXTERNJSON int rtJsonEncBetweenObject (OSCTXT *pctxt)

  This function encodes the characters separating the JSON name and value.

6.1.1 Detailed Description

6.1.2 Function Documentation

6.1.2.1 rtJsonEncAnyAttr()

```
EXTERNJSON int rtJsonEncAnyAttr (
             OSCTXT * pctxt,
             const OSRTDList * pvalue )
```

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.
pvalue	List of attributes.

Returns

Completion status of operation:

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

6.1.2.2 rtJsonEncBase64StrValue()

```
EXTERNJSON int rtJsonEncBase64StrValue (
             OSCTXT * pctxt,
             OSSIZE nocts,
             const OSOCTET * value )
```

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.

Returns

Completion status of operation:

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

6.1.2.3 rtJsonEncBetweenObject()

```
EXTERNJSON int rtJsonEncBetweenObject (
             OSCTXT * pctxt )
```

This function encodes the characters separating the JSON name and value.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

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

6.1.2.4 rtJsonEncBitStrValue()

```
EXTERNJSON int rtJsonEncBitStrValue (
             OSCTXT * pctxt,
             OSSIZE nbits,
             const OSOCTET * data )
```

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

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.

6.1.2.5 rtJsonEncBitStrValueExt()

```
EXTERNJSON int rtJsonEncBitStrValueExt (
             OSCTXT * pctxt,
             OSSIZE nbits,
             const OSOCTET * data,
             OSSIZE dataSize,
             const OSOCTET * extData )
```

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

It handles bit strings with extdata member present.

Parameters

pctxt	Pointer to context block structure.
nbits	Number of bits in the value string.
data	Value to be encoded.
dataSize	Size of data member.
extData	Value of extdata to be encoded.

Returns

Completion status of operation:

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

6.1.2.6 rtJsonEncBoolValue()

```
EXTERNJSON int rtJsonEncBoolValue (
             OSCTXT * pctxt,
             OSBOOL value )
```

This function encodes a variable of the XSD boolean type.

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.

6.1.2.7 rtJsonEncDate()

```
EXTERNJSON int rtJsonEncDate (
             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.

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.

6.1.2.8 rtJsonEncDateTime()

```
EXTERNJSON int rtJsonEncDateTime (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

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

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.

6.1.2.9 rtJsonEncDecimalValue()

```
EXTERNJSON int rtJsonEncDecimalValue (
             OSCTXT * pctxt,
             OSREAL value,
             const OSDecimalFmt * pFmtSpec )
```

This function encodes a value of the XSD decimal type.

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
pFmtSpec	Pointer to format specification structure.

Returns

Completion status of operation:

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

6.1.2.10 rtJsonEncDoubleValue()

```
EXTERNJSON int rtJsonEncDoubleValue (
             OSCTXT * pctxt,
             OSREAL value,
             const OSDoubleFmt * pFmtSpec )
```

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

Parameters

pctxt	Pointer to context block structure.
value	Value to be encoded.
pFmtSpec	Pointer to format specification structure.

Returns

Completion status of operation:

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

6.1.2.11 rtJsonEncEndObject()

```
EXTERNJSON int rtJsonEncEndObject (
             OSCTXT * pctxt )
```

This function encodes the end of a JSON object.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

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

6.1.2.12 rtJsonEncFloatValue()

```
EXTERNJSON int rtJsonEncFloatValue (
             OSCTXT * pctxt,
             OSREAL value,
             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.
pFmtSpec	Pointer to format specification structure.

Returns

Completion status of operation:

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

6.1.2.13 rtJsonEncGDay()

```
EXTERNJSON int rtJsonEncGDay (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a numeric gDay value into a JSON string representation.

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.

6.1.2.14 rtJsonEncGMonth()

```
EXTERNJSON int rtJsonEncGMonth (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a numeric gMonth value into a JSON string representation.

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.

6.1.2.15 rtJsonEncGMonthDay()

```
EXTERNJSON int rtJsonEncGMonthDay (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a numeric gMonthDay value into a JSON string representation.

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.

6.1.2.16 rtJsonEncGYear()

```
EXTERNJSON int rtJsonEncGYear (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a numeric gYear value into a JSON string representation.

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.

6.1.2.17 rtJsonEncGYearMonth()

```
EXTERNJSON int rtJsonEncGYearMonth (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

This function encodes a numeric gYearMonth value into a JSON string representation.

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.

6.1.2.18 rtJsonEncHexStr()

```
EXTERNJSON int rtJsonEncHexStr (
             OSCTXT * pctxt,
             OSSIZE nocts,
             const OSOCTET * data )
```

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.
data	Value to be encoded.

Returns

Completion status of operation:

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

6.1.2.19 rtJsonEncIndent()

```
EXTERNJSON int rtJsonEncIndent (
             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.

6.1.2.20 rtJsonEncInt64Value()

```
EXTERNJSON int rtJsonEncInt64Value (
             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.

Parameters

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

Returns

Completion status of operation:

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

6.1.2.21 rtJsonEncIntValue()

```
EXTERNJSON int rtJsonEncIntValue (
             OSCTXT * pctxt,
             OSINT32 value )
```

This function encodes a variable of the XSD integer type.

Parameters

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

Returns

Completion status of operation:

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

6.1.2.22 rtJsonEncStartObject()

```
EXTERNJSON int rtJsonEncStartObject (
             OSCTXT * pctxt,
             const OSUTF8CHAR * name,
             OSBOOL noComma )
```

This function encodes the beginning of a JSON object.

Parameters

pctxt	Pointer to context block structure.
name	Object name token to be encoded.
noComma	If TRUE do not print comma at end of line in output.

Returns

Completion status of operation:

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

6.1.2.23 rtJsonEncStringNull()

```
EXTERNJSON int rtJsonEncStringNull (
             OSCTXT * pctxt )
```

This function encodes an asn.1 NULL type as string.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

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

6.1.2.24 rtJsonEncStringObject()

```
EXTERNJSON int rtJsonEncStringObject (
             OSCTXT * pctxt,
             const OSUTF8CHAR * name,
             const OSUTF8CHAR * value )
```

This function encodes a JSON object containing a string value.

Parameters

pctxt	Pointer to context block structure.
name	Name token to be encoded.
value	Value as a character string to be encoded.

Returns

Completion status of operation:

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

6.1.2.25 rtJsonEncStringObject2()

```
EXTERNJSON int rtJsonEncStringObject2 (
             OSCTXT * pctxt,
```

```
            const OSUTF8CHAR * name,
            size_t nameLen,
            const OSUTF8CHAR * value,
            size_t valueLen )
```

This function encodes a JSON object containing a string value.

Parameters

pctxt	Pointer to context block structure.
name	Name token to be encoded.
nameLen	Length of the name token to be encoded.
value	Value as a character string to be encoded.
valueLen	Length of the value to be encoded.

Returns

Completion status of operation:

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

6.1.2.26 rtJsonEncStringPair()

```
EXTERNJSON int rtJsonEncStringPair (
            OSCTXT * pctxt,
            const OSUTF8CHAR * name,
            const OSUTF8CHAR * value )
```

This function encodes a name/value pair.

The value is a character string.

Parameters

pctxt	Pointer to context block structure.
name	Name token to be encoded.
value	Value as a character string to be encoded.

Returns

Completion status of operation:

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

6.1.2.27 rtJsonEncStringPair2()

```
EXTERNJSON int rtJsonEncStringPair2 (
             OSCTXT * pctxt,
             const OSUTF8CHAR * name,
             size_t nameLen,
             const OSUTF8CHAR * value,
             size_t valueLen )
```

This function encodes a name/value pair.

The value is a character string.

Parameters

pctxt	Pointer to context block structure.
name	Name token to be encoded.
nameLen	Length of the name token to be encoded.
value	Value as a character string to be encoded.
valueLen	Length of the value to be encoded.

Returns

Completion status of operation:

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

6.1.2.28 rtJsonEncStringRaw()

```
EXTERNJSON int rtJsonEncStringRaw (
             OSCTXT * pctxt,
             const OSUTF8CHAR * value )
```

This function encodes a raw string without any quotation.

Parameters

pctxt	Pointer to context block structure.
value	String value to be written.

Returns

Completion status of operation:

- 0 = success,

- negative return value is error.

6.1.2.29 rtJsonEncStringValue()

```
EXTERNJSON int rtJsonEncStringValue (
             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.

6.1.2.30 rtJsonEncStringValue2()

```
EXTERNJSON int rtJsonEncStringValue2 (
             OSCTXT * pctxt,
             const OSUTF8CHAR * value,
             size_t 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	Length of the XML string to be encoded.

Returns

Completion status of operation:

- 0 = success,

- negative return value is error.

6.1.2.31 rtJsonEncTime()

```
EXTERNJSON int rtJsonEncTime (
             OSCTXT * pctxt,
             const OSXSDDateTime * pvalue )
```

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

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.

6.1.2.32 rtJsonEncUCS4Data()

```
EXTERNJSON int rtJsonEncUCS4Data (
             OSCTXT * pctxt,
             const OS32BITCHAR * value,
             OSSIZE nchars )
```

This function encodes a variable that contains UCS-4 / UTF-32 characters.

Parameters

pctxt	Pointer to context block structure.
value	UCS-4 characters to be encoded.
nchars	Number of characters to be encoded.

Returns

Completion status of operation:

- 0 = success,

- negative return value is error.

6.1.2.33 rtJsonEncUInt64Value()

```
EXTERNJSON int rtJsonEncUInt64Value (
             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.

Parameters

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

Returns

Completion status of operation:

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

6.1.2.34 rtJsonEncUIntValue()

```
EXTERNJSON int rtJsonEncUIntValue (
             OSCTXT * pctxt,
             OSUINT32 value )
```

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

Parameters

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

Returns

Completion status of operation:

- 0 = success,

- negative return value is error.

6.1.2.35 rtJsonEncUnicodeData()

```
EXTERNJSON int rtJsonEncUnicodeData (
             OSCTXT * pctxt,
             const OSUNICHAR * value,
             OSSIZE nchars )
```

This function encodes a variable that contains UCS-2 / UTF-16 characters.

Parameters

pctxt	Pointer to context block structure.
value	UCS-2 characters to be encoded.
nchars	Number of Unicode characters to be encoded.

Returns

Completion status of operation:

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

6.2 JSON decode functions.

Functions

- EXTERNJSON int rtJsonDecAnyElem (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)

  This function decodes an arbitrary block of JSON-encoded data into a string variable.
- EXTERNJSON int rtJsonDecAnyElem2 (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)

  This version of rtJsonDecAnyElem assumes the element name has been pushed on the element name stack in the context.
- EXTERNJSON int rtJsonDecAnyType (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)

  This function decodes an arbitrary block of JSON-encoded data into a string variable.
- EXTERNJSON int rtJsonDecBase64Str (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, size_t bufsize)

  This function decodes a contents of a Base64-encode binary string into a static memory structure.
- EXTERNJSON int rtJsonDecBase64Str64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, size_t bufsize)

  This function is identical to rtJsonDecBase64Str except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNJSON int rtJsonDecDynBase64Str (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a contents of a Base64-encode binary string.
- EXTERNJSON int rtJsonDecDynBase64Str64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)

  This function is identical to rtJsonDecDynBase64Str64 except that it supports 64-bit integer lengths on 64-bit systems.
- EXTERNJSON int rtJsonDecBool (OSCTXT *pctxt, OSBOOL *pvalue)

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

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

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

  This function decodes a variable of the XSD 'dateTime' type.
- EXTERNJSON int rtJsonDecGYear (OSCTXT *pctxt, OSXSDDateTime *pvalue)

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

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

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

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

  This function decodes a variable of the XSD 'gDay' type.
- EXTERNJSON int rtJsonDecDecimal (OSCTXT *pctxt, OSREAL *pvalue, int totalDigits, int fractionDigits)

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

  This function decodes the contents of a float or double data type.
- EXTERNJSON int rtJsonDecHexStr (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, size_t bufsize)

  This function decodes the contents of a hexBinary string into a static memory structure.
- EXTERNJSON int rtJsonDecHexStr64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, size_t bufsize)

  This function is identical to rtJsonDecHexStr except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNJSON int rtJsonDecDynHexStr (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a contents of a hexBinary string.

- EXTERNJSON int rtJsonDecDynHexStr64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)

  This function is identical to rtJsonDecDynHexStr except that it supports 64-bit integer lengths on 64-bit systems.
- EXTERNJSON int rtJsonDecDynBitStr (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET **data)

  This function decodes a variable of the ASN.1 Bit string type.
- EXTERNJSON int rtJsonDecDynBitStr64 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET **data)

  This function is identical to rtJsonDecDynBitStr except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNJSON int rtJsonDecBitStrValue (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET *data, OSSIZE bufsize)

  This function decodes a variable of the ASN.1 Bit string type.
- EXTERNJSON int rtJsonDecBitStrValue64 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET *data, OSSIZE bufsize)

  This function is identical to rtJsonDecBitStrValue except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNJSON int rtJsonDecBitStrValueExt (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET *data, OSSIZE bufsize, OSOCTET **extdata)

  This function decodes a variable of the ASN.1 Bit string type.
- EXTERNJSON int rtJsonDecBitStrValueExt64 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET *data, OSSIZE bufsize, OSOCTET **extdata)

  This function is identical to rtJsonDecBitStrValueExt except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNJSON int rtJsonDecInt8Value (OSCTXT *pctxt, OSINT8 *pvalue)

  This function decodes the contents of an 8-bit integer data type (i.e.
- EXTERNJSON int rtJsonDecInt16Value (OSCTXT *pctxt, OSINT16 *pvalue)

  This function decodes the contents of a 16-bit integer data type.
- EXTERNJSON int rtJsonDecInt32Value (OSCTXT *pctxt, OSINT32 *pvalue)

  This function decodes the contents of a 32-bit integer data type.
- EXTERNJSON int rtJsonDecInt64Value (OSCTXT *pctxt, OSINT64 *pvalue)

  This function decodes the contents of a 64-bit integer data type.
- EXTERNJSON int rtJsonDecUInt8Value (OSCTXT *pctxt, OSUINT8 *pvalue)

  This function decodes the contents of an unsigned 8-bit integer data type (i.e.
- EXTERNJSON int rtJsonDecUInt16Value (OSCTXT *pctxt, OSUINT16 *pvalue)

  This function decodes the contents of an unsigned 16-bit integer data type.
- EXTERNJSON int rtJsonDecUInt32Value (OSCTXT *pctxt, OSUINT32 *pvalue)

  This function decodes the contents of an unsigned 32-bit integer data type.
- EXTERNJSON int rtJsonDecUInt64Value (OSCTXT *pctxt, OSUINT64 *pvalue)

  This function decodes the contents of an unsigned 64-bit integer data type.
- EXTERNJSON int rtJsonDecMatchChar (OSCTXT *pctxt, OSUTF8CHAR ch)

  This function attempts to match the given character, skipping over any whitesapce, if necessary.
- EXTERNJSON int rtJsonDecMatchObjectStart (OSCTXT *pctxt, const OSUTF8NameAndLen *nameArray, size_t numNames)

  This function matches the start of a JSON object.
- EXTERNJSON int rtJsonDecMatchToken (OSCTXT *pctxt, const OSUTF8CHAR *token)

  This function decodes a JSON string and matches with a given token.
- EXTERNJSON int rtJsonDecMatchToken2 (OSCTXT *pctxt, const OSUTF8CHAR *token, size_t tokenLen)

  This function decodes a JSON string and matches with a given token.
- EXTERNJSON int rtJsonDecNameValuePair (OSCTXT *pctxt, OSUTF8NVP *pvalue)

  This function decodes a name/value pair.
- EXTERNJSON int rtJsonDecNumberString (OSCTXT *pctxt, char **ppCharStr)

  This function decodes a JSON number into a character string variable.
- EXTERNJSON int rtJsonDecPeekChar (OSCTXT *pctxt, OSUTF8CHAR *pch)

  This function determines the next non-whitespace character in the input.

- EXTERNJSON char rtJsonDecPeekChar2 (OSCTXT *pctxt)

  This function determines the next non-whitespace character in the input.
- EXTERNJSON int rtJsonDecStringObject (OSCTXT *pctxt, const OSUTF8CHAR *name, OSUTF8CHAR **ppvalue)

  This function decodes a JSON object containing a single entry with the given key (name), and returns the key's associated value, which must be a JSON string, via ppvalue.
- EXTERNJSON int rtJsonDecStringValue (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)

  This function decodes the contents of a string data type.
- EXTERNJSON int rtJsonDecXmlStringValue (OSCTXT *pctxt, OSXMLSTRING *pvalue)

  This function decodes the contents of an XML string data type.
- EXTERNJSON int rtJsonDecUCS2String (OSCTXT *pctxt, OSUNICHAR **ppstr, OSSIZE *pnchars)

  This function is used to decode input UTF-8 data into a UCS-2 / UTF-16 character string.
- EXTERNJSON int rtJsonDecUCS4String (OSCTXT *pctxt, OS32BITCHAR **ppstr, OSSIZE *pnchars)

  This function is used to decode input UTF-8 data into a UCS-4 / UTF-32 character string.
- EXTERNJSON size_t rtJsonGetElemIdx (OSCTXT *pctxt, const OSUTF8NameAndLen nameArray[ ], size_t nrows)

  This function determines which of several possible JSON strings appears next in the input.

6.2.1 Detailed Description

6.2.2 Function Documentation

6.2.2.1 rtJsonDecAnyElem()

```
EXTERNJSON int rtJsonDecAnyElem (
             OSCTXT * pctxt,
             OSUTF8CHAR ** ppvalue )
```

This function decodes an arbitrary block of JSON-encoded data into a string variable.

In this case, the expected format is element name : JSON encoded data.

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.
ppvalue	A pointer to a variable to receive the decoded JSON text.

Returns

Completion status of operation:

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

6.2.2.2 rtJsonDecAnyElem2()

```
EXTERNJSON int rtJsonDecAnyElem2 (
             OSCTXT * pctxt,
             OSUTF8CHAR ** ppvalue )
```

This version of rtJsonDecAnyElem assumes the element name has been pushed on the element name stack in the context.

This will be the case if rtJsonGetElemIdx is called prior to calling this function.

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.
ppvalue	A pointer to a variable to receive the decoded JSON text.

Returns

Completion status of operation:

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

6.2.2.3 rtJsonDecAnyType()

```
EXTERNJSON int rtJsonDecAnyType (
             OSCTXT * pctxt,
             OSUTF8CHAR ** ppvalue )
```

This function decodes an arbitrary block of JSON-encoded data into a string variable.

In this case, the expected format is a complete JSON encoded data fragment.

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.
ppvalue	A pointer to a variable to receive the decoded JSON text.

Returns

Completion status of operation:

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

6.2.2.4 rtJsonDecBase64Str()

```
EXTERNJSON int rtJsonDecBase64Str (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSUINT32 * pnocts,
             size_t 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.

6.2.2.5 rtJsonDecBase64Str64()

```
EXTERNJSON int rtJsonDecBase64Str64 (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSSIZE * pnocts,
             size_t bufsize )
```

This function is identical to rtJsonDecBase64Str 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

rtJsonDecBase64Str

6.2.2.6 rtJsonDecBitStrValue()

```
EXTERNJSON int rtJsonDecBitStrValue (
             OSCTXT * pctxt,
             OSUINT32 * nbits,
             OSOCTET * data,
             OSSIZE bufsize )
```

This function decodes a variable of the ASN.1 Bit string type.

Parameters

pctxt	Pointer to context block structure.
nbits	A pointer to an unsigned integer to receive the number of bits in the bit string.
data	A pointer to an OSOCTET array that will receive the decoded bit string. The array must be preallocated.
bufsize	Size of the static buffer in bytes into which the data is to be decoded.

Returns

Completion status of operation:

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

6.2.2.7 rtJsonDecBitStrValue64()

```
EXTERNJSON int rtJsonDecBitStrValue64 (
             OSCTXT * pctxt,
             OSSIZE * nbits,
             OSOCTET * data,
             OSSIZE bufsize )
```

This function is identical to rtJsonDecBitStrValue except that it supports lengths up to 64-bits in size on 64-bit machines.

Parameters

pctxt	Pointer to context block structure.
nbits	A pointer to an unsigned integer to receive the number of bits in the bit string.
data	A pointer to an OSOCTET array that will receive the decoded bit string. The array must be preallocated.
bufsize	Size of the static buffer in bytes into which the data is to be decoded.

Returns

Completion status of operation:

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

See also

rtJsonDecBitStrValue

6.2.2.8 rtJsonDecBitStrValueExt()

```
EXTERNJSON int rtJsonDecBitStrValueExt (
             OSCTXT * pctxt,
             OSUINT32 * nbits,
             OSOCTET * data,
             OSSIZE bufsize,
             OSOCTET ** extdata )
```

This function decodes a variable of the ASN.1 Bit string type.

It handles bit strings with extdata member present.

Parameters

pctxt	Pointer to context block structure.
nbits	A pointer to an unsigned integer to receive the number of bits in the bit string.
data	A pointer to an OSOCTET array that will receive the decoded bit string. The array must be preallocated.
bufsize	Size of the static buffer in bytes into which the data is to be decoded.
extdata	A pointer to an OSOCTET array that will receive the decoded extdata value.

Returns

Completion status of operation:

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

6.2.2.9 rtJsonDecBitStrValueExt64()

```
EXTERNJSON int rtJsonDecBitStrValueExt64 (
             OSCTXT * pctxt,
             OSSIZE * nbits,
             OSOCTET * data,
             OSSIZE bufsize,
             OSOCTET ** extdata )
```

This function is identical to rtJsonDecBitStrValueExt except that it supports lengths up to 64-bits in size on 64-bit machines.

Parameters

pctxt	Pointer to context block structure.
nbits	A pointer to an unsigned integer to receive the number of bits in the bit string.
data	A pointer to an OSOCTET array that will receive the decoded bit string. The array must be preallocated.
bufsize	Size of the static buffer in bytes into which the data is to be decoded.
extdata	A pointer to an OSOCTET array that will receive the decoded extdata value.

Returns

Completion status of operation:

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

See also

rtJsonDecBitStrValueExt

6.2.2.10 rtJsonDecBool()

```
EXTERNJSON int rtJsonDecBool (
             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.

6.2.2.11 rtJsonDecDate()

```
EXTERNJSON int rtJsonDecDate (
             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 a JSON 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.

6.2.2.12 rtJsonDecDateTime()

```
EXTERNJSON int rtJsonDecDateTime (
             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 JSON 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.

6.2.2.13 rtJsonDecDecimal()

```
EXTERNJSON int rtJsonDecDecimal (
             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 a JSON parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to 64-bit double value to receive decoded result.
totalDigits	The total number of digits in the decimal value.
fractionDigits	The number of fractional digits in the decimal value.

Returns

Completion status of operation:

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

6.2.2.14 rtJsonDecDouble()

```
EXTERNJSON int rtJsonDecDouble (
             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 a JSON 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.

6.2.2.15 rtJsonDecDynBase64Str()

```
EXTERNJSON int rtJsonDecDynBase64Str (
             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 for the string using the ::rtxMemAlloc function.

Returns

Completion status of operation:

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

6.2.2.16 rtJsonDecDynBase64Str64()

```
EXTERNJSON int rtJsonDecDynBase64Str64 (
             OSCTXT * pctxt,
             OSDynOctStr64 * pvalue )
```

This function is identical to rtJsonDecDynBase64Str64 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.

6.2.2.17 rtJsonDecDynBitStr()

```
EXTERNJSON int rtJsonDecDynBitStr (
             OSCTXT * pctxt,
             OSUINT32 * nbits,
             OSOCTET ** data )
```

This function decodes a variable of the ASN.1 Bit string type.

Parameters

pctxt	Pointer to context block structure.
nbits	A pointer to an unsigned integer to receive the number of bits in the bit string.
data	A pointer to an OSOCTET array that will receive the decoded bit string; the array will be allocated by the decoding function.

Returns

Completion status of operation:

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

6.2.2.18 rtJsonDecDynBitStr64()

```
EXTERNJSON int rtJsonDecDynBitStr64 (
             OSCTXT * pctxt,
             OSSIZE * nbits,
             OSOCTET ** data )
```

This function is identical to rtJsonDecDynBitStr except that it supports lengths up to 64-bits in size on 64-bit machines.

Parameters

pctxt	Pointer to context block structure.
nbits	A pointer to an unsigned integer to receive the number of bits in the bit string.
data	A pointer to an OSOCTET array that will receive the decoded bit string; the array will be allocated by the decoding function.

Returns

Completion status of operation:

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

See also

rtJsonDecDynBitStr

6.2.2.19 rtJsonDecDynHexStr()

```
EXTERNJSON int rtJsonDecDynHexStr (
             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 a JSON 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.

6.2.2.20 rtJsonDecDynHexStr64()

```
EXTERNJSON int rtJsonDecDynHexStr64 (
             OSCTXT * pctxt,
             OSDynOctStr64 * pvalue )
```

This function is identical to rtJsonDecDynHexStr 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 to hold the string using the ::rtxMemAlloc function.

Returns

Completion status of operation:

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

6.2.2.21 rtJsonDecGDay()

```
EXTERNJSON int rtJsonDecGDay (
             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 a JSON 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.

6.2.2.22 rtJsonDecGMonth()

```
EXTERNJSON int rtJsonDecGMonth (
             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 a JSON 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.

6.2.2.23 rtJsonDecGMonthDay()

```
EXTERNJSON int rtJsonDecGMonthDay (
             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 a JSON 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.

6.2.2.24 rtJsonDecGYear()

```
EXTERNJSON int rtJsonDecGYear (
             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 a JSON 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.

6.2.2.25 rtJsonDecGYearMonth()

```
EXTERNJSON int rtJsonDecGYearMonth (
             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 a JSON 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.

6.2.2.26 rtJsonDecHexStr()

```
EXTERNJSON int rtJsonDecHexStr (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSUINT32 * pnocts,
             size_t 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 a JSON 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.

6.2.2.27 rtJsonDecHexStr64()

```
EXTERNJSON int rtJsonDecHexStr64 (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSSIZE * pnocts,
             size_t bufsize )
```

This function is identical to rtJsonDecHexStr 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

rtJsonDecHexStr

6.2.2.28 rtJsonDecInt16Value()

```
EXTERNJSON int rtJsonDecInt16Value (
             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 a JSON 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.

6.2.2.29 rtJsonDecInt32Value()

```
EXTERNJSON int rtJsonDecInt32Value (
             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 a JSON 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.

6.2.2.30 rtJsonDecInt64Value()

```
EXTERNJSON int rtJsonDecInt64Value (
             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 a JSON 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.

6.2.2.31 rtJsonDecInt8Value()

```
EXTERNJSON int rtJsonDecInt8Value (
             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 a JSON 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.

6.2.2.32 rtJsonDecMatchChar()

```
EXTERNJSON int rtJsonDecMatchChar (
             OSCTXT * pctxt,
             OSUTF8CHAR ch )
```

This function attempts to match the given character, skipping over any whitesapce, if necessary.

If a different character is found, this function returns RTERR_INVCHAR and does not consume the non-matching character.

Parameters

pctxt	Pointer to context block structure.
ch	The character to be matched.

Returns

Completion status of operation:

- 0 = success,
- RTERR_INVCHAR = different character found
- negative return value is error.

6.2.2.33 rtJsonDecMatchObjectStart()

```
EXTERNJSON int rtJsonDecMatchObjectStart (
             OSCTXT * pctxt,
             const OSUTF8NameAndLen * nameArray,
             size_t numNames )
```

This function matches the start of a JSON object.

This will skip leading whitespace, then match the opening '{'. It will then match a key that matches any of the values in nameArray, and, if successful, it then matches the subsequent ':' character after the key.

There is no indication of which name was matched, making this function not very useful. See also rtJsonDecString↩Object.

It is an error if there is not an opening '{', if the key does not match any of the given names, or if the ':' character is not found.

Parameters

pctxt	Pointer to context block structure.
nameArray	Array of names to be matched.
numNames	Number of names in the name array

Returns

Completion status of operation:

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

6.2.2.34 rtJsonDecMatchToken()

```
EXTERNJSON int rtJsonDecMatchToken (
             OSCTXT * pctxt,
             const OSUTF8CHAR * token )
```

This function decodes a JSON string and matches with a given token.

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.
token	The token to be matched.

Returns

Completion status of operation:

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

6.2.2.35 rtJsonDecMatchToken2()

```
EXTERNJSON int rtJsonDecMatchToken2 (
             OSCTXT * pctxt,
             const OSUTF8CHAR * token,
             size_t tokenLen )
```

This function decodes a JSON string and matches with a given token.

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.
token	The token to be matched.
tokenLen	The length of the token to be matched.

Returns

Completion status of operation:

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

6.2.2.36 rtJsonDecNameValuePair()

```
EXTERNJSON int rtJsonDecNameValuePair (
             OSCTXT * pctxt,
             OSUTF8NVP * pvalue )
```

This function decodes a name/value pair.

Parameters

pctxt	Pointer to context block structure.
pvalue	Pointer to an structure to receive the decoded name and value.

Returns

Completion status of operation:

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

6.2.2.37 rtJsonDecNumberString()

```
EXTERNJSON int rtJsonDecNumberString (
             OSCTXT * pctxt,
             char ** ppCharStr )
```

This function decodes a JSON number into a character string variable.

Parameters

pctxt	Pointer to context block structure.
ppCharStr	Pointer to character string pointer to receive decoded value. Dynamic memory is allocated for the string using the rtxMemAlloc function.

Returns

Completion status of operation:

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

6.2.2.38 rtJsonDecPeekChar()

```
EXTERNJSON int rtJsonDecPeekChar (
             OSCTXT * pctxt,
             OSUTF8CHAR * pch )
```

This function determines the next non-whitespace character in the input.

The non-whitespace character is not consumed.

Parameters

pctxt	Pointer to OSCTXT structure
pch	A pointer to a variable to receive the next character.

Returns

Completion status of operation:

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

6.2.2.39 rtJsonDecPeekChar2()

```
EXTERNJSON char rtJsonDecPeekChar2 (
             OSCTXT * pctxt )
```

This function determines the next non-whitespace character in the input.

The non-whitespace character is not consumed.

Parameters

pctxt	Pointer to OSCTXT structure

Returns

The peeked character, or null if there is a failure. The error will be logged in the context.

6.2.2.40 rtJsonDecStringObject()

```
EXTERNJSON int rtJsonDecStringObject (
             OSCTXT * pctxt,
             const OSUTF8CHAR * name,
             OSUTF8CHAR ** ppvalue )
```

This function decodes a JSON object containing a single entry with the given key (name), and returns the key's associated value, which must be a JSON string, via ppvalue.

Parameters

pctxt	Pointer to context block structure.
name	The name token.
ppvalue	Pointer to an 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.

6.2.2.41 rtJsonDecStringValue()

```
EXTERNJSON int rtJsonDecStringValue (
             OSCTXT * pctxt,
             OSUTF8CHAR ** ppvalue )
```

This function decodes the contents of a string data type.

This type contains a pointer to a UTF-8 characer string. Input is expected to be a string of UTF-8 characters returned by a JSON parser.

Parameters

pctxt	Pointer to context block structure.
ppvalue	Pointer to an 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.

6.2.2.42 rtJsonDecTime()

```
EXTERNJSON int rtJsonDecTime (
             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 a JSON 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.

6.2.2.43 rtJsonDecUCS2String()

```
EXTERNJSON int rtJsonDecUCS2String (
             OSCTXT * pctxt,
             OSUNICHAR ** ppstr,
             OSSIZE * pnchars )
```

This function is used to decode input UTF-8 data into a UCS-2 / UTF-16 character string.

Parameters

pctxt	A pointer to the context block structure.
ppstr	A pointer to a UTF-16 string; memory will be allocated to hold the string using the run-time memory manager.
pnchars	A pointer to an integer to hold the number of characters in the string. (The number of octets may be found by multiplying by two.)

Returns

0 on success; less than zero on error.

6.2.2.44 rtJsonDecUCS4String()

```
EXTERNJSON int rtJsonDecUCS4String (
             OSCTXT * pctxt,
             OS32BITCHAR ** ppstr,
             OSSIZE * pnchars )
```

This function is used to decode input UTF-8 data into a UCS-4 / UTF-32 character string.

Parameters

pctxt	A pointer to the context block structure.
ppstr	A pointer to a UTF-32 string; memory will be allocated to hold the string using the run-time memory manager.
pnchars	A pointer to an integer to hold the number of characters in the string. (The number of octets may be found by multiplying by two.)

Returns

0 on success; less than zero on error.

6.2.2.45 rtJsonDecUInt16Value()

```
EXTERNJSON int rtJsonDecUInt16Value (
             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 a JSON 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.

6.2.2.46 rtJsonDecUInt32Value()

```
EXTERNJSON int rtJsonDecUInt32Value (
             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 a JSON 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.

6.2.2.47 rtJsonDecUInt64Value()

```
EXTERNJSON int rtJsonDecUInt64Value (
             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 a JSON 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.

6.2.2.48 rtJsonDecUInt8Value()

```
EXTERNJSON int rtJsonDecUInt8Value (
             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 a JSON 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.

6.2.2.49 rtJsonDecXmlStringValue()

```
EXTERNJSON int rtJsonDecXmlStringValue (
             OSCTXT * pctxt,
             OSXMLSTRING * pvalue )
```

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 a JSON parser.

Parameters

pctxt	Pointer to context block structure.
pvalue	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.

6.2.2.50 rtJsonGetElemIdx()

```
EXTERNJSON size_t rtJsonGetElemIdx (
             OSCTXT * pctxt,
             const OSUTF8NameAndLen nameArray[],
             size_t nrows )
```

This function determines which of several possible JSON strings appears next in the input.

This will skip any leading whitespace and then parses a JSON string. It is an error if the input does not have a JSON string. The value of the JSON string is then matched against one of the values in nameArray and the corresponding index is returned.

Parameters

pctxt	Pointer to context block structure.
nameArray	Elements descriptor table.
nrows	Number of descriptors in table.

Returns

Completion status of operation:

- positive or zero value is element identifier,
- OSNULLINDEX return value is error.

Chapter 7

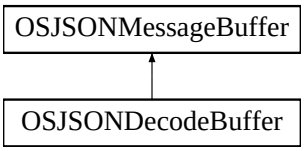
Class Documentation

7.1 OSJSONDecodeBuffer Class Reference

The OSJSONDecodeBuffer class is derived from the OSJSONMessageBuffer base class.

`#include <OSJSONDecodeBuffer.h>`

Inheritance diagram for OSJSONDecodeBuffer:



Public Member Functions

- OSJSONDecodeBuffer (const char *jsonFile)

  This version of the OSJSONDecodeBuffer constructor takes a name of a file that contains JSON data to be decoded and constructs a buffer.
- OSJSONDecodeBuffer (const OSOCTET *msgbuf, size_t bufsiz)

  This version of the OSJSONDecodeBuffer constructor takes parameters describing a message in memory to be decoded and constructs a buffer.
- OSJSONDecodeBuffer (OSRTInputStream &inputStream)

  This version of the OSJSONDecodeBuffer constructor takes a reference to the OSInputStream object.
- virtual EXTJSONMETHOD int init ()

  This method initializes the decode message buffer.
- 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

7.1.1 Detailed Description

The OSJSONDecodeBuffer class is derived from the OSJSONMessageBuffer base class.

It contains variables and methods specific to decoding JSON messages. It is used to manage an input buffer or stream containing a message to be decoded.

Definition at line 40 of file OSJSONDecodeBuffer.h.

7.1.2 Constructor & Destructor Documentation

7.1.2.1 OSJSONDecodeBuffer() [1/3]

```
OSJSONDecodeBuffer::OSJSONDecodeBuffer (
            const char * jsonFile )
```

This version of the OSJSONDecodeBuffer constructor takes a name of a file that contains JSON data to be decoded and constructs a buffer.

Parameters

jsonFile	A pointer to name of file to be decoded.

7.1.2.2 OSJSONDecodeBuffer() [2/3]

```
OSJSONDecodeBuffer::OSJSONDecodeBuffer (
            const OSOCTET * msgbuf,
            size_t bufsiz )
```

This version of the OSJSONDecodeBuffer constructor takes parameters describing a message in memory to be decoded and constructs a buffer.

Parameters

msgbuf	A pointer to a buffer containing an JSON message.
bufsiz	Size of the message buffer.

7.1.2.3 OSJSONDecodeBuffer() [3/3]

```
OSJSONDecodeBuffer::OSJSONDecodeBuffer (
            OSRTInputStream & inputStream )
```

This version of the OSJSONDecodeBuffer constructor takes a reference to the OSInputStream object.

The stream is assumed to have been previuously initialized to point at an encoded JSON message.

Parameters

inputStream	reference to the OSInputStream object

7.1.3 Member Function Documentation

7.1.3.1 init()

```
virtual EXTJSONMETHOD int OSJSONDecodeBuffer::init ( )  [virtual]
```

This method initializes the decode message buffer.

Returns

Completion status of operation:

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

7.1.3.2 isA()

```
virtual OSBOOL OSJSONDecodeBuffer::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, JSONEncode, and JSONDecode.

Returns

Boolean result of the match operation. True if the `bufferType` argument is `JSONDecode`. argument.

Definition at line 108 of file OSJSONDecodeBuffer.h.

7.1.4 Member Data Documentation

7.1.4.1 mbOwnStream

```
OSBOOL OSJSONDecodeBuffer::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 52 of file OSJSONDecodeBuffer.h.

The documentation for this class was generated from the following file:

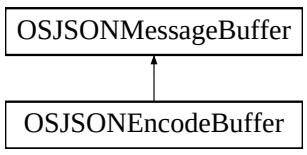
- OSJSONDecodeBuffer.h

7.2 OSJSONEncodeBuffer Class Reference

The OSJSONEncodeBuffer class is derived from the OSJSONMessageBuffer base class.

```
#include <OSJSONEncodeBuffer.h>
```

Inheritance diagram for OSJSONEncodeBuffer:



Public Member Functions

- EXTJSONMETHOD OSJSONEncodeBuffer ()

  Default constructor.
- EXTJSONMETHOD OSJSONEncodeBuffer (OSOCTET *pMsgBuf, size_t msgBufLen)

  This constructor allows a static message buffer to be specified to receive the encoded message.
- virtual size_t getMsgLen ()

  This method returns the length of a previously encoded JSON message.
- virtual EXTJSONMETHOD 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.
- virtual EXTJSONMETHOD long write (const char *filename)

  This method writes the encoded message to the given file.
- virtual EXTJSONMETHOD long write (FILE *fp)

  This version of the write method writes to a file that is specified by a FILE pointer.

Additional Inherited Members

7.2.1 Detailed Description

The OSJSONEncodeBuffer class is derived from the OSJSONMessageBuffer base class.

It contains variables and methods specific to encoding JSON messages. It is used to manage the buffer into which a message is to be encoded.

Definition at line 38 of file OSJSONEncodeBuffer.h.

7.2.2 Constructor & Destructor Documentation

7.2.2.1 OSJSONEncodeBuffer()

```
EXTJSONMETHOD OSJSONEncodeBuffer::OSJSONEncodeBuffer (
            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.

7.2.3 Member Function Documentation

7.2.3.1 getMsgLen()

```
virtual size_t OSJSONEncodeBuffer::getMsgLen ( )  [inline], [virtual]
```

This method returns the length of a previously encoded JSON message.

Returns

Length of the JSON message encapsulated within this buffer object.

Definition at line 67 of file OSJSONEncodeBuffer.h.

7.2.3.2 init()

```
virtual EXTJSONMETHOD int OSJSONEncodeBuffer::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.

7.2.3.3 isA()

```
virtual OSBOOL OSJSONEncodeBuffer::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, JSONEncode, and JSONDecode.

Returns

Boolean result of the match operation. True if the `bufferType` argument is `JSONEncode`. argument.

Definition at line 95 of file OSJSONEncodeBuffer.h.

7.2.3.4 write() [1/2]

```
virtual EXTJSONMETHOD long OSJSONEncodeBuffer::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.

7.2.3.5 write() [2/2]

```
virtual EXTJSONMETHOD long OSJSONEncodeBuffer::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:

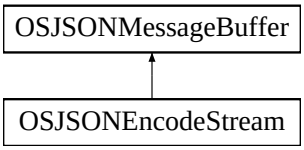
- OSJSONEncodeBuffer.h

7.3 OSJSONEncodeStream Class Reference

The OSJSONEncodeStream class is derived from the OSJSONMessageBuffer base class.

```
#include <OSJSONEncodeStream.h>
```

Inheritance diagram for OSJSONEncodeStream:



Public Member Functions

- EXTJSONMETHOD OSJSONEncodeStream (OSRTOutputStream &outputStream)

  This version of the OSJSONEncodeStream constructor takes a reference to the OSOutputStream object.
- OSJSONEncodeStream (OSRTOutputStream *pOutputStream, OSBOOL ownStream=TRUE)

  This version of the OSJSONEncodeStream constructor takes a pointer to the OSRTOutputStream object.
- EXTJSONMETHOD 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.
- EXTJSONMETHOD int encodeText (const OSUTF8CHAR *value)

  This method encodes JSON textual content.
- virtual EXTJSONMETHOD 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 OSJSONEncodeStream object will close and free the stream in the destructor.
- OSCTXT * mpCtxt

  Internal pointer to the context structure associated with the stream for making C function calls.

Additional Inherited Members

7.3.1 Detailed Description

The OSJSONEncodeStream class is derived from the OSJSONMessageBuffer base class.

It contains variables and methods specific to streaming encoding JSON messages. It is used to manage the stream into which a message is to be encoded.

Definition at line 40 of file OSJSONEncodeStream.h.

7.3.2 Constructor & Destructor Documentation

7.3.2.1 OSJSONEncodeStream() [1/2]

```
EXTJSONMETHOD OSJSONEncodeStream::OSJSONEncodeStream (
            OSRTOutputStream & outputStream )
```

This version of the OSJSONEncodeStream constructor takes a reference to the OSOutputStream object.

The stream is assumed to have been previously initialized.

Parameters

outputStream	reference to the OSOutputStream object

7.3.2.2 OSJSONEncodeStream() [2/2]

```
OSJSONEncodeStream::OSJSONEncodeStream (
            OSRTOutputStream * pOutputStream,
            OSBOOL ownStream = TRUE )
```

This version of the OSJSONEncodeStream 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.

7.3.3 Member Function Documentation

7.3.3.1 encodeAttr()

```
EXTJSONMETHOD int OSJSONEncodeStream::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.

7.3.3.2 encodeText()

```
EXTJSONMETHOD int OSJSONEncodeStream::encodeText (
            const OSUTF8CHAR * value )
```

This method encodes JSON textual content.

JSON metadata characters are escaped. The input value is specified in UTF-8 character format.

Parameters

value	UTF-8 string value to be encoded.

Returns

Completion status of operation:

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

7.3.3.3 getMsgPtr()

```
virtual const OSOCTET* OSJSONEncodeStream::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 135 of file OSJSONEncodeStream.h.

7.3.3.4 getStream()

```
OSRTOutputStream* OSJSONEncodeStream::getStream ( ) const  [inline]
```

This method returns the output stream associated with the object.

Returns

A pointer to the output stream.

Definition at line 142 of file OSJSONEncodeStream.h.

7.3.3.5 init()

```
virtual EXTJSONMETHOD int OSJSONEncodeStream::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.

7.3.3.6 isA()

```
virtual OSBOOL OSJSONEncodeStream::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, JSONEncode, and JSONDecode.

Returns

Boolean result of the match operation. True if the `bufferType` argument is `JSONEncode`. argument.

Definition at line 124 of file OSJSONEncodeStream.h.

7.3.4 Member Data Documentation

7.3.4.1 mbOwnStream

```
OSBOOL OSJSONEncodeStream::mbOwnStream  [protected]
```

TRUE if the OSJSONEncodeStream object will close and free the stream in the destructor.

Definition at line 47 of file OSJSONEncodeStream.h.

7.3.4.2 mpCtxt

```
OSCTXT* OSJSONEncodeStream::mpCtxt  [protected]
```

Internal pointer to the context structure associated with the stream for making C function calls.

Definition at line 51 of file OSJSONEncodeStream.h.

7.3.4.3 mpStream

```
OSRTOutputStream* OSJSONEncodeStream::mpStream  [protected]
```

A pointer to an OSRTOutputStream object.

Definition at line 43 of file OSJSONEncodeStream.h.

The documentation for this class was generated from the following file:

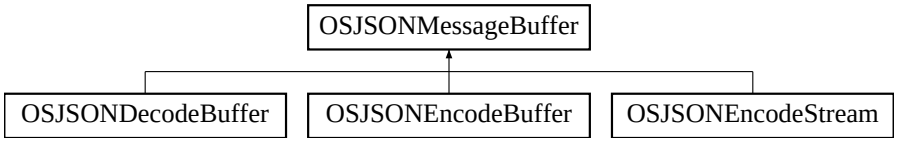
- OSJSONEncodeStream.h

7.4 OSJSONMessageBuffer Class Reference

The JSON message buffer class is derived from the OSMessageBuffer base class.

`#include <OSJSONMessageBuffer.h>`

Inheritance diagram for OSJSONMessageBuffer:



Public Member Functions

- EXTJSONMETHOD int getIndent ()

  This method returns current JSON output indent value.
- EXTJSONMETHOD int getIndentChar ()

  This method returns current JSON output indent character value (default is space).
- EXTJSONMETHOD void setIndent (OSUINT8 indent)

  This method sets JSON output indent to the given value.

Protected Member Functions

- EXTJSONMETHOD OSJSONMessageBuffer (Type bufferType, OSRTContext *pContext=0)

  The protected constructor creates a new context and sets the buffer class type.

7.4.1 Detailed Description

The JSON message buffer class is derived from the OSMessageBuffer base class.

It is the base class for the OSJSONEncodeBuffer and OSJSONDecodeBuffer classes. It contains variables and methods specific to encoding or decoding JSON messages. It is used to manage the buffer into which a message is to be encoded or decoded.

Definition at line 42 of file OSJSONMessageBuffer.h.

7.4.2 Constructor & Destructor Documentation

7.4.2.1 OSJSONMessageBuffer()

```
EXTJSONMETHOD OSJSONMessageBuffer::OSJSONMessageBuffer (
            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, JSONEncode or JSONDecode).
pContext	Pointer to a context to use. If NULL, new context will be allocated.

7.4.3 Member Function Documentation

7.4.3.1 getIndent()

```
EXTJSONMETHOD int OSJSONMessageBuffer::getIndent ( )
```

This method returns current JSON output indent value.

Returns

Current indent value (>= 0) if OK, negative status code if error.

7.4.3.2 getIndentChar()

```
EXTJSONMETHOD int OSJSONMessageBuffer::getIndentChar ( )
```

This method returns current JSON output indent character value (default is space).

Returns

Current indent character (> 0) if OK, negative status code if error.

7.4.3.3 setIndent()

```
EXTJSONMETHOD void OSJSONMessageBuffer::setIndent (
            OSUINT8 indent )
```

This method sets JSON output indent to the given value.

Parameters

indent	Number of spaces per indent. Default is 3.

The documentation for this class was generated from the following file:

- OSJSONMessageBuffer.h

Chapter 8

File Documentation

8.1 OSJSONDecodeBuffer.h File Reference

JSON decode buffer or stream class definition.

```
#include "rtxsrc/OSRTInputStream.h"
#include "rtjsonsrc/OSJSONMessageBuffer.h"
```

Classes

- class OSJSONDecodeBuffer

  The OSJSONDecodeBuffer class is derived from the OSJSONMessageBuffer base class.

8.1.1 Detailed Description

JSON decode buffer or stream class definition.

8.2 OSJSONEncodeBuffer.h File Reference

JSON encode message buffer class definition.

```
#include "rtjsonsrc/OSJSONMessageBuffer.h"
```

Classes

- class OSJSONEncodeBuffer

  The OSJSONEncodeBuffer class is derived from the OSJSONMessageBuffer base class.

8.2.1 Detailed Description

JSON encode message buffer class definition.

8.3 OSJSONEncodeStream.h File Reference

JSON encode stream class definition.

```
#include "rtxsrc/OSRTOutputStream.h"
#include "rtjsonsrc/OSJSONMessageBuffer.h"
```

Classes

- class OSJSONEncodeStream

  The OSJSONEncodeStream class is derived from the OSJSONMessageBuffer base class.

8.3.1 Detailed Description

JSON encode stream class definition.

8.4 OSJSONMessageBuffer.h File Reference

JSON encode/decode buffer and stream base class.

```
#include "rtxsrc/OSRTMsgBuf.h"
#include "rtjsonsrc/osrtjson.h"
```

Classes

- class OSJSONMessageBuffer

  The JSON message buffer class is derived from the OSMessageBuffer base class.

8.4.1 Detailed Description

JSON encode/decode buffer and stream base class.

8.5 osrtjson.h File Reference

JSON low-level C encode/decode functions.

```
#include "rtxsrc/osMacros.h"
#include "rtxsrc/osSysTypes.h"
#include "rtxsrc/rtxCommon.h"
#include "rtxsrc/rtxError.h"
#include "rtxsrc/rtxBuffer.h"
#include "rtxsrc/rtxMemory.h"
#include "rtjsonsrc/rtJsonExternDefs.h"
```

Macros

- #define OSUPCASE 0x00008000

  The upper-case flag: if set, hex strings will be encoded in upper case.

Functions

- EXTERNJSON int rtJsonEncAnyAttr (OSCTXT *pctxt, const OSRTDList *pvalue)

  This function encodes a list of OSAnyAttr attributes in which the name and value are given as a UTF-8 string.
- EXTERNJSON int rtJsonEncIntValue (OSCTXT *pctxt, OSINT32 value)

  This function encodes a variable of the XSD integer type.
- EXTERNJSON int rtJsonEncInt64Value (OSCTXT *pctxt, OSINT64 value)

  This function encodes a variable of the XSD integer type.
- EXTERNJSON int rtJsonEncBase64StrValue (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *value)

  This function encodes a variable of the XSD base64Binary type.
- EXTERNJSON int rtJsonEncBoolValue (OSCTXT *pctxt, OSBOOL value)

  This function encodes a variable of the XSD boolean type.
- EXTERNJSON int rtJsonEncGYear (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gYear value into a JSON string representation.
- EXTERNJSON int rtJsonEncGYearMonth (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gYearMonth value into a JSON string representation.
- EXTERNJSON int rtJsonEncGMonth (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gMonth value into a JSON string representation.
- EXTERNJSON int rtJsonEncGMonthDay (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gMonthDay value into a JSON string representation.
- EXTERNJSON int rtJsonEncGDay (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

  This function encodes a numeric gDay value into a JSON string representation.
- EXTERNJSON int rtJsonEncDate (OSCTXT *pctxt, const OSXSDDateTime *pvalue)

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

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

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

- EXTERNJSON int rtJsonEncDecimalValue (OSCTXT *pctxt, OSREAL value, const OSDecimalFmt *pFmtSpec)

  This function encodes a value of the XSD decimal type.
- EXTERNJSON int rtJsonEncDoubleValue (OSCTXT *pctxt, OSREAL value, const OSDoubleFmt *pFmtSpec)

  This function encodes a value of the XSD double or float type.
- EXTERNJSON int rtJsonEncFloatValue (OSCTXT *pctxt, OSREAL value, const OSDoubleFmt *pFmtSpec)

  This function encodes a variable of the XSD float type.
- EXTERNJSON int rtJsonEncHexStr (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *data)

  This function encodes a variable of the XSD hexBinary type.
- EXTERNJSON int rtJsonEncBitStrValue (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data)

  This function encodes a variable of the ASN.1 Bit string type.
- EXTERNJSON int rtJsonEncBitStrValueExt (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data, OSSIZE dataSize, const OSOCTET *extData)

  This function encodes a variable of the ASN.1 Bit string type.
- EXTERNJSON int rtJsonEncIndent (OSCTXT *pctxt)

  This function adds indentation whitespace to the output stream.
- EXTERNJSON int rtJsonEncStringObject (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8CHAR *value)

  This function encodes a JSON object containing a string value.
- EXTERNJSON int rtJsonEncStringObject2 (OSCTXT *pctxt, const OSUTF8CHAR *name, size_t nameLen, const OSUTF8CHAR *value, size_t valueLen)

  This function encodes a JSON object containing a string value.
- EXTERNJSON int rtJsonEncStringPair (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8CHAR *value)

  This function encodes a name/value pair.
- EXTERNJSON int rtJsonEncStringPair2 (OSCTXT *pctxt, const OSUTF8CHAR *name, size_t nameLen, const OSUTF8CHAR *value, size_t valueLen)

  This function encodes a name/value pair.
- EXTERNJSON int rtJsonEncStringValue (OSCTXT *pctxt, const OSUTF8CHAR *value)

  This function encodes a variable of the XSD string type.
- EXTERNJSON int rtJsonEncStringValue2 (OSCTXT *pctxt, const OSUTF8CHAR *value, size_t valueLen)

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

  This function encodes an asn.1 NULL type as string.
- EXTERNJSON int rtJsonEncStringRaw (OSCTXT *pctxt, const OSUTF8CHAR *value)

  This function encodes a raw string without any quotation.
- EXTERNJSON int rtJsonEncUnicodeData (OSCTXT *pctxt, const OSUNICHAR *value, OSSIZE nchars)

  This function encodes a variable that contains UCS-2 / UTF-16 characters.
- EXTERNJSON int rtJsonEncUCS4Data (OSCTXT *pctxt, const OS32BITCHAR *value, OSSIZE nchars)

  This function encodes a variable that contains UCS-4 / UTF-32 characters.
- EXTERNJSON int rtJsonEncUIntValue (OSCTXT *pctxt, OSUINT32 value)

  This function encodes a variable of the XSD unsigned integer type.
- EXTERNJSON int rtJsonEncUInt64Value (OSCTXT *pctxt, OSUINT64 value)

  This function encodes a variable of the XSD integer type.
- EXTERNJSON int rtJsonEncStartObject (OSCTXT *pctxt, const OSUTF8CHAR *name, OSBOOL noComma)

  This function encodes the beginning of a JSON object.
- EXTERNJSON int rtJsonEncEndObject (OSCTXT *pctxt)

  This function encodes the end of a JSON object.
- EXTERNJSON int rtJsonEncBetweenObject (OSCTXT *pctxt)

This function encodes the characters separating the JSON name and value.

- EXTERNJSON int rtJsonDecAnyElem (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)

  This function decodes an arbitrary block of JSON-encoded data into a string variable.
- EXTERNJSON int rtJsonDecAnyElem2 (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)

  This version of rtJsonDecAnyElem assumes the element name has been pushed on the element name stack in the context.
- EXTERNJSON int rtJsonDecAnyType (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)

  This function decodes an arbitrary block of JSON-encoded data into a string variable.
- EXTERNJSON int rtJsonDecBase64Str (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, size_t bufsize)

  This function decodes a contents of a Base64-encode binary string into a static memory structure.
- EXTERNJSON int rtJsonDecBase64Str64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, size_t bufsize)

  This function is identical to rtJsonDecBase64Str except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNJSON int rtJsonDecDynBase64Str (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a contents of a Base64-encode binary string.
- EXTERNJSON int rtJsonDecDynBase64Str64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)

  This function is identical to rtJsonDecDynBase64Str64 except that it supports 64-bit integer lengths on 64-bit systems.
- EXTERNJSON int rtJsonDecBool (OSCTXT *pctxt, OSBOOL *pvalue)

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

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

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

  This function decodes a variable of the XSD 'dateTime' type.
- EXTERNJSON int rtJsonDecGYear (OSCTXT *pctxt, OSXSDDateTime *pvalue)

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

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

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

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

  This function decodes a variable of the XSD 'gDay' type.
- EXTERNJSON int rtJsonDecDecimal (OSCTXT *pctxt, OSREAL *pvalue, int totalDigits, int fractionDigits)

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

  This function decodes the contents of a float or double data type.
- EXTERNJSON int rtJsonDecHexStr (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, size_t bufsize)

  This function decodes the contents of a hexBinary string into a static memory structure.
- EXTERNJSON int rtJsonDecHexStr64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, size_t bufsize)

  This function is identical to rtJsonDecHexStr except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNJSON int rtJsonDecDynHexStr (OSCTXT *pctxt, OSDynOctStr *pvalue)

  This function decodes a contents of a hexBinary string.
- EXTERNJSON int rtJsonDecDynHexStr64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)

  This function is identical to rtJsonDecDynHexStr except that it supports 64-bit integer lengths on 64-bit systems.
- EXTERNJSON int rtJsonDecDynBitStr (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET **data)

This function decodes a variable of the ASN.1 Bit string type.

- EXTERNJSON int rtJsonDecDynBitStr64 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET **data)

  This function is identical to rtJsonDecDynBitStr except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNJSON int rtJsonDecBitStrValue (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET *data, OSSIZE bufsize)

  This function decodes a variable of the ASN.1 Bit string type.
- EXTERNJSON int rtJsonDecBitStrValue64 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET *data, OSSIZE bufsize)

  This function is identical to rtJsonDecBitStrValue except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNJSON int rtJsonDecBitStrValueExt (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET *data, OSSIZE bufsize, OSOCTET **extdata)

  This function decodes a variable of the ASN.1 Bit string type.
- EXTERNJSON int rtJsonDecBitStrValueExt64 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET *data, OSSIZE bufsize, OSOCTET **extdata)

  This function is identical to rtJsonDecBitStrValueExt except that it supports lengths up to 64-bits in size on 64-bit machines.
- EXTERNJSON int rtJsonDecInt8Value (OSCTXT *pctxt, OSINT8 *pvalue)

  This function decodes the contents of an 8-bit integer data type (i.e.
- EXTERNJSON int rtJsonDecInt16Value (OSCTXT *pctxt, OSINT16 *pvalue)

  This function decodes the contents of a 16-bit integer data type.
- EXTERNJSON int rtJsonDecInt32Value (OSCTXT *pctxt, OSINT32 *pvalue)

  This function decodes the contents of a 32-bit integer data type.
- EXTERNJSON int rtJsonDecInt64Value (OSCTXT *pctxt, OSINT64 *pvalue)

  This function decodes the contents of a 64-bit integer data type.
- EXTERNJSON int rtJsonDecUInt8Value (OSCTXT *pctxt, OSUINT8 *pvalue)

  This function decodes the contents of an unsigned 8-bit integer data type (i.e.
- EXTERNJSON int rtJsonDecUInt16Value (OSCTXT *pctxt, OSUINT16 *pvalue)

  This function decodes the contents of an unsigned 16-bit integer data type.
- EXTERNJSON int rtJsonDecUInt32Value (OSCTXT *pctxt, OSUINT32 *pvalue)

  This function decodes the contents of an unsigned 32-bit integer data type.
- EXTERNJSON int rtJsonDecUInt64Value (OSCTXT *pctxt, OSUINT64 *pvalue)

  This function decodes the contents of an unsigned 64-bit integer data type.
- EXTERNJSON int rtJsonDecMatchChar (OSCTXT *pctxt, OSUTF8CHAR ch)

  This function attempts to match the given character, skipping over any whitesapce, if necessary.
- EXTERNJSON int rtJsonDecMatchObjectStart (OSCTXT *pctxt, const OSUTF8NameAndLen *nameArray, size_t numNames)

  This function matches the start of a JSON object.
- EXTERNJSON int rtJsonDecMatchToken (OSCTXT *pctxt, const OSUTF8CHAR *token)

  This function decodes a JSON string and matches with a given token.
- EXTERNJSON int rtJsonDecMatchToken2 (OSCTXT *pctxt, const OSUTF8CHAR *token, size_t tokenLen)

  This function decodes a JSON string and matches with a given token.
- EXTERNJSON int rtJsonDecNameValuePair (OSCTXT *pctxt, OSUTF8NVP *pvalue)

  This function decodes a name/value pair.
- EXTERNJSON int rtJsonDecNumberString (OSCTXT *pctxt, char **ppCharStr)

  This function decodes a JSON number into a character string variable.
- EXTERNJSON int rtJsonDecPeekChar (OSCTXT *pctxt, OSUTF8CHAR *pch)

  This function determines the next non-whitespace character in the input.
- EXTERNJSON char rtJsonDecPeekChar2 (OSCTXT *pctxt)

  This function determines the next non-whitespace character in the input.
- EXTERNJSON int rtJsonDecStringObject (OSCTXT *pctxt, const OSUTF8CHAR *name, OSUTF8CHAR **ppvalue)

This function decodes a JSON object containing a single entry with the given key (name), and returns the key's associated value, which must be a JSON string, via ppvalue.

- EXTERNJSON int rtJsonDecStringValue (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)

  This function decodes the contents of a string data type.
- EXTERNJSON int rtJsonDecXmlStringValue (OSCTXT *pctxt, OSXMLSTRING *pvalue)

  This function decodes the contents of an XML string data type.
- EXTERNJSON int rtJsonDecUCS2String (OSCTXT *pctxt, OSUNICHAR **ppstr, OSSIZE *pnchars)

  This function is used to decode input UTF-8 data into a UCS-2 / UTF-16 character string.
- EXTERNJSON int rtJsonDecUCS4String (OSCTXT *pctxt, OS32BITCHAR **ppstr, OSSIZE *pnchars)

  This function is used to decode input UTF-8 data into a UCS-4 / UTF-32 character string.
- EXTERNJSON size_t rtJsonGetElemIdx (OSCTXT *pctxt, const OSUTF8NameAndLen nameArray[ ], size_t nrows)

  This function determines which of several possible JSON strings appears next in the input.

8.5.1 Detailed Description

JSON low-level C encode/decode functions.

8.5.2 Macro Definition Documentation

8.5.2.1 OSUPCASE

```
#define OSUPCASE 0x00008000
```

The upper-case flag: if set, hex strings will be encoded in upper case.

Definition at line 86 of file osrtjson.h.

8.6 rtJsonCppMsgBuf.h File Reference

This file is deprecated.

```
#include "rtsrc/asn1CppTypes.h"
#include "rtjsonsrc/OSJSONEncodeBuffer.h"
#include "rtjsonsrc/OSJSONEncodeStream.h"
#include "rtjsonsrc/OSJSONDecodeBuffer.h"
```

8.6.1 Detailed Description

This file is deprecated.

Users should use one or more of the individual headers files defined in the include statements below.

8.7 rtJsonExternDefs.h File Reference

JSON external definitions macro.

8.7.1 Detailed Description

JSON external definitions macro.

This is used for Windows to properly declare function scope within DLL's.

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