ASN1C

ASN.1 Compiler
Version 7.3
JSON Runtime
Reference Manual

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Contents

Chapter 1

Main Page

C JSON Runtime Library Functions

The **C run-time JSON library** contains functions used to encode/decode data in Javascript object notation (JSON). These functions are identified by their *rtJson* prefixes.

Chapter 2

Module Index

2.1 Modules

Here is a list of all modules:

Chapter 3

Hierarchical Index

3.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 4

Class Index

4.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 5

File Index

5.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 6

Module Documentation

6.1 JSON runtime encoding functions for ASN.1 data types.

Functions

- int rtJsonAsn1EncReal (OSCTXT *pctxt, OSREAL value)
- int rtJsonAsn1EncReal10 (OSCTXT *pctxt, const OSUTF8CHAR *pvalue)
- int rtJsonAsn1EncOID (OSCTXT *pctxt, ASN1OBJID *pOID)
- int rtJsonAsn1EncOpenType (OSCTXT *pctxt, OSOCTET *pdata, OSSIZE numocts)
- int rtJsonAsn1EncExtElem (OSCTXT *pctxt, ASN1OpenType *pElem)
- int rtJsonAsn1EncOpenTypeExt (OSCTXT *pctxt, const OSRTDList *pvalue, OSBOOL asArray)

6.1.1 Detailed Description

6.1.2 Function Documentation

6.1.2.1 rtJsonAsn1EncExtElem()

```
int rtJsonAsn1EncExtElem (
             OSCTXT * pctxt,
             ASN1OpenType * pElem )
```

This function encodes an unknown extension element.

Parameters

pctxt	A pointer to a context data structure.
pElem	The unknown extension element value. If the encoding is not set or is set to JSON, the data is expected to be a JSONNamedValue, which will be written to the encoding as-is. Othewise, the data will be written in hexadecimal form, wrapped inside an element.

6.1.2.2 rtJsonAsn1EncOID()

```
int rtJsonAsn1EncOID (
             OSCTXT * pctxt,
             ASN1OBJID * pOID )
```

This function encodes the JSON representation of an OID value.

Parameters

pctxt	A pointer to a context data structure.
pOID	A pointer to an ASN1OBJID data structure.

Returns

0 on success, less than zero otherwise.

6.1.2.3 rtJsonAsn1EncOpenType()

```
int rtJsonAsn1EncOpenType (
             OSCTXT * pctxt,
             OSOCTET * pdata,
             OSSIZE numocts )
```

This function encodes an ASN.1 open type to JSON.

If the input data are valid JSON data, then the output is encoded as a JSON string object. If the input data are not valid (e.g., binary data encoded with different rules, they are dropped.

6.1.2.4 rtJsonAsn1EncOpenTypeExt()

```
int rtJsonAsn1EncOpenTypeExt (
             OSCTXT * pctxt,
             const OSRTDList * pvalue,
             OSBOOL asArray )
```

This function encodes a list of unknown extension elements.

Parameters

pctxt	A pointer to a context data structure.
pvalue	A list of ASN1OpenType objects, each representing an unknown extension element. These will be encoded as by rtJsonEncExtElem.
asArray	TRUE if the enclosing type is [ARRAY] SEQUENCE; FALSE otherwise.

6.1.2.5 rtJsonAsn1EncReal()

```
int rtJsonAsn1EncReal (
             OSCTXT * pctxt,
             OSREAL value )
```

This function encodes the JSON representation of an ASN.1 REAL value.

Parameters

pctxt	A pointer to a context data structure.
value	The value to encode

Returns

0 on success, less than zero otherwise.

6.1.2.6 rtJsonAsn1EncReal10()

```
int rtJsonAsn1EncReal10 (
             OSCTXT * pctxt,
             const OSUTF8CHAR * pvalue )
```

This function encodes the JSON representation of an ASN.1 REAL value.

Parameters

pctxt	A pointer to a context data structure.
pvalue	The value to encode. This should be a valid JSON number, or may also be "INF", "INFINITY", "NAN", with an optional leading sign, and case ignored. For "NAN", "NAN(n-char-sequence)" is also allowed.

Returns

0 on success, less than zero otherwise.

6.2 JSON runtime decoding functions for ASN.1 data types.

Functions

- int rtJsonAsn1DecReal (OSCTXT *pctxt, OSREAL *pvalue)
- int rtJsonAsn1DecReal10 (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)
- int rtJsonAsn1DecOIDValue (OSCTXT *pctxt, ASN1OBJID *pOID)
- int rtJsonAsn1DecBMPString (OSCTXT *pctxt, ASN1BMPString *pBMPStr)

6.2.1 Detailed Description

6.2.2 Function Documentation

6.2.2.1 rtJsonAsn1DecBMPString()

```
int rtJsonAsn1DecBMPString (
             OSCTXT * pctxt,
             ASN1BMPString * pBMPStr )
```

This function decodes the ASN.1 BMPString type. We assume that the input data are encoded in UTF-8. The data are internally represented as two-byte characters.

Parameters

pctxt	A pointer to a context data structure.
pBMPStr	A pointer to an ASN.1 BMP string.

Returns

0 on success, less than zero otherwise.

6.2.2.2 rtJsonAsn1DecOIDValue()

```
int rtJsonAsn1DecOIDValue (
             OSCTXT * pctxt,
             ASN1OBJID * pOID )
```

This function decodes the JSON representation of an OID value.

Parameters

pctxt	A pointer to a context data structure.
pOID	A pointer to an ASN1OBJID data structure.

Returns

0 on success, less than zero otherwise.

6.2.2.3 rtJsonAsn1DecReal()

```
int rtJsonAsn1DecReal (
             OSCTXT * pctxt,
             OSREAL * pvalue )
```

This function decodes the JSON representation of an ASN.1 REAL value.

Parameters

pctxt	A pointer to a context data structure.
pvalue	The value to decode into.

Returns

0 on success, less than zero otherwise.

6.2.2.4 rtJsonAsn1DecReal10()

```
int rtJsonAsn1DecReal10 (
             OSCTXT * pctxt,
             OSUTF8CHAR ** ppvalue )
```

This function decodes the JSON representation of an ASN.1 REAL value.

Parameters

pctxt	A pointer to a context data structure.
ppvalue	Receives a pointer to the decoded value. Dynamic memory is allocated for the string using the rtxMemAlloc function.

Returns

0 on success, less than zero otherwise.

6.3 JSON encode functions.

Functions

- int rtJsonEncAnyAttr (OSCTXT *pctxt, const OSRTDList *pvalue)
- int rtJsonEncIntValue (OSCTXT *pctxt, OSINT32 value)
- int rtJsonEncInt64Value (OSCTXT *pctxt, OSINT64 value)
- int rtJsonEncBase64StrValue (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *value)
- int rtJsonEncBoolValue (OSCTXT *pctxt, OSBOOL value)
- int rtJsonEncGYear (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncGYearMonth (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncGMonth (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncGMonthDay (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncGDay (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncDate (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncTime (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncDateTime (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncDecimalValue (OSCTXT *pctxt, OSREAL value, const OSDecimalFmt *pFmtSpec)
- int rtJsonEncDoubleValue (OSCTXT *pctxt, OSREAL value, const OSDoubleFmt *pFmtSpec)
- int rtJsonEncFloatValue (OSCTXT *pctxt, OSREAL value, const OSDoubleFmt *pFmtSpec)
- int rtJsonEncHexStr (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *data)
- int rtJsonEncHexValue (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *data)
- int rtJsonEncBitStrValueV72 (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data)
- int rtJsonEncBitStrValueExtV72 (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data, OSSIZE dataSize, const OSOCTET *extData)
- int rtJsonEncBitStrValue (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data)
- int rtJsonEncFixedBitStrValue (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data)
- int rtJsonEncBitStrValueExt (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data, OSSIZE dataSize, const OSOCTET *extData)
- int rtJsonEncIndent (OSCTXT *pctxt)
- void rtJsonEncDecrIndent (OSCTXT *pctxt)
- void rtJsonEncIncrIndent (OSCTXT *pctxt)
- void rtJsonEncResetIndent (OSCTXT *pctxt)
- size_t rtJsonGetIndentLevels (OSCTXT *pctxt)
- int rtJsonEncStringObject (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8CHAR *value)
- int rtJsonEncStringObject2 (OSCTXT *pctxt, const OSUTF8CHAR *name, size_t nameLen, const OSUTF8C↩HAR *value, size_t valueLen)
- int rtJsonEncStringPair (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8CHAR *value)
- int rtJsonEncStringPair2 (OSCTXT *pctxt, const OSUTF8CHAR *name, size_t nameLen, const OSUTF8CHAR *value, size_t valueLen)
- int rtJsonEncStringValue (OSCTXT *pctxt, const OSUTF8CHAR *value)
- int rtJsonEncStringValue2 (OSCTXT *pctxt, const OSUTF8CHAR *value, size_t valueLen)
- int rtJsonEncChars (OSCTXT *pctxt, const char *value, OSSIZE valueLen)
- int rtJsonEncCharStr (OSCTXT *pctxt, const char *value)
- int rtJsonEncStringNull (OSCTXT *pctxt)
- int rtJsonEncStringRaw (OSCTXT *pctxt, const OSUTF8CHAR *value)
- int rtJsonEncUnicodeData (OSCTXT *pctxt, const OSUNICHAR *value, OSSIZE nchars)
- int rtJsonEncUCS4Data (OSCTXT *pctxt, const OS32BITCHAR *value, OSSIZE nchars)
- int rtJsonEncUIntValue (OSCTXT *pctxt, OSUINT32 value)
- int rtJsonEncUInt64Value (OSCTXT *pctxt, OSUINT64 value)
- int rtJsonEncStartObject (OSCTXT *pctxt, const OSUTF8CHAR *name, OSBOOL noComma)
- int rtJsonEncEndObject (OSCTXT *pctxt)
- int rtJsonEncBetweenObject (OSCTXT *pctxt)

6.3.1 Detailed Description

6.3.2 Function Documentation

6.3.2.1 rtJsonEncAnyAttr()

```
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.

6.3.2.2 rtJsonEncBase64StrValue()

```
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.

6.3.2.3 rtJsonEncBetweenObject()

```
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.

6.3.2.4 rtJsonEncBitStrValue()

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

This function encodes a variable of the ASN.1 Bit string type as a JSON object, as required by X.697 for a BIT STRING without a fixed length.

Parameters

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

Returns

Completion status of operation:

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

6.3.2.5 rtJsonEncBitStrValueExt()

```
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 as a JSON object, as required by X.697 for a BIT STRING without a fixed length. 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.

6.3.2.6 rtJsonEncBitStrValueExtV72()

```
int rtJsonEncBitStrValueExtV72 (
             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. This provides ObjSys-specific behavior that predates ITU-T X.697.

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.

6.3.2.7 rtJsonEncBitStrValueV72()

```
int rtJsonEncBitStrValueV72 (
             OSCTXT * pctxt,
             OSSIZE nbits,
             const OSOCTET * data )
```

This function encodes a variable of the ASN.1 Bit string type. This provides ObjSys-specific behavior that predates ITU-T X.697.

Parameters

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

Returns

Completion status of operation:

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

6.3.2.8 rtJsonEncBoolValue()

```
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.

6.3.2.9 rtJsonEncChars()

```
int rtJsonEncChars (
             OSCTXT * pctxt,
             const char * value,
             OSSIZE valueLen )
```

This function encodes the given number of characters from a character string value as a JSON string.

Parameters

pctxt	Pointer to context block structure.
value	Character 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.

6.3.2.10 rtJsonEncCharStr()

```
int rtJsonEncCharStr (
             OSCTXT * pctxt,
             const char * value )
```

This function encodes a character string value as a JSON string.

Parameters

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

Returns

Completion status of operation:

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

6.3.2.11 rtJsonEncDate()

```
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.

6.3.2.12 rtJsonEncDateTime()

```
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.

6.3.2.13 rtJsonEncDecimalValue()

```
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.

6.3.2.14 rtJsonEncDecrIndent()

```
void rtJsonEncDecrIndent (
             OSCTXT * pctxt )
```

This decreases the indentation level set in the given context by updating the indent member.

Parameters

pctxt	Pointer to context block structure.

6.3.2.15 rtJsonEncDoubleValue()

```
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.

6.3.2.16 rtJsonEncEndObject()

```
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.

6.3.2.17 rtJsonEncFixedBitStrValue()

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

This function encodes a variable of the ASN.1 Bit string type as a JSON string, as required by X.697 for a BIT STRING with a fixed length.

Parameters

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

Returns

Completion status of operation:

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

6.3.2.18 rtJsonEncFloatValue()

```
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.

6.3.2.19 rtJsonEncGDay()

```
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.

6.3.2.20 rtJsonEncGMonth()

```
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.

6.3.2.21 rtJsonEncGMonthDay()

```
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.

6.3.2.22 rtJsonEncGYear()

```
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.

6.3.2.23 rtJsonEncGYearMonth()

```
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.

6.3.2.24 rtJsonEncHexStr()

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

This function encodes the given data as a JSON string, using a hexadecimal representation of the data.

Parameters

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

Returns

Completion status of operation:

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

6.3.2.25 rtJsonEncHexValue()

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

This function encodes the given data as a sequence of hexadecimal characters. Unlike rtJsonHexStr, it does not encode quotation marks.

Parameters

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

Returns

Completion status of operation:

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

6.3.2.26 rtJsonEncIncrIndent()

```
void rtJsonEncIncrIndent (
             OSCTXT * pctxt )
```

This increases the indentation level set in the given context by updating the indent member.

Parameters

pctxt	Pointer to context block structure.

6.3.2.27 rtJsonEncIndent()

```
int rtJsonEncIndent (
             OSCTXT * pctxt )
```

This function adds indentation whitespace to the output stream. The amount of indentation to add is determined by the indent member variable in the context structure.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

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

6.3.2.28 rtJsonEncInt64Value()

```
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.

6.3.2.29 rtJsonEncIntValue()

```
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.

6.3.2.30 rtJsonEncResetIndent()

```
void rtJsonEncResetIndent (
             OSCTXT * pctxt )
```

This resets the indentation level in the given context to zero.

Parameters

pctxt	Pointer to context block structure.

6.3.2.31 rtJsonEncStartObject()

```
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.

6.3.2.32 rtJsonEncStringNull()

```
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.

6.3.2.33 rtJsonEncStringObject()

```
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.

6.3.2.34 rtJsonEncStringObject2()

```
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.

6.3.2.35 rtJsonEncStringPair()

```
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.

6.3.2.36 rtJsonEncStringPair2()

```
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.

6.3.2.37 rtJsonEncStringRaw()

```
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.

6.3.2.38 rtJsonEncStringValue()

```
int rtJsonEncStringValue (
             OSCTXT * pctxt,
             const OSUTF8CHAR * value )
```

This function encodes a UTF8 string value.

Parameters

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

Returns

Completion status of operation:

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

6.3.2.39 rtJsonEncStringValue2()

```
int rtJsonEncStringValue2 (
             OSCTXT * pctxt,
             const OSUTF8CHAR * value,
             size_t valueLen )
```

This function encodes a UTF8 string value.

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.

6.3.2.40 rtJsonEncTime()

```
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.

6.3.2.41 rtJsonEncUCS4Data()

```
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.

6.3.2.42 rtJsonEncUInt64Value()

```
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.

6.3.2.43 rtJsonEncUIntValue()

```
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.

6.3.2.44 rtJsonEncUnicodeData()

```
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.

6.3.2.45 rtJsonGetIndentLevels()

```
size_t rtJsonGetIndentLevels (
             OSCTXT * pctxt )
```

This returns the number of levels of indentation rtJsonEncIndent is using.

Parameters

pctxt	Pointer to context block structure.

6.4 JSON decode functions.

Macros

- #define **rtJsonDecIntValue** rtJsonDecInt32Value
- #define **rtJsonDecUIntValue** rtJsonDecUInt32Value

Functions

- int rtJsonDecAnyElem (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)
- int rtJsonDecAnyElem2 (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)
- int rtJsonDecAnyType (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)
- int rtJsonDecBase64Str (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, size_t bufsize)
- int rtJsonDecBase64Str64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, size_t bufsize)
- int rtJsonDecDynBase64Str (OSCTXT *pctxt, OSDynOctStr *pvalue)
- int rtJsonDecDynBase64Str64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)
- int rtJsonDecBool (OSCTXT *pctxt, OSBOOL *pvalue)
- int rtJsonTryDecBool (OSCTXT *pctxt, OSBOOL *pvalue)
- int rtJsonDecDate (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecTime (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecDateTime (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecGYear (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecGYearMonth (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecGMonth (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecGMonthDay (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecGDay (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecDecimal (OSCTXT *pctxt, OSREAL *pvalue, int totalDigits, int fractionDigits)
- int rtJsonDecDouble (OSCTXT *pctxt, OSREAL *pvalue)
- int rtJsonDecHexToCharStr (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)
- int rtJsonDecHexStr (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, size_t bufsize)
- int rtJsonDecHexStr64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, size_t bufsize)
- int rtJsonDecHexData64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, size_t bufsize)
- int rtJsonDecDynHexStr (OSCTXT *pctxt, OSDynOctStr *pvalue)
- int rtJsonDecDynHexStr64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)
- int rtJsonDecDynHexData64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)
- int rtJsonDecDynBitStrV72 (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET **data)
- int rtJsonDecDynBitStr64V72 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET **data)
- int rtJsonDecBitStrValueV72 (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET *data, OSSIZE bufsize)
- int rtJsonDecBitStrValue64V72 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET *data, OSSIZE bufsize)
- int rtJsonDecBitStrValueExtV72 (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET *data, OSSIZE bufsize, OSO↩ CTET **extdata)
- int rtJsonDecBitStrValueExt64V72 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET *data, OSSIZE bufsize, OSO↩ CTET **extdata)
- int rtJsonDecDynBitStr (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET **data)
- int rtJsonDecDynBitStr64 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET **data)
- int rtJsonDecFixedDynBitStr (OSCTXT *pctxt, OSSIZE nbits, OSOCTET **data)
- int rtJsonDecBitStrValue (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET *data, OSSIZE bufsize)
- int rtJsonDecBitStrValue64 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET *data, OSSIZE bufsize)
- int rtJsonDecFixedBitStrValue (OSCTXT *pctxt, OSSIZE nbits, OSOCTET *data, OSSIZE bufsize)

- int rtJsonDecBitStrValueExt (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET *data, OSSIZE bufsize, OSOCTET **extdata)
- int rtJsonDecBitStrValueExt64 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET *data, OSSIZE bufsize, OSOCTET **extdata)
- int rtJsonDecInt8Value (OSCTXT *pctxt, OSINT8 *pvalue)
- int rtJsonDecInt16Value (OSCTXT *pctxt, OSINT16 *pvalue)
- int rtJsonDecInt32Value (OSCTXT *pctxt, OSINT32 *pvalue)
- int rtJsonDecInt64Value (OSCTXT *pctxt, OSINT64 *pvalue)
- int rtJsonDecUInt8Value (OSCTXT *pctxt, OSUINT8 *pvalue)
- int rtJsonDecUInt16Value (OSCTXT *pctxt, OSUINT16 *pvalue)
- int rtJsonDecUInt32Value (OSCTXT *pctxt, OSUINT32 *pvalue)
- int rtJsonDecUInt64Value (OSCTXT *pctxt, OSUINT64 *pvalue)
- int rtJsonDecMatchChar (OSCTXT *pctxt, OSUTF8CHAR ch)
- int rtJsonDecMatchCharStr (OSCTXT *pctxt, const char *token)
- int rtJsonDecMatchObjectStart (OSCTXT *pctxt, const OSUTF8NameAndLen *nameArray, size_t numNames)
- int rtJsonDecMatchToken (OSCTXT *pctxt, const OSUTF8CHAR *token)
- int rtJsonDecMatchToken2 (OSCTXT *pctxt, const OSUTF8CHAR *token, size_t tokenLen)
- int rtJsonDecNameValuePair (OSCTXT *pctxt, OSUTF8NVP *pvalue)
- int rtJsonDecNull (OSCTXT *pctxt)
- int rtJsonTryDecNull (OSCTXT *pctxt)
- int rtJsonDecNumberString (OSCTXT *pctxt, char **ppCharStr)
- int rtJsonDecPeekChar (OSCTXT *pctxt, OSUTF8CHAR *pch)
- char rtJsonDecPeekChar2 (OSCTXT *pctxt)
- int rtJsonDecStringObject (OSCTXT *pctxt, const OSUTF8CHAR *name, OSUTF8CHAR **ppvalue)
- int rtJsonDecStringValue (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)
- int rtJsonDecXmlStringValue (OSCTXT *pctxt, OSXMLSTRING *pvalue)
- int rtJsonDecUCS2String (OSCTXT *pctxt, OSUNICHAR **ppstr, OSSIZE *pnchars)
- int rtJsonDecUCS4String (OSCTXT *pctxt, OS32BITCHAR **ppstr, OSSIZE *pnchars)
- int **rtJsonDecSkipWhitespace** (OSCTXT *pctxt)
- size_t rtJsonGetElemIdx (OSCTXT *pctxt, const OSUTF8NameAndLen nameArray[ ], size_t nrows)

6.4.1 Detailed Description

6.4.2 Function Documentation

6.4.2.1 rtJsonDecAnyElem()

```
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.

6.4.2.2 rtJsonDecAnyElem2()

```
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.

6.4.2.3 rtJsonDecAnyType()

```
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. You may pass null if not interested in receiving the decoded text.

Returns

Completion status of operation:

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

6.4.2.4 rtJsonDecBase64Str()

```
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.

6.4.2.5 rtJsonDecBase64Str64()

```
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

6.4.2.6 rtJsonDecBitStrValue()

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

This function decodes a value of an ASN.1 BIT STRING type that is not constrained to a fixed length, encoded according to X.697 as a JSON object.

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.

6.4.2.7 rtJsonDecBitStrValue64()

```
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

6.4.2.8 rtJsonDecBitStrValue64V72()

```
int rtJsonDecBitStrValue64V72 (
             OSCTXT * pctxt,
             OSSIZE * nbits,
             OSOCTET * data,
             OSSIZE bufsize )
```

This function is identical to rtJsonDecBitStrValueV72 except that it supports lengths up to 64-bits in size on 64-bit machines. This provides ObjSys-specific behavior that predates ITU-T X.697.

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

rtJsonDecBitStrValueV72

6.4.2.9 rtJsonDecBitStrValueExt()

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

This function decodes a value of a ASN.1 BIT STRING type without a fixed-length constraint, encoded according to X.697 as JSON object.

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.

6.4.2.10 rtJsonDecBitStrValueExt64()

```
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

6.4.2.11 rtJsonDecBitStrValueExt64V72()

```
int rtJsonDecBitStrValueExt64V72 (
             OSCTXT * pctxt,
             OSSIZE * nbits,
             OSOCTET * data,
             OSSIZE bufsize,
             OSOCTET ** extdata )
```

This function is identical to rtJsonDecBitStrValueExtV72 except that it supports lengths up to 64-bits in size on 64-bit machines. This provides ObjSys-specific behavior that predates ITU-T X.697.

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

rtJsonDecBitStrValueExtV72

6.4.2.12 rtJsonDecBitStrValueExtV72()

```
int rtJsonDecBitStrValueExtV72 (
             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. This provides ObjSys-specific behavior that predates ITU-T X.697.

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.

6.4.2.13 rtJsonDecBitStrValueV72()

```
int rtJsonDecBitStrValueV72 (
             OSCTXT * pctxt,
             OSUINT32 * nbits,
             OSOCTET * data,
             OSSIZE bufsize )
```

This function decodes a variable of the ASN.1 Bit string type. This provides ObjSys-specific behavior that predates ITU-T X.697.

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.

6.4.2.14 rtJsonDecBool()

```
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.

6.4.2.15 rtJsonDecDate()

```
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.

6.4.2.16 rtJsonDecDateTime()

```
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.

6.4.2.17 rtJsonDecDecimal()

```
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.

6.4.2.18 rtJsonDecDouble()

```
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.

6.4.2.19 rtJsonDecDynBase64Str()

```
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.

6.4.2.20 rtJsonDecDynBase64Str64()

```
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.

6.4.2.21 rtJsonDecDynBitStr()

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

This function decodes a value of an ASN.1 BIT STRING type, not constrained to a fixed length, encoded according to X.697 as a JSON object.

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.

6.4.2.22 rtJsonDecDynBitStr64()

```
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

6.4.2.23 rtJsonDecDynBitStr64V72()

```
int rtJsonDecDynBitStr64V72 (
             OSCTXT * pctxt,
             OSSIZE * nbits,
             OSOCTET ** data )
```

This function is identical to rtJsonDecDynBitStrV72 except that it supports lengths up to 64-bits in size on 64-bit machines. This provides ObjSys-specific behavior that predates ITU-T X.697.

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

rtJsonDecDynBitStrV72

6.4.2.24 rtJsonDecDynBitStrV72()

```
int rtJsonDecDynBitStrV72 (
             OSCTXT * pctxt,
             OSUINT32 * nbits,
             OSOCTET ** data )
```

This function decodes a variable of the ASN.1 Bit string type. This provides ObjSys-specific behavior that predates ITU-T X.697.

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.

6.4.2.25 rtJsonDecDynHexData64()

```
int rtJsonDecDynHexData64 (
            OSCTXT * pctxt,
            OSDynOctStr64 * pvalue )
```

This function decodes a sequence of hexadecimal characters until a non-hexadecimal character (which is not consumed) is found.

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.

6.4.2.26 rtJsonDecDynHexStr()

```
int rtJsonDecDynHexStr (
            OSCTXT * pctxt,
            OSDynOctStr * pvalue )
```

This function decodes a JSON string consisting of hexadecimal characters. 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.

6.4.2.27 rtJsonDecDynHexStr64()

```
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.

6.4.2.28 rtJsonDecFixedBitStrValue()

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

This function decodes a value of an ASN.1 BIT STRING type constrained to have the given fixed length, encoded according to X.697 as a JSON string.

This ensures the encoded data is the given number of bits and that unused bits are zeros.

Parameters

pctxt	Pointer to context block structure.
nbits	The number of bits the BIT STRING is fixed to.
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.

6.4.2.29 rtJsonDecFixedDynBitStr()

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

This function decodes a value of an ASN.1 BIT STRING type constrained to a fixed length, encoded according to X.697 as a JSON string.

This ensures the encoded data is the given number of bits and that unused bits are zeros.

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.

6.4.2.30 rtJsonDecGDay()

```
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.

6.4.2.31 rtJsonDecGMonth()

```
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.

6.4.2.32 rtJsonDecGMonthDay()

```
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.

6.4.2.33 rtJsonDecGYear()

```
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.

6.4.2.34 rtJsonDecGYearMonth()

```
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.

6.4.2.35 rtJsonDecHexData64()

```
int rtJsonDecHexData64 (
             OSCTXT * pctxt,
             OSOCTET * pvalue,
             OSSIZE * pnocts,
             size_t bufsize )
```

This function deocdes a sequence of heaxadecimal characters until a non-hexadecimal character (which is not consumed) is found OR the preallocated array is filled.

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 preallocated 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 pvalue.

Returns

Completion status of operation:

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

6.4.2.36 rtJsonDecHexStr()

```
int rtJsonDecHexStr (
             OSCTXT * pctxt,
```

```
            OSOCTET * pvalue,
            OSUINT32 * pnocts,
            size_t bufsize )
```

This function decodes a JSON string consisting of hexadecimal characters 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.

6.4.2.37 rtJsonDecHexStr64()

```
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

6.4.2.38 rtJsonDecHexToCharStr()

```
int rtJsonDecHexToCharStr (
             OSCTXT * pctxt,
             OSUTF8CHAR ** ppvalue )
```

This function decodes a JSON string, interpreting the content as the hexadecimal represention of the bytes for a character string, which it returns. This function is used to support the JSON encoding specified in X.697 for the following ASN.1 types: TeletexString, T61String, VideotexString, GraphicString, and GeneralString.

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. If null, the JSON string is decoded but not retained.

Returns

Completion status of operation:

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

6.4.2.39 rtJsonDecInt16Value()

```
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.

6.4.2.40 rtJsonDecInt32Value()

```
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.

6.4.2.41 rtJsonDecInt64Value()

```
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.

6.4.2.42 rtJsonDecInt8Value()

```
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.

6.4.2.43 rtJsonDecMatchChar()

```
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.

6.4.2.44 rtJsonDecMatchCharStr()

```
int rtJsonDecMatchCharStr (
            OSCTXT * pctxt,
            const char * 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.

6.4.2.45 rtJsonDecMatchObjectStart()

```
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.

6.4.2.46 rtJsonDecMatchToken()

```
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.

6.4.2.47 rtJsonDecMatchToken2()

```
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.

6.4.2.48 rtJsonDecNameValuePair()

```
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.

6.4.2.49 rtJsonDecNull()

```
int rtJsonDecNull (
            OSCTXT * pctxt )
```

This function decodes a JSON null.

Parameters

pctxt	A pointer to a context data structure.

Returns

0 on success, less than zero otherwise.

6.4.2.50 rtJsonDecNumberString()

```
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.

6.4.2.51 rtJsonDecPeekChar()

```
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.

6.4.2.52 rtJsonDecPeekChar2()

```
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.

6.4.2.53 rtJsonDecStringObject()

```
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.

6.4.2.54 rtJsonDecStringValue()

```
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.

6.4.2.55 rtJsonDecTime()

```
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.

6.4.2.56 rtJsonDecUCS2String()

```
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.

6.4.2.57 rtJsonDecUCS4String()

```
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.

6.4.2.58 rtJsonDecUInt16Value()

```
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 OSUT↩ F8CHAR 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.

6.4.2.59 rtJsonDecUInt32Value()

```
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 OSUT↩ F8CHAR 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.

6.4.2.60 rtJsonDecUInt64Value()

```
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 OSUT↩ F8CHAR 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.

6.4.2.61 rtJsonDecUInt8Value()

```
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.

6.4.2.62 rtJsonDecXmlStringValue()

```
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.

6.4.2.63 rtJsonGetElemIdx()

```
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.

6.4.2.64 rtJsonTryDecBool()

```
int rtJsonTryDecBool (
             OSCTXT * pctxt,
             OSBOOL * pvalue )
```

This function will attempt to decode a boolean variable at the current buffer or stream position. If the attempt fails, the decode cursor is reset to the position it was at when the function was called and an RTERR_IDNOTFOU status is returned. The error is not logged in the context.

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,
- RTERR_IDNOTFOU = not boolean value (not logged)
- negative return value if other error (logged)

6.4.2.65 rtJsonTryDecNull()

```
int rtJsonTryDecNull (
             OSCTXT * pctxt )
```

This function will attempt to decode a null value at the current buffer or stream position. If the attempt fails, the decode cursor is reset to the position it was at when the function was called and an RTERR_IDNOTFOU status is returned. The error is not logged in the context.

Parameters

pctxt	Pointer to context block structure.

Returns

Completion status of operation:

- 0 = success,
- RTERR_IDNOTFOU = not boolean value (not logged)
- negative return value if other error (logged)

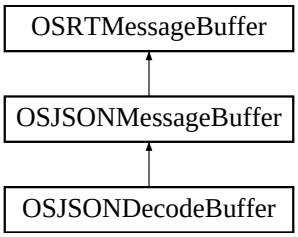
Chapter 7

Class Documentation

7.1 OSJSONDecodeBuffer Class Reference

`#include <OSJSONDecodeBuffer.h>`

Inheritance diagram for OSJSONDecodeBuffer:



Public Member Functions

- OSJSONDecodeBuffer (const char *jsonFile)
- OSJSONDecodeBuffer (const OSOCTET *msgbuf, size_t bufsiz)
- OSJSONDecodeBuffer (OSRTInputStream &inputStream)
- virtual EXTJSONMETHOD int init ()
- virtual OSBOOL isA (Type bufferType)

Protected Attributes

- OSRTInputStream * mpInputStream
- OSBOOL mbOwnStream

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.

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.

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.

7.1.4.2 mpInputStream

```
OSRTInputStream* OSJSONDecodeBuffer::mpInputStream  [protected]
```

Input source for message to be decoded.

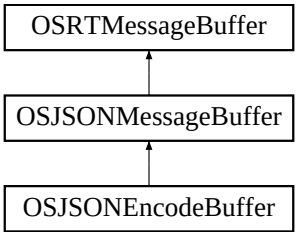
The documentation for this class was generated from the following file:

- OSJSONDecodeBuffer.h

7.2 OSJSONEncodeBuffer Class Reference

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

Inheritance diagram for OSJSONEncodeBuffer:



Public Member Functions

- EXTJSONMETHOD OSJSONEncodeBuffer ()
- EXTJSONMETHOD OSJSONEncodeBuffer (OSOCTET *pMsgBuf, size_t msgBufLen)
- virtual size_t getMsgLen ()
- virtual EXTJSONMETHOD int init ()
- virtual OSBOOL isA (Type bufferType)
- void nullTerminate ()
- virtual EXTJSONMETHOD long write (const char *filename)
- virtual EXTJSONMETHOD long write (FILE *fp)

Protected Member Functions

- **OSJSONEncodeBuffer** (OSRTContext *pContext)

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.

7.2.2 Constructor & Destructor Documentation

7.2.2.1 OSJSONEncodeBuffer() [1/2]

```
EXTJSONMETHOD OSJSONEncodeBuffer::OSJSONEncodeBuffer ( )
```

Default constructor

7.2.2.2 OSJSONEncodeBuffer() [2/2]

```
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.

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.

7.2.3.4 nullTerminate()

```
void OSJSONEncodeBuffer::nullTerminate ( )  [inline]
```

This method adds a null-terminator character ('\0') at the current buffer position.

7.2.3.5 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.

7.2.3.6 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.

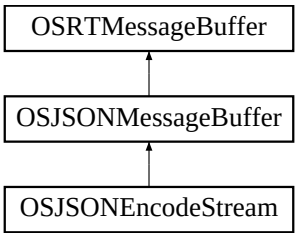
The documentation for this class was generated from the following file:

- OSJSONEncodeBuffer.h

7.3 OSJSONEncodeStream Class Reference

`#include <OSJSONEncodeStream.h>`

Inheritance diagram for OSJSONEncodeStream:



Public Member Functions

- EXTJSONMETHOD OSJSONEncodeStream (OSRTOutputStream &outputStream)
- OSJSONEncodeStream (OSRTOutputStream *pOutputStream, OSBOOL ownStream=TRUE)
- EXTJSONMETHOD int encodeAttr (const OSUTF8CHAR *name, const OSUTF8CHAR *value)
- EXTJSONMETHOD int encodeText (const OSUTF8CHAR *value)
- virtual EXTJSONMETHOD int init ()
- virtual OSBOOL isA (Type bufferType)
- virtual const OSOCTET * getMsgPtr ()
- OSRTOutputStream * getStream () const

Protected Attributes

- OSRTOutputStream * mpStream
- OSBOOL mbOwnStream
- OSCTXT * mpCtxt

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.

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.

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.

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.

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.

7.3.4.2 mpCtxt

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

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

7.3.4.3 mpStream

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

A pointer to an OSRTOutputStream object.

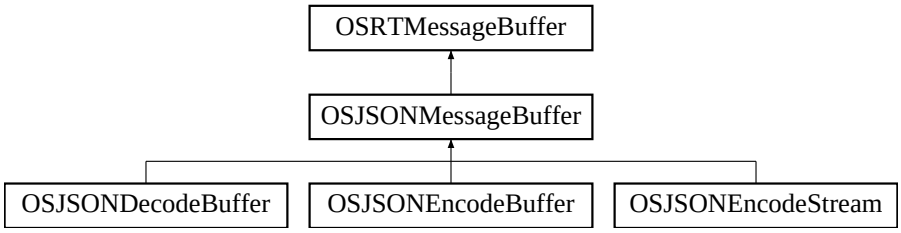
The documentation for this class was generated from the following file:

- OSJSONEncodeStream.h

7.4 OSJSONMessageBuffer Class Reference

```
#include <OSJSONMessageBuffer.h>
```

Inheritance diagram for OSJSONMessageBuffer:



Protected Member Functions

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

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.

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.

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

- OSJSONMessageBuffer.h

Chapter 8

File Documentation

8.1 asn1json.h File Reference

```
#include "rtsrc/asn1type.h"
#include "rtxsrc/osMacros.h"
#include "rtxsrc/rtxCommonDefs.h"
#include "rtxsrc/rtxError.h"
#include "rtjsonsrc/rtJsonExternDefs.h"
#include "osrtjson.h"
```

Functions

- int rtJsonAsn1EncReal (OSCTXT *pctxt, OSREAL value)
- int rtJsonAsn1EncReal10 (OSCTXT *pctxt, const OSUTF8CHAR *pvalue)
- int rtJsonAsn1EncOID (OSCTXT *pctxt, ASN1OBJID *pOID)
- int rtJsonAsn1EncOpenType (OSCTXT *pctxt, OSOCTET *pdata, OSSIZE numocts)
- int rtJsonAsn1EncExtElem (OSCTXT *pctxt, ASN1OpenType *pElem)
- int rtJsonAsn1EncOpenTypeExt (OSCTXT *pctxt, const OSRTDList *pvalue, OSBOOL asArray)
- int rtJsonAsn1DecReal (OSCTXT *pctxt, OSREAL *pvalue)
- int rtJsonAsn1DecReal10 (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)
- int rtJsonAsn1DecOIDValue (OSCTXT *pctxt, ASN1OBJID *pOID)
- int rtJsonAsn1DecBMPString (OSCTXT *pctxt, ASN1BMPString *pBMPStr)

8.1.1 Detailed Description

JSON low-level C encode/decode functions for ASN.1.

8.2 OSJSONDecodeBuffer.h File Reference

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

Classes

- class OSJSONDecodeBuffer

8.2.1 Detailed Description

JSON decode buffer or stream class definition.

8.3 OSJSONEncodeBuffer.h File Reference

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

Classes

- class OSJSONEncodeBuffer

8.3.1 Detailed Description

JSON encode message buffer class definition.

8.4 OSJSONEncodeStream.h File Reference

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

Classes

- class OSJSONEncodeStream

8.4.1 Detailed Description

JSON encode stream class definition.

8.5 OSJSONMessageBuffer.h File Reference

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

Classes

- class OSJSONMessageBuffer

8.5.1 Detailed Description

JSON encode/decode buffer and stream base class.

8.6 osrtjson.h File Reference

```
#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 **OSJSONNOWS** 0x00010000 /* encode with NO WhiteSpace */
- #define **OSJSONATTR** 0x00008000 /* encode string value as attribute */
- #define **OSJSONPUTCOMMA**(pctxt)
- #define **DEFAULT_DOUBLE_PRECISION** 11
- #define **DEFAULT_FLOAT_PRECISION** 6
- #define OSUPCASE 0x00008000
- #define **rtJsonDecIntValue** rtJsonDecInt32Value
- #define **rtJsonDecUIntValue** rtJsonDecUInt32Value

Enumerations

- enum **OSJSONState** {
  OSJSONNOCOMMA, **OSJSONNORMAL**, **OSJSONSEQOF**, **OSJSONRAW**,
  OSJSONARRAYEDGE }

Functions

- int rtJsonEncAnyAttr (OSCTXT *pctxt, const OSRTDList *pvalue)
- int rtJsonEncIntValue (OSCTXT *pctxt, OSINT32 value)
- int rtJsonEncInt64Value (OSCTXT *pctxt, OSINT64 value)
- int rtJsonEncBase64StrValue (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *value)
- int rtJsonEncBoolValue (OSCTXT *pctxt, OSBOOL value)
- int rtJsonEncGYear (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncGYearMonth (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncGMonth (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncGMonthDay (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncGDay (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncDate (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncTime (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncDateTime (OSCTXT *pctxt, const OSXSDDateTime *pvalue)
- int rtJsonEncDecimalValue (OSCTXT *pctxt, OSREAL value, const OSDecimalFmt *pFmtSpec)
- int rtJsonEncDoubleValue (OSCTXT *pctxt, OSREAL value, const OSDoubleFmt *pFmtSpec)
- int rtJsonEncFloatValue (OSCTXT *pctxt, OSREAL value, const OSDoubleFmt *pFmtSpec)
- int rtJsonEncHexStr (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *data)
- int rtJsonEncHexValue (OSCTXT *pctxt, OSSIZE nocts, const OSOCTET *data)
- int rtJsonEncBitStrValueV72 (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data)
- int rtJsonEncBitStrValueExtV72 (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data, OSSIZE dataSize, const OSOCTET *extData)
- int rtJsonEncBitStrValue (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data)
- int rtJsonEncFixedBitStrValue (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data)
- int rtJsonEncBitStrValueExt (OSCTXT *pctxt, OSSIZE nbits, const OSOCTET *data, OSSIZE dataSize, const OSOCTET *extData)
- int rtJsonEncIndent (OSCTXT *pctxt)
- void rtJsonEncDecrIndent (OSCTXT *pctxt)
- void rtJsonEncIncrIndent (OSCTXT *pctxt)
- void rtJsonEncResetIndent (OSCTXT *pctxt)
- size_t rtJsonGetIndentLevels (OSCTXT *pctxt)
- int rtJsonEncStringObject (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8CHAR *value)
- int rtJsonEncStringObject2 (OSCTXT *pctxt, const OSUTF8CHAR *name, size_t nameLen, const OSUTF8C↩HAR *value, size_t valueLen)
- int rtJsonEncStringPair (OSCTXT *pctxt, const OSUTF8CHAR *name, const OSUTF8CHAR *value)
- int rtJsonEncStringPair2 (OSCTXT *pctxt, const OSUTF8CHAR *name, size_t nameLen, const OSUTF8CHAR *value, size_t valueLen)
- int rtJsonEncStringValue (OSCTXT *pctxt, const OSUTF8CHAR *value)
- int rtJsonEncStringValue2 (OSCTXT *pctxt, const OSUTF8CHAR *value, size_t valueLen)
- int rtJsonEncChars (OSCTXT *pctxt, const char *value, OSSIZE valueLen)
- int rtJsonEncCharStr (OSCTXT *pctxt, const char *value)
- int rtJsonEncStringNull (OSCTXT *pctxt)
- int rtJsonEncStringRaw (OSCTXT *pctxt, const OSUTF8CHAR *value)
- int rtJsonEncUnicodeData (OSCTXT *pctxt, const OSUNICHAR *value, OSSIZE nchars)
- int rtJsonEncUCS4Data (OSCTXT *pctxt, const OS32BITCHAR *value, OSSIZE nchars)
- int rtJsonEncUIntValue (OSCTXT *pctxt, OSUINT32 value)
- int rtJsonEncUInt64Value (OSCTXT *pctxt, OSUINT64 value)
- int rtJsonEncStartObject (OSCTXT *pctxt, const OSUTF8CHAR *name, OSBOOL noComma)
- int rtJsonEncEndObject (OSCTXT *pctxt)
- int rtJsonEncBetweenObject (OSCTXT *pctxt)

- int rtJsonDecAnyElem (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)
- int rtJsonDecAnyElem2 (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)
- int rtJsonDecAnyType (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)
- int rtJsonDecBase64Str (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, size_t bufsize)
- int rtJsonDecBase64Str64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, size_t bufsize)
- int rtJsonDecDynBase64Str (OSCTXT *pctxt, OSDynOctStr *pvalue)
- int rtJsonDecDynBase64Str64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)
- int rtJsonDecBool (OSCTXT *pctxt, OSBOOL *pvalue)
- int rtJsonTryDecBool (OSCTXT *pctxt, OSBOOL *pvalue)
- int rtJsonDecDate (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecTime (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecDateTime (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecGYear (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecGYearMonth (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecGMonth (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecGMonthDay (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecGDay (OSCTXT *pctxt, OSXSDDateTime *pvalue)
- int rtJsonDecDecimal (OSCTXT *pctxt, OSREAL *pvalue, int totalDigits, int fractionDigits)
- int rtJsonDecDouble (OSCTXT *pctxt, OSREAL *pvalue)
- int rtJsonDecHexToCharStr (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)
- int rtJsonDecHexStr (OSCTXT *pctxt, OSOCTET *pvalue, OSUINT32 *pnocts, size_t bufsize)
- int rtJsonDecHexStr64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, size_t bufsize)
- int rtJsonDecHexData64 (OSCTXT *pctxt, OSOCTET *pvalue, OSSIZE *pnocts, size_t bufsize)
- int rtJsonDecDynHexStr (OSCTXT *pctxt, OSDynOctStr *pvalue)
- int rtJsonDecDynHexStr64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)
- int rtJsonDecDynHexData64 (OSCTXT *pctxt, OSDynOctStr64 *pvalue)
- int rtJsonDecDynBitStrV72 (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET **data)
- int rtJsonDecDynBitStr64V72 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET **data)
- int rtJsonDecBitStrValueV72 (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET *data, OSSIZE bufsize)
- int rtJsonDecBitStrValue64V72 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET *data, OSSIZE bufsize)
- int rtJsonDecBitStrValueExtV72 (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET *data, OSSIZE bufsize, OSO↩ CTET **extdata)
- int rtJsonDecBitStrValueExt64V72 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET *data, OSSIZE bufsize, OSO↩ CTET **extdata)
- int rtJsonDecDynBitStr (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET **data)
- int rtJsonDecDynBitStr64 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET **data)
- int rtJsonDecFixedDynBitStr (OSCTXT *pctxt, OSSIZE nbits, OSOCTET **data)
- int rtJsonDecBitStrValue (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET *data, OSSIZE bufsize)
- int rtJsonDecBitStrValue64 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET *data, OSSIZE bufsize)
- int rtJsonDecFixedBitStrValue (OSCTXT *pctxt, OSSIZE nbits, OSOCTET *data, OSSIZE bufsize)
- int rtJsonDecBitStrValueExt (OSCTXT *pctxt, OSUINT32 *nbits, OSOCTET *data, OSSIZE bufsize, OSOCTET **extdata)
- int rtJsonDecBitStrValueExt64 (OSCTXT *pctxt, OSSIZE *nbits, OSOCTET *data, OSSIZE bufsize, OSOCTET **extdata)
- int rtJsonDecInt8Value (OSCTXT *pctxt, OSINT8 *pvalue)
- int rtJsonDecInt16Value (OSCTXT *pctxt, OSINT16 *pvalue)
- int rtJsonDecInt32Value (OSCTXT *pctxt, OSINT32 *pvalue)
- int rtJsonDecInt64Value (OSCTXT *pctxt, OSINT64 *pvalue)
- int rtJsonDecUInt8Value (OSCTXT *pctxt, OSUINT8 *pvalue)
- int rtJsonDecUInt16Value (OSCTXT *pctxt, OSUINT16 *pvalue)
- int rtJsonDecUInt32Value (OSCTXT *pctxt, OSUINT32 *pvalue)

- int rtJsonDecUInt64Value (OSCTXT *pctxt, OSUINT64 *pvalue)
- int rtJsonDecMatchChar (OSCTXT *pctxt, OSUTF8CHAR ch)
- int rtJsonDecMatchCharStr (OSCTXT *pctxt, const char *token)
- int rtJsonDecMatchObjectStart (OSCTXT *pctxt, const OSUTF8NameAndLen *nameArray, size_t numNames)
- int rtJsonDecMatchToken (OSCTXT *pctxt, const OSUTF8CHAR *token)
- int rtJsonDecMatchToken2 (OSCTXT *pctxt, const OSUTF8CHAR *token, size_t tokenLen)
- int rtJsonDecNameValuePair (OSCTXT *pctxt, OSUTF8NVP *pvalue)
- int rtJsonDecNull (OSCTXT *pctxt)
- int rtJsonTryDecNull (OSCTXT *pctxt)
- int rtJsonDecNumberString (OSCTXT *pctxt, char **ppCharStr)
- int rtJsonDecPeekChar (OSCTXT *pctxt, OSUTF8CHAR *pch)
- char rtJsonDecPeekChar2 (OSCTXT *pctxt)
- int rtJsonDecStringObject (OSCTXT *pctxt, const OSUTF8CHAR *name, OSUTF8CHAR **ppvalue)
- int rtJsonDecStringValue (OSCTXT *pctxt, OSUTF8CHAR **ppvalue)
- int rtJsonDecXmlStringValue (OSCTXT *pctxt, OSXMLSTRING *pvalue)
- int rtJsonDecUCS2String (OSCTXT *pctxt, OSUNICHAR **ppstr, OSSIZE *pnchars)
- int rtJsonDecUCS4String (OSCTXT *pctxt, OS32BITCHAR **ppstr, OSSIZE *pnchars)
- int **rtJsonDecSkipWhitespace** (OSCTXT *pctxt)
- size_t rtJsonGetElemIdx (OSCTXT *pctxt, const OSUTF8NameAndLen nameArray[ ], size_t nrows)

8.6.1 Detailed Description

JSON low-level C encode/decode functions.

8.6.2 Macro Definition Documentation

8.6.2.1 OSJSONPUTCOMMA

```
#define OSJSONPUTCOMMA(
              pctxt )
```

Value:

```
if ((pctxt)->lastChar != '{' && (pctxt)->lastChar != ',' \
    && (pctxt)->lastChar != '\0' && (pctxt)->lastChar != '[') \
    OSRTSAFEPUTCHAR (pctxt, ',');
```

8.6.2.2 OSUPCASE

```
#define OSUPCASE 0x00008000
```

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

8.7 rtJsonCppMsgBuf.h File Reference

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

8.7.1 Detailed Description

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

8.8 rtJsonExternDefs.h File Reference

8.8.1 Detailed Description

JSON external definitions macro. This is used for Windows to properly declare function scope within DLL's.

Index