Network Monitor API

User Guide

Version R91

English

May 20, 2015

Agreement

The purchase and use of all Software and Services is subject to the Agreement as defined in Kaseya's "Click-Accept" EULATOS as updated from time to time by Kaseya at http://www.kaseya.com/legal.aspx. If Customer does not agree with the Agreement, please do not install, use or purchase any Software and Services from Kaseya as continued use of the Software or Services indicates Customer's acceptance of the Agreement."

Contents

Network Monitor Lua API

This documentation covers the **Network Monitor** Lua API. **Network Monitor** uses Lua 5.0.

Lua

Lua is a powerful light-weight programming language designed for extending applications. Lua is also frequently used as a general-purpose, stand-alone language. Lua is free software. Lua combines simple procedural syntax with powerful data description constructs based on associative arrays and extensible semantics. Lua is dynamically typed, interpreted from byte codes, and has automatic memory management with garbage collection, making it ideal for configuration, scripting, and rapid prototyping.

> **Note:** This documentation does not cover the Lua language. For more information about the Lua language visit **http://www.lua.org.** *(http://www.lua.org.)*

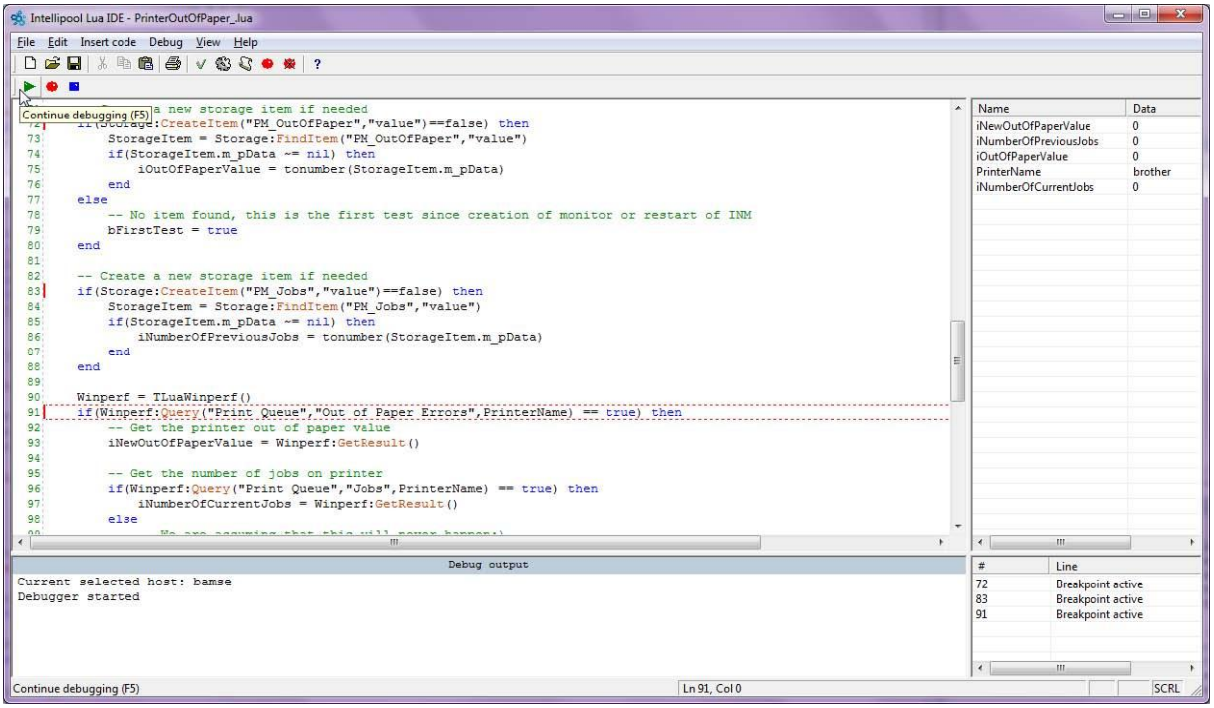
Network Monitor and Lua

Customers can use the Lua scripting language to create custom made monitors to test systems and equipment not supported by any current monitoring solution.

New monitors, actions and events can be created and tested in the development environment provided by Kaseya, before they are exported and used in Kaseya Network Monitor.

A comprehensive library of pre-made classes, such as SFTP client, HTTP client and file management, are available to developers.

The develop environment includes debugger, keyword highlighting, integrated help and other features available in state-of-the-art development tools. The development environment can be downloaded from our homepage at **http://www.kaseya.com** *(http://www.kaseya.com)*/



Lua IDE v3

Chapter 1

Programming model

When creating a custom Lua script for use in Kaseya Network Monitor there is a number of requirements that the script must fulfill in order to be successfully executed by Kaseya Network Monitor.

In This Chapter

Advanced script

The advanced script model gives the script author new powerful tools to control parameters given as arguments to the script. This makes it possible to make Lua scripts that have the same look and feel like native monitor types.

Reserved function names

There are two reserved function names, used by **Network Monitor** to query information. These function names can not be used for any other purpose.

OnConfigure

This function is called by **Network Monitor** to have the script populate a LuaScriptConfigurator class instance. The information is then used to create a user interface for the script. The name of the instance must be "Config" (note that casing) so **Network Monitor** may find it in the Lua stack when the function returns.

OnEnumerate

Each field in the user interface can be enumerated, **Network Monitor** calls the OnEnumerate function to have the script populate a data strcture, LuaScriptEnumResult, with values the user can select. The OnEnumerate have one parameter, sFieldToEnum, that is used by the script to determin which field/argument to provide enumeration results for. The returned instance must be named "Enum" (note the casing).

The entry point

The advanced script model requires the OnConfigure function to set the name of the entry point function. This function is called by **Network Monitor** to start the execution of the script. The name of the entry point is by default "main" but can be set by the programmer to any name except the reserved function names.

Example

```
--This function is called by KNM when enumerating a field

function OnEnumerate(sFieldToEnum)

   --The variable returned must be called "Config" so KNM can find it.
   Enum = LuaScriptEnumResult()

   --Second argument
   if sFieldToEnum == "Argument 2" then
          Enum:Add("First value")
          Enum:Add("Second value")
          Enum:Add("Third value") end
   return Enum
end

--This function is called by KNM to retrieve a script configuration

function OnConfigure()

   --The variable returned must be called "Config" so KNM can find it.
   Config = LuaScriptConfigurator()

   --Author.
   Config:SetAuthor("My name")

   --Description.
   Config:SetDescription("Description of the script, including usage, parameters
etc")

   --Minimum build version of KNM, set to zero for if no specificbuild version is
required.
   Config:SetMinBuildVersion(0)

   --Script version (major/minor)
   Config:SetScriptVersion(1,0)

   --A parameter configuration, add them in the order the script isextracting them.
   Config:AddArgument("Argument 1","This is the description of thefirst
argument",LuaScriptConfigurator.CHECK_NOT_EMPTY)

   --Add another parameter, a select box with 3 values.
   Config:AddArgument("Argument 2","This is the description of thesecond
argument",LuaScriptConfigurator.CHECK_NOT_EMPTY+LuaScriptConfigurator.ENUM_AVAIL)

   --Set the entry point, this is the function called by KNM
Config:SetEntryPoint("main")

   --Done with configuration, return the asset
   return Config
end

--This is the entry point

function main()
```

```
  sFirstArgument = GetArgument(0)
  sSecondArgument = GetArgument(1)

  SetExitStatus("OK",true)

end
```

Simple script

The simple script model has been used in **Network Monitor** since the first release and should now be seen as deprecated. Its maintained for compatibility with older scripts.

Asset context

Functions are relative to the asset context.

All calls that are accessing resources is relative to the parent asset. For example, if the script opens a file, the path supplied to the Open function must be relative to the asset.

Example

Set the host to be the address of the windows computer "domainserver".

```
TLuaFile:Open("C:\\test.txt");
```

Calling the function would make the script open the file test.txt located on the C: harddisk of the computer "domainserver".

This is also why all communication related classes such as TLuaFTPClient, TLuaHTTPClient and TLUASocket only takes an port number argument, the IP address is hard coded to the current asset by the framework.

Result

When an script exits it needs to tell **Network Monitor** if the test was successful or not. A global function is provided for this purpose, SetExitStatus. SetExitStatus is mandatory and must be called before the script terminates.

Chapter 2

Global functions

Global functions are functions not associated with an asset. There are a number of global functions in the **Network Monitor** Lua API. Some are required to call when a scripts exits.

In This Chapter

ConvertFromUTF16

string ConvertFromUTF16(local UTF16data,int iSize)

Return values

A 8 bit string converted from the UTF16 string.

Parameters

- UTF16data - UTF16 (double byte) string read by TLuaFile::ReadData.
- iSize - Size of string.

Remarks

The function only accepts data created by the TLuaFile::ReadData function.

FormatErrorString

string FormatErrorString(int iError)

Return values

A string describing the error code iError.

Parameters

- iError - An Windows error code obtained previously by calling the GetLastError function.

Remarks

This function can be used to supply meaningful text to the user instead of an error code.

GetArgument

string GetArgument(int iNumber)

Return values

An argument passed by the calling application.

Parameters

- iNumber - An zero based index of the argument to retrieve. The max number of arguments can be determined by calling GetArgumentCount.

Remarks

A calling application can pass a number of arguments to a Lua script to customize its behaviour. With this function and the related GetArgumentCount the programmer can extract the arguments.

GetArgumentCount

int GetArgument()

Return values

The number of arguments passed to the program by a calling application.

Remarks

A calling application can pass a number of arguments to a Lua script to customize its behaviour. With this function the programmer can determine how many arguments there is to extract.

GetLastError

int GetLastError()

Return values

The last error code generated by a call to a library function. The error code is a standard windows error code.

Remarks

The SetLastError can be used to clear the current Windows error code before calling a function.sds

GetDeviceAddress

string GetDeviceAddress()

Return values

The address entered into the device address field.

Remarks

The string can be used as a unique identifier when saving data to TLuaStorage.

IsIDE

bool IsIDE()

Return values

Boolean true if the script is executed by the IDE, false if the script is executed by **Network Monitor**.

Remarks

This functions can be used if the script is executed by **Network Monitor** or the IDE.

MessageBox

MessageBox(string sText)

Parameters

- sText - Text to display in message box.

Remarks

This functions invokes a standard OS message box to display a string. This function is only available in

the IDE. Note that the message box when displayed, halts the execution of the script until its closed.

print

print(string sText)

Parameters

- sText - Text to be printed to the output window

Remarks

This function can be used to print text to the output window for debug purpose. When the script is executed by **Network Monitor** the text printed with this function serve no purpose.

SetExitStatus

SetExitStatus(string sString,bool bSuccess)

Parameters

- sString - An string describing the result for the script.
- bSuccess - If non-zero (boolean true) the script is considered to been executed successfully by the framework. If this value is set to zero (boolean false) the function SetErrorString should be called as well, with a string describing the error status.

Remarks

This function must be called when a script is exiting, the function tells **Network Monitor** if the script was successfully or not, the text supplied with the function will be used by **Network Monitor** to set last status text in the interface if the script is executed in the context of an agent.

SetLastError

SetLastError(int iErrorCode)

Parameters

- iErrorCode - An integer corespondent to a Windows specific error code.

Remarks

The function sets the last error code that later can be retrieved by GetLastError

StoreStatisticalData

bool StoreStatisticalData(int iRecordSet,float fData,float fThreshold,string Unit)

Return values

True if data was successfully stored to the statistical database, false if there was an parameter error.

Parameters

- iRecordSetIndex - A zero based index of the statistical channel to store data into. See remarks for valid constants.

- fData - Floating point data sampled by the script.
- fThreshold - Optional threshold value for the sample data, this value should be constant in all calls.
- Unit - Optional string describing the unit of the data, this value should be constant in all calls. The string can be max 16 chars in length or the call will fail.

Remarks

This function gives the script the ability to store statistical data. Currently there is 8 channels that can be used for the purpose. The `iRecordSetIndex` parameter can be one of the following constants.

```
LUA_RECORDSET_1
LUA_RECORDSET_2
LUA_RECORDSET_3
LUA_RECORDSET_4
LUA_RECORDSET_5
LUA_RECORDSET_6
LUA_RECORDSET_7
LUA_RECORDSET_8
```

StoreStatisticalData

bool StoreStatisticalData(int iRecordSet,float fData,float fThreshold,int iVirtualType,int iVirtualUnit,string Unit)

Return values

True if data was successfully stored to statistical database, false if there was an parameter error.

Parameters

- iRecordSetIndex - A zero based index of the statistical channel to store data into. See remarks for valid constants.
- fData - Floating point data sampled by the script.
- fThreshold - Optional threshold value for the sample data, this value should be constant in all calls.
- iVirtualType - Type of data stored.
- iVirtualUnit - Selected unit of stored type. See remarks for valid combinations of types and units.
- Unit - Optional string describing the unit of the data, this value should be constant in all calls. The string can be max 16 chars in length or the call will fail.

Remarks

This function is only available for advanced scripts. The difference between this function and the old function with the same name is the ability to store type information with the data.

`iVirtualType` and `iVirtualUnit` can be used in the following combinations:

```
VT_SWAP_UTILIZATION
VT_MEMORY_UTILIZATION
VT_DISK_UTILIZATION
VT_CPU_UTILIZATION
   UNIT_TYPE_PERCENT

VT_FREE_DISKSPACE
   UNIT_TYPE_MEGABYTE
   UNIT_TYPE_GIGABYTE
   UNIT_TYPE_TERABYTE

VT_SQL_QUERY
   UNIT_TYPE_NONE

VT_TEMPERATURE:
   UNIT_TYPE_FAHRENHEIT
   UNIT_TYPE_CELSIUS
   UNIT_TYPE_KELVIN

VT_HUMIDITY
   UNIT_TYPE_PERCENT

VT_WETNESS
   UNIT_TYPE_NONE

VT_VOLTAGE
   UNIT_TYPE_VOLT

VT_BANDWIDTH_UTILIZATION
   UNIT_TYPE_PERCENT

VT_BANDWIDTH_USAGE
   UNIT_TYPE_KBPS
   UNIT_TYPE_MBPS
   UNIT_TYPE_GBPS

VT_DIRECTORY_SIZE:
   UNIT_TYPE_MEGABYTE
   UNIT_TYPE_GIGABYTE
   UNIT_TYPE_TERABYTE

VT_DIRECTORY_COUNT
   UNIT_TYPE_NONE

VT_PING_ROUNDTRIP
   UNIT_TYPE_MILLISECONDS
   UNIT_TYPE_SECONDS

VT_PING_PACKETLOSS
   UNIT_TYPE_PERCENT

VT_MAIL_ROUNDTRIP:
   UNIT_TYPE_MILLISECONDS
   UNIT_TYPE_SECONDS
```

```
VT_MEMORY_USAGE
   UNIT_TYPE_MEGABYTE
   UNIT_TYPE_GIGABYTE

VT_TRANSFER_SPEED
   UNIT_TYPE_NONE

VT_HTTP_FETCHTIME
   UNIT_TYPE_MILLISECONDS
   UNIT_TYPE_SECONDS

VT_WMI_GENERIC_VALUE

VT_LUA_GENERIC_VALUE

VT_WINPERF_GENERIC_VALUE

VT_SSH2SCRIPT_GENERIC_VALUE

VT_SNMP_GENERIC_VALUE
   UNIT_TYPE_NONE

VT_CURRENT
   UNIT_TYPE_AMPERE

VT_FANSPEED
   UNIT_TYPE_RPM

VT_LUMINOSITY
   UNIT_TYPE_LUX
```

The `iRecordSetIndex` parameter can be one of the following constants.

```
LUA_RECORDSET_1
LUA_RECORDSET_2
LUA_RECORDSET_3
LUA_RECORDSET_4
LUA_RECORDSET_5
LUA_RECORDSET_6
LUA_RECORDSET_7
LUA_RECORDSET_8
```

Wait

Wait(int iMs)

Parameters

- iMs - The number of milliseconds the script execution should wait.

Remarks

This functions invokes the OS function "Sleep" to suspend execution of the thread the script is executed by.

Chapter 3

LuaScriptEnumResult

This class provides an interface to enter enumeration results in the OnEnumeration callback function.

In This Chapter

Sample Script: OnEnumerate

```
function OnEnumerate(sFieldToEnum)

  --The variable returned must be called "Config" so KNM can find it.
  Enum = LuaScriptEnumResult()

  --Second argument
  if sFieldToEnum == "Argument 2" then
        Enum:Add("First value")
        Enum:Add("Second value")
        Enum:Add("Third value")
  end

  return Enum
end
```

Add

Add(const string &sDisplayValue,const string &sUsageValue="")

Parameters

- sDisplayValue - Value to display in as a option to select.
- sUsageValue - (Optional) A value that will be used instead of the display value.

Remarks

The optional sUsageValue can be used when you have a very complex and long values and need a simpler way to display the options. When used the sDisplayValue will be the value presented to the user, but the sUsageValue will be the value used by **Network Monitor**.

Chapter 4

LuaScriptConfigurator

This class provides an interface to create configuration information that **Network Monitor** uses to present a user interface for the script.

In This Chapter

Sample Script: OnConfigure

```
function OnConfigure()

  --The variable returned must be called "Config" so KNM can find it.
  Config = LuaScriptConfigurator()

  --Author.
  Config:SetAuthor("My name")

  --Description.
  Config:SetDescription("Description of the script, including usage, parameters
etc")

  --Minimum build version of KNM, set to zero for if no specificbuild version is
required.
  Config:SetMinBuildVersion(0)

  --Script version (major/minor)
  Config:SetScriptVersion(1,0)

  --A parameter configuration, add them in the order the script is extracting them.
  Config:AddArgument("Argument 1","This is the description of thefirst
argument",LuaScriptConfigurator.CHECK_NOT_EMPTY)

  --Add another parameter, a select box with 3 values.
  Config:AddArgument("Argument 2","This is the description of thesecond
argument",LuaScriptConfigurator.CHECK_NOT_EMPTY+LuaScriptConfigurator.ENUM_AVIL)

  --Set the entry point, this is the function called by KNM
  Config:SetEntryPoint("main")

  --Done with configuration, return the asset
  return Config
end
```

AddArgument

int AddArgument(string sName,string sDescription,int iFlags);

Return values

A handle that can be used referring to this argument in subsequent calls.

Parameters

- sName - Name of the argument field
- sDesc - Description of the field iFlags Flags controlling validation. See remarks for flags.

Remarks

These are the valid flags. Some of them can be combined.

CHECK_NOTHING	Default value, any type, including no text, is accepted.

CHECK_NOT_EMPTY	Check if argument is empty. Can not be combined with CHECK_NOTHING.
CHECK_RANGE_LOW	Must be used with CHECK_NUMERIC. Validates numeric value is within range (low range).
CHECK_RANGE_HIGH	Must be used with CHECK_NUMERIC. Validates numeric value is within range (high range).
CHECK_NUMERIC	Validates that value is numeric (real or integer)
ENUM_AVAIL	Indicates that there is a enumeration callback with pre-defined values available for this field.

SetCharacterLimits

SetCharacterLimits(int iArgIndex,int iMaxCharacters,int iMaxVisibleCharacters)

Parameters

- iArgIndex - Handle returned by AddArgument
- iMaxCharacters - Max input characters for argument.
- iMaxVisibleCharacters - Max visible characters, must be equal to or less than iMaxCharacters.

Remarks

The function sets the maximum length of an argument and how many of those characters that are visible in the interface (length of input field).

SetNumericLimits

SetNumericLimits(int iArgIndex,float fLow,float fHigh)

Parameters

- iArgIndex - Handle returned by **AddArgument** *(page 18)*
- Low - Low range
- High - High range

Remarks

This function sets the acceptable range of real and integer values entered into the field. The argument must have CHECK_RANGE_LOW and CHECK_RANGE_HIGH flags set.

SetEntryPoint

SetEntryPoint(string sName)

Parameters

- sName - Name of the entry point function.

Remarks

The function register the name of the entry point function. This is the function that **Network Monitor** will call as the starting point of execution. The default value is "main".

SetAuthor

SetAuthor(string sName)

Parameters

- sName - Name of the author of the script.

Remarks

This function sets the author of the script. It is used for descriptive purposes when a user loads a third party script, to inform him/her who has written the script.

SetDescription

SetDescription(string sDescription)

Parameters

- sDescription - A description of the function of the script.

Remarks

The description of a script should in a few lines tell the user what the script do and if there is any known limitations to the script. There is no upper limit of the text, but it should be kept brief.

SetMinBuildVersion

SetMinBuildVersion(int iMinBuildNumber)

Parameters

- iMinBuildNumber - The minimum build number of **Network Monitor** that the script requires.

Remarks

The minimum build number is a very important field to set. It tells **Network Monitor** if the script can be used with the current version of **Network Monitor**. By default, this number should be set to the build number the author have used to test the script with.

SetScriptVersion

SetScriptVersion(int iMajor,int iMinor)

Parameters

- iMajor - The major version number of the script.
- iMinor - The minor version number of the script.

Remarks

The author of the script should set a version number of the script. A major version of 0 indicates that the script is in a "beta" stage and should only be used for further development by other users. Each time the script is modified, version number should be increased. A change in the major version number should reflect a large re-write or improvement, the minor version number indicates a smaller improvement.

Chapter 5

TLuaDateTime

The TLuaDateTime provides with date and time functions. Time is local time represented as seconds from 1st of January 1970.

In This Chapter

Add

Add(TLuaDateTime DateTime)

Parameters

- DateTime - TLuaDateTime instance obtained from other class function or constructed.

Remarks

The function will add the time contained in the DateTime parameter to the asset.

Create

Create(int iYear,int iMonth,int iDay,int iHour,int iMinute,int iSecond)

Parameters

- iYear - Year, eg. 1972
- iMonth - Number of month, eg. 10
- iDay - Number of day in month, eg. 2
- iHour - Hour to use, can be zero
- iMinute - Minute to use, can be zero
- iSecond - Second to use, can be zero

Remarks

The function creates a TLuaDateTime containing an absolute time.

CreateSpan

CreateSpan(int iHour,int iMinute,int iSecond)

Parameters

- iHour - Hours to use, can be zero
- iMinute - Minutes to use, can be zero
- iSecond - Seconds to use, can be zero

Remarks

The function creates a TLuaDateTime containing not an absolute time but a time span that can be used to add or subtract from another TLuaDateTime asset.

Equal

bool Equal(TLuaDateTime DateTime)

Return values

True if DateTime is equal; otherwise false.

Parameters

- DateTime - TLuaDateTime instance obtained from other class function or constructed.

Get

int Get()

Return values

Number of seconds contained in this instance.

Remarks

Function can be used to retrieve the number of seconds the instance contains, in absolute time.

GetDate

string GetDate(string sFormat=NULL)

Return values

Returns a string with the current time, formatted as specified by the parameter sFormat, or in the default format.

Parameters

- sFormat - Optional string containing an alternate format of the returned time. The default format is YY-MM-DD. See remarks section for flags that can be used.

Remarks

Returns a string with the time contained in the instance, the default format is YY-MM-DD. By suppling your own format code you can alter the way the time is returned.

Format flags

- %a - Abbreviated weekday name
- %A - Full weekday name
- %b - Abbreviated month name
- %B - Full month name
- %c - Date and time representation appropriate for locale
- %d - Day of month as decimal number (01 – 31)
- %H - Hour in 24-hour format (00 – 23)
- %I - Hour in 12-hour format (01 – 12)
- %j - Day of year as decimal number (001 – 366)
- %m - Month as decimal number (01 – 12)
- %M - Minute as decimal number (00 – 59)
- %p - Current locale's A.M./P.M. indicator for 12-hour clock
- %S - Second as decimal number (00 – 59)
- %U - Week of year as decimal number, with Sunday as first day of week (00 – 53)
- %w - Weekday as decimal number (0 – 6; Sunday is 0)
- %W - Week of year as decimal number, with Monday as first day of week (00 – 53)
- %x - Date representation for current locale
- %X - Time representation for current locale

- %y - Year without century, as decimal number (00 – 99)
- %Y - Year with century, as decimal number
- %z, %Z - Time-zone name or abbreviation; no characters if time zone is unknown

GetTime

string GetTime(string sFormat=NULL)

Return values

Returns a string with the current time, formated as specified by the parameter sFormat, or in the default format.

Parameters

- sFormat - Optional string containing an alternate format of the returned time. The default format is HH:MM:SS. See remarks section for flags that can be used.

Remarks

Returns a string with the time contained in the instance, the default format is HH:MM:SS. By supplying your own format code you can alter the way the time is returned.

Format flags

- %a - Abbreviated weekday name
- %A - Full weekday name
- %b - Abbreviated month name
- %B - Full month name
- %c - Date and time representation appropriate for locale
- %d - Day of month as decimal number (01 – 31)
- %H - Hour in 24-hour format (00 – 23)
- %I - Hour in 12-hour format (01 – 12)
- %j - Day of year as decimal number (001 – 366)
- %m - Month as decimal number (01 – 12)
- %M - Minute as decimal number (00 – 59)
- %p - Current locale's A.M./P.M. indicator for 12-hour clock
- %S - Second as decimal number (00 – 59)
- %U - Week of year as decimal number, with Sunday as first day of week (00 – 53)
- %w - Weekday as decimal number (0 – 6; Sunday is 0)
- %W - Week of year as decimal number, with Monday as first day of week (00 – 53)
- %x - Date representation for current locale
- %X - Time representation for current locale
- %y - Year without century, as decimal number (00 – 99)
- %Y - Year with century, as decimal number
- %z, %Z - Time-zone name or abbreviation; no characters if time zone is unknown

Greater

bool Greater(TLuaDateTime DateTime)

Return values

True if DateTime is less; otherwise false.

Parameters

- DateTime - TLuaDateTime instance obtained from other class function or constructed.

GreaterOrEqual

bool GreaterOrEqual(TLuaDateTime DateTime)

Return values

True if DateTime is less or equal; otherwise false.

Parameters

- DateTime - TLuaDateTime instance obtained from other class function or constructed.

Less

bool Less(TLuaDateTime DateTime)

Return values

True if DateTime is greater; otherwise false.

Parameters

- DateTime - TLuaDateTime instance obtained from other class function or constructed.

LessOrEqual

bool LessOrEqual(TLuaDateTime DateTime)

Return values

True if DateTime is greater or equal; otherwise false.

Parameters

- DateTime - TLuaDateTime instance obtained from other class function or constructed.

NotEqual

bool NotEqual(TLuaDateTime DateTime)

Return values

True if DateTime is not equal; otherwise false.

Parameters

- DateTime - TLuaDateTime instance obtained from other class function or constructed.

Set

Set(int iNewTime)

Parameters

- iNew - Time Offset in seconds or absolute time in seconds from 1st of January 1970

Remarks

Function can be used to create an TLuaDateTime instance that will later be added, subtracted or compared with another TLuaDateTime instance.

Sub

Sub(TLuaDateTime DateTime)

Parameters

- DateTime - TLuaDateTime instance obtained from other class function or constructed.

Remarks

The function will subtract the time contained in the DateTime parameter with the time stored in the asset.

Chapter 6

TLuaDB

This class provides functions to query SQL databases.

In This Chapter

Sample Script: TLuaDB

```
--Create new DB asset
DB = TLuaDB();

--Connect to a DSN
if (DB:Connect("DSN=testdsn;",TLuaDB.CLIENT_ODBC) == true) then

   --Insert a few rows
   bok = DB:Execute("insert into test (iID,sTest) values(10,'test');");

   --Select all rows in table
   bok = DB:Execute("select * from test;");
   if ( bok == true) then
          --Check if we got rows back
          if(DB:ResultAvailable() == true) then
                --Print how many columns this table contains
                iColCount = DB:ColCount(); print("Columns in this table:
"..iColCount);
                --Get first row
                while (DB:NextRow() == true) do
                      for iCurrentCol = 1, iColCount do
                            --GetColType and GetCol take a 1 based index
                            iColType = DB:GetColType(iCurrentCol);
                            sData = DB:GetCol(iCurrentCol);
                            --Print column #, column type and data
                            print("Col #"..iCurrentCol.." Type: ".. iColType.."
Data: "..sData);
                      end
                end
          end
   else
          --Print error and exit
          SetExitStatus("Failed" .. DB:GetErrorDescription(),false);
   end
else
   --Print error and exit
   SetExitStatus("Failed to connect"..DB:GetErrorDescription(),false);
end
```

ColCount

int ColCount()

Return values

Returns the number of columns in the result from an successful query.

Connect

bool Connect(string sConnectString,int iClientType=TLuaDB.CLIENT_ODBC)

Return values

True if the connection was successfully executed, false if an error occurred.

Parameters

- sConnectString - A client specific connect string. See remarks section for more information
- iClientType - Type of client to communicate with, see options below:

Remarks

The connect string is client specific , below are the currently supported clients.

CLIENT _ODBC

Connect string example:

```
sConnectString = "DSN=test;UID=test;PWD=test";
```

This connect string uses a datasource named `test` and supplies the username (UID) `test` and password (PWD) `test` to the DSN.

If no username and password is needed the connect can be formated like this.

```
sConnectString = "DSN=test;";
```

Network Monitor is executing as a service, the datasource needs to be a system datasource. This is different from the IDE that can utilize user DSN as well.

CLIENT _SQLSERVER

Connect string example:

```
sConnectString = "myserver@mydatabase";
```

To connect to a named instance of SQL Server 2000:

```
sConnectString = "myserver\\instance_name@mydatabase";
```

CLIENT_MYSQL

Connect string example (using the default 3306 port):

```
sConnectString =  myserver@mydatabase
```

Connecting to a server listening to a custom port

```
sConnectString = "myserver:portnumber@mydatabase";
```

Note that the MySQL client library needs to be installed ("MySQL Workbench" or "Connector/C (libmysql)") and included in the default Windows system PATH variable so it may be found by **Network Monitor** and the IDE.

Connect(2)

bool Connect(string sConnectString,string sUser,string sPassword,int iClientType=TLuaDB.CLIENT_ODBC)

Return values

True if the connection was successfully executed, false if an error occurred.

Parameters

- sConnectString - A client specific connect string. See remarks section for more information
- sUsername - Credentials to use with the connection.
- sPassword - Credentials to use with the connection, can't be empty if username is specified.
- iClientType - Type of client to communicate with, currently the only option is CLIENT_ODBC.

Remarks

The connect string is client specific, see **Connect** *(page 30)* for more information.

Execute

bool Execute(string sSQL)

Return values

True if the query was successfully executed, false if an error occurred.

Parameters

- sSQL - A SQL statement.

Remarks

If an error occurs when executing the SQL statement the GetErrorDescription() function will return a string with a description of the error.

GetCol

string GetCol(int iIndex)

Return values

Returns an string with the retrieved data from the column.

Parameters

- iIndex - A 1 based column index.

Remarks

Note that the column index is 1 based. If ColCount() return 10 the valid index range are 1-10. To retrieve the type of the data, call GetColType()

GetCol_AsDateTime

TLuaDateTime GetCol_AsDateTime(int iIndex)

Return values

Returns an TLuaDateTIme structure with the retrieved date and time from the column.

Parameters

- iIndex - A 1 based column index.

Remarks

Note that the column index is 1 based. If ColCount() return 10 the valid index range are 1-10. This function must not be called if the column is not a date time type.

GetColType

int GetColType(int iIndex)

Return values

Returns an integer representing the type of data the column contains.

Parameters

- iIndex - A 1 based column index.

Remarks

The GetCol() function always returns data as a string. The GetColType function determines the type of the data the string can be converted to after extraction. The following types exists:

- TYPE_BOOL - Boolean value
- TYPE_NUMERIC - Numeric
- TYPE_SHORT - Short
- TYPE_LONG - Long
- TYPE_DOUBLE - Double (real)
- TYPE_DATETIME - Data/time
- TYPE_STRING - String
- TYPE_UNKNOWN - Unknown field type / not supported
- TYPE_BYTES - Bytes
- TYPE_LONG_BINARY - Long binary
- TYPE_LONG_CHAR - Long char
- TYPE_BLOB - Binary device
- TYPE_DBMS_SPECIFIC - Client specific data (no conversion)

GetErrorDescription

string GetErrorDescription(void)

Return values

Returns the latest error description generated by the TLuaDB API.

NextRow

bool NextRow()

Return values

True if a new result was fetched, false if no more results of the query exists.

Remarks

The function retrieves a new result generated by a previous call to the Execute function. This function must be called before the first call to ColCount, GetCol or GetColType functions.

ResultAvailable

bool ResultAvailable()

Return values

Returns true if a executed SQL statement returned any result.

Remarks

By design does not insert, update or delete statements that return any result back after execution. The return value from the Execute function should be used to determine if a statement was successfully executed or not before this function is called.

Chapter 7

TLuaDNS

The class provides functions for querying DNS servers.

In This Chapter

Sample Script: TLuaDNS

```
DNS = TLuaDNS();
DNS:Begin(true);

if DNS:Query("microsoft.com",TLuaDNS.LuaDNS_TYPE_MX,false) then

   Record = TLuaDNS_MXRecord();

   while (DNS:Next(Record)) do
         print(Record.m_sNameExchange);
   end

   SetExitStatus("Test ok",true);

else
   SetExitStatus("Test failed",false);
end
```

Begin

bool Begin(bool bUselocalhost=false)

Return values

Non zero if the function is successful; otherwise 0.

Parameters

- bUselocahost - Set to true if you wish to query a DNS server on the **Network Monitor** host machine.

Remarks

The function starts a DNS query. Calling Query before Begin can lead to unknown result.

End

void End()

Remarks

The function ends a transaction and resets the asset so that a new query can be executed. If this function is not called, the result of the next query is unpredictable.

GetErrorDescription

string GetErrorDescription(void)

Return values

Returns the latest error description generated by the TLuaDNS API.

Next

bool Next(TLuaDNS_NSRecord Record);
bool Next(TLuaDNS_CNAMERecord Record);
bool Next(TLuaDNS_ARecord Record);
bool Next(TLuaDNS_PTRRecord Record);
bool Next(TLuaDNS_SOARecord Record);
bool Next(TLuaDNS_MXRecord Record);
bool Next(TLuaDNS_TXTRecord Record);

Return values

Non zero if the function is successful; otherwise 0.

Parameters

Record DA DNS record type receiving the information queried from the DNS server.

Remarks

The function returns true if it successfully retrieved a new record, if the function returns false there is no more records to be retrieved.

Query

bool Query(string sDomainName,int iRecordType,bool bBypassCache=false);

Return values

Non zero if the function is successful; otherwise 0.

Parameters

- sDomainName - Domain to query
- iRecordType - One of the record types listed in the remarks section.
- bBypassCache - Default false, if set to true the query will bypass the local resolver and ask the DNS server directly.

Remarks

The function sends a query to the DNS server. The result can be extracted with one or more calls to the Next() function.

The following record types can be queried:

- LuaDNS_TYPE_PTR
- LuaDNS_TYPE_TEXT
- LuaDNS_TYPE_SOA
- LuaDNS_TYPE_CNAME
- LuaDNS_TYPE_MX
- LuaDNS_TYPE_NS
- LuaDNS_TYPE_A

DNS record types reference can be found at: **http://www.iana.org/assignments/dns-parameters** *(http://www.iana.org/assignments/dns-parameters)*

TLuaDNS_ARecord

Class members

- int m_iTTL
- string m_sIPAddress;

TLuaDNS_CNAMERecord

Class members

- int m_iTTL
- string m_sHostname

TLuaDNS_MXRecord

Class members

- int m_iPreference
- string m_sNameExchange

TLuaDNS_NSRecord

Class members

- int m_iTTL
- string m_sHostname

TLuaDNS_PTRRecord

Class members

- int m_iTTL
- string m_sHostname

TLuaDNS_SOARecord

Class members

- int m_iTTL
- string m_sPrimaryServer
- string m_sAdministrator
- int m_iSerialNo
- int m_iRefresh
- int m_iRetry
- int m_iExpire
- int m_iDefaultTTL

TLuaDNS_TXTRecord

Class members

- int StringCount(void)
- string GetString(int iPos)

Chapter 8

TLuaFile

The class provides basic file handling routines and support both binary and text files. All file operations are relative to the context that the script is executed in. For example if the script is executed by an asset with the address `\\myserver` the file path, `c:\test.txt`, will be translated to `\\myserver\C$\test.txt`.

There is one exception to this and it's when the class is initialized with true, then all file operations are relative the **Network Monitor** host machine. For more information, see sample script three in this class.

In This Chapter

Sample Scripts: TLuaFile

Example 1

```
--Script creates a new text file, writes a string to it and close it.
file = TLuaFile()

--Open a text file
iRet = file:Open("c:\\test.txt",true)

--Check if it could be created, it might exist and be write protected
if iRet==0 then
   sErrString = "Failed to create file, error code:"..GetLastError().."\n"
   SetExitStatus(sErrString,false)
else
   print("File created\n")
   --Write a string to the file
   sString = "Hello world!" file:Write(sString,string.len(sString))
   --Close the file
   file:Close() SetExitStatus("Test ok",true)
end
```

Example 2

```
--Script demonstrates:
--File enumration
--Directory enumration
--Create and delete a directory

--Construct a new file device
file = TLuaFile();

--Scan the directory c:\temp for file using the wildcard *.*
sResult = file:GetFileList("c:\\temp","*.*")
print(sResult)

--Scans the directory c:\temp for sub directories
sResult = file:GetDirectoryList("c:\\temp")
print(sResult)
bResult = false

--Create a directory called "temp20" on the c: harddisk
if file:CreateDirectory("c:\\temp20") then
   print("Created directory");
   bResult = true
else
   print("Failed to create directory")
end

--Delete the directory we created above
if file:DeleteDirectory("c:\\temp20") then
   bResult = true
   print("Deleted directory");
else
```

```
  print("Failed to delete directory")
end

if bResult then
  SetExitStatus("Test ok",true)
else
  SetExitStatus("Test failed",false
end
```

Example 3

```
--KNM Lua API example (C) 2006 Kaseya AB
--Script creates a new text file, writes a string to it and close it.

--Switch the context so that files are opened on the KNM host machine,
not translating the paths
file = TLuaFile(true)

--Open a text file
iRet = file:Open("c:\\test.txt",true)

--Check if it could be created, it might exist and be write protected
if iRet==0 then
  sErrString = "Failed to create file, error code:"..GetLastError().."\n"
  SetExitStatus(sErrString,false)
else
  print("File created\n")
  --Write a string to the file
  sString = "Hello world!"
  file:Write(sString,string.len(sString))
  --Close the file
  file:Close()
  SetExitStatus("Test ok",true)
end
```

Close

int Close()

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Remarks

Closes the file and makes the file unavailable for reading or writing. If you have not closed the file before the asset is destroyed the destructor will do it for you.

CopyFile

int CopyFile(string sSource,string sDest)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling

global function GetLastError.

Parameters

- sSource - Path and name of the file to be copied.
- sDest - New path and name of the new file.

Remarks

Function copies a file. Directories cannot be copied with this function.

CreateDirectory

int CreateDirectory(string sPath)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sPath - Path of the directory to be created.

Remarks

The parent directory of the directory to be created must exist otherwise this function will fail.

DeleteDirectory

int DeleteDirectory(string sDirectory)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sDirectory - Path of the directory to be deleted.

Remarks

The directory must be empty and cannot be a root director or the current working directory.

DeleteFile

int DeleteFile(string sFileName)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sFileName - Path and name of file to delete.

Remarks

Function deletes a file. Directories cannot be deleted with this function.

DoesFileExist

int DoesFileExist(string sFile);

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sFile - Path and name of the file.

Remarks

Returns a non zero value if the file exist.

GetDirectoryList

string GetDirectoryList(string sDirectory)

Return values

Returns a string with the sub directories separated with a carriage return; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sDirectory - Path of the directory to be searched.

Remarks

The return string contains all sub directories in the specified directory. Each directory is returned with its full path. Directories in string is separated with a carriage return sign.

GetFileAccessedTime

TLuaDateTime GetFileCreatedTime(string sFilename)

Return values

Returns a TLuaDateTime asset containing the time the file was last accessed; otherwise a TLuaDateTime contaning 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sFilename - Path and name of the file.

Remarks

Use TLuaDateTime asset to construct a string representing the time stored in the asset or compare it with another TLuaDateTime asset.

GetFileCreatedTime

TLuaDateTime GetFileCreatedTime(string sFilename)

Return values

Returns a TLuaDateTime asset contaning the time the file was created; otherwise a TLuaDateTime containing 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- pFilename - Path and name of the file.

Remarks

Use TLuaDateTime asset to construct a string representing the time stored in the asset or compare it with another TLuaDateTime asset.

GetFileList

string GetFileList(string sDirectory,string sWildCard)

Return values

Returns a string with the listed files separated with a carriage return; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sDirectory - Path of the directory.
- sWildCard - Wild card to filter out wanted files. To retrieve all files in the directory use the *.* wild card.

Remarks

The return string contains all files in the directory matching the supplied wild card. Each file is returned with its full path. Files in string is separated with a carriage return sign.

GetFileModifiedTime

TLuaDateTime GetFileCreatedTime(string sFilename)

Return values

Returns a TLuaDateTime asset containing the time the file was last modified; otherwise a TLuaDateTime containing 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sFilename - Path and name of the file.

Remarks

Use TLuaDateTime asset to construct a string representing the time stored in the asset or compare it with another TLuaDateTime asset

GetFileSize

int GetFileSize(string sFile)

Return values

Size of file in number of bytes if the function is successful; if the file cannot be accessed the return value is -1.

Parameters

- sFile - Path and name of the file.

Remarks

The function is limited to files smaller then 2^31 bytes.

GetFileSizeMB

int GetFileSizeMB(string sFile)

Return values

Size of file in number of mega bytes if the function is successful; if the file cannot be accessed the return value is -1.

Parameters

- sFile - Path and name of the file.

GetFileStatus

int GetFileStatus(string sFile)

Return values

A value describing the current state of the file if the function is successful; if the file cannot be accessed the return value is -1.

Parameters

- sFile - Path and name of the file.

Remarks

The function returns a combination of the following flags to describe the state of the file.

FILE_NORMAL = 0x00	Normal file.
FILE_READONLY = 0x01	File is read only.
FILE_HIDDEN = 0x02	File is hidden.
FILE_SYSTEM = 0x04	File is a system file.
FILE_VOLUME = 0x08	File is a volume.
FILE_DIR = 0x10	File is a directory.
FILE_ARCHIV = 0x20	File have the archive bit set

MoveFile

int MoveFile(string sSource,string sDest)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sSource - Path and name of the file to be moved. sDest New path and name of the file.

Remarks

Function moves a file. The directory where the file will be moved to must exist or this function will fail. Directories cannot be moved with this function.

Open

int Open(string sFileName, bool bCreate=false)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sFileName - Name and path of the file to open or create. bCreate If set to non zero the function will create a file. If the given file already exist its content will be destroyed.

Remarks

If bCreate is set to zero and the file do not exist this function will fail.

Read

string,int Read(int iSize)

Return values

A string if the function is successful and iSize is set to the size of the returned data; otherwise nil, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- iSize - Size of data to be read in bytes.

Remarks

The function will read the specified size of data from the file and move the file pointer forward the same amount. If end of file is reached the read will stop and return the data read until end of file was reached.

ReadData

local data,int ReadData(int iSize)

Return values

The function returns a special data type that can only be used in conjunction with the ConvertFromUTF16. If function is successful iSize is set to the size of the returned data; otherwise nil, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- iSize - Size of data to be read in bytes.

Remarks

The function will read the specified size of data from the file and move the file pointer forward the same amount. If end of file is reached the read will stop and return the data read until end of file was reached.

RenameFile

int RenameFile(string sOrgFile,string sNewFile)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sOrgFile - Path and name of the file to be renamed.
- sNewFile- New path and name of the file.

Remarks

Function renames a file. Directories cannot be renamed with this function.

SeekFromCurrent

int SeekFromCurrent(int iNumberofBytes)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- iNumberofBytes - Number of bytes to reposition the file pointer by, relative to its current position.

Remarks

The function will move the file pointer relative its current position. Both negative and positive values can be specified. The pointer can be positioned beyond the end of the file, it will then clear the end of file marker.

SeekFromEnd

int SeekFromEnd(int iNumberofBytes)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling

global function GetLastError.

Parameters

- iNumberofBytes - Number of bytes to reposition the file pointer by, counted from the end of the file.

Remarks

The function will move the current position of the file pointer to iNumberofBytes from the end of the file. Note that the iNumberofBytes must be negative in order to move the file pointer "upwards" in the file.

SeekFromStart

int SeekFromStart(int iNumberofBytes)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- iNumberofBytes - Number of bytes to reposition the file pointer by, counted from the start of the file.

Remarks

The function will move the current position of the file pointer to iNumberofBytes from the start of the file. The pointer can be positioned beyond the end of the file, it will then clear the end of file marker.

Write

int Write(string sData,int iSize)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sData - Array of data to be written to the file.
- iSize - Size of data to be written.

Remarks

The function will write from the current position of the file pointer, if needed it will extend the file when passing the current end of file. This function will fail if the opened file is write protected.

Chapter 9

TLuaFTPClient

The class implements a FTP client capable of basic FTP operations.

In This Chapter

Sample Script: TLuaFTPClient

```
--Script connects to a FTP server and download content of file
ftp = TLuaFTPClient();

--Enter the username and password for the session
sUsername = "myusername" sPassword = "mypassword"

--Connect to FTP server using username and password
iRet = ftp:Connect(sUsername,sPassword,21)

--Check return value from server
if iRet == 0 then
   --Failed to connect, print why
   iRet = GetLastError()
   sErrorString = FormatErrorString(iRet)
   sErrString = "Error when connecting to FTP server, error: "..sErrorString
   SetExitStatus(sErrString,false)

else
   --Open a file on the FTP server that we know exist
   sFilename = "update.vcf"

   --Open file, do not create it, use text mode
   iRet = ftp:OpenFile(sFilename,false,true)
   if iRet == 0 then
          sErrString = "Cannot open file "..sFilename SetExitStatus(sErrString,false)
   else
          iMaxSize = 1024*16
          --Read a number of bytes from the file
          --Note here that we are using the special lua return value convention
          --Read returns one string and the size of the string
          sFilecontent, iMaxSize = ftp:Read(iMaxSize)
          print("Size of content: "..iMaxSize.."\n")
          print(sFilecontent)
          --Close file so we can open a new file later or close the session
          ftp:CloseFile()
          SetExitStatus("Test ok",true)
   end
end

--Close FTP session
ftp:Close()
```

ChangeDirectory

int ChangeDirectory(string sDir)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sDir- Path of new current directory.

Remarks

This function will fail if the directory do not exist.

Close

Close()

Remarks

The function closes the current connection to the FTP server. The function must be called to close the current connection.

CloseFile

void CloseFile()

Remarks

Closes an file opened with OpenFile.

Connect

bool Connect(unsigned int iPort=21)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sUsername - String containing the username
- sPassword - String containing the password
- iPort - Default port 21 (standard FTP port)

Remarks

The function connects to a FTP server using the provided username and password. The port can be changed from the default port 21 if the FTP server is bound on another port.

CreateDirectory

int CreateDirectory(string sDir)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sDir - Path of directory to create.

Remarks

The directory which the new directory is to be created in must exist or this function will fail.

DeleteDirectory

int DeleteDirectory(string sDir)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sDir - Path of directory to delete.

Remarks

If the directory is not empty the function will fail.

DeleteFile

int DeleteFile(string sFilename)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sFilename - Path and name of file to be deleted.

Remarks

This function will fail if the file do not exist.

FindDirectory

string FindDirectory()

Return values

Returns a string with the listed directories separated with a carriage return; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Remarks

The return string contains all sub directories of the current directory. Each directory is returned with its full path. Directories in the string are separated with a carriage return sign.

FindFile

string FindFile(string sWildcard)

Return values

Returns a string with the listed files separated with a carriage return; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sWildCard - Wild card to filter out wanted files. To retrieve all files in the directory use the *.* wild card.

Remarks

The return string contains all files in current directory matching the supplied wild card. Each file is returned with its full path. Files in string is separated with a carriage return sign.

GetCurrentDirectory

int ChangeDirectory(string sDir)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sDir - Path of new current directory.

Remarks

This function will fail if the directory do not exist.

GetFileModifiedTime

TLuaDateTime GetFileModifiedTime(string sFilename)

Return values

A TLuaDateTime asset containing the time of the last modification of the file if the function is successful; otherwise a TLuaDateTime asset set to 0.

Parameters

- sFilename - Name of file in current directory.

Remarks

The file must be in the current directory for this function to success, relative paths will not work.

GetFileSize

int GetFileSize(string sFilename)

Return values

Size of file in number of bytes if the function is successful; if the file cannot be accessed the return value is -1.

Parameters

- sFilename - Path and name of file.

Remarks

The function is limited to files smaller then 2^31 bytes.

OpenFile

int OpenFile(string sFilename,bool bWrite,bool bText)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sFilename - Name of file to open.
- bWrite - If non zero the file is opened in write mode. If zero the file is opened for read only.
- bText - If non zero the file is opened in text translation mode; otherwise it is opened in binary mode.

Remarks

The function opens a file on the FTP server, after the file is opened calls to Write and Read function can be made. The CloseFile function is used to close the file.

Read

string Read(int iSize)

Return values

An array with the data read from the file; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- iSize - Size to read from the file, when function returns it will contain how much was read that can be less then the requested size.

Remarks

This function will fail if a file have not been opened.

RenameFile

bool RenameFile(string sOldname,string sNewname)

Return values

True if successful; otherwise 0, and a specific error code can be retrieved by calling global function

GetLastError.

Parameters

- sOldname - Old name of file to rename. sNew name New name of the file.

Remarks

The function will fail if there exists a file with the same name as supplied in the second parameter.

Write

int Write(string sData,int iSize)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sData - Array of data to be written to file.
- iSize - Size of array to be written.

Remarks

This function will fail if a file have not been opened or if the file is opened in read only mode. The function can also fail if the storage on the FTP server is exhausted.

Chapter 10

TLuaHTTPClient

The class implements a basic HTTP client.

In This Chapter

Sample Script: TLuaHTTPClient

```
--Script to download a html page from a web server
http = TLuaHTTPClient()

--Connect using the default parameters
iRet = http:Connect()
if iRet ~= 0 then

   --Make a GET request to default document
   iRet = http:Get("/")

   --Print returned code from HTTP server
   print("Code:"..iRet)

   --Extract content length
   iRet = http:GetHeaderContentLength()
   print("Content length:"..iRet)

   --Print content
   string,iRet = http:GetContent(iRet)
   print(string)

   --Print raw headers
   string = http:GetHeadersRaw()
   print("headers:\n"..string)

   --Print cookies
   string = http:GetHeaderCookies()
   print("Cookies:\n"..string)

   --Extract and print cookies one by one
   iNumber = http:GetHeaderCookieCount()
   for count = 0, iNumber-1 do
          string = http:GetHeaderCookie(count)
          print("Cookie #"..count.." "..string.."\n")
   end

   --Extract location header
   string = http:GetHeaderLocation();
   print("location:\n"..string)
   SetExitStatus("Test ok",true)

else

   print("Connect failed")
   SetExitStatus("Test failed",false)

end
```

Connect

bool Connect(bool bSecure,unsigned short iPort)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- iPort - Port number to connect to, default port 80
- bSecure - Set to non zero if connection is to be established using HTTPS
- sUsername - Optional username for servers requiring authentication
- sPassword - Optional password for servers requiring authentication

Remarks

The function connects to a HTTP server with the supplied parameters. This function must be called before any other function in this class is called.

Close

Close()

Remarks

Closes an open connection.

Get

int Get(string sUrl,string sHeaders=NULL)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sUrl - URL relative to the base url of the site.
- sHeaders - Optional header string containing headers to be sent with the request.

Remarks

The connection is always opened in the context of the asset, therefore the URL supplied to the function must be relative the base URL.

Post

int Post(string sUrl,string sHeaders=NULL,string sData=NULL)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sUrl - URL relative to the base URL of the site.
- sHeaders - Optional header string containing headers to be sent with the request.
- sData - Optional data to include in post request.

Remarks

The connection is always opened in the context of the asset, therefore the URL supplied to the function must be relative the base URL. Each header supplied must be ended with a CR/LF pair.

GetContent

string GetContent(int iSize)

Return value

If successful a string containing the content part of a GET request; otherwise nil, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- iSize - Set to size of the returned string when function returns.

Remarks

The content refers to the data returned by a request that follows the header.

GetHeadersRaw

string GetHeadersRaw()

Return values

If successful a string containing the headers returned by the request; otherwise an empty string.

Remarks

The headers are returned exactly the way they are sent by the server.

GetHeaderLocation

string GetHeaderLocation()

Return values

If successful a string containing the "Location:" header; otherwise an empty string.

GetHeaderContentLength

int GetHeaderContentLength()

Return values

The length in bytes of the content part of the request.

GetHeaderContentType

string GetHeaderContentType()

Return value

If successful a string containing the "Content-Type:" header; otherwise an empty string.

GetHeaderContentTransferEncoding

string GetHeaderContentTransferEncoding()

Return value

If successful a string containing the "Transfer-Encoding:" header; otherwise an empty string.

GetHeaderCookies

string GetHeaderCookies()

Return value

If successful a string containing all cookies returned by the server separated with carriage return; otherwise an empty string.

GetHeaderCookie

string GetHeaderCookie(int iIndex)

Return value

A string with the requested cookie string.

Parameters

- iIndex - A zero based index specifying the cookie to return.

Remarks

If a negative number or a index out of range is specified an empty string will be returned.

GetHeaderCookieCount

int GetHeaderCookieCount()

Return value

The number of cookies returned by the request.

GetHeaderDate

string GetHeaderDate()

Return value

If successful a string containing the "Date:" header; otherwise an empty string.

GetHeaderExpires

string GetHeaderExpires()

Return value

If successful a string containing the "Expires:" header; otherwise an empty string.

GetHeaderHost

string GetHeaderExpires()

Return value

If successful a string containing the "Host:" header; otherwise an empty string.

Chapter 11

TLuaICMP

The class provides ping and trace route functions that can be used to diagnose a network connection.

In This Chapter

Sample Script: TLuaICMP

```
--Description: Trace route example
icmp = TLuaICMP()

iPacketSize = 32 --packet size in bytes, excluding the header
bNoFragment = false --Set to true to inhibit fragmentation of packet sent
iMaxHops = 255  --Max number of hops in route

--Begin trace
bok = icmp:BeginTrace(iPacketSize,bNoFragment,iMaxHops)
if bok ~= true then
  SetExitStatus("Trace failed!",false);
end

--Print the result
iCount = 1;
Result = TLuaICMPTraceResult()
while icmp:NextTraceResult(Result) do
  print("Hop: "..iCount)
  print(Result.m_Name)
  print(Result.m_iRoundTripTimeMs)
  iCount = iCount + 1
end

--Clean up resources
icmp:EndTrace()
SetExitStatus("Trace ok!",true);
```

BeginTrace

bool BeginTrace(int iPacketsToSend,int iPacketSize,bool bNoFragment,int iTimeoutMs)

Return values

The function returns true if the trace was successful, or false if it failed.

Parameters

- iPacketsToSend - A positive integer between 1 and 255
- iPacketSize - Size of packets to send, a integer between 0 and 65500.
- bNoFragment - Set to true to stop sent packets from being fragmented. The function will fail and return false if the option is set and the packet is fragmented.
- iTimeoutMs - Max time in ms that the function will wait for packet to be returned.

Remarks

By setting the bNoFragment to true it is possible to test the largest frame size for a route, adjust the iPacketSize until the function fails due to fragmentation.

EndTrace

EndTrace()

Remarks

The function performs clean up of used resources. Must be called for each BeginTrace() call.

NextTraceResult

bool NextTraceResult(TLuaICMPTraceResult Result)

Return values

The function returns true while a result is available.

Parameters

- Result - A **TLuaICMPTraceResult** variable that receives the result for the current hop.

Remarks

To iterate over the result set, call the function until null is returned.

Ping

bool Ping(TLuaICMPPingResult Result,int iPacketsToSend,int iPacketSize,bool bNoFragment,int iTimeoutMs)

Return values

The function returns a TLuaICMPPingResult asset containing the result of the operation.

Parameters

- iPacketsToSend - A positive integer between 1 and 255
- iPacketSize - Size of packets to send, a integer between 0 and 65500.
- bNoFragment - Set to true to stop sent packets from being fragmented, function will fail and return false if option is set and packet is fragmented.
- iTimeoutMs - Max time in ms that the function will wait for packet to be returned.

Remarks

By setting the bNoFragment argument makes it possible to test the biggest possible frame size for a route.

Chapter 12

TLuaICMPPingResult

The TLuaICMPPingResult is a read only class.

Class members

- int m_iRoundTripTimeMs
- float m_fPacketloss

Chapter 13

TLuaICMPTraceResult

The TLuaICMPTraceResult is a read only class.

Class members

- string m_IP
- string m_Hostname
- int m_iRoundTripTimeMs

Chapter 14

TLuaPowershell

Executes a Powershell command string. Returns standard Powershell command output, error output, error codes and error descriptions.

Prerequisites

The TLuaPowershell library uses WinRS (Windows Remote Shell) to connect to a Windows Remote Management enabled asset.

Information from Microsoft regarding WinRM/WinRS

(http://msdn.microsoft.com/en-us/library/aa384426%28v=vs.85%29.aspx):

"Windows Remote Management (WinRM) is the Microsoft implementation of WS-Management Protocol, a standard Simple Object Access Protocol (SOAP)-based, firewall-friendly protocol that allows hardware and operating systems, from different vendors, to interoperate.

You can use WinRM scripting objects, the WinRM command-line tool, or the Windows Remote Shell command line tool WinRS to obtain management data from local and remote computers that may have baseboard management controllers (BMCs). If the computer runs a Windows-based operating system version that includes WinRM, the management data is supplied by Windows Management Instrumentation (WMI)."

To enable WinRM on an asset, type the following in a command prompt:

```
winrm /quickconfig
```

You can execute Powershell commands, or run scripts but remember that the commands or scripts that are executed using WinRS must have no user interface dependencies. You cannot for example execute commands that prompts you to "press any key" at the local console, or require any other interactive response.

In This Chapter

Sample Script: TLuaPowershell

```
--executes a Powershell command string

bExitStatus = false
PS = TLuaPowershell()
bStatus = PS:Open(5985, false)

if bStatus == true then
   sCmd = "Get-Date\n"
   bExec = PS:ExecuteCommand(sCmd)
   if bExec == true then
          sStatus = PS:GetStdOut()
          bExitStatus = true
   else
          sStatus = "Execute failed. " .. PS:GetStdErr()
   end
else
   sStatus = "Failed to open connection. "  .. PS:GetErrorDescription()
end

SetExitStatus(sStatus, bExitStatus)
```

Sample Script: TLuaPowershell (Windows Scripting)

```
--Create a script file named test.vbs in your C:\temp folder
--(on the remote asset) for this sample to work.
--The file should look like this:

strFile = WScript.Arguments(0)
Set objFSO = CreateObject("Scripting.FileSystemObject")
Set objFile = objFSO.GetFile(strFile)
strFileSize = objFile.Size
WScript.Echo strFile & " is " & strFileSize & " bytes."

--The script takes one parameter. That is the path to a file
--used for checking the file size.

bExitStatus = false
PS = TLuaPowershell()
bStatus = PS:Open(5985, false)

if bStatus == true then
  sCmd = "cscript /Nologo C:\\temp\\test.vbs \n"
  bExec = PS:ExecuteCommand(sCmd)
  if bExec == true then
        sStatus = PS:GetStdOut()
        bExitStatus = true
  else
        sStatus = "Execute failed. " .. PS:GetStdErr()
  end
else
  sStatus = "Failed to open connection. "  .. PS:GetErrorDescription()
end

SetExitStatus(sStatus, bExitStatus)
```

Open

bool Open(unsigned short _iPort,bool bSecure=true,int dwWait=2500,const char *_pWorkingDir=nullptr)

Return values

Non zero if the function is successful, otherwise 0. A specific error code can be retrieved by calling GetStdErr().

Parameters

- iPort - TCP port used by Windows Remote Management (WinRM).
- bSecure - When using SSL, set to true (default) or false for non-SSL connections.
- dwWait - The timeout value for a successful connection.

ExecuteCommand

ExecuteCommand(const char *pCommand)

Return values

Non zero if the function is successful, otherwise 0. A specific error code can be retrieved by calling global function GetStdErr.

Parameters

- pCommand - The Powershell command string.

GetStdOut

string GetStdOut(void)

Return values

Returns the standard output from the remote host.

GetStdErr

string GetStdErr(void)

Return values

Returns the standard error output from the remote host.

GetErrorDescription

string GetErrorDescription(void)

Return values

Returns the latest error description generated by the remote host as a string.

GetErrorCode

dWord GetErrorCode(void)

Return values

Returns the latest error code generated by the remote host as a string.

Chapter 15

TLuaRegistry

The class provides access to the Windows registry. When working with the registry there is two important terms that are used in the documentation.

- Key - A entity in the registry hive that can contain child keys and values.
- Value - A entity without child entries that contains data. The data can be of different types, types supported by this implementation is string, integer and binary data.

All registry operations are relative to the context that the script is executed in. There is one exception to this and its when the class is initialized with true, then all operations are relative the **Network Monitor** host machine.

In This Chapter

Sample Script: TLuaRegistry

```
--Demonstrates the Lua Windows Registry interface
--Open the registry on the host determined by the current context
Reg = TLuaRegistry();
if Reg:Open(Reg.LOCAL_MACHINE,"SOFTWARE\\Kaseya KNM") == true then sValue = "";
bOK,sValue = Reg:ReadValue("INSTALL_SHORTCUTFOLDER",sValue);
SetExitStatus("KNM install path is -> "..sValue,bOK);
else
SetExitStatus("Could not open registry location",false);
end
```

BeginEnumValue

BeginEnumValue()

Remarks

The function should be called before the first call to EnumValue(). The function ensures that EnumValue () starts at the top of the value list. Failure to call this function before EnumValue() will give unpredictable results.

Close

Close()

Remarks

The function closes the current open registry connection.

Create

bool Create(string sKey)

Return values

Non zero if the function is successful; otherwise 0, and a error description can be retrieved by calling GetErrorDescription().

Parameters

- sKey - A key that will be created.

Remarks

The Create() function creates the specified registry key. If the key already exists in the registry, the function opens it. The function can be used to create several keys at once. For example, a script can create a sub-key three levels deep by specifying a string in the following form:

subkey1\subkey2\subkey3

DeleteValue

bool DeleteValue(string sValueName)

Return values

Non zero if the function is successful; otherwise 0, and a error description can be retrieved by calling GetErrorDescription().

Parameters

- sValueName - Name of a value that will be deleted.

Remarks

The function deletes a value in the current key, if the value does not exist this function will fail.

EnumValue

bool EnumValue(string &sValueName)

Return values

Non zero if the function is successful; otherwise 0, and an error description can be retrieved by calling GetErrorDescription().

Parameters

- sValueName - Name of the next enumerated value in the current key.

Remarks

Call this function until it returns false to enumerate all values in the current key. Before this function is called the first time, a call to BeginEnumValue() must be made.

Example 1

```
--KNM Lua API example (C) 2007 Kaseya AB
--Demonstrates the Lua Windows Registry interface
Reg = TLuaRegistry();
--Open the key to enumerate
if Reg:Open(Reg.LOCAL_MACHINE,"SOFTWARE\\Kaseya") == true then
   Reg:BeginEnumValue();
   bOk = true;
   repeat
          sValue = "";
          bOk,sValue = Reg:EnumValue(sValue);
          if bOk then print(sValue); end;
   until bOk == false;
else
   print("Failed to open the key");
end
```

GetErrorDescription

string GetErrorDescription()

Return values

Returns a string describing the latest error encountered when calling any function in the class.

Open

bool Open(int iKey,string sKey)

Return values

Non zero if the function is successful; otherwise 0, and a error description can be retrieved by calling GetErrorDescription().

Parameters

- iKey - A key that represents one of the registry hives.
- bCreate - A sub-key in the selected registry hive.

Remarks

The function opens a registry key in the selected registry hive. Note that the credentials of the process (either the IDE or **Network Monitor**) can restrict access to certain keys and hives. The following constants are defined for iKey:

- CLASSES_ROOT
- CURRENT_CONFIG
- CURRENT_USER
- LOCAL_MACHINE
- PERFORMANCE_DATA
- USERS

ReadValue

bool ReadValue(string sValueName,string &sData)

Return values

Non zero if the function is successful; otherwise 0, and a error description can be retrieved by calling GetErrorDescription().

Parameters

- sValueName - Name of value to retrieve.
- sData - Data returned by the function.

Remarks

The function returns the data of the value with the specified name. If the value type is not a string this function will fail.

ReadValue

bool ReadValue(string sValueName,int &iData)

Return values

Non zero if the function is successful; otherwise 0, and a error description can be retrieved by calling

GetErrorDescription().

Parameters

- sValueName - Name of value to retrieve.
- iData - Data returned by the function.

Remarks

The function returns the data of the value with the specified name. If the value type is not a integer this function will fail.

ReadValue

string ReadValue(string sValueName,int &iSize)

Return values

Data stored in the registry value, if the function fails an empty string is returned. A error description can be retrieved by calling GetErrorDescription().

Parameters

- sValueName - Name of value to retrieve.
- iSize - Size of data returned by the function, in bytes.

Remarks

The function returns the data of the value with the specified name. If the value type is not a integer this function will fail. The size of the data returned is stored in the iSize parameter. If this function fails the iSize parameter is set to zero.

SetValue

bool SetValue(string sValueName,string sData,int iDataSize)

Return values

Non zero if the function is successful; otherwise 0, and a error description can be retrieved by calling GetErrorDescription().

Parameters

- sValueName - Name of value to write.
- sData - Data to be written to the value.
- iSize - Size of data to write, in bytes.

Remarks

The function writes the specified data to the value.

SetValue

bool SetValue(string sValueName,string sString)

Return values

Non zero if the function is successful; otherwise 0, and a error description can be retrieved by calling

GetErrorDescription().

Parameters

- sValueName - Name of value to write.
- sString - String to be written to the value.
- iSize - Size of data to write, in bytes.

Remarks

The function writes the specified string to the value. If the value does not exist this function will fail.

SetValue

bool SetValue(string sValueName,int iValue)

Return values

Non zero if the function is successful; otherwise 0, and a error description can be retrieved by calling GetErrorDescription().

Parameters

- sValueName - Name of value to write.
- iValue - Integer to be written to the value.

Remarks

The function writes the specified integer to the value. If the value does not exist this function will fail.

SetValueExpandedString

bool SetValueExpandedString(string sValueName,string sString)

Return values

Non zero if the function is successful; otherwise 0, and a error description can be retrieved by calling GetErrorDescription().

Parameters

- sValueName - Name of value to write.
- sString - String to be written to the value.

Remarks

The function works like the normal SetValue function with one exception. The string written can contain unexpanded references to environment variables (for example, "%PATH%").

Chapter 16

TLuaSFTPClient

The class implements a basic SFTP client class.

In This Chapter

Sample Script: TLuaSFTPClient

```
--Demonstrates the Lua SFTP client class
--Create the client asset
sftp = TLuaSFTPClient()

--Connect to the remote SFTP server
if sftp:Connect("username","password") == false then
  SetExitStatus("No respons",false)
  return
end

--Create a directory handle and open the current directory
hHandle = TLuaSFTPClientDirectoryHandle()
bOk = sftp:OpenDir(".",hHandle)
if bOk == true then

  -- List the directory
  bOk = sftp:ListDir(hHandle)
  if bOk == false then
        SetExitStatus("Cannot list directory",false)
        sftp:CloseDir(hHandle)
        return
  end

  --Loop over the entries in the directory
  File = TLuaSFTPClientFile()
  while hHandle:Next(File) ~= false do
        --Print the file name
        print(File.m_sFilename)
  end
end
--Close handle
sftp:CloseDir(hHandle)
```

Close

bool Close(TLuaSFTPClientHandle FileHandle)

Return value

Returns true if the operation was successful or false if otherwise.

Parameters

- FileHandle - Handle of previously opened file.

CloseDir

bool CloseDir(TLuaSFTPClientDirectoryHandle Handle);

Return value

Returns true if the operation was successful or false if otherwise. On a successful operation the TLuaSFTPClientDirectoryHandle handle is closed.

Parameters

- Handle - Handle opened by the OpenDir function.

Connect

bool Connect(const unsigned int iPort=22,const unsigned short dwTimeout=25000);

Return value

Returns true if the connect operation succeeded or false otherwise.

Parameters

- sUsername - Username
- sPassword - Password
- iPort - Port number where the server listens. Default value 22.
- iTimeout - Timeout in milliseconds to wait for server to respond. Default value 25000 (25 seconds).

CreateFile

bool CreateFile(string sPath,TLuaSFTPClientHandle hHandle)

Return value

Returns true if the file was created or false if the operation failed. The TLuaSFTPClientHandle contains a reference to the open file if the operation succeeded.

Parameters

- sPath - Full path of file to create. Directories included in path must exist or the operation fails
- hHandle - Handle to create file.

Remarks

The newly created file have read write access rights.

ListDir

bool ListDir(TLuaSFTPClientDirectoryHandle Handle);

Return value

Returns true if the operation was successful or false if otherwise. On a successful operation data is ready for retrieval in the TLuaSFTPClientDirectoryHandle class.

Parameters

- Handle - Handle opened by the OpenDir function.

MkDir

bool MkDir(string sPath)

Return value

Returns true if the operation was successful or false if otherwise.

Parameters

- sPath - Path to directory to create, including name of new directory.

Remarks

This function is not able to recursively create new directories, all parent directories of the last directory in the path must exists.

OpenDir

bool OpenDir(string sPath,TLuaSFTPClientDirectoryHandle &Handle)

Return value

Returns true if the operation was successful or false if otherwise.

Parameters

- sPath - Path to directory to open.
- Handle - Handle returned to be used in subsequent operations.

Remarks

This function "opens" a directory for the purpose of list its content with the ListDir function.

Open_ForRead

bool Open_ForRead(string _sPath,TLuaSFTPClientHandle hHandle)

Return value

Returns true if the file was opened successfully or false if the operation failed.

Parameters

- sPath - Full path of file.
- hHandle - Handle to file that is used in subsequent operations.

Open_ForWrite

bool Open_ForWrite(string _sPath,TLuaSFTPClientHandle hHandle)

Return value

Returns true if the file was opened successfully or false if the operation failed.

Parameters

- sPath - Full path of file.

- hHandle - Handle to file that is used in subsequent operations.

Open_ForAppend

bool Open_ForAppend(string _sPath,TLuaSFTPClientHandle hHandle)

Return value

Returns true if the file was opened successfully or false if the operation failed.

Parameters

- sPath - Full path of file. hHandle Handle to file that is used in subsequent operations.

Remarks

Open_ForAppend opens the file in write mode, the difference between this function and the Open_ForWrite is that all data is written to the end of the file even if the file pointer would been repositioned between two writes.

Read

bool Read(TLuaSFTPClientHandle FileHandle,int iOffset,int iLen,string &sData)

Return value

Returns true if the operation was successful or false if otherwise.

Parameters

- FileHandle - Handle of previously opened file.
- iOffset - Offset in bytes where to read in file.
- iLen - Length of data to read
- sData - Variable to put data.

Remarks

Only text files can be read with this function.

Example

```
--KNM Lua API example (C) 2010 Kaseya AB
--Demonstrates the Lua SFTP client class

sftp = TLuaSFTPClient()
hFileHandle = TLuaSFTPClientHandle()

--Open the file
bOk = sftp:Open_ForRead("test.txt",hFileHandle)
if bOk == false then
  SetExitStatus("Open failed",false)
  return
end

sTemp = ""
--Read the first 20 bytes
bOk,sTemp = sftp:Read(hFileHandle,0,20,sTemp)
if bOk == false then
  SetExitStatus("Read failed",false)
  return
end
print(sTemp)
```

Remove

bool Remove(string sPath);

Return value

Returns true if the operation was successful or false if otherwise.

Parameters

- sPath - Path of file to be removed.

Rename

bool Rename(string sPath,string sNewPath);

Return value

Returns true if the operation was successful or false if otherwise.

Parameters

- sPath - Path of existing file to be renamed.
- sNew - Path Path with new file name.

RmDir

bool RmDir(string sPath)

Return value

Returns true if the operation was successful or false if otherwise.

Parameters

- sPath - Path to directory to delete.

Remarks

This function can only delete empty directories.

Write

bool Write(TLuaSFTPClientHandle FileHandle,const int iOffset,string sData)

Return value

Returns true if the operation was successful or false if otherwise.

Parameters

- FileHandle - Handle of previously opened file.
- iOffset - Offset in bytes where to write in file.
- sData - String of text to write.

Example

```
--KNM Lua API example (C) 2010 Kaseya AB
--Demonstrates the Lua SFTP client class

sftp = TLuaSFTPClient()
hFileHandle = TLuaSFTPClientHandle()

--Open the file
hFileHandle = TLuaSFTPClientHandle()
if sftp:Open_ForWrite("test.txt",hFileHandle) == false then
  SetExitStatus("Open of file failed",false)
  return
end

--Create a string and write it to the begining of the file
sString = [[ test text ]];
if sftp:Write(hFileHandle,0,sString) == false then
  SetExitStatus("Write failed",false)
  return
end

--Close the file
sftp:Close(hFileHandle)
```

Chapter 17

TLuaSFTPClientAttributes

The class contains attributes describing a directory or file retrieved by the ListDir function.

In This Chapter

AccessedTime

bool AccessedTime(TLuaDateTime &Time)

Return value

Returns true if the value is present or false if otherwise.

Parameters

- Time - Contains the time the file was last accessed.

CreatedTime

bool CreatedTime(TLuaDateTime &Time)

Return value

Returns true if the value is present or false if otherwise.

Parameters

- Time - Contains the time the file as created.

Group

bool Group(string &sGroup)

Return value

Returns true if the value is present or false if otherwise.

Parameters

- sOwner - Contains name of the group of the file or directory.

ModifiedTime

bool ModifiedTime(TLuaDateTime &Time)

Return value

Returns true if the value is present or false if otherwise.

Parameters

- Time - Contains the time the file was last modified.

Owner

bool Owner(string &sOwner)

Return value

Returns true if the value is present or false if otherwise.

Parameters

- sOwner - Contains name of the owner of the file or directory.

PermissionBits

bool PermissionBits(int &iPermissionsBits)

Return value

Returns true if the value is present or false if otherwise.

Parameters

- iPermissionsBits - Contains an decimal value representing the permission of the file or directory.

Size

bool Size(int &iBytesHighDWord,int &iBytesLowDWord);

Return value

Returns true if the value is present or false if otherwise.

Parameters

- iBytesHighDWord - Contains the high dword portion of the 64 bit integer.
- iBytesLow DWord - Contains the low dword portion of the 64 bit integer.

Remarks

Size of the file is reported in bytes as a 64 bit integer. Since Lua lacks a 64 integer data type the information have been split into two 32 bit integers. If the file is less the 2 GB in size, iBytesHighDWord will always be zero.

SizeMB

bool SizeMB(unsigned int &iSizeMB);

Return value

Returns true if the value is present or false if otherwise.

Parameters

- iSizeMB - Contains size of the file in megabytes.

Remarks

Provided as an easy to use alternative to the Size() function, returns the size of the file rounded down.

Chapter 18

TLuaSFTPClientDirectoryHandle

This class is used in conjunction with the OpenDir, ListDir and CloseDir functions.

In This Chapter

Next

bool Next(TLuaSFTPClientFile &hFile)

Return value

Returns true if the supplied TLuaSfPTClientFile contains data.

Remarks

Loop over the function until it returns false to retrieve all returned information from the ListDir function.

Chapter 19

TLuaSFTPClientFile

The TLuaSFTPClientFile is a read only class.

Class members

- string m_sFilename
- string m_sLongFilename
- TLuaSFTPClientAttributes m_Attribs

Chapter 20

TLuaSNMP

The class implements a basic SNMP client that can perform set and get operations.

In This Chapter

Sample Script: TLuaSNMP

```
--Simple example of SNMP interface
SNMP = TLuaSNMP();
SNMP:Open("public");

iSyntax =1

sData = SNMP:Get("iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.
ifEntry.ifInOctets.1",iSyntax);

if sData ~= "" then

  print(sData);
  SetExitStatus("Got sample value: "..sData.." bytes received",true);

else

  SetExitStatus("Get failed",false);

end
```

BeginWalk

BeginWalk(string sOID)

Parameters

- sOID - OID representing the start of an OID tree walk. Example of OID iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable

Remarks

Before the first call to the Walk function the program must call the BeginWalk function to set the start of the Walk. Walk will retrieve all the child and sibling asset identifiers of the start OID set by the BeginWalk functions.

Close

Close()

Remarks

Closes the SNMP connection.

Get

string Get(string sOID,int iSyntax)

Return values

A string with the value fetched from the remote SNMP agent.

Parameters

- sOID - OID to use in Get operation. When querying an interface the @ user can be used to specify the interface index.

    Example of usage of @ user:

```
  iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifInOctets@NVIDIA
nForce Networking Controller
```

    Example of normal OID

```
  iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifInOctets.1
```

- iSyntax - Specifies the format of the returned data. Can be one of the following constants.
- SNMP_NOSYNTAX
- SNMP_IPADDRESS
- SNMP_INTEGER
- SNMP_UNSIGNED32
- SNMP_COUNTER32
- SNMP_GAUGE32
- SNMP_TIMETICKS
- SNMP_OPAQUE
- SNMP_OCTETSTRING
- SNMP_DATA_AS_HEXSTRING

Reading binary values

Some OID's may return binary data instead of for example a string or integer, this can be a problem since the Get function returns a null terminated string. A solution for this problem is to settings the iSyntax variable to SNMP_DATA_AS_HEXSTRING. The function will then return the binary data hexadecimal encoded.

Example of three hexadecimal encoded bytes

```
49 4E4D
```

Open

bool Open(string sCommunity, int iPort=161)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sCommunity - Name of the community, usually public
- iPort (Optional) Specify the port number if you need to use a port other then the standard port (port 161).

Set

bool Set(string sOID,string sData,int iSyntax)

Return values

Non zero if the function is successful; otherwise 0.

Parameters

- sOID - OID to use in set operation.
- sData - Textual data used in set operation.
- iSyntax - Specifies the format of the sData parameter. Can be one of the following constants.
  - ✓ SNMP_NOSYNTAX
  - ✓ SNMP_IPADDRESS
  - ✓ SNMP_INTEGER
  - ✓ SNMP_UNSIGNED32
  - ✓ SNMP_COUNTER32
  - ✓ SNMP_GAUGE32
  - ✓ SNMP_TIMETICKS
  - ✓ SNMP_OPAQUE
  - ✓ SNMP_OCTETSTRING

Walk

TLuaSNMPResult TLuaSNMP::Walk()

Return values

Returns the identifier of the next OID in the member variable m_sOID in the TLuaSNMPResult structure. Does not return the complete OID string. When the end is reached the m_sOID member of the TLuaSNMPResult structure will be empty.

Remarks

Before the first call to the Walk function the program must call the BeginWalk function to set the start of the Walk. Walk will retrieve all the child and object identifiers of the start OID set by the BeginWalk functions.

Example

```
--KNM Lua API example (C) 2007 Kaseya AB
--Simple example of SNMP interface
SNMP = TLuaSNMP();
SNMP:Open("public");
sOID = "iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry";

--A repeat ... until loop
Result = TLuaSNMPResult();
SNMP:BeginWalk(sOID);
repeat
   Result = SNMP:Walk(sOID);
   sOID = Result.m_sOID;
   print("OID "..sOID);
   print("Data "..Result.m_sData);
   print("Syntax "..Result.m_iSyntax);
until Result.m_sOID == "";
```

TLuaSNMPResult

The TLuaSNMPResult is a read only class returned by the Walk function. If modified an exception will

be thrown.

Class members

- string m_sOID
- string m_sData
- int m_iSyntax

Chapter 21

TLuaSSH2Client

The class implements a SSH 2.0 client that can execute commands on a remote server.

In This Chapter

Sample Script: TLuaSSH2Client

```
SSHClient = TLuaSSH2Client();
SSHClient:Open(23,"testuser","testpassword");
if SSHClient:ExecuteCommand("shutdown") == true then
  print(SSHClient:GetStdOut());
  SetExitStatus("Exec ok",true);
else
  print(SSHClient:GetStdErr());
  print(SSHClient:GetErrorDescription());
  SetExitStatus("Exec failed",true);
end
```

ExecuteCommand

bool ExecuteCommand(string sCommand,DWORD dwWait/*=2500*/)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sCommand - String with the command to execute on the remote host.
- dwWait - (Optional) Time to wait for execution to finish, default 25 seconds.

GetErrorDescription

string GetErrorDescription(void)

Return values

Returns a the latest error description generated by the client as a string.

GetStdErr

string GetStdErr(void)

Return values

Returns the std error output from the remote host.

GetStdOut

string GetStdOut(void)

Return values

Returns the std output from the remote host.

Open

bool Open(int iPort)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling function GetErrorDescription. If the failure is a result of the command more information can be retrieved by calling GetStdErr.

Parameters

- iPort - SSH port, default 23.
- sUsername - Username
- sPassword - Password

Chapter 22

TLuaSocket

This class provide basic socket operations. Sockets can be opened in either UDP or TCP mode.

In This Chapter

Sample Script: TLuaSocket

```
--Construct a new socket device
socket = TLuaSocket()
iPortNumber = 8080

--Open a TCP socket
iRet = socket:OpenTCP(iPortNumber)

--If OpenTCP returned a 0 (boolean FALSE) then the open failed
if iRet==0 then

  print("Cannot open port "..iPortNumber.." Error code:"..GetLastError())

else

  --Read some data (max 1024 bytes) from the socket
  iReadSize = 1024
  data = socket:Read(iReadSize)

  --Print the content
  if iReadSize > 0 then
        print("Data received from server:\n\n")
        print(data)
  else
        print("No data received from server")
  end

end
socket:Close()
```

Close

int Close()

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Remarks

Closes the socket previously opened with OpenTCP or OpenUDP.

OpenTCP

int OpenTCP(int iPort)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- iPort - The port to open.

Remarks

Opens a TCP socket using the specified port number.

OpenUDP

int OpenUDP(int iPort)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- iPort - A particular port to use with the socket.

Remarks

Opens a UDP socket using the specified port number.

Read

string Read(int iSize,int iTimeout=1)

Return values

A array of data if the function is successful; otherwise nil if no data could be read, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- iSize - When call to function returns the variable is set to the size of the data read. If no data was read this value will be zero.
- iTimeout - The amount of time in seconds to wait for data to arrive to the socket. Default value is one second.

Remarks

The function only blocks execution for the amount of time specified by the timeout value, if no data is received during this period the function will return a nil value.

Write

int Write(string sData,int iSize)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sData - An array with data to send.
- iSize - Size of the data in the array.

Chapter 23

TLuaSocketSecure

This class provide basic secure socket operations, commonly referred to as Transport Layer Security (TLS) or its predecessor Secure Sockets Layer (SSL).

In This Chapter

Sample Script: TLuaSocketSecure

```
--This function is called by KNM when enumerating a field
function OnEnumerate(sFieldToEnum)

  Enum = LuaScriptEnumResult()

  if sFieldToEnum == "Ignore connection problems" then
        Enum:Add("Yes")
        Enum:Add("No")
  end

  return Enum
end

--This function is called by KNM to retrieve a script configuration
function OnConfigure()

  Config = LuaScriptConfigurator()
  Config:SetAuthor("Robert Aronsson, Kaseya AB")
  Config:SetDescription("The script check if a certificate is about to
expire within the configured number of days.")
  Config:SetMinBuildVersion(5280)
  Config:SetScriptVersion(1,0)

  Config:AddArgument("Port number","Port number to connect on",
LuaScriptConfigurator.CHECK_NOT_EMPTY)
  Config:AddArgument("Number of days","Check if certificate expres within this
period",LuaScriptConfigurator.CHECK_NOT_EMPTY)
  Config:AddArgument("Ignore connection problems","Do you want thescript to report
connection problems as well ?",LuaScriptConfigurator.ENUM_AVAIL +
LuaScriptConfigurator.CHECK_NOT_EMPTY)

  Config:SetEntryPoint("main")

  return Config
end

--This is the entry point
function main()

  local iPort = GetArgument(0)
  local iNumDays = GetArgument(1)
  local bReportConnectionProblem = false;
  if GetArgument(2) == "Yes" then
        bReportConnectionProblem = true
  end

  --Timeperiod that the certificate should be valid within
  local iOffsetTime = (60 * 60 * 24) * iNumDays

  --Default values for test eval
  local bTestOk = true;
```

```
  local sText = "Certificate ok";

  --Open socket
  Socket = TLuaSocketSecure()
  if Socket:Open(iPort) ~= 0 then

        CurrentTime = TLuaDateTime();

        --The time was retrieved during the connect
        Time = Socket:GetCertificateExpiryDate();

        print("Certificate expires ("..Time:GetDate() .." " .. Time:
GetTime()..")");

        --Check time
        iExpiryTime = Time:Get() -iOffsetTime;
        if Time:Get() < CurrentTime:Get() then
              bTestOk = false;
              sText = "Certificate have already expired ("..Time: GetDate() .." "
.. Time:GetTime()..")";
        else
              if iExpiryTime < CurrentTime:Get() then
                    bTestOk = false;
                    sText = "Certificate is about to expire in less than
"..iNumDays.." days"
              end
        end
  else
        --Failed to open the socket, server down ?
        if bReportConnectionProblem == true then
              bTestOk = false;
        end
        sText = "Cannot connect to host.";
  end

  --Report status and exit
  SetExitStatus(sText,bTestOk);
end
```

Open

int Open(int iPort)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- iPort - The port to open

Close

int Close()

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Read

string Read(int iSize)

Return values

A array of data if the function is successful; otherwise nil if no data could be read, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- iSize - When call to function returns the variable is set to the size of the data read. If no data was read this value will be zero.

Write

int Write(string Data,int iSize)

Return values

Non zero if the function is successful; otherwise 0, and a specific error code can be retrieved by calling global function GetLastError.

Parameters

- sData - An array with data to send.
- iSize - Size of the data in the array.

GetCertificateExpiryDate

TLuaDateTime GetCertificateExpiryDate()

Return values

A TLuaDateTime structure containing the date when the certificate of the remote host expires. If the Connect() call failed, the structure will contain a zero date.

Remarks

This function can be used to determine if a certificate is about to expire or have expired already.

Chapter 24

TLuaStorage

The class provides to save textual data between script sessions. It can be useful when you want to base the current script iteration on a previous result or communicate between two unrelated scripts.

In This Chapter

CreateItem

bool CreateItem(string sName,string sKey,string sData=NULL,int iSize=0)

Return values

Non zero if the function is successful; otherwise 0.

Parameters

- sName - Unique name of the item, if the name is already created this function fail.
- sKey - Key name of the item, must be unique if it already exist this function will fail.
- sData - Optional data that will be associated with the item
- iSize - Size of the data, only needed if data is supplied with function.

Remarks

The function creates an item and an sub item called a "key", the user can associate data with this key. The data can later be acquired by called the function FindItem.

UpdateItem

bool UpdateItem(string sName,string Key,string Data=NULL,int iSize=0)

Return values

Non zero if the function is successful; otherwise 0.

Parameters

- sName - Unique name of the item, an item with this name must already exist.
- sKey - Key name of the item, a key with name must already exist.
- sData - Optional data that will be associated with the item, the data will replace the current data stored in the item (if any).
- iSize - Size of the data, only needed if data is supplied with function.

Remarks

The function updates an already created item, if the item/key combination does not exist this function will fail.

DeleteItem

void DeleteItem(string sName,string sKey);

Parameters

- sName - Name of item.
- sKey - Name of key to delete.

Remarks

The function deletes an item/key combination, data associated with the key will also be deleted.

FindItem

TLuaStorageItem FindItem(string sName,string sKey);

Return values

Non zero if the function is successful; otherwise 0.

Parameters

- sName - Unique name of the item, an item with this name must already exist.
- sKey - Key name of the item, a key with name must already exist.

Remarks

The function retrieves an stored item, the returned class contains the item/key names as well as the data associated with the item.

TLuaStorageItem

The TLuaStorageItem is a read only class. If modified an exception will be thrown.

Class members

- string m_Key
- string m_Name
- string m_pData
- int m_iSize

Chapter 25

TLuaTimer

The class provides a timer with millisecond precision.

In This Chapter

Sample Script: TLuaTimer

```
--Demonstrates the Lua timer interface
Timer = TLuaTImer();
Timer:Start()
print("Timer started");
Wait(1000);
print("Operation took "..Timer:Stop().." ms";
```

Start

Start()

Remarks

The function starts a time and a subsequent call to the Stop() function will return the time between the calls to Start and Stop. After Stop is called, call Start again to reset the timer and start a new period.

Stop

int Stop()

Return values

Returns the number of milliseconds since the call to the Start() function.

Chapter 26

TLuaWinperf

The class provides functions to query numeric values in the Windows performance register. Its provided as an easy to use alternative to the more advanced TLuaWMIQuery class. The class is executing in the security context of the process or thread that launched the script. In the IDE the security context is inherited from the desktop. When executed by the Lua script monitor the security context can be set by selecting an default account in the monitor property page.

In This Chapter

Sample Script: TLuaWinperf

```
--Prints the number of private bytes the notepad.exe application have
allocated
Perf = TLuaWinperf()
if Perf:Query("Process","Private Bytes","notepad") then
  Value = Perf:GetResult();
  print(Value);
else
  print(Perf:GetErrorDescription())
end
```

GetErrorDescription

string GetErrorDescription()

Return values

Returns a string describing the latest error encountered when calling any function in the class.

GetResult

double GetResult()

Return values

Returns a numeric counter value, if the previous call to Query() failed, this function will return zero.

Query

bool Query(string sDeviceName,string sCounterName,string sInstanceName=NULL);

Return values

True if the query was successfully executed, false if an error occurred.

Parameters

- sDeviceName - A string with the name of the asset containing the counter to query.
- sCounterName - A string with the name of the counter to query
- sInstanceName - (Optional) string with the name of the counter instance.

Remarks

Asset, counter and instance names can be obtained either in the **Network Monitor** Winperf monitor by clicking on the enumeration button or by using the Windows perfmon.exe application. To retrieve the value call GetResult() after this function completed.

Chapter 27

TLuaWMIQuery

The class provides functions to query WMI properties. The class is executing in the security context of the process or thread that launched the script. In the IDE the security context is inherited from the desktop. When executed by the Lua script monitor the security context can be set by selecting an default account in the monitor property page. The account must be enabled for delegation.

In This Chapter

TLuaWMIQuery

```
--Demonstrates the Lua WMI interface
Query = TLuaWMIQuery(); Query:Execute("select Deviceid,Size,Freespace from
win32_logicaldisk"); print(Query:GetErrorDescription());

while (Query:NextInstance()) do
   sDeviceID = "";
   bOk,sDeviceID = Query:GetProperty("Deviceid",sDeviceID);
   print(sDeviceID);
end
```

Execute

bool Execute(const char *pWQL)

bool Execute(const char *pWQL,const int iPrivacy)

Return values

True if the query was successfully executed, false if an error occurred.

Parameters

- sWQL - A string containing a WQL query.

Remarks

Executes an WQL (WMI Query Language) query. Calls to Next() and GetProperty() can be used to retrieve the result.

GetErrorDescription

string GetErrorDescription()

Return values

Returns a string describing the latest error encountered when calling any function in the class. Useful when debugging WMI queries.

GetProperty

bool,string GetProperty(string sPropertyName,string sReturnValue);

Return values

Returns true and a value in a string if successful, false and an empty string if the function failed. More detailed information about the error can be retrieved by called GetError().

Parameters

- sPropertyName - Name of the property to retrieve.
- sReturnValue - Defined string receiving the return value. The return value is always a string, even if the property type is for example an integer or a real number.

Remarks

Retrieves a property value in the current result. To retrieve the next value of the same property call the NextInstance() function. If NextInstance() returns false, there are no more values.

NextInstance

bool NextInstance()

Return values

True if a new result was fetched, false if no more results of the query exists.

Remarks

The function retrieves a new result generated by a previous call to the Execute function. This function must be called before the first call to the GetProperty function.

SetNamespace

SetNamespace(string sNamespace)

Parameters

- sNamespace - String with WMI namespace to use in all future calls.

Remarks

The default namespace used by the TLuaWMIQuery class is root\cvmi2.

Chapter 28

TLuaXMLNode

The class represents a XML element and can contain one or more child elements.

In This Chapter

FindAttribute

string FindAttribute(string sName)

Return values

The function returns a string with the value of the attribute. If the attribute cannot be found, the returned string is empty.

Parameters

- sName - The name of the attribute

FindChildNode

TLuaXMLNode FindChildNode(string sElementName, int iOffset)

Return values

The function returns a valid TLuaXMLNode asset if the element was found.

Parameters

- sElementName - The name of the element that is a child of this node
- iOffset - A zero based index to retrieve child elements with the same name in the node.

Remarks

The function can be used to iterate over a number of child elements with the same name. Increment the offset parameter to retrieve the next element.

GetData

string GetData()

Return values

The function returns the data in the element.

GetTag

string GetTag()

Return values

The function returns the tag name of the element.

GetParentNode

TLuaXMLNode GetParentNode()

Return values

The function returns the parent of the current XML document element.

IsValid

bool IsValid()

Return values

The function returns true if the node is valid and false if the node is invalid.

Remarks

All search functions returns a TLuaXMLNode asset, the IsValid() function is used to determine if the search was successful.

Chapter 29

TLuaXMLReader

The class provides basic functionality to parse and traverse XML documents.

In This Chapter

FindChildNode

TLuaXMLNode FindChildNode(string sElementName, TLuaXMLNode ParentNode)

Return values

The function returns a valid TLuaXMLNode asset if the element was found.

Parameters

- sElementName - The name of the element that is a child of ParentNode
- ParentNode - The parent node to be searched.

Remarks

Note that the function returns the first element with the specified name.

FindNode

TLuaXMLNode FindNode(string sElementName, TLuaXMLNode RootNode)

Return values

The function returns a valid TLuaXMLNode asset if the element was found.

Parameters

- sElementName - The name of the element that is a child of ParentNode
- RootNode - The parent node to be the starting point of search.

Remarks

The function searches the XML document recursively with "RootNode" as starting point for the search.

FromXML

bool FromXML(string XML)

Return values

True if the operation was successfully executed, false if an error occurred.

Parameters

- sXML - An XML document to parse.

Remarks

Note that the parser do not validate the document a schema.

GetRootNode

TLuaXMLNode GetRootNode()

Return values

The function returns the XML document root element.

Index

U

W