SYBASE®

# PowerBuilder Extension Reference

## PowerBuilder®

11.0

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# Contents

# About This Book

**Audience**

This book is for programmers who build applications that use built-in PowerBuilder® extensions.

**How to use this book**

This book describes syntax and usage information for built-in extensions to the PowerScript® language:

- Chapter 1 presents an overview of PowerBuilder extensions and how you use them in a PowerScript application.
- Chapter 2 describes the objects used to build clients for Enterprise JavaBeans components.
- Chapter 3 describes the objects used to build SOAP clients for Web services.
- Chapter 4 presents an overview of the PowerBuilder Document Object Model (PBDOM).
- Chapters 5 through 17 describe each of the objects that make up the PBDOM.
- Chapter 18 provides a quick-reference list of PBDOM methods.

**Related documents**

Step-by-step instructions on building applications that use each of the built-in extensions are in *Application Techniques*.

For a complete list of PowerBuilder documentation, see the preface of *PowerBuilder Getting Started*.

**Other sources of information**

Use the Sybase Getting Started CD, the SyBooks CD, and the Sybase Product Manuals Web site to learn more about your product:

- The Getting Started CD contains release bulletins and installation guides in PDF format, and may also contain other documents or updated information not included on the SyBooks CD. It is included with your software. To read or print documents on the Getting Started CD, you need Adobe Acrobat Reader, which you can download at no charge from the Adobe Web site using a link provided on the CD.
- The SyBooks CD contains product manuals and is included with your software. The Eclipse-based SyBooks browser allows you to access the manuals in an easy-to-use, HTML-based format.

Some documentation may be provided in PDF format, which you can access through the PDF directory on the SyBooks CD. To read or print the PDF files, you need Adobe Acrobat Reader.

Refer to the *SyBooks Installation Guide* on the Getting Started CD, or the *README.txt* file on the SyBooks CD for instructions on installing and starting SyBooks.

- The Sybase Product Manuals Web site is an online version of the SyBooks CD that you can access using a standard Web browser. In addition to product manuals, you will find links to EBFs/Maintenance, Technical Documents, Case Management, Solved Cases, newsgroups, and the Sybase Developer Network.

  To access the Sybase Product Manuals Web site, go to Product Manuals at http://www.sybase.com/support/manuals/.

## Conventions

The formatting conventions used in this manual are:

| Formatting example | Indicates |
|---|---|
| Retrieve and Update | When used in descriptive text, this font indicates:<br>• Command, function, and method names<br>• Keywords such as true, false, and null<br>• Datatypes such as integer and char<br>• Database column names such as emp_id and f_name<br>• User-defined objects such as dw_emp or w_main |
| *variable* or *file name* | When used in descriptive text and syntax descriptions, oblique font indicates:<br>• Variables, such as *myCounter*<br>• Parts of input text that must be substituted, such as *pblname*.pbd<br>• File and path names |

| Formatting example | Indicates |
|---|---|
| File>Save | Menu names and menu items are displayed in plain text. The greater than symbol (>) shows you how to navigate menu selections. For example, File>Save indicates "select Save from the File menu." |
| `dw_1.Update()` | Monospace font indicates:<br>• Information that you enter in a dialog box or on a command line<br>• Sample script fragments<br>• Sample output fragments |

**If you need help**

Each Sybase installation that has purchased a support contract has one or more designated people who are authorized to contact Sybase Technical Support. If you cannot resolve a problem using the manuals or online help, please have the designated person contact Sybase Technical Support or the Sybase subsidiary in your area.

CHAPTER 1

# PowerBuilder Extensions

About this chapter

This chapter provides a brief introduction to PowerBuilder extensions.

Contents



## About PowerBuilder extensions

The PowerBuilder Native Interface (PBNI) is a standard programming interface that enables developers to extend the functionality of PowerBuilder. A PowerBuilder extension can be provided by Sybase, by you, or by a third party.

This book provides reference information for extensions provided by Sybase. In PowerBuilder 11.0, these extensions are for Enterprise JavaBeans clients, the PowerBuilder Document Object Model (PBDOM), SOAP clients for Web services, and the UDDIProxy class. Embedding these features in separate extension files instead of adding them to the core PowerBuilder runtime files helps keep the footprint of deployed applications as small as possible.

For information about building your own extensions, see the *PowerBuilder Native Interface Programmer's Guide and Reference*.

To find out about extensions provided by other developers, check the PBNI section of the PowerBuilder CodeXchange site at http://powerbuilder.codexchange.sybase.com.

**Use with .NET targets**
You can use the built-in Web services client extension (*pbwsclient110.pbx*) in applications that you plan to deploy to .NET as PowerBuilder .NET Windows Forms applications. You *cannot* use any other PBNI extensions in a .NET target.

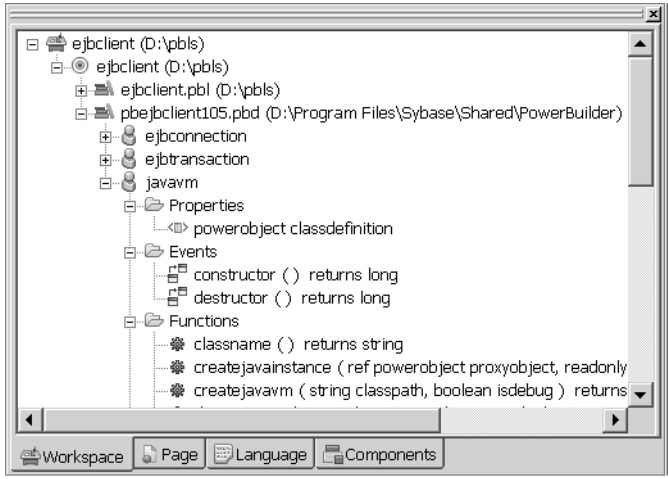
# Using PowerBuilder extensions

Every PowerBuilder extension requires a compiled C++ shared library, usually with the extension *.pbx* (for *P*ower*B*uilder e*X*tension). The C++ shared library file contains classes and methods that you use in your PowerScript target in the same way that you use PowerBuilder system objects or user objects.

To use the shared library in PowerBuilder, you place it in PowerBuilder's search path. In the System Tree, right-click a library in your PowerScript target, select Import PB Extension from the pop-up menu, navigate to the shared library, and select Open. This imports the definitions in the PBX into the library in your target. You can alternatively add the associated PBD file to the target's library search path. The PBD acts as a wrapper for the C++ shared library, enabling PowerBuilder to display the objects and methods it contains.

When you deploy an application that uses an extension, the C++ shared library must be deployed in the application's search path with the other PowerBuilder runtime files.

When you import an extension into a PowerScript target, the classes it contains display in the System Tree as user objects. You can expand the objects to display properties, events, and functions. You can inherit from extension objects and use drag-and-drop programming from the inherited objects in the System Tree as you do for other user objects.




### Using nonvisual classes

In PowerScript, use the classes in a nonvisual extension just as you would a custom class user object: declare an instance of the object, use the CREATE statement to create the instance, invoke the object's functions, and destroy the instance when you have finished with it. You can inherit from the native classes if you want to add functions or events to the class.

At runtime, instances of the native class are created as normal PowerBuilder objects.

### Using visual classes

You do not need to declare an instance of a visual class or use the CREATE statement to create an instance. To use a visual extension, select File>Inherit from the PowerBuilder menu, select the PBL or PBD that contains the visual class in the Libraries list in the Inherit from Object dialog box, select the visual class, and click OK.

In the User Object painter, size the visual object and make any other changes you need, then save the object. You can then drag the new user object from the System Tree directly onto a window or onto another visual control, such as a tab control, and use it like any other visual user object.

PBXRuntimeError

PowerBuilder extensions can throw a special exception, PBXRuntimeError, that inherits from the PowerBuilder RuntimeError exception. If you use an extension in a PowerBuilder application, you should include try-catch blocks for this exception and report any occurrences to the provider of the extension. This exception is usually caused by programming errors within the extension.

# Getting information about PowerBuilder extensions

Online Help

The classes and methods in the extensions provided by Sybase are described in this book, which is available in the PowerBuilder online Help. For PBDOM, each class is described in a separate chapter.

You can open the Help in several ways:

- Select *PowerBuilder Extension Reference* from the PowerBuilder Help Contents tab page.
- Double-click the file name (*pbext110.hlp*) in the *Sybase\PowerBuilder 11.0\Help* directory.
- Type a method name in the Script view, then press Shift+F1 to open the PowerBuilder Help Index tab with the focus on the first index entry for that method name. The name of the extension class displays in parentheses after the method name on the Index tab page, and it displays above the name of the method when you open the Help for the method.

**If a PowerScript function description displays**
If there is a PowerScript function with the same name, the Help opens automatically to display the PowerScript function. Click the Help Topics button in the Help window to display the Index tab so that you can select the extension method.

HTML books

For information about using the extensions provided by Sybase in your applications, see *Application Techniques* in the compiled HTML Help.

Third-party extensions

The PowerBuilder Help and documentation do not provide any specific information for extensions developed by third parties. To find out how to use a third-party extension, see the documentation provided with the extension.

CHAPTER 2

# EJB Client

About this chapter

This chapter describes the PowerBuilder extension classes that are used to connect to an application server and employ Enterprise JavaBeans (EJB) components. For more information about building clients for EJB components, see *Application Techniques*.

Contents



# EJBConnection

Description

The EJBConnection class connects to an EJB server and locates an EJB.

Methods

EJBConnection has five member functions:

ConnectToServer
CreateJavaInstance
DisconnectServer
GetEJBTransaction
Lookup

## ConnectToServer

Description

Connects a client application to an EJB server. The client application must call ConnectToServer before it can use a remote object on the server.

Syntax

*connection*.ConnectToServer ( string *properties[ ]* )

| Argument | Description |
|---|---|
| *connection* | The name of the EJBConnection object you want to use to establish the connection |
| *properties[ ]* | A string array used to pass name/value pairs that specify how the connection will be established |

Return value None

Throws NamingException

Examples In this example, the client application connects to a WebLogic server application using the Connection object called conn:

```
ejbconnection conn
helloejbhome hellohome
helloejb hello
string properties[ ]
string msg

// Type each of the following statements on one line
properties[1]="javax.naming.Context.INITIAL_CONTEXT_FACTORY=weblogic.jndi.
WLInitialContextFactory"
properties[2]="javax.naming.Context.PROVIDER_URL=t3://svr1:7001"
properties[3]="javax.naming.Context.SECURITY_PRINCIPAL=myid"
properties[4]="javax.naming.Context.SECURITY_CREDENTIALS=mypass"

conn = create ejbconnection
TRY
   conn.connectToServer(properties)
CATCH (remoteexception re)
   messagebox("remoteexception", re.GetMessage())
CATCH (createexception ce)
   messagebox("createexception", ce.GetMessage())
END TRY
```

Usage You must provide ConnectToServer with a set of properties that specify how the connection will be established. Before calling ConnectToServer, declare a string array variable and assign values for the javax.naming.Context constants shown in the following table to the elements of the array.

| javax.naming.context constant | Value |
|---|---|
| INITIAL_CONTEXT_FACTORY | Server dependent. For example:<br>**EAServer:** com.sybase.ejb.InitialContextFactory<br>**WebLogic:** weblogic.jndi.WLInitialContextFactory<br>**WebSphere:** com.ibm.websphere.naming.WsnInitialContextFactory |
| PROVIDER_URL | URL for the Server's port. For example: `iiop://myserver:9000` |
| SECURITY_PRINCIPAL | User name required for access to the server. |
| SECURITY_CREDENTIALS | Credentials associated with the user name, typically a password. |

See also CreateJavaInstance
Lookup

## CreateJavaInstance

Description

Creates an instance of a Java object from a proxy name.

**Deprecated function**
This function is maintained for backward compatibility. You should use the CreateJavaInstance function on the JavaVM object for new development. You do not need to be connected to a server to create a local instance of a Java object.

Syntax

*connection*.CreateJavaInstance (powerobject *proxyobject*, string *proxyname* )

| Argument | Description |
|---|---|
| *connection* | The name of the EJBConnection object used to establish the connection. |
| *proxyobject* | PowerObject into which the function places a reference to the object specified by proxyname. This argument is passed by reference. |
| *proxyname* | The name of the proxy object for the local Java class. |

Return value

Long. Returns 0 for success and one of the following values for failure:

**-1** Failed to create Java class.

**-2** Invalid proxy name.

**-3** Failed to create proxy object.

See also

CreateJavaInstance

## DisconnectServer

Description

Disconnects a client application from an EJB server application.

Syntax

*connection*.DisconnectServer ( )

| Argument | Description |
|---|---|
| *connection* | The name of the EJBConnection object used to establish the connection you want to sever |

Return value

None

Throws

NamingException

Examples

In this example, the client application disconnects from the server application using the EJBConnection object myconnect:

```
myconnect.DisconnectServer()
```

See also

ConnectToServer

## GetEJBTransaction

Description

Returns a reference to the EJBTransaction object associated with the client.

Syntax

*connection*.GetEJBTransaction ( )

| Argument | Description |
|---|---|
| *connection* | The name of the EJBConnection object used to establish the connection |

Return value

EJBTransaction

Examples

This example shows the use of GetEJBTransaction to return a reference to the EJBTransaction object so that you can control transactions from the client:

```
// Instance variables:
// EJBConnection myconnect
EJBTransaction mytrans
long ll_status

mytrans = myconnect.GetEJBTransaction()
ll_status = mytrans.GetStatus()
```

Usage

The PowerBuilder client can control the transaction demarcation of EJBs. After a transaction has been started with the EJBTransaction Begin method, GetEJBTransaction can be used to return the name of the transaction.

See also

Begin
Commit
GetStatus
Rollback
SetRollbackOnly
SetTransactionTimeout

## Lookup

Description

Allows a PowerBuilder client to obtain the home interface of an EJB component in an application server in order to create an instance of the component.

Syntax

*connection*.Lookup (string *proxyname*, string *JNDIname*, string *homeinterfacename* )

| Argument | Description |
|---|---|
| *connection* | The name of the EJBConnection object used to establish the connection |
| *proxyname* | The name of the proxy object for the EJB component |
| *JNDIname* | The JNDI name of the EJB component |
| *homeinterfacename* | The fully-qualified class name of the EJB home interface |

Return value

Powerobject. A proxy object for the home interface of the EJB.

Throws

NamingException

Examples

The following example uses lookup to locate the home interface of the Multiply session EJB in the Java package *com.xyz.math*. The example assumes the connection to the EJB server has already been established:

```
// Instance variable:
// EJBConnection myconnect
Multiply myMultiply
MultiplyHome myMultiplyHome
long ll_product

TRY
   myMultiplyHome = myconnect.lookup("MultiplyHome", &
      "Math/Multiply", "com.xyz.math.MultiplyHome")
   myMultiply = myMultiplyHome.create()
   ll_product = myMultiply.multiply(1234, 4567)
catch (remoteexception re)
   messagebox("remoteexception", re.GetMessage())
catch (createexception ce)
   messagebox("createexception", ce.GetMessage())
CATCH (exception e)
   MessageBox("Exception", e.getmessage())
END TRY
```

The style used for the JNDI name depends on the EJB server.

See also

ConnectToServer

# EJBTransaction

Description

The EJB transaction class enables PowerBuilder clients to control a transaction on an EJB server. EJBTransaction maps closely to the javax.transaction.UserTransaction interface.

Methods

EJBTransaction has six member functions:

Begin
Commit
GetStatus
Rollback
SetRollbackOnly
SetTransactionTimeout

## Begin

Description

Creates a new transaction and associates it with the current thread.

Syntax

*ejbtrans*.Begin ( )

| Argument | Description |
|---|---|
| *ejbtrans* | The name of an EJBTransaction object |

Return value

None

Examples

The following example shows the use of begin to create a transaction from a client:

```
EJBTransaction trans
EJBConnection conn
string properties[ ]

// set properties
.....
conn = create ejbconnection
TRY
   conn.connectToServer(properties)
   trans = conn.GetEjbTransaction
   trans.begin()
CATCH (exception e)
   messagebox("exception", e.getmessage())
END TRY
```

See also

Commit
GetStatus
GetEJBTransaction (EJBConnection class)
Rollback
SetRollbackOnly
SetTransactionTimeout

## Commit

Description

Declares that the transaction associated with the calling thread should be committed.

Syntax

*ejbtrans*.Commit ( )

| Argument | Description |
|---|---|
| *ejbtrans* | The name of an EJBTransaction object |

Return value

None

Examples

In this example, the client calls the dopayroll method on the CmpnyAcct EJB component, which processes a company payroll. If the company has sufficient funds to meet the payroll, the client commits the transaction. Otherwise, an exception is thrown and the client rolls back the transaction:

```
// Instance variables:
// EJBTransaction trans
// EJBConnection conn
// CmpnyAcctHome AcctHome
// CmpnyAcct Acct

TRY
   trans.begin()
   AcctHome = conn.lookup("CmpnyAcctHome",
      "Sample/CmpnyAcct", "sample.CmpnyAcctHome")
   Acct = AcctHome.create()
   Acct.dopayroll()
   trans.commit()
CATCH (remoteexception re)
   messagebox("remoteexception", re.GetMessage())
CATCH (createexception ce)
   messagebox("createexception", ce.GetMessage())
CATCH (exception e1)
   MessageBox ("exception", e1.getmessage() )
   TRY
      trans.rollback();
```

```
        CATCH (exception e2)
         MessageBox ("exception", e2.getmessage() )
      END TRY
   END TRY
```

Usage

The Commit method completes the transaction associated with the calling thread. The transaction is not completed if any other participants in the transaction vote to roll back the transaction.

See also

Begin
GetStatus
GetEJBTransaction (EJBConnection class)
Rollback
SetRollbackOnly
SetTransactionTimeout

## GetStatus

Description

Returns the status of the EJB transaction associated with the client.

Syntax

*ejbtrans*.GetStatus ( )

| Argument | Description |
|---|---|
| *ejbtrans* | The name of an EJBTransaction object |

Return value

A long value representing the transaction status

Possible values are:

**1** Status active

**2** Status marked rollback

**3** Status prepared

**4** Status committed

**5** Status rolled back

**6** Status unknown

**7** Status no transaction

**8** Status preparing

**9** Status committing

**10** Status rolling back

Examples

This example shows the use of GetStatus to obtain the state of the current transaction:

```
// Instance variables:
// EJBConnection myconnect
EJBTransaction mytrans
long ll_status

mytrans = myconnect.GetEJBTransaction()
ll_status = mytrans.GetStatus()
```

Usage

The GetStatus method can be used to determine the current status of a transaction by the client that initiated the transaction using the Begin method.

See also

Begin
Commit
GetEJBTransaction (EJBConnection class)
Rollback
SetRollbackOnly
SetTransactionTimeout

## Rollback

Description

Rolls back the transaction associated with the calling thread.

Syntax

*ejbtrans*.Rollback ( )

| Argument | Description |
|---|---|
| *ejbtrans* | The name of an EJBTransaction object |

Return value

None

Examples

This example shows the use of Rollback to roll back a transaction when an update does not succeed:

```
// Instance variables:
// EJBTransaction trans
//
TRY
   trans.begin()
   Acct.updateChecking(amount)
   trans.commit()
CATCH (exception e1)
   TRY
      trans.rollback()
   CATCH (exception e2)
```

```
            MessageBox("Rollback failed", e2.getMessage())
        END TRY
        MessageBox("Transaction failed", e1.getMessage())
    END TRY
```

See also

Begin
Commit
GetStatus
GetEJBTransaction (EJBConnection class)
SetRollbackOnly
SetTransactionTimeout

## SetRollbackOnly

Description

Modifies a transaction associated with a calling thread so that the only possible outcome is to roll back the transaction.

Syntax

*ejbtrans*.SetRollbackOnly ( )

| Argument | Description |
|---|---|
| *ejbtrans* | The name of an EJBTransaction object |

Return value

None

Examples

In this example, a participant in a transaction has determined that it should be rolled back. The participant gets a reference to the current transaction and votes to roll back the transaction:

```
// Instance variables:
// EJBConnection conn
// EJBTransaction trans

trans = conn.GetEJBTransaction()
trans.SetRollbackOnly()
```

Usage

Rollback is typically called by the originator of the transaction, but another participant in a transaction can call SetRollbackOnly to vote that the transaction should be rolled back.

See also

Begin
Commit
GetStatus
GetEJBTransaction (EJBConnection class)
Rollback
SetTransactionTimeout

## SetTransactionTimeout

Description

Sets the timeout value for subsequent transactions. The transaction is rolled back if it does not complete before the timeout expires.

Syntax

*ejbtrans*.SetTransactionTimeout (long *seconds* )

| Argument | Description |
|---|---|
| *ejbtrans* | The name of an EJBTransaction object |
| *seconds* | A long that specifies the number of seconds that elapse before a transaction is rolled back |

Return value

None

Examples

This example shows the use of SetTransactionTimeout to set the timeout period to five minutes:

```
// Instance variables:
// EJBConnection conn
// EJBTransaction trans

TRY
   trans.SetTransactionTimeout(300)
   trans.begin()
CATCH (exception e)
   MessageBox("Exception", e.getMessage())
END TRY
```

Usage

The SetTransactionTimeout method specifies the number of seconds that can elapse before a transaction is rolled back. The timeout period applies to transactions created by subsequent invocations of Begin. If *seconds* is 0, no timeout period is in effect.

See also

Begin
Commit
GetStatus
GetEJBTransaction (EJBConnection class)
Rollback
SetRollbackOnly

# JavaVM

Description

The JavaVM class provides a method for loading and initializing a Java VM. It also provides methods for obtaining the version of the Java VM and the classpath it is using, to get the class name, super class name, and interface name of a Java class from the PowerBuilder proxy for that class, and to down cast a PowerBuilder proxy to another PowerBuilder proxy.

Methods

JavaVM has the following member functions:

CreateJavaVM
CreateJavaInstance
DynamicCast
GetActualClass
GetInterfaces
GetJavaClasspath
GetJavaVMVersion
GetSuperClass
IsJavaVMLoaded

## CreateJavaVM

Description

Loads and initializes a Java VM or attaches an existing Java VM to the current process.

Syntax

*javavm*.createJavaVM(string *classpath*, boolean *isdebug*)

| Argument | Description |
|---|---|
| *javavm* | An instance of the JavaVM class |
| *classpath* | A string specifying the classpath that contains files required by the EJB server, such as the path to the EJB classes |
| *isdebug* | A boolean that determines whether debug information is saved to a file called *VM.out* in the directory where the current application is located |

Return value

Integer. Returns one of the following integer values:

**1** Success. The Java VM had already been loaded and was attached to the current process.

**0** Success. The Java VM was loaded and initialized and attached to the current process.

**-1** Failure. The Java VM was not loaded, possibly because *jvm.dll* was not found in the classpath.

**-2** Failure. The *pbejbclient110.jar* file was not found.

Examples

This example shows how createJavaVM might be used with a connection to EAServer:

```
JavaVM l_jvm
EJBConnection l_ejbconn
java_integer val
long rc
l_jvm = CREATE JavaVM
l_EJBConn = CREATE EJBConnection

TRY
  IF l_jvm.createJavaVM("", false) >= 0 THEN
    string ls_props[]
    ls_props[1] = "javax.naming.Context.INITIAL_CONTEXT_FACTORY=
      com.sybase.ejb.InitialContextFactory"
    ls_props[2] ="javax.naming.Context.PROVIDER_URL=iiop://localhost:9000"
    ls_props[3] = "javax.naming.Context.SECURITY_PRINCIPAL=jagadmin"
    ls_props[4] = "javax.naming.Context.SECURITY_CREDENTIALS=jagadmin"
    l_EJBConn.connectToServer(ls_props)
    l_EJBConn.createJavaInstance(val, "java_integer")
    val.java_integer(17)
    MessageBox("The value is", val.IntValue())
  ELSE
    MessageBox("createJavaVM", "Failed", StopSign!)
  END IF
CATCH (Throwable g)
  MessageBox("Exception in createJavaInstance", g.getMessage())
END TRY
```

Usage

The *isdebug* argument is used to record information about the Java VM, including class loads, in the file *VM.out* in the directory where the current application is located.

The *classpath* argument must include the classes and JAR files required by the server, if they are not already listed in the classpath used by the Java VM.

**Classpath argument has no effect if the JVM is already running**
Files and directories passed only in the *classpath* argument are not available to the Java VM if it has already been started by another process. In the development environment, you can check whether the Java VM is running and, if so, which classpath it is using, on the Java page of the System Options dialog box. At runtime, you can use the IsJavaVMLoaded method to determine whether the Java VM is already running, and the GetJavaClasspath method to find the classpath.

In the development environment, the classpath used by the Java VM is constructed by concatenating these paths:

- A classpath added programmatically when the JVM is started. For example, the classpath you pass to this method.
- The PowerBuilder runtime static registry classpath. This path is built into the *pbjvm110.dll* and contains classes required at runtime for features such as PDF generation and EJB clients.
- The PowerBuilder system classpath. This path resides in a Windows registry key installed when you install PowerBuilder. It contains classes required at design time for Java-related PowerBuilder features.
- The PowerBuilder user classpath. This is the path that you specify on the Java page of the System Options dialog box.
- The system CLASSPATH environment variable.
- The current directory.

The JVM uses the following classpath at runtime:

- A classpath added programmatically when the JVM is started
- The PowerBuilder runtime static registry classpath
- The system CLASSPATH environment variable
- The current directory

See also

ConnectToServer
GetJavaClasspath
GetJavaVMVersion
IsJavaVMLoaded

## CreateJavaInstance

Description

Creates an instance of a Java object from a proxy name.

Syntax

*javavm*.CreateJavaInstance (powerobject *proxyobject*, string *proxyname* )

| Argument | Description |
|---|---|
| *javavm* | An instance of the JavaVM class. |
| *proxyobject* | PowerObject into which the function places a reference to the object specified by proxyname. This argument is passed by reference. |
| *proxyname* | The name of the proxy object for the local Java class. |

Return value

Long. Returns 0 for success and one of the following values for failure:

**-1** Failed to create Java class.

**-2** Invalid proxy name.

**-3** Failed to create proxy object.

Examples

In this example, the create method accepts a Java Integer class argument. PowerBuilder creates a proxy called java_integer (the prefix java_ is required to prevent a conflict with the PowerBuilder integer type). The call to CreateJavaInstance sets the value of that variable so you can call the EJB create method:

```
CustomerRemoteHome homeobj
CustomerRemote beanobj
java_integer jint_a

try
  homeobj = conn.lookup("CustomerRemoteHome", &
    "custpkg/Customer", "custpkg.CustomerRemoteHome" )
catch (Exception e)
   MessageBox( "Exception in Lookup", e.getMessage() )
   return
end try

try
   g_jvm.createJavaInstance(jint_a, "java_integer")
   jint_a.java_integer("8")
   beanobj = homeobj.create( jint_a, sle_name.text )
catch (RemoteException re)
   MessageBox( "Remote Exception", re.getMessage() )
   return
catch (CreateException ce)
   MessageBox( "Create Exception", ce.getMessage() )
   return
```

```
catch (Throwable t)
   MessageBox(" Other Exception", t.getMessage())
end try

MessageBox( "Info", &
   "This record has been successfully saved " &
   + "~r~ninto the database" )
```

Usage

Use this method when an EJB method accepts a Java class as an argument. For example, if the primary key class argument to the findByPrimaryKey method is a Java class, use the CreateJavaInstance method to create the primary key class. You then use a PowerBuilder proxy to communicate with the Java class.

## DynamicCast

Description

Converts an instantiated PowerBuilder proxy object to a proxy for the passed-in proxy name.

Syntax

*javavm*.DynamicCast(powerobject *proxyobject*, readonly string *proxyname*)

| Argument | Description |
|---|---|
| *javavm* | An instance of the JavaVM class |
| *proxyobject* | An instantiated PowerBuilder proxy object |
| *proxyname* | A string containing the name of the proxy to be instantiated |

Return value

Powerobject. A new proxy object for the Java class referenced by *proxyname*. This method returns null if the proxy cannot be created.

Examples

**Example 1** In the following example, the object returned from the nextElement method is represented by a proxy for the Employee class. The GetActualClass method is used to determine whether the object is actually a SalariedEmployee, and if it is, the proxy px_Employee is down cast to the proxy px_SalariedEmployee so that the adjustSalary method can be called:

```
DepartmentHome   px_DeptHome
Department       px_Dept
Enumeration      px_EmployeeList
Employee         px_Employee
Salaried         px_SalariedEmployee
Contract         px_ContractEmployee
EJBConnection    conn

conn = create ejbconnection
try
   conn.connectToServer(properties)
```

```
   px_DeptHome = conn.lookup("DepartmentHome",  &
      "Department",   &
      "com.joesportinggoods.ejbs.DepartmentHome")
   px_Dept = px_DeptHome.findByPrimaryKey(as_DeptName)

   px_EmployeeList = px_Dept.getEmployees()
   DO WHILE px_EmployeeList.hasMoreElements()
     px_Employee = px_EmployeeList.nextElement()
     IF i_jvm.getActualClass(px_Employee) =  &
        "com.joesportinggoods.ejbs.Salaried" THEN
         px_SalariedEmployee =   &
            i_jvm.dynamicCast(px_Employee, "Salaried")
         px_SalariedEmployee.adjustSalary(al_increase)
     END IF
   LOOP
catch (Exception e)
   THROW CREATE ApplyRaiseException
end try
```

**Example 2** In this example, getAllItems returns a java.lang.Object in the EJB declaration, which maps to the PowerBuilder Any data type. The call to GetInterfaces determines whether what is returned is a java.util.List. If it is, a call to DynamicCast obtains a proxy for List, which is used to obtain the size of the list before using its Get method to obtain the elements of the list. A method such as getAllItems can be used in many situations, such as to get a list of part numbers for any type of product.

```
ItemManagerHome px_ItemMgrHome
ItemManager px_ItemMgr
Item px_Item
List px_ItemList
any any_Object
boolean ib_isAList = FALSE
string is_IFs[]
string is_actualClass
long ll_row

TRY
   px_ItemMgrHome =
     g_EJBConn.Lookup("ItemManagerHome", &
     "ItemManager","com.xapic.ItemManagerHome")
   px_ItemMgr = px_ItemMgrHome.create()
   any_Object = px_ItemMgr.getAllItems()
// check if object implements java.util.List interface
   integer i
   FOR i = 1 to g_javaVM.getInterfaces(any_Object, &
     is_IFs)
```

```
            IF is_IFs[i] = "java.util.List" THEN
               ib_isAList = TRUE
               EXIT
            END IF
         NEXT
         // if it is a list
         IF ib_isAList THEN
            px_ItemList = g_javaVM.dynamicCast(any_Object, &
               "list")
            // traverse the list
             FOR i = 0 TO px_ItemList.size() - 1
               // get item on the list
               any_Object = px_ItemList.get(i)
                // determine its class and dynamically cast it
               is_actualClass = &
                  g_javaVM.getActualClass(any_Object)
               is_actualClass = Mid(is_actualClass, &
                  LastPos(is_actualClass,".") + 1, &
                  Len(is_actualClass))
               px_Item = g_javaVM.dynamicCast(any_Object, &
                  is_actualClass)
               // add item to datastore
               ll_row = ads_Items.insertRow(0)
               ads_Items.object.id[ll_row] = px_Item.getID()
               ads_Items.object.type[ll_row] = is_actualClass
             NEXT
         END IF
      CATCH (Throwable t)
         // Handle exception
      END TRY
```

Usage

There are two scenarios in which a Java object returned from a call to an EJB method can be represented by a proxy that does not provide the methods you need:

- If the class of a Java object returned from an EJB method call is dynamically generated, PowerBuilder uses a proxy for the first interface implemented by the Java class.
- The prototype of an EJB method that actually returns *someclass* can be defined to return a class that *someclass* extends or implements.

For example, the prototype of a method that actually returns an object of type java.util.ArrayList can be defined to return java.util.Collection instead. (The java.util.ArrayList class inherits from java.util.AbstractList, which inherits from java.util.AbstractCollection, which implements java.util.Collection.) If the method prototype has a return type of java.util.Collection, PowerBuilder uses a proxy for java.util.Collection.

The DynamicCast method allows you to cast the returned proxy object to a proxy for the interface you require, or for the actual class of the object returned at runtime so that the methods of that object can be used.

You can obtain the actual class of the object using the GetActualClass method. You can also use the DynamicCast method with the GetSuperClass method, which returns the immediate parent of the Java class, and the GetInterfaces method, which writes a list of interfaces implemented by the class to an array of strings.

For example, consider the following class:

```
public class java.util.LinkedList extends java.util.AbstractSequentialList
implements java.util.List, java.lang.Cloneable, java.io.Serializable
```

GetActualClass returns java.util.LinkedList, GetSuperClass returns java.util.AbstractSequentialList, and GetInterfaces returns 3 and writes three strings to the referenced string array: java.util.List, java.lang.Cloneable, and java.io.Serializable.

See also

CreateJavaVM
GetActualClass
GetInterfaces
GetSuperClass

## GetActualClass

Description

Returns the class of the Java object that a PowerBuilder proxy object represents.

Syntax

*javavm*.GetActualClass(powerobject *proxyobject*)

| Argument | Description |
|---|---|
| *javavm* | An instance of the JavaVM class |
| *proxyobject* | An instantiated PowerBuilder proxy object |

Return value

String

Usage

If an EJB method is defined to return a Java class that is not the actual object returned at runtime, but is instead a class that the actual object's class extends or implements, you can use GetActualClass to return the class of the actual object returned. You can then use the DynamicCast method to cast the proxy returned from the method to a proxy for the actual class of the object.

For more information and an example, see the description of the DynamicCast method.

See also

CreateJavaVM
DynamicCast
GetInterfaces
GetSuperClass

## GetInterfaces

Description

Populates a string array with the names of interfaces implemented by the Java object that a PowerBuilder proxy object represents.

Syntax

*javavm*.GetInterfaces(powerobject *proxyobject*, ref string *interfacename*[ ])

| Argument | Description |
|---|---|
| *javavm* | An instance of the JavaVM class |
| *proxyobject* | An instantiated PowerBuilder proxy object |
| *interfacename[ ]* | A reference to an unbounded array of strings to hold the names of interfaces implemented by the Java object represented by the PowerBuilder proxy object |

Return value

Integer. Returns the number of interfaces implemented by the Java object represented by *proxyobject*. If no interfaces are implemented by the Java object, this method returns 0. If *proxyobject* is invalid, this method returns -1.

Usage

If a class implements multiple interfaces, the proxy returned from an EJB method call that returns a Java object maps to the first interface implemented by the Java class. This method writes a list of interfaces implemented by the class to an array of strings. It can be used in conjunction with the DynamicCast method to cast the returned proxy to the interface required.

For more information, see the description of the DynamicCast method.

See also

CreateJavaVM
DynamicCast
GetActualClass
GetSuperClass

## GetJavaClasspath

Description: Gets the classpath of the current Java VM.

Syntax: javavm.getJavaClasspath( )

Return value: String

Examples: This example shows how to use GetJavaClasspath to get the classpath when the JVM is started and write it to a log file:

```
// instance variables:
// JavaVM i_jvm
// boolean i_jvm_started = false
// string is_classes

//Start JavaVM and Prepare to Connect to EJB server
string classpath
Integer li_ret

//create JAVAVM
if ib_jvm_started = false then
   i_jvm = create javavm

  classpath = is_classes
  li_ret = i_jvm.createJavaVM(classpath, true)
  if li_ret = -1 then
    MessageBox("Error", "Failed to load JavaVM")
  end if
  if li_ret = -2 then
    MessageBox("Error", "Failed to load EJBLocator")
  end if

  ib_jvm_started = true

  integer li_FileNum
  string ls_classpath, ls_string

  li_FileNum = FileOpen("C:\temp\classpath.log", &
     LineMode!, Write!, LockWrite!, Append!)
  ls_classpath = i_jvm.getjavaclasspath()
  ls_string = String(Today()) + " " + String(Now())
  ls_string += ": ~r~n" + ls_classpath + "~r~n"

  FileWrite(li_FileNum, ls_string)
  FileClose(li_filenum)
end if
```

See also
CreateJavaVM
GetJavaVMVersion
IsJavaVMLoaded

## GetJavaVMVersion

Description
Gets the version number of the current Java VM.

Syntax
javavm.getJavaVMVersion( )

Return value
String representing the Java VM version. For example, for JDK 1.4, GetJavaVMVersion returns 1.4.0.

Examples
This example shows how to use GetJavaVMVersion:

```
// global variable JavaVM g_jvm
string ls_javaVMVersion
ls_javaVMVersion = g_jvm.getJavaVMVersion()
```

See also
CreateJavaVM
GetJavaClasspath
IsJavaVMLoaded

## GetSuperClass

Description
Returns the name of the super class of the class of the Java object that a PowerBuilder proxy object represents.

Syntax
*javavm*.GetSuperClass(powerobject *proxyobject*)

| Argument | Description |
|---|---|
| *javavm* | An instance of the JavaVM class |
| *proxyobject* | An instantiated PowerBuilder proxy object |

Return value
String. If the current Java object is Java.lang.Object or an interface, returns null.

Examples
This example assumes that you have subclassed the Java Decimal class. Your class, My.Decimal, extends java.lang.Decimal. After you build a proxy project for this class, you can determine the real Java class name that the proxy represents with code like the following:

```
java_decimal dec_num
string classname, supername

conn.createjavainstance(dec_num, "java_decimal")
```

```
classname = g_javavm.getactualclass(dec_num)&
   classname = "My.Decimal"
supername = g_javavm.getsuperclass(dec_num) &
   supername = "java.lang.Decimal"
```

Usage

This method returns the name of the immediate parent of the class referenced by the proxy object. For example, if *proxyobject* is a java.io.FilterReader, GetSuperClass returns java.io.Reader. GetSuperClass can be used in conjunction with the GetInterfaces and DynamicCast methods to cast a proxy object returned from an EJB method call to a different object.

For more information, see the description of the DynamicCast method.

See also

CreateJavaVM
DynamicCast
GetActualClass
GetInterfaces

## IsJavaVMLoaded

Description

Determines whether the Java VM has been loaded.

Syntax

*javavm*.IsJavaVMLoaded( )

| Argument | Description |
|---|---|
| *javavm* | An instance of the JavaVM class |

Return value

Boolean. Returns true if the Java VM has already been loaded and false if it has not.

Examples

This example tests whether the Java VM has been loaded before attempting to create and load a Java VM:

```
if (IsJavaVMLoaded) then
   // skip some processing
else
   // perform processing
end if
```

Usage

Use this method if you need to determine whether the Java VM is loaded before proceeding. You might want to enable or disable some features of your application if the Java VM has already been loaded. For example, if your application provides a window in which the user can specify a list of classes that is added to the classpath used by the CreateJavaVM method, you can disable this feature if the Java VM has already been loaded, because any changes made in that window would have no effect.

See also

CreateJavaVM
GetJavaClasspath
GetJavaVMVersion

CHAPTER 3

# Web Services Client

About this chapter

This chapter describes the PowerBuilder extension classes used to connect to a SOAP server that hosts a Web service you want to access. It also describes the extension classes that enable you to search UDDI registries for a Web Service. For more information about working with Web services, see *Application Techniques*.

Contents



## SoapConnection

Description

The SoapConnection class is used to create a proxy object for a specific Web service and set options for the connection.

Methods

SoapConnection has the following methods:

- CreateInstance
- RemoveAuthentication
- SetBasicAuthentication
- SetClientCertificateFile
- SetOptions
- SetProxyServer
- SetProxyServerOptions
- SetSoapLogFile
- SetTimeout
- UseConnectionCache
- UseIntegratedWindowsAuthentication

The GenerateProxy method is currently not implemented.

## CreateInstance

Description

Creates a proxy instance with a default URL for a SOAP server, which comes from a user-supplied WSDL file. The client application must create a proxy instance before it can access a Web service.

Syntax

*conn*.**CreateInstance** (ref powerobject *proxy_obj*, string *proxy_name*, {string *portname*}) throws SoapException

| Argument | Description |
|---|---|
| *conn* | The name of the SoapConnection object that establishes the connection |
| *proxy_obj* | The referenced name of your proxy object |
| *proxy_name* | The name of the proxy, based on the port name from a URL in the WSDL file stored in the proxy |
| *portname* | (Optional) The port name from a URL not stored in the proxy |

Return value

Long. Valid values are:

| Value | Description |
|---|---|
| 0 | Successful |
| 100 | Invalid proxy name |
| 101 | Failed to create proxy |

Examples

**Example 1** In this example, the client application creates a proxy instance to access the Web services at *http://my.server/soap/myport*. The proxy name "syb_myport" is generated by the Web Service Proxy wizard when you select "syb_" as a prefix for a service port (endpoint) called "myport".

```
syb_myport myproxy
long ret

ret = Conn.CreateInstance(myproxy, "syb_myport",
"http://my.server/soap/myport")
```

**Example 2** The following script creates a connection to a Web service on a SOAP server. It sets the connection properties using an endpoint defined in the CreateInstance method. (If the endpoint is not defined in the CreateInstance method, a default URL stored in the proxy is used). The script uses the SetOptions method to specify a log file. It displays a return value in an application message box:

```
SoapConnection conn // Define SoapConnection
syb_currencyexchangeport proxy_obj // Declare proxy
long rVal, lLog
real amount
```

```
//Define endpoint. You can omit it, if you want to use
//the default endpoint inside proxy

string str_endpoint

str_endpoint = "http://services.xmethods.net:80/soap"
conn = create SoapConnection  //Instantiated connection

lLog = conn.SetOptions("SoapLog=~"C:\mySoapLog.log~"")

// Set trace file to record soap interchange data,
// if string is "", disables the feature

rVal = Conn.CreateInstance(proxy_obj, &
   "syb_currencyexchangeport", str_endpoint)

// Create proxy object
try

   amount = proxy_obj.getrate("us","japan")
   // Invoke service
   messagebox("Current Exchange Rate", "One US Dollar"&
   + " is equal to " + string(amount) + " Japanese Yen")
catch ( SoapException e )
   messagebox ("Error", "Cannot invoke Web service")
    // error handling
end try
destroy conn
```

Usage

After you instantiate a proxy, you are ready to call the SOAP methods you want from the associated Web service port.

See also

SetOptions
SetProxyServerOptions

## RemoveAuthentication

Description

Removes authentication for a Web service connection. This method is available for .NET Web services only.

Syntax

*conn*.**RemoveAuthentication** ()

| Argument | Description |
|---|---|
| *conn* | The name of the SoapConnection object that establishes the connection. |

Return value: Long. Valid values are `0` for success, and `50` for failure.

Usage: This method clears Basic, Digest, and Integrated Windows Authentication information. You can set authentication with the SetBasicAuthentication, UseIntegratedWindowsAuthentication, or SetOptions methods.

See also: SetBasicAuthentication
SetOptions
UseIntegratedWindowsAuthentication

## SetBasicAuthentication

Description: Determines whether the SoapConnection object uses basic authentication for a Web service connection. This method is available for .NET Web services only.

Syntax: *conn*.**SetBasicAuthentication** (string *domain*, string *userID*, string *password*)

| Argument | Description |
|---|---|
| *conn* | The name of the SoapConnection object that establishes the connection. |
| *domain* | A string for the Web domain to which the user belongs. This could be a domain name, such as “sybase.com”, or a machine name. |
| *userID* | A string for an https connection. |
| *password* | A string for an https connection. |

Return value: Long. Valid values are `0` for success, and `50` for failure.

Usage: You can call the SetBasicAuthentication method instead of including client identification information in the *options* argument of the SetOptions method. For Integrated Windows Authentication, you can call the UseIntegratedWindowsAuthentication method.

See also: RemoveAuthentication
SetOptions
UseIntegratedWindowsAuthentication

## SetClientCertificateFile

Description: Sets the certificate file or files to use to connect to a Web service. This method is available for .NET Web services only.

Syntax: *conn*.**SetClientCertificateFile** (string *filename*)

| Argument | Description |
|---|---|
| *conn* | The name of the SoapConnection object that establishes the connection. |
| *filename* | A string containing the name of the certificate file or files you want to use to connect to a Web service. You must use a semicolon as a separator for multiple files. The value can include local files with a full path and URLs to remote certificate files. To discontinue use of certificates, enter an empty string (""). |

Return value

Long. Valid values are 0 for success, and 50 for failure.

Usage

You can call the SetClientCertificateFile method instead of including certificate information in the *options* argument of the SetOptions method.

See also

SetBasicAuthentication
SetOptions
UseIntegratedWindowsAuthentication

## SetOptions

Description

Sets connection options for SoapConnection class. The string values for the option names are not case sensitive. Although the SetOptions method takes a single string argument for all available options, you can set each of the options with more specific methods.

For .NET Web services, you can use the following methods to replace the SetOptions method:

- SetBasicAuthentication
- SetClientCertificateFile
- SetTimeout
- UseIntegratedWindowsAuthentication
- RemoveAuthentication

For EasySoap Web services, you can use the following methods to replace the SetOptions method:

- SetSoapLogFile
- SetTimeout
- UseConnectionCache

Syntax

*conn*.**SetOptions** (string *options*)

| Argument | Description |
|---|---|
| *conn* | The name of the SoapConnection object that establishes the connection. |
| *options* | Options you want to set for your connection. These can be:<br>**SoapLog** (EasySoap Web service engine only) The file path for SoapLog. To disable the log, enter `""`.<br>**UserID** A string value for an https connection.<br>**Password** A string value for an https connection.<br>**Domain** (.NET Web service engine only) A string value for the Web domain to which the user belongs. This could be a domain name, such as “sybase.com”, or a machine name.<br>**UseWindowsAuthentication** (.NET Web service engine only) A “yes” or “no” value to determine whether to use “Integrated Windows Authentication.” The value you enter can be a boolean or a string. If this option is set to “yes,” you do not need to set the UserID, Password, or Domain options.<br>**AuthenticationMode** (.NET Web service engine only) A string value for the authentication mode you want to use. This can be “basic” or “digest”. AuthenticationMode values are described on the Microsoft MSDN Web site at http://msdn2.microsoft.com/en-us/library/w67h0dw7.aspx.<br>**CertificateFile** (.NET Web service engine only) A string value for the certificate file or files that you want to send from the Web service client to the server. The string value could include local files with a full path and URLs to remote certificate files. You must use a semicolon as a separator for multiple files.<br>**Timeout** A number for the maximum wait time in seconds. The default timeout value is 0, meaning that no limit to the connection time is set.<br>**ConnectionCache** (EasySoap Web service engine only) A boolean that determines whether the http connection of the proxy instance is kept alive after a call to the proxy. The default value is false. For Web services on EAServer, you must not change the default. |

Return value

Long. Valid values are `0` for success, and `50` for failure. If multiple options are specified and the return value is `50`, options specified before the failure are still valid.

Examples

In this example, the application enables the logging function and attempts to connect to an endpoint for which no user ID, password, or timeout has been set.

```
lOpt=Conn.SetOptions("SoapLog=~"airportweather.log~"")
```

If you do not want to use escape characters before a second pair of quotation marks, you can use single quotation marks instead, or you can start an exterior string with single quotation marks and use double quotation marks around an interior string:

```
lOpt=Conn.SetOptions('SoapLog="airportweather.log"')
```

Usage

User ID and password values can be set in an endpoint used by the SoapConnection class or by including these values as arguments to the SetOptions method.

Priority is given to values set in an endpoint (port) that is passed as an argument to the CreateInstance method of the SoapConnection class. However, a default endpoint is used when an endpoint is not set in the CreateInstance method. In this case, priority is given to user ID and password values defined in the SetOptions method.

If the endpoint used by the SoapConnection class does not have user ID and password values, and you do not set a user ID or password with the SetOptions method, the SoapConnection class connects to a SOAP server without giving a user ID or password.

If a user ID is defined in either the endpoint or the SetOptions method but is not a password, the password value is taken to be an empty string.

When you set a timeout other than the default, an exception is thrown after the Web service connection times out. Even if you do not set a timeout value from the client, the Web server can still cause the request to time out on the server side.

If you include ConnectionCache as an argument in a SetOptions call, you must not use quotation marks to enclose the value that you set for this option.

See also

CreateInstance
RemoveAuthentication
SetBasicAuthentication
SetClientCertificateFile
SetSoapLogFile
SetProxyServerOptions
SetTimeout
UseConnectionCache
UseIntegratedWindowsAuthentication

## SetProxyServer

Description

Sets the address, port, user name, and password for the proxy server. This method has two syntaxes.

Syntax

*conn*.**SetProxyServer** (string *address*, string *userID*, string *password*)

*conn*.**SetProxyServer** (string *hostname*, long *port*, string *userID*, string *password*)

| Argument | Description |
|---|---|
| *conn* | The name of the SoapConnection object that establishes the connection |
| *address* | A string containing the host name address and port of the proxy server, and optionally, an endpoint— in the format:<br>http://*hostname*:*port*/*path* |
| *hostname* | A string containing the host name |
| *port* | A long for the proxy server port |
| *userID* | A string containing the user ID for the proxy server |
| *password* | A string containing the proxy server password |

Return value

Long. Valid values are `0` for success, and `50` for failure.

Examples

This example uses the four-argument syntax of SetProxyServer:

```
long ll_return
ll_return = Conn.SetProxyServer &
 ("http://myProxyServer",8080, "My Name", "My Pass")
```

Usage

This method does the same thing as the SetProxyServerOptions method, but it has a different syntax.

Use this method or the SetProxyServerOptions method if the proxy server requires authentication. The user ID and password that you supply with the SetOptions or other authentication methods apply to the URL of the Web service, not the proxy server.

See also

SetOptions
SetProxyServerOptions

## SetProxyServerOptions

Description

Sets the proxy address, user name, and password for the proxy server.

Syntax

*conn*.**SetProxyServerOptions** (string *optionstring*)

| Argument | Description |
|---|---|
| *conn* | The name of the SoapConnection object that establishes the connection. |
| *optionstring* | A string containing comma-separated name/value pairs. The format is:<br>"address='*proxy_endpoint* '{, userID='*name* ', password='*password* '} "<br>The address is required and can have a format such as:<br>http://*hostname*:*port*/*path*<br>Specify values for userID and password if the proxy server requires them. |

Return value

Long. Valid values are `0` for success, and `50` for failure.

Examples

This example specifies a user name and password, as well as the proxy endpoint:

```
long ll_return
string ls_string
ls_string = "address='http://Srvr:8080/endpnt',"
ls_string += "userID='MyName', password='mypass'"
ll_return = Conn.SetProxyServerOptions (ls_string)
```

Usage

Use this method or the SetProxyServer method if the proxy server requires authentication. The user ID and password that you supply with the SetOptions or other authentication methods apply to the URL of the Web service, not the proxy server.

See also

CreateInstance
SetOptions
SetProxyServer

## SetSoapLogFile

Description

Sets the name of a file for logging raw SOAP messages. This method is available for EasySoap Web services only.

Syntax

*conn*.**SetSoapLogFile** (string *filename*)

| Argument | Description |
|---|---|
| *conn* | The name of the SoapConnection object that establishes the connection. |
| *filename* | A string containing the full file name for the SOAP log file. To disable logging, enter an empty string (`""`). |

Return value: Long. Valid values are `0` for success, and `50` for failure.

Usage: You can call the SetSOAPLogFile method instead of including a log file name in the *options* argument of the SetOptions method.

See also: SetOptions

## SetTimeout

Description: Sets the timeout value for a SOAP connection.

Syntax: *conn*.**SetTimeout** (long *seconds*)

| Argument | Description |
|---|---|
| *conn* | The name of the SoapConnection object that establishes the connection. |
| *seconds* | The timeout value in seconds. If this option is set to 0, no timeout will be set on the client side. (The Web service might still have a timeout value on the server side.) |

Return value: Long. Valid values are `0` for success, and `50` for failure.

Usage: You can call the SetTimeout method instead of including a timeout value in the *options* argument of the SetOptions method.

See also: SetOptions

## UseConnectionCache

Description: Determines whether a connection cache is used for the Web service connection. This method is available for EasySoap Web services only.

Syntax: *conn*.**UseConnectionCache** (boolean *cache*)

| Argument | Description |
|---|---|
| *conn* | The name of the SoapConnection object that establishes the connection. |
| *cache* | A boolean that determines whether the http connection of the proxy instance is kept alive after a call to the proxy. The default value is false. For Web services on EAServer, you must not change the default. |

Return value: Long. Valid values are `0` for success, and `50` for failure.

Usage

You can call the UseConnectionCache method instead of setting a connection cache in the *options* argument of the SetOptions method.

See also

SetOptions
SetSoapLogFile

## UseIntegratedWindowsAuthentication

Description

Determines whether the SoapConnection object uses Integrated Windows Authentication to connect to a Web service. This method is available for .NET Web services only.

Syntax

*conn*.**UseIntegratedWindowsAuthentication** (boolean *useIWA*)

| Argument | Description |
|---|---|
| *conn* | The name of the SoapConnection object that establishes the connection. |
| *useIWA* | A boolean that determines whether to use Integrated Windows Authentication. If this option is set to "yes," you do not need to set the UserID, Password, or Domain options. |

Return value

Long. Valid values are `0` for success, and `50` for failure.

Usage

You can call the UseIntegratedWindowsAuthentication method to set connection authentication instead of the *options* argument of the SetOptions method.

See also

RemoveAuthentication
SetBasicAuthentication
SetOptions

# SoapException

Description

The SoapException class is a PBNI class that inherits from the PowerBuilder RuntimeError class. When an exception occurs in a Web service method call, it is converted into a SoapException and thrown. The methods of the classes in *PBSoapClient110.pbx* can also throw SoapException.

Properties

| Exception property | Data type | Description |
|---|---|---|
| Text | String | Contains the text of the error message |

Methods

The following table defines methods inherited by a SoapException object from the RuntimeError class.

| Exception method | Data type returned | Description |
|---|---|---|
| GetMessage | String | Returns the error message from objects of type RuntimeError |
| SetMessage | — | Sets an error message for an object of type RuntimeError |

Usage

The following example demonstrates how to use the SoapException class. The ServiceProxy fails to be invoked and returns the error message. The code has three catch clauses: for SoapException, PBXRuntimeError, and RuntimeError. PBXRuntimeError is an exception class that inherits from RuntimeError and is thrown when a PowerBuilder extension raises an error that is not caught by the extension.

```
string s1,s2
s1 = "abcd"
SoapConnection conn
long ret
ServiceProxy proxy

//ServiceProxy is a proxy generated by Web service
//wizard

try
   conn = create SoapConnection
   ret = conn.CreateInstance(proxy, "ServiceProxy")
   if (ret <> 0)then
      MessageBox("Fail", "Cannot create proxy " &
        + "ServiceProxy")
      return
   end if
   s2 = proxy.EchoString(s1)
   MessageBox("Successful", "The return string is '" &
      +  s2 + "'")
catch (SoapException e1)
   MessageBox("Fail", "Can't invoke service
'EchoString'")
catch (PBXRuntimeError e2)
   MessageBox("Fail", "There is a runtime error when" &
      + "invoking Web service")
catch (RuntimeError e3)
   MessageBox("Fail", "There is an unknown error when"&
      + "invoking Web service")
```

```
    end try
```

See also

GetMessage in the *PowerScript Reference*
RuntimeError object in *Objects and Controls*
SetMessage in the *PowerScript Reference*

# UDDIProxy

Description

The UDDIProxy class is used to create a proxy object for a UDDI search and set options for that search.

Methods

UDDIProxy has the following methods:

setInquiryUrl
setOption
findBusiness
getBusinessDetail
findService

## setInquiryUrl

Description

Sets the UDDI inquiry URL.

Syntax

*proxy*.**setinquiryurl** (readonly string *url*)

| Argument | Description |
|---|---|
| *proxy* | The name of the UDDIProxy object |
| *url* | A valid UDDI inquiry URL |

Return value

Integer. Valid values are `1` for success, and `0` for failure.

Examples

The following code sets the inquiry URL to a UDDI registry on the IBM Web site:

```
uddiproxy proxy
int ret
proxy = create uddiproxy
ret = proxy.setinquiryurl
  ("http:/www-3.ibm.com/services/uddi/inquiryapi")
...//search processing
destroy proxy
```

## setOption

Description

Sets UDDI search options for match precision, case sensitivity, result sort order, and the maximum number of rows returned.

Syntax

*proxy*.**setoption** (boolean *exactMatch*, boolean *caseSensitive*, integer *sort*, integer *maxRow*)

| Argument | Description |
|---|---|
| *proxy* | The name of the UDDIProxy object. |
| *exactMatch* | If true, search returns exact matches only. |
| *caseSensitive* | If true, search result must match the case used by search key word. |
| *sort* | Determines whether or how search results are sorted. Values are:<br>• -1 sorts results in descending order<br>• 0 performs no sorting<br>• 1 sorts results in ascending order |
| *maxRow* | Maximum number of items a search can return. |

Return value

Integer. Valid values are `1` for success, and `0` for failure.

Examples

The following code sets options for case sensitivity and the maximum number of rows returned:

```
ret = proxy.setoption (false, true, 0, 5)
```

## findBusiness

Description

Finds business items using business names in a UDDI search.

Syntax

*proxy*.**findBusiness** (readonly string *businessName*, ref integer *count*, ref string *busNameResult* [ ], ref string *busDescriptionResult* [ ], ref string *busKeyResult* [ ])

| Argument | Description |
|---|---|
| *proxy* | The name of the UDDIProxy object |
| *businessName* | Business name to search in UDDI registry |
| *count* | Number of search results returned; never larger than the *maxRow* input parameter in a corresponding setOption call |
| *busNameResult* | Array of business names matching the search criteria |
| *busDescriptionResult* | Array of descriptions for businesses matching the search criteria |
| *busKeyResult* | Array of globally unique identifiers (GUIDs) for each business matching the search criteria |

Return value

Integer. Valid values are `1` for success, and `0` for failure.

Examples

The following code finds business names, descriptions, and keys in the IBM UDDI registry:

```
uddiproxy proxy
proxy = create uddiproxy
int count
string businessName[], businessDescription[]
string businessKey []
proxy.findbusiness("IBM", count, businessName, &
  businessDescription, businessKey)
```

## getBusinessDetail

Description

Gets business details using a business key that is typically obtained from the findBusiness method.

Syntax

*proxy*.**getBusinessDetail** (readonly string *businessKey*, ref integer *count*, ref string *serviceNameResult* [ ], ref string *serviceDescriptionResult* [ ], ref string *serviceKeyResult* [ ], ref string *wsdl* [ ])

| Argument | Description |
|---|---|
| *proxy* | The name of the UDDIProxy object |
| *businessKey* | Business key to search in UDDI registry |
| *count* | Number of search results returned; never larger than the *maxRow* input parameter in a corresponding setOption call |
| *serviceNameResult* | Array of services matching the search criteria |
| *serviceDescriptionResult* | Array of descriptions for services matching the search criteria |
| *serviceKeyResult* | Array of globally unique identifiers (GUIDs) for each service matching the search criteria |
| *wsdl* | Array of WSDL file names for services matching search criteria |

Return value

Integer. Valid values are `1` for success, and `0` for failure.

Examples

The following code gets business details from business keys obtained by a findBusiness call on an instantiated uddiproxy object (*proxy*):

```
int i, count, count2
string businessName[], businessDescription[]
string businessKey []
string serviceName[], serviceDescription[]
```

```
string serviceKey [], wsdl [ ]
...//set search options and inquiry URL
proxy.findbusiness ("IBM", count, businessName, &
  businessDescription, businessKey)
FOR i = 1 TO count
  proxy.getbusinessdetail (businessKey [i], count2, &
     serviceName, serviceDescription, serviceKey, wsdl)
  ...//call findService in secondary FOR/NEXT loop
NEXT
```

## findService

Description

Finds service details using a service name.

Syntax

*proxy*.**findService** (readonly string *serviceName*, ref integer *count*, ref string *serviceNameResult* [ ], ref string *serviceDescriptionResult* [ ], ref string *serviceKeyResult* [ ], ref string *busNameResult* [ ], ref string *wsdl* [ ])

| Argument | Description |
|---|---|
| *proxy* | The name of the UDDIProxy object |
| *serviceName* | Service name to search in UDDI registry |
| *count* | Number of search results returned; never larger than the *maxRow* input parameter in a corresponding setOption call |
| *serviceNameResult* | Array of services matching the search criteria |
| *serviceDescriptionResult* | Array of descriptions for services matching the search criteria |
| *serviceKeyResult* | Array of globally unique identifiers (GUIDs) for each service matching the search criteria |
| *busNameResult* | Array of business names matching the search criteria |
| *wsdl* | Array of WSDL file names for services matching search criteria |

Return value

Integer. Valid values are `1` for success, and `0` for failure.

Examples

The following code gets service details for the "Weather" service using an instantiated uddiproxy object (*proxy*):

```
int ret, count
string serviceName[], serviceDescription[]
string serviceKey [], businessName [], wsdl [ ]
ret = proxy.findService("Weather", count, serviceName,&
  serviceDescription, serviceKey, businessName, wsdl)
```

CHAPTER 4

# PowerBuilder Document Object Model

About this chapter

This chapter presents an overview of the PowerBuilder Document Object Model (PBDOM). For more information about using PBDOM, see the chapter on using XML services in *Application Techniques*.

Contents



## About PBDOM

PBDOM is the PowerBuilder implementation of the Document Object Model (DOM), a programming interface defining the means by which XML documents can be accessed and manipulated.

Although PBDOM is not an implementation of the World Wide Web Consortium (W3C) DOM API, it is very similar. The PBDOM PowerBuilder API can be used for reading, writing, and manipulating standard-format XML from within PowerScript code. PBDOM portrays an XML document as a collection of interconnected objects and provides intuitive methods indicating the use and functionality of each object.

PBDOM is also similar to JDOM, which is a Java-based document object model for XML files.

For more information about W3C DOM, go to the W3C Document Object Model Web site at http://www.w3.org/DOM/. For more information about JDOM, go to the JDOM Web site at http://www.jdom.org.

## Node trees

PBDOM interacts with XML documents according to a tree-view model consisting of parent and child nodes. A document element represents the top-level node of a standalone XML document. This element has one or many child nodes that represent the branches of the tree. You access nodes in the node tree through the appropriate class methods.

## XML parser

The PBDOM XML parser is used to load and parse an XML document, and also to generate XML based on user-specified DOM nodes.

PBDOM provides the methods you need to traverse the node tree, access the nodes and attribute values (if any), insert and delete nodes, and serialize the node tree back to XML.

## Objects and methods

The PBDOM object hierarchy is described in "PBDOM objects" next. The methods for each object are described in the following chapters. The chapters are arranged in alphabetical order for ease of reference.

Chapter 18, “PBDOM Summary,” provides quick reference tables showing the signatures of the methods defined in each PBDOM object. The tables are arranged in an order that reflects the object hierarchy shown in “Object hierarchy” on page 48.

# PBDOM objects

PBDOM_OBJECT, the base class for PBDOM objects that represent XML nodes, inherits from the PowerBuilder NonVisualObject class. PBDOM represents node types by the following classes:

- PBDOM_ATTRIBUTE
- PBDOM_CDATA
- PBDOM_CHARACTERDATA
- PBDOM_COMMENT
- PBDOM_DOCTYPE
- PBDOM_DOCUMENT
- PBDOM_ELEMENT
- PBDOM_ENTITYREFERENCE
- PBDOM_PROCESSINGINSTRUCTION
- PBDOM_TEXT

You use methods from these classes to access objects in a PBDOM node tree.

The PBDOM_BUILDER class does not represent DOM nodes but can be used to build a PBDOM object tree from XML. It inherits from the PowerBuilder NonVisualObject class.

The PBDOM_EXCEPTION class inherits from the PowerBuilder Exception class and provides a method that obtains error codes.

Each of these classes and their methods are described in the chapters that follow.

## Comparing PBDOM objects with W3C DOM and JDOM objects

The following table shows the W3C DOM and JDOM objects that correspond to each PBDOM object that represents a node in the DOM tree. Note that although these W3C DOM and JDOM objects correspond to PBDOM objects, they are not equivalent to the PBDOM objects.

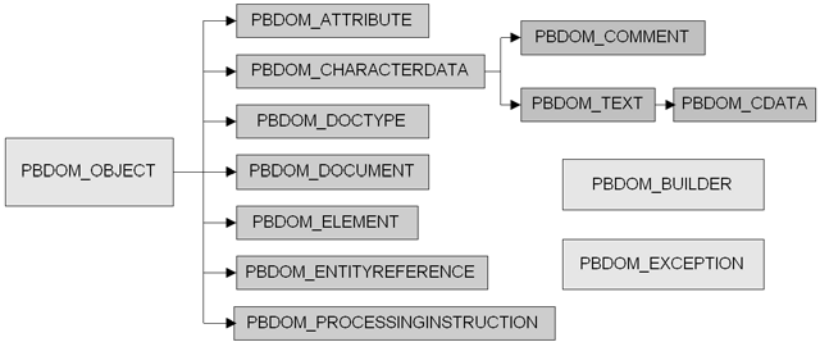
**Table 4-1: W3C DOM and JDOM objects that correspond to PBDOM objects**

| PBDOM | W3C DOM | JDOM |
|---|---|---|
| PBDOM_ATTRIBUTE | ATTRIBUTE_NODE | Attribute |
| PBDOM_BUILDER | None | DOMBuilder |
| PBDOM_CDATA | CDATA_SECTION_NODE | CDATA |
| PBDOM_CHARACTERDATA | CHARACTER_DATA_NODE | None |
| PBDOM_COMMENT | COMMENT_NODE | Comment |
| PBDOM_DOCUMENT | DOCUMENT_NODE | Document |
| PBDOM_DOCTYPE | DOCUMENT_TYPE_NODE | DocType |
| PBDOM_ELEMENT | ELEMENT_NODE | Element |
| PBDOM_ENTITYREFERENCE | ENTITY_REFERENCE_NODE | EntityRef |
| PBDOM_OBJECT | NODE | None |
| PBDOM_PROCESSINGINSTURCTION | PROCESSING_INSTRUCTION_NODE | Processinginstruction |
| PBDOM_TEXT | TEXT_NODE | Text |

Object hierarchy

The W3C DOM and JDOM object hierarchies also differ from the PBDOM object hierarchy, which is shown in the following illustration.

**Figure 4-1: The PBDOM object hierarchy**




For more information about working with PBDOM, see the chapter on PowerBuilder XML services in *Application Techniques*.

CHAPTER 5

# PBDOM_ATTRIBUTE Class

About this chapter

This chapter describes the PBDOM_ATTRIBUTE class.

## PBDOM_ATTRIBUTE

Description

The PBDOM_ATTRIBUTE class defines the behavior for an XML attribute, modeled in PowerScript. Its methods allow you to obtain the value of the attribute as well as namespace information.

A PBDOM_ATTRIBUTE contains a subtree of child PBDOM_OBJECTS. These children can be a combination of PBDOM_TEXT and PBDOM_ENTITYREFERENCE objects.

---

**PBDOM_ATTRIBUTE has no parent.**
A PBDOM_ATTRIBUTE does not have a parent. However, it does have an owner PBDOM_ELEMENT. Use the GetOwnerElementObject and SetOwnerElementObject to get and set the owner.

---

For more information about the PBDOM_ATTRIBUTE object, including its default PBDOM_TEXT object and its behavior with respect to XML namespaces, see the chapter on using XML services in *Application Techniques*.

Methods

Some of the inherited methods from PBDOM_OBJECT serve no meaningful objective and only default or trivial functionalities result. These are described in the following table:

| Method | Always returns |
|---|---|
| GetParentObject | null |
| SetParentObject | The current PBDOM_ATTRIBUTE, returned unmodified as a PBDOM_OBJECT |

PBDOM_ATTRIBUTE has the following methods:

- AddContent
- Clone
- Detach
- Equals
- GetBooleanValue
- GetContent
- GetDateValue
- GetDateTimeValue
- GetDoubleValue
- GetIntValue
- GetLongValue
- GetName
- GetNamespacePrefix
- GetNamespaceUri
- GetObjectClass
- GetObjectClassString
- GetOwnerDocumentObject
- GetOwnerElementObject
- GetQualifiedName
- GetRealValue
- GetText
- GetTextNormalize
- GetTextTrim
- GetUintValue
- GetTimeValue
- GetUlongValue
- HasChildren
- InsertContent
- IsAncestorObjectOf
- RemoveContent
- SetBooleanValue
- SetContent
- SetDateValue
- SetDateTimeValue
- SetDoubleValue
- SetIntValue
- SetLongValue
- SetName
- SetNamespace
- SetOwnerElementObject
- SetRealValue

SetText
SetTimeValue
SetUintValue
SetUlongValue

## AddContent

Description: Adds the input PBDOM_OBJECT as a child of the PBDOM_ATTRIBUTE.

Syntax: *pbdom_attribute_name.*AddContent( pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *pbdom_object_ref* | The PBDOM_OBJECT to add |

Return value: PBDOM_OBJECT. The PBDOM_ATTRIBUTE modified.

Throws: EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – If the input PBDOM_OBJECT is not a PBDOM_TEXT or PBDOM_ENTITYREFERENCE object.

EXCEPTION_USE_OF_UNNAMED_OBJECT – If the input PBDOM_OBJECT has not been given a user-defined name.

Usage: *pbdom_object_ref* must be a reference to a PBDOM_TEXT or PBDOM_ENTITYREFERENCE object.

See also:
GetContent
InsertContent
RemoveContent
SetContent

## Clone

Description: Creates a clone of the PBDOM_ATTRIBUTE object.

Syntax: *pbdom_attribute_name.*Clone(boolean *bDeep*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE. |
| *bDeep* | A boolean specifying whether a deep or shallow clone is returned. Values are true for a deep clone and false for a shallow clone. |

Return value

PBDOM_OBJECT. A clone of this PBDOM_ATTRIBUTE returned as a PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_ATTRIBUTE object's internal implementation is null. The occurrence of this exception is rare but can take place if severe memory corruption occurs.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If this PBDOM_ATTRIBUTE does not have or has not been assigned a user-defined name.

Examples

This example creates a PBDOM_DOCUMENT from the string `<abc My_Attr="An Attribute"/>`, gets the attribute from the root element, and creates a shallow clone and a deep clone from it. For the shallow clone, an empty string is returned in the message box. For the deep clone, the string `An Attribute` is returned:

```
PBDOM_BUILDER     pbdom_buildr
PBDOM_DOCUMENT    pbdom_doc
PBDOM_ATTRIBUTE   pbdom_attr
PBDOM_ATTRIBUTE   pbdom_attr_clone_deep
PBDOM_ATTRIBUTE   pbdom_attr_clone_shallow
string strXML = "<abc My_Attr=~"An Attribute~"/>"

TRY
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr.BuildFromString(strXML)

  pbdom_attr = pbdom_doc.GetRootElement(). &
     GetAttribute("My_Attr")

  pbdom_attr_clone_shallow = pbdom_attr.Clone(false)
  MessageBox ("Shallow Attribute Clone Text", &
     pbdom_attr_clone_shallow.GetText())

  pbdom_attr_clone_deep = pbdom_attr.Clone(true)
  MessageBox ("Deep Attribute Clone Text", &
     pbdom_attr_clone_deep.GetText())

CATCH (PBDOM_EXCEPTION pbdom_except)
  MessageBox ("PBDOM_EXCEPTION", &
     pbdom_except.GetMessage())
END TRY
```

Usage

The Clone method creates and returns a duplicate of the current PBDOM_ATTRIBUTE.

If a shallow clone is requested, this method clones the original PBDOM_ATTRIBUTE together with its namespace information values. The subtree of child PBDOM_TEXT and/or PBDOM_ENTITYREFERENCE objects is not cloned.

If a deep clone is requested, this method additionally recursively clones the subtree under the PBDOM_ATTRIBUTE. This subtree consists of a combination of PBDOM_TEXT and PBDOM_ENTITYREFERENCE objects that are the legal children of a PBDOM_ATTRIBUTE.

A PBDOM_ATTRIBUTE clone has no parent. However, the clone resides in the same PBDOM_DOCUMENT as its original, and if the original PBDOM_ATTRIBUTE is standalone, the clone is standalone.

## Detach

Description

Detaches a PBDOM_ATTRIBUTE from its owner PBDOM_OBJECT, a PBDOM_ELEMENT.

Syntax

*pbdom_attribute_name.*Detach()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value

PBDOM_OBJECT. The PBDOM_ATTRIBUTE object detached from its owner object.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_ATTRIBUTE object's internal implementation is null. The occurrence of this exception is rare but can take place if severe memory corruption occurs.

Examples

The Detach method can be used to manipulate an XML document as follows:

```
PBDOM_BUILDER          pbdombuilder_new
PBDOM_DOCUMENT         pbdom_doc
PBDOM_ATTRIBUTE        pbdom_attr
PBDOM_ELEMENT          pbdom_elem
string strXML = "<abc  My_Attr=~"My Attribute
Value~"><data>Data</data></abc>"
```

```
TRY
  pbdombuilder_new = Create PBDOM_Builder
  pbdom_doc = pbdombuilder_new.BuildFromString (strXML)

  pbdom_attr = pbdom_doc.GetRootElement(). &
     GetAttribute("My_Attr")
  pbdom_attr.Detach()

  pbdom_elem = pbdom_doc.GetRootElement(). &
     GetChildElement("data")
  pbdom_elem.SetAttribute (pbdom_attr)

  Destroy pbdombuilder_new
  Destroy pbdom_doc

CATCH (PBDOM_Exception except)
   MessageBox ("Exception Occurred", except.Text)
END TRY
```

Here, the PBDOM_Builder BuildFromString method is used to create the following PBDOM_DOCUMENT object, pbdom_doc, using an XML string:

```
<abc  My_Attr="My Attribute Value">
   <data>Data </data>
</abc>
```

The GetAttribute method is used to obtain the attribute from the root element of pbdom_doc. This value is assigned to the PBDOM_ATTRIBUTE object pbdom_attr. The pbdom_attr object is detached from its parent element, and the data element is obtained from pbdom_doc using the GetChildElement method. The data element is then assigned to the PBDOM_ELEMENT object pbdom_elem. The attribute assigned to pbdom_attr is assigned to pbdom_elem, yielding the following modified pbdom_doc:

```
<abc>
   <data My_Attr="My Attribute Value">Data</data>
</abc>
```

Usage

If the PBDOM_ATTRIBUTE object has no owner PBDOM_ELEMENT, the Detach method does nothing.

## Equals

Description

Tests for equality between the supplied PBDOM_OBJECT and the PBDOM_ATTRIBUTE from which the method is invoked.

Syntax

*pbdom_attribute_name.*Equals(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *pbdom_object_ref* | A PBDOM_OBJECT to be compared |

Return value

Boolean. Returns true if the current PBDOM_ATTRIBUTE is equivalent to the input PBDOM_OBJECT and false otherwise.

Throws

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If this PBDOM_ATTRIBUTE does not have or has not been assigned a user-defined name.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – if the input PBDOM_OBJECT is not a reference to an object derived from PBDOM_OBJECT.

Examples

**Example 1** The following code uses the Equals method to test for equivalence between a referenced PBDOM_OBJECT and a cloned object.

```
pbdom_attr = Create PBDOM_Attribute
pbdom_attr.SetName("My_Attr")
pbdom_attr_clone = pbdom_attr.Clone(true)

if (pbdom_attr_clone.Equals(pbdom_attr)) then
   MessageBox ("Equals", "Yes")
else
   MessageBox ("Equals", "No")
end if
```

The SetName method names the newly created PBDOM_ATTRIBUTE, which is subsequently cloned with the Clone method. The Equals method tests for equality between the cloned PBDOM_ATTRIBUTE pbdom_attr_clone and the referenced PBDOM_OBJECT pbdom_attr. A message box displays the result returned from the Equals method.

Note here that because a cloned object is never equivalent to the object from which it is cloned, the Equals method returns false.

**Example 2** The following code uses the Equals method to test for equivalence between two cloned objects.

```
pbdom_attr = Create PBDOM_Attribute
pbdom_attr.SetName("My_Attr")
```

```
pbdom_attr_clone = pbdom_attr.Clone(true)
pbdom_attr_2 = pbdom_attr_clone

if (pbdom_attr_clone.Equals(pbdom_attr_2)) then
   MessageBox ("Equals", "Yes")
else
   MessageBox ("Equals", "No")
end if
```

A newly created PBDOM_ATTRIBUTE is cloned, and a reference to this clone is assigned to pbdom_attr_2. The Equals method tests for equality between the cloned PBDOM_ATTRIBUTE pbdom_attr_clone and the reference to it, pbdom_attr_2. A message box displays the result returned from the Equals method.

Here the Equals method returns true.

Usage

Note that the clone of a PBDOM_ATTRIBUTE is not considered equal to itself.

## GetBooleanValue

Description

Obtains the value of a PBDOM_ATTRIBUTE object in boolean form.

Syntax

*pbdom_attribute_name.*GetBooleanValue()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value

Boolean.

The following table lists the PBDOM_ATTRIBUTE string values that are accepted as boolean and the corresponding return values from the GetBooleanValue method.

| PBDOM_ATTRIBUTE string value | GetBooleanValue |
|---|---|
| 1 | true |
| 0 | false |
| TRUE | true |
| FALSE | false |
| ON | true |
| OFF | false |
| YES | true |
| NO | false |

Strings are treated without case sensitivity. If no conversion can occur, the GetBooleanValue method throws an exception.

Throws

EXCEPTION_DATA_CONVERSION – If data conversion fails.

Examples

The GetBooleanValue can be used to evaluate a PBDOM_ATTRIBUTE object as follows:

```
PBDOM_BUILDER          pbombuilder_new
PBDOM_DOCUMENT         pbdom_doc
PBDOM_ATTRIBUTE        pbdom_attr
string strXML = "<abc My_Boolean_Attribute
=~"on~"><data
An_Attribute=~"Some Text~">Data</data></abc>"

TRY
  pbdombuilder_new = Create PBDOM_Builder
  pbdom_doc = pbdombuilder_new.BuildFromString (strXML)

  pbdom_attr = pbdom_doc.GetRootElement(). &
     GetAttribute("My_Boolean_Attribute")

  MessageBox ("Boolean Value", &
     string(pbdom_attr.GetBooleanValue()))


  Destroy pbdombuilder_new
  Destroy pbdom_doc
CATCH (PBDOM_Exception except)
  MessageBox ("Exception Occurred", except.Text)
END TRY
```

The BuildFromString method is used to create a PBDOM_DOCUMENT object, pbdom_doc, using an XML string. The attribute value of the root element of pbdom_doc is assigned to the PBDOM_ATTRIBUTE object pbdom_attr. The attribute value, on, is evaluated with the GetBooleanValue method. A message box reports the return value of the GetBooleanValue method.

See also

SetBooleanValue

## GetContent

Description

Returns an array of PBDOM_OBJECT objects that are the children of the PBDOM_ATTRIBUTE. The children of a PBDOM_ATTRIBUTE can be only PBDOM_TEXT or PBDOM_ENTITYREFERENCE objects.

Syntax

*pbdom_attribute_name.*GetContent(ref pbdom_object *pbdom_object_array[ ]*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *pbdom_object_array* | The referenced name of an array of PBDOM_OBJECTs that receives PBDOM_OBJECTs |

Return value: Boolean. This method always returns true.

See also: AddContent
InsertContent
RemoveContent
SetContent

## GetDateValue

Description: Returns the value of a PBDOM_ATTRIBUTE object as type Date.

Syntax: *pbdom_attribute_name.*GetDateValue(string *strDateFormat*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *strDateFormat* | The date format for the return value, for example, MM:DD:YYYY |

The value of the *strDateFormat* parameter can use slashes or colons as delimiters. The following table illustrates characters with special meaning in *strDateFormat*.

| Character | Meaning | Example |
|---|---|---|
| D | Day number with no leading zero | 5 |
| DD | Day number with leading zero, if applicable | 05 |
| M | Month number with no leading zero | 5 |
| MM | Month number with leading zero, if applicable | 05 |
| YY | Two-digit year number | 05 |
| YYYY | Four-digit year number | 2005 |

Return value: Date.

Throws: EXCEPTION_DATA_CONVERSION – If data conversion fails.

See also: SetDateValue

## GetDateTimeValue

Description

Returns the value of a PBDOM_ATTRIBUTE object as type DateTime.

Syntax

*pbdom_attribute_name.*GetDateTimeValue(string*strDateFormat*, string *strTimeFormat*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *strDateFormat* | The date format for the return value, for example, MM:DD:YYYY |
| *strTimeFormat* | The time format for the return value, for example, HH:MM:SS |

The value of the *strDateFormat* parameter can use slashes or colons as delimiters. The following table illustrates characters that have special meaning in *strDateFormat*.

| Character | Meaning | Example |
|---|---|---|
| D | Day number with no leading zero | 5 |
| DD | Day number with leading zero, if applicable | 05 |
| M | Month number with no leading zero | 5 |
| MM | Month number with leading zero, if applicable | 05 |
| YY | Two-digit year number | 05 |
| YYYY | Four-digit year number | 2005 |

The value of the *strTimeFormat* parameter can use slashes or colons as delimiters. The following table illustrates characters that have special meaning in *strTimeFormat*.

| Character | Meaning | Example |
|---|---|---|
| H | Hour number with no leading zero | 5 |
| HH | Hour number with leading zero, if applicable | 05 |
| M | Minutes number with no leading zero | 5 |
| MM | Minutes number with leading zero, if applicable | 05 |
| S | Seconds number with no leading zero | 5 |
| SS | Seconds number with leading zero, if applicable | 55 |

Return value

DateTime.

Throws

EXCEPTION_DATA_CONVERSION – If data conversion fails.

See also

SetDateTimeValue

## GetDoubleValue

Description: Returns the value of a PBDOM_ATTRIBUTE object in double form.

Syntax: *pbdom_attribute_name.*GetDoubleValue()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value: Double.

Throws: EXCEPTION_DATA_CONVERSION – If data conversion fails.

Usage: Throws exception_data_conversion if the method fails to convert data.

See also: SetDoubleValue

## GetIntValue

Description: Returns the value of a PBDOM_ATTRIBUTE object as type int.

Syntax: *pbdom_attribute_name.*GetIntValue()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value: Int.

Throws: EXCEPTION_DATA_CONVERSION – If data conversion fails.

See also: SetIntValue

## GetLongValue

Description: Returns the value of a PBDOM_ATTRIBUTE object as type long.

Syntax: *pbdom_attribute_name.*GetLongValue()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value: Long.

Throws: EXCEPTION_DATA_CONVERSION – If data conversion fails.

See also: SetLongValue

## GetName

Description

Retrieves the local name of the PBDOM_ATTRIBUTE object.

Syntax

*pbdom_attribute_name.*GetName()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ ATTRIBUTE |

Return value

String.

Throws

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If this PBDOM_ATTRIBUTE does not have or has not been assigned a user-defined name.

Examples

**Example 1** When the GetName method is invoked for the attribute name in the following element, it returns the string `ATTRIBUTE_1`:

```
<abc ATTRIBUTE_1="My Attribute">
```

**Example 2** When the GetName method is invoked for the name of the eMusic:Type attribute in the following element, it returns the string Type:

```
<eMusic:CD
xmlns:eMusic="http://www.eMusic_Records.com"
eMusic:Type="Jazz"/>
```

The namespace prefix is not part of the return string.

Usage

For an XML attribute that appears in the form [*namespace_prefix*]:[*attribute_name*], the local attribute name is *attribute_name*. Where the XML attribute has no namespace prefix, the local name is simply the attribute name.

Use the GetNamespacePrefix method to obtain the namespace prefix for a PBDOM_ATTRIBUTE object. Use the GetQualifiedName method to obtain the fully qualified name for a PBDOM_ATTRIBUTE object.

See also

GetNamespacePrefix
GetNamespaceUri
GetQualifiedName
SetName
SetNamespace

## GetNamespacePrefix

Description

Obtains the namespace prefix of a PBDOM_ATTRIBUTE object. The GetNamespacePrefix method returns an empty string if the PBDOM_ATTRIBUTE has no namespace.

Syntax

*pbdom_attribute_name.*GetNamespacePrefix()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value

String

For a PBDOM_ATTRIBUTE object that has the form [*namespacePrefix*]:[*attributeName*], the namespace prefix is [*namespacePrefix*].

See also

GetNamespaceUri
GetQualifiedName
SetName
SetNamespace

## GetNamespaceUri

Description

Obtains the namespace URI of a PBDOM_ATTRIBUTE object. The GetNamespaceUri method returns an empty string if the PBDOM_ATTRIBUTE has no namespace.

Syntax

*pbdom_attribute_name.*GetNamespaceUri()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value

String.

See also

GetNamespacePrefix
GetQualifiedName
SetName
SetNamespace

## GetObjectClass

Description

Returns a long integer code that indicates the class of the current PBDOM_OBJECT.

Syntax

*pbdom_object_name*.GetObjectClass()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value

Long. GetObjectClass returns a long integer code that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_ATTRIBUTE, the returned value is 5.

Examples

This example illustrates polymorphism: pbdom_obj is declared as PBDOM_OBJECT but instantiated as PBDOM_ATTRIBUTE. A message box returns the result of the GetObjectClass method invoked for PBDOM_ATTRIBUTE. Here the result is 5, indicating that pbdom_obj is a PBDOM_ATTRIBUTE object.

```
PBDOM_OBJECT pbdom_obj

pbdom_obj = Create PBDOM_ATTRIBUTE
MessageBox ("Class", &
   string(pbdom_obj.GetObjectClass()))
```

Usage

This method can be used for diagnostic purposes to dynamically determine the type of a PBDOM_OBJECT at runtime.

See also

GetObjectClassString

## GetObjectClassString

Description

Returns a string form of the class of the PBDOM_OBJECT.

Syntax

*pbdom_object_name*.GetObjectClassString()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value

String. GetObjectClassString returns a string that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_ATTRIBUTE, the returned string is “pbdom_attribute”.

Examples

The GetObjectClass method returns a string specific to the class of the object from which the method is invoked.

This example illustrates polymorphism: pbdom_obj is declared as PBDOM_OBJECT but instantiated as PBDOM_ATTRIBUTE. A message box returns the result of the GetObjectClassString method invoked for PBDOM_ATTRIBUTE. Here the result is pbdom_attribute, indicating that pbdom_obj is a PBDOM_ATTRIBUTE object.

```
PBDOM_OBJECT pbdom_obj

pbdom_obj = Create PBDOM_ATTRIBUTE
MessageBox ("Class", pbdom_obj.GetObjectClassString())
```

Usage

This method can be used for diagnostic purposes to dynamically determine the actual type of a PBDOM_OBJECT at runtime.

See also

GetObjectClass

## GetOwnerDocumentObject

Description

Returns the PBDOM_DOCUMENT object that owns the PBDOM_ATTRIBUTE.

Syntax

*pbdom_attribute_name*.GetOwnerDocumentObject()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value

PBDOM_DOCUMENT. The PBDOM_DOCUMENT that owns the PBDOM_ATTRIBUTE object from which the GetOwnerDocumentObject method is invoked.

A return value of null indicates the PBDOM_ATTRIBUTE object is not owned by any PBDOM_DOCUMENT.

Examples

The GetOwnerDocumentObject method can be used to identify the PBDOM_DOCUMENT object that owns a PBDOM_ATTRIBUTE object.

Here, the BuildFromString method is used to create the following PBDOM_DOCUMENT object, pbdom_doc, using an XML string:

```
<abc  My_Attr="My Attribute Value">
   <data>Data </data>
</abc>
```

The GetAttribute method is used to obtain the attribute from the root element of pbdom_doc. This value is assigned to the PBDOM_ATTRIBUTE object pbdom_attr. The GetOwnerDocumentObject method is used to obtain the pbdom_doc that owns pbdom_attr. The result of the GetOwnerDocumentObject method is assigned to the PBDOM_DOCUMENT object pbdom_doc_2. Then pbdom_doc_2 is compared to pbdom_doc using the Equals method, and the result is displayed in a message box.

```
PBDOM_Builder pbdombuilder_new
pbdom_document pbdom_doc
pbdom_document pbdom_doc_2
PBDOM_ATTRIBUTE pbdom_attr
string strXML = "<abc  My_Attr=~"My Attribute
Value~"><data>Data </data></abc>"

TRY
  pbdombuilder_new = Create PBDOM_Builder
  pbdom_doc = pbdombuilder_new.BuildFromString (strXML)

  pbdom_attr = pbdom_doc.GetRootElement(). &
     GetAttribute("My_Attr")
  pbdom_doc_2 = pbdom_attr.GetOwnerDocumentObject()

  if (pbdom_doc.Equals(pbdom_doc_2)) then
     MessageBox ("Equals", "pbdom_doc equals " &
       + "pbdom_attr.GetOwnerDocumentObject()")
  end if

  Destroy pbdombuilder_new

CATCH (PBDOM_Exception except)
  MessageBox ("Exception Occurred", except.Text)
END TRY
```

See also

GetOwnerElementObject
SetOwnerElementObject

## GetOwnerElementObject

Description

Returns the owner PBDOM_ELEMENT of this PBDOM_ATTRIBUTE. If there is no owner element, null is returned.

Syntax

*pbdom_attribute_name*.GetOwnerElementObject( )

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value

PBDOM_ELEMENT. The owner PBDOM_ELEMENT of this PBDOM_ATTRIBUTE or null if this PBDOM_ATTRIBUTE has no owner element.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_ATTRIBUTE object's internal implementation is null. The occurrence of this exception is rare but can take place if severe memory corruption occurs.

Examples

This example creates a PBDOM_DOCUMENT from a string strXML in which the abc root element contains one attribute, My_Attr. The code gets this attribute, calls GetOwnerElementObject on it to obtain the owner element, then calls GetName to return the string `abc`. Finally, it sets My_Attr as an attribute of the child element Data:

```
PBDOM_BUILDER     pbdombuilder_new
PBDOM_DOCUMENT    pbdom_doc
PBDOM_ATTRIBUTE   pbdom_attr
PBDOM_ELEMENT     pbdom_elem
string strXML = "<abc  My_Attr=~"My Attribute
Value~"><data>Data</data></abc>"

TRY
  pbdombuilder_new = Create PBDOM_Builder
  pbdom_doc = pbdombuilder_new.BuildFromString (strXML)

  // Get the attribute
  pbdom_attr = pbdom_doc.GetRootElement(). &
     GetAttribute("My_Attr")

  MessageBox ("pbdom_attr Owner Element Name", &
     pbdom_attr.GetOwnerElementObject().GetName())

  pbdom_attr.Detach()

  pbdom_elem = pbdom_doc.GetRootElement(). &
     GetChildElement("data")
  pbdom_elem.SetAttribute (pbdom_attr)
```

```
    MessageBox ("pbdom_attr Owner Element Name", &
       pbdom_attr.GetOwnerElementObject().GetName())

    Destroy pbdombuilder_new
    Destroy pbdom_doc

  CATCH (PBDOM_Exception except)
    MessageBox ("Exception Occurred", except.Text)
  END TRY
```

See also SetOwnerElementObject

## GetQualifiedName

Description Obtains the qualified name of a PBDOM_ATTRIBUTE. The GetQualifiedName method returns the local name for a PBDOM_ATTRIBUTE that has no namespace.

Syntax *pbdom_attribute_name.*GetQualifiedName()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value String.

Usage For a PBDOM_ATTRIBUTE object that has the form [*namespacePrefix*]:[*attributeName*], the qualified name for the PBDOM_ATTRIBUTE consists of the entire name, [*namespacePrefix*], and [*attributeName*].

To obtain the local name of the PBDOM_ATTRIBUTE, use the GetName method.

To obtain the namespace prefix for the PBDOM_ATTRIBUTE, use the GetNamespacePrefix method.

See also GetName
GetNamespacePrefix
GetNamespaceUri
SetName
SetNamespace

## GetRealValue

Description: Returns the value of a PBDOM_ATTRIBUTE object as type real.

Syntax: *pbdom_attribute_name*.GetRealValue()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value: Real.

Throws: EXCEPTION_DATA_CONVERSION – If data conversion fails.

Usage: GetRealValue is the exact counterpart of the JDOM getFloatValue method.

See also: SetRealValue

## GetText

Description: Returns the text value of the PBDOM_ATTRIBUTE object.

Syntax: *pbdom_attribute_name*.GetText()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ ATTRIBUTE |

Return value: String.

Throws: EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If this PBDOM_ATTRIBUTE does not have or has not been assigned a user-defined name.

Examples: **Example 1** The GetText method is invoked for the attribute in the following element:

```
<abc ATTRIBUTE_1="My Attribute">
```

The GetText method returns the following string:

```
My Attribute
```

**Example 2** This example sets an attribute called my_attr for the root element with text value `text part`. A PBDOM_ENTITYREFERENCE with the name ent_ref and a PBDOM_TEXT with the text value `text part again` are then added as part of the contents of my_attr. A call to GetText on my_attr returns the following text:

```
"text part &ent_ref; text part again."
```

The entity reference `&ent_ref;` is not expanded. If an entity reference is included in an input XML document that is parsed, then the entity reference is expanded before the XML document is transformed into a DOM tree in memory.

```
PBDOM_DOCUMENT          pbdom_doc
PBDOM_ATTRIBUTE         pbdom_attr
PBDOM_ENTITYREFERENCE   pbdom_entref
PBDOM_TEXT              pbdom_txt

try
  pbdom_doc = Create PBDOM_DOCUMENT
  pbdom_entref = Create PBDOM_ENTITYREFERENCE
  pbdom_txt = Create PBDOM_TEXT

  // Create a new document object.
  pbdom_doc.NewDocument ("root")

  // Set the text of "pbdom_txt".
  pbdom_txt.SetText (" text part again.")

  // Add an attribute "my_attr" to the root element.
  pbdom_doc.GetRootElement().SetAttribute("my_attr", &
     "text part ")

  // Set the name of the PBDOM_ENTITYREFERENCE.
  pbdom_entref.SetName ("ent_ref")

  // Append the entity reference to the root
  // element's "my_attr" attribute.
  pbdom_doc.GetRootElement(). &
     GetAttribute("my_attr").AddContent(pbdom_entref)

  // Append a new text node to the "my_attr" attribute.
  pbdom_doc.GetRootElement() . &
      GetAttribute("my_attr").AddContent (pbdom_txt)

  // Now test the text contents of "my_attr  "
  if pbdom_doc.GetRootElement(). &
     GetAttribute("my_attr").GetText() = &
     "text part &ent_ref; text part again." then
    MessageBox ("Pass", &
       "GetText() on my_attr is correct.")

else
    MessageBox ("Fail", &
        "GetText() on my_attr is incorrect.")
```

```
    end if

  catch (pbdom_exception pbdom_e)
    MessageBox ("PBDOM_EXCEPTION", pbdom_e.GetMessage())
  end try
```

Usage

This method returns the actual textual value of this PBDOM_ATTRIBUTE, including all text within the quotation marks. If there are any PBDOM_ENTITYREFERENCE objects included within the PBDOM_ATTRIBUTE, the PBDOM_ENTITYREFERENCE object's name is returned together with the leading ampersand ('&') character plus the terminating semicolon character (';').

See also

GetTextNormalize
GetTextTrim
SetText

## GetTextNormalize

Description

Returns the text data contained within a PBDOM_ATTRIBUTE object with surrounding whitespace characters removed and internal whitespace characters replaced by a single space.

Syntax

*pbdom_attribute_name.*GetTextNormalize()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value

String.

Examples

**Example 1** The GetTextNormalize method is invoked for the PBDOM_ATTRIBUTE of the following element:

```
<abc ATTRIBUTE_1="  My     Attribute   ">
```

The GetTextNormalize method returns the following string:

```
My Attribute
```

**Example 2** This example creates a PBDOM_DOCUMENT based on the following DOM tree, which has a Tab character between the words “My” and “Attribute” in the My_Attr attribute, specified by the `	` entity reference. There are also several space characters:

```
<abc  My_Attr="My&#9;Attribute     Value   ">
   <data>Data</data>
</abc>
```

The call to GetAttribute stores My_Attr in pbdom_attr. Calling GetText on pbdom_attr returns the entire string content of My_Attr, including the beginning Tab character. Calling GetTextNormalize returns the string with all surrounding whitespace characters removed, and the whitespace characters between the words, including the Tab character, replaced by a single space.

```
PBDOM_BUILDER     pbdombuilder_new
PBDOM_DOCUMENT    pbdom_doc
PBDOM_ATTRIBUTE   pbdom_attr
string strXML = "<abc  My_Attr=~"My&#9;Attribute
Value   ~"><data>Data</data></abc>"

TRY
  pbdombuilder_new = Create PBDOM_Builder
  pbdom_doc = pbdombuilder_new.BuildFromString (strXML)

  pbdom_attr = pbdom_doc.GetRootElement(). &
     GetAttribute("My_Attr")

  MessageBox ("pbdom_attr text", "[" &
     "+ pbdom_attr.GetText() + "]")
  MessageBox ("pbdom_attr text normalize", "[" &
     "+ pbdom_attr.GetTextNormalize() + "]")

  Destroy pbdombuilder_new
  Destroy pbdom_doc

  CATCH (PBDOM_Exception except)
   MessageBox ("Exception Occurred", except.Text)
END TRY
```

Usage

Surrounding whitespace characters are removed from the returned text data, and internal whitespace characters are normalized to a single space. The GetTextNormalize method returns an empty string if no text value exists for the PBDOM_ATTRIBUTE or if the text value contains only whitespace characters.

If this PBDOM_ATTRIBUTE contains any PBDOM_ENTITYREFERENCE objects, the name of the PBDOM_ENTITYREFERENCE object is returned as part of the normalized string.

JDOM does not provide a getTextNormalize method for its Attribute class.

See also

GetText
GetTextTrim
SetText

## GetTextTrim

Description

Returns the text data contained within a PBDOM_ATTRIBUTE object with surrounding spaces removed.

Syntax

*pbdom_attribute_name*.GetTextTrim()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value

String.

Examples

**Example 1** The GetTextTrim method is invoked for the PBDOM_ATTRIBUTE of the following element:

```
<abc ATTRIBUTE_1="  My     Attribute   ">
```

The GetTextNormalize method returns the following string:

```
My     Attribute
```

Note that the whitespace characters surrounding the string are removed, but the whitespace characters within the string remain.

**Example 2** This example builds a PBDOM_DOCUMENT based on the following XML tree:

```
<abc  My_Attr="&#32;&#32;&#32;My&#9;Attribute
Value&#32;&#32;&#32;">
   <data>Data</data>
</abc>
```

The My_Attr attribute contains an entity reference for a Tab character (`	`) and several entity references for the space character (` `). The message boxes in the following code show that GetText returns the complete text string of the attribute, whereas GetTextTrim returns the string with the surrounding whitespace characters removed. The Tab character between the words is not removed:

```
PBDOM_BUILDER    pbdombuilder_new
PBDOM_DOCUMENT   pbdom_doc
PBDOM_ATTRIBUTE  pbdom_attr
string           strXML

TRY
  strXML = "<abc
My_Attr=~"&#32;&#32;&#32;My&#9;Attribute
Value&#32;&#32;&#32;~"><data>Data</data></abc>"
  pbdombuilder_new = Create PBDOM_Builder
  pbdom_doc = pbdombuilder_new.BuildFromString (strXML)
```

```
    pbdom_attr = pbdom_doc.GetRootElement(). &
       GetAttribute("My_Attr")

    MessageBox ("pbdom_attr text", "[" &
       + "pbdom_attr.GetText() + "]")
    MessageBox ("pbdom_attr text normalize", &
       "[" + pbdom_attr.GetTextTrim() + "]")

  Destroy pbdombuilder_new
  Destroy pbdom_doc

  CATCH (PBDOM_Exception except)
    MessageBox ("Exception Occurred", except.Text)
  END TRY
```

Usage

Surrounding whitespace characters are removed from the returned text data. The GetTextTrim method returns an empty string if no text value exists for the PBDOM_ATTRIBUTE or if the text value contains only whitespace characters.

If this PBDOM_ATTRIBUTE contains any PBDOM_ENTITYREFERENCE objects, the name of the PBDOM_ENTITYREFERENCE object is returned as part of the trimmed string.

See also

GetText
GetTextNormalize
SetText

## GetTimeValue

Description

Returns the value of a PBDOM_ATTRIBUTE object as type Time.

Syntax

*pbdom_attribute_name.*GetTimeValue(string *strTimeFormat*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *strTimeFormat* | The time format for the return value, for example, HH:MM:SS |

The value of the *strTimeFormat* parameter can use slashes or colons as delimiters. The following table illustrates characters that have special meaning in *strTimeFormat*.

| Character | Meaning | Example |
|---|---|---|
| H | Hour number with no leading zero | 5 |
| HH | Hour number with leading zero, if applicable | 05 |
| M | Minutes number with no leading zero | 5 |
| MM | Minutes number with leading zero, if applicable | 05 |
| S | Seconds number with no leading zero | 5 |
| SS | Seconds number with leading zero, if applicable | 55 |

Return value: Time.

Throws: EXCEPTION_DATA_CONVERSION – If data conversion fails.

See also: SetTimeValue

## GetUintValue

Description: Returns the value of a PBDOM_ATTRIBUTE object as type Uint.

Syntax: *pbdom_attribute_name.*GetUintValue()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value: Uint.

Throws: EXCEPTION_DATA_CONVERSION – If data conversion fails.

See also: SetUintValue

## GetUlongValue

Description: Returns the value of a PBDOM_ATTRIBUTE object as type Ulong.

Syntax: *pbdom_attribute_name.*GetUlongValue()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value: Ulong.

Throws: EXCEPTION_DATA_CONVERSION – If data conversion fails.

See also: SetUlongValue

## HasChildren

Description

Determines whether this PBDOM_ATTRIBUTE object contains any child PBDOM_OBJECTs.

Syntax

*pbdom_attribute_name*.HasChildren()

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |

Return value

Boolean. Returns true if this PBDOM_ATTRIBUTE contains child objects and false otherwise.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

Examples

This example creates a PBDOM_DOCUMENT from a string. The XML document in the string already contains a root element named root that contains an attribute attr that contains an empty string. It then represents attr as a PBDOM_ATTRIBUTE object and calls its HasChildren method, which returns true because a PBDOM_ATTRIBUTE always contains at least one child object. After a call to GetContent, the message box shows that attr contains only one child, a PBDOM_TEXT that represents the empty string:

```
PBDOM_BUILDER pbdom_buildr
PBDOM_DOCUMENT pbdom_doc
PBDOM_ATTRIBUTE pbdom_attr
string strXML = "<root attr=~"~"></root>"

try
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr.BuildFromString(strXML)

  pbdom_attr = pbdom_doc.GetRootElement(). &
     GetAttribute("attr")

  if (pbdom_attr.HasChildren()) then
    PBDOM_OBJECT pbdom_obj_array[]
    long l = 0

    pbdom_attr.GetContent(pbdom_obj_array)

    for l = 1 to UpperBound (pbdom_obj_array)
      MessageBox ("Attr Child Object", &
         pbdom_obj_array[l].GetObjectClassString())
    next
```

```
    end if

  catch (pbdom_exception pbdom_e)
    MessageBox ("PBDOM_EXCEPTION", pbdom_e.GetMessage())
  end try
```

Usage

This method checks to see if this PBDOM_ATTRIBUTE object contains any child PBDOM_OBJECTs and returns true if it does. Note that according to the W3C DOM specification, a DOM Attribute Node can contain only Text and Entity Reference Nodes, therefore a PBDOM_ATTRIBUTE object can contain only PBDOM_TEXT and PBDOM_ENTITYREFERENCE objects.

Even if a PBDOM_ATTRIBUTE object's text value is an empty string, it always contains at least one PBDOM_TEXT object that represents the empty string.

## InsertContent

Description

Inserts a PBDOM_OBJECT as a child of the PBDOM_ATTRIBUTE at a position specified by a referenced PBDOM_OBJECT.

Syntax

*pbdom_attribute_name*.InsertContent(pbdom_object *pbdom_object_new*, pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *pbdom_object_new* | The PBDOM_OBJECT to be inserted |
| *pbdom_object_ref* | A positional reference to a PBDOM_OBJECT before which *pbdom_object_new* is to be inserted |

Return value

PBDOM_OBJECT. The PBDOM_ATTRIBUTE returned as a PBDOM_OBJECT.

Throws

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – The PBDOM_OBJECT to be inserted is nameable and has not been given a user-defined name.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – The PBDOM_OBJECT to be inserted already has a parent.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – The PBDOM_OBJECT to be inserted is not valid to be inserted as a child of this PBDOM_ATTRIBUTE.

EXCEPTION_WRONG_PARENT_ERROR – The reference PBDOM_OBJECT is not a child of this PBDOM_ATTRIBUTE.

Examples

This example adds an attribute to the root element with the name my_attr and text content "attribute text". It then creates a PBDOM_ENTITYREFERENCE object named ent_ref and inserts it before the attribute's current content. Testing the new content of the attribute should return "`&ent_ref;attribute text`";

Consider the following code :

```
PBDOM_DOCUMENT          pbdom_doc
PBDOM_ATTRIBUTE         pbdom_attr
PBDOM_ENTITYREFERENCE   pbdom_entref
PBDOM_OBJECT            pbdom_obj_array[]

try
  pbdom_doc = Create PBDOM_DOCUMENT
  pbdom_entref = Create PBDOM_ENTITYREFERENCE

  // Create a new document object.
  pbdom_doc.NewDocument ("root")
  // Add an attribute "my_attr" to the root element.
  pbdom_doc.GetRootElement().SetAttribute("my_attr", &
     "attribute text")
  // Set the name of the PBDOM_ENTITYREFERENCE.
  pbdom_entref.SetName ("ent_ref")

  // Get the existing contents of my_attr
  pbdom_doc.GetRootElement().GetAttribute("my_attr").&
     GetContent(pbdom_obj_array)

// Insert the entity reference to the root element's
// my_attr attribute before the attribute text.
  pbdom_doc.GetRootElement().GetAttribute("my_attr").&
     InsertContent(pbdom_entref, pbdom_obj_array[1])

  // Test the text contents of "my_attr"
  if pbdom_doc.GetRootElement(). &
     GetAttribute("my_attr").GetText() = &
     "&ent_ref;attribute text" then
     MessageBox ("Pass", &
        "GetText() on my_attr is correct.")
  else
    MessageBox ("Fail", &
        "GetText() on my_attr is incorrect.")
  end if
```

```
catch (pbdom_exception pbdom_except)
  MessageBox ("PBDOM_EXCEPTION", &
     pbdom_except.GetMessage())
end try
```

Usage

This method inserts the input PBDOM_OBJECT as a child at a specific position (before the reference PBDOM_OBJECT). Currently, only a PBDOM_TEXT and a PBDOM_ENTITYREFERENCE object can be inserted as a child of a PBDOM_ATTRIBUTE.

If the reference PBDOM_OBJECT is null, the PBDOM_OBJECT to be inserted is inserted at the end of this PBDOM_ATTRIBUTE object's list of children.

See also

AddContent
GetContent
RemoveContent
SetContent

## IsAncestorObjectOf

Description

Determines whether the current PBDOM_ATTRIBUTE object is the ancestor of another PBDOM_OBJECT.

Syntax

*pbdom_attribute_name*.IsAncestorObjectOf(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_ATTRIBUTE object |
| *pbdom_object_ref* | A reference to a PBDOM_OBJECT to check against |

Return value

Boolean. Returns true if this PBDOM_ATTRIBUTE is the ancestor of the input PBDOM_PBOBJECT and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT– The input PBDOM_OBJECT is invalid. This can happen if it has not been initialized properly or is a null object reference.

Usage

This method checks to see whether the current PBDOM_ATTRIBUTE is the ancestor object of the input PBDOM_OBJECT. According to the W3C DOM specification, only a PBDOM_TEXT and a PBDOM_ENTITYREFERENCE object can become a child object of a PBDOM_ATTRIBUTE, and therefore a PBDOM_ATTRIBUTE can only be an ancestor of a PBDOM_TEXT or a PBDOM_ENTITYREFERENCE object.

## RemoveContent

Description

Removes the input PBDOM_OBJECT from the PBDOM_ATTRIBUTE.

Syntax

*pbdom_attribute_name.*RemoveContent(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *pbdom_object_ref* | The PBDOM_OBJECT child to be removed from this PBDOM_ATTRIBUTE |

Return value

Boolean. Returns true if the content has been successfully removed and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT – The input PBDOM_OBJECT is invalid. This can happen if it has not been initialized properly or is a null object reference.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_ATTRIBUTE object or the input PBDOM_OBJECT is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – This PBDOM_ATTRIBUTE or the PBDOM_OBJECT to be removed is nameable and has not been given a user-defined name.

EXCEPTION_WRONG_DOCUMENT_ERROR – The input PBDOM_OBJECT is not contained within the same PBDOM_DOCUMENT as this PBDOM_ATTRIBUTE.

EXCEPTION_WRONG_PARENT_ERROR – The input PBDOM_OBJECT is not a child of the current PBDOM_ATTRIBUTE.

Examples

This example adds an attribute to the root element with the name my_attr and text content “attribute text”. It then creates a PBDOM_ENTITYREFERENCE object named ent_ref and inserts it before the attribute’s current content.

At this point, my_attr contains two child PBDOM_OBJECTs: a PBDOM_TEXT containing “attribute text” and a PBDOM_ENTITYREFERENCE named ent_ref. The element looks like this when serialized:

```
<root my_attr="attribute text&ent_ref;">
```

A call to GetContent returns an array containing these two PBDOM_OBJECTs. pbdom_obj_array[1] should point to the PBDOM_TEXT. After pbdom_obj_array[1] is removed from my_attr, the element looks like this when serialized: `<root my_attr="&ent_ref;">`.

```
PBDOM_DOCUMENT     pbdom_doc
PBDOM_ATTRIBUTE    pbdom_attr
PBDOM_ENTITYREFERENCE   pbdom_entref
PBDOM_OBJECT            pbdom_obj_array[]

try
  pbdom_doc = Create PBDOM_DOCUMENT
  pbdom_entref = Create PBDOM_ENTITYREFERENCE

  // Create a new document object.
  pbdom_doc.NewDocument ("root")
  // Add an attribute "my_attr" to the root element.
  pbdom_doc.GetRootElement().SetAttribute("my_attr", &
     "attribute text")

  // Set the name of our PBDOM_ENTITYREFERENCE.
  pbdom_entref.SetName ("ent_ref")

  // Add the entity reference to the root
  // element's "my_attr" attribute.
  pbdom_doc.GetRootElement(). &
     GetAttribute("my_attr"). AddContent(pbdom_entref)

  // Get the existing contents of "my_attr"
  pbdom_doc.GetRootElement().GetAttribute("my_attr").&
     GetContent(pbdom_obj_array)

  // Remove PBDOM_TEXT object from "my_attr"
  pbdom_doc.GetRootElement().GetAttribute("my_attr").&
     RemoveContent(pbdom_obj_array[1])

// Test the text contents of "my_attr  "
  if pbdom_doc.GetRootElement(). &
     GetAttribute("my_attr").GetText() = &
     "&ent_ref;" then
    MessageBox ("Pass", &
      "GetText() on my_attr is correct.")
  else
    MessageBox ("Fail",
      "GetText() on my_attr is incorrect.")
  end if

catch (pbdom_exception pbdom_e)
  MessageBox ("PBDOM_EXCEPTION", pbdom_e.GetMessage())
end try
```

Usage

The RemoveContent method removes the input PBDOM_OBJECT from this PBDOM_ATTRIBUTE. Currently, only a PBDOM_TEXT and a PBDOM_ENTITYREFERENCE object can be part of the contents of a PBDOM_ATTRIBUTE. Therefore, the input PBDOM_OBJECT must be either a PBDOM_TEXT or a PBDOM_ENTITYREFERENCE object.

See also

AddContent
GetContent
InsertContent
SetContent

## SetBooleanValue

Description

Sets the text value of a PBDOM_ATTRIBUTE object. The SetBooleanValue method creates this text value by serializing the provided boolean value into a string.

Syntax

*pbdom_attribute_name.*SetBooleanValue(boolean *boolValue*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *boolValue* | A boolean value to be set for the PBDOM_ATTRIBUTE |

Return value

PBDOM_ATTRIBUTE. The PBDOM_ATTRIBUTE from which the SetBooleanValue method was invoked.

See also

GetBooleanValue

## SetContent

Description

Sets the content of this PBDOM_ATTRIBUTE.

Syntax

*pbdom_attribute_name.*SetContent(pbdom_object *pbdom_object_array*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *pbdom_object_array* | An array of PBDOM_OBJECTs |

Return value

PBDOM_OBJECT. This PBDOM_ATTRIBUTE modified.

Throws

EXCEPTION_ILLEGAL_PBOBJECT – One of the array items is not a valid PBDOM object. This can happen if the array item has not been initialized properly or is a null object reference. This is similar to EXCEPTION_INVALID_ARGUMENT.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – One of the array items is nameable and has not been given a user-defined name.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – One of the array items is not associated with a derived PBDOM_OBJECT.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – One of the array items already has a parent.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – One of the array items is not allowed to be set as part of the contents of a PBDOM_ATTRIBUTE.

Examples

This example demonstrates setting the contents of a PBDOM_ATTRIBUTE object. It creates a PBDOM_DOCUMENT with root element root and attaches to it a PBDOM_DOCTYPE with the following internal subset:

```
<!ELEMENT root ANY>
<!ATTLIST root attr CDATA #REQUIRED>
<!ENTITY ent_ref  "MY ENTITY REFERENCE">
```

It also creates a PBDOM_ATTRIBUTE, attr, and sets as its contents an array of three PBDOM_OBJECTS:

- A PBDOM_TEXT with the text value “start text ”
- A PBDOM_ENTITYREFERENCE named ent_ref
- A PBDOM_TEXT with the text value “ end text.”

This removes the original contents of attr and sets new contents so that when the document is serialized into an external file, the root element looks like this:

```
<root attr="start text &ent_ref; end text."/>
```

Finally, a user-defined function called GetAttributeText parses the external serialized XML file and retrieves the text value of the attr attribute.

The code for GetAttributeText function is as follows:

```
PBDOM_BUILDER    pbdom_buildr
PBDOM_DOCUMENT   pbdom_doc
string           strReturn

try
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr. &
     BuildFromFile (strXMLFileName)

  strReturn = pbdom_doc.GetRootElement(). &
     GetAttribute(strAttributeName).GetText()
```

```
catch (PBDOM_EXCEPTION pbdom_except)
  strReturn = ""
end try
return strReturn
```

This function builds a PBDOM_DOCUMENT from the external XML file (its first argument) and gets the text value of an attribute (its second argument) from the root element.

The code that sets the content of the PBDOM_ATTRIBUTE is as follows:

```
PBDOM_DOCUMENT     pbdom_doc
PBDOM_DOCTYPE      pbdom_doctyp
PBDOM_ATTRIBUTE    pbdom_attr
PBDOM_TEXT         pbdom_txt
PBDOM_OBJECT       pbdom_obj_array_set[]
long l = 0

try
  pbdom_doc = Create PBDOM_DOCUMENT
  pbdom_doc.NewDocument ("root")

  pbdom_doctyp = Create PBDOM_DOCTYPE
  pbdom_doctyp.SetName ("root")
  pbdom_doctyp.setinternalsubset("<!ELEMENT root
ANY><!ATTLIST root attr CDATA #REQUIRED><!ENTITY
ent_ref ~"MY ENTITY REFERENCE~">")

  pbdom_doc.SetDocType(pbdom_doctyp)

  pbdom_doc.GetRootElement().SetAttribute("attr", "")

  pbdom_obj_array_set[1] = Create PBDOM_TEXT
  pbdom_txt = pbdom_obj_array_set[1]
  pbdom_txt.SetText ("start text ")

  pbdom_obj_array_set[2] = Create PBDOM_ENTITYREFERENCE
  pbdom_obj_array_set[2].SetName("ent_ref")

  pbdom_obj_array_set[3] = Create PBDOM_TEXT
  pbdom_txt = pbdom_obj_array_set[3]
  pbdom_txt.SetText (" end text.")

  pbdom_doc.GetRootElement().GetAttribute("attr"). &
    SetContent(pbdom_obj_array_set)
```

```
    pbdom_doc.SaveDocument &
      ("c:\xmltests\attr_set_content.xml")

    MessageBox ("Attribute Text", GetAttributeText &
     ("c:\xmltests\attr_set_content.xml", "attr"))

  catch (PBDOM_EXCEPTION pbdom_e)
    MessageBox ("PBDOM_EXCEPTION", pbdom_e.GetMessage())
  end try
```

Usage

This method sets the content of this PBDOM_ATTRIBUTE. The supplied array should contain only objects of type PBDOM_TEXT and PBDOM_ENTITYREFERENCE.

When all objects in the supplied array are legal and before the new content is added, all objects in the old content will have their parentage set to null (no parent) and the old content list will be cleared from this PBDOM_ATRIBUTE.

This has the effect that the items of any active array (previously obtained with a call to GetContent) also change to reflect the new condition. In addition, all objects in the supplied array have their parentage set to this PBDOM_ATTRIBUTE.

Passing a null value or an empty array clears the existing content of this PBDOM_ATTRIBUTE.

See also

AddContent
GetContent
RemoveContent
SetContent

## SetDateValue

Description

Sets the text value of a PBDOM_ATTRIBUTE object. The SetDateValue method creates this text value by serializing the provided date value into a string.

Syntax

*pbdom_attribute_name*.SetDateValue(date *dateValue*, *strDateFormat*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *dateValue* | A date value to be set for the PBDOM_ATTRIBUTE |
| *strDateFormat* | The format in which the date value is to be set for the PBDOM_ATTRIBUTE, for example, MM:DD:YYYY |

The value of the *strDateFormat* parameter can include slashes or colons as delimiters. The following table illustrates characters having special meaning in *strDateFormat*.

| Character | Meaning | Example |
|---|---|---|
| D | Day number with no leading zero | 5 |
| DD | Day number with leading zero, if applicable | 05 |
| M | Month number with no leading zero | 5 |
| MM | Month number with leading zero, if applicable | 05 |
| YY | Two-digit year number | 05 |
| YYYY | Four-digit year number | 2005 |

Return value

PBDOM_ATTRIBUTE. The PBDOM_ATTRIBUTE from which the SetDateValue method was invoked.

See also

GetDateValue

## SetDateTimeValue

Description

Sets the text value of a PBDOM_ATTRIBUTE object. The SetDateTimeValue method creates this text value by serializing the provided datetime value into a string.

Syntax

*pbdom_attribute_name.*SetDateTimeValue(datetime *datetimeValue*, string *strDateFormat*, string *strTimeFormat*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *datetimeValue* | A datetime value to be set for the PBDOM_ATTRIBUTE |
| *strDateFormat* | The format in which the date part of the datetime value is to be set for the PBDOM_ATTRIBUTE, for example, MM:DD:YYYY |
| *strTimeFormat* | The format in which the time part of the datetime value is to be set for the PBDOM_ATTRIBUTE, for example, HH:MM:SS |

The value of the *strDateFormat* parameter can use slashes or colons as delimiters. The following table illustrates characters that have special meaning in *strDateFormat*.

| Character | Meaning | Example |
|---|---|---|
| D | Day number with no leading zero | 5 |
| DD | Day number with leading zero, if applicable | 05 |
| M | Month number with no leading zero | 5 |
| MM | Month number with leading zero, if applicable | 05 |
| YY | Two-digit year number | 05 |
| YYYY | Four-digit year number | 2005 |

The value of the *strTimeFormat* parameter can include slashes or colons as delimiters. The following table illustrates characters that have special meaning in *strTimeFormat*.

| Character | Meaning | Example |
|---|---|---|
| H | Hour number with no leading zero | 5 |
| HH | Hour number with leading zero, if applicable | 05 |
| M | Minutes number with no leading zero | 5 |
| MM | Minutes number with leading zero, if applicable | 05 |
| S | Seconds number with no leading zero | 5 |
| SS | Seconds number with leading zero, if applicable | 55 |

Return value

PBDOM_ATTRIBUTE. The PBDOM_ATTRIBUTE from which the SetDateTimeValue method was invoked.

See also

GetDateTimeValue

## SetDoubleValue

Description

Sets the text value of a PBDOM_ATTRIBUTE object. The SetDoubleValue method creates this text value by serializing the provided double value into a string.

Syntax

*pbdom_attribute_name*.SetDoubleValue( double *doubleValue*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *doubleValue* | A double value to be set for the PBDOM_ATTRIBUTE |

Return value

PBDOM_ATTRIBUTE. The PBDOM_ATTRIBUTE from which the SetDoubleValue method was invoked.

See also

GetDoubleValue

## SetIntValue

Description

Sets the text value of a PBDOM_ATTRIBUTE object. The SetIntValue method creates this text value by serializing the provided int value into a string.

Syntax

*pbdom_attribute_name.*SetIntValue(integer*intValue*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *intValue* | An int value to be set for the PBDOM_ATTRIBUTE |

Return value

PBDOM_ATTRIBUTE. The PBDOM_ATTRIBUTE from which the SetIntValue method was invoked.

See also

GetIntValue

## SetLongValue

Description

Sets the text value of a PBDOM_ATTRIBUTE object. The SetLongValue method creates this text value by serializing the provided long value into a string.

Syntax

*pbdom_attribute_name.*SetLongValue( long *longValue*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *longValue* | A long value to be set for the PBDOM_ATTRIBUTE |

Return value

PBDOM_ATTRIBUTE. The PBDOM_ATTRIBUTE from which the SetLongValue method was invoked.

See also

GetLongValue

## SetName

Description

Sets the local name of the PBDOM_ATTRIBUTE object.

Syntax

*pbdom_attribute_name.*SetName(string *strName*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *strName* | The new local name for the PBDOM_ATTRIBUTE |

Return value

Boolean. Returns true if the local name of the PBDOM_ATTRIBUTE has been changed and false otherwise.

Throws

EXCEPTION_INVALID_NAME – If the input name is not valid for a local name of a PBDOM_ATTRIBUTE. This happens if the name is an empty string, if the name contains a namespace prefix, or if the name is already the name of an existing attribute of the owning element.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Examples

This example shows how to set the local name of a PBDOM_ATTRIBUTE and demonstrates that the namespace information it contains is not affected by a change in name.

The sample code first builds a PBDOM_DOCUMENT from a string that contains XML that has a single root element with a namespace declaration and an attribute a.

The GetAttribute method obtains the attribute a, which does not belong to a namespace, and the returned PBDOM_ATTRIBUTE is tested and should be valid. After a call to SetName, the code confirms the name change and tests that the namespace information remains the same (the namespace prefix and URI are both still empty strings):

```
PBDOM_BUILDER     pbdom_buildr
PBDOM_DOCUMENT    pbdom_doc
PBDOM_ATTRIBUTE   pbdom_attr
string strXML = "<root xmlns:n1=~"http://www.n.com~"
a=~"123~"/>"

try
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr.BuildFromString (strXML)

  pbdom_attr = pbdom_doc.GetRootElement(). &
     GetAttribute("a")

  if (IsValid(pbdom_attr)) then
    MessageBox ("Pass", &
      "PBDOM_ATTRIBUTE a is retrieved via the " &
      + "NONAMESPACE GetAttribute() method.")
  else
    MessageBox ("Fail", &
      "PBDOM_ATTRIBUTE should have been retrievable.")
  end if

  pbdom_attr.SetName ("b")

  if pbdom_attr.GetName() = "b" then
```

```
    MessageBox ("Pass", "Name has been changed to b.")
  else
    MessageBox ("Fail", &
      "Name should have been changed to b.")
  end if

  if pbdom_attr.GetNamespacePrefix() = "" then
    MessageBox ("Pass", &
      "Namespace Prefix is an empty string.")
  else
    MessageBox ("Fail", "Namespace Prefix is : " &
      + pbdom_attr.GetNamespacePrefix() &
      + " which is incorrect.")
  end if

  if pbdom_attr.GetNamespaceURI() = "" then
    MessageBox ("Pass", &
      "Namespace URI is an empty string.")
  else
    MessageBox ("Fail", "Namespace URI is : " &
      + pbdom_attr.GetNamespaceURI() &
      + " which is incorrect.")
  end if

catch(PBDOM_EXCEPTION pbdom_e)
  MessageBox("PBDOM_EXCEPTION", pbdom_e.GetMessage())
end try
```

Usage

This method sets the local name of the PBDOM_ATTRIBUTE. When a PBDOM_ATTRIBUTE is first created, it has no name and the namespace information is by default set to the NONAMESPACE namespace. (Its NS Prefix and URI are both empty strings.)

The SetName method is used to set the local name of the PBDOM_ATTRIBUTE. The SetNamespace method is used to set the Namespace Prefix and URI of the PBDOM_ATTRIBUTE.

If a PBDOM_ATTRIBUTE is retrieved programmatically from a parsed document, then the name and namespace information of the PBDOM_ATTRIBUTE are inherited from the referred attribute of the parsed document. The name and namespace information of the PBDOM_ATTRIBUTE, however, can still be modified using the SetName and SetNamespace methods.

Note that according to the W3C "Namespaces in XML"specification, when the SetName method is invoked on a PBDOM_ATTRIBUTE, if the PBDOM_ATTRIBUTE (PBDOM_ATTRIBUTE 1) has an owner PBDOM_ELEMENT that contains an existing PBDOM_ATTRIBUTE (PBDOM_ATTRIBUTE 2) with the same name (to be set for PBDOM_ATTRIBUTE 1) and namespace URI as PBDOM_ATTRIBUTE 1, the EXCEPTION_INVALID_NAME exception will be thrown.

See also

GetName
SetOwnerElementObject

## SetNamespace

Description

Sets the namespace for a PBDOM_ATTRIBUTE object based on the specified namespace prefix and URI.

Syntax

*pbdom_attribute_name*.SetNamespace(string*strNamespacePrefix*, string *stringstrNamespaceUri*, boolean *bVerifyNamespace*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *strNamespacePrefix* | A string containing the namespace prefix to be set for the PBDOM_ATTRIBUTE |
| *strNamespaceUri* | A string containing the namespace URI to be set for the PBDOM_ATTRIBUTE |
| *bVerifyNamespace* | A boolean value to indicate whether to search for an in-scope namespace declaration that matches the input namespace prefix and URI |

Return value

Long. Returns 0 if namespace information was set successfully and -1 if no in-scope namespace matching the input prefix and URI exists.

Throws

EXCEPTION_INVALID_NAME – If the input namespace prefix or the URI or the combination of prefix and URI is not valid. This occurs if:

- The namespace prefix is an empty string and the URI is not an empty string. If both are empty strings, the NONAMESPACE namespace is being specified and this prefix/URI combination is correct.
- The namespace Prefix is `xmlns` and the URI is not `http://www.w3.org/2000/xmlns/`. This namespace prefix/URI pair is unique and exclusive. Its elements cannot be used individually and separately. The use of this pair signifies a namespace declaration.

- The namespace prefix string is invalid. That is, it does not conform to the W3C “Namespaces in XML” specifications for the name of a prefix.
- The namespace URI string is invalid. That is, it does not conform to the W3C specifications for a URI string.
- The owner Element of this PBDOM_ATTRIBUTE already contains an attribute that has the same name as the current PBDOM_ATTRIBUTE and belongs to the namespace that is to be set for the current PBDOM_ATTRIBUTE.

EXCEPTION_INVALID_ARGUMENT – If the input namespace prefix string or the URI string has been set to null.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – If there is insufficient memory to allocate for internal strings.

EXCEPTION_INTERNAL_XML_ENGINE_ERROR – If some internal error occurred in the XML engine.

Examples

This example demonstrates how to set the namespace prefix and URI for a PBDOM_ATTRIBUTE. It creates a PBDOM_DOCUMENT based on the following XML document:

```
<root xmlns:pre1="http://www.pre.com">
   <child1 pre1:a="123" b="456"/>
</root>
```

The namespace *http://www.pre.com*, which has the prefix pre1, is defined in the root element. The child element child1 has an attribute a that belongs to the declared namespace and an attribute b that does not belong to a namespace.

The example uses GetAttribute to get and store the attribute b in pbdom_attr, then calls SetNamespace on pbdom_attr, specifying the strings “pre1” and “http://www.pre.com” as the prefix and URI, and setting the *bVerifyNamespace* parameter to true. This tells SetNamespace to check first to see if the owner element of b or the owner element's ancestor elements contain a namespace declaration for the pre1/*http://www.pre.com* namespace prefix/URI pair.

The search for this prefix/URI pair succeeds because the root element contains such a namespace declaration.

```
PBDOM_BUILDER   pbdom_buildr
PBDOM_DOCUMENT   pbdom_doc
PBDOM_ATTRIBUTE   pbdom_attr
string  strXML = "<root
xmlns:pre1=~"http://www.pre.com~"><child1
pre1:a=~"123~" b=~"456~"/></root>"
```

```
try
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr.BuildFromString (strXML)

  pbdom_attr =
pbdom_doc.GetRootElement().GetChildElement("child1").G
etAttribute("b", "", "")

  pbdom_attr.SetNamespace("pre1",
"http://www.pre.com", true)

  MessageBox ("NS Prefix",
pbdom_attr.GetNamespacePrefix())
  MessageBox ("NS URI", pbdom_attr.GetNamespaceURI())
  MessageBox ("Name", pbdom_attr.getName())
  MessageBox ("Text", pbdom_attr.getText())

  pbdom_doc.SaveDocument ("ns.xml")

catch (PBDOM_EXCEPTION pbdom_except)
  MessageBox ("PBDOM_EXCEPTION",
pbdom_except.GetMessage())
end try
```

There is no other attribute inside child1 that has the name b and that also belongs to the *http://www.pre.com namespace*, so the SetNamespace method succeeds. When serialized, the PBDOM_DOCUMENT looks like this:

```
<root xmlns:pre1="http://www.pre.com">
   <child1 pre1:b="456" pre1:a="123" />
</root>
```

Usage

This method sets this PBDOM_ATTRIBUTE object's namespace based on the input prefix and URI. The input prefix can be an empty string, but the input URI cannot be an empty string unless the prefix is also an empty string.

If the input prefix and URI are both empty strings, the PBDOM_ATTRIBUTE has no namespace. The *bVerifyNamespace* parameter tells the method whether to search for an in-scope namespace declaration that matches the input namespace prefix and URI.

As required by the W3C specification on "Namespaces in XML," if the current PBDOM_ATTRIBUTE has an owner PBDOM_ELEMENT that contains an existing PBDOM_ATTRIBUTE that has the same name as the current PBDOM_ATTRIBUTE and the same namespace URI as is to be set for the current PBDOM_ATTRIBUTE, the EXCEPTION_INVALID_NAME exception is thrown.

See also

GetName
GetNamespacePrefix
GetNamespaceUri
GetQualifiedName
SetName

## SetOwnerElementObject

Description

Sets the input PBDOM_ELEMENT as the owner of the current PBDOM_ATTRIBUTE.

Syntax

*pbdom_attribute_name*.SetOwnerElementObject(pbdom_element *pbdom_element_ref*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *pbdom_element_ref* | The PBDOM_ELEMENT to be set as the owner of this current PBDOM_ATTRIBUTE |

Return value

PBDOM_ATTRIBUTE. This PBDOM_ATTRIBUTE itself modified and returned.

Throws

EXCEPTION_INVALID_ARGUMENT – The input PBDOM_ELEMENT is invalid. This can happen if it has not been initialized properly or is a null object reference.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – The internal implementation of the PBDOM_ATTRIBUTE object or the input PBDOM_ELEMENT object is null. The occurrence of this exception is rare but can take place if severe memory corruption occurs.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_OWNER – This PBDOM_ATTRIBUTE already has an owner Element.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – The input PBDOM_ELEMENT has not been named.

EXCEPTION_INVALID_NAME – The input PBDOM_ELEMENT already contains an attribute that has the same name and that belongs to the same namespace as this current PBDOM_ATTRIBUTE.

Examples

This example moves the positions of two PBDOM_ATTRIBUTE objects from one element to another.

In the string strXML from which a PBDOM_DOCUMENT is created, the abc root element contains a namespace declaration and two attributes. My_Attr belongs to no namespace, and pre:My_Attr_NS belongs to the http://www.pre.com namespace.

The example obtains handles for the two attributes and the data element, then detaches both attributes from abc and sets data as their new owner:

```
PBDOM_BUILDER     pbdombuilder_new
PBDOM_DOCUMENT    pbdom_doc
PBDOM_ATTRIBUTE   pbdom_attr
PBDOM_ATTRIBUTE   pbdom_attr_ns
PBDOM_ELEMENT     pbdom_elem_data
string strXML = "<abc  My_Attr=~"Attribute Value~"
pre:My_Attr_NS=~"Attribute Value NS~"
xmlns:pre=~"http://www.pre.com~"><data>Data</data></ab
c>"

TRY
 pbdombuilder_new = Create PBDOM_Builder
 pbdom_doc = pbdombuilder_new.BuildFromString(strXML)

 pbdom_attr = pbdom_doc.GetRootElement(). &
    GetAttribute("My_Attr")
 pbdom_attr_ns = pbdom_doc.GetRootElement(). &
    GetAttribute("My_Attr_NS", "pre", &
    "http://www.pre.com")
 pbdom_elem_data = pbdom_doc.GetRootElement(). &
    GetChildElement("data")

 pbdom_attr.Detach()
 pbdom_attr.SetOwnerElementObject (pbdom_elem_data)

 pbdom_attr_ns.Detach()
 pbdom_attr_ns.SetOwnerElementObject (pbdom_elem_data)

 pbdom_doc.SaveDocument("setownerelementobject.xml")

 Destroy pbdombuilder_new
 Destroy pbdom_doc
```

```
CATCH (PBDOM_Exception except)

 MessageBox ("Exception Occurred", except.Text)

END TRY
```

When the document is serialized, the XML looks like this:

```
<abc xmlns:pre="http://www.pre.com">

<data pre:My_Attr_NS="Attribute Value NS"
My_Attr="Attribute Value">Data</data>

</abc>
```

Usage

According to the "Namespace in XML" specifications, an element cannot contain two attributes with the same local name and namespace URI. This is true even if the prefixes of the two attributes are different. An exception is thrown if this rule is violated when SetOwnerElementObject is invoked.

See also

GetOwnerElementObject

## SetRealValue

Description

Sets the text value of a PBDOM_ATTRIBUTE object. The SetRealValue method creates this text value by serializing the provided real value into a string.

Syntax

*pbdom_attribute_name.*SetRealValue(real *realValue*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *realValue* | A real value to be set for the PBDOM_ATTRIBUTE |

Return value

PBDOM_ATTRIBUTE. The PBDOM_ATTRIBUTE from which the SetRealValue method was invoked.

See also

GetRealValue

## SetText

Description

Sets the string value of a PBDOM_ATTRIBUTE object.

Syntax

*pbdom_attribute_name.*SetText(string *strText*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *strText* | The string value to be set in the PBDOM_ATTRIBUTE |

Return value

PBDOM_ATTRIBUTE.

Usage

This method returns the current PBDOM_ATTRIBUTE with the input string value set.

This method is the counterpart of the JDOM setValue method.

See also

GetText
GetTextNormalize
GetTextTrim

## SetTimeValue

Description

Sets the text value of a PBDOM_ATTRIBUTE object. The SetTimeValue method creates this text value by serializing the provided time value into a string.

Syntax

*pbdom_attribute_name.*SetTimeValue(time *timeValue*, string *strTimeFormat*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *timeValue* | A time value to be set for the PBDOM_ATTRIBUTE |
| *strTimeFormat* | The format in which the time value is to be set for the PBDOM_ATTRIBUTE, for example, HH:MM:SS |

The value of the *strTimeFormat* parameter can use slashes or colons as delimiters. The following table illustrates characters that have special meaning in *strTimeFormat*.

| Character | Meaning | Example |
|---|---|---|
| H | Hour number with no leading zero | 5 |
| HH | Hour number with leading zero, if applicable | 05 |
| M | Minutes number with no leading zero | 5 |
| MM | Minutes number with leading zero, if applicable | 05 |
| S | Seconds number with no leading zero | 5 |
| SS | Seconds number with leading zero, if applicable | 55 |

Return value

PBDOM_ATTRIBUTE. The PBDOM_ATTRIBUTE from which the SetTimeValue method was invoked.

See also

GetTimeValue

## SetUintValue

Description

Sets the text value of a PBDOM_ATTRIBUTE object. The SetUintValue method creates this text value by serializing the provided uint value into a string.

Syntax

*pbdom_attribute_name.*SetUintValue(unsignedinteger *uintValue*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *uintValue* | A uint value to be set for the PBDOM_ATTRIBUTE |

Return value

PBDOM_ATTRIBUTE. The PBDOM_ATTRIBUTE from which the SetUintValue method was invoked.

See also

GetUintValue

## SetUlongValue

Description

Sets the text value of a PBDOM_ATTRIBUTE object. The SetUlongValue method creates this text value by serializing the provided ulong value into a string.

Syntax

*pbdom_attribute_name.*SetUlongValue(unsignedlong *ulongValue*)

| Argument | Description |
|---|---|
| *pbdom_attribute_name* | The name of the PBDOM_ATTRIBUTE |
| *ulongValue* | A ulong value to be set for the PBDOM_ATTRIBUTE |

| | |
|---|---|
| Return value | PBDOM_ATTRIBUTE. The PBDOM_ATTRIBUTE from which the SetUlongValue method was invoked. |
| See also | GetUlongValue |

CHAPTER 6

# PBDOM_BUILDER Class

About this chapter

This chapter describes the PBDOM_BUILDER class.

## PBDOM_BUILDER

Description

The PBDOM_BUILDER class serves as a DOM factory that creates a PBDOM_DOCUMENT from various input sources, such as a string and a DataStore. A PBDOM_BUILDER class is not a PBDOM_OBJECT. There are no DOM objects to which you can map a PBDOM_BUILDER class.

The PBDOM_BUILDER methods can be contrasted with the PBDOM_DOCUMENT NewDocument methods (overloaded with several versions) that are intended to be used to build a PBDOM_DOCUMENT from scratch.

Methods

PBDOM_BUILDER has the following methods:

- BuildFromDataStore
- BuildFromFile
- BuildFromString
- GetParseErrors

### BuildFromDataStore

Description

Builds a PBDOM_DOCUMENT from the referenced DataStore object.

Syntax

*pbdom_builder_name*.BuildFromDataStore(datastore *datastore_ref*)

| Argument | Description |
|---|---|
| *pbdom_builder_name* | The name of a PBDOM_BUILDER object |
| *datastore_ref* | A DataStore object |

Return value

PBDOM_DOCUMENT.

Throws

EXCEPTION_INVALID_ARGUMENT – The input DataStore object is invalid. This can happen if it has not been initialized properly or is a null object reference.

Examples

The following PowerScript code fragment demonstrates how to use the BuildFromDataStore method with a referenced DataStore object.

```
PBDOM_Builder pbdom_bldr
pbdom_document pbdom_doc
datastore ds

ds = Create datastore
ds.DataObject = "d_customer"
ds.SetTransObject (SQLCA)
ds.Retrieve()

pbdom_doc = pbdom_bldr.BuildFromDataStore(ds)
```

In this example, a DataStore object *ds* is created and populated with data, and then passed to the BuildFromDataStore method. The BuildFromDataStore method causes the DataStore to export the data to XML, using the most current XML template for the DataStore, and then it uses the XML to build a PBDOM_DOCUMENT. The PBDOM_DOCUMENT object is assigned to *pbdom_doc*.

Usage

This method creates a temporary file in the directory pointed to by the user's TMP environment variable. If this directory is invalid, the temporary file is created in the *Windows\temp* directory.

The encoding specified in the XML export template has no effect on the encoding of the document created using BuildFromDataStore. It always has UTF-16LE encoding.

See also

BuildFromFile
BuildFromString

## BuildFromFile

Description

Builds a PBDOM_DOCUMENT from the file pointed to by the input URL string. The URL can be a local file path.

Syntax

*pbdom_builder_name*.BuildFromFile (string *strURL*)

| Argument | Description |
|---|---|
| *pbdom_builder_name* | The name of a PBDOM_BUILDER object |
| *strURL* | A string that indicates the URL of the file from which to build a PBDOM_DOCUMENT |

Return value

PBDOM_DOCUMENT.

Throws

EXCEPTION_MEMORY_ALLOCATION_FAILURE – If there is insufficient memory to create a PBDOM_DOCUMENT object.

Examples

Suppose the file *c:\pbdom_doc_1.xml* contains the following XML string:

```
<!DOCTYPE abc [<!ENTITY text "Some Text" >]>
<abc>
  <data>
    <child_data>Child Data Text</child_data>
    <child_data An_Attribute="Some Attribute Value"/>
    &text;
    <!--Comment String-->
    <![CDATA[Some CDATA String]]>
  </data>
</abc>
```

The file contains a Document Type Declaration that indicates that <abc> is the root element, and a declaration for the text entity that expands to "Some Text":

The root element abc contains a child element data, which contains five child PBDOM_OBJECTs: two PBDOM_ELEMENT objects, and PBDOM_TEXT, PBDOM_COMMENT, and PBDOM_CDATA objects.

The first child_data element contains a PBDOM_TEXT with the string “Child Data Text”. The second child_data element contains no child PBDOM_OBJECTs but it does contain a PBDOM_ATTRIBUTE, An_Attribute, that contains the value “Some Attribute Value”.

This example creates a PBDOM_DOCUMENT called pbdom_doc from *c:\pbdom_doc_1.xml*, tests the content of pbdom_doc, then saves the DOM tree contained within pbdom_doc into a separate file, *c:\pbdom_doc_2.xml*. The input and output files should be identical.

```
PBDOM_Builder     pbdom_bldr
PBDOM_Document    pbdom_doc
PBDOM_Object      pbdom_obj_array[]
PBDOM_Element     pbdom_elem
integer iFileNum1
long l = 0

// Create a PBDOM_DOCUMENT from the XML file
  pbdom_bldr = Create PBDOM_Builder
  pbdom_doc = pbdom_bldr.BuildFromFile &
     ("c:\pbdom_doc_1.xml")

// Test the contents of the PBDOM_DOCUMENT
// First test the PBDOM_DOCTYPE in the document
```

```
  MessageBox ("PBDOM_DOCTYPE GetName()", &
     pbdom_doc.GetDocType().GetName())
  MessageBox ("PBDOM_DOCTYPE GetInternalSubset()", &
     pbdom_doc.GetDocType().GetInternalSubset())

// Test the root element
  MessageBox ("PBDOM_DOC Root Element Name", &
     pbdom_doc.GetRootElement().GetName())

// test the root element's child element
  MessageBox ("PBDOM_DOC <data> Element Name", &
     pbdom_doc.GetRootElement().GetChildElement &
     ("data").GetName())

// Collect all the child PBDOM_OBJECTs of the
// <data> element
  pbdom_doc.GetRootElement().GetChildElement &
     ("data").GetContent(pbdom_obj_array)

// Display the class name, the name and the text
contained
// within each PBDOM_OBJECT array item
  for l = 1 to UpperBound(pbdom_obj_array)
    MessageBox ("Child Object " + string(l) + " Class",&
      pbdom_obj_array[l].GetObjectClassString())
    MessageBox ("Child Object " + string(l) + " Name",&
      pbdom_obj_array[l].GetName())
    MessageBox ("Child Object " + string(l) + " Text",&
      pbdom_obj_array[l].GetText())
  next

// Retrieve and display the name and text value of the
// "An_Attribute" attribute from the <child_data>
element
   pbdom_elem = pbdom_obj_array[2]
  MessageBox ("child_data Attribute name", &
    pbdom_elem.GetAttribute("An_Attribute").GetName())
  MessageBox ("child_data Attribute value", &
    pbdom_elem.GetAttribute("An_Attribute").GetText())

// save the DOM Tree contained within pbdom_doc into
// a separate file "c:\pbdom_doc_2.xml"
  pbdom_doc.SaveDocument ("c:\pbdom_doc_2.xml")

  Destroy pbdom_bldr
```

```
CATCH (PBDOM_Exception except)
  MessageBox ("Exception Occurred", except.Text)
END TRY
```

Usage

The input URL string can be a local file path.

The encoding specified in the XML export template determines the encoding of the document created using BuildFromFile.

See also

BuildFromDataStore
BuildFromString

## BuildFromString

Description

Builds a PBDOM_DOCUMENT from a string.

Syntax

*pbdom_builder_name.*BuildFromString(string *strXMLStream*)

| Argument | Description |
|---|---|
| *pbdom_builder_name* | The name of a PBDOM_BUILDER object |
| *strXMLStream* | A string containing XML |

Return value

PBDOM_DOCUMENT.

Throws

EXCEPTION_INVALID_ARGUMENT – The input string is invalid. This can happen if it has not been initialized properly or is a null object reference.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Examples

The following PowerScript code fragment demonstrates how to use the BuildFromString method with an input string. A string containing XML is passed to the BuildFromString method and the return value is assigned to a PBDOM_DOCUMENT.

```
PBDOM_Builder pbdom_bldr
pbdom_document pbdom_doc
string strXML

strXML = "<Music:abc xmlns:ZMusic="
strXML += "~"http://www.ZMusic.com~">"
strXML += "Root Element Data<data>ABC Data"
strXML += "<inner_data>My Inner Data</inner_data>"
strXML += "My Data</data></abc>"

pbdom_bldr = Create PBDOM_Builder
pbdom_doc = pbdom_bldr.BuildFromString (strXML)
```

Usage

The encoding specified in the XML export template determines the encoding of the document created using BuildFromString.

See also

BuildFromDataStore
BuildFromFile

## GetParseErrors

Description

Obtains a list of parsing errors detected during document parsing.

Syntax

*pbdom_builder_name*.GetParseErrors(ref string *strErrorMessageArray*[])

| Argument | Description |
|---|---|
| *pbdom_builder_name* | The name of a PBDOM_BUILDER object |
| *strErrorMessageArray* | An unbounded array of strings, each of which will be filled with a formatted string containing a parse error. |

Return value

Boolean. Returns true if a list of parse errors has been retrieved and false otherwise. Also returns false if there are no parse errors.

Throws

EXCEPTION_INVALID_ARGUMENT – The input string array is invalid. This can happen if it has not been initialised properly or is a null object reference.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Examples

The code in this example attempts to create a PBDOM_DOCUMENT based on the following XML:

```
<!DOCTYPE root
[
<!ELEMENT root ANY>
<!ELEMENT data (#PCDATA)>
<!ENTITY text "Some Text">
]
>
<root><abc/><def/></root>
```

This XML is well formed but is not valid, because the element root contains two child elements abc and def that are not declared in the DOCTYPE. When GetParseErrors is called, it returns the value true, indicating that at least one parse error has occurred, and generates the following list of errors:

```
"1,103,Unknown element 'abc'"
"1,109,Unknown element 'def'"
```

The 1 in both error messages indicates that the error occurred in line 1 of the XML string, and the 103 and 109 indicate columns 103 and 109, respectively.

```
PBDOM_BUILDER pbdom_buildr
PBDOM_DOCUMENT pbdom_doc
long l = 0
string strXML = "<!DOCTYPE root [<!ELEMENT root
ANY><!ELEMENT data (#PCDATA)> <!ENTITY text ~"Some
Text~">]> <root><abc/><def/></root>"
string strParseErrors[]
BOOLEAN bRetTemp = FALSE

try
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr.BuildFromString (strXML)
  bRetTemp = &
     pbdom_buildr.GetParseErrors(strParseErrors)

  if bRetTemp = true then
    for l = 1 to UpperBound(strParseErrors)
       MessageBox ("Parse Error", strParseErrors[l])
    next
  end if
catch (PBDOM_EXCEPTION pbdom_except)
  MessageBox ("PBDOM_EXCEPTION", &
     pbdom_except.GetMessage())
end try
```

Usage

This method retrieves a list of errors detected during the last parse operation performed by this PBDOM_BUILDER. Each string in the array has the following format:

[*Line Number*],[*Column Number*],[*Error Message*]

where *Line Number* and *Column Number* indicate the line number and column number in the XML document where the error was encountered. *Error Message* is the parse error message.

CHAPTER 7

# PBDOM_CDATA Class

About this chapter

This chapter describes the PBDOM_CDATA class.

## PBDOM_CDATA

Description

The PBDOM_CDATA class represents an XML DOM CDATA section. The PBDOM_CDATA class is derived from PBDOM_TEXT, which inherits from the PBDOM_CHARACTERDATA class.

A PBDOM_CDATA object is used to hold text that contains characters that are prohibited in text objects, such as "<" and "&", without using entity references. For example, consider the following PBDOM_CDATA object:

```
<some_text>
   <![CDATA[ (x < y) & (y < z) => x < z ]]>
</some_text>
```

A PBDOM_TEXT object with the same text content must be written like this:

```
<some_text>
   (x &lt; y) &amp; (y &lt; z) =&gt; x &lt; z
</some_text>
```

However, although the PBDOM_CDATA class is derived from PBDOM_TEXT, a PBDOM_CDATA object cannot always be inserted in the same context as a PBDOM_TEXT. For example, a PBDOM_TEXT object can be added as a child of a PBDOM_ATTRIBUTE, but a PBDOM_CDATA object cannot.

Methods

Some of the inherited methods from PBDOM_OBJECT serve no meaningful objective, and only default or trivial functionalities result. These are described in the following table:

| Method | Always returns |
|---|---|
| AddContent | current PBDOM_CDATA |
| GetContent | false |
| GetName | a string "#cdata" |
| HasChildren | false |
| InsertContent | current PBDOM_CDATA |
| IsAncestorObjectOf | false |
| RemoveContent | false |
| SetContent | current PBDOM_CDATA |
| SetName | false |

PBDOM_CDATA has the following non-trivial methods:

Append
Clone
Detach
Equals
GetObjectClass
GetObjectClassString
GetOwnerDocumentObject
GetParentObject
GetText
GetTextNormalize
GetTextTrim
SetParentObject
SetText

## Append

Description

Appends the input string or the input text data of the PBDOM_CHARACTERDATA object to the text content that already exists within the current PBDOM_CDATA object.

Syntax

*pbdom_cdata_name*.Append(string *strAppend*)

*pbdom_cdata_name*.Append(pbdom_characterdata *pbdom_characterdata_ref*)

| Argument | Description |
|---|---|
| *pbdom_cdata_name* | The name of a PBDOM_CDATA |
| *strAppend* | The string you want appended to the existing text of the current PBDOM_CDATA object |
| *pbdom_characterdata_ref* | The referenced PBDOM_CHARACTERDATA object whose text data is to be appended to the existing text of the current PBDOM_CDATA object |

Return value

PBDOM_CHARACTERDATA.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA (applies to second syntax).

## Clone

Description

Creates and returns a clone of the current PBDOM_CDATA.

Syntax

*pbdom_cdata_name*.Clone(boolean *bDeep*)

| Argument | Description |
|---|---|
| *pbdom_cdata_name* | The name of a PBDOM_CDATA. |
| *bDeep* | A boolean specifying whether a deep or shallow clone is returned. Values are true for a deep clone and false for a shallow clone. This argument is currently ignored. |

Return value

PBDOM_OBJECT. The return value is a clone of the current PBDOM_CDATA housed in a PBDOM_OBJECT.

Examples

This example tests the following characteristics of a cloned PBDOM_CDATA object:

- The contents of an original and cloned PBDOM_CDATA object are exactly the same
- A cloned PBDOM_CDATA initially has no parent object
- A cloned PBDOM_CDATA is initially contained within the same owner document as the original

```
PBDOM_BUILDER     pbdom_buildr
PBDOM_DOCUMENT    pbdom_doc
PBDOM_CDATA       pbdom_cdat
PBDOM_OBJECT      pbdom_obj_array[]
string strXML = "<!DOCTYPE root [<!ELEMENT root
(#PCDATA)>]><root><![CDATA[This is a CDATA Section.]]></root>"

try
  // Build a PBDOM_DOCUMENT based on strXML.
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr.BuildFromString (strXML)

  // Get the contents of the root element.
  pbdom_doc.GetRootElement().GetContent(pbdom_obj_array)

  // Test if the root element contains only one child object.
  if (UpperBound(pbdom_obj_array) = 1) then
    MessageBox ("Pass", "Root Element has only one child.")
  else
    MessageBox ("Fail", "Root Element must have only one child.")
  end if

  // Make a clone of the only child of the root element.
  pbdom_cdat = pbdom_obj_array[1].Clone(true)

  // Test if the clone is a PBDOM_CDATA object.
  if (pbdom_cdat.GetObjectClassString() = "pbdom_cdata") then
    MessageBox ("Pass", &
     "The first child, after being cloned, is indeed a PBDOM_CDATA object.")
  else
    MessageBox ("Fail", "The first child, after being cloned, " &
      + "is found to be a " + pbdom_cdat.GetObjectClassString() + " object.")
  end if

  // Test if the clone is a CDATA section.
  if (pbdom_cdat.GetText() = "This is a CDATA Section.") then
    MessageBox ("Pass", "The text contents of the clone is correct.")
  else
    MessageBox ("Fail", "The text contents of the clone is : [" &
      + pbdom_cdat.GetText() + "]. This is incorrect.")
  end if

  // Test that the clone has no parent.
  if (Not IsValid(pbdom_cdat.GetParentObject())) then
    MessageBox ("Pass", "The clone has no parent.")
  else
```

```
      MessageBox ("Fail", "The clone should have no parent.")
    end if

    // Test that the clone's owner document is the same
    // as the original's owner document.
    if (pbdom_cdat.GetOwnerDocumentObject() = pbdom_doc) then
      MessageBox ("Pass", "The clone's owner document is correct.")
    else
      MessageBox ("Fail", "The clone's owner document is incorrect.")
    end if

  catch (PBDOM_EXCEPTION pbdom_except)
    MessageBox ("PBDOM_EXCEPTION", pbdom_except.GetMessage())
  end try
```

Usage

The Clone method creates a new PBDOM_CDATA object that is a duplicate of, and a separate object from, the original. The clone of a PBDOM_CDATA is always identical to its original whether deep or shallow cloning is invoked, because a PBDOM_CDATA object does not contain any subtree of child PBDOM_OBJECTs.

A PBDOM_CDATA clone has no parent. However, the clone resides in the same PBDOM_DOCUMENT as its original, and if the original PBDOM_CDATA is standalone, the clone is standalone.

## Detach

Description

Detaches a PBDOM_CDATA from its parent PBDOM_OBJECT.

Syntax

*pbdom_cdata_name*.Detach()

| Argument | Description |
|---|---|
| *pbdom_cdata_name* | The name of a PBDOM_CDATA |

Return value

PBDOM_OBJECT. The current PBDOM_CDATA detached from its parent.

Usage

If the current PBDOM_CDATA object has no parent, no modifications occur.

## Equals

Description — Tests for the equality of the current PBDOM_CDATA and a referenced PBDOM_OBJECT.

Syntax — *pbdom_cdata_name*.Equals(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_cdata_name* | The name of a PBDOM_CDATA |
| *pbdom_object_ref* | A PBDOM_OBJECT to test for equality with the current PBDOM_CDATA |

Return value — Boolean. Returns true if the current PBDOM_CDATA object is equivalent to the referenced PBDOM_OBJECT and false otherwise.

Throws — EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not a reference to an object derived from PBDOM_OBJECT.

Usage — True is returned only if the referenced PBDOM_OBJECT is also a derived PBDOM_CDATA object and refers to the same DOM object as the current PBDOM_CDATA. Two separately created PBDOM_CDATA objects, for example, can contain exactly the same text but not be equal.

## GetObjectClass

Description — Returns a long integer code that indicates the class of the current PBDOM_OBJECT.

Syntax — *pbdom_object_name*.GetObjectClass()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value — Long. GetObjectClass returns a long integer code that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_CDATA object, the returned value is 8.

See also — GetObjectClassString

## GetObjectClassString

Description: Returns a string form of the class of the PBDOM_OBJECT.

Syntax: *pbdom_object_name*.GetObjectClassString()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value: String. GetObjectClassString returns a string that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_CDATA object, the returned string is "pbdom_cdata".

See also: GetObjectClass

## GetOwnerDocumentObject

Description: Returns the owning PBDOM_DOCUMENT of the current PBDOM_CDATA.

Syntax: *pbdom_cdata_name*.GetOwnerDocumentObject()

| Argument | Description |
|---|---|
| *pbdom_cdata_name* | The name of a PBDOM_CDATA |

Return value: PBDOM_OBJECT.

Usage: If there is no owning PBDOM_DOCUMENT, null is returned.

See also: GetParentObject
SetParentObject

## GetParentObject

Description: Returns the parent PBDOM_OBJECT of the PBDOM_CDATA. If there is no parent, null is returned.

Syntax: *pbdom_cdata_name*.GetParentObject()

| Argument | Description |
|---|---|
| *pbdom_cdata_name* | The name of a PBDOM_CDATA |

Return value: PBDOM_OBJECT.

See also: GetOwnerDocumentObject
SetParentObject

## GetText

Description: Returns the text data that is contained within the current PBDOM_CDATA object.

Syntax: *pbdom_cdata_name*.GetText()

| Argument | Description |
|---|---|
| *pbdom_cdata_name* | The name of a PBDOM_CDATA |

Return value: String. The textual content of the current PBDOM_CDATA object.

See also: GetTextNormalize
GetTextTrim
SetText

## GetTextNormalize

Description: Returns the text data that is contained within the current PBDOM_CDATA object, with all surrounding whitespace characters removed and internal whitespace characters normalized to a single space.

Syntax: *pbdom_cdata_name*.GetTextNormalize()

| Argument | Description |
|---|---|
| *pbdom_cdata_name* | The name of a PBDOM_CDATA |

Return value: String.

Usage: If no textual value exists for the current PBDOM_OBJECT, or if only whitespace characters exist, an empty string is returned.

See also: GetText
GetTextTrim
SetText

## GetTextTrim

Description: Returns the textual content of the current PBDOM_CDATA object with all surrounding whitespace characters removed.

Syntax: *pbdom_cdata_name*.GetTextTrim()

| Argument | Description |
|---|---|
| *pbdom_cdata_name* | The name of a PBDOM_CDATA |

Return value: String.

Usage: If no textual value exists for the current PBDOM_CDATA, or if only whitespace characters exist, an empty string is returned.

See also: GetText
GetTextNormalize
SetText

## SetParentObject

Description: Sets the referenced PBDOM_OBJECT to be the parent of the current PBDOM_CDATA.

Syntax: *pbdom_cdata_name*.SetParentObject(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_cdata_name* | The name of a PBDOM_CDATA |
| *pbdom_object_ref* | A PBDOM_OBJECT to be set as the parent of this PBDOM_CDATA object |

Return value: PBDOM_OBJECT.

Throws: EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not a reference to an object derived from PBDOM_OBJECT.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – If the current PBDOM_CDATA already has a parent.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – If the input PBDOM_OBJECT is of a class that does not have a legal parent-child relationship with the PBDOM_CDATA class.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If the input PBDOM_OBJECT requires a user-defined name and it has not been named.

Usage: The PBDOM_OBJECT that you set to be the parent of the current PBDOM_CDATA must have a legal parent-child relationship. If it does not, an exception is thrown. Only a PBDOM_ELEMENT object can be set as the parent of a PBDOM_CDATA object.

See also: GetParentObject

## SetText

Description

Sets the input string to be the text content of the current PBDOM_CDATA object.

Syntax

*pbdom_cdata_name*.SetText(string *strSet*)

| Argument | Description |
|---|---|
| *pbdom_cdata_name* | The name of a PBDOM_CDATA |
| *strSet* | The string you want set as the text of the PBDOM_CDATA |

Return value

PBDOM_CHARACTERDATA. This PBDOM_CDATA modified and returned as a PBDOM_CHARACTERDATA object.

See also

GetText
GetTextNormalize
GetTextTrim

CHAPTER 8

# PBDOM_ENTITYREFERENCE Class

About this chapter

This chapter describes the PBDOM_ENTITYREFERENCE class.

## PBDOM_ENTITYREFERENCE

Description

The PBDOM_ENTITYREFERENCE class defines behavior for an XML Entity reference Node. It allows you to insert entity references within element nodes as well as attribute nodes. The PBDOM_ENTITYREFERENCE class is derived from PBDOM_OBJECT.

Methods

Some of the inherited methods from PBDOM_OBJECT currently serve no meaningful objective, and only default or trivial functionalities result. These are described in the following table:

| Method | Always returns |
|---|---|
| AddContent | current PBDOM_ENTITYREFERENCE |
| GetContent | false |
| GetText | an empty string |
| GetTextNormalize | an empty string |
| GetTextTrim | an empty string |
| HasChildren | false |
| InsertContent | current PBDOM_ENTITYREFERENCE |
| IsAncestorObjectOf | false |
| RemoveContent | false |
| SetContent | current PBDOM_ENTITYREFERENCE |

PBDOM_ENTITYREFERENCE has the following non-trivial methods:

- Clone
- Detach
- Equals
- GetName

GetObjectClass
GetObjectClassString
GetOwnerDocumentObject
GetParentObject
SetName
SetParentObject

## Clone

Description

Creates and returns a clone of the current PBDOM_ENTITYREFERENCE object.

Syntax

*pbdom_entityref_name*.Clone(boolean *bDeep*)

| Argument | Description |
|---|---|
| *pbdom_entityref_name* | The name of a PBDOM_ENTITYREFERENCE object. |
| *bDeep* | A boolean specifying whether a deep or shallow clone is returned. Values are true for a deep clone and false for a shallow clone. This parameter is currently ignored. |

Return value

PBDOM_OBJECT. A clone of the current PBDOM_ENTITYREFERENCE object housed in a PBDOM_OBJECT.

Examples

This example creates a PBDOM_DOCUMENT based on a string that contains an XML document, and creates a PBDOM_ENTITYREFERENCE object to reference the ENTITY my_er defined in the DOCTYPE. The DOCTYPE also indicates that the root element must contain zero or more child elements named child, and that each child can contain only parsed character data.

The FOR loop creates ten child elements and inserts a new clone of pbdom_er into each child element. You must use a clone, because the same object cannot be inserted as a child of more than one parent:

```
PBDOM_BUILDER           pbdom_buildr
PBDOM_DOCUMENT          pbdom_doc
PBDOM_ENTITYREFERENCE   pbdom_er
string strXML = "<!DOCTYPE root [<!ELEMENT root
(child)*><!ELEMENT child (#PCDATA)><!ENTITY my_er ~"MY
ENTITY~">]><root/>"
long l = 0

TRY
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr.BuildFromString(strXML)
  pbdom_er = Create PBDOM_ENTITYREFERENCE
```

```
  pbdom_er.SetName("my_er")

// Create 10 child elements for the root element
  for l = 1 to 10
    PBDOM_ELEMENT pbdom_elem_child

    pbdom_elem_child = Create PBDOM_ELEMENT
    pbdom_elem_child.SetName("child")
    // Add a clone of pbdom_er as content
    pbdom_elem_child.AddContent(pbdom_er.Clone(true))

    pbdom_doc.GetRootElement(). &
      AddContent(pbdom_elem_child)
  next

  pbdom_doc.SaveDocument("clone_er.xml")
CATCH(PBDOM_EXCEPTION pbdom_e)
  MessageBox ("PBDOM_EXCEPTION", pbdom_e.GetMessage())
END TRY
```

When the PBDOM_DOCUMENT object is serialized, it produces the following XML document :

```
<!DOCTYPE root
[
<!ELEMENT root (child)*>
<!ELEMENT child (#PCDATA)*>
<!ENTITY my_er "MY ENTITY">
]
>
<root> <child>MY ENTITY</child>
<child>MY ENTITY</child>
<child>MY ENTITY</child>
<child>MY ENTITY</child>
<child>MY ENTITY</child>
<child>MY ENTITY</child>
<child>MY ENTITY</child>
<child>MY ENTITY</child>
<child>MY ENTITY</child>
<child>MY ENTITY</child>
</root>
```

Usage

The Clone method creates a new PBDOM_ENTITYREFERENCE object which is a duplicate of the original. A PBDOM_ENTITYREFERENCE object cannot contain any child PBDOM_OBJECTs, so there is no subtree beneath a PBDOM_ENTITYREFERENCE object. A shallow clone is therefore structurally no different than a deep clone of a PBDOM_ENTITYREFERENCE object.

This method allows you to use an entity reference node more than once. You cannot add a PBDOM_ENTITYREFERENCE object as the child of more than one PBDOM_OBJECT, but you can clone it and then add the clone as the child of another PBDOM_OBJECT.

A PBDOM_ENTITYREFERENCE clone does not have any parent. However, the clone resides in the same PBDOM_DOCUMENT as its original. If the original PBDOM_ENTITYREFERENCE object is standalone, the clone is also standalone.

## Detach

Description

Detaches a PBDOM_ENTITYREFERENCE object from its parent PBDOM_OBJECT.

Syntax

*pbdom_entityref_name*.Detach()

| Argument | Description |
|---|---|
| *pbdom_entityref_name* | The name of a PBDOM_ENTITYREFERENCE object |

Return value

PBDOM_OBJECT. The current PBDOM_ENTITYREFERENCE object detached from its parent.

Usage

If the current PBDOM_ENTITYREFERENCE object has no parent, no modifications occur.

## Equals

Description

Tests for the equality of the current PBDOM_ENTITYREFERENCE object and a referenced PBDOM_OBJECT.

Syntax

*pbdom_entityref_name*.Equals(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_entityref_name* | The name of a PBDOM_ENTITYREFERENCE object |

Return value: Boolean. Returns true if the current PBDOM_ENTITYREFERENCE object is equivalent to the input PBDOM_OBJECT, and false otherwise.

Throws: EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not an object derived from PBDOM_OBJECT.

Usage: This method returns true only if the referenced PBDOM_OBJECT is also a derived PBDOM_ENTITYREFERENCE object *and* it refers to the same DOM object as the current PBDOM_ENTITYREFERENCE object. Two separately created PBDOM_COMMENTs, for example, can contain exactly the same text but not be equal.

## GetName

Description: Obtains the name of the current PBDOM_ENTITYREFERENCE object.

Syntax: *pbdom_entityref_name*.GetName()

| Argument | Description |
|---|---|
| *pbdom_entityref_name* | The name of a PBDOM_ENTITYREFERENCE object |

Return value: String.

See also: SetName

## GetObjectClass

Description: Returns a long integer code that indicates the class of the current PBDOM_OBJECT.

Syntax: *pbdom_object_name*.GetObjectClass()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value: Long. A code that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_ENTITYREFERENCE object, the returned value is 11.

See also: GetObjectClassString

## GetObjectClassString

Description: Returns a string form of the class of the PBDOM_OBJECT.

Syntax: *pbdom_object_name*.GetObjectClassString()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value: String. A string that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_ENTITYREFERENCE object, the returned string is "pbdom_entityreference".

See also: GetObjectClass

## GetOwnerDocumentObject

Description: The GetOwnerDocumentObject method returns the owning PBDOM_DOCUMENT of the current PBDOM_ENTITYREFERENCE object.

Syntax: *pbdom_entityref_name*.GetOwnerDocumentObject()

| Argument | Description |
|---|---|
| *pbdom_entityref_name* | The name of a PBDOM_ENTITYREFERENCE object |

Return value: PBDOM_DOCUMENT.

Usage: If there is no owning PBDOM_DOCUMENT, null is returned.

See also: GetParentObject
SetParentObject

## GetParentObject

Description: The GetParentObject method returns the parent PBDOM_OBJECT of the current PBDOM_ENTITYREFERENCE object.

Syntax: *pbdom_entityref_name*.GetParentObject()

| Argument | Description |
|---|---|
| *pbdom_entityref_name* | The name of a PBDOM_ENTITYREFERENCE object |

Return value: PBDOM_OBJECT.

Usage

The GetParentObject method returns the parent PBDOM_OBJECT of the current PBDOM_ENTITYREFERENCE object. If the PBDOM_ENTITYREFERENCE object has no parent, null is returned.

See also

GetOwnerDocumentObject
SetParentObject

## SetName

Description

Changes the name of the PBDOM_ENTITYREFERENCE object, effectively making it refer to another DOM entity object.

Syntax

*pbdom_entityref_name*.SetName(string *strName*)

| Argument | Description |
|---|---|
| *pbdom_entityref_name* | The name of a PBDOM_ENTITYREFERENCE object |
| *strName* | The new name you want to set for the current PBDOM_ENTITYREFERENCE object |

Return value

Boolean. Returns true if the name of the current PBDOM_ENTITYREFERENCE object was changed, and false if it was not.

See also

GetName

## SetParentObject

Description

The SetParentObject method sets the referenced PBDOM_OBJECT to be the parent of the current PBDOM_ENTITYREFERENCE object.

Syntax

*pbdom_entityref_name*.SetParentObject(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_entityref_name* | The name of a PBDOM_ENTITYREFERENCE object |
| *pbdom_object_ref* | The PBDOM_OBJECT to be set as the parent of the current PBDOM_ENTITYREFERENCE object |

Return value

PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not an object derived from PBDOM_OBJECT.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – If the current PBDOM_ENTITYREFERENCE object already has a parent.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – If the input PBDOM_OBJECT is of a class that does not have a legal parent-child relationship with the PBDOM_ENTITYREFERENCE class.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If the input PBDOM_OBJECT requires a user-defined name and it has not been named, or the name of the entity reference object has not been set.

Usage

This method sets the input PBDOM_OBJECT to be the parent of this PBDOM_ENTITYREFERENCE object. The caller is responsible for ensuring that the current PBDOM_ENTITYREFERENCE object and the input PBDOM_OBJECT can have a legal parent-child relationship. Currently only a PBDOM_ELEMENT or a PBDOM_ATTRIBUTE can be set as the parent of a PBDOM_ENTITYREFERENCE object.

See also

GetOwnerDocumentObject
GetParentObject

CHAPTER 9

# PBDOM_CHARACTERDATA Class

About this document

This chapter describes the PBDOM_CHARACTERDATA class.

## PBDOM_CHARACTERDATA

Description

The PBDOM_CHARACTERDATA class represents character-based content (not markup) within an XML document. It extends the PBDOM_OBJECT class with a set of methods specifically intended for manipulating character data in the DOM.

The PBDOM_CHARACTERDATA class is the parent class of three other PBDOM classes:

- PBDOM_TEXT
- PBDOM_CDATA
- PBDOM_COMMENT

The PBDOM_CHARACTERDATA class, like its parent class PBDOM_OBJECT, is a "virtual" class (similar to a virtual C++ class) in that it is not expected to be directly instantiated and used.

For example, in the following code, the attempt to set the text of pbdom_chrdata raises an exception:

```
PBDOM_CHARACTERDATA pbdom_chrdata
pbdom_chrdata = CREATE PBDOM_CHARACTERDATA
pbdom_chrdata.SetText ("character string")//error
```

In this example, the attempt to set the text of pbdom_chrdata succeeds because pbdom_chrdata is declared as a PBDOM_CHARACTERDATA but instantiated as a PBDOM_TEXT:

```
PBDOM_CHARACTERDATA pbdom_chrdata
pbdom_chrdata = CREATE PBDOM_TEXT
pbdom_chrdata.SetText ("character string")//success
```

Methods

Some of the inherited methods from PBDOM_OBJECT serve no meaningful objective and only default or trivial functionalities result. These are described in the following table:

| Method | Always returns |
|---|---|
| AddContent | current PBDOM_CHARACTERDATA |
| GetContent | false |
| InsertContent | current PBDOM_CHARACTERDATA |
| RemoveContent | false |
| SetContent | current PBDOM_CHARACTERDATA |
| SetName | false |

PBDOM_CHARACTERDATA has the following non-trivial methods:

Append
Clone
Detach
Equals
GetName
GetObjectClass
GetObjectClassString
GetOwnerDocumentObject
GetParentObject
GetText
GetTextNormalize
GetTextTrim
HasChildren
IsAncestorObjectOf
SetParentObject
SetText

## Append

Description

The Append method is overloaded:

- Syntax 1 appends an input string to the text content that already exists within the current PBDOM_CHARACTERDATA object.
- Syntax 2 appends the text data of a PBDOM_CHARACTERDATA object to the text content that already exists within the current PBDOM_CHARACTERDATA object.

Syntax

| For this syntax | See |
|---|---|
| Append(string *strAppend*) | Append Syntax 1 |
| Append(pbdom_characterdata *pbdom_characterdata_ref*) | Append Syntax 2 |

## Append Syntax 1

Description

Appends an input string to the text content that already exists within the current PBDOM_CHARACTERDATA object.

Syntax

*pbdom_text_name*.Append(string *strAppend*)

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_CHARACTERDATA object |
| *strAppend* | The string you want appended to the existing text of the current PBDOM_CHARACTERDATA object |

Return value

PBDOM_CHARACTERDATA. The current PBDOM_CHARACTERDATA modified and returned as a PBDOM_CHARACTERDATA object.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA object is not a reference to an object derived from PBDOM_CHARACTERDATA.

Examples

In this example, the PowerScript code builds a PBDOM_DOCUMENT based on the following DOM Tree:

```
<abc>
   <data>
      <child_1>
         My Text
      </child_1>
      <child_2>
        <!--My Comment-->
      </child_2>
      <child_3>
         <![CDATA[My CDATA]]>
      </child_3>
   </data>
</abc>
```

The root element abc has a child element, data, that has three child elements. child_1 contains a child PBDOM_TEXT with the string “My Text”. child_2 contains a child PBDOM_COMMENT with the string “My Comment”. child_3 contains a child PBDOM_CDATA with the string “My CDATA”.

In the following PowerScript code, the single statement that follows the comment `// obtain the child PBDOM_TEXT of child_1` does the following:

1 Obtains the root element of the PBDOM_DOCUMENT pbdom_doc using GetRootElement. A new PBDOM_ELEMENT representing the root element abc is created in memory and returned.

2 Calls the GetChildElement method on the returned root abc PBDOM_ELEMENT using data as the parameter to single out the data child element. A PBDOM_ELEMENT representing the data element is created in memory and returned.

3 Calls the GetChildElement on the returned data PBDOM_ELEMENT, using child_1 as the parameter to single out the child_1 child element. A PBDOM_ELEMENT representing the child_1 element is created in memory and returned.

4 Calls the GetContent method on the returned child_1 PBDOM_ELEMENT, supplying a reference to the unbounded array pbdom_chardata_array.

   You can supply PBDOM_CHARACTERDATA array instead of a PBDOM_OBJECT array because PBDOM_CHARACTERDATA is a subclass of PBDOM_OBJECT. However, GetContent fails if child_1 contains any objects other than PBDOM_CHARACTERDATA objects.

Because child_1 holds only the PBDOM_TEXT containing the string “My Text”, this statement returns an array that has only one array item. The next statement appends another string to the array item. The example then repeats these steps for child_2 and child_3 and saves pbdom_doc to a file:

```
PBDOM_Builder           pbdombuilder_new
pbdom_document          pbdom_doc
PBDOM_CHARACTERDATA     pbdom_chardata_array[]

string strXML = "<abc><data><child_1>My
Text</child_1><child_2><!--My Comment--
></child_2><child_3><![CDATA[My
CDATA]]></child_3></data></abc>"

TRY
  pbdombuilder_new = Create PBDOM_Builder
  pbdom_doc = pbdombuilder_new.BuildFromString (strXML)
```

```
// obtain the child PBDOM_TEXT of child_1
  pbdom_doc.GetRootElement().GetChildElement("data").&
    GetChildElement("child_1"). &
    GetContent(pbdom_chardata_array)

// append the string "Now Appended" to the text
// returned by the call to GetContent
  pbdom_chardata_array[1].Append (" Now Appended")

// repeat for child_2 and child_3
  pbdom_doc.GetRootElement().GetChildElement("data").&
    GetChildElement("child_2"). &
    GetContent(pbdom_chardata_array)
  pbdom_chardata_array[1].Append (" Now Appended")

  pbdom_doc.GetRootElement().GetChildElement("data").&
    GetChildElement("child_3"). &
    GetContent(pbdom_chardata_array)
  pbdom_chardata_array[1].Append (" Now Appended")

// save pbdom_doc to a file
  pbdom_doc.SaveDocument ("c:\pbdom_doc_1.xml")

  Destroy pbdombuilder_new

CATCH (PBDOM_Exception except)
  MessageBox ("Exception Occurred", except.Text)
END TRY
```

The saved file contains the following:

```
<abc>
   <data>
      <child_1>
         My Text Now Appended
      </child_1>
      <child_2>
        <!--My Comment Now Appended-->
      </child_2>
      <child_3>
         <![CDATA[My CDATA Now Appended]]>
      </child_3>
   </data>
</abc>
```

## Append Syntax 2

Description

Appends the text data of a PBDOM_CHARACTERDATA object to the text content that already exists within the current PBDOM_CHARACTERDATA object.

Syntax

*pbdom_text_name*.Append(pbdom_characterdata *pbdom_characterdata_ref*)

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_CHARACTERDATA |
| *pbdom_characterdata_ref* | The referenced PBDOM_CHARACTERDATA object whose text data is to be appended to the existing text of the current PBDOM_CHARACTERDATA object |

Return value

PBDOM_CHARACTERDATA. The current PBDOM_CHARACTERDATA modified and returned as a PBDOM_CHARACTERDATA object.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the current PBDOM_CHARACTERDATA or the input PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA.

Usage

Note that JDOM does not define an Append method for its CHARACTERDATA class. Because PBDOM implements its Append method in the base PBDOM_CHARACTERDATA class, a PBDOM_TEXT object, a PBDOM_CDATA object, and a PBDOM_TEXT object can append their internal text data to each other because they are all PBDOM_CHARACTERDATA-derived objects.

## Clone

Description

Creates and returns a clone of the current PBDOM_CHARACTERDATA.

Syntax

*pbdom_chardata_name*.Clone(boolean *bDeep*)

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA. |
| *bDeep* | A boolean specifying whether a deep or shallow clone is returned. Values are true for a deep clone and false for a shallow clone. This argument is currently ignored. |

Return value

PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA.

Examples

This example creates a PBDOM_DOCUMENT based on the following DOM tree:

```
<abc>
   <data>Data</data>
</abc>
```

The PowerScript code obtains the data element of the root element as a PBDM_ELEMENT and obtains an array of its children. The array has only one item, the PBDOM_TEXT containing the string "data":

```
PBDOM_BUILDER pbdombuilder_new
PBDOM_DOCUMENT pbdom_doc
PBDOM_ELEMENT pbdom_elem
PBDOM_CHARACTERDATA pbdom_chardata_1
PBDOM_CHARACTERDATA pbdom_chardata_2
PBDOM_CHARACTERDATA pbdom_chardata_3
PBDOM_OBJECT pbdom_obj_array[]
string strXML = "<abc><data>Data</data></abc>"

TRY
   pbdombuilder_new = CREATE PBDOM_BUILDER
   pbdom_doc = pbdombuilder_new.BuildFromString
(strXML)

// get the data element, store in pbdom_elem,
// and get an array of its children
   pbdom_elem = pbdom_doc.GetRootElement(). &
      GetChildElement("data")
   pbdom_elem.GetContent(pbdom_obj_array)
```

This PBDOM_TEXT is assigned into a PBDOM_CHARACTERDATA object, pbdom_chardata_1. Calling GetObjectClassString on pbdom_chardata_1 returns the class name of the actual object contained within it, `pbdom_text`. Calling GetText on it returns the string `Data`:

```
pbdom_chardata_1 = pbdom_obj_array[1]

MessageBox ("Class", &
   pbdom_chardata_1.GetObjectClassString())
MessageBox ("Text", pbdom_chardata_1.GetText())
```

Calling Clone on pbdom_chardata_1 creates a new PBDOM_CHARACTERDATA object. However, because the actual object referenced by pbdom_chardata_1 is a PBDOM_TEXT, the clone is a PBDOM_TEXT object.

Calling GetObjectClassString and GetText on the clone have the same result as for pbdom_chardata_1. The clone and the original object are separate objects and a call to Equals returns false:

```
pbdom_chardata_2 = pbdom_chardata_1.Clone(TRUE)

MessageBox ("Class", &
   pbdom_chardata_2.GetObjectClassString())
MessageBox ("Text", pbdom_chardata_2.GetText())

if (pbdom_chardata_1.Equals(pbdom_chardata_2)) then
  MessageBox ("Equals", &
     "pbdom_chardata_1 equals pbdom_chardata_2")
else
  MessageBox ("Equals", &
    "pbdom_chardata_1 NOT equals pbdom_chardata_2")
end if
```

However, a call to Equals returns true if the object being compared to pbdom_chardata_1 is a reference to pbdom_chardata_1:

```
pbdom_chardata_3 = pbdom_chardata_1
if (pbdom_chardata_1.Equals(pbdom_chardata_3)) then
  MessageBox ("Equals", &
     "pbdom_chardata_1 equals pbdom_chardata_3")
else
  MessageBox ("Equals", &
     "pbdom_chardata_1 NOT equals pbdom_chardata_3")
end if

DESTROY pbdombuilder_new

CATCH (PBDOM_Exception except)
   MessageBox ("Exception Occurred", except.Text)
END TRY
```

Usage

The Clone method creates a new PBDOM_CHARACTERDATA object which is a duplicate of, and a separate object from, the original. Calling Equals using these two objects returns false.

The clone of a PBDOM_CHARACTERDATA object is always identical to its original whether *bDeep* is true or false, because a PBDOM_CHARACTERDATA object contains no subtree of child PBDOM_OBJECTs.

A PBDOM_CHARACTERDATA clone has no parent, but it resides in the same PBDOM_DOCUMENT as its original, and if the original PBDOM_CHARACTERDATA is standalone, the clone is standalone.

## Detach

Description

Detaches a PBDOM_CHARACTERDATA object from its parent.

Syntax

*pbdom_chardata_name*.Detach()

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA object |

Return value

PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA.

Examples

This example creates a PBDOM_DOCUMENT based on the following DOM tree:

```
<abc>
   <data>Data</data>
</abc>
```

The PowerScript code obtains the root element, uses it to obtain the child element, and then obtains an array of the child element's own children. This array has a single item, the PBDOM_TEXT object with the text Data. The array can be cast to a PBDOM_CHARACTERDATA object because it does not contain any objects that are not derived from PBDOM_CHARACTERDATA.

Calling Detach separates the PBDOM_TEXT object from its parent PBDOM_OBJECT, data.

```
PBDOM_Builder          pbdombuilder_new
pbdom_document         pbdom_doc
pbdom_document         pbdom_owner_doc
PBDOM_CHARACTERDATA    pbdom_chardata
PBDOM_OBJECT           pbdom_obj_array[]
```

```
string strXML = "<abc><data>Data</data></abc>"

TRY
   pbdombuilder_new = Create PBDOM_Builder
   pbdom_doc = pbdombuilder_new.BuildFromString
(strXML)

   pbdom_doc.GetRootElement(). &
      GetChildElement("data"). &
      GetContent(pbdom_obj_array)

   pbdom_chardata = pbdom_obj_array[1]
   pbdom_chardata.Detach()
   pbdom_doc.SaveDocument("c:\pbdom_doc_1.xml")
   Destroy pbdombuilder_new
CATCH (PBDOM_Exception except)
   MessageBox ("Exception Occurred", except.Text)
END TRY
```

When the document is saved to a file, the file's contents are as follows, because the PBDOM_TEXT object was removed from data:

```
<abc>
   <data/>
</abc>
```

Usage

Nothing occurs if the PBDOM_CHARACTERDATA object has no parent.

## Equals

Description

Tests for the equality of the current PBDOM_CHARACTERDATA and a referenced PBDOM_OBJECT.

Syntax

*pbdom_chardata_name*.Equals(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA object |
| *pbdom_object_ref* | A reference to a PBDOM_OBJECT to test for equality with the current PBDOM_CHARACTERDATA object |

Return value

Boolean. Returns true if the current PBDOM_CHARACTERDATA is equivalent to the input PBDOM_OBJECT and false otherwise.

Throws EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA.

Usage True is returned only if the referenced PBDOM_OBJECT is also a derived PBDOM_CHARACTERDATA object and refers to the same DOM object as the current PBDOM_CHARACTERDATA. Two separately created PBDOM_COMMENTs, for example, can contain exactly the same text but are not equal.

See also Clone

## GetOwnerDocumentObject

Description The GetOwnerDocumentObject method returns the owning PBDOM_DOCUMENT of the current PBDOM_CHARACTERDATA.

Syntax *pbdom_chardata_name*.GetOwnerDocumentObject()

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA object |

Return value PBDOM_OBJECT.

Throws EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not associated with a derived PBDOM_CHARACTERDATA class.

Examples **Example 1** This example creates a PBDOM_DOCUMENT based on the following DOM tree:

```
<abc>
   <data>Data</data>
</abc>
```

The PowerScript code obtains the root element, uses it to obtain the child element, and then obtains an array of the child element's own children. This array has a single item, the PBDOM_TEXT object with the text Data. The array can be cast to a PBDOM_CHARACTERDATA object because it does not contain any objects that are not derived from PBDOM_CHARACTERDATA,

The call to GetOwnerDocumentObject returns a PBDOM_OBJECT, which is stored in a PBDOM_DOCUMENT called pbdom_owner_doc. The call to Equals tests whether the owner document of the "Data" PBDOM_TEXT and the main document, referenced using pbdom_doc, refer to the same document.

```
PBDOM_Builder          pbdombuilder_new
pbdom_document         pbdom_doc
pbdom_document         pbdom_owner_doc
pbdom_element          pbdom_elem
PBDOM_CHARACTERDATA    pbdom_chardata
PBDOM_OBJECT           pbdom_obj_array[]
string strXML = "<abc><data>Data</data></abc>"

TRY
   pbdombuilder_new = Create PBDOM_Builder
   pbdom_doc = pbdombuilder_new.BuildFromString
(strXML)

   pbdom_elem = pbdom_doc.GetRootElement(). &
      GetChildElement("data")
   pbdom_elem.GetContent(pbdom_obj_array)

   pbdom_chardata = pbdom_obj_array[1]

   pbdom_owner_doc = &
      pbdom_chardata.GetOwnerDocumentObject()

   if (pbdom_doc.Equals(pbdom_owner_doc)) then
      MessageBox ("Equals", &
         "pbdom_doc Equals pbdom_owner_doc")
   else
      MessageBox ("Equals", &
         "pbdom_doc Not Equals pbdom_owner_doc")
   end if

   Destroy pbdombuilder_new

CATCH (PBDOM_Exception except)
   MessageBox ("Exception Occurred", except.Text)
END TRY
```

**Example 2** This example creates a PBDOM_DOCUMENT based on the same DOM tree as example 1. It creates a PBDOM_TEXT, stores it in the PBDOM_CHARACTERDATA variable pbdom_chardata, and assigns it some text. Objects created in this way are standalone objects—they have no owner document or parent. Calling GetOwnerDocumentObject on pbdom_chardata returns null.

The code then adds pbdom_chardata as a child to the data element. This implicitly imports pbdom_chardata into the original document. pbdom_chardata now has an owner document and a parent (the data element). Calling GetOwnerDocumentObject on pbdom_chardata returns the original document. When the returned PBDOM_DOCUMENT has been assigned into pbdom_owner_doc, a call to Equals to compare pbdom_doc with pbdom_owner_doc returns true:

```
PBDOM_Builder           pbdombuilder_new
pbdom_document          pbdom_doc
pbdom_document          pbdom_owner_doc
PBDOM_CHARACTERDATA     pbdom_chardata
string strXML = "<abc><data>Data</data></abc>"

TRY
   pbdombuilder_new = Create PBDOM_Builder
   pbdom_doc = pbdombuilder_new.BuildFromString (strXML)

   pbdom_chardata = Create PBDOM_TEXT
   pbdom_chardata.SetText(" Some Text")

   if (IsValid (pbdom_chardata.GetOwnerDocumentObject())) then
      MessageBox ("Owner Document", &
         "PBDOM_TEXT (~'Some Text~') has an owner document.")
   else
     MessageBox ("Owner Document", &
         "PBDOM_TEXT (~'Some Text~') has NO owner document.")
   end if

   pbdom_doc.GetRootElement().GetChildElement("data"). &
      AddContent(pbdom_chardata)

   pbdom_owner_doc = pbdom_chardata.GetOwnerDocumentObject()

   if (pbdom_doc.Equals(pbdom_owner_doc)) then
      MessageBox ("Equals", "pbdom_doc Equals pbdom_owner_doc")
   else
     MessageBox ("Equals", "pbdom_doc Not Equals pbdom_owner_doc")
   end if

   Destroy pbdombuilder_new
   Destroy pbdom_chardata

CATCH (PBDOM_Exception except)
   MessageBox ("Exception Occurred", except.Text)
END TRY
```

Usage — If there is no owning PBDOM_DOCUMENT, null is returned.

See also — GetParentObject
SetParentObject

## GetName

Description — The GetName method allows you to obtain the name of the current PBDOM_CHARACTERDATA.

Syntax — *pbdom_chardata_name.*GetName()

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA object |

Return value — String.

Throws — EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA.

Usage — The returned string depends on the specific type of DOM object that is contained within PBDOM_CHARACTERDATA.

**Note**
A PBDOM_CHARACTERDATA is abstract and is not to be instantiated into an object of its own. Thus, there is no name returned as “#characterdata”.

The following table lists the return values based on the type of DOM Object contained within PBDOM_CHARACTERDATA.

| DOM Object | Return Value |
|---|---|
| PBDOM_CDATA | "#cdata-section" |
| PBDOM_COMMENT | "#comment" |
| PBDOM_TEXT | "#text" |

## GetObjectClass

Description — The GetObjectClass method returns a long integer code that indicates the class of the current PBDOM_OBJECT.

Syntax — *pbdom_object_name*.GetObjectClass()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value

Long. GetObjectClass returns a long integer value that indicates the class of the current PBDOM_OBJECT.

The possible return values for classes inherited from PBDOM_CHARACTERDATA are:

- 7 for PBDOM_TEXT
- 8 for PBDOM_CDATA
- 9 for PBDOM_COMMENT

The PBDOM_CHARACTERDATA class itself cannot be instantiated, so the class ID 6, for PBDOM_CHARACTERDATA, is never returned.

See also

GetObjectClassString

## GetObjectClassString

Description

The GetObjectClassString method returns a string form of the class of the PBDOM_OBJECT.

Syntax

*pbdom_object_name*.GetObjectClassString()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value

String. GetObjectClassString returns a string that indicates the class of the current PBDOM_OBJECT.

The possible return values for classes inherited from PBDOM_CHARACTERDATA are:

- pbdom_text
- pbdom_cdata
- pbdom_comment

The PBDOM_CHARACTERDATA class itself cannot be instantiated, so the string “pbdom_characterdata” is never returned.

Examples

This example creates a PBDOM_DOCUMENT based on the following DOM tree:

```
<abc>
   <data>
      Data with a &lt; character
      <!-- Comment with a &lt; character -->
      <![CDATA[ CDATA with an actual > character and
        an entity reference &lt; ]]>
   </data>
</abc>
```

The PowerScript code obtains the root element, uses it to obtain the child element, and then obtains an array of the child element's own children. This is an array of three PBDOM_OBJECTs, each of which is a child node of data. This array provides the ability to access and manipulate the child nodes, but to illustrate the virtual nature of the PBDOM_CHARACTERDATA class and the calling of methods of the PBDOM_CHARACTERDATA class, the example defines an array of PBDOM_CHARACTERDATA objects.

Each array item of the pbdom_obj_array is assigned to the pbdom_chardata array, so you can call the methods of each array item without needing to know what subclass the item belongs to.

---

**Children must be subclasses of PBDOM_CHARACTERDATA**
If the data element contained a child that was not a subclass of PBDOM_CHARACTERDATA, the FOR loop to assign each pbdom_obj_array item to a corresponding pbdom_chardata array item would fail when it reached that item.

---

The MessageBox calls illustrate how the entity reference `<` is handled by the different PBDOM_CHARACTERDATA subclasses. In the PBDOM_TEXT object, it is expanded. In the PBDOM_COMMENT and PBDOM_CDATA objects, it is not. The character to which the entity reference refers, ">", can also be included in a PBDOM_CDATA object.

```
PBDOM_Builder         pbdombuilder_new
pbdom_document        pbdom_doc
pbdom_element         pbdom_elem
PBDOM_CHARACTERDATA   pbdom_chardata[]
PBDOM_OBJECT          pbdom_obj_array[]
long l = 0
string strXML = "<abc><data>Data with a &lt;
character<!-- Comment with a &lt; character --
><![CDATA[ CDATA with an actual > character and an
entity reference &lt; ]]></data></abc>"
```

```
TRY
   pbdombuilder_new = Create PBDOM_Builder
   pbdom_doc = pbdombuilder_new.BuildFromString
(strXML)

   pbdom_elem = pbdom_doc.GetRootElement(). &
      GetChildElement("data")
   pbdom_elem.GetContent(pbdom_obj_array)

// populate an array of PBDOM_CHARACTERDATA  objects
   for l = 1 to UpperBound(pbdom_obj_array)
      pbdom_chardata[l] = pbdom_obj_array[l]
   next
   for l = 1 to UpperBound(pbdom_chardata)
     MessageBox ("Class", &
        pbdom_chardata[l].GetObjectClassString())
     MessageBox ("Text", pbdom_chardata[l].GetText())
   next

   Destroy pbdombuilder_new

CATCH (PBDOM_Exception except)
   MessageBox ("Exception Occurred", except.Text)
END TRY
```

See also GetObjectClass

## GetParentObject

Description The GetParentObject method returns the parent PBDOM_OBJECT of the current PBDOM_CHARACTERDATA.

Syntax *pbdom_chardata_name*.GetParentObject()

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA object |

Return value PBDOM_OBJECT.

Throws EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA.

Examples

This example creates a PBDOM_DOCUMENT based on the following DOM tree and demonstrates how a PBDOM_CHARACTERDATA INSTANCE can be detached from its parent:

```
<abc>
   <data>Data</data>
</abc>
```

The PowerScript code obtains the root element, uses it to obtain the child element, and then obtains an array of the child element's own children. This array has a single item, the PBDOM_TEXT object with the text Data. The array can be cast to a PBDOM_CHARACTERDATA object, because it does not contain any objects that are not derived from PBDOM_CHARACTERDATA.

The parent of pbdom_chardata_1 is the data element. The following steps detach it from its parent:

- Create a PBDOM_COMMENT in the PBDOM_CHARACTERDATA object pbdom_chardata_2 and assign to it the text "Some Comments".
- Set pbdom_chardata_2 as an array item of pbdom_obj_array.
- Call SetContent on the parent of pbdom_chardata_1 (the data element).

Calling SetContent resets the contents of data, which can cause its original contents (including pbdom_chardata_1) to be removed, depending on what is stored inside pbdom_obj_array. Because pbdom_obj_array contains only the newly created PBDOM_COMMENT, pbdom_chardata_2, data will have only this PBDOM_COMMENT as its child.

pbdom_chardata_1 will have no parent, because it has been silently detached from it. Calling GetParentObject on it will return null:

```
PBDOM_Builder           pbdombuilder_new
pbdom_document          pbdom_doc
pbdom_document          pbdom_owner_doc
PBDOM_CHARACTERDATA     pbdom_chardata_1
PBDOM_CHARACTERDATA     pbdom_chardata_2
PBDOM_OBJECT            pbdom_obj_array[]
string strXML = "<abc><data>Data</data></abc>"

TRY
 pbdombuilder_new = Create PBDOM_Builder
 pbdom_doc = pbdombuilder_new.BuildFromString (strXML)

 pbdom_doc.GetRootElement(). &
   GetChildElement("data"). &
   GetContent(pbdom_obj_array)
```

```
pbdom_chardata_1 = pbdom_obj_array[1]

pbdom_chardata_2 = Create PBDOM_COMMENT
pbdom_chardata_2.SetText ("Some Comments")

pbdom_obj_array[1] = pbdom_chardata_2

pbdom_chardata_1.GetParentObject(). &
   SetContent(pbdom_obj_array)

if (IsValid(pbdom_chardata_1.GetParentObject())) then
   MessageBox ("Has Parent Object", &
     "PBDOMTEXT (~'Data~') has a parent")
else
   MessageBox ("Has Parent Object", &
     "PBDOMTEXT (~'Data~') has NO parent")
end if

pbdom_doc.SaveDocument("c:\pbdom_doc_1.xml")

Destroy pbdombuilder_new
Destroy pbdom_chardata_2

CATCH (PBDOM_Exception except)
 MessageBox ("Exception Occurred", except.Text)
END TRY
```

When the resulting PBDOM_DOCUMENT is saved to a file, it looks like this:

```
<abc>
   <data>
      <!-- Some Comments -->
   </data>
</abc>
```

Usage

The parent is also an object derived from PBDOM_CHARACTERDATA. If the PBDOM_OBJECT has no parent, null is returned.

See also

SetParentObject

## GetText

Description

Calling the GetText method allows you to obtain text data that is contained within the current PBDOM_CHARACTERDATA.

Syntax

*pbdom_chardata_name*.GetText()

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA object |

Return value

String. The text of the current PBDOM_CHARACTERDATA-derived object.

Throws

Throws EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA.

Usage

The following table lists the return values based on the type of DOM Object contained within PBDOM_CHARACTERDATA.

| DOM Object | Return Value |
|---|---|
| PBDOM_TEXT | The text data contained within the PBDOM_TEXT object itself.<br>For example, suppose you have the following element:<br>`<abc>MY TEXT</abc>`<br>If you have a PBDOM_TEXT object to represent the TEXT NODE “MY TEXT”, then calling GetText on the PBDOM_TEXT returns the string `MY TEXT`. |
| PBDOM_CDATA | The string data that is contained within the CDATA section itself. For example, suppose you have the following CDATA:<br>`<![CDATA[ They’re saying "x < y" & that "z > y" so I guess that means that z > x ]]>`<br>If there is a PBDOM_CDATA to represent the above CDATA section, then calling GetText returns the string:<br>`They’re saying "x < y" & that "z > y" so I guess that means that z > x` |
| PBDOM_COMMENT | The comment itself. For example, suppose you have the following comment:<br>`<!--This is a comment. -->`<br>Calling GetText on the comment returns the string:<br>`This is a comment.` |

See also

GetTextNormalize
GetTextTrim
SetText

## GetTextNormalize

Description

The GetTextNormalize method allows you to obtain the text data that is contained within the current PBDOM_CHARACTERDATA object, with all surrounding whitespace characters removed and internal whitespace characters normalized to a single space.

Syntax

*pbdom_chardata_name*.GetTextNormalize()

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA object |

Return value

String. The following table lists the return values, based on the type of DOM object contained within PBDOM_CHARACTERDATA.

| DOM Object | Return Value |
|---|---|
| PBDOM_TEXT | Suppose you have the following element:<br>`<abc> MY TEXT </abc>`<br>If there is a PBDOM_TEXT object to represent the TEXT NODE "MY TEXT", then calling GetTextNormalize on the PBDOM_TEXT returns the string `MY TEXT`. |
| PBDOM_CDATA | Suppose there is the following CDATA:<br>`<![CDATA] They're saying "x < y" & that "z > y" so I guess that means that z > x ]]>`<br>If there is a PBDOM_CDATA to represent the above CDATA section, then calling GetTextNormalize on it returns the string:<br>`They're saying " x < y " & that "z > y" so I guess that means that z > x`<br>Note that the initial spaces before "They're" and the trailing space after the last "x" are removed. Additionally, the spaces between the words "guess" and "that" are reduced to just one space. |
| PBDOM_COMMENT | Suppose there is the following comment:<br>`<!--This is a comment -->`<br>Calling GetTextNormalize on this comment returns:<br>`This is a comment` |

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA.

## Examples

This example demonstrates:

1 Using an external general parsed entity.

2 Using a single line statement to obtain the children PBDOM_OBJECTs of an element.

3 Obtaining the text of the three separate types of PBDOM_CHARACTERDATA objects : PBDOM_TEXT, PBDOM_COMMENT, and PBDOM_CDATA.

4 Obtaining the normalized text of the same three separate types of PBDOM_CHARACTERDATA objects.

5 The difference between the two types of text retrieved in 3 and 4.

Suppose the file *C:\entity_text.txt* contains the following string:

```
&#9;&#32;Some&#32;External&#32;&#32;&#9;&#32;Text&#32;
&#9;
```

The example creates a PBDOM_DOCUMENT pbdom_doc based on the following DOM tree, which is in the file *C:\inputfile.txt*:

```
<!DOCTYPE abc [<!ENTITY text1 SYSTEM
"c:\entity_text.txt" >]>
<abc>
   <data>
       &text1;
       <!-- &text1;-->
       <![CDATA[&text1;]]>
   </data>
</abc>
```

The Document Type Declaration defines an external general parsed entity text1.

The example obtains the root element, uses it to obtain the data child element, and then obtains an array of the child element's own children. PBDOM collects all the PBDOM_OBJECTs that are the children of data and stores them in the PBDOM_OBJECT array pbdom_obj_array.

Next, the FOR loop iterates through all the items in pbdom_obj_array and stores each item in the PBDOM_CHARACTERDATA array pbdom_chardata. This step is not required—the pbdom_obj_array can be used to manipulate the data element's children. It is done to demonstrate that you can cast each item into a PBDOM_CHARACTERDATA object by assigning it into a PBDOM_CHARACTERDATA array. This is possible if and only if each PBDOM_OBJECT is also derived from PBDOM_CHARACTERDATA. If a PBDOM_OBJECT is not derived from PBDOM_CHARACTERDATA, the PowerBuilder VM throws an exception.

The next FOR loop iterates through all the items of the pbdom_chardata array and calls the GetText and GetTextNormalize methods on each. Each of the returned strings from GetText and GetTextNormalize is delimited by "[" and "]" characters so that the complete text content displays clearly in the message boxes.

The first child of data is the PBDOM_TEXT `&text1;`, which has been declared as an external general parsed entity whose content is the content of the file *c:\entity_text.txt*. The `&text1;` entity reference and the entity references it contains are expanded by the parser. The call to GetTextNormalize strips away the whitespace characters.

The second child of data is the PBDOM_COMMENT `<!-- &text1;-->` and the third child is the PBDOM_CDATA `<![CDATA[&text1;]]>`. Entity references within comments and CDATA sections are never expanded. Both GetText and GetTextNormalize return `&text1;`.

```
PBDOM_Builder         pbdombuilder_new
pbdom_document        pbdom_doc
PBDOM_CHARACTERDATA   pbdom_chardata[]
PBDOM_OBJECT          pbdom_obj_array[]
integer               iFileNum1
long                  l = 0

TRY
 pbdombuilder_new = Create PBDOM_Builder
 pbdom_doc = pbdombuilder_new.BuildFromFile &
    ("C:\inputfile.txt")

 pbdom_doc.GetRootElement(). &
    GetChildElement("data"). &
    GetContent(pbdom_obj_array)

 for l = 1 to UpperBound(pbdom_obj_array)
    pbdom_chardata[l] = pbdom_obj_array[l]
 next
```

```
for l = 1 to UpperBound(pbdom_chardata)
   MessageBox(pbdom_chardata[l]. &
     GetObjectClassString() + "GetText()", &
     "[" + pbdom_chardata[l].GetText() + "]")
   MessageBox (pbdom_chardata[l]. &
     GetObjectClassString() + " GetTextNormalize()", &
     "[" + pbdom_chardata[l].GetTextNormalize() + "]")
next

Destroy pbdombuilder_new

CATCH (PBDOM_Exception except)
 MessageBox ("Exception Occurred", except.Text)
END TRY
```

Usage

If no textual value exists for the current PBDOM_OBJECT, or if only whitespace characters exist, an empty string is returned.

See also

GetText
GetTextTrim
SetText

## GetTextTrim

Description

The GetTextTrim method returns the textual content of the current PBDOM_CHARACTERDATA object with all surrounding whitespace characters removed.

Syntax

*pbdom_chardata_name*.GetTextTrim()

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA |

Return value

String.

| DOM Object | Return Value |
|---|---|
| PBDOM_TEXT | The text data contained within the PBDOM_TEXT object itself with surrounding whitespace characters removed.<br>For example, suppose there is the following element:<br>`<abc> MY  TEXT </abc>`<br>If there is a PBDOM_TEXT object to represent the TEXT NODE “MY TEXT”, then calling GetTextTrim on the PBDOM_TEXT returns the string `MY  TEXT`. |

| DOM Object | Return Value |
|---|---|
| PBDOM_CDATA | The string data that is contained within the CDATA section itself with surrounding whitespace characters removed. For example, suppose there is the following CDATA:<br>`<![CDATA[ They're saying "x < y" & that "z > y" so I guess that means that z > x ]]>`<br>If there is a PBDOM_CDATA to represent the above CDATA section, then calling GetTextTrim on it returns the string:<br>`They're saying " x < y " & that "z > y" so I guess that means that z > x`<br>Note that the initial spaces before "They're" and the trailing space after the last "x" are removed. |
| PBDOM_COMMENT | Suppose there is the following comment:<br>`<!-- This is a comment -->`<br>Calling GetTextTrim on this comment returns:<br>`This is a comment`<br>Note that the spaces between the individual words in the comment are preserved. Only the surrounding whitespace characters are removed. |

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA.

Examples

This example demonstrates:

1 Using an External DTD.

2 Using a parameter entity.

3 Using a single line statement to obtain the children PBDOM_OBJECTs of an element.

4 Obtaining the text of the three separate types of PBDOM_CHARACTERDATA objects : PBDOM_TEXT, PBDOM_COMMENT, and PBDOM_CDATA.

5 Obtaining the trimmed text of the same three separate types of PBDOM_CHARACTERDATA objects.

6 The difference between the two types of text retrieved in 4 and 5.

The PowerScript code saves a string into an external file, then creates a PBDOM_DOCUMENT pbdom_doc based on the following DOM tree:

```
<!DOCTYPE abc SYSTEM "c:\external_entity.dtd">
<abc>
   <data>
       &text1;
       <!-- &text1;-->
       <![CDATA[&text1;]]>
   </data>
</abc>
```

*c:\external_entity.dtd* is an external Document Type Definition file. Its contents are the external subset of the Document Type Definition. The first line declares a PARAMETER entity param_entity_ref that contains the following replacement text:

```
&#32;&#32;&#32;PARAMETER ENTITY REFERENCE&#9;&#9;&#9;
```

The next line declares a general entity text1 that contains the following replacement text:

```
%param_entity_ref;
```

When the entity text1 is used in an XML document, it is expanded to the contents of the PARAMETER entity param_entity_ref.

The PowerScript code then obtains the root element, uses it to obtain the data child element, and then obtains an array of the child element's own children. PBDOM collects all the PBDOM_OBJECTs that are the children of data and stores them in the PBDOM_OBJECT array pbdom_obj_array.

Next, the FOR loop iterates through all the items in pbdom_obj_array and stores each item in the PBDOM_CHARACTERDATA array pbdom_chardata. This step is not required—the pbdom_obj_array can be used to manipulate the data element's children. It is done to demonstrate that you can cast each item into a PBDOM_CHARACTERDATA object by assigning it into a PBDOM_CHARACTERDATA array.

This is possible if and only if each PBDOM_OBJECT is also derived from PBDOM_CHARACTERDATA. If a PBDOM_OBJECT is not derived from PBDOM_CHARACTERDATA, the PowerBuilder VM throws an exception.

The next FOR loop iterates through all the items of the pbdom_chardata array and calls the GetText and GetTextTrim methods on each. Each of the returned strings from GetText and GetTextTrim is delimited by "[" and "]" characters so that the complete text content displays clearly in the message boxes.

The first child of data is the PBDOM_TEXT `&text1;`, which expands to the string in param_entity_ref. The entity references within this string are also expanded and the Tab and Space characters display when GetText is called. When GetTextTrim is called, PBDOM removes the beginning and trailing whitespace characters and the resulting string is simply `PARAMETER ENTITY REFERENCE`.

The second child of data is the PBDOM_COMMENT `<!-- &text1;-->`., and the third child is the PBDOM_CDATA `<![CDATA[&text1;]]>`. The string `&text1;` is not considered to be an entity reference by PBDOM because W3C DOM comments and CDATA sections cannot hold any entity references. Both GetText and GetTextTrim return the string `&text1;`. There are no leading or trailing spaces to remove.

```
PBDOM_CHARACTERDATA      pbdom_chardata[]
PBDOM_OBJECT             pbdom_obj_array[]
integer                  iFileNum1
long                     l = 0
string strExternalDTD = "<!ENTITY % param_entity_ref
~"&#32;&#32;&#32;PARAMETER ENTITY
REFERENCE&#9;&#9;&#9;~"><!ENTITY text1
~"%param_entity_ref;~">"
string strXML = "<!DOCTYPE abc SYSTEM
~"c:\external_entity.dtd~"><abc><data>&text1;<!--
&text1;--><![CDATA[&text1;]]></data></abc>"

TRY
 iFileNum1 = FileOpen("c:\external_entity.dtd", &
   StreamMode!, Write!, LockWrite!, Replace!)
 FileWrite(iFileNum1, strExternalDTD)
 FileClose(iFileNum1)

 pbdombuilder_new = Create PBDOM_Builder
 pbdom_doc = pbdombuilder_new.BuildFromString (strXML)

 pbdom_doc.GetRootElement(). &
    GetChildElement("data"). &
    GetContent(pbdom_obj_array)

 for l = 1 to UpperBound(pbdom_obj_array)
    pbdom_chardata[l] = pbdom_obj_array[l]
 next

 for l = 1 to UpperBound(pbdom_chardata)
    MessageBox (pbdom_chardata[l]. &
       GetObjectClassString() + " GetText()", &
```

```
            "[" + pbdom_chardata[l].GetText() + "]")
        MessageBox (pbdom_chardata[l]. &
            GetObjectClassString() + " GetTextTrim()" , &
            "[" + pbdom_chardata[l].GetTextTrim() + "]")
    next

    Destroy pbdombuilder_new

CATCH (PBDOM_Exception except)
    MessageBox ("Exception Occurred", except.Text)
END TRY
```

Usage

If no textual value exists for the current PBDOM_CHARACTERDATA, or if only whitespace characters exist, an empty string is returned.

See also

GetText
GetTextNormalize
SetText

## HasChildren

Description

This method returns true if this PBDOM_CHARACTERDATA has at least one child PBDOM_OBJECT. If this PBDOM_CHARACTERDATA has no children, false is returned.

Syntax

*pbdom_chardata_name*.HasChildren()

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA. |

Return value

Boolean.

| Value | Description |
|---|---|
| true | The current PBDOM_CHARACTERDATA has at least one child PBDOM_OBJECT |
| false | The current PBDOM_CHARACTERDATA has no child PBDOM_OBJECTs |

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA.

Usage

If the PBDOM_CHARACTERDATA has at least one child PBDOM_OBJECT, true is returned. False is returned if there are no children.

Currently, false is always returned because no subclasses of PBDOM_CHARACTERDATA contain child nodes.

## IsAncestorObjectOf

Description

The IsAncestorObjectOf method determines whether the current PBDOM_CHARACTERDATA is the ancestor of another PBDOM_OBJECT.

Syntax

*pbdom_chardata_name*.IsAncestorObjectOf(pbdom_object *pbdom_object_ret*)

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA |
| *pbdom_object_ref* | A PBDOM_OBJECT to check against |

Return value

Boolean. Returns true if the current PBDOM_CHARACTERDATA is the ancestor of the referenced PBDOM_OBJECT, and false otherwise.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA.

Usage

Currently, false is always returned because no subclasses of PBDOM_CHARACTERDATA contain child nodes. Therefore, they cannot be ancestors of a PBDOM_OBJECT.

## SetParentObject

Description

The SetParentObject method sets the referenced PBDOM_OBJECT to be the parent of the current PBDOM_CHARACTERDATA.

Syntax

*pbdom_chardata_name*.SetParentObject(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA |
| *pbdom_object_ref* | A PBDOM_OBJECT to be set as the parent of this PBDOM_CHARACTERDATA object |

Return value

PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA. This exception also occurs if the input PBDOM_OBJECT is not a reference to an object derived from PBDOM_OBJECT.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – If the current PBDOM_CHARACTERDATA already has a parent.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – If the input PBDOM_OBJECT is of a class that does not have a proper parent-child relationship with the class of this PBDOM_CHARACTERDATA.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If the input PBDOM_OBJECT requires a user-defined name, and it has not been named.

Examples

This example creates a PDBOM_DOCUMENT based on the following DOM tree:

```
<abc>
   <data>
      <child_1/>
      <child_2/>
      <child_3/>
</data>
</abc>
```

The code creates three separate types of PBDOM_CHARACTERDATA objects and stores them in the pbdom_chardata array. It then obtains the root element, uses it to obtain the data child element, and then uses that to obtain the first child element, which it sets as the parent of the first item in the pbdom_chardata array.

The text of the array item is set to Comment. You can set the string content of any PBDOM_CHARACTERDATA object after you have set it as the child of a parent.

The same process is repeated for the text and CDATA objects:

```
PBDOM_Builder        pbdombuilder_new
pbdom_document       pbdom_doc
PBDOM_CHARACTERDATA  pbdom_chardata[]
PBDOM_ELEMENT        pbdom_elem
long                 = 0
string strXML =
"<abc><data><child_1/><child_2/><child_3/></data></abc
>"
```

```
TRY
 pbdombuilder_new = Create PBDOM_Builder
 pbdom_doc = pbdombuilder_new.BuildFromString (strXML)

 pbdom_chardata[1] = Create PBDOM_COMMENT
 pbdom_chardata[2] = Create PBDOM_TEXT
 pbdom_chardata[3] = Create PBDOM_CDATA

 pbdom_elem = pbdom_doc.GetRootElement(). &
    GetChildElement("data").GetChildElement("child_1")
 pbdom_chardata[1].SetParentObject (pbdom_elem)
 pbdom_chardata[1].SetText ("Comment")

 pbdom_elem = pbdom_doc.GetRootElement(). &
    GetChildElement("data").GetChildElement("child_2")
 pbdom_chardata[2].SetParentObject (pbdom_elem)
 pbdom_chardata[2].SetText ("Text")

 pbdom_elem = pbdom_doc.GetRootElement(). &
    GetChildElement("data").GetChildElement("child_3")
 pbdom_chardata[3].SetParentObject (pbdom_elem)
 pbdom_chardata[3].SetText ("CDATA")

 pbdom_doc.SaveDocument ("c:\pbdom_doc_1.xml")

 Destroy pbdombuilder_new

CATCH (PBDOM_Exception except)
 MessageBox ("Exception Occurred", except.Text)
END TRY
```

When the PBDOM_DOCUMENT is saved to a file, the output DOM tree looks like this:

```
<abc>
   <data>
      <child_1>
         <!--Comment-->
      </child_1>
      <child_2>
         Text
      </child_2>
      <child_3>
         <![CDATA[CDATA]]>
      </child_3>
   </data>
</abc>
```

Usage

The PBDOM_OBJECT that you set to be the parent of the current PBDOM_CHARACTERDATA must have a legal parent-child relationship. If it does not, an exception is thrown.

See also

GetParentObject

## SetText

Description

The SetText method sets the input string to be the text content of the current PBDOM_CHARACTERDATA object.

Syntax

*pbdom_chardata_name*.SetText(string *strSet*)

| Argument | Description |
|---|---|
| *pbdom_chardata_name* | The name of a PBDOM_CHARACTERDATA |
| *strSet* | The string you want set as the text of the PBDOM_CHARACTERDATA |

Return value

PBDOM_CHARACTERDATA. The current PBDOM_CHARACTERDATA object modified.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_CHARACTERDATA is not a reference to an object derived from PBDOM_CHARACTERDATA.

Usage

The SetText method sets the input string to be the text content of the current PBDOM_CHARACTERDATA object.

See also

GetText
GetTextNormalize
GetTextTrim

CHAPTER 10

# PBDOM_COMMENT Class

About this chapter

This chapter describes the PBDOM_COMMENT class.

## PBDOM_COMMENT

Description

The PBDOM_COMMENT class represents a DOM Comment Node within an XML document. The PBDOM_COMMENT class is derived from the PBDOM_CHARACTERDATA class and is intended to extend the PBDOM_CHARACTERDATA class with a set of methods intended specifically for manipulating DOM comment nodes.

You can use comments to annotate an XML document with user-readable information.

In PBDOM, when a document is parsed, any comments found within the document persist as part of the resultant DOM tree in memory. A PBDOM_COMMENT created at runtime also becomes part of the DOM tree. However, an XML comment does not usually form part of the content model of a document.

The presence or absence of comments has no bearing on a document's validity. There is no requirement that comments must be predeclared in a DTD.

Methods

Some of the inherited methods from PBDOM_OBJECT serve no meaningful objective, and only default or trivial functionalities result. These are described in the following table:

| Method | Always returns |
|---|---|
| AddContent | current PBDOM_COMMENT |
| GetContent | false |
| GetName | a string "#comment" |
| HasChildren | false |
| InsertContent | current PBDOM_COMMENT |
| IsAncestorObjectOf | false |
| RemoveContent | false |

| Method | Always returns |
|---|---|
| SetContent | current PBDOM_COMMENT |
| SetName | false |

PBDOM_COMMENT has the following non-trivial methods:

Append
Clone
Detach
Equals
GetObjectClass
GetObjectClassString
GetOwnerDocumentObject
GetParentObject
GetText
GetTextNormalize
GetTextTrim
SetParentObject
SetText

## Append

Description

The Append method is overloaded:

- Syntax 1 appends an input string to the text content that already exists within the current PBDOM_COMMENT object.
- Syntax 2 appends the text data of a PBDOM_CHARACTERDATA object to the text content that already exists within the current PBDOM_COMMENT object.

Syntax

| For this syntax | See |
|---|---|
| Append(string *strAppend*) | Append Syntax 1 |
| Append(pbdom_characterdata *pbdom_characterdata_ref*) | Append Syntax 2 |

## Append Syntax 1

Description

Appends an input string to the text content that already exists within the current PBDOM_COMMENT object.

Syntax

*pbdom_comment_name*.Append(string *strAppend*)

| Argument | Description |
|---|---|
| *pbdom_comment_name* | The name of a PBDOM_COMMENT |
| *strAppend* | The string you want to append to the existing text of the current PBDOM_COMMENT object |

Return value

PBDOM_CHARACTERDATA. The current PBDOM_COMMENT modified and returned as a PBDOM_CHARACTERDATA object.

## Append Syntax 2

Description

Appends the text data of a PBDOM_CHARACTERDATA object to the text content that exists within the current PBDOM_COMMENT object.

Syntax

*pbdom_comment_name*.Append(pbdom_characterdata *pbdom_characterdata_ref*)

| Argument | Description |
|---|---|
| *pbdom_comment_name* | The name of a PBDOM_COMMENT |
| *pbdom_characterdata_ref* | The referenced PBDOM_CHARACTERDATA object whose text data is to be appended to the existing text of the current PBDOM_COMMENT object |

Return value

PBDOM_CHARACTERDATA. The current PBDOM_COMMENT modified and returned as a PBDOM_CHARACTERDATA object.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_CHARACTERDATA is not a reference to a PBDOM_CHARACTERDATA-derived object.

Usage

Note that JDOM does not define an Append method for its COMMENT class. Because PBDOM implements its Append method in the base PBDOM_CHARACTERDATA class, a PBDOM_TEXT object, a PBDOM_CDATA object, and a PBDOM_COMMENT object can append their internal text data to each other because they are all PBDOM_CHARACTERDATA-derived objects.

## Clone

Description

Creates and returns a clone of the current PBDOM_COMMENT.

Syntax

*pbdom_comment_name*.Clone(boolean *bDeep*)

| Argument | Description |
|---|---|
| *pbdom_comment_name* | The name of a PBDOM_COMMENT |
| *bDeep* | A boolean specifying whether a deep or shallow clone is returned. Values are true for a deep clone and false for a shallow clone |

Return value

PBDOM_OBJECT.

Examples

This example creates an XML document that, when serialized, appears as follows :

```
<!DOCTYPE root
[
<!ELEMENT root (level_1)*>
<!ELEMENT level_1 (level_2)*>
<!ELEMENT level_2 (#PCDATA)*>
]>
<root>
   <level_1>
      <!--Element at level : 1-->
      <level_2>
         <!--Element at level : 2-->
      </level_2>
   </level_1>
</root>
```

The definition of the DTD shows that the document is required to have the following composition:

- The document contains a root element with the name root.
- The root element contains zero or more occurrences of level_1 elements.
- A level_1 element contains zero or more level_2 elements.
- A level_2 element is expected to contain text.

The following PowerScript code supplies annotations within the document by including comments to mark level_1 and level_2 elements. The sample code creates a PBDOM_DOCUMENT from an XML string that contains a DTD and a minimal root element. Then, it creates a comment that serves as a template. The template comment is then cloned, and instance-specific text is added for each element:

```
PBDOM_COMMENT pbdom_comm
PBDOM_COMMENT pbdom_comm_clone
PBDOM_ELEMENT pbdom_elem
PBDOM_DOCUMENT pbdom_doc
PBDOM_BUILDER pbdom_buildr
string strXML = "<!DOCTYPE root [<!ELEMENT root
(level_1)*><!ELEMENT level_1 (level_2)*><!ELEMENT
level_2 (#PCDATA)>]><root/>"

try
  // Create a PBDOM_DOCUMENT from the XML string that
  // contains a DTD and a minimal root element.
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr.BuildFromString(strXML)

  // Create a template comment that can be reused.
  pbdom_comm = Create PBDOM_COMMENT
  pbdom_comm.SetText ("Element at level : ")

  // Create a level_1 element.
  pbdom_elem = Create PBDOM_ELEMENT
  pbdom_elem.SetName("level_1")

  // Clone the template comment, append instance-
  // specific text, and add it to the level_1 element.
  pbdom_comm_clone = pbdom_comm.Clone(true)
  pbdom_elem.AddContent(pbdom_comm_clone.Append("1"))

  // Add a level_1 element into the root element
  // as stipulated by the DTD.
  pbdom_doc.GetRootElement().AddContent(pbdom_elem)

  // Create a level_2 element.
  pbdom_elem = Create PBDOM_ELEMENT
  pbdom_elem.SetName("level_2")

  // Clone the template comment, append instance-
  // specific text, and add it to the level_2 element.
  pbdom_comm_clone = pbdom_comm.Clone(true)
```

```
    pbdom_elem.AddContent(pbdom_comm_clone.Append("2"))

    // Add a level_2 element into the level_1 element
    // as stipulated by the DTD.
    pbdom_doc.GetRootElement().GetChildElement &
      ("level_1").AddContent(pbdom_elem)

    // Finally, serialize the document.
    pbdom_doc.SaveDocument("sample.xml")

  catch(PBDOM_EXCEPTION pbdom_e)
    MessageBox ("PBDOM_EXCEPTION", pbdom_e.GetMessage())
  end try
```

Usage

The Clone method creates a new PBDOM_COMMENT object that is a duplicate of, and a separate object from, the original. Whether true or false is supplied, the clone is always identical to its original, because a PBDOM_COMMENT does not contain a subtree of child PBDOM_OBJECTs.

A PBDOM_COMMENT clone has no parent. However, the clone resides in the same PBDOM_DOCUMENT as its original, and if the original is standalone, the clone is standalone.

## Detach

Description

Detaches a PBDOM_COMMENT from its parent PBDOM_OBJECT.

Syntax

*pbdom_comment_name*.Detach()

| Argument | Description |
|---|---|
| *pbdom_comment_name* | The name of a PBDOM_COMMENT |

Return value

PBDOM_OBJECT.

The current PBDOM_COMMENT is detached from its parent.

Usage

If the current PBDOM_COMMENT object has no parent, no modifications occur.

## Equals

Description

Tests for the equality of the current PBDOM_COMMENT and a referenced PBDOM_OBJECT.

Syntax

*pbdom_comment_name*.Equals(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_comment_name* | The name of a PBDOM_COMMENT. |
| pbdom_object_ref | A PBDOM_OBJECT to test for equality with the current PBDOM_COMMENT |

Return value

Boolean. Returns true if the current PBDOM_COMMENT is equivalent to the input PBDOM_OBJECT, and false otherwise.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the referenced PBDOM_OBJECT is not a reference to an object derived from a PBDOM_OBJECT object.

Usage

True is returned only if the referenced PBDOM_OBJECT is also a derived PBDOM_COMMENT object and refers to the same DOM object as the current PBDOM_COMMENT. Two separately created PBDOM_COMMENTs, for example, can contain exactly the same text but are not equal.

## GetObjectClass

Description

Returns a long integer code that indicates the class of the current PBDOM_OBJECT.

Syntax

*pbdom_object_name*.GetObjectClass()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value

Long. GetObjectClass returns a long integer code that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_COMMENT, the returned value is 9.

See also

GetObjectClassString

## GetObjectClassString

Description: Returns a string form of the class of the PBDOM_OBJECT.

Syntax: *pbdom_object_name*.GetObjectClassString()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value: String. GetObjectClassString returns a string that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_COMMENT, the returned string is "pbdom_comment".

See also: GetObjectClass

## GetOwnerDocumentObject

Description: Returns the owning PBDOM_DOCUMENT of the current PBDOM_COMMENT.

Syntax: *pbdom_comment_name*.GetOwnerDocumentObject()

| Argument | Description |
|---|---|
| *pbdom_comment_name* | The name of a PBDOM_COMMENT |

Return value: PBDOM_OBJECT.

Usage: If there is no owning PBDOM_DOCUMENT, null is returned.

## GetParentObject

Description: Returns the parent PBDOM_OBJECT of the current PBDOM_COMMENT.

Syntax: *pbdom_comment_name*.GetParentObject()

| Argument | Description |
|---|---|
| *pbdom_comment_name* | The name of a PBDOM_COMMENT |

Return value: PBDOM_OBJECT.

Usage: The GetParentObject method returns the parent PBDOM_OBJECT of the current PBDOM_COMMENT. If the PBDOM_COMMENT has no parent, null is returned.

See also: SetParentObject

## GetText

Description

Allows you to obtain the text data that is contained within the current PBDOM_COMMENT object.

Syntax

*pbdom_comment_name*.GetText()

| Argument | Description |
|---|---|
| *pbdom_comment_name* | The name of a PBDOM_COMMENT |

Return value

String. The textual content of the current PBDOM_COMMENT object.

Examples

If you have the comment `<!—A COMMENT->`, the GetText method returns the string `A COMMENT`.

See also

GetTextNormalize
GetTextTrim
SetText

## GetTextNormalize

Description

Allows you to obtain the text data that is contained within the current PBDOM_COMMENT object, with all surrounding whitespace characters removed and internal whitespace characters normalized to a single space.

Syntax

*pbdom_comment_name*.GetTextNormalize()

| Argument | Description |
|---|---|
| *pbdom_comment_name* | The name of a PBDOM_COMMENT |

Return value

String.

Examples

If you have the comment `<!— A COMMENT -->`, which has three spaces before and after the text and between the two words, the GetTexNormalizet method returns the string `A COMMENT`, which has a single space between the words.

Usage

This method allows the caller to obtain the text data that is contained within the current PBDOM_COMMENT with all surrounding whitespace characters removed and internal whitespace characters normalized to single spaces. If no textual value exists for the current PBDOM_COMMENT, or if only whitespace characters exist, an empty string is returned.

See also

GetText
GetTextTrim
SetText

## GetTextTrim

Description

Returns the textual content of the current PBDOM_COMMENT object with all surrounding whitespace characters removed.

Syntax

*pbdom_comment_name*.GetTextTrim()

| Argument | Description |
|---|---|
| *pbdom_comment_name* | The name of a PBDOM_COMMENT |

Return value

String.

Examples

If you have the comment `<!-- A COMMENT -->`, which has three spaces before and after the text and between the two words, the GetTextTrim method returns the string `A COMMENT`. The whitespace characters between the words are preserved.

Usage

This method allows the caller to obtain the text data that is contained within the current PBDOM_COMMENT with all surrounding whitespace characters removed. Internal whitespace characters are preserved. If no textual value exists for the current PBDOM_COMMENT, or if only whitespace characters exist, an empty string is returned.

See also

GetText
GetTextNormalize
SetText

## SetParentObject

Description

Sets the referenced PBDOM_OBJECT to be the parent of the current PBDOM_COMMENT.

Syntax

*pbdom_comment_name*.SetParentObject(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_comment_name* | The name of a PBDOM_COMMENT |
| *pbdom_object_ref* | A PBDOM_OBJECT to be set as the parent of the current PBDOM_COMMENT |

Return value

PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not a reference to an object derived from PBDOM_OBJECT.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – If the current PBDOM_COMMENT already has a parent.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – If the input PBDOM_OBJECT is of a class that does not have a proper parent-child relationship with the PBDOM_COMMENT class.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If the input PBDOM_OBJECT requires a user-defined name, and it has not been named.

Usage

This method sets the input PBDOM_OBJECT as the parent of this PBDOM_COMMENT. The caller is responsible for ensuring that the current PBDOM_COMMENT and the input PBDOM_OBJECT can have a legal parent-child relationship. Currently, only a PBDOM_ELEMENT and a PBDOM_DOCUMENT can be set as the parent of a PBDOM_COMMENT.

The PBDOM_COMMENT SetParentObject method differs from the JDOM Comment setParent method in two ways:

- JDOM defines a setParent method for several specific classes, including Element, Comment, and CDATA. PBDOM implements the SetParentObject method in the base PBDOM_OBJECT class to allow for polymorphism.
- The JDOM Comment's setParent method takes only an Element class object as a parameter:

  ```
  COMMENT::setParent(Element parent)
  ```

  To set a Document as the parent owner of a Comment using JDOM, you use the setDocument method:

  ```
  COMMENT::setDocument(Document document)
  ```

  In PBDOM, SetParentObject takes a reference to a PBDOM_OBJECT, so that both a PBDOM_ELEMENT and a PBDOM_DOCUMENT can be set as a parent.

See also

GetOwnerDocumentObject
GetParentObject

## SetText

Description

Sets the input string to be the text content of the current PBDOM_COMMENT object.

Syntax

*pbdom_comment_name*.SetText(string *strSet*)

| Argument | Description |
|---|---|
| *pbdom_comment_name* | The name of a PBDOM_COMMENT |
| *strSet* | The string you want set as the text of the PBDOM_COMMENT |

Return value

String.

See also

GetText
GetTextNormalize
GetTextTrim

CHAPTER 11

# PBDOM_DOCTYPE Class

About this chapter

This chapter describes the PBDOM_DOCTYPE class.

## PBDOM_DOCTYPE

Description

The PBDOM_DOCTYPE class represents the Document Type Declaration Object of an XML DOM Document. The PBDOM_DOCTYPE class provides access to the name of the root element that is constrained within the DOCTYPE as well as the internal subset, system, and public IDs.

Methods

Some of the inherited methods from PBDOM_OBJECT serve no meaningful objective and only default or trivial functionalities result. These are described in the following table:

| Method | Always returns |
|---|---|
| AddContent | The current PBDOM_DOCTYPE |
| GetContent | false |
| GetText | Empty string |
| GetTextNormalize | Empty string |
| GetTextTrim | Empty string |
| HasChildren | false |
| InsertContent | The current PBDOM_DOCTYPE |
| IsAncestorObjectOf | false |
| RemoveContent | false |
| SetContent | The current PBDOM_DOCTYPE |

PBDOM_DOCTYPE has the following non-trivial methods:

- Clone
- Detach
- Equals
- GetInternalSubset
- GetName

GetObjectClass
GetObjectClassString
GetOwnerDocumentObject
GetParentObject
GetPublicID
GetSystemID
SetDocument
SetInternalSubset
SetName
SetParentObject
SetPublicID
SetSystemID

## Clone

Description — Creates and returns a clone of the current PBDOM_DOCTYPE.

Syntax — *pbdom_doctype_name*.Clone(boolean *bDeep*)

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object. |
| *bDeep* | A boolean specifying whether a deep or shallow clone is returned. Values are TRUE for a deep clone and FALSE for a shallow clone. This argument is currently ignored. |

Return value — PBDOM_OBJECT. A deep clone of the current PBDOM_DOCTYPE housed in a PBDOM_OBJECT.

Usage — A PBDOM_DOCTYPE clone (whether shallow or deep) is always an exact copy of its original. This is because a PBDOM_DOCTYPE does not contain any subtree of child PBDOM_OBJECTs.

A PBDOM_DOCTYPE clone has no parent. However, the clone resides in the same PBDOM_DOCUMENT as its original. If the original PBDOM_DOCTYPE is standalone, the clone is standalone.

## Detach

Description

Detaches a PBDOM_DOCTYPE object from its parent PBDOM_DOCUMENT object. The detached PBDOM_DOCTYPE object is still part of the PBDOM_DOCUMENT object in which it resided before the Detach method was invoked, but it no longer has a parent PBDOM_DOCUMENT object.

Syntax

*pbdom_doctype_name*.Detach()

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |

Return value

PBDOM_OBJECT. The PBDOM_DOCTYPE object modified and returned as a PBDOM_OBJECT object.

## Equals

Description

Tests for the equality of the current PBDOM_DOCTYPE and a referenced PBDOM_OBJECT.

Syntax

*pbdom_doctype_name*.Equals(*pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |
| pbdom_object_ref | A PBDOM_OBJECT to test for equality with the current PBDOM_DOCTYPE |

Return value

Boolean. Returns true if the current PBDOM_DOCTYPE is equivalent to the input PBDOM_OBJECT, and false otherwise.

Usage

True is returned only if the referenced PBDOM_OBJECT is also a PBDOM_DOCTYPE and refers to the same DOM Doctype object as the current PBDOM_DOCTYPE.

## GetInternalSubset

Description

Returns the internal subset data of the DOCTYPE.

Syntax

*pbdom_doctype_name*.GetInternalSubset()

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |

Return value: String.

See also: SetInternalSubset

## GetName

Description: Allows you to obtain the name of the root element that is being constrained within the current PBDOM_DOCTYPE.

Syntax: *pbdom_doctype_name.*GetName()

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |

Return value: String.

Examples: If you have the following DOCTYPE declaration, the GetName method returns `abc`.

```
<!DOCTYPE abc [<!-- internal subset -->
<!ELEMENT abc (#PCDATA)> <!ELEMENT data (#PCDATA)>
<!ELEMENT inner_data (#PCDATA)>]>
```

## GetObjectClass

Description: Returns a long integer code that indicates the class of the current PBDOM_OBJECT.

Syntax: *pbdom_object_name*.GetObjectClass()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value: Long. A long integer code that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_DOCTYPE, the returned value is 4.

## GetObjectClassString

Description: Returns a string form of the class of the PBDOM_OBJECT.

Syntax: *pbdom_object_name*.GetObjectClassString()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of your PBDOM_OBJECT |

Return value

String. A string that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_DOCTYPE, the returned string is "pbdom_doctype".

## GetOwnerDocumentObject

Description

Returns the owning PBDOM_DOCUMENT of the current PBDOM_DOCTYPE.

Syntax

*pbdom_doctype_name*.GetOwnerDocumentObject()

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |

Return value

PBDOM_OBJECT.

Usage

If there is no owning PBDOM_DOCUMENT, null is returned.

## GetParentObject

Description

Returns the parent PBDOM_OBJECT of the current PBDOM_DOCTYPE.

Syntax

*pbdom_doctype_name*.GetParentObject()

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |

Return value

PBDOM_OBJECT.

Usage

The parent is also a PBDOM_DOCUMENT object. If the PBDOM_OBJECT has no parent, null is returned.

## GetPublicID

Description

Retrieves the public ID of an externally reference DTD declared in the DOCTYPE.

Syntax

*pbdom_doctype_name*.GetPublicID()

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |

Return value

String. If no public ID is referenced, an empty string is returned.

Examples

Suppose you have the following DTD declaration:

```
<!DOCTYPE Books PUBLIC "-//MyCompany//DTD//EN"
"http://mycompany.com/dtd/mydoctype.dtd">
```

The following PowerScript code displays the public and system IDs in message boxes:

```
pbdom_doctype pbdom_doctype_1
pbdom_document pbdom_doc

pbdom_doctype_1 = pbdom_doc.GetDocType()
MessageBox ("DocType Public ID", &
   pbdom_doctype_1.GetPublicID())
MessageBox ("DocType System ID", &
   pbdom_doctype_1.GetSystemID())
```

The returned strings from the calls to GetPublicID and GetSystemID are:

```
"-//MyCompany//DTD//EN"
"http://mycompany.com/dtd/mydoctype.dtd"
```

See also

GetSystemID
SetPublicID
SetSystemID

## GetSystemID

Description

Retrieves the system ID of an externally referenced DTD declared in the DOCTYPE.

Syntax

*pbdom_doctype_name*.GetSystemID()

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |

Return value

String. If no system ID is referenced, an empty string is returned.

Examples

See GetPublicID.

See also

GetPublicID
SetPublicID
SetSystemID

## SetDocument

Description: Sets the owning PBDOM_DOCUMENT of the current PBDOM_DOCTYPE.

Syntax: *pbdom_doctype_name*.SetDocument(pbdom_document *pbdom_document_ref*)

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |
| *pbdom_document_ref* | A PBDOM_DOCUMENT object to be set as the owner document of this PBDOM_DOCTYPE object |

Return value: PBDOM_DOCTYPE. The current PBDOM_DOCTYPE modified to be the DOCTYPE of the referenced PBDOM_DOCUMENT.

Throws: EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – if the input PBDOM_DOCUMENT object is invalid for use in any way.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – if this current PBDOM_DOCTYPE already has a parent PBDOM_OBJECT. In this case, this PBDOM_DOCTYPE is already the DOCTYPE of some document.

Usage: A DOM DOCTYPE object can have no owner document, or it can have an owner document but no parent node. A DOCTYPE that has an owner document as well as a parent node is the actual DOCTYPE of the owner document.

See also: SetParentObject

## SetInternalSubset

Description: Sets the data for the internal subset of the PBDOM_DOCTYPE.

Syntax: *pbdom_doctype_name*.SetInternalSubset()

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |

Return value: PBDOM_DOCTYPE. The current PBDOM_DOCTYPE with the new internal subset.

Examples: Suppose you have the following DTD declaration:

```
<!DOCTYPE abc  [<!ELEMENT abc (#PCDATA)> <!ELEMENT data
(#PCDATA)> <!ELEMENT inner_data (#PCDATA)>]>
```

The following code displays the internal subset in a message box:

```
string strInternalSubset
pbdom_document pbdom_doc

strInternalSubset = pbdom_doc.GetDocType().GetInternalSubset()
strInternalSubset += "<!ELEMENT another_data(#PCDATA)>"
pbdom_doc.GetDocType().SetInternalSubset (strInternalSubset)
MessageBox ("Get Internal Subset", &
   pbdom_doc.GetDocType().GetInternalSubset())
```

The returned string from the call to GetInternalSubset is:

```
"<!-- internal subset --> <!ELEMENT abc (#PCDATA)>
<!ELEMENT data (#PCDATA)> <!ELEMENT inner_data
(#PCDATA)> <!ELEMENT another_data (#PCDATA)>"
```

The new ELEMENT declaration for "another_data" is included in the final internal subset.

See also GetInternalSubset

## SetName

Description The SetName method sets the name of the root element that is declared by this PBDOM_DOCTYPE.

Syntax *pbdom_doctype_name*.SetName(string *strName*)

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |
| strName | The new name you want to set for the root element that is declared by the current PBDOM_DOCTYPE |

Return value Boolean. Returns true if the name of the root element was changed and false otherwise.

## SetParentObject

Description The SetParentObject method sets the referenced PBDOM_OBJECT to be the parent of the current PBDOM_OBJECT and so sets the DOCTYPE represented by this PBDOM_DOCTYPE to be the DOCTYPE of the referenced PBDOM_DOCUMENT.

Syntax *pbdom_doctype_name*.SetParentObject(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |
| *pbdom_object_ref* | A PBDOM_OBJECT to be set as the parent of the current PBDOM_DOCTYPE |

Return value

PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – If this PBDOM_DOCTYPE already has a parent.

EXCEPTION_MULTIPLE_DOCTYPE – If the input PBDOM_OBJECT is a PBDOM_DOCUMENT object and already has a doctype.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – If the input PBDOM_OBJECT is not a PBDOM_DOCUMENT.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not associated with a derived PBDOM_OBJECT.

Usage

This method sets the input PBDOM_OBJECT as the parent of the current PBDOM_OBJECT. The input PBDOM_OBJECT must be a PBDOM_DOCUMENT. If it is not, an exception is thrown.

In PBDOM, calling SetParentObject is equivalent to setting the input PBDOM_DOCUMENT as the owner document and parent node of the current PBDOM_DOCTYPE. This has the effect of setting the DOCTYPE in PBDOM_DOCTYPE as the DOCTYPE of the document.

A DOM DOCTYPE object can have no owner document, or it can have an owner document but no parent node. A DOCTYPE that has an owner document as well as a parent node is the actual DOCTYPE of the owner document.

This method is exactly the same as the SetDocument method.

See also

SetDocument

## SetPublicID

Description

Sets the public ID of an externally referenced DTD.

Syntax

*pbdom_doctype_name*.SetPublicID(string *strPublicID*)

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |
| *strPublicID* | A string that specifies the new public ID |

Return value

PBDOM_DOCTYPE.

Examples

Suppose you have the following DTD declaration:

```
<!DOCTYPE abc  [<!ELEMENT abc (#PCDATA)> <!ELEMENT data
(#PCDATA)> <!ELEMENT inner_data (#PCDATA)>]>
```

The following PowerScript sets the public ID, and then gets it and displays it in a message box:

```
PBDOM_DOCUMENT pbdom_doc

pbdom_doc.GetDocType().SetPublicID &
   ("-//MyCompany//DTD//EN")
MessageBox ("Get Public ID", &
   pbdom_doc.GetDocType().GetPublicID())
```

The returned string from the GetPublicID call is:

```
"-//MyCompany//DTD//EN"
```

The final DOCTYPE definition in the document is:

```
<!DOCTYPE abc  PUBLIC "-//MyCompany//DTD//EN"
[<!ELEMENT abc (#PCDATA)> <!ELEMENT data (#PCDATA)>
<!ELEMENT inner_data (#PCDATA)>]>
```

**About Public ID**
The PUBLIC ID is usually accompanied by a SYSTEM ID, so the DOCTYPE declaration in this example (with a PUBLIC ID but no SYSTEM ID) might be considered invalid by some parsers.

See also

GetPublicID
GetSystemID
SetSystemID

## SetSystemID

Description

Sets the system ID of an externally referenced DTD.

Syntax

*pbdom_doctype_name*.SetSystemID(*strSystemID*)

| Argument | Description |
|---|---|
| *pbdom_doctype_name* | The name of a PBDOM_DOCTYPE object |
| *strSystemID* | A string that specifies the new system ID |

Return value

PBDOM_DOCTYPE.

Examples

Suppose you have the following DTD declaration:

```
<!DOCTYPE abc  [<!ELEMENT abc (#PCDATA)> <!ELEMENT data
(#PCDATA)> <!ELEMENT inner_data (#PCDATA)>]>
```

The following PowerScript sets the system ID and then gets it and returns it in a message box:

```
PBDOM_DOCUMENT pbdom_doc
pbdom_doc.GetDocType().SetSystemID &
   ("http://www.sybase&.com/dtd/datadef.dtd")
MessageBox ("Get System ID", &
   pbdom_doc.GetDocType().GetSystemID())
```

The returned string from the GetSystemID call is:

```
"http://www.sybase.com/dtd/datadef.dtd"
```

The final DOCTYPE definition in the document is:

```
<!DOCTYPE abc SYSTEM
"http://www.sybase.com/dtd/datadef.dtd"[<!ELEMENT abc
(#PCDATA)> <!ELEMENT data (#PCDATA)> <!ELEMENT
inner_data (#PCDATA)>]>
```

See also

GetPublicID
GetSystemID
SetPublicID

CHAPTER 12

# PBDOM_DOCUMENT Class

About this chapter

This chapter describes the PBDOM_DOCUMENT class.

## PBDOM_DOCUMENT

Description

The PBDOM_DOCUMENT class defines behavior for an XML DOM document. Methods allow access to the root element, processing instructions, and other document-level information.

The PBDOM_DOCUMENT class inherits from a PBDOM_OBJECT and so provides specialized implementations for most of the PBDOM_OBJECT class methods.

Methods

Some of the inherited methods from PBDOM_OBJECT serve no meaningful objective and only default or trivial functionalities result. These are described in the following table:

| Method | Always returns |
|---|---|
| Detach | The current PBDOM_DOCUMENT |
| GetName | The string "#document" |
| GetOwnerDocumentObject | null |
| GetParentObject | null |
| GetText | An empty string |
| GetTextNormalize | An empty string |
| GetTextTrim | An empty string |
| SetName | false |
| SetParentObject | The current PBDOM_DOCUMENT |

PBDOM_DOCUMENT has the following non-trivial methods:

- AddContent
- Clone
- DetachRootElement
- Equals
- GetContent

GetDocType
GetElementsByTagName
GetObjectClass
GetObjectClassString
GetRootElement
HasChildren
HasRootElement
InsertContent
IsAncestorObjectOf
NewDocument
RemoveContent
SaveDocument
SetContent
SetDocType
SetRootElement

## AddContent

Description

Allows you to add a new PBDOM_OBJECT into the current PBDOM_DOCUMENT object.

Syntax

*pbdom_document_name*.AddContent(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |
| *pbdom_object_ref* | The PBDOM_OBJECT to add |

Return value

PBDOM_OBJECT. The return value is the newly modified PBDOM_DOCUMENT object returned as a PBDOM_OBJECT.

Throws

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – The input PBDOM_OBJECT is nameable, but it currently has no name.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – The input PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – Adding the input PBDOM_OBJECT is inappropriate. See description section below on the valid PBDOM_OBJECTs that can be added to a PBDOM_DOCUMENT object.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – If the PBDOM_OBJECT to be added already has a parent PBDOM_OBJECT.

EXCEPTION_MULTIPLE_ROOT_ELEMENT – If a PBDOM_ELEMENT is to be added and this document already has a root element.

EXCEPTION_MULTIPLE_DOCTYPE – If a PBDOM_DOCTYPE is to be added and this document already has a DOCTYPE.

Examples

The document pbdom_doc1 is created with three elements: pbdom_elem_1, pbdom_elem_2, and pbdom_elem_3. pbdom_elem_2 and pbdom_elem_3 are set as children of pbdom_element_1.
`pbdom_doc1.GetRootElement().Detach()` detaches the root element from pbdom_doc1. pbdom_elem_1 is added as a child of pbdom_doc1 with `pbdom_doc1.AddContent(pbdom_elem_1)`.

```
TRY
   PBDOM_ELEMENT pbdom_elem_1
   PBDOM_ELEMENT pbdom_elem_2
   PBDOM_ELEMENT pbdom_elem_3
   PBDOM_DOCUMENT pbdom_doc1

   pbdom_doc1 = Create PBDOM_DOCUMENT
   pbdom_elem_1 = Create PBDOM_ELEMENT
   pbdom_elem_2 = Create PBDOM_ELEMENT
   pbdom_elem_3 = Create PBDOM_ELEMENT

   pbdom_elem_1.SetName("pbdom_elem_1")
   pbdom_elem_2.SetName("pbdom_elem_2")
   pbdom_elem_3.SetName("pbdom_elem_3")

   pbdom_elem_1.AddContent(pbdom_elem_2)
   pbdom_elem_1.AddContent(pbdom_elem_3)

   pbdom_doc1.NewDocument("", "", "Root_Element", &
      "", "")
   pbdom_doc1.GetRootElement().Detach()
   pbdom_doc1.AddContent(pbdom_elem_1)
CATCH (pbdom_exception ex)
   MessageBox("Exception", ex.getMessage())
END TRY
```

The original root element <Root_Element> has been detached and replaced by <pbdom_elem_1>. The document is transformed to:

```
<!DOCTYPE Root_Element>
<pbdom_elem_1>
   <pbdom_elem_2/>
   <pbdom_elem_3/>
</pbdom_elem_1>
```

If the following root element detachment statement is omitted, an exception is thrown:

```
pbdom_doc1.GetRootElement().Detach()
```

Usage

The new PBDOM_OBJECT becomes a child PBDOM_OBJECT of the current PBCOM_DOCUMENT. The following table lists the PBDOM_OBJECTs that can be added to a PBDOM_DOCUMENT object and the restrictions for their addition.

| PBDOM_OBJECT | Restrictions |
|---|---|
| PBDOM_ELEMENT | Allowed to be added only if this document currently does not contain any root element. Otherwise the exception EXCEPTION_MULTIPLE_ROOT_ELEMENT is thrown.<br>The PBDOM_ELEMENT to be added must not already have a parent PBDOM_OBJECT. If it does, the exception EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT is thrown. |
| PBDOM_COMMENT | Any number of PBDOM_COMMENT objects can be added to a document.<br>The only restriction is that the PBDOM_COMMENT must not already have a parent. If so, the exception EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT is thrown. |
| PBDOM_PROCESSINGINSTRUCTION | Any number of PBDOM_PROCESSINGINSTRUCTION objects can be added to a document.<br>The only restriction is that the PBDOM_PROCESSINGINSTRUCTION must not already have a parent. If so, the exception EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT is thrown. |
| PBDOM_DOCTYPE | Allowed to be added only if this document currently does not contain any DOCTYPE node. Otherwise the exception EXCEPTION_MULTIPLE_DOCTYPE is thrown.<br>The PBDOM_DOCTYPE to be added must not already have a parent PBDOM_OBJECT. If it does, the exception EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT is thrown. |

See also

GetContent
InsertContent
RemoveContent
SetContent

## Clone

Description

Creates a clone of the current PBDOM_DOCUMENT object.

Syntax

*pbdom_document_name*.Clone(boolean *bDeep*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |
| *bDeep* | A boolean specifying whether a deep or shallow clone is returned. Values are true for a deep clone and false for a shallow clone. |

Return value

PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – The internal implementation of the PBDOM_DOCUMENT object is null. The occurrence of this exception is rare but can happen if severe memory corruption occurs.

Usage

If you specify a deep clone, the Clone method creates a deep clone of the current PBDOM_DOCUMENT object as a PBDOM_OBJECT. The method recursively clones the subtree under the PBDOM_DOCUMENT object, where the subtree consists of all legal children of the PBDOM_DOCUMENT object.

If a shallow clone is requested, this method clones only the PBDOM_DOCUMENT object and returns a completely empty PBDOM_DOCUMENT object as a PBDOM_OBJECT.

## DetachRootElement

Description

Detaches the root element of this document and returns it.

Syntax

*pbdom_document_name*.DetachRootElement()

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |

Return value

PBDOM_ELEMENT.

Throws

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

See also

GetRootElement
HasRootElement
SetRootElement

## Equals

Description

Tests for the equality of the current PBDOM_DOCUMENT object and a referenced PBDOM_OBJECT.

Syntax

*pbdom_document_name*.Equals(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_OBJECT |
| *pbdom_object_ref* | A PBDOM_OBJECT to test for equality with the current PBDOM_OBJECT |

Return value

Boolean. Returns true if the current PBDOM_DOCUMENT object is equivalent to the input PBDOM_OBJECT, and false otherwise.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – The input PBDOM_OBJECT is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_INVALID_ARGUMENT – The input PBDOM_OBJECT is invalid. This can happen if the object has not been initialized properly or is a null object reference.

Usage

True is returned only if the referenced PBDOM_OBJECT is also a PBDOM_DOCUMENT object and refers to the same DOM document as the current PBDOM_DOCUMENT object.

## GetContent

Description

Returns all child content of the current PBDOM_DOCUMENT object.

Syntax

*pbdom_document_name*.GetContent(ref pbdom_object *pbdom_object_array[ ]*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |
| *pbdom_object_array* | The referenced name of an array of PBDOM_OBJECTs that receives PBDOM_OBJECTs |

Return value

Boolean. Returns true for success and false for failure.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

Examples

Assume a PBDOM_DOCUMENT object called pbdom_doc contains the following XML document.

```
<Root>
   <Element_1>
      <Element_1_1/>
      <Element_1_2/>
      <Element_1_3/>
   </Element_1>
   <Element_2/>
   <Element_3/>
</Root>
```

In the following PowerScript code fragment, the array `pbdom_obj_array` contains just one PBDOM_ELEMENT which represents the element Root: `pbdom_obj_array[1] - <Root>`:

```
PBDOM_DOCUMENT pbdom_doc
PBDOM_OBJECT pbdom_obj_array[]
…
pbdom_doc.GetContent(pbdom_obj_array)
pbdom_doc.GetRootElement().GetContent(pbdom_obj_array)
```

The call to GetRootElement in the last line of the previous code fragment yields an array that contains:

```
pbdom_obj_array[1] - <Element_1>
pbdom_obj_array[2] - <Element_2>
pbdom_obj_array[3] - <Element_3>
```

The returned PBDOM_OBJECT array can be manipulated. For example, the following statement causes Element_2 to contain the Text node “Element 2 Text”:

```
pbdom_obj_array[2].AddContent ("Element 2 Text")
```

After this call, the tree is as follows:

```
<Root>
   Element_1>
      Element_1_1/>
      Element_1_2/>
      Element_1_3/>
   /Element_1>
   Element_2>Element 2 Text<Element_2/>
   Element_3/>
</Root>
```

Usage

The returned array is passed by reference, with items in the same order in which they appear in the PBDOM_DOCUMENT object. Any changes to any item of the array affect the actual item to which it refers.

See also

AddContent
InsertContent
RemoveContent
SetContent

## GetDocType

Description

Allows you to retrieve the DOCTYPE declaration of the current XML DOM document.

Syntax

*pbdom_document_name*.GetDocType()

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |

Return value

PBDOM_DOCTYPE.

Throws

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Usage

The DOCTYPE declaration is housed in a PBDOM_OBJECT.

## GetElementsByTagName

Description

Retrieves all the elements in the XML document that have the specified TagName.

Syntax

*pbdom_object_name*.GetElementsByTagName(string *strTagName*, ref pbdom_element *pbdom_element_array*[])

| Argument | Description |
|---|---|
| *strTagName* | The TagName of the elements to be searched for |
| *pbdom_element_array[]* | A reference to a PBDOM_ELEMENT object array that has the specified TagName |

Return value

Boolean. GetElementsByTagName returns true for success and false if an exception occurs.

Examples

Assume a PBDOM_DOCUMENT contains the following XML fragment:

```
<book>
   <title>The Winter's Tale</title>
   <author>William Shakespeare</author>
   <price>7.95</price>
   <quantity>1</quantity>
</book>
<book>
   <title>Le Lecon</title>
   <author>Eugene Ionesco</author>
   <price>10.95</price>
   <quantity>1</quantity>
</book>
<book>
   <title>Deutsches Tempo</title>
   <author>Kurt Tucholsky</author>
   <price>13.95</price>
   <quantity>1</quantity>
</book>
```

The following statements extract the list of titles from the document and display it in a multilineedit control:

```
pbdom_document doc
pbdom_element element[]

// doc contains role elements
boolean bb_bool

bb_bool = doc.getelementsbytagname("title",element[])

integer ii_bound, i

ii_bound = upperbound(element)
for i = 1 to ii_bound
   mle_1.text += element[i].gettext() + "~r~n"
next
```

## GetObjectClass

Description — Returns a long integer code that indicates the class of the current PBDOM_OBJECT.

Syntax — *pbdom_object_name*.GetObjectClass()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value — Long. GetObjectClass returns a long integer code that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_DOCUMENT object, the returned value is 2.

## GetObjectClassString

Description — Returns a string form of the class of the PBDOM_OBJECT.

Syntax — *pbdom_object_name*.GetObjectClassString()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value — String. GetObjectClassString returns a string that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_DOCUMENT object, the returned string is “pbdom_document”.

## GetRootElement

Description — Retrieves the root element of the current XML DOM document.

Syntax — *pbdom_document_name*.GetRootElement()

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |

Return value — PBDOM_ELEMENT. The root element of the PBDOM_DOCUMENT object housed in a PBDOM_ELEMENT object.

Throws — EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Usage — The return value is the root element encapsulated in a PBDOM_ELEMENT object.

See also
DetachRootElement
HasRootElement
SetRootElement

## HasChildren

Description
Returns true if the current PBDOM_DOCUMENT object has at least one child PBDOM_OBJECT, and false if it has none.

Syntax
*pbdom_document_name*.HasChildren()

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |

Return value
Boolean. Returns true if the current PBDOM_DOCUMENT object has at least one child PBDOM_OBJECT, and false otherwise.

## HasRootElement

Description
Returns true if this document has a root element.

Syntax
*pbdom_document_name*.HasRootElement()

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |

Return value
Boolean. Returns true if the current PBDOM_DOCUMENT object has a root element, and false otherwise.

See also
DetachRootElement
GetRootElement
SetRootElement

## InsertContent

Description
Inserts a new PBDOM_OBJECT into the current PBDOM_DOCUMENT object.

Syntax
*pbdom_document_name*.InsertContent(pbdom_object *pbdom_object_new*, pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |

| Argument | Description |
|---|---|
| *pbdom_object_new* | The PBDOM_OBJECT to insert |
| *pbdom_object_ref* | The PBDOM_OBJECT in front of which the new PBDOM_OBJECT will be inserted |

Return value

PBDOM_OBJECT. The modified PBDOM_DOCUMENT object returned as a PBDOM_OBJECT.

Throws

EXCEPTION_INVALID_ARGUMENT – The input PBDOM_OBJECT to insert is invalid. This can happen if it has not been initialized properly or is a null object reference.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – The input PBDOM_OBJECT to insert has not been given a user-defined name. The same exception is thrown if the reference PBDOM_OBJECT is also not given a user-defined name, unless the reference PBDOM_OBJECT is specifically set to null.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – The input PBDOM_OBJECT to insert is not associated with a derived PBDOM_OBJECT. The same exception is thrown if the reference PBDOM_OBJECT is also not associated with a derived PBDOM_OBJECT, unless the reference PBDOM_OBJECT is specifically set to null.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – The input PBDOM_OBJECT to insert already as a parent.

EXCEPTION_MULTIPLE_ROOT_ELEMENT – A PBDOM_ELEMENT is to be inserted, but this document already has a root element.

EXCEPTION_MULTIPLE_DOCTYPE – A PBDOM_DOCTYPE is to be inserted, but this document already has a DOCTYPE.

EXCEPTION_HIERARCHY_ERROR – Inserting the PBDOM_OBJECT adversely affects how well-formed the document is.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – An invalid PBDOM_OBJECT is to be inserted. See AddContent on page 182 for information on the valid PBDOM_OBJECTs that can be added to a PBDOM_DOCUMENT object.

EXCEPTION_WRONG_PARENT_ERROR – The reference PBDOM_OBJECT is not a child of this PBDOM_DOCUMENT object.

Examples

A PBDOM_DOCUMENT object is created from an XML string. The PBDOM_ELEMENT pbdom_elem_1 is also created and set as Elem_1. The PBDOM_DOCTYPE pbdom_doctype_1 and the root element pbdom_root_elem are set.

The root element is detached from its parent, which is also the PBDOM_DOCUMENT object itself. This makes it possible to insert pbdom_elem_1 into the document specifically before pbdom_doctype_1.

```
pbdom_builder pbdom_builder_1
pbdom_document pbdom_doc
pbdom_doctype pbdom_doctype_1
pbdom_element pbdom_elem_1
pbdom_element pbdom_elem_root
string strXML

strXML = "<!DOCTYPE abc [<!-- internal subset -->"
strXML += "<!ELEMENT abc (#PCDATA)> "
strXML += "<!ELEMENT data&(#PCDATA)> "
strXML += "<!ELEMENT inner_data (#PCDATA)>]><abc>"
strXML += "Root Element Data<data>ABC Data<inner_data>"
strXML += "My Inner Data</inner_data>My Data</data>"
strXML += " now with extra& info</abc>"

pbdom_builder_1 = Create PBDOM_Builder
pbdom_elem_1 = Create PBDOM_Element

pbdom_doc = pbdom_builder_1.BuildFromString (strXML)
pbdom_elem_1.SetName ("Elem_1")
pbdom_doctype_1 = pbdom_doc.GetDocType()
pbdom_elem_root = pbdom_doc.GetRootElement()

pbdom_elem_root.Detach()
pbdom_doc.InsertContent(pbdom_elem_1, pbdom_doctype_1
```

The result is the following document, which is not well-formed:

```
<Elem_1/>
<!DOCTYPE abc[<!--  internal subset  -->
<!ELEMENT abc (#PCDATA)*> <!ELEMENT data (#PCDATA)*>
<!ELEMENT inner_data (#PCDATA)*>]>
```

Usage

When a new PBDOM_OBJECT is inserted into the current PBDOM_DOCUMENT object, the new PBDOM_OBJECT becomes a child node of the current PBDOM_DOCUMENT object. Also, the new PBDOM_OBJECT is to be positioned specifically before another PBDOM_OBJECT, denoted using the second parameter.

If the second PBDOM_OBJECT is specified as null, then the new PBDOM_OBJECT is to be inserted at the end of the list of children of the current PBDOM_DOCUMENT object.

See also

AddContent
GetContent
RemoveContent
SetContent

## IsAncestorObjectOf

Description

The IsAncestorObjectOf method determines whether the current PBDOM_DOCUMENT object is the ancestor of another PBDOM_OBJECT.

Syntax

*pbdom_document_name*.IsAncestorObjectOf(pbdom_object *pbdom_object_ret*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |
| *pbdom_object_ref* | The PBDOM_OBJECT to check against |

Return value

Boolean. Returns true if the current PBDOM_DOCUMENT object is the ancestor of the referenced PBDOM_OBJECT, and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT – The input PBDOM_OBJECT is invalid. This can happen if it has not been initialized properly or is a null object reference.

## NewDocument

Description

The NewDocument method is overloaded:

- Syntax 1 creates a new XML DOM document using the name of the root element to be contained within the new DOM document.
- Syntax 2 creates a new XML DOM document using the name and namespace URI of the root element to be contained in the new DOM document, and also the external subset public and system identifiers.

Syntax

| For this syntax | See |
|---|---|
| NewDocument(string *strRootElementName*) | NewDocument Syntax 1 |

| For this syntax | See |
|---|---|
| NewDocument(<br>string *strRootElementNamespacePrefix*,<br>string*strRootElementNamespaceURI*,<br>string *strRootElementName*,<br>string *strDocTypePublicId*,<br>string *strDocTypeSystemId*) | NewDocument Syntax 2 |

## NewDocument Syntax 1

Description: Creates a new XML DOM document from scratch.

Syntax: *pbdom_document_name*.NewDocument(*strRootElementName*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |
| *strRootElementName* | The name of the root element to be contained in the DOM document |

Return value: Boolean. Returns true if a new document is successfully created and false otherwise.

Throws: EXCEPTION_INVALID_ARGUMENT – The input string is invalid. This can happen if the string has been set to null by means of the PowerScript SetNull method.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Usage: The parameter *strRootElementName* becomes the name of the root element.

See also: SaveDocument

## NewDocument Syntax 2

Description: Creates a new XML DOM document from scratch.

Syntax: *pbdom_document_name*.NewDocument(string *strRootElementNamespacePrefix*, string *strRootElementNamespaceURI*, string *strRootElementName*, string *strDocTypePublicId*, string *strDocTypeSystemId*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object. |

| Argument | Description |
|---|---|
| *strRootElementNamespacePrefix* | The namespace prefix of the root element to be contained in the DOM document. This can be an empty string. |
| *strRootElementNamespaceURI* | The namespace URI of the root element to be contained in the DOM document. This can be an empty string. |
| *strRootElementName* | The name of the root element to be contained in the DOM document. |
| *strDocTypePublicId* | The external subset public identifier. |
| *strDocTypeSystemId* | The external subset system identifier. |

Return value

Boolean. Returns true if a new document is successfully created, and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT – One of the input strings is invalid. This can happen if the string has been set to null using the PowerScript SetNull method.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

EXCEPTION_INVALID_NAME – The root element name, or the root element namespace prefix or URI, is invalid.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_DOCUMENT object's internal implementation is NULL. The occurrence of this exception is rare but can take place if severe memory corruption occurs.

Examples

**Example 1** This example attempts to create a PBDOM_DOCUMENT object in which the root element belongs to no namespace, as indicated by the empty strings for the namespace prefix and URI arguments to NewDocument:

```
PBDOM_DOCUMENT pbdom_doc

try
  pbdom_doc = Create PBDOM_DOCUMENT
  pbdom_doc.NewDocument ("", "", "root", "public_id", &
     "system_id.dtd")

  pbdom_doc.SaveDocument &
     ("new_document_no_namespace.xml")

catch (PBDOM_EXCEPTION except)
  MessageBox ("PBDOM_EXCEPTION", except.GetMessage())
```

```
end try
```

When serialized, the XML document looks like the following :

```
<!DOCTYPE root PUBLIC "public_id" "system_id.dtd">
<root xmlns=""/>
```

The namespace declaration attribute (`xmlns=""`) present in the root element indicates that the root element belongs to no namespace.

**Example 2** This example attempts to create a PBDOM_DOCUMENT object in which the root element belongs to a default namespace. The URI is `http://www.pre.com`, which means that the root element belongs to the namespace http://www.pre.com. The prefix is an empty string, which means that the root element belongs to the http://www.pre.com namespace by default:

```
PBDOM_DOCUMENT pbdom_doc

try
  pbdom_doc = Create PBDOM_DOCUMENT
  pbdom_doc.NewDocument ("", "http://www.pre.com", &
     "root", "public_id", "system_id.dtd")

  pbdom_doc.SaveDocument &
     ("new_document_default_namespace.xml")

catch (PBDOM_EXCEPTION except)
  MessageBox ("PBDOM_EXCEPTION", except.GetMessage())
end try
```

When serialized, the XML document looks like the following :

```
<!DOCTYPE root PUBLIC "public_id" "system_id.dtd">
<root xmlns="http://www.pre.com"/>
```

The namespace declaration attribute (`xmlns="http://www.pre.com"`) present in the root element indicates that the root element belongs to the default namespace http://www.pre.com. All child elements of root belong to this same namespace unless another in-scope namespace declaration is present and is used.

**Example 3** This example attempts to create a PBDOM_DOCUMENT object in which the root element belong to a prefixed namespace. The namespace prefix is `pre` and the URI is `http://www.pre.com`. This means that the root element will belong to the namespace http://www.pre.com, and that the root element will have a namespace prefix of pre:

```
PBDOM_DOCUMENT pbdom_doc
```

```
try
  pbdom_doc = Create PBDOM_DOCUMENT
  pbdom_doc.NewDocument ("pre", "http://www.pre.com", &
     "root", "public_id", "system_id.dtd")

  pbdom_doc.SaveDocument &
     ("new_document_namespace.xml")

catch (PBDOM_EXCEPTION except)
  MessageBox ("PBDOM_EXCEPTION", except.GetMessage())
end try
```

When serialized, the XML document looks like the following :

```
<!DOCTYPE pre:root PUBLIC "public_id" "system_id.dtd">
<pre:root xmlns:pre="http://www.pre.com"/>
```

A namespace declaration attribute (`xmlns:pre="http://www.pre.com"`) is present in the root element. The root element also contains a `pre` prefix. This indicates that the root element belongs to the namespace http://www.pre.com.

However, the fact that the http://www.pre.com namespace is prefixed by pre indicates that the child elements of root belong to this same namespace only if their qualified names also contain the pre prefix and there is an in-scope namespace declaration for http://www.pre.com that is prefixed by pre.

Usage

Using the five parameters available with this syntax provides more control over the DOCTYPE definition of the document.

See also

SaveDocument

## RemoveContent

Description

Removes a child PBDOM_OBJECT from the current PBDOM_DOCUMENT object.

Syntax

*pbdom_document_name*.RemoveContent(pbodm_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |
| *pbdom_object_ref* | The PBDOM_OBJECT to remove |

Return value

Boolean. Returns true if the content was removed, and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT– The input PBDOM_OBJECT to remove is invalid. This can happen if it has not been initialized properly or is a null object reference.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – The input PBDOM_OBJECT is nameable, but it has not been assigned a name.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – The input PBDOM_OBJECT is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_WRONG_DOCUMENT_ERROR – The input PBDOM_OBJECT is not contained within the current PBDOM_DOCUMENT object.

EXCEPTION_WRONG_PARENT_ERROR – The input PBDOM_OBJECT is not a child of the current PBDOM_DOCUMENT object.

Usage

When a PBDOM_OBJECT is removed from the current PBDOM_DOCUMENT object, all children under the removed PBDOM_OBJECT are also removed.

See also

AddContent
GetContent
InsertContent
SetContent

## SaveDocument

Description

Saves the serialized XML string of the DOM tree contained within the PBDOM_DOCUMENT object into a disk file.

Syntax

*pbdom_document_name*.SaveDocument(string *strFileName*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |
| *strFileName* | The name of the disk file to which the contents of the current PBDOM_DOCUMENT object is to be serialized |

Return value

Boolean. Returns true if a new document was successfully saved to a disk file, and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT – The input string specifying the file name is invalid. This can happen if the string has been set to null using the PowerScript SetNull method.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Usage

A PBDOM_DOCUMENT object that has been created from an existing XML document or string can differ from its original after it has been converted back to an XML string or document. This can occur even if no modifications have been made to the PBDOM_DOCUMENT object using PowerScript.

This can occur if the original XML document or string referred to an external DTD that mandates the inclusion of default attributes. In this case, PBDOM complies with the rules of the DTD and inserts these required attributes into the relevant elements while building up the in-memory DOM tree.

When the PBDOM_DOCUMENT object is saved and converted back to an XML document, these default attributes are saved in the document.

See also

NewDocument

## SetContent

Description

Sets the entire content of the PBDOM_DOCUMENT object, removing pre-existing children first.

Syntax

*pbdom_document_name*.SetContent(pbdom_object *pbdom_object_array*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |
| *pbdom_object_array* | An array of PBDOM_OBJECTs set as the contents of the PBDOM_DOCUMENT object |

*pbdom_object_array* must contain only PBDOM_OBJECT objects that can legally be set as the contents of a PBDOM_DOCUMENT object. The SetContent method restricts the array to one PBDOM_ELEMENT object to set as the root element of the PBDOM_DOCUMENT object from which the method is invoked. The SetContent method also restricts the array to one PBDOM_DOCTYPE object to set as the DOCTYPE of the PBDOM_DOCUMENT object.

Return value

PBDOM_OBJECT. The modified PBDOM_DOCUMENT object returned as a PBDOM_OBJECT.

Throws

EXCEPTION_ILLEGAL_PBOBJECT – An array item is not a valid PBDOM object. This can happen if the array item has not been initialized properly or is a null object reference.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – An array item is nameable and has not been given a user-defined name.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – An array item is not associated with a derived PBDOM_OBJECT.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – An array item already has a parent PBDOM_OBJECT.

EXCEPTION_MULTIPLE_ROOT_ELEMENT – The array contains more than one PBDOM_ELEMENT. The array must contain at most one PBDOM_ELEMENT that is set as the root element of this document.

EXCEPTION_MULTIPLE_DOCTYPE – The array contains more than one PBDOM_DOCTYPE. The array must contain at most one PBDOM_DOCTYPE that is set as the DOCTYPE of this document.

EXCEPTION_MULTIPLE_XMLDECL – The array contains more than one PBDOM_PROCESSINGINSTRUCTION that has been constructed into an XML Declaration.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – An array item is not allowed to be set as a document-level content.

Usage

The supplied array contains PBDOM_OBJECTs that can legally be set as the content of a PBDOM_DOCUMENT object.

For example, a PBDOM_DOCUMENT object accepts only an array that contains PBDOM_ELEMENT, PBDOM_COMMENT, PBDOM_DOCTYPE, or PBDOM_PROCESSINGINSTRUCTION objects. In addition, the array can contain at most one PBDOM_ELEMENT object that it sets as its root element, at most one PBDOM_DOCTYPE object that it sets as its DOCTYPE, and at most one XML declaration .PBDOM_PROCESSINGINSTRUCTION.

In the event of an exception, the original contents of this PBDOM_DOCUMENT object are unchanged, and the PBDOM_OBJECTs contained in the supplied array are unaltered.

See also

AddContent
GetContent
InsertContent
RemoveContent

## SetDocType

Description

Sets the DOCTYPE declaration of this document.

Syntax

*pbdom_document_name*.SetDocType(pbdom_doctype *pbdom_doctype_ref*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |
| *pbdom_doctype_ref* | A PBDOM_DOCTYPE object to be set as the DOCTYPE of this document |

Return value

PBDOM_DOCUMENT. The same PBDOM_DOCUMENT object with a modified DOCTYPE declaration.

Throws

EXCEPTION_INVALID_ARGUMENT – The input PBDOM_DOCTYPE is invalid. This can happen if it has not been initialized properly or is a null object reference.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – The input PBDOM_DOCTYPE is nameable and has not been given a user-defined name.

EXCEPTION_WRONG_DOCUMENT_ERROR – The input PBDOM_DOCTYPE already has an owner document.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – The input PBDOM_DOCTYPE is already the DOCTYPE of another document.

Usage

If this document already contains a DOCTYPE declaration, the new PBDOM_DOCTYPE replaces it. The DOCTYPE of a PBDOM_DOCUMENT object can be changed multiple times, and it is legal for a user to call the SetDocType method multiple times.

A DOM DOCTYPE object can have no owner document, or it can have an owner document but no parent node. A DOCTYPE that has an owner document as well as a parent node is the actual DOCTYPE of the owner document.

## SetRootElement

Description

Sets the root element for this document.

Syntax

*pbdom_document_name*.SetRootElement(pbdom_element *pbdom_element_ref*)

| Argument | Description |
|---|---|
| *pbdom_document_name* | The name of a PBDOM_DOCUMENT object |
| *pbdom_element_ref* | A PBDOM_ELEMENT object to be set as the root element for this document |

Return value

PBDOM_DOCUMENT. The PBDOM_DOCUMENT object with a modified root element.

Throws

EXCEPTION_INVALID_ARGUMENT – The input PBDOM_ELEMENT is invalid. This can happen if it has not been initialized properly or is a null object reference.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – The input PBDOM_ELEMENT is nameable and it has not been given a user-defined name.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – The input PBDOM_ELEMENT already has a parent PBDOM_OBJECT.

Usage

If this document already has a root element, the existing root element is replaced. The root element of a PBDOM_DOCUMENT object can be changed multiple times, and it is legal for a user to call the SetRootElement method multiple times.

See also

DetachRootElement
GetRootElement
HasRootElement

CHAPTER 13

# PBDOM_ELEMENT Class

About this chapter

This chapter describes the PBDOM_ELEMENT class.

## PBDOM_ELEMENT

Description

The PBDOM_ELEMENT class defines the behavior for an XML element modeled in PowerScript. Methods allow the user to obtain the text content of an element, the attributes of an element, and the children of an element.

In PBDOM, an XML element's attributes are *not* its children. Attributes are properties of elements rather than having a separate identity from the elements with which they are associated. An element's PBDOM_ATTRIBUTE objects do not have sibling relationships with each other in the same way as the element's children.

For more information on the relationships among PBDOM_ELEMENT and PBDOM_ATTRIBUTE objects, see the chapter on XML services in *Application Techniques*.

Methods

PBDOM_ELEMENT has the following methods:

- AddContent
- AddNamespaceDeclaration
- Clone
- Detach
- Equals
- GetAttribute
- GetAttributes
- GetAttributeValue
- GetChildElement
- GetChildElements
- GetContent
- GetName
- GetNamespacePrefix
- GetNamespaceUri
- GetObjectClass

GetObjectClassString
GetOwnerDocumentObject
GetParentObject
GetQualifiedName
GetText
GetTextNormalize
GetTextTrim
HasAttributes
HasChildElements
HasChildren
InsertContent
IsAncestorObjectOf
IsRootElement
RemoveAttribute
RemoveChildElement
RemoveChildElements
RemoveContent
RemoveNamespaceDeclaration
SetAttribute
SetAttributes
SetContent
SetDocument
SetName
SetNamespace
SetParentObject
SetText

## AddContent

Description

The AddContent method is overloaded:

- Syntax 1 adds a new PBDOM_OBJECT into a PBDOM_ELEMENT object.
- Syntax 2 adds a new text string to the PBDOM_ELEMENT object from which the method is invoked.

Syntax

| For this syntax | See |
|---|---|
| AddContent(pbdom_object *pbdom_object_ref*) | AddContent Syntax 1 |
| AddContent(string *strText*) | AddContent Syntax 2 |

## AddContent Syntax 1

Description

Adds a new PBDOM_OBJECT into a PBDOM_ELEMENT object. The added PBDOM_OBJECT becomes a child of the PBDOM_ELEMENT object.

Syntax

*pbdom_element_name.*AddContent(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_object_ref* | The PBDOM_OBJECT to add |

Return value

PBDOM_OBJECT. The PBDOM_ELEMENT object modified and returned as a PBDOM_OBJECT.

Throws

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – If an invalid PBDOM_OBJECT is added. See description section below on the valid PBDOM_OBJECTs that can be added to a PBDOM_ELEMENT object. This exception is also thrown if the input PBDOM_OBJECT is this PBDOM_ELEMENT object itself.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If the input PBDOM_OBJECT has not been given a user-defined name.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not associated with a derived PBDOM_OBJECT.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – If the input PBDOM_OBJECT already has a parent PBDOM_OBJECT.

EXCEPTION_HIERARCHY_ERROR – If adding the input PBDOM_OBJECT will cause the current PBDOM_ELEMENT object to be no longer well-formed.

Examples

The AddContent method is invoked for the Element_2 PBDOM_ELEMENT object in the following XML fragment:

```
<Element_1>
     <Element_1_1/>
     <Element_1_2/>
     <Element_1_3/>
</Element_1>
<Element_2>Element 2 Text</Element_2>
<Element_3/>
```

The AddContent is invoked from the following PowerScript code, where pbdom_elem_2 represents the Element_2 object:

```
PBDOM_ELEMENT pbdom_elem
pbdom_elem = Create PBDOM_ELEMENT
pbdom_elem.SetName("Sub_Element")
pbdom_elem.AddContent("Sub Element Text")
pbdom_elem_2.AddContent (pbdom_elem)
```

The following XML fragment results:

```
<Element_1>
     <Element_1_1/>
     <Element_1_2/>
     <Element_1_3/>
</Element_1>
<Element_2>
     Element 2 Text
     <Sub_Element>
               Sub Element Text
     </Sub_Element>
<Element_2/>
<Element_3/>
```

Usage

Only the following PBDOM_OBJECT types can be validly added to a PBDOM_ELEMENT object:

- PBDOM_ELEMENT
- PBDOM_CDATA
- PBDOM_COMMENT
- PBDOM_ENTITYREFERENCE
- PBDOM_PROCESSINGINSTRUCTION
- PBDOM_TEXT

See also

AddContent Syntax 2
GetContent
InsertContent
RemoveContent
SetContent

## AddContent Syntax 2

Description

Adds a new text string to the PBDOM_ELEMENT object from which the method is invoked.

Syntax

*pbdom_element_name.*AddContent(string *strText*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strText* | A string to be added to the PBDOM_ELEMENT object as new text content |

Return value

PBDOM_OBJECT. The PBDOM_ELEMENT object modified and returned as a PBDOM_OBJECT.

Examples

The AddContent method is invoked for the abc element of the following XML document:

```
<abc>
     Root Element Data
     <data>
          ABC Data
          <inner_data>My Inner Data</inner_data>
     </data>
</abc>
```

The AddContent method is invoked from the following PowerScript statement:

```
pbdom_doc.GetRootElement().AddContent(" And More !")
```

The following XML results:

```
<abc>
     Root Element Data
     <data>
          ABC Data
          <inner_data>My Inner Data</inner_data>
     </data>
     And More !
</abc>
```

See also

AddContent Syntax 1
GetContent
InsertContent
RemoveContent
SetContent

## AddNamespaceDeclaration

Description

Adds a new namespace declaration to this PBDOM_ELEMENT object. The new namespace can apply to the PBDOM_ELEMENT object itself if the namespace becomes the default namespace in the PBDOM_ELEMENT object.

Syntax

*pbdom_element_name*.AddNamespaceDeclaration(string *strNamespacePrefix*, string *strNamespaceUri*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strNamespacePrefix* | The prefix of the new namespace to be declared |
| *strNamespaceUri* | The URI of the new namespace to be declared |

Return value

PBDOM_ELEMENT. The modified PBDOM_ELEMENT object.

Throws

EXCEPTION_INVALID_ARGUMENT – If any of the input parameters is invalid (null).

EXCEPTION_INVALID_NAME – If the input Prefix is invalid, as, for example, if it contains a colon.

EXCEPTION_INVALID_STRING – If the input URI is invalid.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – If memory allocation failure occurred in this method.

Examples

Consider the following element:

```
<Vehicle>
  <seats>4</seats>
  <color>Red</color>
  <engine>
     <capacity units="cc">1600</capacity>
  </engine>
</Vehicle>
```

Given a PBDOM_ELEMENT object elem_vehicle that represents the Vehicle element, consider the following statement:

```
elem_vehicle.AddNamespaceDeclaration("vehicle_specs",&
   "http://www.vehicle.com/specs")
```

It transforms the Vehicle element as follows:

```
<Vehicle
xmlns:vehicle_specs="http://www.vehicle.com/specs">
  <seats>4</seats>
  <color>Red</color>
```

```
  <engine>
     <capacity units="cc">1600</capacity>
  </engine>
</Vehicle>
```

Vehicle, seats, color, engine, and capacity are all unqualified (that is, they have no namespace prefix). Therefore, the vehicle_specs namespace does not apply to any of them or their attributes or subelements.

However, consider the following statement:

```
elem_vehicle.AddNamespaceDeclaration("", &
   "http://www.vehicle.com/specs")
```

It transforms the Vehicle element as follows:

```
<Vehicle xmlns:"http://www.vehicle.com/specs">
  <seats>4</seats>
  <color>Red</color>
  <engine>
     <capacity units="cc">1600</capacity>
  </engine>
</Vehicle>
```

http://www.vehicle.com/specs is the default namespace and so Vehicle, seats, color, engine, and capacity are all part of this namespace. Note that the default namespace does *not* apply to the units attribute.

See also

GetNamespacePrefix
GetNamespaceUri
GetQualifiedName
RemoveNamespaceDeclaration
SetNamespace

## Clone

Description

Creates a clone of a PBDOM_ELEMENT object.

Syntax

*pbdom_element_name.*Clone(boolean *bDeep*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object. |
| *bDeep* | A boolean specifying whether a deep or shallow clone is returned. Values are true for a deep clone and false for a shallow clone. |

Return value

PBDOM_OBJECT. A clone of this PBDOM_ELEMENT object returned as a PBDOM_OBJECT.

Examples

The Clone method is used to alter the following XML:

```
<Telephone_Book>
     <Entry>
          <Particulars>
               <Name>John Doe</Name>
               <Age>21</Age>
               <Phone_Number>1234567</Phone_Number>
          </Particulars>
     </Entry>
</Telephone_Book>
```

The Clone method is invoked from the following PowerScript code, where entry represents the Entry> element in the preceding XML:

```
PBDOM_ELEMENT elem_clone

elem_clone = entry.Clone(true)
pbdom_doc.AddContent(elem_clone)
```

The resulting XML contains two identical Entry> elements:

```
<Telephone_Book>
     <Entry>
          <Particulars>
               <Name>John Doe</Name>
               <Age>21</Age>
               <Phone_Number>1234567</Phone_Number>
          </Particulars>
     </Entry>
     <Entry>
          <Particulars>
               <Name>John Doe</Name>
               <Age>21</Age>
               <Phone_Number>1234567</Phone_Number>
          </Particulars>
     </Entry>
</Telephone_Book>
```

Usage

This method creates and returns a duplicate of the current PBDOM_ELEMENT object. If a shallow clone is requested, this method clones the PBDOM_ELEMENT object together with its namespace information values and its PBDOM_ATTRIBUTEs and their subtrees. If a deep clone is requested, this method additionally recursively clones the subtree under the PBDOM_ELEMENT object.

A PBDOM_ELEMENT clone has no parent. However, the clone resides in the same PBDOM_DOCUMENT as its original, and if the original PBDOM_ELEMENT object is standalone, the clone is standalone.

## Detach

Description

Detaches a PBDOM_ELEMENT object from its parent PBDOM_OBJECT.

Syntax

*pbdom_element_name.*Detach*()*

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

PBDOM_OBJECT. The PBDOM_ELEMENT object detached from its parent object and returned as a PBDOM_OBJECT. If the PBDOM_ELEMENT object has no parent, the Detach method does nothing.

## Equals

Description

Tests for equality between the PBDOM_ELEMENT object from which the method is invoked and a PBDOM_OBJECT indicated by the method parameter.

Syntax

*pbdom_element_name.*Equals(pbdom_object *pbdom_object_ref)*

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_object_ref* | A PBDOM_OBJECT to be tested for equality with this PBDOM_ELEMENT object |

Return value

Boolean. Returns true if the PBDOM_ELEMENT object is equivalent to the referenced PBDOM_OBJECT and false otherwise.

Examples

The Equals method is invoked from the following PowerScript code, in which pbdom_doc represents a PBDOM_DOCUMENT object containing a root element:

```
PBDOM_ELEMENT pbdom_elem_1
PBDOM_ELEMENT pbdom_elem_2
PBDOM_OBJECT pbdom_obj
PBDOM_DOCUMENT pbdom_doc

pbdom_elem_1 = pbdom_doc.GetRootElement()
pbdom_elem_2 = pbdom_doc.GetRootElement()
```

```
IF pbdom_elem_1.Equals(pbdom_elem_2) THEN
   MessageBox ("Equals", "The objects are equal")
ELSE
   MessageBox ("Equals", "The objects are NOT equal")
END IF

pbdom_obj  = Create PBDOM_ELEMENT
pbdom_obj.SetName("An_Element")

IF pbdom_elem_1.Equals(pbdom_obj) THEN
   MessageBox ("Equals", "The objects are equal")
ELSE
   MessageBox ("Equals", "The objects are NOT equal")
END IF
```

Because pbdom_elem_1 and pbdom_elem_2 refer to the same root element, a message box reports that the objects are equal.

## GetAttribute

Description

The GetAttribute method is overloaded:

- Syntax 1 returns the PBDOM_ATTRIBUTE object for a PBDOM_ELEMENT object using the name of the PBDOM_ATTRIBUTE.
- Syntax 2 returns the PBDOM_ATTRIBUTE object for a PBDOM_ELEMENT object with the name provided and within the namespace specified by the prefix and URI provided.

Syntax

| For this syntax | See |
|---|---|
| GetAttribute(string *strName*) | GetAttribute Syntax 1 |
| GetAttribute(string *strName*, string *strNamespacePrefix*, string *strNamespaceUri*) | GetAttribute Syntax 2 |

## GetAttribute Syntax 1

Description

Returns the PBDOM_ATTRIBUTE object for a PBDOM_ELEMENT object.

Syntax

*pbdom_element_name.*GetAttribute(string *strName*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strName* | The name of the PBDOM_ATTRIBUTE to be returned |

Return value

PBDOM_ATTRIBUTE. The PBDOM_ATTRIBUTE object matching the name specified in the method parameter. If no such PBDOM_ATTRIBUTE object exists, the GetAttribute method returns a value of null.

Throws

EXCEPTION_INVALID_NAME – If the supplied name is a qualified name that contains a namespace prefix.

Examples

The GetAttribute method is invoked for the following XML document:

```
<MyMusic:abc
xmlns:MyMusic="http://www.MyMusic_records.com"
My_Attr="My MyMusic Attribute">Root Element
Data</MyMusic:abc>
```

The GetAttribute method is invoked from the following PowerScript statement:

```
pbdom_attr = &
   pbdom_doc.GetRootElement().GetAttribute("My_Attr")
```

The GetAttribute method returns the PBDOM_ATTRIBUTE object My_Attr.

Usage

If the PBDOM_ATTRIBUTE name specified in the method parameter is a qualified name, an exception is thrown. A qualified name appears in the following form: [*namespace_prefix*]:[*local_name*].

See also

GetAttribute Syntax 2
GetAttributes
GetAttributeValue
HasAttributes
SetAttribute
SetAttributes

## GetAttribute Syntax 2

Description

Returns the PBDOM_ATTRIBUTE object for a PBDOM_ELEMENT object with the name provided and within the namespace specified by the prefix and URI provided.

Syntax

*pbdom_element_name.*GetAttribute(string *strName*, string *strNamespacePrefix*, string *strNamespaceUri*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strName* | The name of the PBDOM_ATTRIBUTE to be returned |
| *strNamespacePrefix* | The prefix of the namespace of the PBDOM_ATTRIBUTE to return |
| *strNamespaceUri* | The URI of the namespace of the PBDOM_ATTRIBUTE to return |

Return value

PBDOM_ATTRIBUTE. The PBDOM_ATTRIBUTE object matching the name, namespace prefix, and URI specified in the method parameters. If no such PBDOM_ATTRIBUTE object exists, the GetAttribute method returns a value of null.

Throws

EXCEPTION_INVALID_ARGUMENT – If any of the arguments is invalid, for example, null.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – If there was any memory allocation failure during the running of this method.

See also

GetAttribute Syntax 1
GetAttributes
GetAttributeValue
HasAttributes
SetAttribute
SetAttributes

## GetAttributes

Description

Returns the complete set of PBDOM_ATTRIBUTE objects for a PBDOM_ELEMENT object.

If there are no PBDOM_ATTRIBUTE objects for the PBDOM_ELEMENT object, the GetAttributes method returns an empty array.

Syntax

*pbdom_element_name.*GetAttributes(ref pbdom_attribute *pbdom_attribute_array*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_attribute_array* | An empty and unbounded array to be filled with references to the PBDOM_ATTRIBUTE objects contained in the PBDOM_ELEMENT object |

Return value

Boolean. Returns true if an array of PBDOM_ATTRIBUTE objects for the PBDOM_ELEMENT object has been retrieved, and false otherwise.

Usage

GetAttributes returns the complete set of PBDOM_ATTRIBUTE objects for a PBDOM_ELEMENT object as an array of PBDOM_ATTRIBUTE objects, or as an empty list (empty array) if there are none. The returned array items are "live" and changes to any item affect the referenced PBDOM_ATTRIBUTE.

See also

GetAttribute
GetAttributeValue
HasAttributes
SetAttribute
SetAttributes

## GetAttributeValue

Description

The GetAttributeValue method is overloaded:

- Syntax 1 returns the string value of a PBDOM_ATTRIBUTE object with the specified name.
- Syntax 2 returns the string value of a PBDOM_ATTRIBUTE object with the specified name, using the prefix and URI of the namespace of the PBDOM_ATTRIBUTE.
- Syntax 3 returns the string value of a PBDOM_ATTRIBUTE object with the specified name, using the prefix and URI of the namespace of the PBDOM_ATTRIBUTE. Syntax 3 also provides a default string value to return if the attribute does not exist.
- Syntax 4 returns the string value of a PBDOM_ATTRIBUTE object with the specified name. Syntax 4 also provides a default string value to return if the attribute does not exist.

Syntax

| For this syntax | See |
|---|---|
| GetAttributeValue(string *strAttributeName*) | GetAttributeValue Syntax 1 |
| GetAttributeValue(string *strAttributeName*, string *strNamespacePrefix*, string *strNamespaceUri*) | GetAttributeValue Syntax 2 |
| GetAttributeValue(string *strAttributeName*, string *strNamespacePrefix*, string *strNamespaceUri*, string *strDefaultValue*) | GetAttributeValue Syntax 3 |
| GetAttributeValue(string *strAttributeName*, string *strDefaultValue*) | GetAttributeValue Syntax 4 |

## GetAttributeValue Syntax 1

Description

Returns the string value of the PBDOM_ATTRIBUTE object (within a PBDOM_ELEMENT object) with the specified name and within no namespace.

Syntax

*pbdom_element_name.*GetAttributeValue(string *strAttributeName*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strAttributeName* | The name of the attribute whose value is to be returned |

Return value

String. The string value of the PBDOM_ATTRIBUTE object specified in *strAttributeName*. If no such object exists, the GetAttributeValue method returns null.

Usage

If the text value of the PBDOM_ATTRIBUTE object is empty, the GetAttributeValue method returns an empty string.

See also

GetAttribute
GetAttributeValue Syntax 2
GetAttributeValue Syntax 3
GetAttributeValue Syntax 4
HasAttributes
SetAttribute
SetAttributes

## GetAttributeValue Syntax 2

Description

Returns the string value of the PBDOM_ATTRIBUTE object (within a PBDOM_ELEMENT object) with the specified name and within the specified namespace.

Syntax

*pbdom_element_name.*GetAttributeValue( string *strAttributeName*, string *strNamespacePrefix*, string *strNamespaceUri*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strAttributeName* | The name of the attribute whose value is to be returned |
| *strNamespacePrefix* | The prefix of the namespace of the PBDOM_ATTRIBUTE whose value is to be returned |
| *strNamespaceUri* | The URI of the namespace of the PBDOM_ATTRIBUTE whose value is to be returned |

Return value

String. The string value of the PBDOM_ATTRIBUTE object specified in *strAttributeName*. If no such object exists, the GetAttributeValue method returns an empty string.

Throws

EXCEPTION_INVALID_ARGUMENT – If any of the input arguments is invalid, for example, null.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – If there was any memory allocation failure during the execution of this method.

EXCEPTION_INVALID_NAME – If the input attribute name or namespace prefix or namespace URI is invalid.

See also

GetAttribute
GetAttributeValue Syntax 1
GetAttributeValue Syntax 3
GetAttributeValue Syntax 4
HasAttributes
SetAttribute
SetAttributes

## GetAttributeValue Syntax 3

Description

Returns the string value of the PBDOM_ATTRIBUTE object (within a PBDOM_ELEMENT object) with the specified name and within the specified namespace. If no such PBDOM_ATTRIBUTE exists, the default value is returned.

Syntax

*pbdom_element_name.*GetAttributeValue( string *strAttributeName*, string *strNamespacePrefix*, string *strNamespaceUri*, string *strDefaultValue*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strAttributeName* | The name of the attribute whose value is to be returned |
| *strNamespacePrefix* | The prefix of the namespace of the PBDOM_ATTRIBUTE whose value is to be returned |
| *strNamespaceUri* | The URI of the namespace of the PBDOM_ATTRIBUTE whose value is to be returned |
| *strDefaultValue* | Default string value to return if the attribute does not exist |

Return value

String. The string value of the PBDOM_ATTRIBUTE object specified in *strAttributeName*. If no such object exists, the GetAttributeValue method returns the string provided in *strDefaultValue*.

Throws

EXCEPTION_INVALID_ARGUMENT – If any of the input arguments is invalid, for example, null.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – If there was any memory allocation failure during the execution of this method.

EXCEPTION_INVALID_NAME – If the input attribute name or namespace prefix or namespace URI is invalid.

See also

GetAttribute
GetAttributeValue Syntax 1
GetAttributeValue Syntax 2
GetAttributeValue Syntax 4
HasAttributes
SetAttribute
SetAttributes

## GetAttributeValue Syntax 4

Description

Returns the string value of the PBDOM_ATTRIBUTE object (within a PBDOM_ELEMENT object) with the specified name. If no such PBDOM_ATTRIBUTE exists, the default value is returned.

Syntax

*pbdom_element_name.*GetAttributeValue(string *strAttributeName*, string *strDefaultValue*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strAttributeName* | The name of the attribute whose value is to be returned |
| *strDefaultValue* | Default string value to return if the attribute does not exist |

Return value

String. The string value of the PBDOM_ATTRIBUTE object specified in *strAttributeName*. If no such object exists, the GetAttributeValue method returns the string provided in *strDefaultValue*.

See also

GetAttribute
GetAttributeValue Syntax 1
GetAttributeValue Syntax 2
GetAttributeValue Syntax 3
HasAttributes
SetAttribute
SetAttributes

## GetChildElement

Description

The GetChildElement method is overloaded:

- Syntax 1 returns the first child PBDOM_ELEMENT object that matches the name indicated by the method parameter.
- Syntax 2 returns the first child PBDOM_ELEMENT object that matches the name and namespace indicated by the method parameter.

Syntax

| For this syntax | See |
|---|---|
| GetChildElement(string *strElementName*) | GetChildElement Syntax 1 |
| GetChildElement(string *strElementName*, string *strNamespacePrefix*, string *strNamespaceUri*) | GetChildElement Syntax 2 |

## GetChildElement Syntax 1

Description

Returns the first child PBDOM_ELEMENT object, matching the name indicated by the method parameter that is contained in the PBDOM_ELEMENT object from which the method is invoked.

Syntax

*pbdom_element_name.*GetChildElement(string *strElementName*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strElementName* | The local name of the child PBDOM_ELEMENT object to be returned |

Return value

PBDOM_ELEMENT. The first child PBDOM_ELEMENT object whose name matches the value of the method parameter. If no PBDOM_ELEMENT object exists for the specified name, the GetChildElement method returns a value of null.

See also

GetChildElement Syntax 2
GetChildElements
HasChildElements
HasChildren
IsRootElement
RemoveChildElement
RemoveChildElements

## GetChildElement Syntax 2

Description

Returns the first child PBDOM_ELEMENT object, matching the name and namespace indicated by the method parameter contained in the PBDOM_ELEMENT object from which the method is invoked.

Syntax

*pbdom_element_name.*GetChildElement(string *strElementName*, string *strNamespacePrefix*, string *strNamespaceUri*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strElementName* | The local name of the child PBDOM_ELEMENT object to be returned |
| *strNamespacePrefix* | The prefix of the namespace of the child PBDOM_ELEMENT object to be returned |
| *strNamespaceUri* | The URI of the namespace of the child PBDOM_ELEMENT object to be returned |

Return value

PBDOM_ELEMENT. The first child PBDOM_ELEMENT object whose name and namespace information match the values of the method parameters. If no PBDOM_ELEMENT object exists for the specified name and namespace information, the GetChildElement method returns a value of null.

Throws

EXCEPTION_INVALID_ARGUMENT – If any of the input arguments is invalid, for example, null.

EXCEPTION_INVALID_NAME – If the input Element Name or input namespace prefix or namespace URI is invalid.

See also

GetChildElement Syntax 1
GetChildElements
HasChildElements
HasChildren
IsRootElement
RemoveChildElement
RemoveChildElements

## GetChildElements

Description

The GetChildElements method is overloaded:

- Syntax 1 retrieves a list of all child PBDOM_ELEMENT objects nested one level deep within a PBDOM_ELEMENT object. The list is stored in the array specified when the method is invoked.
- Syntax 2 retrieves a list of all child PBDOM_ELEMENT objects nested one level deep within a PBDOM_ELEMENT object specified by the name provided and belonging to no namespace. The list is stored in the array specified when the method is invoked.
- Syntax 3 retrieves a list of all child PBDOM_ELEMENT objects nested one level deep within a PBDOM_ELEMENT object specified by the local name and namespace provided.

Syntax

| For this syntax | See |
|---|---|
| GetChildElements(ref pbdom_element *pbdom_element_array*[]) | GetChildElements Syntax 1 |
| GetChildElements(string *strElementName*, ref pbdom_element *pbdom_element_array*[]) | GetChildElements Syntax 2 |
| GetChildElements(string *strElementName*, string *strNamespacePrefix*, string *strNamespaceUri*, ref pbdom_element *pbdom_element_array*[]) | GetChildElements Syntax 3 |

## GetChildElements Syntax 1

Description

Retrieves a list of all child PBDOM_ELEMENT objects nested one level deep within a PBDOM_ELEMENT object. The list is stored in the array specified when the method is invoked.

Syntax

*pbdom_element_name.*GetChildElements(ref pbdom_element *pbdom_element_array*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| pbdom_element_array | The array that stores the child PBDOM_ELEMENT objects |

Return value

Boolean. Returns true if child PBDOM_ELEMENT objects have been collected, and false otherwise.

Usage

If the PBDOM_ELEMENT object has no nested elements, GetChildElements returns an empty array.

See also

GetChildElement
GetChildElements Syntax 2
GetChildElements Syntax 3
HasChildElements
HasChildren
IsRootElement
RemoveChildElement
RemoveChildElements

## GetChildElements Syntax 2

Description

Retrieves a list of all child PBDOM_ELEMENT objects nested one level deep within a PBDOM_ELEMENT object specified by the name provided and belonging to no namespace. The list is stored in the array specified when the method is invoked.

Syntax

*pbdom_element_name.*GetChildElements(string *strElementName*, ref pbdom_element *pbdom_element_array*[])

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strElementName* | The name of the PBDOM_ELEMENT object for which to find children |
| *pbdom_element_array* | The array that stores the child PBDOM_ELEMENT objects |

Return value

Boolean. Returns true if child PBDOM_ELEMENT objects have been collected, and false otherwise.

Usage

If the PBDOM_ELEMENT object has no nested elements, GetChildElements returns an empty array.

See also

GetChildElement
GetChildElements Syntax 1
GetChildElements Syntax 3
HasChildElements
HasChildren
IsRootElement
RemoveChildElement
RemoveChildElements

## GetChildElements Syntax 3

Description

Retrieves a list of all child PBDOM_ELEMENT objects nested one level deep within a PBDOM_ELEMENT object specified by the local name and namespace provided.

Syntax

*pbdom_element_name*.GetChildElements(string *strElementName*, string *strNamespacePrefix*, string *strNamespaceUri*, ref pbdom_element *pbdom_element_array*[])

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strElementName* | The name of a PBDOM_ELEMENT object for which to find children |
| *strNamespacePrefix* | The prefix of the namespace of the child PBDOM_ELEMENT objects to match |
| *strNamespaceUri* | The URI of the namespace of the child PBDOM_ELEMENT objects to match |
| *pbdom_element_array[]* | The array that stores the child PBDOM_ELEMENT objects |

Return value

Boolean. Returns true if child PBDOM_ELEMENT objects have been collected, and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT – If any of the parameters is invalid.

EXCEPTION_INVALID_NAME – If the input element name or namespace prefix or namespace URI is invalid. The only exception is if the input element name is an empty string.

Usage

If the PBDOM_ELEMENT object has no nested elements, GetChildElements returns an empty array.

If the value of *strElementName* is an empty string, then all child elements match.

See also

GetChildElement
GetChildElements Syntax 1
GetChildElements Syntax 2
HasChildElements
HasChildren
IsRootElement
RemoveChildElement
RemoveChildElements

## GetContent

Description

Obtains an array of PBDOM_OBJECT objects, each of which is a child node of the PBDOM_ELEMENT object from which the method is invoked. The returned array is "live" in that changes to any item of the array affect the actual item to which the array refers.

Syntax

*pbdom_element_name.*GetContent(ref pbdom_object *pbdom_object_array*[ ])

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_object_array* | The name of an array of PBDOM_OBJECT objects that receive references to the PBDOM_OBJECT objects contained within the PBDOM_ELEMENT object |

Return value

Boolean. Returns true for success and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT – If the input array is null.

Examples

The GetContent method is invoked for the Root> PBDOM_ELEMENT object in the following XML DOM document:

```
<Root>
     <Element_1>
          <Element_1_1/>
          <Element_1_2/>
          <Element_1_3/>
     </Element_1>
     <Element_2/>
     <Element_3/>
</Root>
```

The GetContent method is invoked from the following PowerScript code:

```
PBDOM_DOCUMENT pbdom_doc
PBDOM_ELEMENT pbdom_elem_root
PBDOM_OBJECT pbdom_obj_array[]

pbdom_elem_root = pbdom_doc.GetRootElement()
pbdom_elem_root.GetContent(pbdom_obj_array)
```

If the GetContent method returns the value true, the PBDOM_OBJECT object pbdom_obj_array then contains the following content:

| Array element | Value |
|---|---|
| 1 | <Element_1> |
| 2 | <Element_2> |
| 3 | <Element_3> |

See also

AddContent Syntax 1
AddContent Syntax 2
InsertContent
RemoveContent
SetContent

## GetName

Description

Retrieves the local name of a PBDOM_ELEMENT object.

Syntax

*pbdom_element_name.*GetName()

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

String. The name of the element as it appears in the XML document but without any namespace prefix.

Examples

The GetName method returns the string `abc` when it is invoked for the name of the following element:

```
<ns:abc>My Element</ns:abc>
```

Usage

For an XML element that appears in the form [*namespace_prefix*]:[*element_name*], the local element name is *element_name*. When the XML element has no namespace prefix, the local name is simply the element name.

Use the GetQualifiedName method to obtain the fully qualified name of an element (with the namespace prefix).

See also

GetNamespacePrefix
GetNamespaceUri
RemoveNamespaceDeclaration
SetName

## GetNamespacePrefix

Description

Returns the namespace prefix for a PBDOM_ELEMENT object. If no namespace prefix exists for the PBDOM_ELEMENT object, GetNamespacePrefix returns an empty string.

Syntax

*pbdom_element_name.*GetNamespacePrefix()

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

String. The namespace prefix for the PBDOM_ELEMENT object.

See also

AddNamespaceDeclaration
GetNamespaceUri
GetQualifiedName
RemoveNamespaceDeclaration
SetNamespace

## GetNamespaceUri

Description

Returns the URI that is mapped to a PBDOM_ELEMENT object prefix or, if there is no prefix, to the PBDOM_ELEMENT object default namespace. If no URI is mapped to the PBDOM_ELEMENT object, GetNameSpaceUri returns an empty string.

Syntax

*pbdom_element_name.*GetNamespaceUri()

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

String. The namespace URI for the PBDOM_ELEMENT object.

See also

AddNamespaceDeclaration
GetNamespacePrefix
GetQualifiedName

RemoveNamespaceDeclaration
SetNamespace

## GetObjectClass

Description

Returns a long integer code that indicates the class of the current PBDOM_OBJECT.

Syntax

*pbdom_object_name*.GetObjectClass()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT object |

Return value

Long. A code that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_ELEMENT object, the returned value is 3.

Examples

The GetObjectClass method returns a value specific to the class of the object from which the method is invoked.

```
PBDOM_OBJECT pbdom_obj

pbdom_obj = Create PBDOM_ELEMENT
MessageBox ("Class", &
   string(pbdom_obj.GetObjectClass()))
```

This example illustrates polymorphism: pbdom_obj is declared as PBDOM_OBJECT but instantiated as PBDOM_ELMENT. A message box returns the result of the GetObjectClass method invoked for PBDOM_ELEMENT object. Here the result is 3, indicating that pbdom_obj is a PBDOM_ELEMENT object.

Usage

This method can be used for diagnostic purposes to dynamically determine the type of a PBDOM_OBJECT at runtime.

## GetObjectClassString

Description

Returns a string form of the class of the PBDOM_OBJECT.

Syntax

*pbdom_object_name*.GetObjectClassString()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of your PBDOM_OBJECT object |

Return value

String. A string that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_ELEMENT object, the returned string is "pbdom_element".

Examples

The GetObjectClass method returns a string specific to the class of the object from which the method is invoked.

```
PBDOM_OBJECT pbdom_obj

pbdom_obj = Create PBDOM_ELEMENT
MessageBox ("Class", pbdom_obj.GetObjectClassString())
```

This example illustrates polymorphism: pbdom_obj is declared as PBDOM_OBJECT but instantiated as PBDOM_ELEMENT object. A message box returns the result of the GetObjectClassString method invoked for PBDOM_ELEMENT object. Here the result is pbdom_element, indicating that pbdom_obj is a PBDOM_ELEMENT object.

Usage

This method can be used for diagnostic purposes to dynamically determine the actual type of a PBDOM_OBJECT at runtime.

## GetOwnerDocumentObject

Description

Returns the PBDOM_DOCUMENT object that owns the PBDOM_ELEMENT object.

Syntax

*pbdom_element_name*.GetOwnerDocumentObject()

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

PBDOM_DOCUMENT. The PBDOM_DOCUMENT that owns the PBDOM_ELEMENT object from which the GetOwnerDocumentObject method is invoked. A return value of null indicates that the PBDOM_ELEMENT object is not owned by any PBDOM_DOCUMENT.

Examples

The GetOwnerDocumentObject method is invoked from the following PowerScript code, where pbdom_root_elem refers to the root element of the PBDOM_DOCUMENT object pbdom_doc:

```
PBDOM_DOCUMENT pbdom_doc
PBDOM_ELEMENT pbdom_root_elem

pbdom_root_elem = pbdom_doc.GetRootElement()
```

```
IF
   pbdom_doc.Equals &
   (pbdom_root_elem.GetOwnerDocumentObject())
THEN
     MessageBox ("Equals", "The objects are equal")
END IF
```

The Equals method tests for equality between pbdom_doc and the PBDOM_DOCUMENT object returned from the GetOwnerDocumentObject method. A message box reports that the objects are equal.

See also

GetParentObject
SetParentObject

## GetParentObject

Description

Returns the parent object for the PBDOM_ELEMENT object.

Syntax

*pbdom_element_name.*GetParentObject()

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

PBDOM_OBJECT. The parent object of the PBDOM_ELEMENT object from which the GetParentObject method is invoked. A return value of null indicates the PBDOM_ELEMENT object has no parent.

See also

GetOwnerDocumentObject
SetParentObject

## GetQualifiedName

Description

Returns the full name of a PBDOM_ELEMENT object in the form [*namespace_prefix*]:[*local_name*]. If there is no namespace prefix for the PBDOM_ELEMENT object, the GetQualifiedName method returns the local name.

Syntax

*pbdom_element_name.*GetQualifiedName()

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

String. The full name of the PBDOM_ELEMENT object. The full name consists of both a namespace prefix and a local name.

See also
AddNamespaceDeclaration
GetNamespacePrefix
GetNamespaceUri
RemoveNamespaceDeclaration
SetNamespace

## GetText

Description
Obtains a concatenation of the text values of all the PBDOM_TEXT and PBDOM_CDATA nodes contained within the PBDOM_ELEMENT object from which the method is invoked.

Syntax
*pbdom_element_name.*GetText()

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value
String

Examples
The GetText method is invoked for the abc PBDOM_ELEMENT object:

```
<abc>Root Element Data<data>ABC Data </data> now with
extra info</abc>
```

The GetText method returns the following string:

```
Root Element Data now with extra info
```

The text “ABC Data” is excluded because it is not contained within the PBDOM_ELEMENT abc.

See also
GetTextNormalize
GetTextTrim
SetText

## GetTextNormalize

Description
Returns the normalized text data contained in a PBDOM_ELEMENT object.

Syntax
*pbdom_element_name.*GetTextNormalize*()*

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value
String

Examples

The GetTextNormalize method is invoked for the abc element of the following XML:

```
<abc>     Root      Element      Data     <data>ABC
Data </data> now with extra info     </abc>
```

The GetTextNormalize method returns the following string:

```
Root Element Data now with extra info
```

Usage

The text data returned includes any text data contained in PBDOM_CDATA objects. All surrounding whitespace characters are removed. Internal whitespace characters are normalized to a single space. The GetTextNormalize method returns an empty string if no text values exist for the PBDOM_ELEMENT object or if there are only whitespace characters.

See also

GetText
GetTextTrim
SetText

## GetTextTrim

Description

Returns the text data contained within a PBDOM_ELEMENT object with any leading and trailing whitespace characters removed.

Syntax

*pbdom_element_name.*GetTextTrim*()*

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

String

Examples

The GetTextTrim method is invoked for the abc element of the following XML:

```
<abc>     Root    Element Data <![CDATA[
with       some cdata text   ]]></abc>
```

The GetTextTrim method returns the following string:

```
Root Element Data with some cdata text
```

Usage

Surrounding whitespace characters are removed from the returned text data. The GetTextTrim method returns an empty string if no text value exists for the PBDOM_ELEMENT object or if the text value contains only whitespace characters.

See also

GetText
GetTextNormalize
SetText

## HasAttributes

Description

Indicates whether a PBDOM_ELEMENT object has one or more attributes.

Syntax

*pbdom_element_name*.HasAttributes()

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

Boolean. Returns true if this PBDOM_ELEMENT object has at least one attribute and false if this PBDOM_ELEMENT object has no attributes.

Examples

In the following document fragment, only the element site has an attribute (href):

```
<books>
   <title>Inside Wizardry</title>
   <author>Ron Potter</author>
   <site href="http://www.mybooks.com/press"/>
</books>
```

If the PBDOM_ELEMENT object pbdom_elem_site represents the element site, the following call returns true:

```
pbdom_elem_site.HasAttributes()
```

See also

GetAttribute
GetAttributes
GetAttributeValue
SetAttribute
SetAttributes

## HasChildElements

Description

Indicates whether a PBDOM_ELEMENT object has one or more child PBDOM_ELEMENT objects.

Syntax

*pbdom_element_name.*HasChildElements()

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

Boolean. Returns true if this PBDOM_ELEMENT object has at least one child PBDOM_ELEMENT object and false if this PBDOM_ELEMENT object has no child PBDOM_ELEMENT objects.

Examples

The HasChildElements method is invoked for the books PBDOM_ELEMENT object in the following XML fragment:

```
<books>
   <title>Inside OLE</title>
   <author>Kraig Brockschmidt</author>
   <site href="http://www.microsoft.com/press"/>
</books>
```

The books object has three child PBDOM_ELEMENT objects: title, author, and site. The HasChildElements method returns true.

See also

GetChildElement
GetChildElements
HasChildren
IsRootElement
RemoveChildElement
RemoveChildElements

## HasChildren

Description

Indicates whether a PBDOM_ELEMENT object has one or more child objects.

Syntax

*pbdom_element_name.*HasChildren*()*

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

Boolean. Returns true if this PBDOM_ELEMENT object has at least one child object and false if this PBDOM_ELEMENT object has no child objects.

Examples

The HasChildren method is invoked for elements in the following XML fragment:

```
<books>
     <title>Inside OLE</title>
     <author>Kraig Brockschmidt</author>
     <site href="http://www.microsoft.com/press"/>
</books>
```

The books element has three child elements: title, author, and site. The title and author elements each have a child PBDOM_TEXT object. The HasChildren method returns a value of true when invoked for these elements.

In contrast, the site element has a PBDOM_ATTRIBUTE href, which is not considered a child PBDOM_OBJECT. The HasChildren method returns a value of False when invoked for the site element.

Usage

PBDOM's implementation of the HasChildren method differs from JDOM's implementation in that the JDOM HasChildren method returns true only if an Element contains child Elements. Text and other types of objects do not count.

PBDOM provides an alternative method, HasChildElements, to specifically detect whether a PBDOM_ELEMENT object has at least one child PBDOM_ELEMENT object.

See also

HasChildElements
IsRootElement

## InsertContent

Description

Inserts a new PBDOM_OBJECT into a PBDOM_ELEMENT object.

Syntax

*pbdom_element_name.*InsertContent(pbdom_object *pbdom_object_new*, pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_object_new* | The PBDOM_OBJECT to insert |
| *pbdom_object_ref* | A positional reference PBDOM_OBJECT in front of which the new PBDOM_OBJECT is to be inserted |

Return value

PBDOM_OBJECT. The PBDOM_ELEMENT object modified and returned as a PBDOM_OBJECT.

Throws

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – If an invalid PBDOM_OBJECT is added. See AddContent on page 206 for the valid PBDOM_OBJECT objects that can be added to a PBDOM_ELEMENT object. This exception is also thrown if the input PBDOM_OBJECT or the reference PBDOM_OBJECT is this PBDOM_ELEMENT object itself.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If the input PBDOM_OBJECT to insert has not been given a user-defined name. The same exception is also thrown if the reference PBDOM_OBJECT is also not given a user-defined name, unless the reference PBDOM_OBJECT is specifically set to null.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT to insert is not associated with a derived PBDOM_OBJECT. The same exception is also thrown if the reference PBDOM_OBJECT is also not associated with a derived PBDOM_OBJECT unless the reference PBDOM_OBJECT is specifically set to null.

EXCEPTION_INVALID_ARGUMENT – If the reference PBDOM_OBJECT (second parameter) is intended to be null but is not specifically set to null using the SetNull method.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – If the input PBDOM_OBJECT to insert already has a parent.

EXCEPTION_WRONG_PARENT_ERROR – If the reference PBDOM_OBJECT is not a child of this PBDOM_ELEMENT object.

EXCEPTION_HIERARCHY_ERROR – If inserting the input PBDOM_OBJECT will cause the current PBDOM_ELEMENT object to be no longer well formed.

Examples

The following PowerScript code is used to create an XML document:

```
pbdom_doc1 = Create PBDOM_DOCUMENT
pbdom_elem_1 = Create PBDOM_ELEMENT
pbdom_elem_2 = Create PBDOM_ELEMENT
pbdom_elem_3 = Create PBDOM_ELEMENT

pbdom_elem_1.SetName ("pbdom_elem_1")
pbdom_elem_2.SetName ("pbdom_elem_2")
pbdom_elem_3.SetName ("pbdom_elem_3")

pbdom_doc1.NewDocument ("", "", "Root_Element", "", "")
pbdom_elem_root = pbdom_doc1.GetRootElement()
pbdom_elem_root.AddContent (pbdom_elem_1)
pbdom_elem_root.AddContent (pbdom_elem_3)
```

The following XML results:

```
!DOCTYPE Root_Element>
<Root_Element>
     <pbdom_elem_1 />
     <pbdom_elem_3 />
</Root_Element>
```

The InsertContent method is used to add an element between pbdom_elem_1 and pbdom_elem_3:

```
pbdom_elem_root.InsertContent(pbdom_elem_2, &
   pbdom_elem_3)
```

The following XML results:

```
<!DOCTYPE Root_Element>
<Root_Element>
     <pbdom_elem_1 />
     <pbdom_elem_2 />
```

```
        <pbdom_elem_3 />
    </Root_Element>
```

Usage

The inserted object becomes a child of the PBDOM_ELEMENT object. The new PBDOM_OBJECT is positioned before another PBDOM_OBJECT, which is specified in the second of two parameters.

See also

AddContent Syntax 1
AddContent Syntax 2
GetContent
RemoveContent
SetContent

## IsAncestorObjectOf

Description

Determines whether a PBDOM_ELEMENT object is the ancestor of the PBDOM_OBJECT indicated by the method parameter.

Syntax

*pbdom_element_name*.IsAncestorObjectOf(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_object_ref* | The PBDOM_OBJECT to be tested for equality with this PBDOM_ELEMENT object |

Return value

Boolean. Returns true if this PBDOM_ELEMENT object is the ancestor of the specified PBDOM_OBJECT, and false otherwise.

## IsRootElement

Description

Indicates whether a PBDOM_ELEMENT object is the root element of a PBDOM_DOCUMENT object.

Syntax

*pbdom_element_name*.IsRootElement()

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

Boolean. Returns true if this PBDOM_ELEMENT object is the root element of a PBDOM_DOCUMENT, and false otherwise.

See also

GetChildElement
GetChildElements

HasChildElements
HasChildren
RemoveChildElement
RemoveChildElements

## RemoveAttribute

Description

The RemoveAttribute method is overloaded:

- Syntax 1 removes a PBDOM_ATTRIBUTE from its owner PBDOM_ELEMENT object using a reference to the PBDOM_ATTRIBUTE.
- Syntax 2 removes a PBDOM_ATTRIBUTE from its owner PBDOM_ELEMENT object using the name of the PBDOM_ATTRIBUTE.
- Syntax 3 removes a PBDOM_ATTRIBUTE from its owner PBDOM_ELEMENT object using the name and namespace of the PBDOM_ATTRIBUTE.

Syntax

| For this syntax | See |
|---|---|
| RemoveAttribute(pbdom_attribute *pbdom_attribute_ref*) | RemoveAttribute Syntax 1 |
| RemoveAttribute(string *strAttributeName*) | RemoveAttribute Syntax 2 |
| RemoveAttribute(string *strAttributeName*, string *strNamespacePrefix*, string *strNamespaceUri*) | RemoveAttribute Syntax 3 |

## RemoveAttribute Syntax 1

Description

Removes a PBDOM_ATTRIBUTE from its owner PBDOM_ELEMENT object.

Syntax

*pbdom_element_name.*RemoveAttribute(pbdom_attribute *pbdom_attribute_ref*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_attribute_ref* | The PBDOM_ATTRIBUTE object to remove from this PBDOM_ELEMENT object |

Return value

Boolean. Returns true if the specified PBDOM_ATTRIBUTE was removed, and false otherwise.

## RemoveAttribute Syntax 2

Description

Removes a PBDOM_ATTRIBUTE specified by the name provided that is not contained in a namespace. If no such PBDOM_ATTRIBUTE exists, RemoveAttribute does nothing.

Syntax

*pbdom_element_name.*RemoveAttribute(string *strAttributeName*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strAttributeName* | The name of the PBDOM_ATTRIBUTE object to remove |

Return value

Boolean. Returns true if the specified PBDOM_ATTRIBUTE was removed, and false otherwise.

## RemoveAttribute Syntax 3

Description

Removes a PBDOM_ATTRIBUTE specified by the name and namespace provided. If no such PBDOM_ATTRIBUTE exists, RemoveAttribute does nothing.

Syntax

*bdom_element_name.*RemoveAttribute(string *strAttributeName*, string *strNamespacePrefix*, string *strNamespaceUri*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strAttributeName* | The name of the PBDOM_ATTRIBUTE object to remove |
| *strNamespacePrefix* | Prefix of the namespace of the PBDOM_ATTRIBUTE to remove |
| *strNamespaceUri* | URI of the namespace of the PBDOM_ATTRIBUTE to remove |

Return value

Boolean. Returns true if the specified PBDOM_ATTRIBUTE was removed, and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT – If any of the input parameters is invalid, for example, null.

EXCEPTION_INVALID_STRING – If the input Attribute Name is invalid (for example, contains a colon), or if the namespace prefix or URI is invalid.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – If a memory allocation failure occurred during the execution of this method.

## RemoveChildElement

Description

The RemoveChildElement method is overloaded:

- Syntax 1 removes the first child PBDOM_ELEMENT object (one level deep) that has the local name provided and belongs to no namespace.
- Syntax 2 removes the first child PBDOM_ELEMENT object (one level deep) that has the local name provided and belongs to the specified namespace.

Syntax

| For this syntax | See |
|---|---|
| RemoveChildElement(string *strElementName*) | RemoveChildElement Syntax 1 |
| RemoveChildElement(string *strElementName*, string *strNamespacePrefix*, string *strNamespaceUri*) | RemoveChildElement Syntax 2 |

## RemoveChildElement Syntax 1

Description

Removes the first child PBDOM_ELEMENT object (one level deep) that has the local name provided and belongs to no namespace.

Syntax

*pbdom_element_name.*RemoveChildElement(string *strElementName*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strElementName* | The name of the child PBDOM_ELEMENT object to remove |

Return value

Boolean. Returns true if the specified PBDOM_ELEMENT object was removed, and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT – If the input parameter is invalid, for example, null.

EXCEPTION_INVALID_STRING – If the input element name is invalid.

See also

GetChildElement
GetChildElements
HasChildElements

HasChildren
IsRootElement
RemoveChildElement Syntax 2
RemoveChildElements

## RemoveChildElement Syntax 2

Description

Removes the first child PBDOM_ELEMENT object (one level deep) that has the local name provided and belongs to the specified namespace.

Syntax

*pbdom_element_name.*RemoveChildElement(string *strElementName*, string *strNamespacePrefix*, string *strNamespaceUri*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strElementName* | The name of the PBDOM_ELEMENT object to remove |
| *strNamespacePrefix* | Prefix of the namespace of the PBDOM_ELEMENT object to remove |
| *strNamespaceUri* | URI of the namespace of the PBDOM_ATTRIBUTE to remove |

Return value

Boolean. Returns true if the specified PBDOM_ELEMENT object was removed and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT – If the input parameter is invalid, for example, null.

EXCEPTION_INVALID_STRING – If the input element name is invalid or the input namespace prefix or URI is invalid.

See also

GetChildElement
GetChildElements
HasChildElements
HasChildren
IsRootElement
RemoveChildElement Syntax 1
RemoveChildElements

## RemoveChildElements

Description

The RemoveChildElements method is overloaded:

- Syntax 1 method removes from the current PBDOM_ELEMENT object all child PBDOM_ELEMENT objects. It uses no parameters.
- Syntax 2 method removes from the current PBDOM_ELEMENT object all child PBDOM_ELEMENT objects that have the specified local name and belong to no namespace.
- Syntax 3 removes from the current PBDOM_ELEMENT object all child PBDOM_ELEMENT objects (one level deep) that have the specified local name and belong to the specified namespace.

Syntax

| For this syntax | See |
|---|---|
| RemoveChildElements() | RemoveChildElements Syntax 1 |
| RemoveChildElements(string *strElementName*) | RemoveChildElements Syntax 2 |
| RemoveChildElements(string *strElementName*, string *strNamespacePrefix*, string *strNamespaceUri*) | RemoveChildElements Syntax 3 |

## RemoveChildElements Syntax 1

Description

Removes from the current PBDOM_ELEMENT object all child PBDOM_ELEMENT objects. It uses no parameters.

Syntax

*pbdom_element_name.*RemoveChildElements()

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

Return value

Boolean. Returns true if any child PBDOM_ELEMENT object was removed and false otherwise.

See also

GetChildElement
GetChildElements
HasChildElements
HasChildren
IsRootElement
RemoveChildElement
RemoveChildElements Syntax 2
RemoveChildElements Syntax 3

## RemoveChildElements Syntax 2

Description

Removes from the current PBDOM_ELEMENT object all child PBDOM_ELEMENT objects that have the specified local name and belong to no namespace.

Syntax

*pbdom_element_name.*RemoveChildElements(string *strElementName*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strElementName* | The name of the child PBDOM_ELEMENT objects to remove |

Return value

Boolean. Returns true if any child PBDOM_ELEMENT object was removed, and false otherwise.

See also

GetChildElement
GetChildElements
HasChildElements
HasChildren
IsRootElement
RemoveChildElement
RemoveChildElements Syntax 1
RemoveChildElements Syntax 3

## RemoveChildElements Syntax 3

Description

Removes from the current PBDOM_ELEMENT object all child PBDOM_ELEMENT objects (one level deep) that have the specified local name and belong to the specified namespace.

Syntax

*pbdom_element_name.*RemoveChildElements(string *strElementName*, string *strNamespacePrefix*, string *strNamespaceUri*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strElementName* | The name of the child PBDOM_ELEMENT objects to remove |
| *strNamespacePrefix* | Prefix of the namespace of the child PBDOM_ELEMENT objects to remove |
| *strNamespaceUri* | URI of the namespace of the child PBDOM_ATTRIBUTE objects to remove |

Return value

Boolean. Returns true if any child PBDOM_ELEMENT object was removed and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT – If any of the input parameters is invalid, for example, null.

EXCEPTION_INVALID_NAME – If the input element name or namespace prefix or URI is invalid. The only exception is if the input element name is an empty string, in which case all element names match.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – If there was any memory allocation failure during the execution of this method.

See also

GetChildElement
GetChildElements
HasChildElements
HasChildren
IsRootElement
RemoveChildElement
RemoveChildElements Syntax 1
RemoveChildElements Syntax 2

## RemoveContent

Description

Removes a child PBDOM_OBJECT from a PBDOM_ELEMENT object. All children of the removed PBDOM_OBJECT are also removed.

Syntax

*pbdom_element_name.*RemoveContent(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_object_ref* | The PBDOM_OBJECT to remove |

Return value

Boolean. Returns true if the specified content was removed and false otherwise.

Throws

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If the input PBDOM_OBJECT has not been given a user-defined name.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not associated with a derived PBDOM_OBJECT.

EXCEPTION_WRONG_DOCUMENT_ERROR – If the input PBDOM_OBJECT is not from the same document as this PBDOM_ELEMENT object.

EXCEPTION_WRONG_PARENT_ERROR – If the input PBDOM_OBJECT is not a child of the current PBDOM_ELEMENT object.

Examples

The RemoveContent method is used to modify the following XML fragment:

```
<Telephone_Book>
     <Entry>
          <Particulars>
               <Name>John Doe</Name>
               <Age>21</Age>
               <Phone_Number>1234567</Phone_Number>
          </Particulars>
     </Entry>
</Telephone_Book>
```

The RemoveContent method is invoked from the following PowerScript code:

```
PBDOM_DOCUMENT pbdom_doc
PBDOM_ELEMENT pbdom_entry

pbdom_doc.GetRootElement().RemoveContent(pbdom_entry)
```

The following XML results:

```
<Telephone_Book></Telephone_Book>
```

See also

AddContent Syntax 1
AddContent Syntax 2
GetContent
InsertContent
SetContent

## RemoveNamespaceDeclaration

Description

Removes the specified PBDOM_NAMESPACE declaration for a PBDOM_ELEMENT object. If the namespace prefix is an empty string, RemoveNamespaceDeclaration removes a default namespace declaration.

Syntax

*pbdom_element_name*.RemoveNamespaceDeclaration(string *strNamespacePrefix*, string *strNamespaceUri*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strNamespacePrefix* | Prefix of the namespace declaration to remove |
| *strNamespaceUri* | URI of the namespace declaration to remove |

Return value

Boolean. Returns true if the namespace has been removed from the PBDOM_ELEMENT object, and false otherwise.

Throws

EXCEPTION_INVALID_ARGUMENT – If any of the input parameters is invalid, for example, null.

EXCEPTION_INVALID_NAME – If the namespace prefix or URI is invalid, or both the namespace prefix and URI are invalid as a pair.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – If any memory allocation failure occurred during the execution of this method.

See also

AddNamespaceDeclaration
GetNamespacePrefix
GetNamespaceUri
GetQualifiedName
SetNamespace

## SetAttribute

Description

The SetAttribute method is overloaded:

- Syntax 1 adds a predefined PBDOM_ATTRIBUTE object to a PBDOM_ELEMENT object.
- Syntax 2 adds a PBDOM_ATTRIBUTE object and its value to a PBDOM_ELEMENT object using strings for the name and value of the PBDOM_ATTRIBUTE.
- Syntax 3 adds an attribute/value pair to a PBDOM_ELEMENT object using strings for the name and value of the PBDOM_ATTRIBUTE, and the prefix and URI of the namespace to which the PBDOM_ATTRIBUTE belongs.

Syntax

| For this syntax | See |
|---|---|
| SetAttribute(pbdom_attribute *pbdom_attribute_ref*) | SetAttribute Syntax 1 |
| SetAttribute(string *strName*, string *strValue*) | SetAttribute Syntax 2 |
| SetAttribute(string *strName*, string *strValue*, string *strNamespacePrefix*, string *strNamespaceUri*, boolean *bVerifyNamespace*) | SetAttribute Syntax 3 |

## SetAttribute Syntax 1

Description

Adds a predefined PBDOM_ATTRIBUTE object to a PBDOM_ELEMENT object. Any existing attribute with the same name and namespace URI is overwritten.

Syntax

*pbdom_element_name*.SetAttribute(pbdom_attribute *pbdom_attribute_ref*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_attribute_ref* | The PBDOM_ATTRIBUTE object to be set for this PBDOM_ELEMENT object |

Return value

PBDOM_ELEMENT. The PBDOM_ELEMENT object modified to contain the specified PBDOM_ATTRIBUTE.

Throws

EXCEPTION_INVALID_ARGUMENT – The input PBDOM_ATTRIBUTE is invalid. This can happen if it has not been initialized properly or it is a null object reference.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – The input PBDOM_ATTRIBUTE has not been given a user-defined name.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_OWNER – The input PBDOM_ATTRIBUTE already has an owner element.

Examples

**Example 1** The SetAttribute method is invoked for the following element:

```
<image></image>
```

The SetAttribute method is invoked from the following PowerScript code, where elem_image represents the image element from the preceding XML:

```
attr_src.SetName("src")
attr_src.SetValue("logo.gif")
elem_image.SetAttribute(attr_src)
```

The following XML results:

```
<image src="logo.gif"></image>
```

**Example 2** The following example demonstrates the impact of setting a PBDOM_ATTRIBUTE for a PBDOM_ELEMENT object where the PBDOM_ELEMENT object already contains an attribute of the same name and namespace URI as the input PBDOM_ATTRIBUTE.

The example creates a PBDOM_DOCUMENT based on the following document:

```
<root xmlns:pre1="http://www.pre.com"
xmlns:pre2="http://www.pre.com">
   <child1 pre1:a="123"/>
</root>
```

Then it creates a PBDOM_ATTRIBUTE object and sets its name to `a` and its prefix and URI to `pre2` and `http://www.pre.com`. The *bVerifyNamespace* argument is set to false because this PBDOM_ATTRIBUTE has not been assigned an owner PBDOM_ELEMENT object yet, so that the verification for a predeclared namespace would fail. The text value is set to `456`.

The child1 element already contains an attribute named a that belongs to the namespace http://www.pre.com, as indicated by the prefix pre1. The new PBDOM_ATTRIBUTE uses the prefix pre2, but it represents the same namespace URI, so setting the new PBDOM_ATTRIBUTE to child1 successfully replaces the existing pre1:a with the new PBDOM_ATTRIBUTE pre2:a.

```
PBDOM_BUILDER pbdom_buildr
PBDOM_DOCUMENT pbdom_doc
PBDOM_ATTRIBUTE pbdom_attr
string strXML = "<root
xmlns:pre1=~"http://www.pre.com~"
xmlns:pre2=~"http://www.pre.com~"><child1
pre1:a=~"123~"/></root>"

try
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr.BuildFromString (strXML)

  // Create a PBDOM_ATTRIBUTE and set its properties
  pbdom_attr = Create PBDOM_ATTRIBUTE
  pbdom_attr.SetName ("a")
  pbdom_attr.SetNamespace ("pre2", &
     "http://www.pre.com", false)
  pbdom_attr.SetText("456")

  // Attempt to obtain the child1 element and
  // set the new attribute to it
  pbdom_doc.GetRootElement(). &
    GetChildElement("child1").SetAttribute(pbdom_attr)

  pbdom_doc.SaveDocument &
     ("pbdom_elem_set_attribute_1.xml")

catch (PBDOM_EXCEPTION except)
  MessageBox ("PBDOM_EXCEPTION", except.GetMessage())
end try
```

When saved and converted to an XML document, the document looks like the following :

```
<root xmlns:pre1="http://www.pre.com"
xmlns:pre2="http://www.pre.com"
   <child1 pre2:a="456"/
</root
```

Usage

This method allows the caller to add a predefined PBDOM_ATTRIBUTE object to a PBDOM_ELEMENT object. If this PBDOM_ELEMENT object already contains an existing attribute with the same name and namespace URI as the input PBDOM_ATTRIBUTE, the existing attribute is replaced by the input PBDOM_ATTRIBUTE.

If a PBDOM_ATTRIBUTE has been created to represent the original attribute, it is still valid after the call, but the attribute that it represents has been detached from the original owner element. Calling GetOwnerElementObject on this PBDOM_ATTRIBUTE returns a null value.

See also

GetAttribute
GetAttributes
GetAttributeValue
HasAttributes
SetAttribute Syntax 2
SetAttribute Syntax 3
SetAttributes

## SetAttribute Syntax 2

Description

Adds a PBDOM_ATTRIBUTE object and its value to a PBDOM_ELEMENT object. Any existing attribute with the same name and namespace URI is overwritten.

Syntax

*pbdom_element_name.*SetAttribute(string *strName*, string *strValue*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strName* | The name of the PBDOM_ATTRIBUTE to be added |
| *strValue* | The value of the PBDOM_ATTRIBUTE to be added |

Return value

PBDOM_ELEMENT. The PBDOM_ELEMENT object modified to contain the specified PBDOM_ATTRIBUTE with the specified value.

Throws

EXCEPTION_INVALID_ARGUMENT – One or both of the input strings are invalid. This can happen if either or both strings have not been initialized properly or are null.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_ELEMENT object's internal implementation is null. The occurrence of this exception is rare but can take place if severe memory corruption occurs.

EXCEPTION_INVALID_NAME – An invalid name for the attribute is supplied.

EXCEPTION_INVALID_STRING – An invalid string for the attribute value is supplied.

Examples

**Example 1** The SetAttribute method is invoked for the following XML element:

```
<code0789725045</code
```

The SetAttribute method is invoked from the following PowerScript statement, where elem_code represents the code element:

```
elem_code.SetAttribute("type", "ISBN")
```

The following XML element results:

```
<code type="ISBN">0789725045</code>
```

**Example 2** The following example demonstrates the effect of setting an attribute for a PBDOM_ELEMENT object when the PBDOM_ELEMENT object already contains an attribute of the same name. The example creates a PBDOM_DOCUMENT based on the following document:

```
<root xmlns:pre1="http://www.pre.com">
   <child1 pre1:a="123" b="456"/>
</root>
```

The child1 element already contains an attribute named b with value 456. Calling the SetAttribute method with name b and value 789 creates a new attribute for child1 that replaces the original b attribute.

```
PBDOM_BUILDER     pbdom_buildr
PBDOM_DOCUMENT   pbdom_doc
string strXML = "<root
xmlns:pre1=~"http://www.pre.com~" ><child1
pre1:a=~"123~" b=~"456~"/></root>"

try
  pbdom_buildr = Create PBDOM_BUILDER
```

```
  pbdom_doc = pbdom_buildr.BuildFromString (strXML)
  pbdom_doc.GetRootElement(). &
    GetChildElement("child1").SetAttribute("b", "789")
catch (PBDOM_EXCEPTION except)
  MessageBox ("PBDOM_EXCEPTION", except.GetMessage())
end try
```

After the PBDOM_DOCUMENT object is saved and converted to XML, the XML document looks like the following:

```
<root xmlns:pre1="http://www.pre.com">
   <child1 pre1:a="123" b="789"/>
</root>
```

Usage

This method allows the caller to add an attribute/value pair to a PBDOM_ELEMENT object. If the PBDOM_ELEMENT object already contains an existing attribute that has the same name as the input name and that belongs to no namespace, the original attribute is removed from this PBDOM_ELEMENT object and a new one (corresponding to the specified attribute name and value) is created and set in its place.

If a PBDOM_ATTRIBUTE has been created to represent the original attribute, it is still valid, but the attribute that it represents has been detached from the original owner element. Calling GetOwnerElementObject on this PBDOM_ATTRIBUTE returns a null value.

See also

GetAttribute
GetAttributes
GetAttributeValue
HasAttributes
SetAttribute Syntax 1
SetAttribute Syntax 3
SetAttributes

## SetAttribute Syntax 3

Description

Adds an attribute/value pair to a PBDOM_ELEMENT object. The attribute namespace is specified, and any existing attribute of the same name and namespace URI is removed.

Syntax

*pbdom_element_name.*SetAttribute(string *strName*, string *strValue*, string *strNamespacePrefix*, string *strNamespaceUri*, boolean *bVerifyNamespace*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |

| Argument | Description |
|---|---|
| *strName* | The name of the PBDOM_ATTRIBUTE to be added |
| *strValue* | The value of the PBDOM_ATTRIBUTE to be added |
| *strNamespacePrefix* | The prefix of the namespace to which the PBDOM_ATTRIBUTE belongs |
| *strNamespaceUri* | The URI of the namespace to which the PBDOM_ATTRIBUTE belongs |
| *bVerifyNamespace* | Specifies whether or not the method should verify the existence of an in-scope namespace declaration for the given prefix and URI |

Return value

Long. Returns 0 if no namespace verification error occurs and -1 if no in-scope namespace declaration exists for the given prefix and URI settings.

Throws

EXCEPTION_INVALID_ARGUMENT – If any of the arguments is invalid. This can happen if any of the input strings has been set to null using the PowerScript SetNull function.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_ELEMENT object's internal implementation is null. The occurrence of this exception is rare but can take place if severe memory corruption occurs.

EXCEPTION_INVALID_NAME – The input namespace prefix or the URI, or their combination, is not valid. This will happen if:

- The namespace prefix is an empty string and the URI is not an empty string. If both are empty strings, the NONAMESPACE namespace is being specified and this prefix/URI combination is correct.
- The namespace prefix is xmlns and the URI is not http://www.w3.org/2000/xmlns/. This namespace prefix/URI pair is unique and exclusive and cannot be used separately. The use of this pair signifies a namespace declaration.
- The namespace prefix string is invalid. That is, it does not conform to the W3C “Namespaces in XML” specifications for the name of a prefix.
- The namespace URI string is invalid. That is, it does not conform to the W3C specifications for a URI string.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – If there has been any memory allocation failure during this method call.

Examples

**Example 1** The SetAttribute method is invoked for the following XML element:

```
<code>0789725045</code>
```

The SetAttribute method is invoked from the following PowerScript statement, where elem_code represents the code element:

```
elem_code.SetAttribute("type", "ISBN", "ns", &
"http://www.books.com/codes", false)
```

The following XML element results:

```
<code ns:type="ISBN">0789725045</code>
```

**Example 2** The following example demonstrates the effect of setting an attribute with a particular name and namespace URI for an element that already contains an existing attribute with the same name and namespace URI. It creates a PBDOM_DOCUMENT based on the following XML:

```
<root xmlns:pre1="http://www.pre.com"
xmlns:pre2="http://www.pre.com">
   <child1 pre1:a="123"/>
</root>
```

The child1 element already contains an attribute named a that belongs to the namespace http://www.pre.com, as indicated by the pre1 prefix. The call to SetAttribute attempts to set an attribute for child1 with the same name, a, but with the namespace prefix pre2.

The last parameter, *bVerifyNamespace*, is set to true. This tells the SetAttribute method to check first to see if an in-scope namespace declaration for pre2 and http://www.pre.com exists. An in-scope declaration for this namespace prefix/URI pair does exist, and so the verification succeeds.

The original pre1:a attribute is removed from the child1 element and a new attribute pre2:a, belonging to the same namespace and with the value 456, is created and set in its place. The new attribute replaces the original attribute, instead of being set as an additional attribute, because both attributes have the same URI.

```
PBDOM_BUILDER     pbdom_buildr
PBDOM_DOCUMENT   pbdom_doc
string strXML = "<root
xmlns:pre1=~"http://www.pre.com~"
xmlns:pre2=~"http://www.pre.com~"><child1
pre1:a=~"123~"/></root>"

try
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr.BuildFromString (strXML)
```

```
pbdom_doc.GetRootElement().GetChildElement("child1").S
etAttribute("a", "456", "pre2", "http://www.pre.com",
true)

catch (PBDOM_EXCEPTION pbdom_except)
  MessageBox ("PBDOM_EXCEPTION",
pbdom_except.GetMessage())
end try
```

Usage

This method allows the caller to add an attribute/value pair to a PBDOM_ELEMENT object.

The parameter *bVerifyNamespace*, when set to true, instructs the method to perform a thorough search up the DOM node tree, starting at the current PBDOM_ELEMENT object, to check for an in-scope namespace declaration for the given prefix and URI. If a namespace declaration is not found, no attribute is created. If a namespace declaration is found, an attribute is created.

If the *bVerifyNamespace* parameter is set to false, no verification search is performed, and the method always returns 0.

If the PBDOM_ELEMENT object already contains an existing attribute that has the same name as the input name and the same namespace URI as the input namespace URI, the original attribute is replaced with a new one with the same name and URI.

If a PBDOM_ATTRIBUTE has been created to represent the original attribute, it is still valid, but the attribute that it represents has been detached from the original owner element. Calling GetOwnerElementObject on this PBDOM_ATTRIBUTE returns a null value.

See also

GetAttribute
GetAttributes
GetAttributeValue
HasAttributes
SetAttribute Syntax 1
SetAttribute Syntax 2
SetAttributes

## SetAttributes

Description

Sets the attributes for the DOM element represented by the current PBDOM_ELEMENT object.

Syntax

*pbdom_element_name*.SetAttributes(pbdom_attribute *pbdom_attribute_array*[])

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_attribute_array* | An array of PBDOM_ATTRIBUTE objects |

Return value

PBDOM_ELEMENT. The PBDOM_ELEMENT object modified.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – The internal implementation of this PBDOM_ELEMENT object or one of the PBDOM_ATTRIBUTE array items is null. This exception is rare but can take place if severe memory corruption occurs.

EXCEPTION_INVALID_ARGUMENT – One of the PBDOM_ATTRIBUTE array items is null.

EXCEPTION_INVALID_NAME – If two or more PBDOM_ATTRIBUTEs in the array contain the same name and namespace URI.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – One of the PBDOM_ATTRIBUTE array items has not been named.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_OWNER – One of the PBDOM_ATTRIBUTE array items already has an owner PBDOM_ELEMENT object.

Examples

This example demonstrates setting the attributes of a PBDOM_ELEMENT object using an array of PBDOM_ATTRIBUTE objects. It builds a PBDOM_DOCUMENT based on the following XML:

```
<root xmlns:pre1="http://www.pre.com">
   <child1 pre1:a="123"/>
</root>
```

The code creates an array of three PBDOM_ATTRIBUTE objects with names a, b, and c, and sets their namespace prefixes and URIs to pre1 and http://www.pre.com. The call to SetAttributes attempts to set the attributes of child1 using the PBDOM_ATTRIBUTEs of this array. When PBDOM_DOCUMENT is saved and converted to an XML document, the result is:

```
<root xmlns:pre1="http://www.pre.com">
   <child1 pre1:a="456" pre1:b="456" pre1:c="456" />
</root>
```

Although child1 originally contained the pre1:a attribute, and the PBDOM_ATTRIBUTE array also contained an item with name a within the namespace URI http://www.pre.com, no exception is thrown. The original pre1:a attribute is replaced by the PBDOM_ATTRIBUTE array item with name a within the namespace URI http://www.pre.com.

```
PBDOM_BUILDER     pbdom_buildr
PBDOM_DOCUMENT    pbdom_doc
PBDOM_ATTRIBUTE   pbdom_attr_array[]
string            Name[]
long              l = 0
string strXML = "<root
xmlns:pre1=~"http://www.pre.com~"><child1
pre1:a=~"123~"/></root>"

try
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr.BuildFromString (strXML)

  Name[1] = "a"
  Name[2] = "b"
  Name[3] = "c"

  for l = 1 to 3
    pbdom_attr_array[l] = Create PBDOM_ATTRIBUTE
    pbdom_attr_array[l].SetName (Name[l])
    pbdom_attr_array[l].SetNamespace ("pre1", &
      "http://www.pre.com", false)
    pbdom_attr_array[l].SetText("456")
  next

    pbdom_doc.GetRootElement().GetChildElement &
      ("child1").SetAttributes(pbdom_attr_array)
    pbdom_doc.SaveDocument ("set_attributes.xml")

catch (PBDOM_EXCEPTION except)
  MessageBox ("PBDOM_EXCEPTION", except.GetMessage())
end try
```

Usage

This method sets the attributes of the DOM element represented by this PBDOM_ELEMENT object. The supplied array should contain only objects of type PBDOM_ATTRIBUTE.

When all objects in the supplied array are legal and before the new attributes are added, all old attributes have their parentage set to null (no parent) and the old attribute list is cleared from this PBDOM_ELEMENT object. This has the effect that any active attribute list (previously obtained with a call to GetAttributes) also changes to reflect the new situation with the old attributes. In addition, all PBDOM_ATTRIBUTEs in the supplied array have their parentage set to this current PBDOM_ELEMENT object.

Passing an empty array clears the existing attributes of this PBDOM_ELEMENT object.

This method fails and an exception is thrown if the PBDOM_ATTRIBUTE array contains two or more PBDOM_ATTRIBUTEs with the same name and namespace URI.

No exception is thrown if this PBDOM_ELEMENT object contains an existing attribute whose name and namespace URI matches one of the PBDOM_ATTRIBUTE array items. All the existing attributes of this PBDOM_ELEMENT object are removed, so it does not matter whether any existing attribute matches any of the PBDOM_ATTRIBUTE items in the array in terms of name and namespace URI.

In the event of an exception, the original attributes of the PBDOM_ELEMENT object remain unchanged, and the PBDOM_ATTRIBUTEs in the supplied array are not altered.

If any PBDOM_ATTRIBUTE has been created to represent any original attribute, it is still valid, but the attribute it represents has been detached from the original owner element. Calling GetOwnerElementObject on this PBDOM_ATTRIBUTE returns a null value.

See also

GetAttribute
GetAttributes
GetAttributeValue
HasAttributes
SetAttribute

## SetContent

Description

Sets the content of the PBDOM_ELEMENT object using an array containing PBDOM_OBJECT objects legal for a PBDOM_ELEMENT object. Any existing children of the PBDOM_ELEMENT object are removed when the SetContent method is invoked.

If the input array reference is null, all contents of the PBDOM_ELEMENT object are removed. If the array contains illegal objects, an exception is thrown, and nothing is altered.

Syntax

*pbdom_element_name.*SetContent(pbdom_object *pbdom_object_array*[])

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_object_array* | An array of PBDOM_OBJECTS to form the contents the PBDOM_ELEMENT object |

Return value

PBDOM_OBJECT. The PBDOM_ELEMENT object modified and returned as a PBDOM_OBJECT.

Throws

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If an input PBDOM_OBJECT array item has not been given a user-defined name.

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If an input PBDOM_OBJECT array item is not associated with a derived PBDOM_OBJECT.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – If an input PBDOM_OBJECT array item already has a parent PBDOM_OBJECT.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – If an inappropriate PBDOM_OBJECT array item is found. This happens if the PBDOM_OBJECT array item is not allowed to be added as a child of a PBDOM_ELEMENT object (for example, a PDBOM_DOCUMENT).

EXCEPTION_HIERARCHY_ERROR – If one of the PBDOM_OBJECT array items, if set as part of the contents of this PBDOM_ELEMENT object, will cause the current PBDOM_ELEMENT object to be no longer well formed.

Examples

The SetContent method is invoked on the following XML fragment:

```
<Telephone_Book>
     <Entry>
          <Particulars>
               <Name>John Doe</Name>
               <Age>21</Age>
               <Phone_Number>1234567</Phone_Number>
          </Particulars>
     </Entry>
</Telephone_Book>
```

The SetContent method is invoked from the following PowerScript code:

```
PBDOM_OBJECT pbdom_obj_array[]
```

```
pbdom_obj_array[1] = entry_1
pbdom_obj_array[2] = entry_2

pbdom_doc.GetRootElement().SetContent(pbdom_obj_array)
```

The entry_1 PBDOM_ELEMENT object contains the following:

```
<Entry>
     <Particulars>
          <Name>James Gomez</Name>
          <Age>25</Age>
          <Phone_Number>1111111</Phone_Number>
     </Particulars>
</Entry>
```

The entry_2 PBDOM_ELEMENT object contains the following:

```
<Entry>
     <Particulars>
          <Name>Mary Jones</Name>
          <Age>22</Age>
          <Phone_Number>2222222</Phone_Number>
     </Particulars>
</Entry>
```

The SetContent method returns the following:

```
<Telephone_Book>
     <Entry>
          <Particulars>
               <Name>James Gomez</Name>
               <Age>25</Age>
               <Phone_Number>1111111</Phone_Number>
          </Particulars>
     </Entry>
     <Entry>
          <Particulars>
               <Name>Mary Jones</Name>
               <Age>22</Age>
               <Phone_Number>2222222</Phone_Number>
          </Particulars>
     </Entry>
</Telephone_Book>
```

Usage

Only the following PBDOM_OBJECT types can be validly added to a PBDOM_ELEMENT object:

- PBDOM_ELEMENT
- PBDOM_CDATA

- PBDOM_COMMENT
- PBDOM_ENTITYREFERENCE
- PBDOM_PROCESSINGINSTRUCTION
- PBDOM_TEXT

See also

AddContent Syntax 1
AddContent Syntax 2
GetContent
InsertContent
RemoveContent

## SetDocument

Description

Sets a PBDOM_DOCUMENT as parent of a PBDOM_ELEMENT object, making the PBDOM_ELEMENT object the root element.

Syntax

*pbdom_element_name.*SetDocument(pbdom_document *pbdom_document_ref*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_document_ref* | The PBDOM_DOCUMENT to be set as the owner document and parent of this PBDOM_ELEMENT object |

Return value

PBDOM_ELEMENT. The modified PBDOM_ELEMENT object.

Usage

The PBDOM_OBJECT referenced must be a PBDOM_DOCUMENT object. The PBDOM_ELEMENT object must not already have a parent object. If the target PBDOM_DOCUMENT already has a root element, the existing root element is replaced by the new PBDOM_ELEMENT object.

## SetName

Description

Sets the local name of a PBDOM_ELEMENT object. This name refers to the local portion of the element tag name.

Syntax

*pbdom_element_name.*SetName(string *strName*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strName* | The new local name for the PBDOM_ELEMENT object |

Return value

Boolean. Returns true if the local name of the PBDOM_ELEMENT object has been changed, and false otherwise.

Examples

The SetName method is invoked for the abc element of the following XML fragment:

```
<abc>My Data</abc>
```

The SetName method is invoked in the following PowerScript code, in which the PBDOM_ELEMENT object elem represents the abc element.

```
elem.SetName("def")
```

The following XML results:

```
<def>My Data</def>
```

Since the elem object still represents the same element, calling the SetName method changes the def element.

See also

GetName

## SetNamespace

Description

Sets the namespace for a PBDOM_ELEMENT object. If the namespace prefix and URI provided are empty strings, SetNamespace assigns no namespace to the PBDOM_ELEMENT object.

Syntax

*pbdom_element_name*.SetNamespace(string *strNamespacePrefix*, string *strNamespaceUri*, boolean *bVerifyNamespace*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strNamespacePrefix* | Prefix of the namespace to be set for the PBDOM_ELEMENT object |
| *strNamespaceUri* | URI of the namespace to be set for the PBDOM_ELEMENT object |
| *bVerifyNamespace* | A boolean value indicating whether verification should be performed to ensure that the provided namespace prefix and URI have been declared either within this PBDOM_ELEMENT object or in an ancestor PBDOM_ELEMENT object |

Return value

Long. Returns 0 for success and -1 if no in-scope namespace declaration matching the input prefix and URI exists.

Throws

EXCEPTION_INVALID_ARGUMENT – If any of the input arguments is invalid, for example, null.

EXCEPTION_INVALID_NAME – If the input namespace prefix or URI is invalid.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – If a memory allocation failure occurred during the execution of this method.

EXCEPTION_INTERNAL_XML_ENGINE_ERROR – If an internal XML engine failure occurred during the execution of this method.

Usage

If *bVerifyNamespace* is set to true and the namespace prefix and URI have not been declared, SetNamespace returns a value of -1 and fails.

If *bVerifyNamespace* is set to false, SetNamespace sets the namespace of the PBDOM_ELEMENT object to the specified prefix and URI. It is the responsibility of the PBDOM user to ensure that such a namespace is declared and is in scope for this PBDOM_ELEMENT object before the document is saved and converted to an XML document.

See also

AddNamespaceDeclaration
GetNamespacePrefix
GetNamespaceUri
GetQualifiedName
RemoveNamespaceDeclaration

## SetParentObject

Description

Sets the referenced PBDOM_OBJECT as the parent of the PBDOM_ELEMENT object from which the method is invoked.

Syntax

*pbdom_element_name.*SetParentObject(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *pbdom_object_ref* | The PBDOM_OBJECT to be set as the parent of this PBDOM_ELEMENT object |

Return value

PBDOM_OBJECT. The PBDOM_ELEMENT object modified and returned as a PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not associated with a derived PBDOM_OBJECT.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – The input PBDOM_OBJECT already has a parent.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – If the input PBDOM_OBJECT is not allowed to be the parent of a PBDOM_ELEMENT object.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If the input PBDOM_OBJECT is nameable and has not been named.

Usage

If the class of the referenced PBDOM_OBJECT is PBDOM_DOCUMENT, then the behavior of SetParentObject is identical to that of the SetDocument method. If the class of the referenced PBDOM_OBJECT is PBDOM_ELEMENT, SetParentObject sets the referenced object as the parent of the PBDOM_ELEMENT object from which the method is invoked. If the referenced PBDOM_OBJECT is of any other class, an exception is thrown.

See also

GetOwnerDocumentObject
GetParentObject

## SetText

Description

Sets the content of a PBDOM_ELEMENT object to the text provided.

Syntax

*pbdom_element_name*.SetText(string *strText*)

| Argument | Description |
|---|---|
| *pbdom_element_name* | The name of a PBDOM_ELEMENT object |
| *strText* | String to be set as the content of the PBDOM_ELEMENT object |

Return value

PBDOM_OBJECT. The PBDOM_ELEMENT object modified and returned as a PBDOM_OBJECT.

Usage

Existing text content and non-text content are replaced by the text provided in *strText*. A value of null for *strText* is equivalent to an empty string value. If the PBDOM_ELEMENT is to have both text content and nested elements, use the SetContent method instead of SetText.

See also

GetText
GetTextNormalize
GetTextTrim

CHAPTER 14

# PBDOM_EXCEPTION Class

About this chapter

This chapter lists PBDOM exception codes and describes the PBDOM_EXCEPTION class.

Contents



## PBDOM exceptions

PBDOM defines an exception class derived from the standard PowerBuilder Exception class. This class extends the Exception class with a method, GetExceptionCode, that returns the unique code that identifies the exception being thrown.

The following table lists PBDOM exceptions and their code values. The circumstances in which each exception is thrown are described after the table.

***Table 14-1: PBDOM exceptions and code values***

| Exception | Value |
|---|---|
| EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT | 1 |
| EXCEPTION_WRONG_DOCUMENT_ERROR | 2 |
| EXCEPTION_MULTIPLE_ROOT_ELEMENT | 3 |
| EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT | 4 |
| EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE | 5 |
| EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT | 6 |
| EXCEPTION_MULTIPLE_DOCTYPE | 7 |
| EXCEPTION_ILLEGAL_PBOBJECT | 8 |
| EXCEPTION_WRONG_PARENT_ERROR | 9 |
| EXCEPTION_INVALID_ARGUMENT | 10 |
| EXCEPTION_INVALID_NAME | 11 |
| EXCEPTION_DATA_CONVERSION | 12 |

| Exception | Value |
|---|---|
| EXCEPTION_MEMORY_ALLOCATION_FAILURE | 13 |
| EXCEPTION_INTERNAL_XML_ENGINE_ERROR | 14 |
| EXCEPTION_MULTIPLE_XMLDECL | 15 |
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## PBDOM exception descriptions

### EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT

Code Value: 1

This exception is thrown when a nameable PBDOM_OBJECT is used—for example, to invoke a method or serve as a parameter—without first being given a user-defined name.

### EXCEPTION_WRONG_DOCUMENT_ERROR

Code Value: 2

This exception is thrown when incorrect PBDOM_DOCUMENT objects are used when performing a PBDOM operation.

For example, in a RemoveContent method call, if the PBDOM_OBJECT you want to remove is not from the same document as the active PBDOM_DOCUMENT whose RemoveContent method is being invoked, this exception is thrown.

### EXCEPTION_MULTIPLE_ROOT_ELEMENT

Code Value: 3

This exception is thrown when a PBDOM method call causes a PBDOM_DOCUMENT to contain more than one root element.

For example, in an AddContent method call, if the input PBDOM_OBJECT to add is a PBDOM_ELEMENT and the active PDBOM_DOCUMENT already contains a root element, this exception is thrown.

### EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT

Code Value: 4

This exception is thrown when a PBDOM_OBJECT is used in an inappropriate manner. A typical scenario is one is which a PBDOM method call results in the violation of the well-formedness of a PBDOM_DOCUMENT.

For example, in an AddContent method invoked on a PBDOM_DOCUMENT object, only PBDOM_OBJECTs of class PBDOM_ELEMENT, PBDOM_COMMENT, PBDOM_PROCESSINGINSTRUCTION, and PBDOM_DOCTYPE can be added. The inclusion of PBDOM_OBJECTs of any other class results in this exception being thrown.

### EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE

Code Value: 5

This exception is thrown when an invalid PBDOM_OBJECT is used, either directly to invoke a method, or as a parameter.

Situations where a PBDOM_OBJECT is deemed invalid include those where a PBDOM_OBJECT is instantiated as a PBDOM_OBJECT and not as a derived class object. They also include the situation where a PBDOM_CHARACTERDATA object is instantiated directly as a PBDOM_CHARACTERDATA object.

### EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT

Code Value: 6

This exception occurs when a PBDOM_OBJECT is set to be the child of another PBDOM_OBJECT, but the prospective child already has a parent PBDOM_OBJECT.

Examples of such method calls include the AddContent method and the SetParentObject, SetContent, and InsertContent methods of all classes derived from PBDOM_OBJECT classes.

### EXCEPTION_MULTIPLE_DOCTYPE

Code Value: 7

This exception is thrown when a PBDOM method call causes a PBDOM_DOCUMENT to contain more than one DOCTYPE.

For example, in an AddContent method call, if the input PBDOM_OBJECT to add is a PBDOM_DOCTYPE and the active PDBOM_DOCUMENT already contains a DOCTYPE DOM Node, this exception is thrown.

### EXCEPTION_ILLEGAL_PBOBJECT

Code Value: 8

This exception is thrown in method calls that take an array of PBDOM_OBJECTs in which one of the array items is invalid. A PBDOM_OBJECT array item is deemed to be invalid when it has been specifically set to null or has not been initialized properly.

### EXCEPTION_WRONG_PARENT_ERROR

Code Value: 9

This exception is thrown when an incorrect parent/child relationship error is encountered during a PBDOM operation.

Method calls in which this exception might be thrown include InsertContent and RemoveContent. These methods involve at least one PBDOM_OBJECT parameter that is assumed to be a child of the PBDOM_OBJECT to which the method is applied. If this parameter is not a child of the current PBDOM_OBJECT, this exception is thrown.

### EXCEPTION_INVALID_ARGUMENT

Code Value: 10

This exception is thrown when an input PBDOM_OBJECT parameter to a method is invalid. This can happen if it has not been initialized properly, or if it is a null object reference.

This exception might also be thrown when an input string parameter to a method is invalid. This can happen if the string has been set to null using the PowerScript SetNull function.

### EXCEPTION_INVALID_NAME

Code Value: 11

This exception is thrown when a name is supplied as a parameter and the name does not conform to the W3C specifications for an XML name or namespace prefix or namespace URI.

Methods in which this exception might be thrown include the SetName, SetNamespace, and SetNamespace methods.

### EXCEPTION_DATA_CONVERSION

Code Value: 12

This exception is thrown when you attempt to perform a data conversion operation and the conversion fails. This exception is thrown only in the PBDOM_ATTRIBUTE object's Get methods, for example, GetDateValue in PBDOM_ATTRIBUTE.

### EXCEPTION_MEMORY_ALLOCATION_FAILURE

Code Value: 13

This exception is thrown when insufficient memory is encountered while executing a method. PBDOM internally allocates, frees, and reallocates memory for storing strings, structures, and so on. Each memory allocation might fail, and if this occurs, this exception is thrown.

### EXCEPTION_INTERNAL_XML_ENGINE_ERROR

Code Value: 14

This exception is thrown when an internal error occurs that involves the XML engine used by PBDOM. PBDOM currently uses the Xerces XML parser as the underlying device for processing XML documents and for building up and sustaining the DOM tree.

There may be problems in the low-level XML parser engine, and if one is encountered, this exception, which is rare, might be thrown.

### EXCEPTION_MULTIPLE_XMLDECL

Code Value: 15

This exception is thrown when a PBDOM method call causes a PBDOM_DOCUMENT to contain more than one XML declaration.

For example, in a SetContent method call invoked on a PBDOM_DOCUMENT object, if the input PBDOM_OBJECT array contains more than one PBDOM_PROCESSINGINSTRUCTION that is constructed as an XML declaration, this exception is thrown.

### EXCEPTION_INVALID_STRING

Code Value: 16

This exception is thrown when a string is supplied as a parameter to a method that sets a text or attribute value, and the string contains characters that do not conform to the W3C specifications for acceptable XML characters.

Methods in which this exception might be thrown include SetText in PBDOM_ATTRIBUTE and SetAttribute in PBDOM_ELEMENT.

### EXCEPTION_INVALID_OPERATION

Code Value: 17

This exception is thrown when a method call could potentially cause severe and unexpected problems to the currently running PowerBuilder application.

### EXCEPTION_HIERARCHY_ERROR

Code Value: 18

This exception is thrown when a method call violates the well-formedness or validity of a PBDOM_DOCUMENT.

### EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_OWNER

Code Value : 19

This exception is thrown when a PBDOM_ELEMENT is set as the owner of a PBDOM_ATTRIBUTE when the specified PBDOM_ATTRIBUTE already has an owner PBDOM_ELEMENT.

### EXCEPTION_PBDOM_NOT_INITIALIZED

Code Value : 20

This exception is thrown in rare circumstances in which the PBDOM engine has failed to be initialized or has been uninitialized prematurely. In such situations, an exception is thrown to prevent a crash.

# PBDOM_EXCEPTION

Description — The PBDOM_EXCEPTION class is derived from the PowerBuilder Exception class.

Methods — This class extends the Exception class with one method that returns the unique code that identifies the exception being thrown:

GetExceptionCode

## GetExceptionCode

Description — Returns the code of the exception being thrown.

Syntax — *pbdom_exception*.GetExceptionCode()

| Argument | Description |
|---|---|
| *pbdom_exception* | The name of a PBDOM_EXCEPTION object |

Return value — Long. The code value associated with the exception being thrown.

Examples — In this example, an attempt to call the PBDOM_ELEMENT GetAttribute method on the root element of a PBDOM_DOCUMENT with the parameter *xmlns:nuskin* causes an exception to be thrown, because the name is not a valid NCName (no-colon-name). The correct way to get an attribute that belongs to a namespace is to use the namespace version of the PBDOM_ELEMENT GetAttribute method.

The EXCEPTION_INVALID_NAME (code value 11) exception is thrown and is displayed in a message box :

```
PBDOM_DOCUMENT   pbdom_doc1
PBDOM_DOCUMENT   pbdom_get_doc
PBDOM_ELEMENT   pbdom_elem_root
PBDOM_ATTRIBUTE   pbdom_attr
```

```
PBDOM_OBJECT     pbdom_obj

try
  pbdom_doc1 = Create PBDOM_DOCUMENT

  pbdom_doc1.NewDocument("nuskin", &
     "http://www.nuskin.com", "nuskin:root", "", "")
  pbdom_elem_root = pbdom_doc1.GetRootElement()
  pbdom_attr = &
   pbdom_elem_root.GetAttribute("xmlns:nuskin")

catch (PBDOM_EXCEPTION pbdom_except)
  MessageBox ("Exception", "Code : " &
     + string(pbdom_except.GetExceptionCode()) &
     + "~r~nText : " + pbdom_except.Text)
end try
```

Usage

For a list of exception codes, see “PBDOM exceptions” on page 265. For a description of the conditions under which each exception can occur, see “PBDOM exception descriptions” on page 266.

See also

GetAttribute Syntax 2 (PBDOM_ELEMENT)
GetMessage and SetMessage in the *PowerScript Reference*.

CHAPTER 15

# PBDOM_OBJECT Class

About this chapter

This chapter describes the PBDOM_OBJECT class.

## PBDOM_OBJECT

Description

A PBDOM_OBJECT serves as the base class for all the PBDOM classes. It contains all the basic methods required by derived classes. The derived classes of a PBDOM_OBJECT each inherit the base methods of a PBDOM_OBJECT, and additionally contain their own specialized methods.

Methods

PBDOM_OBJECT has the following methods:

- AddContent
- Clone
- Detach
- Equals
- GetContent
- GetOwnerDocumentObject
- GetName
- GetObjectClass
- GetObjectClassString
- GetParentObject
- GetText
- GetTextNormalize
- GetTextTrim
- HasChildren
- InsertContent
- IsAncestorObjectOf
- RemoveContent
- SetContent
- SetName
- SetParentObject

## AddContent

Description

Adds a new PBDOM_OBJECT into the current PBDOM_OBJECT.

Syntax

*pbdom_object_name*.AddContent(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |
| *pbdom_object_ref* | The PBDOM_OBJECT to add |

Return value

PBDOM_OBJECT.

The return value is the newly modified PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object or the input PBDOM_OBJECT is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_INVALID_ARGUMENT – Input argument is invalid.

Usage

When a new PBDOM_OBJECT is added to the current one, the new PBDOM_OBJECT becomes a child node of the current PBDOM_OBJECT.

See also

GetContent
InsertContent
RemoveContent
SetContent

## Clone

Description

Creates a general duplicate of the current PBDOM_OBJECT.

Syntax

*pbdom_object_name*.Clone(boolean *bDeep*)

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT. |
| *bDeep* | A boolean specifying whether a deep or shallow clone is returned. Values are true for a deep clone and false for a shallow clone. |

Return value

PBDOM_OBJECT. The return value is the clone of the PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

Usage

The Clone method creates a general duplicate of the current PBDOM_OBJECT. If the *bDeep* parameter is true, a deep clone is returned; otherwise, a shallow clone is returned.

A PBDOM_OBJECT clone does not have a parent; however, it resides in the same PBDOM_DOCUMENT as its original. If the original PBDOM_OBJECT is standalone, the clone is also standalone.

If general, if *bDeep* is true, the Clone method recursively clones the subtree under the PBDOM_OBJECT. If *bDeep* is false, the Clone method clones only the PBDOM_OBJECT itself, together with as much information as possible.

**Cloning is class specific**
Cloning is not uniform across all PBDOM_OBJECT classes. See the documentation for each class for specific information.

## Detach

Description

Detaches a PBDOM_OBJECT from its parent.

Syntax

*pbdom_object_name*.Detach()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |

Return value

PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

Examples

This example detaches the root element of a PBDOM_DOCUMENT called pbdom_doc from its parent object—that is, from the PBDOM_DOCUMENT itself. Then, it attempts to obtain the parent PBDOM_OBJECT and tests whether it is null using the IsValid method:

```
pbdom_obj = pbdom_doc.GetRootElement()
pbdom_obj.Detach()
pbdom_parent_obj = pbdom_obj.GetParentObject()
if (not IsValid(pbdom_parent_obj)) then
     MessageBox ("Invalid", "Root Element has no
Parent")
end if
```

Usage

If the PBDOM_OBJECT has no parent, this method does nothing.

## Equals

Description — Tests for the equality of a referenced PBDOM_OBJECT.

Syntax — *pbdom_object_name*.Equals(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |
| *pbdom_object_ref* | The PBDOM_OBJECT to test for equality with the current PBDOM_OBJECT |

Return value — Boolean. Returns true if the current PBDOM_OBJECT is equivalent to the input PBDOM_OBJECT, and false otherwise.

Throws — EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object or the input PBDOM_OBJECT is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_INVALID_ARGUMENT – The input PBDOM_OBJECT is invalid. This can happen if the object has not been initialized properly or is a null object reference.

## GetContent

Description — Obtains an array of PBDOM_OBJECT objects, each of which is a child node of the called PBDOM_OBJECT.

Syntax — *pbdom_object_name.*GetContent(ref pbdom_object *pbdom_object_array*[ ])

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |
| *pbdom_object_array* | A reference to an array of PBDOM_OBJECT objects that will receive the PBDOM_OBJECT objects |

Return value — Boolean. Returns true for success, and false otherwise.

Throws — EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

Usage — The returned array is passed by reference, with items in the same order in which they appear in the PBDOM_OBJECT. Any changes to any item of the array affect the actual item to which it refers.

See also

AddContent
InsertContent
RemoveContent
SetContent

## GetName

Description

Obtains the name of the current PBDOM_OBJECT. The returned string depends on the type of DOM Object that is contained within a PBDOM_OBJECT.

Syntax

*pbdom_object_name.*GetName()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_ OBJECT |

Return value

The following table lists the return values, based on the type of DOM Object contained within the PBDOM_OBJECT:

| DOM Object Type | Return Value |
|---|---|
| PBDOM_DOCTYPE | "#document" |
| PBDOM_ELEMENT | The local tag name of the element, without any namespace prefixes.<br>For example, if the element is: `<abc>Value</abc>`, then the string returned from GetName is "`abc`".<br>Also, if the tag name of the element contains a namespace prefix, the prefix is not included in the returned string.<br>For example, if the element is: `<MyMusic:CD xmlns:MyMusic= "http://www.MyMusicDiscs.com"/>`, then the string returned from GetName is "`CD`". |

| DOM Object Type | Return Value |
|---|---|
| PBDOM_ATTRIBUTE | The local name of the attribute itself, without a namespace.<br>For example, if the element with the attribute is: `<abc ATTRIBUTE_1="My Attribute">`, then GetName returns `"ATTRIBUTE_1"`.<br>If the name of the attribute contains a namespace prefix, then the prefix is not included in the returned string.<br>For example, if the element with an attribute is: `<MyMusic:CD xmlns:MyMusic= "http://www.MyMusicDiscs.com" MyMusic:Type="Jazz"/>`, then GetName returns the string "`Type`". |
| PBDOM_CDATA | "#cdata-section" |
| PBDOM_COMMENT | "#comment" |
| PBDOM_DOCTYPE | The name that was given to the doctype object itself.<br>For example, if the DOCTYPE declaration is: `<!DOCTYPE d_grid_object >`, then GetName returns "`d_grid_object`". |
| PBDOM_ PROCESSINGINSTRUCTION | The name that was given to the processing instruction itself.<br>For example, if the processing instruction definition is: `<?works document="hello.doc" data="hello.wks" ?>`, then GetName returns "`works`". |
| PBDOM_TEXT | "#text" |

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If this PBDOM_OBJECT is not a reference to an object derived from PBDOM_OBJECT.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Usage

A PBDOM_OBJECT cannot be instantiated directly.

See also

SetName

## GetObjectClass

Description: Returns a long integer code that indicates the class of this PBDOM_OBJECT.

Syntax: *pbdom_object_name*.GetObjectClass()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |

Return value: Long. A code that indicates the class of the current PBDOM_OBJECT.

Usage: This method returns the following possible values:

| Class | Long integer value |
|---|---|
| UNKNOWN (indicates an error) | 0 |
| PBDOM_OBJECT (the base class) | 1 |
| PBDOM_DOCUMENT | 2 |
| PBDOM_ELEMENT | 3 |
| PBDOM_DOCTYPE | 4 |
| PBDOM_ATTRIBUTE | 5 |
| PBDOM_CHARACTERDATA | 6 |
| PBDOM_TEXT | 7 |
| PBDOM_CDATA | 8 |
| PBDOM_COMMENT | 9 |
| PBDOM_PROCESSINGINSTRUCTION | 10 |
| PBDOM_ENTITYREFERENCE | 11 |

See also: GetObjectClassString

## GetObjectClassString

Description: Returns a string form of the class of the PBDOM_OBJECT.

Syntax: *pbdom_object_name*.GetObjectClassString()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |

Return value: String. A string that indicates the class of the current PBDOM_OBJECT.

Usage

This method returns the following possible values:

| Class | String returned |
|---|---|
| PBDOM_OBJECT | pbdom_object |
| PBDOM_DOCUMENT | pbdom_document |
| PBDOM_ELEMENT | pbdom_element |
| PBDOM_ENTITYREFERENCE | pbdom_entityreference |
| PBDOM_DOCTYPE | pbdom_doctype |
| PBDOM_ATTRIBUTE | pbdom_attribute |
| PBDOM_CHARACTERDATA | pbdom_characterdata |
| PBDOM_TEXT | pbdom_text |
| PBDOM_CDATA | pbdom_cdata |
| PBDOM_COMMENT | pbdom_comment |
| PBDOM_PROCESSINGINSTRUCTION | pbdom_processinginstruction |

See also

GetObjectClass

## GetOwnerDocumentObject

Description

Returns the owning PBDOM_DOCUMENT of the current PBDOM_OBJECT.

Syntax

*pbdom_object_name*.GetOwnerDocumentObject()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |

Return value

PBDOM_DOCUMENT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Usage

The owning PBDOM_DOCUMENT of the current PBDOM_OBJECT is null if PBDOM_OBJECT is not owned by any PBDOM_DOCUMENT, or if the current PBDOM_OBJECT is itself a PBDOM_DOCUMENT object.

See also

GetParentObject
SetParentObject

## GetParentObject

Description

Returns the parent PBDOM_OBJECT of the current PBDOM_OBJECT.

Syntax

*pbdom_object_name*.GetParentObject()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |

Return value

PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Examples

Using the GetRootElement method, the root element of a PBDOM_DOCUMENT called pbdom_doc is returned into a PBDOM_OBJECT called pbdom_obj. The GetParentObject method returns the parent of the root element, which is the PBDOM_DOCUMENT itself, and stores it in pbdom_parent_obj.

The GetObjectClassString method returns the class name of pbdom_parent_obj as a string that is displayed in a message box:

```
pbdom_document pbdom_doc
pbdom_object pbdom_obj
pbdom_object pbdom_parent_obj
string strClassName
// code omitted
…
pbdom_doc = pbdombuilder_new.BuildFromString (strXML)
pbdom_obj = pbdom_doc.GetRootElement()
pbdom_parent_obj = pbdom_obj.GetParentObject()
strClassName = pbdom_parent_obj.GetObjectClassString()
MessageBox ("Parent Class Name", strClassName)
```

Usage

If the PBDOM_OBJECT has no parent, null is returned.

See also

GetOwnerDocumentObject
SetParentObject

## GetText

Description

Obtains the text data that is contained within the current PBDOM_OBJECT.

Syntax

*pbdom_object_name*.GetText()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_ OBJECT |

Return value

String.

The following table lists the return values, based on the type of DOM Object contained within a PBDOM_OBJECT:

| DOM Object Type | Return Value |
|---|---|
| PBDOM_ELEMENT | The concatenation of the text values of all the TEXT nodes contained within the PBDOM_ELEMENT.<br>If the PBDOM_ELEMENT definition is `<abc>Root Element Data<data>ABC Data </data>  now with extra info  </abc>`, then GetText returns "`Root Element Data  now with extra info `".<br>**Extra Spaces**<br>There are extra spaces between the word "Data" and "now" and again after the word "info". They are there because they originally exist in the text.<br>If the PBDOM_ELEMENT definition is: `<abc>Root Element Data</abc>`, then GetText returns "`Root Element Data`". |
| PBDOM_ATTRIBUTE | The text data contained within the PBDOM_ATTRIBUTE object.<br>If the element with an attribute is `<abc ATTRIBUTE_1="My Attribute">`, then GetText returns "My Attribute". |
| PBDOM_TEXT | The text data contained within the PBDOM_TEXT object itself.<br>For example, suppose there is the following element:<br>`<abc>MY TEXT</abc>`<br>If there is a PBDOM_TEXT object to represent the text node "MY TEXT", then calling GetText on the PBDOM_TEXT returns the string "MY TEXT" |

| DOM Object Type | Return Value |
|---|---|
| PBDOM_CDATA | The string data that is contained within the CDATA section itself. For example, suppose there is the following CDATA:<br>`<![CDATA[ They're saying "x < y" & that "z > y" so I guess that means that z > x ]]>`<br>If there is a PBDOM_CDATA to represent the above CDATA section, then calling GetText on it returns the following string:<br>`They're saying "x < y" & that "z > y" so I guess that means that z > x` |
| PBDOM_COMMENT | The string data that is contained within the COMMENT itself. For example, suppose there is the following COMMENT:<br>`<!–This is some comment. -->`<br>If there is a PBDOM_COMMENT to represent the above COMMENT, then calling GetText on it returns the following string:<br>`This is some comment.` |

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Usage

This method returns meaningful data only if the PBDOM_OBJECT is of a type that can contain text nodes, CDATA sections, or basic text. These include:

- PBDOM_ELEMENT
- PBDOM_ATTRIBUTE
- PBDOM_TEXT
- PBDOM_CDATA
- PBDOM_COMMENT

The PBDOM_TEXT, PBDOM_CDATA, and PBDOM_COMMENT objects are special cases that cause the GetText method to return the text data that is intrinsically contained within the objects. A PBDOM_TEXT object is basically a DOM text node and therefore does not hold any child text nodes. A PBDOM_CDATA object represents a DOM CDATA object, and therefore does not hold any child DOM nodes. The same rule applies to a PBDOM_COMMENT object.

See also

GetTextNormalize
GetTextTrim

## GetTextNormalize

Description

Gets the text data that is contained in the current PBDOM_OBJECT with all surrounding whitespace characters removed and internal whitespace characters normalized to a single space.

Syntax

*pbdom_object_name*.GetTextNormalize()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |

Return value

String. The normalized text content of the current PBDOM_OBJECT, or an empty string if there is no text content.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Usage

This method returns meaningful data only if the PBDOM_OBJECT is of a type that can contain text nodes or CDATA sections, or of a type that intrinsically contains basic text. These types are:

- PBDOM_ELEMENT
- PBDOM_ATTRIBUTE
- PBDOM_TEXT
- PBDOM_CDATA
- PBDOM_COMMENT

The PBDOM_TEXT, PBDOM_CDATA, and PBDOM_COMMENT classes are special cases that cause the GetTextNormalize method to return the intrinsic text data contained within their instances. A PBDOM_TEXT object represents a DOM text node, therefore it does not hold any child DOM Nodes. PBDOM_CDATA object is a representation of a DOM CDATA object and does not hold any child DOM Nodes. Nor does PBDOM_COMMENT contain any child DOM Nodes.

The following table lists the return values based on the type of actual DOM Object contained within PBDOM_OBJECT:

| DOM Object Type | Return Value |
|---|---|
| PBDOM_ELEMENT | The normalized text of the concatenation of the text values of all the TEXT Nodes and CDATA Sections contained within the PBDOM_ELEMENT.<br>Suppose there is a PBDOM_ELEMENT defined as follows:<br>`<abc> Root Element Data <data>ABC Data </data> now with extra info </abc>`<br>GetTextNormalize returns `Root Element Data now with extra info`.<br>Suppose there is a PBDOM_ELEMENT defined as follows:<br>`<abc> Root Element Data </abc>`<br>GetTextNormalize returns `Root Element Data`.<br>Suppose there is a PBDOM_ELEMENT defined as follows:<br>`<abc> Root Element Data <![CDATA[ with some cdata text]]></abc>`<br>GetTextNormalize returns “Root Element Data with some cdata text”. |
| PBDOM_ATTRIBUTE | The normalized text data contained within the PBDOM_ATTRIBUTE object.<br>Suppose there is an element with an attribute as follows:<br>`<abc ATTRIBUTE_1=" My Attribute ">`<br>GetTextNormalize returns `My Attribute`. |
| PBDOM_TEXT | The normalized text data contained within the PBDOM_TEXT object itself.<br>For example, suppose there is the following element:<br>`<abc> MY TEXT </abc>`<br>If there is a PBDOM_TEXT object to represent the text node “MY TEXT”, then calling GetTextNormalize on the PBDOM_TEXT returns the string `MY TEXT`. |

| DOM Object Type | Return Value |
|---|---|
| PBDOM_CDATA | The normalized string data that is contained within the CDATA section itself. For example, suppose there is the following CDATA:<br>`<![CDATA[ They're saying "x < y" & that "z > y" so I guess that means that z > x ]]>`<br>If there is a PBDOM_CDATA to represent the above CDATA section, then calling GetTextNormalize on it returns the string:<br>`They're saying " x < y " & that "z > y" so I guess that means that z > x`<br>Note that the initial spaces before "They're" and the trailing space after the last "x" have been removed. Additionally, the spaces between the word "guess" and "that" have been reduced to just one space. |
| PBDOM_COMMENT | The normalized string data that is contained within the COMMENT itself. For example, suppose there is the following COMMENT:<br>`<!– Comment Here !-->`<br>Calling GetTextNormalize on the COMMENT returns the string `Comment Here !` |

See also

GetText
GetTextTrim

## GetTextTrim

Description

Gets the text data that is contained in the current PBDOM_OBJECT with all surrounding whitespace characters removed.

Syntax

*pbdom_object_name*.GetTextTrim()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |

Return value

String. The trimmed text content of the current PBDOM_OBJECT, or an empty string if there is no text content or only whitespace characters.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

Usage

This method returns meaningful data only if the PBDOM_OBJECT is of a type that can contain TEXT NODEs or CDATA Sections, or of a type that intrinsically contains basic text. These types are:

- PBDOM_ELEMENT
- PBDOM_ATTRIBUTE
- PBDOM_TEXT
- PBDOM_CDATA
- PBDOM_COMMENT

The PBDOM_TEXT, PBDOM_CDATA, and PBDOM_COMMENT classes are special cases that cause the GetTextTrim method to return the intrinsic text data contained within their instances. A PBDOM_TEXT object represents a DOM text node, so it does not hold any child DOM Nodes. PBDOM_CDATA object is a representation of a DOM CDATA object and does not hold any child DOM Nodes, nor does PBDOM_COMMENT contain any child DOM Nodes.

The following table lists the return values based on the type of actual DOM Object contained within PBDOM_OBJECT:

| DOM Object Type | Return Value |
|---|---|
| PBDOM_ELEMENT | The trimmed concatenation of the text values of all the TEXT Nodes and CDATA Sections contained within the PBDOM_ELEMENT. Surrounding whitespace characters are removed.<br>Suppose there is a PBDOM_ELEMENT defined as follows:<br>`<abc> Root Element Data<data>ABC Data </data> now with extra info </abc>`<br>GetTextTrim returns `Root Element Data now with extra info`.<br>Suppose there is a PBDOM_ELEMENT defined as follows:<br>`<abc> Root Element Data </abc>`<br>GetTextTrim returns `Root Element Data`.<br>Suppose there is a PBDOM_ELEMENT defined as follows:<br>`<abc>Root Element Data <![CDATA[ with some cdata text]]></abc>`<br>GetTextTrim returns `Root Element Data with some cdata text`. |

| DOM Object Type | Return Value |
|---|---|
| PBDOM_ATTRIBUTE | The trimmed text data contained within the PBDOM_ATTRIBUTE object with surrounding whitespace characters removed.<br>Suppose there is an element with an attribute as follows:<br>`<abc ATTRIBUTE_1="My  Attribute  ">`<br>GetTextTrim returns:<br>`My  Attribute`<br>Note, however, that the spaces between "My" and "Attribute" are still present. |
| PBDOM_TEXT | The trimmed text data contained within the PBDOM_TEXT object itself with surrounding whitespace characters removed.<br>For example, suppose there is the following element:<br>`<abc>  MY TEXT  </abc>`<br>If there is a PBDOM_TEXT object to represent the text node "MY  TEXT ", then calling GetTextTrim on the PBDOM_TEXT returns the string `MY TEXT`. |
| PBDOM_CDATA | The trimmed string data that is contained within the CDATA section itself with surrounding whitespace characters removed. For example, suppose there is the following CDATA:<br>`<![CDATA[  They're saying "x < y" & that "z > y" so I guess  that means that z > x  ]]>`<br>If there is a PBDOM_CDATA to represent the above CDATA section, then calling GetTextTrim on it returns the string:<br>`They're saying " x < y " & that "z > y" so I guess  that means that z > x`<br>Note that the initial spaces before "They're" and the trailing space after the last "x" have been removed. |
| PBDOM_COMMENT | The trimmed string data that is contained within the COMMENT itself. For example, suppose there is the following COMMENT:<br>`<!—  Comment  Here !  -->`<br>Note the spaces before the word "Comment" and after the exclamation mark "!".<br>Calling GetTextTrim on the COMMENT returns the string `Comment  Here !` |

See also

GetText
GetTextNormalize

## HasChildren

Description

Determines whether the PBDOM_OBJECT has any child objects.

Syntax

*pbdom_object_name*.HasChildren()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |

Return value

Boolean. Returns true if the current PBDOM_OBJECT has at least one child PBDOM_OBJECT, and false if it has none.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

Examples

In the following example, a PBDOM_DOCUMENT is created from a simple XML string. The root element abc has a child text node that encapsulates the text “abc data”. Calling HasChildren on the root element returns true. The message box displays `Has Children`. If the method returns false, the message box displays `Has No Children`

```
PBDOM_Builder pbdombuilder_new
pbdom_document pbdom_doc
pbdom_object pbdom_root_element
string strXML = "<abc>abc data</abc>"

pbdombuilder_new = Create PBDOM_Builder
pbdom_doc = pbdombuilder_new.BuildFromString (strXML)
pbdom_root_element = pbdom_doc.GetRootElement()
if (pbdom_root_element.HasChildren()) then
     MessageBox ("pbdom_root_element", "Has Children")
else
     MessageBox ("pbdom_root_element", "Has No
Children")
end if
Destroy pbdombuilder_new
```

Usage

True is returned if the PBDOM_OBJECT has at least one child, and false if there are no children.

## InsertContent

Description

Inserts a new PBDOM_OBJECT into the current PBDOM_OBJECT.

Syntax

*pbdom_object_name*.InsertContent(*pbdom_object_new*, *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |
| pbdom_object_new | The referenced name of a PBDOM_OBJECT you want to insert |
| pbdom_object_ref | The name of the PBDOM_OBJECT in front of which you want to insert the new PBDOM_OBJECT |

Return value

PBDOM_OBJECT. The return value is the newly modified PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object or the new PBDOM_OBJECT or the reference PBDOM_OBJECT is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_INVALID_ARGUMENT – One of the input arguments is invalid. This can happen if the input argument has not been initialized properly or is a null object reference.

Usage

When a new PBDOM_OBJECT is inserted into the current PBDOM_OBJECT, the new PBDOM_OBJECT becomes a child node of the current PBDOM_OBJECT. Also, the new PBDOM_OBJECT is to be positioned specifically before another PBDOM_OBJECT, designated using the second parameter.

If the second PBDOM_OBJECT is specified as null, then the new PBDOM_OBJECT is to be inserted at the end of the list of children of the current PBDOM_OBJECT.

**Derived Classes**
Methods of classes that derive from the PBDOM_OBJECT class return trivial results when the derived classes can have no child objects and when the methods concern manipulation of child-node content.

See also

AddContent
GetContent
RemoveContent
SetContent

## IsAncestorObjectOf

Description

Determines whether the current PBDOM_OBJECT is the ancestor of another PBDOM_OBJECT.

Syntax

*pbdom_object_name*.IsAncestorObjectOf(*pbdom_object_ret*)

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |
| *pbdom_object_ref* | The PBDOM_OBJECT to check against |

Return value

Boolean. Returns true if the current PBDOM_OBJECT is the ancestor of the referenced PBDOM_OBJECT, and false otherwise.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_INVALID_ARGUMENT – The input PBDOM_OBJECT is invalid. This can happen if it has not been initialized properly or it is a null object reference.

Examples

The following code fragment uses the IsAncestorObjectOf method and creates a structured document. In the fragment, `pbdom_elem_1` represents the pbdom_elem_1 element. Because it is an ancestor of `pbdom_elem_3`, which represents the pbdom_elem_ element, the call to IsAncestorObjectOf returns true.

```
PBDOM_ELEMENT pbdom_elem_1
PBDOM_ELEMENT pbdom_elem_2
PBDOM_ELEMENT pbdom_elem_3
PBDOM_ELEMENT pbdom_elem_root
PBDOM_DOCUMENT pbdom_doc1

pbdom_doc1 = Create PBDOM_DOCUMENT
pbdom_elem_1 = Create PBDOM_ELEMENT
pbdom_elem_2 = Create PBDOM_ELEMENT
pbdom_elem_3 = Create PBDOM_ELEMENT

pbdom_elem_1.SetName("pbdom_elem_1")
pbdom_elem_2.SetName("pbdom_elem_2")
pbdom_elem_3.SetName("pbdom_elem_3")

pbdom_elem_1.AddContent(pbdom_elem_2)
pbdom_elem_2.AddContent(pbdom_elem_3)
```

```
pbdom_doc1.NewDocument("", "", &
   "Root_Element_From_Doc_1" , "", "")
pbdom_elem_root = pbdom_doc1.GetRootElement()
pbdom_elem_root.AddContent(pbdom_elem_1)

IF (pbdom_elem_1.IsAncestorObjectOf(pbdom_elem_3))
THEN
   MessageBox ("Ancestry", &
      "pbdom_elem_1 Is The Ancestor Of pbdom_elem_3")
ELSE
   MessageBox ("Ancestry", &
    "pbdom_elem_1 Is NOT The Ancestor Of pbdom_elem_3")

END IF

destroy pbdom_elem_1
destroy pbdom_elem_2
destroy pbdom_elem_3
destroy pbdom_elem_root
destroy pbdom_doc1
```

The preceding code fragment creates the following document:

```
<!DOCTYPE Root_Element_From_Doc_1>
<Root_Element_From_Doc_1>
  <pbdom_elem_1>
    <pbdom_elem_2>
      <pbdom_elem_3 />
    </pbdom_elem_2>
  </pbdom_elem_1>
</Root_Element_From_Doc_1>
```

Usage

The IsAncestorObjectOf method determines whether the current PBDOM_OBJECT is the ancestor of another PBDOM_OBJECT.

## RemoveContent

Description

Removes a child PBDOM_OBJECT from the current PBDOM_OBJECT.

Syntax

*pbdom_object_name*.RemoveContent(*pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |
| *pbdom_object_ref* | The PBDOM_OBJECT to remove |

Return value

Boolean. Returns true if the content was removed, and false otherwise.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object or the input PBDOM_OBJECT is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_INVALID_ARGUMENT – The input PBDOM_OBJECT to be removed is invalid. This can happen if this object has not been initialized properly or is a null object reference.

Usage

When a new PBDOM_OBJECT is removed from the current one, all children under the removed PBDOM_OBJECT are also removed.

See also

AddContent
GetContent
InsertContent
SetContent

## SetContent

Description

Sets the entire content of the PBDOM_OBJECT.

Syntax

*pbdom_object_name*.SetContent(pbdon_object*pbdom_object_array*)

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM object |
| *pbdom_object_array* | An array of PBDOM_OBJECT objects to be set as the contents of the PBDOM_OBJECT |

Return value

PBDOM_OBJECT. Returns the newly modified PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

Usage

The supplied array contains PBDOM_OBJECT objects that are legal for the particular derived PBDOM_OBJECT that is associated with this PBDOM_OBJECT.

For example, a PBDOM_DOCUMENT accepts only an array that contains PBDOM_ELEMENT, PBDOM_COMMENT, PBDOM_DOCTYPE, or PBDOM_PROCESSINGINSTRUCTION objects. In addition, the array can contain only one PBDOM_ELEMENT object that it sets as its root element, and only one PBDOM_DOCTYPE object that is set as its DOCTYPE.

If illegal objects are included in the array, exceptions (specific to the particular derived PBDOM_OBJECT) are thrown. For more details, please refer to the SetContent method of the objects derived from PBDOM_OBJECT.

In the event of an exception, the original contents of this PBDOM_OBJECT are unchanged, and the PBDOM_OBJECT objects contained in the supplied array are unaltered.

See also

AddContent
GetContent
InsertContent
RemoveContent

## SetName

Description

Sets the name of the PBDOM_OBJECT.

Syntax

*pbdom_object_name*.SetName(string*strName*)

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |
| *strName* | The new name you want to set for PBDOM_OBJECT |

Return value

Boolean. Returns true if the name of the PBDOM_OBJECT was changed, and false otherwise.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_INVALID_ARGUMENT – Input name string is invalid. This can happen if the string has been specifically set to null.

EXCEPTION_MEMORY_ALLOCATION_FAILURE – Insufficient memory was encountered while executing this method.

EXCEPTION_INVALID_NAME – The input name string does not conform to the W3C standards for XML names.

Usage

This name refers to the name of the particular derived PBDOM_OBJECT to which this PBDOM_OBJECT refers. Certain types of PBDOM_OBJECT do not have any name associated with them. See the description of GetName.

For example, PBDOM_DOCUMENT does not have any name, so calling the SetName method returns false.

See also

GetName

## SetParentObject

Description

Sets the referenced PBDOM_OBJECT as the parent of the current PBDOM_OBJECT.

Syntax

*pbdom_object_name*.SetParentObject(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of the PBDOM_OBJECT |
| *pbdom_object_ref* | The PBDOM_OBJECT to be set as the parent of the current PBDOM_OBJECT |

Return value

PBDOM_OBJECT. The current PBDOM_OBJECT is appended as a child node of the referenced parent.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – This PBDOM_OBJECT object or the input PBDOM_OBJECT is not associated with a derived PBDOM_OBJECT class object.

EXCEPTION_INVALID_ARGUMENT – The input PBDOM_OBJECT is invalid. This can happen if it has not been initialized properly, or if it is a null object reference.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – The current PBDOM_OBJECT already has a parent.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – If the input PBDOM_OBJECT is of a class that cannot have a legal parent-child relationship with this PBDOM_OBJECT.

Examples

In the following code example, a PBDOM_ELEMENT object is created and called pbdom_elem_1. Its parent is set to be the root element of the PBDOM_DOCUMENT called pbdom_doc. Once this is done, pbdom_elem_1 is immediately transferred to the pbdom_doc document and pbdom_elem_1 is immediately appended as a child node of the root element of pbdom_doc.

The following method call returns the string "`pbdom_element`", because the root element is a PBDOM_ELEMENT:

```
pbdom_elem_1.GetParentObject().GetObjectClassString()
```

The following method call returns the string "`Root_Element`", which is the name of the root element:

```
pbdom_elem_1.GetParentObject().GetName()
```

Here is the complete example:

```
PBDOM_ELEMENT pbdom_elem_1
PBDOM_ELEMENT pbdom_elem_root
PBDOM_DOCUMENT pbdom_doc1

pbdom_doc1 = Create PBDOM_DOCUMENT
pbdom_elem_1 = Create PBDOM_ELEMENT
pbdom_elem_1.SetName ("pbdom_elem_1")

pbdom_doc1.NewDocument ("", "", "Root_Element", "", "")
pbdom_elem_root = pbdom_doc1.GetRootElement()
pbdom_elem_1.SetParentObject(pbdom_elem_root)

MessageBox ("Parent Class", &
   pbdom_elem_1.GetParentObject(). &
   GetObjectClassString())
MessageBox ("Parent Name", &
   pbdom_elem_1.GetParentObject().GetName())

destroy pbdom_elem_1
destroy pbdom_elem_root
destroy pbdom_doc1
```

Usage

The caller is responsible for ensuring that the current PBDOM_OBJECT and the referenced PBDOM_OBJECT can have a legal parent-child relationship. The caller is also responsible for making sure pre-existing parentage is legal.

The PBDOM SetParentObject method differs from the JDOM SetParent method in that JDOM defines a setParent method for several specific classes, including Element, Comment, and CDATA. PBDOM implements the SetParentObject method in the base PBDOM_OBJECT class to allow polymorphism.

See the SetParentObject documentation of derived PBDOM_OBJECT classes for more details on implementation of specific classes.

See also

GetOwnerDocumentObject
GetParentObject

CHAPTER 16

# PBDOM_PROCESSINGINSTRUCTION Class

About this chapter

This chapter describes the PBDOM_PROCESSINGINSTRUCTION class.

## PBDOM_PROCESSINGINSTRUCTION

Description

The PBDOM_PROCESSINGINSTRUCTION class defines behavior for an XML processing instruction. Methods allow you to obtain the target of the processing instruction object as well as its data. You can always access the data as a string, and, where appropriate, as name/value pairs.

Note that the actual processing instruction of a processing instruction object is a string, even if the instruction is divided into separate name="value" pairs. PBDOM does support such a processing instruction object format. If the processing instruction object data does contain pairs, as is commonly the case, then PBDOM_PROCESSINGINSTRUCTION parses them into an internal list of name/value pairs.

Methods

Some of the inherited methods from PBDOM_OBJECT serve no meaningful objective, and only default or trivial functionalities result. These are described in the following table:

| Method | Always returns |
|---|---|
| AddContent | Current PBDOM_PROCESSINGINSTRUCTION. Use AddValue instead. |
| GetContent | false. Use GetName and GetValue instead. |
| HasChildren | false. |
| InsertContent | Current PBDOM_PROCESSINGINSTRUCTION. |
| IsAncestorObjectOf | false. |
| RemoveContent | false. Use RemoveValue instead. |
| SetContent | Current PBDOM_PROCESSINGINSTRUCTION. Use SetData instead. |

PBDOM_PROCESSINGINSTRUCTION has the following methods:

Clone
Detach
Equals
GetData
GetName
GetNames
GetObjectClass
GetObjectClassString
GetOwnerDocumentObject
GetParentObject
GetTarget
GetText
GetTextNormalize
GetTextTrim
GetValue
RemoveValue
SetData
SetName
SetParentObject
SetValue

## Clone

Description

Creates and returns a clone of the current PBDOM_PROCESSINGINSTRUCTION object.

Syntax

*pbdom_pi_name*.Clone(boolean *bDeep*)

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object. |
| *bDeep* | A boolean specifying whether a deep or shallow clone is returned. Values are true for a deep clone and false for a shallow clone. This argument is currently ignored. |

Return value

PBDOM_OBJECT. A clone of the current PBDOM_PROCESSINGINSTRUCTION object returned as a PBDOM_OBJECT.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the internal implementation of this PBDOM_PROCESSINGINSTRUCTION object is null. The occurrence of this exception is rare, but it can take place if severe memory corruption occurs.

Usage

The Clone method creates a new PBDOM_PROCESSINGINSTRUCTION object that is a duplicate of, and a separate object from, the original. The clone of a PBDOM_PROCESSINGINSTRUCTION object is always identical to its original whether *bDeep* is true or false, because a PBDOM_PROCESSINGINSTRUCTION object contains no subtree of child PBDOM_OBJECTs.

A PBDOM_PROCESSINGINSTRUCTION clone has no parent, but it resides in the same PBDOM_DOCUMENT as its original, and if the original PBDOM_PROCESSINGINSTRUCTION object is standalone, the clone is standalone.

## Detach

Description

Detaches a PBDOM_PROCESSINGINSTRUCTION object from its parent PBDOM_OBJECT.

Syntax

*pbdom_pi_name*.Detach()

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |

Return value

PBDOM_OBJECT. This PBDOM_PROCESSINGINSTRUCTION object detached from its parent object. This method does nothing if this PBDOM_PROCESSINGINSTRUCTION object has no parent.

## Equals

Description

Tests for the equality of the current PBDOM_PROCESSINGINSTRUCTION object with the supplied PBDOM_OBJECT.

Syntax

*pbdom_pi_name*.Equals(*pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |
| *pbdom_object_ref* | A PBDOM_OBJECT for testing for equality with the current PBDOM_PROCESSINGINSTRUCTION object |

Return value

Boolean. Returns true if the current PBDOM_PROCESSINGINSTRUCTION object is equivalent to the input PBDOM_OBJECT, and false otherwise.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not a reference to an object derived from PBDOM_OBJECT.

## GetData

Description

Returns the raw data of the PBDOM_PROCESSINGINSTRUCTION object.

Syntax

*pbdom_pi_name*.GetData()

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |

Return value

String. The data of the PBDOM_PROCESSINGINSTRUCTION object.

Usage

The processing instruction data is fundamentally a string and *not* a set of name="value" pairs.

## GetName

Description

Obtains the name of the current PBDOM_PROCESSINGINSTRUCTION object.

Syntax

*pbdom_pi_name*.GetName()

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |

Return value

String.

Examples

Calling the GetName method on the following processing instruction returns `works`:

```
<?works document="hello.doc" data="hello.wks" ?>
```

Usage

This method is similar to the GetTarget method. To PBDOM, the processing instruction target is synonymous with its name.

## GetNames

Description

Retrieves a list of names taken from the part of the PBDOM_PROCESSINGINSTRUCTION object's data that is factored into name="value" pairs. This method can be used in conjunction with the GetValue method.

Syntax

*pbdom_pi_name*.GetNames(string *name_array[ ]*)

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |
| *name_array* | An unbounded string array filled with names |

Return value

Boolean. Returns true if a list of names is retrieved, and false otherwise. If there are no name/value pairs, this method returns false.

Examples

Given the following PBDOM_PROCESSINGINSTRUCTION object, GetNames returns three strings, `a`, `b`, and `c`, even though `a` occurs more than once:

```
<? dw-set_values a="1" b="2" c="3" a="4" ?>
```

When the GetValue method is called on `a`, the value `4` is returned, because it is the last value set for `a`.

Usage

If a name is used more than once as the name of a name/value pair in a PBDOM_PROCESSINGINSTRUCTION object, then the value set in the last occurrence of the name is used, and values declared in all previous occurrences of the name are discarded.

## GetObjectClass

Description

Returns a long integer code that indicates the class of the current PBDOM_PROCESSINGINSTRUCTION object.

Syntax

*pbdom_pi_name*.GetObjectClass()

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_OBJECT |

Return value

Long. GetObjectClass returns a long integer code that indicates the class of the current PBDOM_OBJECT. If *pbdom_pi_name* is a PBDOM_PROCESSINGINSTRUCTION object, the returned value is 10.

## GetObjectClassString

Description — Returns a string form of the class of the PBDOM_PROCESSINGINSTRUCTION object.

Syntax — *pbdom_pi_name*.GetObjectClassString()

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_OBJECT |

Return value — String. GetObjectClassString returns a string that indicates the class of the current PBDOM_OBJECT. If *pbdom_pi_name* is a PBDOM_PROCESSINGINSTRUCTION, the returned string is "pbdom_processinginstruction".

## GetOwnerDocumentObject

Description — Returns the owning PBDOM_DOCUMENT of the current PBDOM_PROCESSINGINSTRUCTION object.

Syntax — *pbdom_pi_name*.GetOwnerDocumentObject()

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |

Return value — PBDOM_DOCUMENT. If there is no owning PBDOM_DOCUMENT, null is returned.

## GetParentObject

Description — Returns the parent PBDOM_OBJECT of the current PBDOM_PROCESSINGINSTRUCTION object.

Syntax — *pbdom_pi_name*.GetParentObject()

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |

Return value — PBDOM_OBJECT. The parent of the PBDOM_PROCESSINGINSTRUCTION object. If there is no parent, null is returned.

## GetTarget

Description: Returns the target of the PBDOM_PROCESSINGINSTRUCTION object.

Syntax: *pbdom_pi_name*.GetTarget()

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |

Return value: String. The target of the PBDOM_PROCESSINGINSTRUCTION object.

Examples: Given the following PBDOM_PROCESSINGINSTRUCTION object, calling the GetTarget method returns the string "xml-stylesheet":

```
<?xml-stylesheet href="simple-ie5.xsl" type="text/xsl"
?>
```

Calling the GetName method returns the same string.

See also: GetName

## GetText

Description: Obtains text data that is contained within the current PBDOM_PROCESSINGINSTRUCTION object.

Syntax: *pbdom_pi_name*.GetText()

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |

Return value: String.

Usage: The GetText method returns the text data of the current PBDOM_PROCESSINGINSTRUCTION object. GetText is similar to GetData. However, the textual content of a processing instruction object is not a text node.

See also: GetData
GetTextNormalize
GetTextTrim
SetData

## GetTextNormalize

Description

Obtains the text data that is contained within the current PBDOM_PROCESSINGINSTRUCTION object with all surrounding whitespace characters removed and internal whitespace characters normalized to a single space.

Syntax

*pbdom_pi_name*.GetTextNormalize()

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |

Return value

String. The normalized text content of the PBDOM_PROCESSINGINSTRUCTION object. If no textual value exists for the current PBDOM_OBJECT, or if only whitespace characters exist, an empty string is returned.

See also

GetData
GetText
GetTextTrim
SetData

## GetTextTrim

Description

Obtains the text data that is contained within the current PBDOM_PROCESSINGINSTRUCTION object with all surrounding whitespaces removed.

Syntax

*pbdom_pi_name*.GetTextTrim()

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |

Return value

String. The trimmed text content of the PBDOM_PROCESSINGINSTRUCTION object. If no textual value exists for the current PBDOM_PROCESSINGINSTRUCTION object, or if only whitespace characters exist, an empty string is returned.

See also

GetData
GetText
GetTextNormalize
SetData

## GetValue

Description

Returns the value for a specific name/value pair on the PBDOM_PROCESSINGINSTRUCTION object. If no such pair is found for the PBDOM_PROCESSINGINSTRUCTION object, an empty string is returned.

Syntax

*pbdom_pi_name*.GetValue(string *strName*)

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |
| *strName* | String name of name/value pair |

Return value

String. String name of the name/value pair to search for value.

Examples

Given the following PBDOM_PROCESSINGINSTRUCTION object, `GetValue("href")` returns the string “simple-ie5.xsl”:

```
<?xml-stylesheet href="simple-ie5.xsl" type="text/xsl"
?>
```

See also

GetData
GetText
SetValue

## RemoveValue

Description

Removes the specified name/value pair.

Syntax

*pbdom_pi_name*.RemoveValue(string *strName*)

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |
| *strName* | String name of name/value pair to be removed |

Return value

Boolean. Returns true if the requested name/value pair is removed and false otherwise.

Examples

Suppose the following PBDOM_PROCESSINGINSTRUCTION object is given:

```
<?xml-stylesheet href="simple-ie5.xsl" type="text/xsl"
?>
```

Then, `RemoveValue("href")` results in the PBDOM_PROCESSINGINSTRUCTION object being transformed into the following:

```
<?xml-stylesheet type="text/xsl" ?>
```

## SetData

Description

Sets the raw data for the PBDOM_PROCESSINGINSTRUCTION object.

Syntax

*pbdom_pi_name*.SetData(string *strData*)

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |
| *strData* | New data for the PBDOM_PROCESSINGINSTRUCTION object |

Return value

PBDOM_PROCESSINGINSTRUCTION. The PBDOM_PROCESSINGINSTRUCTION object modified with the new data.

Throws

EXCEPTION_INVALID_STRING – The input data is invalid. This can happen in the following circumstances:

1 The input data contains the sub-string "?>". This violates the requirements for the data of a processing instruction.

2 If the processing instruction target name is `xml`, making this PBDOM_PROCESSINGINSTRUCTION object an XML declaration processing instruction, this exception is thrown if the input data string does not conform to the following criteria:

- The data must contain a name/value pair for the name `version`.
- The data can contain a name/value pair for the name `encoding`.
- The data can contain a name/value pair for the name `standalone`. If it does, the value for `standalone` must either be `yes` or `no`.
- The data must not contain any other data in the form of name/value pairs or in any other form.

**Lowercase**
The strings `xml`, `version`, `encoding`, `standalone`, `yes`, and `no` are all case sensitive and must be in lowercase.

Examples

Suppose there is a PBDOM_PROCESSINGINSTRUCTION object as follows:

```
<?xml-stylesheet href="simple-ie5.xsl" type="text/xsl"
?>
```

Then, `SetData("href=new.xsl")` results in the PBDOM_PROCESSINGINSTRUCTION object being transformed into the following:

```
<?xml-stylesheet href=new.xsl" ?>
```

The entire data for the PBDOM_PROCESSINGINSTRUCTION object is now reset.

Usage

Special processing is performed when the name of the processing instruction's target is xml, which indicates that it is an XML declaration. The valid instructions allowed in the input Data as part of the name in the name/value pairs are `version`, `encoding`, and `standalone`. The version instruction is mandatory before the processing instruction can be added to a document.

The XML specification expects the instructions to be in the specific order `version` , `encoding` , `standalone`. This function reorders the input data to conform to the specification, for example:

```
<? xml version="1.0" encoding="utf-8"
standalone="yes"?>
```

## SetName

Description

Sets the name of the current PBDOM_PROCESSINGINSTRUCTION object.

Syntax

*pbdom_pi_name*.SetName(string *strName*)

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |
| *strName* | The new name you want to set for the current PBDOM_PROCESSINGINSTRUCTION object |

Return value

Boolean. Returns true if the name of the current PBDOM_PROCESSINGINSTRUCTION object was changed, and false otherwise.

Throws

EXCEPTION_INVALID_NAME – This exception is thrown if the name is invalid. The name can be `xml`, making this PBDOM_PROCESSINGINSTRUCTION object an XML declaration processing instruction. However, in this case, the name `xml` must be in lowercase, or the EXCEPTION_INVALID_NAME exception will be thrown.

EXCEPTION_INVALID_STRING – This exception is thrown if the name is `xml` and the current data of this PBDOM_PROCESSINGINSTRUCTION object is not valid. The data is valid only under the following circumstances:

- It is an empty string.
- If it is not an empty string, it must contain a name/value pair for the name `version`.
- If it is not an empty string and it contains a name/value pair for the name `version`, it can also contain a name/value pair for the name `encoding`.
- If it is not an empty string and it contains a name/value pair for the name `version`, it can also contain a name/value pair for the name `standalone`. If it does, the value for `standalone` must be either `yes` or `no` (both are case sensitive).
- If it is not an empty string and it contains a name/value pair for the name `version`, it must not contain any other data (in name/value pair format or otherwise) except for `encoding` and `standalone`.

Usage

This method is equivalent to setting the target of the processing instruction object. See the list of exceptions for information about the restrictions on the use of `xml` as the target.

## SetParentObject

Description

Sets the referenced PBDOM_OBJECT to be the parent of the current PBDOM_PROCESSINGINSTRUCTION object.

Syntax

*pbdom_pi_name*.SetParentObject(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |
| *pbdom_object_ref* | A PBDOM_OBJECT to be set as the parent of the current PBDOM_PROCESSINGINSTRUCTION object |

Return value

PBDOM_OBJECT. This PBDOM_PROCESSINGINSTRUCTION object modified.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not a reference to an object derived from PBDOM_OBJECT.

EXCEPTION_HIERARCHY_ERROR – If setting the input PBDOM_OBJECT to be the parent of this PBDOM_PROCESSINGINSTRUCTION object will cause the parent PBDOM_OBJECT to be no longer well formed. For example, if this PBDOM_PROCESSINGINSTRUCTION object is an XML declaration and the parent to be set is a PBDOM_ELEMENT.

Usage

The PBDOM_OBJECT that you set as the parent and the current PBDOM_PROCESSINGINSTRUCTION object must have a legal parent-child relationship. Currently, only a PBDOM_ELEMENT and a PBDOM_DOCUMENT can be set as the parent of a PBDOM_PROCESSINGINSTRUCTION object.

## SetValue

Description

Sets the value for the specified name/value pair.

Syntax

*pbdom_pi_name*.SetValue(string *strName*, string*strValue*)

| Argument | Description |
|---|---|
| *pbdom_pi_name* | The name of a PBDOM_PROCESSINGINSTRUCTION object |
| *strName* | String name of a name/value pair |
| *strValue* | String value of a name/value pair |

Return value

PBDOM_PROCESSINGINSTRUCTION.

Throws

EXCEPTION_INVALID_STRING – The input *strName*/*strValue* is invalid. This can happen in the following circumstances:

- The input *strName*/*strValue* data contains the sub-string `?>`. This violates the requirements for the data of a processing instruction.
- If the target name is `xml`, making this PBDOM_PROCESSINGINSTRUCTION object an XML declaration processing instruction, this exception is thrown if the input data string does not conform to the following criterion: the data can contain a name/value pair for the name `standalone`. If it does, the value for `standalone` must either be `yes` or `no`. The strings `xml`, `standalone`, `yes`, and `no` are case sensitive and must be lowercase.

EXCEPTION_INVALID_NAME - The input *strName* is invalid. This can happen if the target name is `xml`, making this PBDOM_PROCESSINGINSTRUCTION object an XML declaration processing instruction, and either of the following is true:

- The *strName* value is other than `version`, `standalone` or `encoding`.
- Either `standalone` or `encoding` is set without the `version` first being set.

Examples

Consider the following PBDOM_PROCESSINGINSTRUCTION object:

```
<?xml-stylesheet href="simple-ie5.xsl" type="text/xsl" ?>
```

`SetValue("href","new.xsl")` transforms this processing instruction to the following, modifying the value for *href*:

```
<?xml-stylesheet href="new.xsl" type="text/xsl"?>
```

`SetValue("extra_info","xalan")` transforms the processing instruction to the following, adding a new name/value pair for *extra_info*:

```
<?xml-stylesheet href=new.xsl" type="text/xsl"
extra_info "xalan" ?>
```

Then `SetValue("extra_info_2","")` transforms the processing instruction to the following, adding a new name/value pair for *extra_info_2* with an empty string as the value:

```
<?xml-stylesheet href=new.xsl" type="text/xsl"
extra_info="xalan" extra_info_2="" ?>
```

Usage

If no value is found, the supplied pair is added to the processing instruction data. The appearance of name/value pairs in a PBDOM_PROCESSINGINSTRUCTION object is not subject to any order. In this way, name/value pairs in a PBDOM_PROCESSINGINSTRUCTION object are similar to attributes in an element. Attributes are specifically *not* ordered.

Special processing is performed when the name of the processing instruction's target is xml, which indicates that it is an XML declaration. The valid instructions allowed in the input Data as part of the name in the name/value pairs are `version`, `encoding`, and `standalone`. The version instruction is mandatory before the processing instruction can be added to a document.

The XML specification expects the instructions to be in this specific order: `version` , `encoding` , `standalone`. This function reorders the input data to conform to the specification, for example:

```
<? xml version="1.0" encoding="utf-8" standalone="yes"?>
```

CHAPTER 17

# PBDOM_TEXT Class

About this chapter

This chapter describes the PBDOM_TEXT class.

## PBDOM_TEXT

Description

The PBDOM_TEXT class represents a DOM Text Node within an XML document. It extends the PBDOM_CHARACTERDATA class with a set of methods specifically intended for manipulating DOM text nodes.

The PBDOM_TEXT class is derived from the PBDOM_CHARACTERDATA class. PBDOM_TEXT objects are commonly used to represent the textual content of a PBDOM_ELEMENT or PBDOM_ATTRIBUTE.

**Whitespace characters**
The text in a PBDOM_TEXT object can include whitespace characters such as carriage returns, linefeeds, tabs, and spacebar spaces.

Methods

Some of the inherited methods from PBDOM_OBJECT serve no meaningful objective, and only default or trivial functionalities result. These are described in the following table:

| Method | Always returns |
|---|---|
| AddContent | current PBDOM_TEXT |
| GetContent | false |
| GetName | a string "#text" |
| HasChildren | false |
| InsertContent | current PBDOM_TEXT |
| IsAncestorObjectOf | false |
| RemoveContent | false |
| SetContent | current PBDOM_TEXT |
| SetName | false |

PBDOM_TEXT has the following non-trivial methods:

Append
Clone
Detach
Equals
GetObjectClass
GetObjectClassString
GetOwnerDocumentObject
GetParentObject
GetText
GetTextNormalize
GetTextTrim
SetParentObject
SetText

## Append

Description

The Append method is overloaded:

- Syntax 1 appends an input string to the text content that already exists within the current PBDOM_TEXT object.
- Syntax 2 appends the text data of a PBDOM_CHARACTERDATA object to the text content that already exists within the current PBDOM_TEXT object.

Syntax

| For this syntax | See |
|---|---|
| Append(string *strAppend*) | Append Syntax 1 |
| Append(pbdom_characterdata *pbdom_characterdata_ref*) | Append Syntax 2 |

## Append Syntax 1

Description

Appends an input string to the text content that already exists within the current PBDOM_TEXT object.

Syntax

*pbdom_text_name*.Append(string *strAppend*)

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_TEXT object |

| Argument | Description |
|---|---|
| *strAppend* | The string you want appended to the existing text of the current PBDOM_TEXT object |

Return value

PBDOM_CHARACTERDATA. The current PBDOM_TEXT object modified and returned as a PBDOM_CHARACTERDATA object.

## Append Syntax 2

Description

Appends the text data of a PBDOM_CHARACTERDATA object to the text content that already exists within the current PBDOM_TEXT object.

Syntax

*pbdom_text_name*.Append(pbdom_characterdata *pbdom_characterdata_ref*)

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_TEXT object |
| *pbdom_characterdata_ref* | The referenced PBDOM_CHARACTERDATA object whose text data is to be appended to the existing text of the current PBDOM_TEXT object |

Return value

PBDOM_CHARACTERDATA. The current PBDOM_TEXT object modified and returned as a PBDOM_CHARACTERDATA object.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_CHARACTERDATA is not a reference to an object inherited from PBDOM_CHARACTERDATA.

Usage

Note that JDOM does not define an Append method for its TEXT class. Because PBDOM implements its Append method in the base PBDOM_CHARACTERDATA class, a PBDOM_COMMENT object, a PBDOM_CDATA object, and a PBDOM_TEXT object can append their internal text data to each other, because they are all objects inherited from PBDOM_CHARACTERDATA.

## Clone

Description

Creates and returns a clone of the current PBDOM_TEXT object.

Syntax

*pbdom_text_name*.Clone(boolean *bDeep*)

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_TEXT object. |
| *bDeep* | A boolean specifying whether a deep or shallow clone is returned. Values are true for a deep clone and false for a shallow clone. This parameter is ignored. |

Return value

PBDOM_OBJECT. The return value is a clone of the current PBDOM_TEXT object returned as a PBDOM_OBJECT.

Examples

This example creates an XML document that, when serialized, appears as follows :

```
<!DOCTYPE root
[
<!ELEMENT root (child_1, child_2)>
<!ELEMENT child_1 (#PCDATA)*>
<!ELEMENT child_2 (#PCDATA)*>
]>
<root>
   <child_1>text for child.</child_1>
   <child_2>text for child.</child_2>
</root>
```

The definition of the DTD shows that the document is required to have the following composition:

- The document contains a root element with the name root.
- The root element contains a sequence of two child elements named child_1 and child_2.
- Both child_1 and child_2 contain only text.

The following PowerScript code creates a PBDOM_TEXT object and assigns it a text value. It then creates a child_1 element, adds the PBDOM_TEXT object to it, creates a shallow clone of child_1, and names the clone child_2. After adding a clone of the text object to child_2, the code adds both child objects to the root element:

```
PBDOM_BUILDER     pbdom_buildr
PBDOM_DOCUMENT    pbdom_doc
PBDOM_ELEMENT     pbdom_elem_child_1
PBDOM_ELEMENT     pbdom_elem_child_2
PBDOM_TEXT        pbdom_txt
string strXML = "<!DOCTYPE root [<!ELEMENT root
(child_1, child_2)><!ELEMENT child_1
(#PCDATA)><!ELEMENT child_2 (#PCDATA)>]><root/>"
```

```
try
  pbdom_buildr = Create PBDOM_BUILDER
  pbdom_doc = pbdom_buildr.BuildFromString (strXML)

  pbdom_txt = Create PBDOM_TEXT
  pbdom_txt.SetText ("text for child.")

  pbdom_elem_child_1 = Create PBDOM_ELEMENT
  pbdom_elem_child_1.SetName ("child_1")
  pbdom_elem_child_1.AddContent (pbdom_txt)

  pbdom_elem_child_2 = pbdom_elem_child_1.Clone(false)
  pbdom_elem_child_2.SetName("child_2")
  pbdom_elem_child_2.AddContent
(pbdom_txt.Clone(false))

  pbdom_doc.GetRootElement().AddContent(pbdom_elem_chi
ld_1)
  pbdom_doc.GetRootElement().AddContent(pbdom_elem_chi
ld_2)

  pbdom_doc.SaveDocument ("sample.xml")

catch (PBDOM_EXCEPTION pbdom_except)
  MessageBox ("PBDOM_EXCEPTION",
pbdom_except.GetMessage())
end try
```

Usage

The Clone method creates a new PBDOM_TEXT object that is a duplicate of, and a separate object from, the original. Whether true or false is supplied as the parameter to this function, a PBDOM_TEXT clone is always identical to its original. This is because a PBDOM_TEXT does not contain any subtree of children PBDOM_OBJECTs.

A PBDOM_TEXT clone has no parent. However, the clone resides in the same PBDOM_DOCUMENT as its original, and if the original PBDOM_TEXT object is standalone, the clone is standalone

## Detach

Description

Detaches a PBDOM_TEXT object from its parent PBDOM_OBJECT.

Syntax

*pbdom_text_name*.Detach()

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_TEXT object |

Return value

PBDOM_OBJECT. The current PBDOM_TEXT object is detached from its parent.

Usage

If the current PBDOM_TEXT object has no parent, nothing happens.

## Equals

Description

Tests for the equality of the current PBDOM_TEXT object and a referenced PBDOM_OBJECT.

Syntax

*pbdom_text_name*.Equals(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_TEXT object |
| *pbdom_object_ref* | A reference to a PBDOM_OBJECT to test for equality with the current PBDOM_TEXT object |

Return value

Boolean. Returns true if the current PBDOM_TEXT object is equivalent to the input PBDOM_OBJECT, and false otherwise.

Throws

EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not a reference to an object derived from PBDOM_OBJECT.

Usage

True is returned only if the referenced PBDOM_OBJECT is also a derived PBDOM_TEXT object and refers to the same DOM object as the current PBDOM_TEXT object. Two separately created PBDOM_TEXT objects, for example, can contain exactly the same text but not be equal.

## GetObjectClass

Description

Returns a long integer code that indicates the class of the current PBDOM_OBJECT.

Syntax

*pbdom_object_name*.GetObjectClass()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value: Long. GetObjectClass returns a long integer code that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_TEXT object, the returned value is 7.

See also: GetObjectClassString

## GetObjectClassString

Description: Returns a string form of the class of the PBDOM_OBJECT.

Syntax: *pbdom_object_name*.GetObjectClassString()

| Argument | Description |
|---|---|
| *pbdom_object_name* | The name of a PBDOM_OBJECT |

Return value: String. GetObjectClassString returns a string that indicates the class of the current PBDOM_OBJECT. If *pbdom_object_name* is a PBDOM_TEXT object, the returned string is "pbdom_text".

See also: GetObjectClass

## GetOwnerDocumentObject

Description: Returns the owning PBDOM_DOCUMENT of the current PBDOM_TEXT object.

Syntax: *pbdom_text_name*.GetOwnerDocumentObject()

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_TEXT object |

Return value: PBDOM_OBJECT.

Usage: If there is no owning PBDOM_DOCUMENT, null is returned.

## GetParentObject

Description: Returns the parent PBDOM_OBJECT of the current PBDOM_TEXT object.

Syntax: *pbdom_text_name*.GetParentObject()

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_TEXT object |

Return value: PBDOM_OBJECT.

Usage: The parent is also an object inherited from PBDOM_TEXT object. If the PBDOM_TEXT object has no parent, null is returned.

See also: SetParentObject

## GetText

Description: Obtains the text data that is contained within the current PBDOM_TEXT object.

Syntax: *pbdom_text_name*.GetText()

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_TEXT object |

Return value: String. The GetText method returns the textual content of the current PBDOM_TEXT object.

Examples: If you have the element `<abc>MY TEXT</abc>`, and you have a PBDOM_TEXT object to represent the text node "MY TEXT", then calling GetText on the PBDOM_TEXT object returns the string "MY TEXT".

See also: GetTextNormalize
GetTextTrim
SetText

## GetTextNormalize

Description: Obtains the text data that is contained within the current PBDOM_TEXT object, with all surrounding whitespace characters removed and internal whitespace characters normalized to a single space.

Syntax: *pbdom_text_name*.GetTextNormalize()

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_TEXT object |

Return value: String.

Examples: If you have a PBDOM_TEXT object that represents the text node "  MY  TEXT  ", calling GetTextNormalize returns the string "MY TEXT". All surrounding whitespaces are removed, and the whitespaces between the words "MY" and "TEXT" are reduced to a single space.

Usage

This method allows the caller to obtain the text data that is contained within the current PBDOM_TEXT object with all surrounding whitespaces removed and internal whitespaces normalized to single spaces. If no textual value exists for the current PBDOM_TEXT object, or if only whitespaces exist, an empty string is returned.

See also

GetText
GetTextTrim
SetText

## GetTextTrim

Description

Returns the textual content of the current PBDOM_TEXT object with all surrounding whitespace characters removed.

Syntax

*pbdom_text_name*.GetTextTrim()

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_TEXT object |

Return value

String.

Examples

If you have a PBDOM_TEXT object that represents the text node “ MY TEXT ”, calling GetTextNormalize returns the string “MY TEXT”. All surrounding white spaces are removed. The whitespaces between the words “MY” and “TEXT” are preserved.

Usage

This method allows the caller to obtain the text data that is contained within the current PBDOM_TEXT object with all surrounding whitespaces removed. Internal whitespaces are preserved. If no textual value exists for the current PBDOM_TEXT object, or if only whitespaces exist, an empty string is returned.

See also

GetText
GetTextNormalize
SetText

## SetParentObject

Description — Sets the referenced PBDOM_OBJECT to be the parent of the current PBDOM_TEXT object.

Syntax — *pbdom_text_name*.SetParentObject(pbdom_object *pbdom_object_ref*)

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_TEXT object |
| *pbdom_object_ref* | A PBDOM_OBJECT to be set as the parent of the current PBDOM_TEXT object |

Return value — PBDOM_OBJECT.

Throws — EXCEPTION_PBDOM_OBJECT_INVALID_FOR_USE – If the input PBDOM_OBJECT is not referenced to an object derived from PBDOM_OBJECT.

EXCEPTION_PBDOM_OBJECT_ALREADY_HAS_PARENT – If the current PBDOM_TEXT object already has a parent.

EXCEPTION_INAPPROPRIATE_USE_OF_PBDOM_OBJECT – If the input PBDOM_OBJECT is of a class that does not have a proper parent-child relationship with the PBDOM_TEXT class.

EXCEPTION_USE_OF_UNNAMED_PBDOM_OBJECT – If the input PBDOM_OBJECT requires a user-defined name and it has not been named.

Usage — The PBDOM_OBJECT that you set to be the parent of the current PBDOM_TEXT object must have a legal parent-child relationship with the current object. If it does not, an exception is thrown. Only a PBDOM_ELEMENT is allowed to be set as the parent of a PBDOM_TEXT object.

See also — GetParentObject

## SetText

Description — Sets the input string to be the text content of the current PBDOM_TEXT object.

Syntax — *pbdom_text_name*.SetText(*strSet*)

| Argument | Description |
|---|---|
| *pbdom_text_name* | The name of a PBDOM_TEXT object |
| *strSet* | The string you want set as the text of the PBDOM_TEXT object |

| | |
|---|---|
| Return value | String. If no DTD is referenced, an empty string is returned. |
| See also | GetText<br>GetTextNormalize<br>GetTextTrim |

CHAPTER 18

# PBDOM Summary

About this chapter

This chapter provides a quick reference to the methods of PBDOM base classes and additional methods provided by inherited classes.

## Summary of PBDOM classes and methods

**PBDOM_OBJECT inherited from PowerBuilder NonVisualObject**

addcontent ( pbdom_object pbdom_object_ref ) returns pbdom_object
clone ( boolean bdeep ) returns pbdom_object
detach ( ) returns pbdom_object
equals ( pbdom_object pbdom_object_ref ) returns boolean
getcontent ( ref pbdom_object pbdom_object_array[] ) returns boolean
getname ( ) returns string
getobjectclass ( ) returns long
getobjectclassstring ( ) returns string
getownerdocumentobject ( ) returns pbdom_document
getparentobject ( ) returns pbdom_object
gettext ( ) returns string
gettextnormalize ( ) returns string
gettexttrim ( ) returns string
haschildren ( ) returns boolean
insertcontent ( pbdom_object pbdom_object_new, pbdom_object pbdom_object_ref ) returns pbdom_object
isancestorobjectof ( pbdom_object pbdom_object_ref ) returns boolean
removecontent ( pbdom_object pbdom_object_ref ) returns boolean
setcontent ( pbdom_object pbdom_object_array[] ) returns pbdom_object
setname ( string strname ) returns boolean
setparentobject ( pbdom_object pbdom_object_ref ) returns pbdom_object

### PBDOM_ELEMENT inherited from PBDOM_OBJECT

addcontent ( string strtext ) returns pbdom_element
addnamespacedeclaration ( string strnamespaceprefix, string strnamespaceuri ) returns pbdom_element
getattribute ( string strname ) returns pbdom_attribute
getattribute ( string strname, string strnamespaceprefix, string strnamespaceuri ) returns pbdom_attribute
getattributes ( ref pbdom_attribute pbdom_attribute_array[] ) returns boolean
getattributevalue ( string strattributename ) returns string
getattributevalue ( string strattributename, string strdefaultvalue ) returns string
getattributevalue ( string strattributename, string strnamespaceprefix, string strnamespaceuri ) returns string
getattributevalue ( string strattributename, string strnamespaceprefix, string strnamespaceuri,
  string strdefaultvalue ) returns string
getchildelement ( string strelementname ) returns pbdom_element
getchildelement ( string strelementname, string strnamespaceprefix, string strnamespaceuri )
  returns pbdom_element
getchildelements ( ref pbdom_element pbdom_element_array[] ) returns boolean
getchildelements ( string strelementname, ref pbdom_element pbdom_element_array[] ) returns boolean
getchildelements ( string strelementname, string strnamespaceprefix, string strnamespaceuri,
  ref pbdom_element pbdom_element_array[] ) returns boolean
getnamespaceprefix ( ) returns string
getnamespaceuri ( ) returns string
getqualifiedname ( ) returns string
hasattributes ( ) returns boolean
haschildelements ( ) returns boolean
isrootelement ( ) returns boolean
removeattribute ( pbdom_attribute pbdom_attribute_ref ) returns boolean
removeattribute ( string strattributename ) returns boolean
removeattribute ( string strattributename, string strnamespaceprefix, string strnamespaceuri ) returns boolean
removechildelement ( string strelementname ) returns boolean
removechildelement ( string strelementname, string strnamespaceprefix, string strnamespaceuri ) returns boolean
removechildelements ( ) returns boolean
removechildelements ( string strelementname ) returns boolean
removechildelements ( string strelementname, string strnamespaceprefix, string strnamespaceuri ) returns boolean
removenamespacedeclaration ( string strnamespaceprefix, string strnamespaceuri ) returns boolean
setattribute ( pbdom_attribute pbdom_attribute_ref ) returns pbdom_element
setattribute ( string strname, string strvalue ) returns pbdom_element
setattribute ( string strname, string strvalue, string strnamespaceprefix, string strnamespaceuri,
  boolean bverifynamespace ) returns long
setattributes ( pbdom_attribute pbdom_attribute_array[] ) returns pbdom_element
setdocument ( pbdom_object pbdom_document_ref ) returns pbdom_element
setnamespace ( string strnamespaceprefix, string strnamespaceuri, boolean bverifynamespace ) returns long
settext ( string strtext ) returns pbdom_element

### PBDOM_ATTRIBUTE inherited from PBDOM_OBJECT

getbooleanvalue ( ) returns boolean
getdatetimevalue ( string strdateformat, string strtimeformat ) returns datetime
getdatevalue ( string strdateformat ) returns date
getdoublevalue ( ) returns double
getintvalue ( ) returns integer
getlongvalue ( ) returns long
getnamespaceprefix ( ) returns string
getnamespaceuri ( ) returns string
getownerelementobject ( ) returns pbdom_element
getqualifiedname ( ) returns string
getrealvalue ( ) returns real
gettimevalue ( string strtimeformat ) returns time
getuintvalue ( ) returns unsignedinteger
getulongvalue ( ) returns unsignedlong
setbooleanvalue ( boolean boolvalue ) returns pbdom_attribute
setdatetimevalue ( datetime datetimevalue, string strdateformat, string strtimeformat ) returns pbdom_attribute
setdatevalue ( date datevalue, string strdateformat ) returns pbdom_attribute
setdoublevalue ( double doublevalue ) returns pbdom_attribute
setintvalue ( integer intvalue ) returns pbdom_attribute
setlongvalue ( long longvalue ) returns pbdom_attribute
setnamespace ( string strnamespaceprefix, string strnamespaceuri, boolean bverifynamespace ) returns long
setownerelementobject( pbdom_element pbdom_element_ref ) returns pbdom_attribute
setrealvalue ( real realvalue ) returns pbdom_attribute
settext ( string strtext ) returns pbdom_attribute
settimevalue ( time timevalue, string strtimeformat ) returns pbdom_attribute
setuintvalue ( unsignedinteger uintvalue ) returns pbdom_attribute
setulongvalue ( unsignedlong ulongvalue ) returns pbdom_attribute

### PBDOM_CHARACTERDATA inherited from PBDOM_OBJECT

append ( pbdom_characterdata pbdom_characterdata_ref ) returns pbdom_characterdata
append ( string strappend ) returns pbdom_characterdata
settext ( string strtext ) returns pbdom_characterdata

### PBDOM_COMMENT inherited from PBDOM_CHARACTERDATA

No added methods.

### PBDOM_TEXT inherited from PBDOM_CHARACTERDATA

No added methods.

### PBDOM_CDATA inherited from PBDOM_TEXT

No added methods.

### PBDOM_DOCTYPE inherited from PBDOM_OBJECT

getinternalsubset ( ) returns string
getpublicid ( ) returns string
getsystemid ( ) returns string
setdocument ( pbdom_document pbdom_document_ref ) returns pbdom_doctype
setinternalsubset ( string strinternalsubset ) returns pbdom_doctype
setpublicid ( string strpublicid ) returns pbdom_doctype
setsystemid ( string strsystemid ) returns pbdom_doctype

### PBDOM_DOCUMENT inherited from PBDOM_OBJECT

detachrootelement ( ) returns pbdom_element
getdoctype ( ) returns pbdom_doctype
getrootelement ( ) returns pbdom_element
hasrootelement ( ) returns boolean
newdocument ( string strrootelementname ) returns boolean
newdocument ( string strrootelementnamespaceprefix, string strrootelementnamespaceuri,
string strrootelementname, string strdoctypepublicid, string strdoctypesystemid ) returns boolean
savedocument ( string strfilename ) returns boolean
setdoctype ( pbdom_doctype pbdom_doctype_ref ) returns pbdom_document
setrootelement ( pbdom_element pbdom_element_ref ) returns pbdom_document

### PBDOM_ENTITYREFERENCE inherited from PBDOM_OBJECT

No added methods.

### PBDOM_PROCESSINGINSTRUCTION inherited from PBDOM_OBJECT

getdata ( ) returns string
getnames ( ref string name_array[] ) returns boolean
gettarget ( ) returns string
getvalue ( string strname ) returns string
removevalue ( string strname ) returns boolean
setdata ( string strdata ) returns pbdom_processinginstruction
setvalue ( string strname, string strvalue ) returns pbdom_processinginstruction

### PBDOM_BUILDER inherited from PowerBuilder NonVisualObject

buildfromdatastore ( datastore datastore_ref ) returns pbdom_document
buildfromfile ( string strurl ) returns pbdom_document
buildfromstring ( string strxmlstream ) returns pbdom_document
getparseerrors( ref string strErrorMessageArray[]) returns boolean

### PBDOM_EXCEPTION inherited from PowerBuilder Exception

getexceptioncode ( ) returns long

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