



**Rational Rhapsody
API Reference Manual**



Before using the information in this manual, be sure to read the IBM “Notices” section of the IBM Rational Help.

This edition applies to IBM® Rational® Rhapsody® 7.4 and to all subsequent releases and modifications until otherwise indicated in new editions.

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The Rational Rhapsody API



操纵

The Rational Rhapsody API allows you write applications that access and **manipulate** Rational Rhapsody model elements. Two versions of the API are provided with Rational Rhapsody:

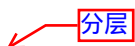
- ♦ COM
- ♦ Java

Information Available to the API

The Rational Rhapsody API facilitates reading, changing, adding to, and deleting from all model elements that are available in the Rational Rhapsody browser. The browser displays the static elements of a model including, but not limited to, the following:

- ♦ Model information
- ♦ Descriptions and other information within browser forms
- ♦ Information describing the model hierarchy, components, and packages
- ♦ Configurations and profiles
- ♦ Features and properties
- ♦ File and directory names
- ♦ Diagrams in a form that can be printed or included in external files for printing, such as Microsoft® Word®

Hierarchy of API Interfaces



The class diagram depicts the hierarchical relationships between the API interfaces. The application (IRPApplication) is the top-level object of the Rational Rhapsody object model. The hierarchy of the API interfaces is as follows:

```
IRPApplication
IRPASCIIFile
IRPCollection
IRPExternalCodeGenerator
IRPExternalCodeGeneratorInvoker
IRPFlow
IRPGraphElement
    IRPGraphEdge
    IRPGraphNode
IRPGraphicalProperty
IRPModelElement
    IRPAction
    IRPAnnotation
        IRPComment
        IRPConstraint
        IRPRequirement
    IRPAssociationRole
    IRPClassifierRole
    IRPCollaboration
    IRPComponentInstance
    IRPConfiguration
    IRPDependency
        IRPHyperLink
    IRPEnumerationLiteral
    IRPExecutionOccurrence
    IRPFile
    IRPGeneralization
    IRPGuard
    IRPInteractionOccurrence
    IRPInterfaceItem
        IRPEvent
        IRPEventReception
        IRPOperation
    IRPLink
    IRPMessage
    IRPMessagePoint
    IRPStateVertex
        IRPConnector
        IRPState
    IRPStereotype
    IRPSwimlane
    IRPTemplateInstantiation
    IRPTemplateInstantiationParameter
    IRPTransition
    IRPTrigger
    IRPUnit
        IRPClassifier
            IRPActor
            IRPClass
            IRPAssociationClass
            IRPFlowItem
            IRPNode
            IRPType
            IRPUseCase
```

- IRPComponent
- IRPDiagram
 - IRPCollaborationDiagram
 - IRPComponentDiagram
 - IRPDeploymentDiagram
 - IRPObjectModelDiagram
 - IRPSequenceDiagram
 - IRPStatechart
 - IRPFlowchart
 - IRPStructureDiagram
 - IRPUseCaseDiagram
- IRPPackage
 - IRPProfile
 - IRPProject
- IRPRelation
 - IRPInstance
 - IRPBlock
 - IRPModule
 - IRPPort
- IRPVariable
 - IRPArgument
 - IRPAttribute
 - IRPTag
 - IRPTemplateParameter

Rational Rhapsody Java API Basic Concepts

In terms of its capabilities, the Rational Rhapsody Java API is identical to the Rational Rhapsody COM API. The reference material for the COM API can be used to see what you can do with the Java API. The names of the objects, attributes, and methods in the Java API are more or less the same as those in the COM API.

For the details of the Rational Rhapsody Java API, see the Javadoc output for the API, which can be found at [rhapsody installation directory]\Doc\java_api\index.html.

A sample that uses the Java version of the Rational Rhapsody API can be found in the directory:

[Rhapsody installation directory]\Samples\JavaAPI

A more advanced sample can be found in the directory:

[Rhapsody installation directory]\Samples\CustomCG
Samples\Statechart_Simplifier_Writer\Statechart_Java_Simplifier

Java API Features

Rational Rhapsody includes a Java version of the Rational Rhapsody API that can be used for working with Rational Rhapsody models. Since the Java API can be used on both Windows and Linux, **this API allows you to write cross-platform applications.**

Rational Rhapsody provides two files that can be found in the directory [installation directory]\Share\JavaAPI:

- ♦ Rhapsody.jar—contains the Java classes and interfaces
- ♦ Rhapsody.dll (or Rhapsody.so for Linux)—native implementation of the Java interfaces

The .jar file should be included in the CLASSPATH of the Java project, and the .dll (or .so file) should be included in the lib path.

To access the Rational Rhapsody application, you use the object `RhapsodyAppServer`. See the API javadoc output for details.

Java API Differences from COM API

The following are specific differences between the Rational Rhapsody Java API and the Rational Rhapsody COM API:

- ♦ Methods in the Java version of the API throw `RhapsodyAPIException` exceptions. You can use the `toString` method to get the description of the exception.
- ♦ `IRPCollection` provides a method called `toList` that returns a native Java list container populated with the elements of the collection. This is the recommended method of iterating over collections with the Java version of the API. (In Java 1.5, you can cast the list to a types list and thus benefit from the for-each iterator.)
- ♦ Unlike the COM version of the API, where you have to use the `IDispatch::QueryInterface` method, in the Java version, you can use the native Java operator `instanceOf`.
- ♦ To check whether two interfaces point to the same model element, you should use the native boolean `Object.equals(Object)` method.

Rational Rhapsody Environment Initialization before Using Rational Rhapsody API on Linux

An initialization script called `rhpf_env` (located in the root of the Rational Rhapsody installation directory) must be run before using Rational Rhapsody on Linux.

This is done automatically when Linux users launch Rational Rhapsody as described in the documentation. However, this script must also be run by Linux users who run Java applications that include use of the Rational Rhapsody API.

When you write a Java application that includes use of the Rational Rhapsody API, make sure to inform the users of the application that they must run the initialization script prior to running the Java application.

Alternatively, you can try to automate this process for the users of your application, for example, by having the script run as part of each users Linux startup process, or by including a call to this script in the script file you provide for launching your Java application (provided, of course, that Rational Rhapsody is installed in the same location on each users computer).

COM API Basic Concepts and Examples

The Rational Rhapsody Repository API consists of a set of COM interfaces that supports dual interfaces (COM and automation). This allows access from Visual Basic and any language implemented with COM bindings. COM interfaces allow access from either Visual Basic® or VBScript, even when type information is not available (for example, OLE automation).

Note

See <http://www.urc.bl.ac.yu/manuals/vbscript/ch13fi.htm> for a comparison of Visual Basic, VBA, and VBScript.

Each interface represents a class in the Rational Rhapsody repository, and the set of interfaces forms the Rational Rhapsody object model. Each instance in the Rational Rhapsody repository returns a reference to a particular COM interface based on its metaclass. For example, access to an event in the Rational Rhapsody repository is via the `IRPEvent` interface.

COM API Tools and Languages

The following sections describe how to use the Rhapsody COM API tools and languages

COM API with Visual Basic

Like all COM-based APIs, two components are required to create Rational Rhapsody automation scripts:

- ♦ The Rational Rhapsody COM type library, `rhapsody.tlb`. COM type libraries are self-documenting and easy to browse using COM object viewers.
- ♦ A Rational Rhapsody executable providing COM server functionality.

In Visual Basic, attach the `rhapsody.tlb` library to the project by selecting **Project > References**. This familiarizes the VB environment with the Rational Rhapsody API interfaces. No further action is required. VB implicitly connects to the Rhapsody server (`rhapsody.exe`) once the VB application is executed.

Example

The following VB program shows an example of how to traverse all the classes and add a serial number property (initialized to 0) to each one.

```
Public Sub SetClassesInPackage(p As IRPPackage)
'
' Routine to add recursively a property to all classes in
'a package
'
    Dim allClassifiers As RPCollection
    Set allClassifiers = p.nestedClassifiers
    Dim c As RPClassifier
    For each c in allClassifiers
        isClass = c.isOfMetaClass 'Class'
        If isClass Then
            On error resume next
            If not c.addProperty('general:class:serialNo',
                'int', '0') then
                If not err.Number then
                    Print 'class can't be assigned a
                    property', c.name
                end if
            Else ' Check for nested packages
                isPackage = c.isOfMetaClass 'Package'
                If isPackage Then ' nested package case
                    Dim nestedP as Package
                    Set nestedP = c ' cast classifier to package
                    SetClassesInPackage nestedP
                End If
            End If
        Next
    End Sub
'
' The main program
'
    Dim Rph As Object
    Dim ProjName As String
    Dim Prj As RPPProject
    Dim Packages As RPCollection

    Set Rph = CreateObject("Rhapsody.Application")
    ProjName = 'D:\Rhapsody\Examples\PingPong.rpy'
    Rph.OpenProject projName
    Set Prj = Rph.activeProject
    Packages = Prj.packages
    Dim p As RPPackage
    For each p in allProjectClassifiers

        SetClassesInPackage p
    Next
```


COM API with VBScript

Most Rational Rhapsody users on Windows platforms can use the Visual Basic IDE programming environment or VBA, which are not available on a Solaris platform. However, Rational Rhapsody users on Solaris platforms can access the Rational Rhapsody API using VBScript (Visual Basic Scripting edition), a cross-platform development language.

Running VBScript

The setup for running VBScript scripts is done during installation. Note the following:

1. Before running a VBScript script, you must run Rational Rhapsody at least once for registration of the COM interfaces in the registry.
2. Run the vbs script located in the Rational Rhapsody home directory.
3. Use the `vbstest` program by Mainsoft™ to run vbs programs.

VBScript samples are available in the `Samples/Vbs` directory of the Rational Rhapsody installation.

Writing Files from VBScript

Some of the elements of Visual Basic are not included in VBScript, such as file input/output functions. Rhapsody compensates for this with the addition of a `File` object to the Rational Rhapsody COM library to facilitate reading and writing to files. To write to files, use code similar to the following in your script:

```
rem Create a rhapsody object.
.
.
.
rem Create and open a file object.
Set F = CreateObject("Rhapsody.RPASCIIFile")

rem Use it to open a file.
F.open "/tmp/show.txt"

rem Use is to write to the file with VB script commands.
F.write "Succeeded in opening project " + vbLf

rem Close the file when finished with it.
F.close
```

Example VBScript

The following VBScript script dumps packages, classes, and events. It is included in the Rhapsody installation.

```
Dim rappl
Dim appl
Dim p
Dim s
Dim c
Dim pack
Dim F
Set rappl = CreateObject("Rhapsody.Application")
Set F = CreateObject("Rhapsody.RPASCIIFile")
F.open "/tmp/show.txt"
F.write "Succeeded in opening project " + vbLf

MsgBox "Started Rhapsody"+rappl.version

s = "/disk1/RP/Samples/Pingpong/pingpong.rpy"
rappl.openProject s
Set p = rappl.activeProject

Set c = p.components
For Each pack In c
    MsgBox pack.Name
Next

dim NextPack, NextOperation

rem Lets send them to a file

level=1
ShowPackages p, level

F.close
MsgBox "Done listing the Project"

sub ShowPackages(p, levelPack)
    CallLevelPack = levelPack + 1
    Set Pk = p.packages
    For Each Pack In Pk
        PrintSpace levelPack
        F.write"Package:"+pack.Name+vbLf
        ShowClasses Pack, CallLevelPack
        CallLevelClass = levelClass + 1
        ShowEvents Pack, CallLevelPack
    Next
End Sub

sub ShowClasses(Pack, levelClass)
    CallLevelClass = levelClass + 1

set NextPack = Pack.Classes
PrintSpace levelClass
F.write"Classes::"+vbLf
For Each Class In NextPack
    PrintSpace levelClass
    F.writeClass.Name+": "+vbLf
```

```
        ShowOperations Class, CallLevelClass
        CallLevelClass = levelClass + 1
        ShowAttributes Class, CallLevelClass
    Next
End Sub

sub ShowOperations(Class, levelOperation)
    CallLevelOperation = levelOperation + 1
    set NextOperation = Class.Operations
    PrintSpace levelOperation
    F.write"Operations::"+vbLf
    for Each Operation in NextOperation
        PrintSpace CallLevelOperation
        F.write"::"+Operation.name+vbLf
        CallLevelClass = levelOperation + 1
    Next
End Sub

sub ShowAttributes(Class, levelAttribute)
    CallLevelAttribute = levelAttribute + 1
    set NextAttribute = Class.Attributes
    PrintSpace levelAttribute
    F.write"Attributes::"+vbLf
    for Each Attribute in NextAttribute
        PrintSpace CallLevelAttribute
        F.write"::"+Attribute.name+vbLf
    Next
End Sub

sub ShowEvents(Pack, levelEvent)
    CallLevelEvent = levelEvent + 1
    set NextEvent = Pack.Events
    PrintSpace levelEvent
    F.write"Events::"+vbLf
    for Each RHPEvent in NextEvent
        PrintSpace CallLevelEvent
        F.write"::"+RHPEvent.name+vbLf
    Next
End Sub

sub PrintSpace (levelPrint)
    For x = 1 to levelPrint
        F.write " "
    Next
End sub
```

Setting Up the COM Interface for Visual C++

Like all COM-based APIs, two components are required to create Rational Rhapsody automation scripts:

- ♦ The Rational Rhapsody COM type library, `rhapsody.tlb`. COM type libraries are self-documenting and easy to browse using COM object viewers. One such viewer is provided in the `Share` directory of the installation.
- ♦ A Rhapsody executable providing COM server functionality.

The class wizard can create Rhapsody proxy objects by attaching to the `rhapsody.tlb` library. This requires the VC++ project also to be COM-enabled.

The important steps in setting up the COM interface are as follows:

1. Include an `#import` statement. For example:

```
#import "C:\Rhapsody\rhapsody.tlb" no_namespace  
named_guids
```

This statement makes C++ recognize the various interfaces as C++ classes.

2. Invoke the `rhapsody.application` object. For example:

```
IRPApplication apl = NULL;  
hr = CoCreateInstance(CLSID_RPApplication,  
NULL,CLSCTX_ALL, IID_IRPApplication, (void**)&apl);
```

3. Access elements of the `rhapsody.application` object through API methods. For example:

```
// Get project file name  
IRPPProjectPtr proj = NULL;  
hr = apl->openProject (projectFileName, &proj);  
  
// Get count of packages in project  
IRPCollectionPtr collection;  
hr = proj->get_packages(&collection);  
long elementsCollectionCount;  
hr = collection->get_Count(&elementsCollectionCount);
```

The following two examples demonstrate how to invoke Rhapsody from a C++ client using direct COM calls to the Rational Rhapsody API interface.

Sample: Reading from the API

The following example is the primary file in a Visual C++ workspace application that reads from a Rational Rhapsody project using the COM API interface.

```
//
// ReadAPI.cpp : Defines the entry point for the console
//application.
//

#include "stdafx.h"
#include <stdio.h>
#include <stdlib.h>
#include <atlbase.h>
// The following depends on the place that Rhapsody is
//installed
#import "F:\Documents\RI_CPP_2.3MR1\Rhapsody\rhapsody.tlb"
raw_interfaces_only, no_namespace, named_guids

void printBSTR(BSTR errorMessage)
{
    LPCWSTR tmpName = errorMessage;
    char buf[1000];
    int tmpNameLen = tmpName != NULL ? wcslen(tmpName) : 0;
    if (tmpNameLen != 0)
    {
        wstombs(buf, tmpName, (tmpNameLen*2)+1);
        printf(buf);
        printf("\n");
    }
}

void printErrorMessageIfError(HRESULT hr,
    IRPModelElement* modelElement)
{
    if (FAILED(hr))
    {
        BSTR errorMessage;
        HRESULT tmpHr;
        tmpHr = modelElement
>getErrorMessage(&errorMessage);
        printBSTR(errorMessage);
    }
}

int loadProject(const char* rpyFileName)
{
    HRESULT hr;
    CLSID clsid;
    hr = CLSIDFromProgID(OLESTR("Rhapsody.Application"),
        &clsid);

    if (FAILED(hr))
    {
        printf(_T("Failed to resolve CLSID. HR =
0x%8x"),hr);
        return 0;
    }
    // Create CoClass instance from ClassId, using
dispatch iid
    IRPApplicationPtr apl;
    hr = ::CoCreateInstance( CLSID_RPApplication, NULL,
        CLSCTX_ALL, IID_IRPApplication, (void**)&apl );
}
```

```
if (FAILED(hr))
{
    printf(_T("Failed to create instance. HR = 0x%8x"),hr);
    return 0;
}
int len = MultiByteToWideChar(CP_ACP, 0, rpyFileName,
    strlen(rpyFileName), NULL, NULL);
BSTR projectFileName = SysAllocStringLen(NULL, len);
MultiByteToWideChar(CP_ACP, 0, rpyFileName,
    strlen(rpyFileName), projectFileName, len);
IRPPProjectPtr proj = NULL;
hr = apl->openProject (projectFileName,&proj);
SysFreeString(projectFileName);
IRPCollectionPtr collection;
hr = proj->get_packages(&collection);
long elementsCollectionCount;
hr = collection->get_Count(&elementsCollectionCount);
BSTR packageName;
VARIANT r;
for ( int i = 1; i <= elementsCollectionCount; i++)
{
    IRPPackagePtr p;
    hr = collection->get_Item(i, &r);
    hr = r.pdispVal->QueryInterface(IID_IRPPackage,
        (void**)&p);
    hr = p->get_name(&packageName);
    printBSTR(packageName);
}

hr = apl->quit();
return 0;
}
void Usage()
{
    printf("Usage: ReadAPI rpyFile\n");
}
// General remark: In the following, in most cases there
// is no check on the returned hr for readability.
int main(int argc, char* argv[])
{
    HRESULT hr;
    hr = CoInitialize(0);
    if (FAILED(hr))
    {
        printf(_T("Failed to initialize COM"));
        return 0;
    }
    if (argc == 2)
        loadProject(argv[2]);
    else
        Usage();
    // loadProject("D:\\Temp\\Project.rpy");
    CoUninitialize();
    return 0;
}
```

Sample: Writing to the API

The following example is the primary file in a Visual C++ workspace application that writes to a Rational Rhapsody project using the COM API interface.

Note

Change the #import line to match your own project.

```
//
// WriteAPI.cpp : Defines the entry point for the console
// application.

#include "stdafx.h"
#include <stdio.h>
#include <stdlib.h>
#include <atlbase.h>
// The following depends on the place that Rhapsody is
// installed
#import "D:\Rhapsody\rhapsody.tlb" raw_interfaces_only,
    no_namespace, named_guids
void printBSTR(BSTR errorMessage)
{
    LPCWSTR tmpName = errorMessage;
    char buf[1000];
    int tmpNameLen = tmpName != NULL ? wcslen(tmpName) : 0;
    if (tmpNameLen != 0)
    {
        wcstombs(buf, tmpName, (tmpNameLen*2)+1);
        printf(buf);
        printf("\n");
    }
}

void printErrorMessageIfError(HRESULT hr,
    IRPModelElement* modelElement)
{
    if (FAILED(hr))
    {
        BSTR errorMessage;
        HRESULT tmpHr;
        tmpHr = modelElement->getErrorMessage(
            &errorMessage);
        printBSTR(errorMessage);
    }
}

int createNewProject(const char* userDirectoryName, const
    char* userProjectName)
{
    HRESULT hr;
    hr = CoInitialize(0);
    if (FAILED(hr))
    {
        printf(_T("Failed to initialize COM"));
        return 0;
    }
    CLSID clsid;
    hr = CLSIDFromProgID(OLESTR("Rhapsody.Application"),
        &clsid);
    if (FAILED(hr))
    {
        printf(_T("Failed to resolve CLSID. HR =
```

```
        0x%8x"),hr);
    return 0;
}
// Create CoClass instance from ClassId, using
// dispatch iid
IRPApplicationPtr apl;
hr = ::CoCreateInstance( CLSID_RPApplication, NULL,
    CLSCTX_ALL, IID_IRPApplication, (void*)&apl );
if (FAILED(hr))
{
    printf(_T("Failed to create instance. HR =
        0x%8x"),hr);
return 0;
}
IRPPProjectPtr proj = NULL;
int len = MultiByteToWideChar(CP_ACP, 0,
    userDirectoryName, strlen(userDirectoryName), NULL,
    NULL);
BSTR projectLocation = SysAllocStringLen(NULL, len);
MultiByteToWideChar(CP_ACP, 0, userDirectoryName,
    strlen(userDirectoryName), projectLocation, len);
len = MultiByteToWideChar(CP_ACP, 0, userProjectName,
    strlen(userProjectName), NULL, NULL);
BSTR projectName = SysAllocStringLen(NULL, len);
MultiByteToWideChar(CP_ACP, 0, userProjectName,
    strlen(userProjectName), projectName, len);

hr = apl->createNewProject(projectLocation, projectName);
hr = apl->activeProject(&proj);
SysFreeString(projectLocation);
SysFreeString(projectName);

IRPPackagePtr package;
BSTR packageName = SysAllocString(L"myPackage");
hr = proj->addPackage(packageName, &package);
SysFreeString(packageName);

IRPClassPtr newClass;
BSTR className = SysAllocString(L"myClass");
hr = package->addClass(className, &newClass);
SysFreeString(className);

IRPOperationPtr operation;
BSTR operationName = SysAllocString(L"myOperation");
hr = newClass->addOperation(operationName,
    &operation);
SysFreeString(operationName);

IRPAttributePtr attribute;
BSTR attributeName = SysAllocString(L"myAttribute");
hr = newClass->addAttribute(attributeName,
    &attribute);
SysFreeString(attributeName);

hr = proj->save();
hr = apl->quit();
CoUninitialize();
return 0;
}

void Usage()
{
    printf("Usage: WriteAPI directoryName projectName\n");
}
```



```
// General remark: In the following, in most cases there
// is no check on the returned hr for readability.
int main(int argc, char* argv[])
{
    HRESULT hr;
    hr = CoInitialize(0);

    if (FAILED(hr))
    {
        printf(_T("Failed to initialize COM"));
        return 0;
    }

    if (argc == 3)
        createNewProject(argv[2], argv[3]);
    else
        Usage();
    // createNewProject("D:\\temp\\Project", "Project");
    CoUninitialize();
    return 0;
}
```

Manipulating Project Elements

The following sections describe how to create, modify, and delete Rhapsody project elements.

Creating a Project Element

There are two ways to add a new Rhapsody element:

- ◆ Add a new object while the project is still open in Rational Rhapsody using the method [addNewAggr](#) on an owner object, supplying the metatype, name, and receiving the newly created object.

The syntax for the call is as follows:

```
owner.addNewAggr(metaType, name);
```

In this call, `metaType` and `name` are String expressions for the type and name of an object with which to form an aggregation relation with an owner object.

For example, if a package `p` is present in your open model, you can execute the following code in Visual Basic:

```
Dim c as RPCClass  
c = p.AddNewAggr("Class", "C");
```

When finished, the new class `c` is added to package `p`.

- ◆ There are also `addObject` methods available for every object. For example:

```
Dim cl as RPCClass  
Dim attr as RPAttribute  
Set cl = Package.AddClass("C");  
Set attr = Class.AddAttribute("att");
```

The objects created are connected to their owner. Even a new project can be created using a special method.

Note: Do not use the VB methods `createObject` or `createInstance` to create new elements. The only correct way to create new elements is with the [addNewAggr](#) method or the specific `addObject` methods.

Modifying an Element

When you attempt to modify an object through an API method, you call the appropriate method, such as `setName(newName)`. Rhapsody checks the permissions, and returns one of the values listed in the following table.

Return State	Description
YES	The operation is performed and returns without error. For example, you want to name a class "A".
NOOP	The operation is not performed and returns without error. For example, you want to name a class "A", but it already has that name.
NO	The operation is not performed and returns with an error. For example, you want to name a class "A", but it is read-only, or there is already a class named "A" present. The error message <code>RP_CANT_MODIFY</code> is returned as the error message for this method.
WARNING	You can choose from two working modes: <ul style="list-style-type: none">• Force mode on? WARNING is regarded as YES.• Force mode off? WARNING is regarded as NO.
MERGE	The operation is not performed as if a NO is returned. Merge routines are available.

Deleting an Element

The method [deleteFromProject](#) deletes an object from its package. In addition, there are `DeleteXXXX` methods that delete elements of a core object.

In the following examples, `cl` and `att` are wrappers to their core objects.

```
Package.DeleteClass(cl);  
Class.DeleteAttribute(att);
```

Only `cl = NULL` and `att = NULL` in a Visual Basic application will delete the wrapper itself.

Handling Properties Using the API

Rhapsody model elements can have name/value pairs, known as properties, that extend the model in some way. They provide, for example, instructions for code generation, additional application-dependent properties, and so on.

The name (or key) part of the name/value pair is a string that must consist of three qualifying fields separated by a period. For example:

```
<lang>_CG.Configuration.Environment
```

The first of the three fields designates a subject, such as code generation, reverse engineering, and so on. The second field designates the metaclass (or stereotype) to which the property applies. The third field designates the name of the property.

The value part of the name/value pair is a string that can be interpreted as either a string value, an integer, a Boolean, or an enumerated type. For example, “Microsoft” is one of the enumerated values “Microsoft, MicrosoftDLL, VxWorks, Solaris2, Borland, MSStandardLibrary, PsosX86, PsosPPC, MicrosoftWinCE, OseSfk, Linux, Solaris2GNU, QNXNeutrinoGCC, QNXNeutrinoCW, OsePPCDiab” for the key `<lang>_CG.Configuration.Environment`.

For a given property name, a Rhapsody model element can have either a specific value (a value given to it by either a user or Rhapsody), or a default value, which it finds by searching a predefined search path. For some keys, it is possible to have no value at all.

Propagation of Default Property Values

To facilitate assignment of values to groups of model elements rather than a single model element each time, Rhapsody implements a propagation mechanism where property values propagate along the containment hierarchy. The propagation originates at the `factory.prp` file, continues to the project through the `site.prp` file, and then on to the configuration and model containment hierarchy.

For example, consider a class `C1` that is nested in a package `P11` that is nested in a package `P1`. Class `C1` is denoted by the expression `P1::P11::C1`. Assume that for all the classes in `P11` the statecharts should not be implemented (generated). To do this, the property `CG.Class.ImplementStatechart` should be set to `False` for package `P11`. By default, all classes within `P11` (recursively) “inherit” this value, unless overridden. If this behavior is required for the entire project, this property should be set to `False` at the project level.

Note

The propagation mechanism referred to resembles inheritance, although the word “inheritance” is intentionally not used to avoid confusion.

Methods for Manipulating Properties

The API provides a number of functions that enable you to add or modify Rhapsody properties. These methods belong to the `IRPModelElement` interface and include the following:

- ◆ [addProperty](#)
- ◆ [getPropertyValue](#)
- ◆ [getPropertyValueExplicit](#)
- ◆ [removeProperty](#)
- ◆ [setPropertyValue](#)

You can use properties set in the `site.prp` file to create customized documentation. These properties can also be accessed by the API and changed as required.

Error Handling

All COM methods return a status of `HRESULT` indicating the success status of the method. In Visual Basic (VB), `HRESULT` is not visible and a failure status raises a VB error condition that, if not handled, aborts the calling program.

Most of the API functions do not create side effects, and therefore there is no reason for them to flag an error. However, the API might flag errors if permission on an update is not given.

The following table lists the methods that flag errors and might require error handling.

Method	Member Of
addProperty	IRPModelElement
getPropertyValue	IRPModelElement
getPropertyValueExplicit	IRPModelElement
removeProperty	IRPModelElement
setProperty	IRPModelElement
save	IRPProject
saveAs	IRPProject

Catching an Error Condition in VB

Catching an error condition in VB is performed using an `On Error` statement. A practical way to handle errors flagged by method calls is demonstrated by the following example:

```
On Error Resume Next
getSelectedElement.getPropertyValue("no.property.exists")
Dim s As String
getSelectedElement.getErrorMessage s
MsgBox s
```

In this example:

- ◆ `Resume Next` makes the program continue to execute at the statement immediately following the one that caused the error.
- ◆ The method `getErrorMessage`, defined for every model element, fetches a message of the most recent error occurrence. This message can be displayed to diagnose the error, as shown in the example.

Error Codes

A return value of zero indicates success. The following table lists the non-zero values that represent Rhapsody API error codes.

Error	Description
RP_CANT_ADD_AGGREGATE	Could not add the element.
RP_CANT_MODIFY	The item cannot be modified.
RP_CANT_DELETE	The item cannot be deleted.
RP_NO_OPEN_PROJECT	There is no open project with which to interface.
RP_DELETED_OBJECT_ERROR	Indicates a reference to a deleted object.
RP_BAD_ENUMERATED_VALUE	The enumerated type used does not exist.
RP_BAD_PROPERTY_KEY_ERROR	Illegal property key syntax (not in <subject>.<metaclass>.<name> format).
RP_MISSING_PROPERTY_ERROR	The property requested does not exist.
RP_PROPERTY_EXISTS_ERROR	Attempt to add a property that already exists.
RP_CONFIGURATION_NOT_IN_COMPONENT_ERROR	Attempt to set an active configuration a nonexistent one.
RP_OPERATION_FAILED_ERROR	Applying an operation that cannot be handled by certain objects, although defined by its base interface. An example is <code>addProperty</code> , which is defined for all model elements, but currently generalization and reception cannot apply it.
RP_SAVE_FAILED_ERROR	The save or save as operation failed, probably because of lack of file writing privileges.
RP_CANNOT_WRITE_TO_FILE_ERROR	The provided file name cannot be opened for writing. Currently, this applies to the <code>getPicture</code> method of <code>IRPDiagram</code> .

Installing Custom Helpers

Helpers are custom programs that can be attached to Rhapsody to extend it. Helpers can be either external programs (executables) or VBA macros:

- ♦ An external program helper is typically either a VB or a C++ program that uses the COM API and connects to the Rhapsody instance via the `GetObject` COM service.

Note: Currently, `GetObject` is not supported on Linux systems.

- ♦ A VBA macro helper is a VBA macro defined in a VBA module promoted to be a helper.

Helpers are attached to the Tools menu of Rational Rhapsody using the **Customize** option.

Adding Helpers to Rational Rhapsody

To add a helper, select **Tools > Customize** in Rational Rhapsody. The Helpers dialog box is displayed. This dialog box is similar to the Visual Studio external tools menu. You manipulate the menu and create new entries using the toolbar at the top of the dialog box, which includes the following tools:

- ♦ New
- ♦ Delete
- ♦ Move Up
- ♦ Move Down

Rational Rhapsody API Interface

Rational Rhapsody includes a interface tool for users who want to programmatically interact with their Rational Rhapsody projects for useful applications such as the preparation of custom reports. This interface is referred to as the Rational Rhapsody application programming interface (Rational Rhapsody API or simply API).

Without going into excessive detail, this lesson describes how to use the Visual Basic[®] API examples that come with Rational Rhapsody to make your own Visual Basic API applications.

This chapter describes how to perform the following tasks:

- ♦ Generate a report using RPYReporter.
- ♦ Generate a model tree using RPYExplorer.
- ♦ View the Visual Basic source code for RPYReporter and RPYExplorer.

The Rational Rhapsody API functions through a set of methods and attributes that act as a set of Microsoft COM interfaces. Using these methods and attributes, users of languages with COM bindings such as C++, Java, and Visual Basic (VB) can programmatically access a Rational Rhapsody project and all its model elements. Currently, access is restricted to read-only access for model elements and write access for model properties.

Rational Rhapsody API Examples

The Rational Rhapsody distribution includes two example applications prepared in Visual Basic that access Rational Rhapsody projects through the Rational Rhapsody API. The following sections describe these examples in detail.

Running the RPYReporter Example

to run the RPYReporter example:

1. Double-click on the executable file `RPYReporter.exe` in the `Samples\CppSamples\Api\RPYReporter` directory under your Rational Rhapsody installation directory. The RPY Project Reporter dialog box is displayed.
2. Click **Load Project** and browse for the `Dishwasher` project you completed in the tutorial.
3. Select your `Dishwasher` project, then click **OK**. Rational Rhapsody displays a wait screen while the project is being loaded.
4. Click **Report on Project**.

After preparing the report, the application displays the name and location of the text file containing the report so you can access it at any time.

5. Click **OK** to display the report in Notepad.

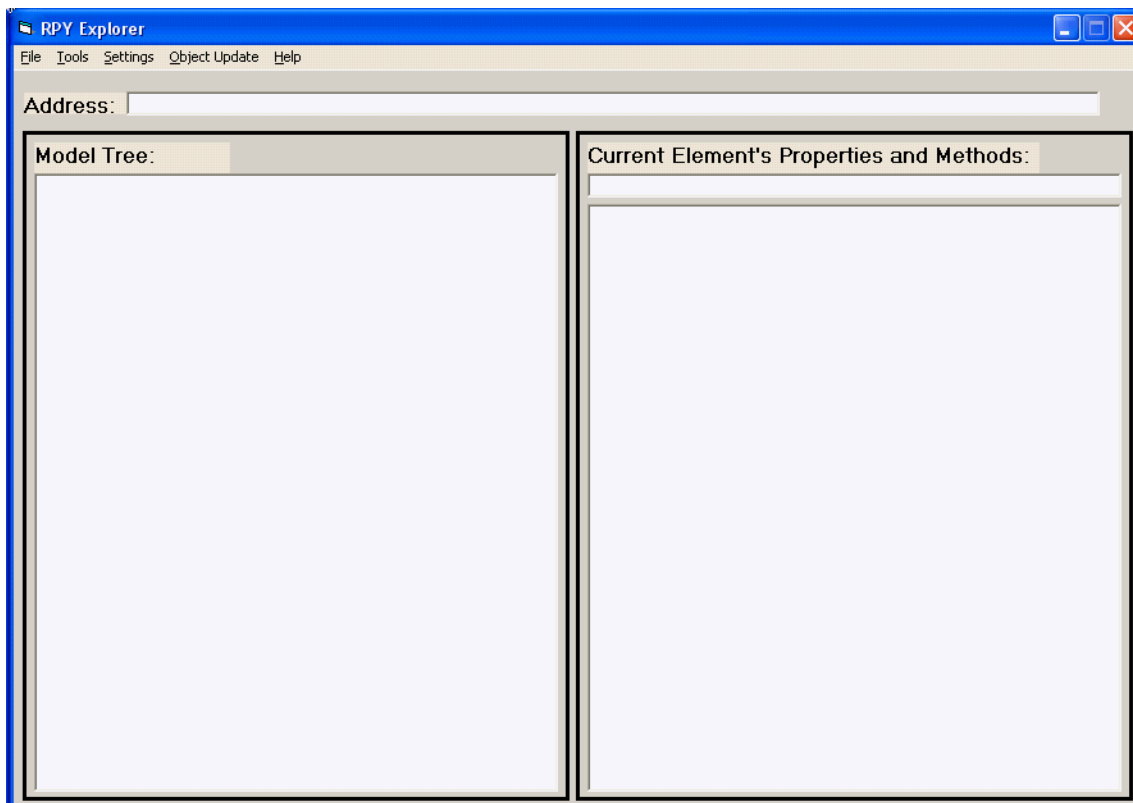
The report contains detailed information about your model, including data types used, stereotypes, names of events, classes, operations, and so on.

6. Click **File > Exit** to close Notepad.
7. Click **Exit** to exit the application.
8. Click **Yes** when asked if you really want to quit.

Running the RPYExplorer Example

To run the RPYExplorer example, follow these steps:

1. Double-click the executable file `RPYExplorer.exe` in the `Samples\CppSamples\API\RPYExplorer` directory under your Rational Rhapsody installation directory. Rational Rhapsody displays the RPY Explorer window, as shown in the following figure.



2. In the window, select **File > Load RPY Project**.
3. In the resultant dialog box, browse for your `Dishwasher` project, then click **Open**. The root of an expandable `Dishwasher` tree is displayed, with a plus sign in front of it.
4. Click the plus sign to expand the `Dishwasher` project.

At the categories level, expandable segments appear for Packages, Object Diagrams, Sequence Diagrams, and so on.

5. Expand each category to reveal its contents.

6. To expand individual elements of a category, simply select them.

The RPYExplorer example has a browser similar to the Rational Rhapsody browser. Information for each highlighted model element is displayed on the right-hand side of the dialog box.

Tools Menu Options

The Tools menu options provide the following capabilities:

- ◆ Get, set, add and remove project properties using property dot notation (`Subject.MetaClass.Property`).
- ◆ Get nested elements recursively for a selected element. For example, if you highlight a component and select **Get Nested Elements Recursive** from the Tools menu, you receive a small report on all configurations and files in the component.
- ◆ Save a report of an element's properties and methods to a text file.
- ◆ Report on a model.
- ◆ View diagrams. You can view a diagram only after storing a diagram as an `.emf` file.

Storing and Viewing Diagram Files

To store and view diagram files, follow these steps:

1. Highlight an individual diagram in the tree. The properties and methods for the diagram are displayed in the right-hand pane.

When you highlight a diagram in the VB browser, VB automatically creates an `.emf` file of the diagram in your system's temporary directory (for example, `C:\TEMP`). VB displays the message "getPicture: see metaFile in your TMP folder" in the right-hand panel.

2. To save the file to a different location (in addition to the one in your temporary directory), select **Tools> Create EMetaFile from the RPDiagram**. You are prompted for the name and location of a file in which to store the diagram.
3. To view a stored diagram file, select **Tools > RPDiagram Viewer**.
4. In the resultant dialog box, highlight the appropriate `.emf` file, then click **View Selected RPDiagrams**. The diagram is displayed.

Running RPYReporter in Visual Basic

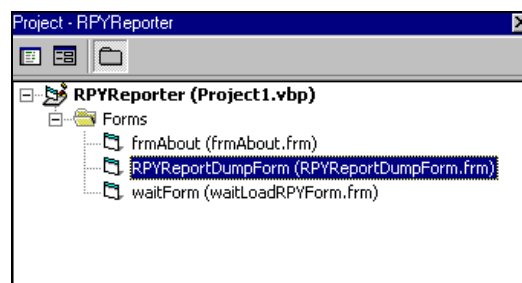
The intent of this lesson is to describe how the examples were prepared so you can create your own applications.

The RPYReporter and RPYExplorer examples were created in the Microsoft Visual Basic 6.0 IDE (Interface Development Environment). Although the intent of this lesson is not to instruct you in Visual Basic, the features are explained as encountered in order to see how the examples were prepared. Note that although this tutorial uses Visual Basic version 6.0, version 5.0 is also compatible.

Do the following:

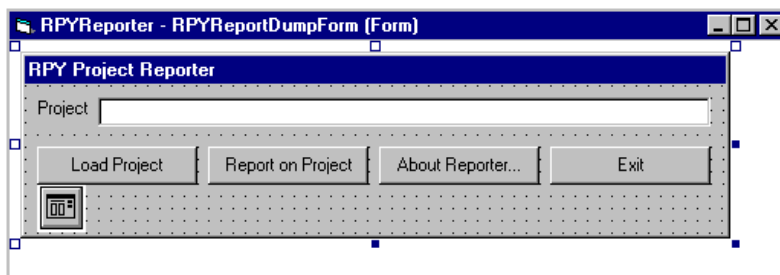
1. Start Microsoft Visual Basic 6.0 IDE using the Windows Start menu or from within Rational Rhapsody by selecting **Tools > VBA > Visual Basic Editor**.
2. In the New Project dialog box, select **Standard EXE** and click **Open**. The Microsoft Visual Basic design window is displayed with an empty, default project.
3. Select **File > Open Project** and browse for the RPYReporter project file, `Project1.vbp`, located in the subdirectory `Samples\CppSamples\API\RPYReporter` of the Rational Rhapsody installation directory. This is the same directory with the executable `RPYReporter.exe`.
4. Select `Project1.vbp`, then click **OK** to load it.

When the RPYReporter project is loaded, you should see several open windows in the VB IDE. The Project Explorer window has a browser-like appearance with the window title `Project - RPYReporter`, as shown in the following figure.



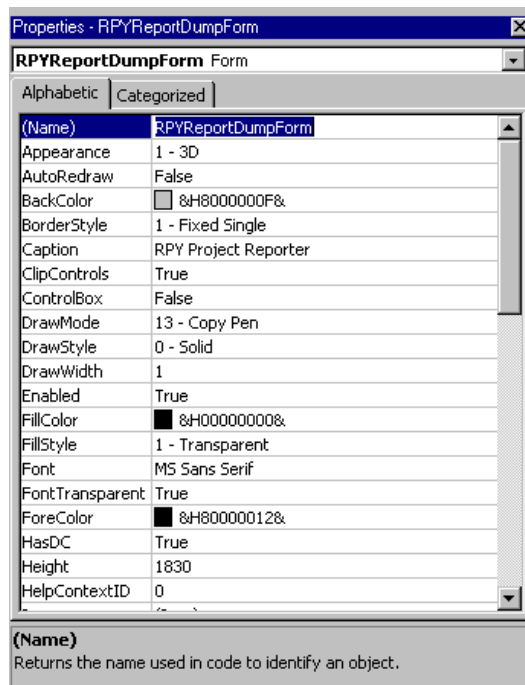
If this window is not displayed, select **View > Project Explorer** on the VB desktop.

5. In the Project Explorer, double-click on the form **RPYReportDumpForm**. A window containing this form is displayed, as shown in the following figure.



This form is similar to the dialog box in the RPY Report executable.

Another window that should be present on the VB IDE is the Properties window, shown in the following figure.



If this window is not open, select **View > Properties Window**.

VB Forms

Forms are the basis for writing programs in Visual Basic. Each form consists of elements such as buttons, text fields, and pull-downs.

The form and its elements each have properties that are listed in the Properties window. Currently, the Properties window displays the properties for the entire form. You can show the properties of each form element by clicking on an individual element, then examining the Properties window.

Placing Elements on Forms

To place elements on a form, follow these steps:

1. Click the appropriate type of form element in the Form toolbox on the left.
2. Double-click a location for the element, or click and drag to establish its outline.

Viewing the Element Properties and Code

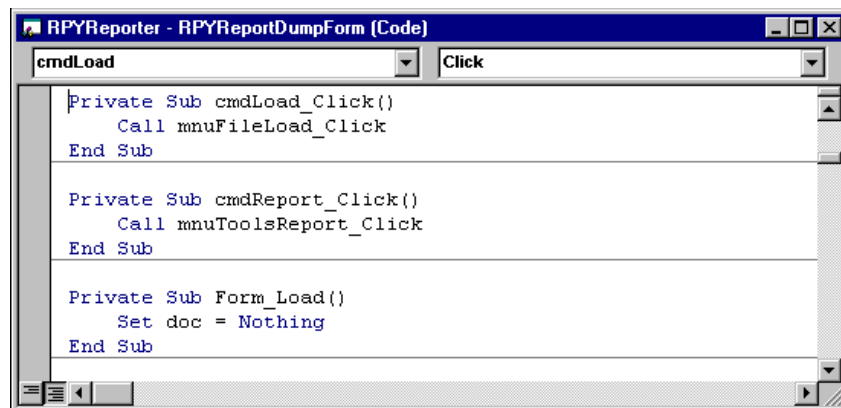
Each element has many properties, such as `Appearance`, `BackColor`, `Caption`, and `Label`. For example, if you click the **Load Project** button, you can see its properties consist of a name (`cmdLoad`), a type (`CommandButton`), and others such as `Caption` (“Load Project”), which labels the button. Note that the name `cmdLoad` begins with the three character prefix “*cmd*” which, by denotes a command button. Note the different prefixes used for the other elements.

Each form element automatically has code associated with it that reacts to different events on the element. The most common of these is the “Click” event. For each element that you can click, there is a Visual Basic subprogram that services that click, whose name is the same as the element’s name with the “_Click” suffix.

To view the properties and code associated with an element, follow these steps:

1. Click on each form element and observe the element type and name. These appear in the pull-down box at the top of the Properties window.
2. On the form, double-click the **Load Project** button to see the subprogram `cmdLoad_Click()` in the VB desktop.

A window appears with all of the code for the `RPYReportDumpForm` form that has been scrolled so the start of the `cmdLoad_Click()` subprogram is at the top, as shown in the following figure.



Note that the subprogram `cmdLoad_Click()` calls the subprogram `mnuFileLoad_Click()`. You can scroll through the entire contents of this code window to find `mnuFileLoad()`, or select it directly using the left pull-down at the top of the code window. The `mnuFileLoad_Click()` calls the subprogram `loadRPYProject()`, with the argument `projectNameText.Text`.

The RPYReporter example was originally built with menu commands instead of button commands, which is why `cmdLoad_Click()` calls `mnuFileLoad_Click()`. Currently, the menu command elements are invisible and therefore unusable.

To enable them, follow these steps:

1. Select **Tools > Menu File Editor**.
2. Check the **Visible** check box for the rows **&File**, **&Tools**, and **&Help**.
3. Uncheck these boxes for now because you do not want to use menus for the application.

Running RPYReporter Step-by-Step

To step through the code of the RPYReporter example, follow these steps:

1. Press the F8 key to begin the RPYReporter example.

In the RPYReportDumpForm, the first line of the `Form_Load()` subprogram is highlighted. This subprogram loads the form and sets the variable `doc` to the special value of `Nothing`.

If you scroll to the very top of the code window, you can see the variable `doc` declared as an Object. VB enables you to create an object so it can be subsequently used to refer to an actual object. That object will eventually be the Rhapsody API Application object, which you will see later. For now, `doc` is assigned the value of `Nothing`, which keeps it from referencing anything.

Note: The keyword `Private` is used to indicate that a variable or subprogram is available only within the module in which it is declared. Therefore, the variable `doc` is relevant only to this code module, the one accompanying the form `RPYReportDumpForm`.

2. Press F8 three times until the `Form_Load()` subprogram is ended and the `RPYReportDumpForm` form is displayed.
3. Click **Load Project** to continue program execution.

Selecting **Load Project** calls the local subprogram `cmdLoad_Click()`, which is now displayed and highlighted in the code window.

4. Continue pressing F8 to verify that `cmdLoad_Click()` calls the subprogram `mnuFileLoad()`, which calls `mnuFileLoad_Click()`, which calls the subprogram `loadRPYProject()` with the argument `projectNameText.Text`.
5. Press F8 to proceed to the first line of the subprogram `loadRPYProject()`.

The `projectNameText` element is the name of the long text box at the top of the `RPYReportDumpForm` form. This element has a property called `Text`, which is the actual text contents of that text box. The program can designate the contents of the text property using the expression `projectNameText.Text`. Thus, if you typed the project name in the **projectNameText** field, the subprogram `loadRPYProject()` would now have it as an argument. As it is, its value is currently an empty, or blank, string.

Note: The following steps assume that you have clicked F8 to move to next section of code to be described.

6. The `On Error GoTo CancelHandler` line enables the **Cancel** button on the dialog box. If you click **Cancel**, execution continues at the code line following the line labeled `CancelHandler:`, located at the bottom of the `loadRPYProject()` subprogram that exits the subprogram.
7. `rpymodelName` is a string variable that will hold the name of the project you are loading. Its value is initialized to an empty string.
8. The next few lines involve properties and an operation of the object `RPYModelDlg`. This element, a common dialog box, does not appear on the form during execution until its operation `ShowOpen` is executed.

The first three `RPYModelDlg` lines change the properties of the dialog for its initial directory, default file search pattern, and the name of the project (which was passed as an argument). Finally, the `ShowOpen` operation of the `RPYModelDlg` object is executed and the Open dialog box is displayed with the appropriate property changes.

9. Browse for your `Dishwasher` project, then click **OK**.

The step `rpyModelName = RPYModelDlg.FileName` is ready for execution. This step sets the string variable `rpyModelName` to the name of the project you selected in the Open dialog box.

10. Press F8.

In the following line, the variable `rpyModelName` is checked to see if it is empty. If so, the `loadRPYProject` subprogram exits. Otherwise, it loads the `waitForm` object, followed by the execution of the `waitForm` object's `Show` operation (`waitForm.show`), which displays the `waitForm` form to tell the user the project is loading.

Before continuing program execution, you need to learn more about the Rational Rhapsody API.

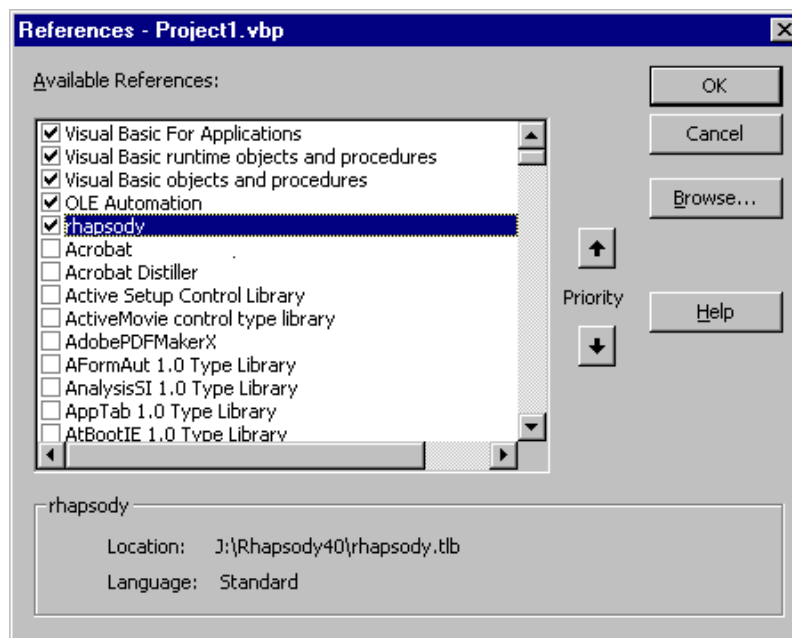
The Rational Rhapsody API: A Closer Look

The Rational Rhapsody API is a set of classes consisting of operations and attributes that enable you to programmatically interact with a Rational Rhapsody project (repository) using a programming environment that supports Microsoft COM (Component Object Model). This allows an application to interface programs using COM, such as Rational Rhapsody. In this way, standard interfaces to obtain system services or provide functionality to other programs can be established.

You can make the Rational Rhapsody API classes available for the RPYReporter project file (Project1.vbp) using *references*, which allow the use of objects from other applications.

To see the list of references in this project, follow these steps:

1. Stop execution of the RPYReporter application by selecting **Run > End** in the VB integrated development environment (IDE).
2. Select **Project > References** in the VB IDE. VB displays the References dialog box, as shown in the following figure.

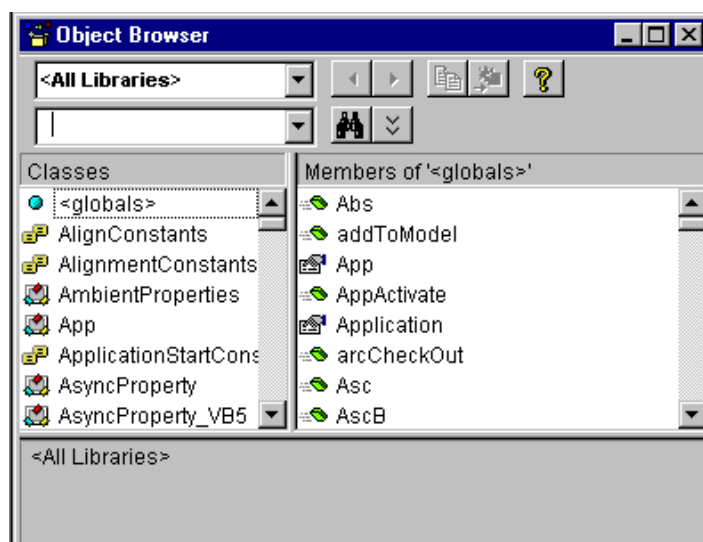


Access to the Rational Rhapsody API classes is made possible by referencing the `RHAPSODY.tlb` library file included in the Rational Rhapsody distribution. Without it, the Rational Rhapsody API is not available. Be sure to check this part of your project if this becomes questionable. When you create a new project to access a Rational Rhapsody model, the very first step is to make sure that your project references `RHAPSODY.tlb`.

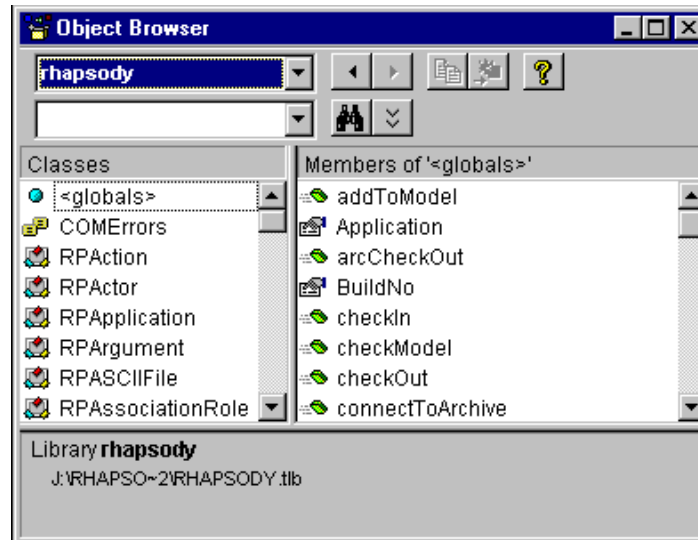
The Rational Rhapsody API classes that come from the `RHAPSODY.tlb` reference, along with their operations and attributes, are visible in the VB design area. In Visual Basic, interface classes are implemented with names that begin with the letter “I.” However, when the interfaces are seen in the VB IDE, they appear without the “I.” For example, the `IRPModelElement` class appears as `RPModelElement`.

To display the Rational Rhapsody API classes and their methods and properties, follow these steps:

1. Select **View > Object Browser**. The Object Browser dialog box is displayed, as shown in the following figure.



2. Select the **rhapsody** library from the pull-down field. VB displays the Rational Rhapsody API classes, as shown in the following figure.



3. Click on one of the API classes to see its attributes and operations.
4. Click on an attribute or operation of the selected API class to view a small report on it at the bottom of the display area.
5. Click the “X” in the upper, right-hand corner to dismiss the dialog box.

Continuing the Step-by-Step Execution of RPYReporter

Now that you have seen how the Rational Rhapsody API is made available to the RPYReporter project, you can continue step-by-step execution of the RPYReporter application to see how it is used.

Continue executing each step of the program, as follows:

1. If you halted execution earlier, press F8 to begin step-by-step execution again.
2. The next execution step in the `loadRPYProject` subprogram calls the `disableAllButtons` subprogram, which sets all the enabled properties of all `RPYReportDumpForm` buttons to `False`, rendering the buttons unusable (grayed-out). Press F8 to move through the subprogram.
3. The next step compares `Not doc` (recall that `doc` is an object of type `Object`) against the value `Nothing`. Because `doc` was created a few steps ago and was initialized to `Nothing`, execution steps into the `Else` part of the `If-Then-Else` statement that follows it.

4. Because the module-level variable `THE_APPLICATION` has been set to the string “rhapsody.Application” (scroll to the top of the window to see the declaration) the line `Set doc = CreateObject(THE_APPLICATION)` makes `doc` a reference to the Rhapsody Application object and a stepping stone for upcoming use of the Rhapsody API.

Note: Rhapsody is started as an application during the execution of the line `CreateObject(THE_APPLICATION)`.

5. Because `doc` is now a reference to the Application object, you can use API class operations and attributes through it. Therefore, the line `doc.openProject rpyModelName` actually calls the `openProject` subprogram of the Application object referenced by `doc`, and opens the project file you selected.
6. The next line, `Set theProject = doc.activeProject`, calls the `activeProject` method of the Application object referenced by `doc` and sets the project you loaded as the active project in Rational Rhapsody.
7. The `unload waitForm` line unloads wait dialog box.
8. The next line, `projectNameText.text` is set to the name and path of the Dishwasher model (`rpy` file) you selected.
9. Now that the project is loaded, the program calls `EnableAllButtons` to re-enable all the buttons on the main form. Press F8 to step through each button.
10. Now that a project has been loaded, the property `Enabled` of the `mnuToolsReport` object is set to `True`. The function of this menu item is equivalent to that of the **Report on Project** button.
11. Press F8 to step through the exiting of all subprograms that have been entered as part of project loading. These include, in order:
 - a. `loadRPYProject()`
 - b. `mnuFileLoad_Click()`
 - c. `cmdLoad_Click()`

The program now waits in stasis for the next event to occur through other button clicks on the RPY Project Reporter window.

Code Summary of Loading a Project

The following is a code summary of the project-loading process in VB:

```
Private doc As Object
Private projectName As String
Private theProject As RPYModelElement
~
' Get project name and store as projectName
~
```

```
' Open the Rhapsody API Application Object
Set doc = CreateObject("rhapsody.Application")
doc.openProject ProjectName
Set theProject = doc.activeProject
```

Reporting on a Project

Reporting requires the execution of several important API operations. The following instructions assume that you have performed the previous project loading example and are continuing uninterrupted. However, if you have stopped the program, press F8 to enter the program in step-by-step mode and repeat all steps from the previous section. Otherwise, continue stepping through the program, as follows:

1. In the RPYReportDumpForm form, click **Report on Project**.
2. The subprogram `cmdReport_Click()` is called, which calls the subprogram `mnuToolsReport_Click`.

Within the `mnuToolsReport_Click` subprogram, the `waitForm` form is loaded and displayed, and the buttons of the RPYReportDumpForm form are disabled.
3. Because the report will be written to a file, the function `getDefaultLogFileName` generates a name for the file using the project name string `rpymodelName` as a base.
4. After the name of the report output file is generated in the variable `logFileName`, it is opened by a call to the VB subprogram `Open`, which opens it for output and assigns it the reference number of `FILE_NUMBER` (set to 1 at the top of the code file) for future calls on this file.
5. Finally, the subprogram `Report_on_Model` is called with the arguments `theProject` and `FILE_NUMBER`. The variable `theProject` has been typed to be an API object type `RPMoDelElement`.
6. In the `Report_on_Model` subprogram, the calling arguments are passed by value using the keyword `ByVal`, which makes a local copy of them.

Note that in the diagram for the Rational Rhapsody API hierarchy (see [The Rational Rhapsody API: A Closer Look](#)) that all the remaining classes, except for the `Application` class, inherit from `RPMoDelElement`. By using an object of type `RPMoDelElement`, you can access objects of subclasses corresponding to hierarchical project elements in a generic fashion. Many of the properties of an `RPMoDelElement` have been developed to make its identification and consequent action possible.

Before proceeding to other steps in `Report_on_Model`, note the typing of local variables `col` as `RPCollection`, and `e` as `RPMoDelElement`. An `RPCollection` is a collection of `RPMoDelElement` objects used for holding and accessing the result of a “get” that obtains multiple or numerous objects satisfying the requirements of the get.

7. After setting the variable `tb` to an empty string, the second line performs the following get:

```
Set col = aProject.getNestedElementsRecursive()
```

The `getNestedElementsRecursive()` method, a member of object class `RPMModelElements`, is called for the current project, `aProject`, and returns a collection of `RPMModelElements` that is accessed through the variable `col`. The method `getNestedElementsRecursive()` retrieves all owned elements of the calling object and places the results in a collection. Because the calling object in this case is a project, `getNestedElementsRecursive()` returns all packages, classes, diagrams, and so on that belong to the project.

The remaining code opens the report file and writes a header to it, followed by a large `for` loop over each element in `col` (`for e in col`). Within the loop, each element is analyzed for its type and is reported accordingly. As previously mentioned, a variety of properties of the element identify it (the element's `metaClass (e.metaClass)`), making this computed action possible.

Code Summary of Reporting a Project

The following is a code summary of the project-reporting process in VB:

```
Dim col As RPCollection
Dim e As RPMModelElement
Private logFileName As String
Private Const FILE_NUMBER As Integer = 1
~
'Open file logFileName: FILE_NUMBER'
~
'Set col = theProject.getNestedElementsRecursive()
~
' Write header to file=FILE_NUMBER
~
for e In col
    ~
    ' Identify model element e based on e.xxxx properties
    ~
    ' Write report of e based on e.xxxx properties
    ~
Next
'Close file=FILE_NUMBER
```


Starting and Saving Your Own VB IDE Work

If you want to use the API, spend some time studying the RPYReporter example and the more complex RPYExplorer example. In conjunction with the examples, you can use the online help, which contains the methods and properties of each API class along with descriptions of required arguments.

If you want to use these Rational Rhapsody API examples as a starting point for your own applications, the following sections describe how to perform some common tasks.

Saving the Examples as New Projects

If you want to create your own applications by modifying one of the supplied examples, a good starting point is to save the appropriate example as a new project in its own directory. Note that VB projects consist of a project file (.vbp), a form file for each form (.frm), and module files (.bas). Use the **File > Save As** options for projects, forms, and modules, and save to a new directory.

Making Your Own New Projects

You might decide to start from scratch and build your own project. When you open Visual Basic, VB displays a default new project environment, complete with a blank form. Alternatively, you can create a new project environment by selecting **File > New Project > Standard EXE** in the VB IDE.

Once you have started a new project or begun working with an existing one, you can add new forms or modules to a project by right-clicking on the forms folder in the VB Explorer window, then select either **Add > Form** or **Add > Module**.

Compiling and Making Your Executables

To create your own applications, you must compile and make your projects into executable files.

In Visual Basic 6.0, compiling is seen as part of making so when you make, you compile. Compiling appears as a separate step only when you test run your project in the Visual Basic IDE by selecting **Run > Start With Full Compile**.

To make your application's executable, select **File > Make [Project].exe**.

Creating Applications with Microsoft Word VB IDE

In addition to the Visual Basic IDE, you can use the Visual Basic editor of Microsoft Word to create applications that use the Rational Rhapsody API.

Follow these steps:

1. Start Microsoft Word.
2. Select **File > New** to start a new document.
3. In the New dialog box, select the template labeled **Blank Document**, then click **OK**.
4. Select **File > Save As** and save the new, blank document as `Word_API.doc`.
5. Start a new Word macro by selecting **Tools > Macro > Record New Macro**.
6. In the Record Macro dialog box, follow these steps:
 - a. For the **Name** field, type “CountPackages.”
 - b. For the **Store macro in** field, select `Word_API.doc` from the pull-down list.
 - c. Click the **Keyboard** icon.
7. In the Customize Keyboard dialog box, follow these steps:
 - a. If it is not there already, move the cursor to the **Press new shortcut key** field. While holding down the Alt key, type the characters “CP”. When finished, you should see the following entry:

`Alt+C,P`
 - b. In the **Save changes in** field, select `Word_API.doc`.
 - c. Click **Assign** and **Close**, in that order.

A small dialog box (shown below) appears to stop and pause the recording of the macro that you are currently recording.



8. Click the small square to stop recording the macro.

You now have a macro named `CountPackages` saved in the file `Word_API.doc` that you can trigger at any time within this document with the keyboard sequence `Alt+C,P`. Currently, the macro has no content.

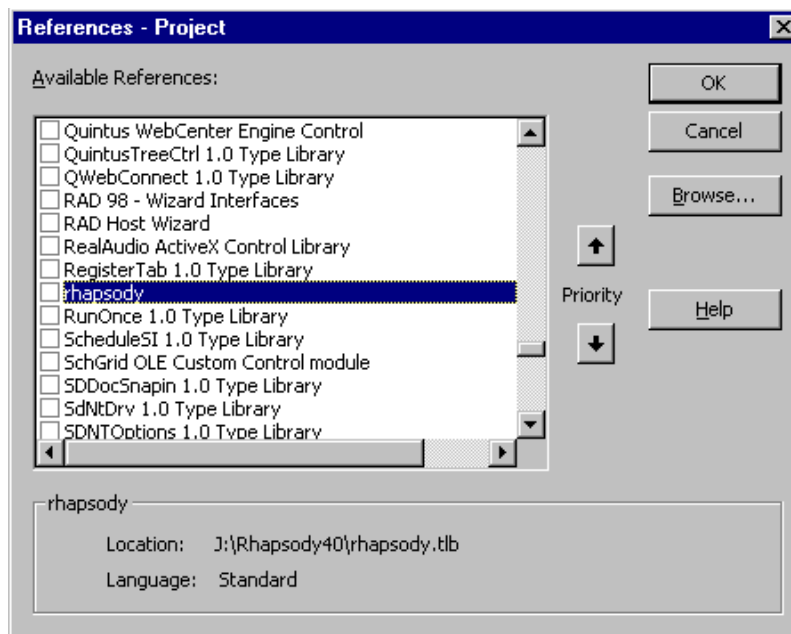
Specifying the Macro Content

To alter the content of the `CountPackages` macro, follow these steps:

1. With the file `Word_API.doc` still loaded in Word, select **Tools > Macro > Macros**.
2. In the Macros dialog box, follow these steps:
 - a. In the **Macros in** field, select `Word_API.doc`.
 - b. In the list of available macros, select `CountPackages`.
 - c. Click **Edit**.

The Microsoft Word Visual Basic IDE opens, so you can edit the contents of the macro `CountPackages`.

3. Select **Tools > References**.
4. In the Reference - Project dialog box, scroll down until you find the reference **rhapsody**.



5. Mark the **rhapsody** check box, then click **OK**. Its location is reported in a small area at the bottom of the dialog box, referencing the `RHAPSODY.tlb` file located in the Rhapsody installation directory.
6. Insert the following code between the lines `Sub CountPackages()` and `End Sub`, but after the comments that appear identifying the macro, date, and author.

Make sure the projName path is correct for your Rational Rhapsody installation.

```
'
' Start Rhapsody
'
Dim rhapApp As Object
Set rhapApp = CreateObject("rhapsody.Application")
'
' Set Project Name String
'
Dim projName As String
projName =
"C:\Rhapsody40\Samples\CppSamples\Radio\Radio.rpy"
'
' Open Project
'
Dim theProject As RPModelElement
rhapApp.openProject projName
Set theProject = rhapApp.activeProject
'
' Get Packages
'
Dim packages As rhapsody.RPCollection
Set packages = theProject.packages
'
' Report Packages to Current Word Doc (ThisDocument)
'
Dim package As rhapsody.RPPackage
For Each package In packages
    ThisDocument.Range.InsertAfter package.name &
        vbCrLf
Next
'
' Close Application When Finished
'
If Not rhapApp Is Nothing Then rhapApp.Quit
```

7. Run the macro by selecting **Run > Run Sub/UserForm.**

If you encounter an error, click **Debug** on the error dialog window to see the offending line of code highlighted.

If the macro works, you will see the packages of the Rhapsody project radio displayed in the document screen of Word. There are three packages:

- ◆ guiPkg
- ◆ hardwarePkg
- ◆ radioPkg

Once you are sure that the macro works, you can execute it in the Word document area by simply typing the macro key sequence (Alt+C,P).

Comments on the Code

The following sequence loads the project:

```
Dim rhapApp As Object
Set rhapApp = CreateObject("rhapsody.Application")
Dim projName As String
projName = "C:\Rhapsody\some_project.rpy"
Dim theProject As RPModelElement
rhapApp.openProject projName
Set theProject = rhapApp.activeProject
```

An alternative sequence is as follows:

```
Dim rhapApp As rhapsody.Application
Set rhapApp = CreateObject("rhapsody.Application")
Dim projName As String
projName = "C:\Rhapsody\some_project.rpy"
Dim theProject As RPPProject
rhapApp.openProject projName
Set theProject = rhapApp.activeProject
```

Note the use of `RPCollection` in the following sequence:

```
Dim packages As rhapsody.RPCollection
Set packages = theProject.packages
```

Unlike the `RPYReporter` example, a “get” method was not used to obtain the elements (in this case, packages). You can use this method for obtaining model elements on one level.

Finally, note the following `for` loop over the packages:

```
For Each package In packages
    ThisDocument.Range.InsertAfter package.name & vbCrLf
Next
```

Printing to the Word document is accomplished through the second line of code. The object called `ThisDocument` is the highest level object of Word, representing the document itself. You can see it in the explorer window in the upper, left-hand corner of the VB desktop. Highlight it to examine some its properties.

Modifying the Example to Print Classes

Suppose that instead of printing the names of all the classes in the radio model, you want to print the names of all the classes for a particular package, such as `radioPkg`. To modify the previous code and save it to another macro, follow these steps:

1. Start a new Word macro by selecting **Tools > Macro > Record New Macro**.
2. In the Record Macro dialog box, follow these steps:
 - a. For the **Name** field, type “CountClassesForPackage.”
 - b. For the **Store macro in** field, select `Word_API.doc` from the pull-down list.
 - c. Click the **Keyboard** icon.
3. In the Customize Keyboard dialog box, follow these steps:
 - a. If it is not there already, move the cursor to the **Press new shortcut key** field. While holding down the Alt key, type the “CC” characters. When finished, you should see the following entry:

`Alt+C,C`

- b. In the **Save changes in** field, select `Word_API.doc`.
 - c. Click **Assign** and **Close**, in that order.

A small dialog box appears to stop and pause the recording of the current macro.
4. Click the small square to stop recording the macro.
5. With the file `Word_API.doc` still loaded in Word, select **Tools > Macro > Macros**.
6. In the Macros dialog box, follow these steps:
 - a. In the **Macros in** field, select `Word_API.doc`.
 - b. In the list of available macros, select `CountClassesForPackage`.
 - c. Click **Edit**. The focus switches to the VB editor.

Note the presence of the new, empty `CountClassesForPackage` subprogram. If you scroll up, you can see the code you created for the `CountPackages` macro.

7. Cut and paste the code between the lines `Sub CountPackages()` and `End Sub` in the `CountPackages` macro, but after the comments that appear identifying the macro, date, and author.

8. Replace this section:

```
'
' Report Packages to Current Word Doc (ThisDocument)
'
Dim package As rhapsody.RPPackage
For Each package In packages
    ThisDocument.Range.InsertAfter package.name &
        vbCrLf
Next
'
' Close Application When Finished
'
If Not rhapApp Is Nothing Then rhapApp.Quit
```

With this:

```
'
' Report Classes of Package "radioPkg" to Current
' Document
'
Dim package As rhapsody.RPPackage
For Each package In packages
    If (package.name = "radioPkg") Then
        Dim classes As rhapsody.RPCollection
        Dim class As rhapsody.RPClass
        Set classes = package.classes
        For Each class In classes
            ThisDocument.Range.InsertAfter class.name &
                vbCrLf
        Next
    End If
Next
'
' Close Application When Finished
'
If Not rhapApp Is Nothing Then rhapApp.Quit
```

9. Run the macro by selecting **Run > Run Sub/UserForm**.

If you encounter an error, click **Debug** on the error dialog window to see the offending line of code highlighted.

If the macro works, you will see the classes of the `radioPkg` package displayed in the document screen of Word, as follows:

- ◆ Frequency
- ◆ IDisplay
- ◆ ITuner
- ◆ Radio
- ◆ Waveband

Rhapsody API Interfaces

This section contains reference information describing the classes and methods that comprise the abstract factory interface. For ease of use, the interfaces are presented in alphabetical order.

Note

Only the public and protected methods are documented.

The reference material for each of the Rhapsody API interfaces is shown in VB-compliant form (except for the interface class names). This means the following:

- ◆ Each COM interface has attributes and methods. In Visual Basic, the attributes are identified as properties.
- ◆ The actual identity of the interface classes used in the Rhapsody API varies with the language platform of the client application attempting to interface with the Rhapsody repository. In COM, all interface names start with “I”, such as `IRPModelElement`. Visual C++ connects directly with the COM tables, which are C++ (or C++-related), and sees the “I”. However, Visual Basic (VB) tries to be user-friendly by avoiding the use of the “I” so, for example, the `IRPModelElement` interface is `RPModelElement` in VB. If you open the object browser in the Microsoft Visual Basic IDE, you can see which classes are there and what they are called. Nevertheless, in the reference material, interface objects are identified with the “IRP” prefix and not the “RP” prefix seen in VB.
- ◆ Void returns are not shown as `void`—they are simply not shown.
- ◆ Pointers are not displayed. In C++, interfaces and collections of interfaces are handled with pointers. VB has no pointers.
- ◆ Each method has an implied argument: an instance of its interface referred to as “this.” Thus, the reference on a method of `IRPClass` will refer to something done to “this `Class`.”
- ◆ String returns and arguments are shown as `String`. For C++, this type is `BSTR`.
- ◆ There is only one collection object type: `IRPCollection`. In the reference material, however, collections are displayed as “`xxxxs`” where `xxxx` refers to the object type of the collection and the “s” indicates it is a collection.

Access to VB Properties

The COM API interface consists of data and methods. In Visual Basic, the data is identified as properties. These properties are implemented with invisible operations that enable some properties to be read/write (RW). In other words, the property can be used to set a value in a Rhapsody 6.1 model or retrieve it. Thus, if A is a read/write property, you can set the model value it points to through an "A=..." statement or retrieve it through a "...=A" statement.

Note

Not all properties are implemented with write ability. These are identified as read-only (RO).

API Conventions

The Rhapsody Repository API is a set of COM interfaces specified in terms of COM properties and methods, using COM types. The API listings have two syntaxes to describe the various attributes and methods provided by each interface:

- ◆ The VB syntax that follows indicates that the function takes a string argument for the property key and then returns a string:

```
getProperty (propertyKey As String) As String
```

The C/C++ prototype for the same function is:

```
HRESULT getProperty (String propertyKey,  
String*** retVal);
```

- ◆ All interfaces are prefixed with "IRP" ("I" for interface, "RP" for Rhapsody 6.1). For example, the interface for a package is IRPPackage.
- ◆ Calls returning multiple objects return the equivalent of a VBA "collection." To enhance readability, collections are treated as "typed," for example, "Collection of IRPClasses." However, in the API, all collections are implemented as "Collection of IRPModelElements."
- ◆ Enumerated types are treated as strings. For example, the `getVisibility` method of an attribute returns the string "Public," "Protected," or "Private."

Rhapsody Interfaces

The Rhapsody API interfaces are as follows:

- ♦ [IRPAction Interface](#)
- ♦ [IRPActor Interface](#)
- ♦ [IRPAnnotation Interface](#)
- ♦ [IRPApplication Interface](#)
- ♦ [IRPArgument Interface](#)
- ♦ [IRPASCIIFile Interface](#)
- ♦ [IRPAssociationClass Interface](#)
- ♦ [IRPAssociationRole Interface](#)
- ♦ [IRPAttribute Interface](#)
- ♦ [IRPBlock Interface](#)
- ♦ [IRPClass Interface](#)
- ♦ [IRPClassifier Interface](#)
- ♦ [IRPClassifierRole Interface](#)
- ♦ [IRPCollaboration Interface](#)
- ♦ [IRPCollaborationDiagram Interface](#)
- ♦ [IRPCollection Interface](#)
- ♦ [IRPComment Interface](#)
- ♦ [IRPComponent Interface](#)
- ♦ [IRPComponentDiagram Interface](#)
- ♦ [IRPComponentInstance Interface](#)
- ♦ [IRPConfiguration Interface](#)
- ♦ [IRPConnector Interface](#)
- ♦ [IRPConstraint Interface](#)
- ♦ [IRPControlledFile](#)
- ♦ [IRPDependency Interface](#)
- ♦ [IRPDeploymentDiagram Interface](#)
- ♦ [IRPDiagram Interface](#)
- ♦ [IRPEnumerationLiteral Interface](#)
- ♦ [IRPEvent Interface](#)

- ◆ [IRPEventReception Interface](#)
- ◆ [IRPExecutionOccurrence Interface](#)
- ◆ [IRPExternalCodeGenerator Interface](#)
- ◆ [IRPExternalCodeGeneratorInvoker Interface](#)
- ◆ [IRPFile Interface](#)
- ◆ [IRPFlow Interface](#)
- ◆ [IRPFlowchart Interface](#)
- ◆ [IRPFlowItem Interface](#)
- ◆ [IRPGeneralization Interface](#)
- ◆ [IRPGraphEdge Interface](#)
- ◆ [IRPGraphElement Interface](#)
- ◆ [IRPGraphicalProperty Interface](#)
- ◆ [IRPGraphNode Interface](#)
- ◆ [IRPGuard Interface](#)
- ◆ [IRPHyperLink Interface](#)
- ◆ [IRPImageMap](#)
- ◆ [IRPInstance Interface](#)
- ◆ [IRPInteractionOccurrence Interface](#)
- ◆ [IRPInterfaceltem Interface](#)
- ◆ [IRPLink Interface](#)
- ◆ [IRPMessage Interface](#)
- ◆ [IRPMessagePoint Interface](#)
- ◆ [IRPModelElement Interface](#)
- ◆ [IRPModule Interface](#)
- ◆ [IRPNode Interface](#)
- ◆ [IRPObjectModelDiagram Interface](#)
- ◆ [IRPOperation Interface](#)
- ◆ [IRPPackage Interface](#)
- ◆ [IRPPort Interface](#)
- ◆ [IRPProfile Interface](#)
- ◆ [IRPProject Interface](#)
- ◆ [IRPRelation Interface](#)

- ◆ [IRPRequirement Interface](#)
- ◆ [IRPSequenceDiagram Interface](#)
- ◆ [IRPState Interface](#)
- ◆ [IRPStatechart Interface](#)
- ◆ [IRPStateVertex Interface](#)
- ◆ [IRPStereotype Interface](#)
- ◆ [IRPStructureDiagram Interface](#)
- ◆ [IRPSwimlane Interface](#)
- ◆ [IRPTag Interface](#)
- ◆ [IRPTemplateInstantiation Interface](#)
- ◆ [IRPTemplateInstantiationParameter Interface](#)
- ◆ [IRPTemplateParameter Interface](#)
- ◆ [IRPTransition Interface](#)
- ◆ [IRPTrigger Interface](#)
- ◆ [IRPType Interface](#)
- ◆ [IRPUnit Interface](#)
- ◆ [IRPUseCase Interface](#)
- ◆ [IRPUseCaseDiagram Interface](#)
- ◆ [IRPVariable Interface](#)

IRPAction Interface

The `IRPAction` interface represents the action of a transition in a statechart. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
body	String	RW	The entered body of this action

IRPActor Interface

The `IRPActor` interface represents Rhapsody actors. It inherits from `IRPClassifier`.

IRPAnnotation Interface

The `IRPAnnotation` interface represents Rhapsody annotations—notes, comments, constraints, and requirements. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
<code>anchoredByMe</code>	<code>RPCollection</code>	RO	The list of model elements that are anchored to the annotation
<code>body</code>			Deprecated
<code>body</code>	<code>String</code>	RW	The body text of the remark
<code>specification</code>	<code>String</code>	RW	The body text for the annotation

Method Summary

<code>addAnchor</code>	Adds an anchor from the annotation to the specified model element.
--	--

addAnchor

Read method

Description

The [addAnchor](#) method adds an anchor from the annotation to the specified model element.

Visual Basic

Syntax

```
addAnchor(target As RPModelElement)
```

Arguments

target

The model element to which to anchor the annotation

C/C++ Prototype

```
HRESULT addAnchor (IRPModelElement* target)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPApplication Interface

The application is the top-level object of the Rhapsody object model, which represents the Rhapsody application shell. It conceptually provides the functionality available through the Rhapsody menu bars. Initially, the application object exposes the minimal set of functionality required to open a project.

When you use VB or VC++ to interface to the COM API, the `IRPApplication` object needs to be created before any other API interface objects are used. However, if you use the Rhapsody VBA interface, you are automatically connected to the `IRPApplication` object.

VB Properties

Name	Type	Access	Description
BuildNo	CString	RO	The current build number
Language	String	RW	The current language setting
OMROOT	String	RO	The value for OMROOT
SerialNo	CString	RO	The serial number
ToolSet	CString	RO	The current tool setting (demo, Designer, and so on)

Method Summary

<u>activeProject</u>	Returns a pointer to the active (open) project
<u>addToModel</u>	Adds a Rhapsody unit located in the specified file to the current model with or without descendant elements
<u>addToModelByReference</u>	Adds the Rhapsody unit you specify to your model as a reference.
<u>addToModelFromURL</u>	Adds a Rhapsody unit located at the specified URL to the current model
<u>arcCheckOut</u>	Checks out files from the CM archive into the model
<u>build</u>	Builds the application
<u>checkIn</u>	Checks in the specified unit within the model into the CM archive you have already connected to (using <code>connectToArchive</code>)
<u>checkModel</u>	Checks the current model
<u>checkOut</u>	Refreshes a unit in the model by checking it out from the CM archive
<u>connectToArchive</u>	Connects the Rhapsody 6.1 project to the specified CM archive
<u>createNewProject</u>	Creates a new project named <code><projectName></code> in <code><projectLocation></code>
<u>enterAnimationCommand</u>	Specifies the command to begin animation
<u>errorMessage</u>	Returns the most recent error message
<u>forceRoundtrip</u>	Forces a roundtrip of the code back into the Rhapsody 6.1 model, and vice versa
<u>generate</u>	Generates code for the active configuration of the active component
<u>getDiagramOfSelectedElement</u>	Retrieves the diagram of the current element

<u>getErrorMessage</u>	Returns the most recent error message
<u>getListOfFactoryProperties</u>	Retrieves the list of properties in the <lang>_factory.prp file
<u>getListOfSelectedElements</u>	Returns the collection of model elements
<u>getListOfSiteProperties</u>	Retrieves the list of properties in the <lang>_site.prp file
<u>getSelectedElement</u>	Retrieves the current model element
<u>getTheExternalCodeGeneratorInvoker</u>	Retrieves the invoker for the external code generator
<u>highlightByHandle</u>	Highlights an element, given its handle
<u>highLightElement</u>	Highlights the specified element
<u>importClasses</u>	Imports classes according to the reverse engineering setting stored in the current configuration
<u>make</u>	Builds the current component following the current configuration
<u>openProject</u>	Opens a Rhapsody 6.1 project
<u>openProjectFromURL</u>	Opens the Rhapsody 6.1 product at the specified URL
<u>openProjectWithLastSession</u>	Opens the project using the settings from the previous Rhapsody 6.1 session
<u>openProjectWithoutSubUnits</u>	Opens the Rhapsody 6.1 project without subunits
<u>quit</u>	Closes the active Rhapsody 6.1 project
<u>rebuild</u>	Rebuilds the application
<u>refreshAllViews</u>	Refreshes all the views
<u>regenerate</u>	Regenerates the active configuration of the active component
<u>report</u>	Generates a report in ASCII or RTF into the specified file
<u>roundtrip</u>	Roundtrips code changes back into the open model
<u>setComponent</u>	Sets the current component for the open project
<u>setConfiguration</u>	Sets the current configuration for the open project
<u>setLog</u>	Creates a log file that records all the information that is normally displayed in the Rhapsody 6.1 output window
<u>version</u>	Returns the version of Rhapsody 6.1 that corresponds to the current COM API version

activeProject

Read method

Description

The [activeProject](#) method returns a pointer to the active (open) project.

Visual Basic

Syntax

```
activeProject() As RPPProject
```

Return Value

A pointer to the current open project (an RPPProject)

C/C++ Prototype

```
HRESULT activeProject (IRPPProject** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addToModel

Write method

Description

The [addToModel](#) method adds a Rhapsody unit located in the specified file to the current model with or without descendant elements.

Note: When adding a file with descendants, all the file subunits must be in the unit directory of the project before you issue the command.

Visual Basic

Syntax

```
addToModel (filename As String, withDescendant As Long)
```

Arguments

filename

The full file name of the file that contains the unit to be added

withDescendants

Specifies whether to bring in descendants of the unit to be added to the model

C/C++ Prototype

```
HRESULT addToModel (BSTR filename, long withDescendant)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addToModelByReference

The method `addToModelByReference` adds the Rhapsody unit you specify to your model as a reference.

Syntax

```
addToModelByReference (filename As String)
```

Arguments

`filename`

The name of the file that contains the unit to be added. The full path to the file must be specified.

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

```
Sub addJavadocProfile()  
    Dim app As Object  
    Set app = GetObject(, "Rhapsody.Application")  
    On Error GoTo aa  
    app.addToModelByReference ("C:\temp\JavaDocProfile.sbs")  
    Exit Sub  
aa:  
    MsgBox errorMessage  
End Sub
```

addToModelFromURL

Write method

Description

The [addToModelFromURL](#) method adds a Rhapsody unit located at the specified URL to the current model. This method is used to support the Webify Toolkit.

Visual Basic

Syntax

```
addToModelFromURL (url As String)
```

Arguments

url

The URL that contains the unit to be added

C/C++ Prototype

```
HRESULT addToModelFromURL (BSTR url)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

arcCheckOut

Write method

Description

The [arcCheckOut](#) method checks out files from the configuration management (CM) archive into the model.

Note: The difference between `arcCheckOut` and `checkOut` is that `arcCheckOut` refers to files in the archive, whereas `checkOut` refers to units in the model. To add new units to the model, use `arcCheckOut`. The method `checkOut` is intended to refresh elements already existing in the model.

Visual Basic

Syntax

```
arcCheckOut (filename As String, label As String,  
            isLocked As Long, isRecursive As Long)
```

Arguments

filename

Specifies the name of the file.

label

Specifies the revision or label to be checked out. If this is set to NULL, the last revision on the main trunk (the default) will be checked out.

isLocked

Specifies whether the file is locked. The possible values are as follows:

1--Designates that a writable file be checked out and the archive locked from other checkouts of the file.

0--The file is checked out as read-only and the archive not locked to other checkouts.

isRecursive (1 or 0)

If this is set to 1, the file and all the other elements that it contains are checked out.

C/C++ Prototype

```
HRESULT arcCheckOut (BSTR filename, BSTR label,  
                    long isLocked, long isRecursive)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

build

Note

Currently, this method has not been implemented.

Read method

Description

The [build](#) method builds the application.

Visual Basic

Syntax

```
build()
```

C/C++ Prototype

```
HRESULT build()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

checkIn

Read method

Description

The [checkIn](#) method checks in the specified unit within the model into the configuration management (CM) archive you have already connected to (using `connectToArchive`).

Visual Basic

Syntax

```
checkIn (unitName As String, label As String,  
        isLocked As Long, isRecursive As Long,  
        description As String)
```


Arguments

unitName

The name of the unit.

label

The label to apply when you check in the file to the archive. If it is not needed, set this argument to NULL.

isLocked (1 or 0)

Specifies whether to lock the archive after checkin.

isRecursive

If set to 1, check in the unit and all the elements contained in it.

description

The description to add to the unit when you check it in to the archive.

C/C++ Prototype

```
HRESULT checkIn (BSTR unitName, BSTR label,  
                long isLocked, long isRecursive, BSTR description)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

checkModel

Read method

Description

The [checkModel](#) method checks the current model. This is equivalent to the Rhapsody 6.1 command **Tools > Check Model** for the current configuration.

Visual Basic

Syntax

```
checkModel()
```

C/C++ Prototype

```
HRESULT checkModel()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

checkOut

Write method

Description

The [checkOut](#) method refreshes a unit in the model by checking it out from the CM archive.

Visual Basic

Syntax

```
checkOut (unitName As String, label As String,  
         isLocked As Long, isRecursive As Long)
```

Arguments

unitName

The name of the unit.

label

The revision or label to be checked out. If you set this to NULL, the last revision on the main trunk (the default) will be checked out.

isLocked

Specifies whether to lock the archive after checkout. The possible values are as follows:

1--Designates that a writable unit is to be checked out and the archive locked from other checkouts of the unit.

0--The unit is checked out as read-only and the archive not locked to other checkouts.

isRecursive

If this is set to 1, check out the unit and all the elements contained in it.

C/C++ Prototype

```
HRESULT checkOut (BSTR unitName, BSTR label,  
                 long isLocked, long isRecursive)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

connectToArchive

Read method

Description

The [connectToArchive](#) method connects the Rhapsody 6.1 project to the specified CM archive.

This operation is necessary only for the following cases:

- ◆ There is no current association in the project.
- ◆ The association needs to be modified.

Visual Basic

Syntax

```
connectToArchive (archivePath As String)
```

Arguments

archivePath

The path to location of archive

C/C++ Prototype

```
HRESULT connectToArchive (BSTR archivePath)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

createNewProject

Write method

Description

The [createNewProject](#) method creates a new project named *<projectName>* in *<projectLocation>*. You should call this operation before a project has been opened, or after a project has been saved.

Note that helper applications might not close the current document. This means that the [createNewProject](#) method should not be used in a VBA macro that you specify as a helper.

Visual Basic

Syntax

```
createNewProject (projectLocation As String,  
                 projectName As String)
```

Arguments

projectLocation
The location of the project
projectName
The name of the project

C/C++ Prototype

```
HRESULT createNewProject (BSTR projectLocation,  
                         BSTR projectName)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deferredAddToModel

Write method

Description

The [deferredAddToModel](#) method **TBS**.

Visual Basic

Syntax

```
deferredAddToModel(filename As String,  
    withDescendants As Long, orijPrjId As String,  
    eraseDir As Long)
```

Arguments

filename

The full name of the file that contains the unit to be added

withDescendants

Specifies whether to bring in descendants of the unit to be added to the model

orijPrjId

The project ID

eraseDir

Specifies whether to delete the directory after the unit has been added to the model

C/C++ Prototype

```
HRESULT deferredAddToModel (BSTR filename,  
    long withDescendants, BSTR orijPrjId, long eraseDir);
```

Return Value

HRESULT (0 for success, or a signed integer error code)

enterAnimationCommand

Read method

Description

The [enterAnimationCommand](#) method specifies the command to begin animation.

Visual Basic

Syntax

```
enterAnimationCommand (command As String)
```

Arguments

<code>command</code>
The animation command

C/C++ Prototype

```
HRESULT enterAnimationCommand (BSTR command)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

errorMessage

Read method

Description

The [errorMessage](#) method returns the most recent error message.

Visual Basic

Syntax

```
errorMessage() As String
```

Return Value

A pointer to the most recent error message (a string)

C/C++ Prototype

```
HRESULT errorMessage (BSTR* __MIDL_0016)
```

Arguments

BSTR*

A pointer to most recent error message

Return Value

HRESULT (0 for success, or a signed integer error code)

forceRoundtrip

Read method

Description

The [forceRoundtrip](#) method forces a roundtrip of the code back into the Rhapsody 6.1 model, and vice versa.

Visual Basic

Syntax

```
forceRoundtrip()
```

C/C++ Prototype

```
HRESULT forceRoundtrip()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

generate

Read method

Description

The [generate](#) method generates code for the active configuration of the active component.

Visual Basic

Syntax

```
generate()
```

C/C++ Prototype

```
HRESULT generate()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getDiagramOfSelectedElement

Read method

Description

The [getDiagramOfSelectedElement](#) method retrieves the diagram of the current element.

Visual Basic

Syntax

```
getDiagramOfSelectedElement() As RPDiagram
```

Return Value

The RPDiagram

C/C++ Prototype

```
HRESULT getDiagramOfSelectedElement (IRPDiagram** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getErrorMessage

Read method

Description

The [getErrorMessage](#) method returns the most recent error message.

Visual Basic

Syntax

```
getErrorMessage(__MIDL_0014 As String) As String
```

Return Value

A pointer to the most recent error message (a string)

C/C++ Prototype

```
HRESULT getErrorMessage (BSTR* _MIDL_0014)
```

Arguments

BSTR*

A pointer to most recent error message

Return Value

HRESULT (0 for success, or a signed integer error code)

getListOfFactoryProperties

Note

Currently, this method has not been implemented.

Read method

Description

The [getListOfFactoryProperties](#) method returns the list of properties in the <lang>_factory.prp file.

Visual Basic

Syntax

```
getListOfFactoryProperties() As RPCollection
```

Return Value

The list of properties defined in the <lang>_factory.prp file

C/C++ Prototype

```
HRESULT getListOfFactoryProperties (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getListOfSelectedElements

Read method

Description

The [getListOfSelectedElements](#) method returns a collection of model elements.

In Version 4.1, this method was modified as follows:

- ◆ If the instance is selected in the context of an OMD, the method returns an `IRPInstance` instead of `IRPClass` or `IRPActor`. See “[IRPInstance Interface](#)” for more information on this interface.
- ◆ If a link is selected in the context of an OMD, the method returns an `IRPLink` instead of `IRPRelation`. See “[IRPLink Interface](#)” for more information on this interface.
- ◆ If an instance is selected in the context of a sequence diagram, the method returns an `IRPClassifierRole` instead of `IRPClass`. See “[IRPClassifierRole Interface](#)” for more information on this interface.

Visual Basic

Syntax

```
getListOfSelectedElements () As RPCollection
```

Return Value

The collection of elements

C/C++ Prototype

```
HRESULT getListOfSelectedElements (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getListOfSiteProperties

Note

Currently, this method has not been implemented.

Read method

Description

The [getListOfSiteProperties](#) method returns the list of properties in the <lang>_site.prp file.

Visual Basic

Syntax

```
getListOfSiteProperties() As RPCollection
```

Return Value

The list of properties defined in the <lang>_site.prp file

C/C++ Prototype

```
HRESULT getListOfSiteProperties (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getSelectedElement

Read method

Description

The [getSelectedElement](#) method retrieves the current model element.

In Version 4.1, this method was modified as follows:

- ♦ If the instance is selected in the context of an OMD, the method returns an `IRPInstance` instead of `IRPClass` or `IRPActor`. See “[IRPInstance Interface](#)” for more information on this interface.
- ♦ If a link is selected in the context of an OMD, the method returns an `IRPLink` instead of `IRPRelation`. See “[IRPLink Interface](#)” for more information on this interface.
- ♦ If an instance is selected in the context of a sequence diagram, the method returns an `IRPClassifierRole` instead of `IRPClass`. See “[IRPClassifierRole Interface](#)” for more information on this interface.

Visual Basic

Syntax

```
getSelectedElement() As RPModelElement
```

Return Value

The current model element

C/C++ Prototype

```
HRESULT getSelectedElement (IRPModelElement** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

VBA Example

The following example assumes that a link is selected.

```
Dim m As RPModelElement
Dim link as RPLink
Dim fromCls as RPClass
Dim toCls as RPClass
Dim from as RPInstance
Dim to as RPInstance
Dim rel as RPRelation

Set m = getSelectedElement
If m.metaClass = "Link" then
```

```
link = m
from = link.from
to = link.to
fromCls = from.otherClass
toCls = to.otherClass
rel = link.instantiates

'Variable content:
'link points to the selected link.
'from points to the "source" instance.
'to points to the "target" instance.
'fromCls points to the class of the "source" instance.
'toCls points to the class of the "target" instance.
'rel points to the relation instantiated by the link.

MsgBox m.name & " is a link from instance " &
    from.name & " of class " + clsFrom.name & " to
    instance " & to.name & " of class " + toCls.name
    & " which instantiates the " & rel.name
    & " relation."
End If
```


getTheExternalCodeGeneratorInvoker

Read method

Description

The [getTheExternalCodeGeneratorInvoker](#) method returns the invoker for the external code generator.

Visual Basic

Syntax

```
getTheExternalCodeGeneratorInvoker() As  
    RPEXternalCodeGeneratorInvoker
```

Return Value

The RPEXternalCodeGeneratorInvoker singleton. The external code generator queries the application for this interface.

C/C++ Prototype

```
HRESULT getTheExternalCodeGeneratorInvoker (  
    IRPEXternalCodeGeneratorInvoker** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

highlightByHandle

Read method

Description

The [highlightByHandle](#) method highlights the specified model element, given its handle.

The rules for developing the handle for each element type are as follows:

1. The metaclass in the beginning is the value of the metaClass property.
2. The GUID at the end of the name is the value of the GUID property.
3. The structure of the name is as follows:

```
<Package name>::<Class name>.<Element name>
```

In this syntax:

- ◆ *<Package name>* is the full path of the package of the element (for example, P1::P2).

- *<Class full name>* is the full path of the class of the element (for example, C1::C2).
- *<Element name>* is the name of the element.

See the section “Example” for a code example that uses this method.

Visual Basic

Syntax

```
highlightByHandle (strHandle As String)
```

Arguments

strHandle

The handle to the element to highlight. Call the method with this argument using the following string:

```
"(<metaclass>)<FullPathName>(<GUID>)"
```

C/C++ Prototype

```
HRESULT highlightByHandle (BSTR strHandle)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

```
Dim proj As RPPProject
Dim m As RPModelElement
Dim str As String

Dim app As Object
set app = GetObject(, "Rhapsody.Application")

On Error GoTo aa

Set proj = getProject
Set m = proj.findNestedElementRecursive("state_0", "State")
str = "(" & m.metaClass & ")" & m.getFullPathName & "(" & m.GUID & ")"
app.highlightByHandle (str)

Exit Sub

aa:
MsgBox errorMessage
```

highLightElement

Read method

Description

Highlights the specified element.

Visual Basic

Syntax

```
highLightElement (val As RPModelElement)
```

Arguments

val
The element to highlight

C/C++ Prototype

```
HRESULT highLightElement (IRPModelElement* val)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

importClasses

Write method

Description

The [importClasses](#) method imports classes according to the reverse engineering setting stored in the current configuration. This is equivalent to selecting the Rhapsody 6.1 command **Tools > Reverse Engineering**.

Visual Basic

Syntax

```
importClasses()
```

C/C++ Prototype

```
HRESULT importClasses ()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

make

Read method

Description

The [make](#) method builds the current component following the current configuration.

Visual Basic

Syntax

```
make()
```

C/C++ Prototype

```
HRESULT make()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

openProject

Read method

Description

The [openProject](#) method opens a Rhapsody 6.1 project.

Note that helper applications might not close the current document. This means that you should not use the openProject method in a VBA macro that you specify as a helper:

Visual Basic

Syntax

```
openProject (filename As String) As RPPProject
```

Arguments

filename

The name of the file that contains the project

Return Value

A pointer to the opened project (an RPPProject)

C/C++ Prototype

```
HRESULT openProject (BSTR filename, IRPPProject** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

openProjectFromURL

Write method

Description

The [openProjectFromURL](#) method opens the Rhapsody 6.1 product at the specified URL. This method is used to support the Webify Toolkit.

Visual Basic

Syntax

```
openProjectFromURL (url As String)
```

Arguments

url

The URL of the project to open

C/C++ Prototype

```
HRESULT openProjectFromURL (BSTR url)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

openProjectWithLastSession

Write method

Description

The [openProjectWithLastSession](#) method opens the project using the settings from the previous Rhapsody 6.1 session.

Visual Basic

Syntax

```
openProjectWithLastSession (filename As String)  
As RPPProject
```

Arguments

filename

The name of the project to open

Return Value

The RPPProject that was opened

C/C++ Prototype

```
HRESULT openProjectWithLastSession (BSTR filename,  
IRPPProject** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

openProjectWithoutSubUnits

Write method

Description

The [openProjectWithoutSubUnits](#) method opens the Rhapsody 6.1 project without subunits.

Visual Basic

Syntax

```
openProjectWithoutSubUnits (filename As String)  
    As RPPProject
```

Arguments

filename

The name of the project to open

C/C++ Prototype

```
HRESULT openProjectWithoutSubUnits (BSTR filename,  
    IRPPProject** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

quit

Read method

Description

The [quit](#) method closes the active Rhapsody 6.1 project.

Note that helper applications might not close the current document. This means that you should not use the `quit` method in a VBA macro that you specify as a helper:

Visual Basic

Syntax

```
quit()
```

C/C++ Prototype

```
HRESULT quit()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

rebuild

Note

Currently, this method has not been implemented.

Read method

Description

The [rebuild](#) method rebuilds the application.

Visual Basic

Syntax

```
rebuild()
```

C/C++ Prototype

```
HRESULT rebuild()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

refreshAllViews**Read method****Description**

The [refreshAllViews](#) method refreshes the views.

Visual Basic**Syntax**

```
refreshAllViews()
```

C/C++ Prototype

```
HRESULT refreshAllViews()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

regenerate**Read method****Description**

The [regenerate](#) method regenerates the active configuration of the active component.

Visual Basic**Syntax**

```
regenerate()
```

C/C++ Prototype

```
HRESULT regenerate()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

report

Read method

Description

The [report](#) method generates a report in ASCII or RTF into the specified file. The report is generated for the elements found in the scope of the current component.

Visual Basic

Syntax

```
report (format As String, outputFileName As String)
```

Arguments

format

The file format. The possible values are as follows:

ASCII

RTF

outputFileName

The name of the output file, including the path.

C/C++ Prototype

```
HRESULT report (BSTR format, BSTR outputFileName)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

roundtrip

Write method

Description

The [roundtrip](#) method roundtrips code changes back into the open model.

Visual Basic

Syntax

```
roundtrip()
```

C/C++ Prototype

```
HRESULT roundtrip()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setComponent

Write method

Description

The [setComponent](#) method sets the current component for the open project.

Visual Basic

Syntax

```
setComponent (component As String)
```

Arguments

`component`

The name of component in the project

C/C++ Prototype

```
HRESULT setComponent (BSTR component)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setConfiguration

Write method

Description

The [setConfiguration](#) method sets the current configuration for the open project.

Note: This method fails if the configuration is not found within the current component. Therefore, you should call `setComponent` before `setConfiguration`.

Visual Basic

Syntax

```
setConfiguration (configuration As String)
```

Arguments

configuration

The name of the configuration in the project. This refers to the simple name of the configuration, not the full name, i.e., not `packageA::componentB::configC`.

C/C++ Prototype

```
HRESULT setConfiguration (BSTR configuration)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setLog

Write method

Description

The [setLog](#) method creates a log file that records all the information that is normally displayed in the Rhapsody 6.1 output window.

Visual Basic

Syntax

```
setLog (logFile As String)
```

Arguments

logFile

The name of the log file, including the path

C/C++ Prototype

```
HRESULT setLog (BSTR logFile)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

version

Read method

Description

The [version](#) method returns the version of Rhapsody 6.1 that corresponds to the current COM API version.

Visual Basic

Syntax

```
version() As String
```

Return Value

The version of Rhapsody that corresponds to the COM API version

C/C++ Prototype

```
HRESULT version (BSTR* __MIDL_0015)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPArgument Interface

The `IRPArgument` interface represents an argument of an operation or an event. It inherits from `IRPVariable`.

VB Properties

Name	Type	Access	Description
argumentDirection	String	RW	The direction of the argument (In, Out, or InOut)
declaration	String	RW	A string that represents an inline declaration of this argument
defaultValue	String	RW	The default value of this argument
type	RPTYPE	RW	The type of this argument

Method Summary

<u>setTypeDeclaration</u>	Sets the C++ type declaration for this argument
---	---

setTypeDeclaration

Write method

Description

The [setTypeDeclaration](#) method sets the C++ type declaration for this argument.

Visual Basic

Syntax

```
setTypeDeclaration (newVal As String)
```

Arguments

NewVal

The C++ type declaration for this argument

C/C++ Prototype

```
HRESULT setTypeDeclaration (BSTR newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPASCIIFile Interface

The `IRPASCIIFile` interface represents a disk file that you can open, close, and write to. It is a top-level interface in the Rhapsody 6.1 object model.

Method Summary

<u>close</u>	Closes a file
<u>open</u>	Opens a file
<u>write</u>	Writes to the specified file

close

Write method

Description

The [close](#) method closes the file.

Visual Basic

Syntax

```
close()
```

C/C++ Prototype

```
HRESULT close
```

Return Value

HRESULT (0 for success, or a signed integer error code)

open

Write method

Description

The [open](#) method opens a file.

Visual Basic

Syntax

```
open (filename As String)
```

Arguments

filename

The name of file to open

C/C++ Prototype

```
HRESULT open (BSTR filename)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

write

Write method

Description

The **write** method writes to the specified file.

Visual Basic

Syntax

```
write (data As String)
```

Arguments

Data

The ASCII string data to write to the disk file

C/C++ Prototype

```
HRESULT write (BSTR data)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPAssociationClass Interface

The `IRPAssociationClass` interface represents a Rhapsody 6.1 association (bi-directional, directed, composition, or aggregation). `IRPAssociationClass` inherits from the `IRPClass`.

VB Properties

Name	Type	Access	Description
end1	RPRelation	RO	The first end of the association line
end2	RPRelation	RO	The second end of the association line

IRPAssociationRole Interface

The `IRPAssociationRole` interface represents a channel or relation through which objects in a collaboration communicate. This object is meaningful only for collaborations displayed in collaboration diagrams. `IRPAssociationRole` inherits from the `IRPModelElement`.

VB Properties

Name	Type	Access	Description
roleType	String	RO	The role type (specified or unspecified)

Method Summary

<u>getClassifierRoles</u>	Returns a collection of <code>IRPClassifierRoles</code> linked by the current association role
<u>getFormalRelations</u>	Returns a collection of <code>IRPRelations</code> for the current association role

getClassifierRoles

Read method

Description

The [getClassifierRoles](#) method returns a collection of `IRPClassifierRoles` linked by the current association role.

Note that an association role in a collaboration diagram is always bidirectional.

Visual Basic

Syntax

```
getClassifierRoles () As RPCollection
```

Return Value

A collection of classifier roles

C/C++ Prototype

```
HRESULT getClassifierRoles (  
    IRPCollection** classifierRoles)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getFormalRelations

Read method

Description

The [getFormalRelations](#) method returns a collection of `IRPRelations` for the current association role. Pass one of the following values to the method:

- ◆ 0—Get the unspecified relations.
- ◆ 1—Get the directional relations.
- ◆ 2—Get the bidirectional relations.

Visual Basic

Syntax

```
getFormalRelations() As RPCollection
```

Return Value

A collection of `RRelations`

C/C++ Prototype

```
HRESULT getFormalRelations (  
    IRPCollection** classifierRoles)
```

Return Value

`HRESULT` (0 for success, or a signed integer error code)

IRPAttribute Interface

The `IRPAttribute` interface represents a class attribute. It Inherits from `IRPVariable`.

VB Properties

Name	Type	Access	Description
declaration	String	RW	The declaration of this attribute. For an inline declaration, this is an uninterpreted string.
defaultValue	String	RW	The default value of this attribute, if one has been defined.
isConstant	Long	RW	A flag that indicates whether the attribute is read-only or modifiable.
isOrdered	Long	RW	A flag that specifies whether the order of the reference type items is significant.
isReference	Long	RW	A flag that specifies whether the attribute is referenced as a reference (such as a pointer (*) or an address (& in C++).
isStatic	Long	RW	A flag that indicates whether this attribute is a static class attribute. Static status implies that the attribute belongs to the class as a whole rather than to an individual instance.
multiplicity	String	RW	The multiplicity of the attribute. If this is greater than 1, use the <code>isOrdered</code> property to specify whether the order of the reference type items is significant.
type	RPTYPE	RW	The type of this attribute. For Rhapsody predefined types, this is a reference to that type.
visibility	String	RW	The visibility of this attribute (public, protected, or private).

IRPBlock Interface

The `IRPBlock` interface was removed in version 7.2 of Rhapsody.

Use `IRPInstance` instead.

IRPClass Interface

The `IRPClass` interface represents Rhapsody 6.1 classes. It inherits from `IRPClassifier`.

VB Properties

Name	Type	Access	Description
isActive	Long	RW	Indicates whether this class is an active class.
isBehaviorOverridden	Long	RW	Indicates whether the statechart of the subclass overrides the statechart of this class. A statechart is <i>not</i> inherited.
isComposite	Long	RO	Indicates whether this class is a composite class.
isReactive	Long	RO	Indicates whether this class has a statechart that is, it's a reactive class).

Method Summary

<u>addClass</u>	Adds a class to the current class
<u>addConstructor</u>	Adds a constructor to the current class
<u>addDestructor</u>	Adds a destructor to the current class
<u>addEventReception</u>	Adds an event reception to the current class
<u>addLink</u>	Adds a link between two objects to the current class
<u>addReception</u>	Adds a reception to the current class
<u>addSuperclass</u>	Adds a superclass to the current class
<u>addTriggeredOperation</u>	Adds a triggered operation to the current class
<u>addType</u>	Adds a type to the current class
<u>deleteClass</u>	Deletes a class from the current class
<u>deleteConstructor</u>	Deletes a constructor from the current class
<u>deleteDestructor</u>	Deletes a destructor from the current class
<u>deleteEventReception</u>	Deletes the specified event reception from the current class
<u>deleteReception</u>	Deletes the specified reception from the current class
<u>deleteSuperclass</u>	Deletes a superclass from the current class
<u>deleteType</u>	Deletes a type from the current class

addClass

Write method

Description

The [addClass](#) method adds a class to the current class.

Visual Basic

Syntax

```
addClass (name As String) As RPClass
```

Arguments

name

The name of the new class

Return Value

The new class

C/C++ Prototype

```
HRESULT addClass (BSTR name, IRPClass** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addConstructor

Write method

Description

The [addConstructor](#) method adds a constructor to the current class.

Visual Basic

Syntax

```
addConstructor (argumentsData As String) As RPOperation
```

Arguments

argumentsData
The arguments for the constructor

Return Value

The new constructor for this class

C/C++ Prototype

```
HRESULT addConstructor (BSTR argumentsData,  
IRPOperation** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

```
Sub addNetwork(c As RPCClass)  
Dim o As RPOperation  
c.addOperation ("serialize")  
c.addOperation ("unserialize")  
c.addConstructor ("")  
On Error Resume Next  
c.addDestructor ("")  
x = c.addStereotype("G3Network", "Class")  
End Sub
```

addDestructor

Write method

Description

The [addDestructor](#) method adds a destructor to the current class.

Visual Basic

Syntax

```
addDestructor() As RPOperation
```

Return Value

The new destructor for this class

C/C++ Prototype

```
HRESULT addDestructor (IRPOperation** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

```
Sub addNetwork(c As RPCClass)
  Dim o As RPOperation
  c.addOperation ("serialize")
  c.addOperation ("unserialize")
  c.addConstructor ("")
  On Error Resume Next
  c.addDestructor ("")
  x = c.addStereotype("G3Network", "Class")
End Sub
```

addEventReception

Write method

Description

The [addEventReception](#) method adds an event reception to the current class.

Visual Basic

Syntax

```
addEventReception (name As String) As RPEventReception
```

Arguments

name

The name of the new event reception for this class

Return Value

The new event reception

C/C++ Prototype

```
HRESULT addEventReception (BSTR name,  
IRPEventReception** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addLink

The `addLink` method adds a link between two objects to the current class.

Syntax

```
addLink(fromPart As RPInstance, toPart As RPInstance, assoc As RPRelation,  
fromPort As RPPort, toPort As RPPort) As RPLink
```

Arguments

`fromPart, toPart`

The objects that are being linked.

`assoc`

Association that is being instantiated (optional).

`fromPort, toPort`

Ports that are being linked (optional).

addReception

Write method

Description

The [addReception](#) method adds a reception to the current class.

Visual Basic

Syntax

```
addReception (name As String) As RPEventReception
```

Arguments

name

The name of the new reception for this class

Return Value

The new reception

C/C++ Prototype

```
HRESULT addReception (BSTR name,  
IRPEventReception** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addSuperclass

Write method

Description

The [addSuperclass](#) method inherits this class from a new superclass.

Visual Basic

Syntax

```
addSuperclass (superClass As RPCClass)
```

Arguments

superClass

Specifies the RPCClass from which this class will inherit

C/C++ Prototype

```
HRESULT addSuperclass (IRPClass* superClass)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addTriggeredOperation

Write method

Description

The [addTriggeredOperation](#) method adds a new triggered operation to the current class.

Visual Basic

Syntax

```
addTriggeredOperation (name As String) As RPOperation
```

Arguments

name

A string that specifies the name of the new trigger

Return Value

The new trigger for this class

C/C++ Prototype

```
HRESULT addTriggeredOperation (BSTR name,  
IRPOperation** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addType

Write method

Description

The [addType](#) method adds a type to the current class.

Visual Basic

Syntax

```
addType (name As String) As RPTYPE
```

Arguments

name

The name of the new type

Return Value

The new type for this class

C/C++ Prototype

```
HRESULT addType (BSTR name, IRPType** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteClass

Write method

Description

The [deleteClass](#) method deletes a class from the current class.

Visual Basic

Syntax

```
deleteClass (name As String)
```

Arguments

name

The name of the class to delete

C/C++ Prototype

```
HRESULT deleteClass (BSTR name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteConstructor

Write method

Description

The [deleteConstructor](#) method deletes a constructor from the current class.

Visual Basic

Syntax

```
deleteConstructor (constructor As RPOperation)
```

Arguments

constructor

The constructor to delete

C/C++ Prototype

```
HRESULT deleteConstructor (IRPOperation* constructor)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteDestructor

Write method

Description

The [deleteDestructor](#) method deletes a destructor from the current class.

Visual Basic

Syntax

```
deleteDestructor()
```

C/C++ Prototype

```
HRESULT deleteDestructor()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteEventReception

Write method

Description

The [deleteEventReception](#) method deletes the specified event reception.

Visual Basic

Syntax

```
deleteEventReception (pVal As RPEventReception)
```

Arguments

pVal
The event reception to delete

C/C++ Prototype

```
HRESULT deleteEventReception (IRPEventReception* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteReception

Write method

Description

The [deleteReception](#) method deletes the specified reception.

Visual Basic

Syntax

```
deleteReception (pVal As RPEventReception)
```

Arguments

pVal
The event reception to delete

C/C++ Prototype

```
HRESULT deleteReception (IRPEventReception* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteSuperclass

Write method

Description

The [deleteSuperclass](#) method deletes the superclass for the current class.

Visual Basic

Syntax

```
deleteSuperclass (superClass As RPClass)
```

Arguments

superClass

The superclass (base class) to delete

C/C++ Prototype

```
HRESULT deleteSuperclass (IRPClass* superClass)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteType

Write method

Description

The [deleteType](#) method deletes a type from the current class.

Visual Basic

Syntax

```
deleteType (name As String)
```

Arguments

name
The type to delete

C/C++ Prototype

```
HRESULT deleteType (BSTR name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPClassifier Interface

The `IRPClassifier` interface is an abstract interface consisting of all the shared features of classes, actors, use cases, and (data) types. It inherits from `IRPUnit`.

VB Properties

Name	Type	Access	Description
activityDiagram	RPFlowchart	RO	The activity diagram
attributes	Collection of RPAttributes	RO	A collection of attributes belonging to this classifier
baseClassifiers	Collection of RPClassifiers	RO	A collection of classifiers from which this classifier is derived (inherits)
derivedClassifiers	Collection of RPClassifiers	RO	A collection of classifiers that derive (inherit) from this classifier
flows	Collection of RPInformationFlows	RO	A collection of flows belonging to this classifier
flowItems	Collection of RPInformationItems		A collection of flowItems belonging to this classifier
generalizations	Collection of RPGeneralizations	RO	A collection of generalizations that generalize this classifier (for which this classifier is a specialization)
interfaceItems	Collection of RPInterfaceItems	RO	A collection of operations, events, and event receptions belonging to this classifier
nestedClassifiers	Collection of RPClassifiers	RO	A collection of classifiers defined in this classifier
operations	Collection of RPOperations	RO	A collection of operations belonging to this classifier
ports	RPCollection	RO	A collection of ports belonging to this classifier
relations	Collection of RPRelations	RO	A collection of all relations belonging to this classifier
statechart	RPStatechart*	RO	The handle to the statechart of this class, if it has one

Method Summary

<u>addActivityDiagram</u>	Adds an activity diagram to the current class
<u>addAttribute</u>	Adds an attribute to the current class
<u>addFlowItems</u>	Adds the specified flowItem to the collection of flowItems
<u>addFlows</u>	Adds the specified flow to the collection of flows
<u>addGeneralization</u>	Adds a generalization to the current class
<u>addOperation</u>	Adds an operation to the current class
<u>addRelation</u>	Adds a symmetric relation between the current class and another one
<u>addStatechart</u>	Adds a statechart to the current class
<u>addUnidirectionalRelation</u>	Adds a directional relation from the current class to another class
<u>deleteActivityDiagram</u>	Deletes the specified activity diagram from the current class
<u>deleteAttribute</u>	Deletes the specified attribute from the current class
<u>deleteFlowItems</u>	Deletes the specified flowItem from the collection of flowItems
<u>deleteFlows</u>	Deletes the specified flow from the collection of flows
<u>deleteGeneralization</u>	Deletes the specified generalization from the current class
<u>deleteOperation</u>	Deletes the specified operation from the current class
<u>deleteRelation</u>	Deletes the specified relation from the current class
<u>deleteStatechart</u>	Deletes the specified statechart from the current class
<u>findAttribute</u>	Retrieves the specified attribute of the classifier
<u>findBaseClassifier</u>	Retrieves a base (parent) classifier of a classifier
<u>findDerivedClassifier</u>	Retrieves the specified derived classifier of a classifier
<u>findGeneralization</u>	Retrieves the specified generalization of a classifier
<u>findInterfaceItem</u>	Retrieves an operation or event reception of the given signature that belongs to a classifier

<u>findNestedClassifier</u>	Retrieves the specified classifier defined within this object
<u>findNestedClassifierRecursive</u>	Retrieves the specified classifier defined in this object and in objects defined within this object
<u>findRelation</u>	Retrieves the specified relation that belongs to the current classifier
<u>findTrigger</u>	Retrieves the specified trigger in the statechart of the current class
<u>getAttributesIncludingBases</u>	Retrieves the attributes defined for this class and the ones inherited from its superclasses
<u>getInterfaceItemsIncludingBases</u>	Retrieves the operations and event receptions defined for this class and the ones it inherited from its superclasses
<u>getRelationsIncludingBases</u>	Retrieves the relations defined for this class and the ones it inherited from its superclasses

Note

Some of the properties and methods are meaningful only for some of the derived interfaces. When meaningless, the call will return nothing (NULL) or an empty collection.

addActivityDiagram

Write method

Description

The [addActivityDiagram](#) method adds an activity diagram to the current class.

Visual Basic

Syntax

```
addActivityDiagram () As RPFlowchart
```

Return Value

The new activity diagram

C/C++ Prototype

```
HRESULT addActivityDiagram (IRPFlowchart** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addAttribute

Write method

Description

The [addAttribute](#) method adds an attribute to the current class.

Visual Basic

Syntax

```
addAttribute (name As String) As RPAttribute
```

Arguments

name

The name of the new attribute

C/C++ Prototype

```
HRESULT addAttribute (BSTR name, IRPAttribute** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addFlowItems

Write method

Description

The [addFlowItems](#) method adds the specified flowItem to the collection of flowItems.

Visual Basic

Syntax

```
addFlowItems (name As String) As RPFItem
```

Arguments

name

The name of the new flowItem

C/C++ Prototype

```
HRESULT addFlowItems (BSTR name, IRPFItem** ppItem)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addFlows

Write method

Description

The [addFlows](#) method adds the specified flow to the collection of flows.

Visual Basic

Syntax

```
addFlows (name As String) As RPFlow
```

Arguments

name

The name of the new flow

C/C++ Prototype

```
HRESULT addFlows (BSTR name, IRPFlow** ppFlow)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addGeneralization

Write method

Description

The [addGeneralization](#) method adds a generalization to the current class.

Visual Basic

Syntax

```
addGeneralization (pVal As RPClassifier)
```

Arguments

pVal
The generalization to add to this class

C/C++ Prototype

```
HRESULT addGeneralization (IRPCClassifier *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

```
Sub addUi(c As RPClass)  
Dim x As Object  
Dim p As RPPackage  
Dim theClass As RPClass  
'all gui objects are derived from GUI.UIBase  
c.Description = "gui class"  
On Error Resume Next  
Set p = pr.findNestedElement("GUI", "Package")  
Set theClass = p.findNestedElement("UIBase", "Class")  
c.addGeneralization theClass  
  
If Not Err.Number = 0 Then  
    MsgBox (errorMessage)  
End If  
  
c.addStereotype "G3UI", "Class"  
End Sub
```

addOperation

Write method

Description

The [addOperation](#) method adds an operation to the current class.

Visual Basic

Syntax

```
addOperation (name As String) As RPOperation
```

Arguments

name
The name of the new operation

Return Value

The operation added to this class

C/C++ Prototype

```
HRESULT addOperation (BSTR name, IRPOperation** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

```
Sub addNetwork(c As RPCClass)
Dim o As RPOperation
c.addOperation ("serialize")
c.addOperation ("unserialize")
c.addConstructor ("")
On Error Resume Next
c.addDestructor ("")
x = c.addStereotype("G3Network", "Class")
End Sub
```

addRelation

Write method

Description

The [addRelation](#) method adds a symmetric relation between the current class and another one.

Visual Basic

Syntax

```
addRelation (otherClassName As String,  
            otherClassPackageName As String,  
            roleName1 As String, linkType1 As String,  
            multiplicity1 As String, roleName2 As String,  
            linkType2 As String, multiplicity2 As String,  
            linkName As String) As RPRelation
```

Arguments

OtherClassName

The name of the other class involved in the new relation with the current class.

OtherClassPackageName

The name of the package containing the other class.

roleName1

The role name of the other class, from the point of view of the current class.

roleName2

The role name of the current class, from the point of view of the other class.

linkType1

The relation type. The possible values are as follows:

Aggregation

Association

Composition

linkType2

The second relation type. The possible values are as follows:

Aggregation

Association

Composition

multiplicity1

The multiplicity of instances for the other class.

multiplicity2

The multiplicity of instances for the current class.

linkName

The name of the link. This is a descriptive and explanatory field that plays no part in code generation.

Notes

The valid combinations of linkType1 and linkType2 are as follows:

Association/Association--I know you; you know me.

Aggregation/Association--I belong to you; you know me.

Composition/Association--I strongly belong to you; you know me.

Association/Aggregation--I know you; you belong to me.

Association/Composition--I know you; you strongly belong me.

Return Value

The new relation

C/C++ Prototype

```
HRESULT addRelation (BSTR otherClassName,  
                    BSTR otherClassPackageName, BSTR roleName1,  
                    BSTR linkType1, BSTR multiplicity1, BSTR roleName2,  
                    BSTR linkType2, BSTR multiplicity2, BSTR linkName,  
                    IRPRelation** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addStatechart

Write method

Description

The [addStatechart](#) method adds a statechart to the current class.

Visual Basic

Syntax

```
addStatechart() As RPStatechart
```

Return Value

The new statechart

C/C++ Prototype

```
HRESULT addStatechart (IRPStatechart** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addUnidirectionalRelation

Write method

Description

The [addUnidirectionalRelation](#) method adds a directional relation from the current class to another class.

Visual Basic

Syntax

```
addUnidirectionalRelation (otherClassName As String,  
    otherClassPackageName As String,  
    roleName As String, linkType As String,  
    multiplicity As String,  
    linkName As String) As RPRelation
```

Arguments

OtherClassName

The name of the other class involved in the new relation with the current class.

OtherClassPackageName

The name of the package containing the other class.

roleName

The role name of the other class, from the point of view of the current class.

linkType

The relation type. The possible values are as follows:

Aggregation

Association

Composition

multiplicity

The multiplicity of instances for the other class.

linkName

The name of the link. This is a descriptive and explanatory field that plays no part in code generation.

Return Value

The new relation

C/C++ Prototype

```
HRESULT addUnidirectionalRelation (BSTR otherClassName,  
    BSTR otherClassPackageName, BSTR roleName,  
    BSTR linkType, BSTR multiplicity, BSTR linkName,  
    IRPRelation** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteActivityDiagram

Write method

Description

The [deleteActivityDiagram](#) method deletes the specified activity diagram from the current class.

Visual Basic

Syntax

```
deleteActivityDiagram ()
```

C/C++ Prototype

```
HRESULT deleteActivityDiagram()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteAttribute

Write method

Description

The [deleteAttribute](#) method deletes the specified attribute from the current class.

Visual Basic

Syntax

```
deleteAttribute (attribute As RPAtribute)
```

Arguments

attribute

The attribute to delete

C/C++ Prototype

```
HRESULT deleteAttribute (IRPAttribute* attribute)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteFlowItems

Write method

Description

The [deleteFlowItems](#) method deletes the specified flowItem from the collection of flowItems.

Visual Basic

Syntax

```
deleteFlowItems (pItem As RPFlowItem)
```

Arguments

pFlowItem
The flowItem to delete

C/C++ Prototype

```
HRESULT deleteFlowItems (IRPFlowItem* pItem)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteFlows

Write method

Description

The [deleteFlows](#) method deletes the specified flow from the collection of flows.

Visual Basic

Syntax

```
deleteFlows (pFlow As RPFlow)
```

Arguments

pFlow
The flow to delete

C/C++ Prototype

```
HRESULT deleteFlows (IRPFlow* pFlow)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteGeneralization

Write method

Description

The [deleteGeneralization](#) method deletes the specified generalization from the current class.

Visual Basic

Syntax

```
deleteGeneralization (superClass As RPClassifier)
```

Arguments

superClass

The superclass of the current class to be deleted

C/C++ Prototype

```
HRESULT deleteGeneralization (IRPClassifier* superClass)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteOperation

Write method

Description

The [deleteOperation](#) method deletes the specified operation from the current class.

Visual Basic

Syntax

```
deleteOperation (operation As RPOperation)
```

Arguments

operation

The operation to delete

C/C++ Prototype

```
HRESULT deleteOperation (IRPOperation* operation)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteRelation

Write method

Description

The [deleteRelation](#) method deletes the specified relation from the current class.

Visual Basic

Syntax

```
deleteRelation (relation As RPRelation)
```

Arguments

relation
The relation to delete

C/C++ Prototype

```
HRESULT deleteRelation (IRPRelation* relation)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteStatechart

Write method

Description

The [deleteStatechart](#) method deletes the specified statechart from this class.

Visual Basic

Syntax

```
deleteStatechart()
```

C/C++ Prototype

```
HRESULT deleteStatechart()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findAttribute

Read method

Description

The [findAttribute](#) method retrieves the specified attribute of the classifier.

Visual Basic

Syntax

```
findAttribute (name As String) As RPAttribute
```

Arguments

name
The name of the attribute to find

Return Value

The named attribute of the classifier

C/C++ Prototype

```
HRESULT findAttribute (BSTR newVal, IRPAttribute** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findBaseClassifier

Read method

Description

The [findBaseClassifier](#) method retrieves a base (parent) classifier of a classifier.

Visual Basic

Syntax

```
findBaseClassifier (newVal As String) As RPCClassifier
```

Arguments

newVal
The name of the base classifier

Return Value

The base classifier of this classifier

C/C++ Prototype

```
HRESULT findBaseClassifier (BSTR newVal,  
    IRPClassifier** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findDerivedClassifier

Read method

Description

The [findDerivedClassifier](#) method retrieves the specified derived classifier of a classifier.

Visual Basic

Syntax

```
findDerivedClassifier (newVal As String) As RPCClassifier
```

Arguments

newVal

The name of the derived classifier of this classifier

Return Value

The derived classifier of this classifier

C/C++ Prototype

```
HRESULT findDerivedClassifier (BSTR newVal,  
    IRPClassifier** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findGeneralization

Read method

Description

The [findGeneralization](#) method retrieves the specified generalization that belongs to this classifier.

Visual Basic

Syntax

```
findGeneralization (newVal As String) As RPGeneralization
```

Arguments

newVal

The name of the generalization

Return Value

The RPGeneralization

C/C++ Prototype

```
HRESULT findGeneralization (BSTR newVal,  
    IRPGeneralization** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findInterfaceItem

Read method

Description

The [findInterfaceItem](#) method retrieves an operation or event reception of the given signature that belongs to a classifier.

Visual Basic

Syntax

```
findInterfaceItem (signature As String)  
As RPInterfaceItem
```

Arguments

signature

The signature of the operation or event reception of this classifier

Return Value

The operation or event reception

C/C++ Prototype

```
HRESULT findInterfaceItem (BSTR signature,  
IRPInterfaceItem** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findNestedClassifier

Read method

Description

The [findNestedClassifier](#) method retrieves the specified classifier defined within this object.

Visual Basic

Syntax

```
findNestedClassifier (newVal As String) As RPCClassifier
```

Arguments

newVal
The name of the nested classifier

Return Value

The nested classifier within this classifier

C/C++ Prototype

```
HRESULT findNestedClassifier (BSTR newVal,  
                             IRPClassifier** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findNestedClassifierRecursive

Read method

Description

The [findNestedClassifierRecursive](#) method recursively retrieves the specified classifier defined in this object and in objects defined within this object.

Visual Basic

Syntax

```
findNestedClassifierRecursive (newVal As String)  
    As RModelElement
```

Arguments

newVal

The name of the nested classifier (at any level of ownership)

Return Value

The nested classifier

C/C++ Prototype

```
HRESULT findNestedClassifierRecursive (BSTR newVal,  
    IRPModelElement** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findNestedGeneralization

Read method

Description

The [findNestedGeneralization](#) method retrieves the specified generalization relation.

Visual Basic

Syntax

```
findGeneralization (name As String) As IRPGeneralization
```

Arguments

name

A string that specifies the name of the generalization to find

Return Value

The generalization for this classifier (an IRPGeneralization)

C/C++ Prototype

```
HRESULT findGeneralization(BSTR newVal,  
    IRPGeneralization** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findRelation

Read method

Description

The [findRelation](#) method retrieves the specified relation that belongs to the current classifier.

Visual Basic

Syntax

```
findRelation (newVal As String) As RPRelation
```

Arguments

```
newVal  
The name of the relation to find
```

Return Value

The classifier's relation

C/C++ Prototype

```
HRESULT findRelation (BSTR newVal, IRPRelation** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findTrigger

Read method

Description

The [findTrigger](#) method retrieves the specified trigger in the statechart of the current class.

Visual Basic

Syntax

```
findTrigger (name As String) As RPInterfaceItem
```

Arguments

name
The name of the trigger to find

Return Value

The trigger

C/C++ Prototype

```
HRESULT findTrigger (BSTR name, IRPInterfaceItem** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getAttributesIncludingBases

Read method

Description

The [getAttributesIncludingBases](#) method retrieves the attributes defined for this class and the ones inherited from its superclasses.

Visual Basic

Syntax

```
getAttributesIncludingBases() As RPCollection
```

Return Value

A collection of class attributes (RPAttributes)

C/C++ Prototype

```
HRESULT getAttributesIncludingBases (  
    IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getInterfaceItemsIncludingBases

Read method

Description

The [getInterfaceItemsIncludingBases](#) method retrieves the operations and event receptions defined for this class and the ones it inherited from its superclasses.

Visual Basic

Syntax

```
getInterfaceItemsIncludingBases() As RPCollection
```

Return Value

A collection of interface items

C/C++ Prototype

```
HRESULT getInterfaceItemsIncludingBases(  
    IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getRelationsIncludingBases

Read method

Description

The [getRelationsIncludingBases](#) method retrieves the relations defined for this class and the ones it inherited from its superclasses.

Visual Basic

Syntax

```
getRelationsIncludingBases() As RPRelations
```

Return Value

A collection of relations

C/C++ Prototype

```
HRESULT getRelationsIncludingBases (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPClassifierRole Interface

The `IRPClassifierRole` interface represents an object participating in the collaboration. It usually corresponds to some object of a given class or actor. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
<code>formalClassifier</code>	<code>RPClassifier</code>	RO	The classifier (NULL (unspecified), <code>systemBorder</code> , or <code>multipleObjects</code>)
<code>referencedSequenceDiagram</code>	<code>RPSequenceDiagram</code>	RW	The referenced sequence diagram
<code>roleType</code>	<code>String</code>	RO	The role type (unspecified, <code>systemBorder</code> , <code>class</code> , <code>actor</code> , or <code>multipleObjects</code>)

IRPCollaboration Interface

The `IRPCollaboration` interface represents the logical collaboration, devoid of any sequence diagram or collaboration diagram graphics. Note that the two diagrams give rise to similar but slightly different `IRPCollaboration` objects. This class inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
activationCondition	CString	RO	The activation condition. This can be empty.
activationMode	CString	RO	The activation mode (initial, invariant, or unspecified).
associations	RPAssociationRoles	RO	A collection of <code>RPAssociationRoles</code> in the collaboration diagram. This applies only to collaboration diagram-based <code>IRPCollaborations</code> .
classifier	RPClassifierRoles	RO	A collection of <code>RPClassifierRoles</code> in the collaboration diagram.
messagePoints	RPMessagePoints	RO	A collection of <code>RPMessagePoints</code> . For sequences, this is the way of obtaining full information about the order of messages in the sequence diagram. For collaborations, each send messagepoint is immediately followed by a receive messagepoint on the same message.
messages	RPMessages	RO	A collection of <code>RPMessages</code> . For collaborations, this list contains all information regarding the order of elements in the model. For sequences, some information is lost and the message list is ordered by the send time (as opposed to the receive time).
mode	Cstring	RO	The mode (existential, universal, or unspecified).

Method Summary

<u>addCancelledTimeout</u>	Adds a cancelled timeout to the diagram
<u>addClassifierRole</u>	Adds a classifier role
<u>addClassifierRoleByName</u>	Adds a classifier role, given its name
<u>addCtor</u>	Adds a constructor
<u>addDestructionEvent</u>	Adds a destruction event to a classifier role in a sequence diagram
<u>addDtor</u>	Adds a destructor
<u>addFoundMessage</u>	Adds a found message to a classifier role in a sequence diagram
<u>addInteractionOccurrence</u>	Adds an interaction occurrence (reference diagram) to the diagram
<u>addInteractionOperator</u>	Adds an interaction operator to a sequence diagram
<u>addLostMessage</u>	Adds a lost message to a classifier role in a sequence diagram
<u>addMessage</u>	Adds a message
<u>addSystemBorder</u>	Adds a system border
<u>addTimeInterval</u>	Adds a time interval to the diagram
<u>addTimeout</u>	Adds a timeout the diagram
<u>generateSequence</u>	Generates the specified sequence diagram
<u>getConcurrentGroup</u>	Retrieves the activation messages
<u>getConcurrentGroup</u>	Retrieves all the messages concurrent with the input message, including the input message itself
<u>getMessagePoints</u>	Returns an ordered collection of all messagepoints occurring on this classifier
<u>getPredecessor</u>	Retrieves the message that precedes the specified message
<u>getSuccessor</u>	Retrieves the message that follows the specified message

addCancelledTimeout

Write method

Description

The [addCancelledTimeout](#) method adds a cancelled timeout to a collaboration diagram.

Visual Basic

Syntax

```
addCancelledTimeout (receiver As RPClassifierRole)  
    As RPMessage
```

Arguments

receiver

The receiver object for the timeout

Return Value

The new cancelled timeout

C/C++ Prototype

```
HRESULT addCancelledTimeout (IRPClassifierRole *receiver,  
    IRPMessage **pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addClassifierRole

Write method

Description

The [addClassifierRole](#) method adds a classifier role.

Visual Basic

Syntax

```
addClassifierRole (newVal As String, cls As RPClass)  
    As RPClassifierRole
```

Arguments

newVal	
The name of the new classifier role	
cls	
The name of the class	

Return Value

The new RPClassifierRole

C/C++ Prototype

```
HRESULT addClassifierRole (BSTR newVal, IRPClass *cls,  
    IRPClassifierRole** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addClassifierRoleByName

Write method

Description

The [addClassifierRoleByName](#) method adds the specified classifier role.

Visual Basic

Syntax

```
addClassifierRoleByName (newVal As String,  
    classFullPath As String) As RPCClassifierRole
```

Arguments

newVal

The name of the classifier role to add

classFullPath

The full path to the class

Return Value

The new RPCClassifierRole

C/C++ Prototype

```
HRESULT addClassifierRoleByName (BSTR newVal,  
    BSTR classFullPath, IRPCClassifierRole** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addCtor

Write method

Description

The [addCtor](#) method adds a constructor.

Visual Basic

Syntax

```
addCtor (interItem As RPInterfaceItem,  
        actualParamList As String, sender As RPClassifierRole,  
        receiver As RPClassifierRole) As RPMessage
```

Arguments

interItem

The interface item

actualParamList

The list of parameters for the constructor

sender

The RPClassifierRole that acts as the sender

receiver

The RPClassifierRole that acts as the receiver

Return Value

An RPMessage

C/C++ Prototype

```
HRESULT addCtor (IRPInterfaceItem *interItem,  
                BSTR actualParamList, IRPClassifierRole *sender,  
                IRPClassifierRole *receiver, IRPMessage** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addDestructionEvent

Write method

Description

The `addDestructionEvent` method is used to add a destruction event to a classifier role in a sequence diagram.

Visual Basic

Syntax

```
addDestructionEvent (classifier As RPCClassifierRole) As RMessage
```

Arguments

`classifier`

The classifier role to which the destruction event should be added.

Return Value

An `RMessage`

Return Value

`HRESULT` (0 for success, or a signed integer error code)

addDtor

Write method

Description

The [addDtor](#) method adds a destructor.

Visual Basic

Syntax

```
addDtor (interItem As RPInterfaceItem,  
        actualParamList As String, sender As RPClassifierRole,  
        receiver As RPClassifierRole) As RPMessage
```

Arguments

interItem

The interface item

actualParamList

The list of parameters for the constructor

sender

The RPClassifierRole that acts as the sender

receiver

The RPClassifierRole that acts as the receiver

Return Value

An RPMessage

C/C++ Prototype

```
HRESULT addDtor (IRPInterfaceItem *interItem,  
                BSTR actualParamList, IRPClassifierRole *sender,  
                IRPClassifierRole *receiver, IRPMessage** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addFoundMessage

Write method

Description

The `addFoundMessage` method is used to add a found message to a classifier role in a sequence diagram.

Visual Basic

Syntax

```
addFoundMessage (receiver As RPClassifierRole) As RPMessage
```

Arguments

`receiver`

The classifier role that receives the message from an unknown sender.

Return Value

An `RPMessage`

Return Value

- ◆ `HRESULT` (0 for success, or a signed integer error code)

addInteractionOccurrence

Write method

Description

The [addInteractionOccurrence](#) method adds a new interaction occurrence (reference diagram) to the collaboration diagram.

Visual Basic

Syntax

```
addInteractionOccurrence () As RPInteractionOccurrence
```

Return Value

The new interaction occurrence

C/C++ Prototype

```
HRESULT addInteractionOccurrence (  
    IRPInteractionOccurrence** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addInteractionOperator

Write method

Description

The `addInteractionOperator` method is used to add an interaction operator to a sequence diagram.

Visual Basic

Syntax

```
addInteractionOperator() As RPInteractionOperator
```

Arguments

None

Return Value

An `RPInteractionOperator`

Return Value

`HRESULT` (0 for success, or a signed integer error code)

addLostMessage

Write method

Description

The `addLostMessage` method is used to add a lost message to a classifier role in a sequence diagram.

Visual Basic

Syntax

```
addLostMessage (sender As RPClassifierRole) As RPMessage
```

Arguments

`sender`

The classifier role that sent the message that did not reach its target.

Return Value

An `RPMessage`

Return Value

`HRESULT` (0 for success, or a signed integer error code)

addMessage

Write method

Description

The [addMessage](#) method adds a message.

Visual Basic

Syntax

```
addMessage (interItem As RPInterfaceItem,  
            actualParamList As String, sender As RPClassifierRole,  
            receiver As RPClassifierRole) As RPMessage
```

Arguments

interItem

The interface item

actualParamList

The list of parameters for the constructor

sender

The RPClassifierRole that acts as the sender

receiver

The RPClassifierRole that acts as the receiver

Return Value

The new message

C/C++ Prototype

```
HRESULT addMessage (IRPInterfaceItem *interItem,  
                    BSTR actualParamList, IRPClassifierRole *sender,  
                    IRPClassifierRole *receiver, IRPMessage** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addSystemBorder

Write method

Description

The [addSystemBorder](#) method adds a system border to the collaboration diagram.

Visual Basic

Syntax

```
addSystemBorder () As RPClassifierRole
```

Return Value

The new system border

C/C++ Prototype

```
HRESULT addSystemBorder (IRPClassifierRole** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addTimeInterval

Write method

Description

The [addTimeInterval](#) method adds a time interval to the diagram.

Visual Basic

Syntax

```
addTimeInterval (receiver As RPClassifierRole)  
    As RMessage
```

Arguments

```
interItem  
The interface item
```

Return Value

```
The new time interval
```

C/C++ Prototype

```
HRESULT addTimeInterval (IRPClassifierRole *receiver,  
    IRPMessage** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addTimeout

Write method

Description

The [addTimeout](#) method adds a timeout.

Visual Basic

Syntax

```
addTimeout (interItem As RPInterfaceItem,  
            actualParamList As String, sender As RPClassifierRole,  
            receiver As RPClassifierRole) As RPMessage
```

Arguments

interItem

The interface item

actualParamList

The list of parameters for the constructor

sender

The RPClassifierRole that acts as the sender

receiver

The RPClassifierRole that acts as the receiver

Return Value

The new timeout

C/C++ Prototype

```
HRESULT addTimeout (IRPInterfaceItem *interItem,  
                    BSTR actualParamList, IRPClassifierRole *sender,  
                    IRPClassifierRole *receiver, IRPMessage** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

generateSequence

Write method

Description

The [generateSequence](#) method generates the specified sequence diagram.

Visual Basic

Syntax

```
generateSequence (newVal As String, owner As RPPackage)  
    As RPSequenceDiagram
```

Arguments

newVal

The name of the sequence diagram to generate

owner

The owner package

Return Value

The new RPSequenceDiagram

C/C++ Prototype

```
HRESULT generateSequence (BSTR newVal, IRPPackage* owner,  
    IRPSequenceDiagram** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getActivator

Read method

Description

The [getActivator](#) method retrieves the activation messages.

Visual Basic

Syntax

```
getActivator (msg As RMessage) As RMessage
```

Arguments

msg

The message to retrieve

Return Value

A collection of RMessages

C/C++ Prototype

```
HRESULT getActivator (IRPMessage* msg,  
    IRPMessage** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getConcurrentGroup

Read method

Description

The [getConcurrentGroup](#) method retrieves all the messages concurrent with the input message, including the input message itself. If the message does not have any concurrent messages because it is sequential, the method returns only the message itself.

Visual Basic

Syntax

```
getConcurrentGroup (message As RMessage) As RMessages
```

Arguments

message

The group of messages to retrieve

Return Value

A collection of RMessages

C/C++ Prototype

```
HRESULT getConcurrentGroup (IRPMessage* message,  
                             IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getMessagePoints

Read method

Description

The [getMessagePoints](#) method returns an ordered collection of all messagepoints occurring on this classifier.

Visual Basic

Syntax

```
getMessagePoints (classifier As RPClassifierRole)  
    As RPCollection
```

Arguments

classifier

The RPClassifier whose messagepoints you want to retrieve

Return Value

A collection of RPMessagePoints

C/C++ Prototype

```
HRESULT getMessagePoints (IRPClassifier* classifier,  
    IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getPredecessor

Read method

Description

The [getPredecessor](#) method retrieves the message that precedes the specified message.

Visual Basic

Syntax

```
getPredecessor (message As RMessage) As RMessage
```

Arguments

message

The message whose predecessor you want

Return Value

The message that precedes the specified message

C/C++ Prototype

```
HRESULT getPredecessor (IRPMessage *message,  
IRPMessage** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getSuccessor

Read method

Description

The [getSuccessor](#) method retrieves the message that follows the specified message.

Visual Basic

Syntax

```
getSuccessor (message As RMessage) As RMessage
```

Arguments

message

The message whose successor you want

Return Value

The message that follows the specified message

C/C++ Prototype

```
HRESULT getSuccessor (IRPMessage *message,  
                      IRPMessage** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPCollaborationDiagram Interface

The `IRPCollaborationDiagram` interface represents a collaboration diagram. It inherits from `IRPDiagram`.

Method Summary

<code>getLogicalCollaboration</code>	Retrieves the logic behind the collaboration diagram
--	--

`getLogicalCollaboration`

Read method

Description

The [`getLogicalCollaboration`](#) method retrieves the logic behind the collaboration diagram.

Visual Basic

Syntax

```
getLogicalCollaboration() As RPCollaboration
```

Return Value

The collaboration diagram

C/C++ Prototype

```
HRESULT getLogicalCollaboration (IRPCollaboration** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPCollection Interface

The `IRPCollection` interface is a utility class used to return collections of `IRPModelElements`. Methods and attributes that need to return more than one element always return a pointer to an `IRPCollection`.

`IRPCollection` also supports VB iteration via the following construct:

```
For Each obj in col
```

VB Properties

Name	Type	Access	Description
Count	Long	RO	The number of elements currently in the collection
Item(long i)	<code>RPModelElement*</code>	RO	The <i>i</i> th element in the collection

Method Summary

<u>addItem</u>	Adds an item to the collection
--------------------------------	--------------------------------

addItem

Write method

Description

The [addItem](#) method adds an item to the collection.

Visual Basic

Syntax

```
addItem (newVal As RPModelElement)
```

Arguments

newVal
The new item to add

C/C++ Prototype

```
HRESULT addItem (IRPModelElement* newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPComment Interface

The `IRPComment` interface represents Rhapsody comments. It inherits from `IRPAnnotation`.

IRPComponent Interface

The `IRPComponent` interface represents a code generation component. It inherits from `IRPUnit`.

VB Properties

Name	Type	Access	Description
<code>additionalSources</code>	<code>String</code>	RW	The additional source files to be compiled with the component.
<code>buildType</code>	<code>String</code>	RW	The build type (library or executable).
<code>configurations</code>	Collection of <code>RPConfiguration</code>	RW	The configurations of this component.
<code>files</code>	Collection of <code>RPFiles</code>	RO	The files of this component.
<code>includePath</code>	<code>String</code>	RW	The path to standard headers to be linked with the component.
<code>libraries</code>	<code>String</code>	RW	The libraries to be linked with the component (for example, "x.lib, y.lib, z.lib").
<code>nestedComponents</code>	Collection of <code>RPComponent</code>	RO	The components nested in this component.
<code>path(fullPath)</code>	<code>String(path)</code> <code>Boolean(fullPath)</code>	RO	The string containing the path to the component. If <code>fullPath</code> is <code>True</code> , the full path is returned: <pre><drive>:\ <model dir>\ <component dir>\ <config dir></pre> If <code>fullPath</code> is <code>False</code> , the path relative to the project is returned: <pre><component dir>\ <config dir></pre>

Name	Type	Access	Description
scopeElements	Collection of RPModelElement	RO	The logical elements allocated to this component.
standardHeaders	String	RW	The standard header files to be linked with the component.

Method Summary

<u>addConfiguration</u>	Adds a configuration to this component
<u>addFile</u>	Adds an empty file to the current component
<u>addFolder</u>	Adds an empty folder to the current component
<u>addNestedComponent</u>	Adds a component to the current component
<u>addScopeElement</u>	Places a model element within the scope of the current component
<u>addToScope</u>	Places the specified file, classes, and packages within the scope of the current component
<u>allElementsInScope</u>	Places all model elements within the scope of the current component
<u>deleteConfiguration</u>	Deletes the specified configuration from the current component
<u>deleteFile</u>	Deletes the specified file from the current component
<u>findConfiguration</u>	Retrieves the specified configuration in the current component
<u>getConfigByDependency</u>	Retrieves the appropriate configuration to use in the component on which the current component depends
<u>getFile</u>	Returns the file in which the specified classifier will be generated
<u>getFileName</u>	Retrieves the name of the file to which the specified classifier will be generated in this component
<u>getModelElementFileName</u>	Gets the file name of the specified model element
<u>getPackageFile</u>	Returns the package file
<u>removeScopeElement</u>	Deletes a scope element
<u>setPath</u>	Sets the path of the application built for this component

addConfiguration

Write method

Description

The [addConfiguration](#) method adds a configuration to the current component.

Visual Basic

Syntax

```
addConfiguration (name As String) As RPConfiguration
```

Arguments

name
The name of the new configuration

Return Value

The new configuration

C/C++ Prototype

```
HRESULT addConfiguration (BSTR name,  
IRPConfiguration** configuration)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addFile

Write method

Description

The [addFile](#) method adds an empty file to the current component.

Visual Basic

Syntax

```
addFile (name As String) As RPFile
```

Arguments

name
The name of the new file

Return Value

The file added to the component

C/C++ Prototype

```
HRESULT addFile (BSTR name, IRPFile** file)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addFolder

Write method

Description

The [addFolder](#) method adds an empty folder to the current component.

Visual Basic

Syntax

```
addFolder (name As String) As RPFile
```

Arguments

name
The name of the new folder

Return Value

The folder added to the component

C/C++ Prototype

```
HRESULT addFolder (BSTR name, IRPFile** file)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addNestedComponent

Write method

Description

The [addNestedComponent](#) method adds a component to the current component.

Visual Basic

Syntax

```
addNestedComponent (name As String) As RPCComponent
```

Arguments

name

The name of the component to add

Return Value

The component added to the current component

C/C++ Prototype

```
HRESULT addNestedComponent (BSTR name,  
IRPComponent** pval)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addScopeElement

Write method

Description

The [addScopeElement](#) method places a model element within the scope of the current component.

Visual Basic

Syntax

```
addScopeElement (pVal As RModelElement)
```

Arguments

pVal

The RModelElement to place in the scope of the current component

C/C++ Prototype

```
HRESULT addScopeElement (IRPModelElement* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addToScope

Write method

Description

The [addToScope](#) method places the specified file, classes, and packages within the scope of the current component.

Visual Basic

Syntax

```
addToScope (file As RPFile,  
            classes As RPCollection, packages As RPCollection)
```

Arguments

file

The file to place in scope of the current component

classes

The classes to place in scope of the current component

packages

The packages to place in scope of the current component

C/C++ Prototype

```
HRESULT addToScope (IRPFile* file,  
                    IRPCollection* classes, IRPCollection* packages)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

allElementsInScope

Write method

Description

The [allElementsInScope](#) method places all model elements within the scope of the current component.

Visual Basic

Syntax

```
allElementsInScope()
```

C/C++ Prototype

```
HRESULT allElementsInScope()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteConfiguration

Write method

Description

The [deleteConfiguration](#) method deletes the specified configuration from the current component.

Visual Basic

Syntax

```
deleteConfiguration (configuration As RPConfiguration)
```

Arguments

configuration

The configuration to delete

C/C++ Prototype

```
HRESULT deleteConfiguration (  
    IRPConfiguration* configuration)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteFile

Write method

Description

The [deleteFile](#) method deletes the specified file from the current component.

Visual Basic

Syntax

```
deleteFile (file As RPFile)
```

Arguments

file
The file to delete

C/C++ Prototype

```
HRESULT deleteFile (IRPFile* file)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findConfiguration

Read method

Description

The [findConfiguration](#) method retrieves the specified configuration in the current component.

Visual Basic

Syntax

```
findConfiguration (name As String) As RPConfiguration
```

Arguments

name

The name of the configuration to retrieve

Return Value

The Rhapsody configuration

C/C++ Prototype

```
HRESULT findConfiguration (BSTR name,  
IRPConfiguration** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getConfigByDependency

Used in cases where there are dependencies between components, this method retrieves the appropriate configuration to use in the component on which the current component depends. The argument required is the name of the dependency between the components.

getFile

Read method

Description

The [getFile](#) method returns the file in which the specified classifier will be generated.

Visual Basic

Syntax

```
getFile (c As RPClassifier, spec As Long) As RPFile
```

Arguments

c

The classifier.

spec (1 or 0)

If this is set to 1, the file is a specification file.

Return Value

The file in which the specified classifier is generated

C/C++ Prototype

```
HRESULT getFile (IRPClassifier* c, long spec,  
                IRPFile** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getFileName

Read method

Description

The [getFileName](#) method retrieves the name of the file to which the specified classifier will be generated in this component.

Visual Basic

Syntax

```
getFileName (c As RPClassifier, spec As Long,  
            withExt As Long) As String
```

Arguments

c

The classifier.

spec (1 or 0)

If this is set to 1, the file is a specification file.

withExt (1 or 0)

If this is set to 1, the file extension is included in the retrieval.

Return Value

The name of the file that contains the generated classifier

C/C++ Prototype

```
HRESULT getFileName (IRPClassifier* c, long spec,  
                    long withExt, BSTR* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getModelElementFileName

Read method

Description

The [getModelElementFileName](#) method gets the file name of the specified model element.

Visual Basic

Syntax

```
getModelElementFileName (c As RPModelElement,  
    long spec As Long, withExt As Long) As String
```

Arguments

c

The model element.

spec (1 or 0)

If this is set to 1, this is a specification file.

withExt (1 or 0)

If this is set to 1, the extension is included in the returned file name.

Return Value

The file name

C/C++ Prototype

```
HRESULT getModelElementFileName (IRPModelElement *c,  
    long spec, long withExt, BSTR *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getPackageFile

Read method

Description

The [getPackageFile](#) method returns the package file.

Visual Basic

Syntax

```
getPackageFile (c as RPPackage, spec As Long spec)  
As RPFile
```

Arguments

c

The model element.

spec (1 or 0)

If this is set to 1, this is a specification file.

Return Value

The file name

C/C++ Prototype

```
HRESULT getPackageFile (IRPPackage* c, long spec,  
IRPFile** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

removeScopeElement

Write method

Description

The [removeScopeElement](#) method deletes the scope element.

Visual Basic

Syntax

```
removeScopeElement (pVal As RPModelElement)
```

Arguments

pVal
The element to delete

C/C++ Prototype

```
HRESULT removeScopeElement (IRPModelElement* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setPath

Write method

Description

The [setPath](#) method sets the path of the application built for this component.

Visual Basic

Syntax

```
setPath (path As String)
```

Arguments

path

The path to which this component is built

C/C++ Prototype

```
HRESULT setPath (BSTR path)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPComponentDiagram Interface

The `IRPComponentDiagram` interface represents a component diagram. It inherits from the `IRPDiagram`.

Currently, `IRPComponentDiagram` does not expose additional functionality to the diagram.

IRPComponentInstance Interface

The `IRPComponentInstance` interface represents a component instance. It inherits from the `IRPComponent`.

VB Properties

Name	Type	Access	Description
componentType	<code>RPComponent</code>	RW	The component type
node	<code>RPNode</code>	RO	The node

IRPConfiguration Interface

The `IRPConfiguration` interface represents a code generation configuration within a given `IRPComponent`. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
<code>additionalSources</code>	<code>String</code>	RW	The additional source files to be compiled with this configuration.
<code>allElementsInInstrumentationScope</code>	<code>Long</code>	RW	<p>A Boolean value that reflects the All Elements and Selected Elements options of the instrumentation scope. The property defines the following accessor and mutator:</p> <pre>propget, HRESULT allElementsIn- Instrumentation-Scope ([out, retval] BOOL *pVal); propput, HRESULT allElementsIn- Instrumentation-Scope ([in] BOOL newVal);</pre>
<code>buildSet</code>	<code>String</code>	RW	The build set of this configuration (debug or release).
<code>compilerSwitches</code>	<code>String</code>	RW	The compiler switches to be applied to this configuration in addition to those already specified in property <code><lang>_CG::<env>::CPPCompileSwitches</code> .
<code>generateCodeForActors</code>	<code>Boolean</code>	RW	If this is <code>TRUE</code> , code is generated for actors when this configuration is generated.
<code>includePath</code>	<code>String</code>	RW	The path to standard headers to be linked with the configuration.
<code>initialInstances</code>	<code>RPCollection</code>	RO	The initial instances.

Name	Type	Access	Description
initializationCode	String	RW	The string containing the initialization code to be added to the main program after any initialization done by Rhapsody and before the main program loop.
instrumentationScope	RPCollection	RW	A container of elements in the selected instrumentation scope, if the All Elements option is selected. The property defines the following accessor: <pre>propget, HRESULT instrumentationScope([out], retval) IRPCollection** pVal);</pre>
instrumentationType	String	RW	The type of instrumentation in this configuration (None, Trace, or Animate).
libraries	String	RW	The libraries to be linked with the component (for example, "x.lib, y.lib, z.lib").
linkSwitches	String	RW	The link switches to be applied to the configuration in addition to those already specified in the property <code><lang>_CG::<env>::LinkSwitches.</code>
path(fullPath)	String(path) Boolean(fullPath)	RO	The string containing the path to the component. If fullPath is true, the full path is returned: <pre><drive>:\ <model dir>\ <component dir>\ <config dir></pre> If fullPath is false, the path relative to the project is returned: <pre><component dir>\ <config dir></pre>
scopeType	String	RW	The scope type of the configuration (explicit or derived).

Name	Type	Access	Description
standardHeaders	String	RW	The standard header files to be linked with the configuration.
statechartImplementation	String	RW	The statechart implementation of the configuration (flat or reusable).
timeModel	String	RW	The time model of the configuration (real or simulated).

Method Summary

<u>addInitialInstance</u>	Adds an instance to the list of initial instances for the current configuration
<u>addPackageToInstrumentationScope</u>	Adds a classifier to the instrumentation scope
<u>addToInstrumentationScope</u>	Adds explicit initial instances to the instrumentation scope
<u>deleteInitialInstance</u>	Deletes an instance from the list of build instances for the current configuration
<u>getDirectory</u>	Retrieves the build directory specified for the current configuration
<u>getItsComponent</u>	Retrieves the component to which the current configuration belongs
<u>getMainName</u>	Retrieves the name of the file where the <code>main()</code> routine for the current configuration resides
<u>getMakefileName</u>	Retrieves the name of the makefile generated for the current configuration
<u>getTargetName</u>	Retrieves the build name of the file to be generated for the current configuration
<u>removeFromInstrumentationScope</u>	Removes the classifier from the instrumentation scope
<u>removePackageFromInstrumentationScope</u>	Removes the specified package from the instrumentation scope. including all its aggregated classes, actors, and nested packages
<u>setDirectory</u>	Sets the directory for the current configuration
<u>setItsComponent</u>	Sets the owning component for the current configuration

addInitialInstance

Write method

Description

The [addInitialInstance](#) method adds an instance to the list of initial instances for the current configuration.

Visual Basic

Syntax

```
addInitialInstance (newVal As RPModelElement)
```

Arguments

newVal

The new instance to add to list of initial instances for this configuration

C/C++ Prototype

```
HRESULT addInitialInstance (IRPModelElement* newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addPackageToInstrumentationScope

Write method

Description

The [addPackageToInstrumentationScope](#) method adds the specified package to the instrumentation scope, including all its aggregated classes, actors, and nested packages.

Visual Basic

Syntax

```
addPackageToInstrumentationScope (pVal As RPPackage)
```

Arguments

pVal

The package to add to the instrumentation scope

C/C++ Prototype

```
HRESULT addPackageToInstrumentationScope (  
    IRPPackage* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addToInstrumentationScope

Write method

Description

The [addToInstrumentationScope](#) method adds explicit initial instances to the instrumentation scope.

Beginning with Version 5.0, Rhapsody 6.1 does not include explicit initial instances as part of the scope. In other words, in explicit mode, code is not generated for a class just because it is in the list of initial instances for the configuration.

For existing models, Rhapsody 6.1 sets the `CG::Configuration::AddExplicitInitialInstancesToScope` property to `True` at the project level to maintain the old behavior.

This change enables you to use the list of initial instances to create instances that their classes defined in related components (libraries).

Visual Basic

Syntax

```
addToInstrumentationScope (pVal As RPClassifier)
```

Arguments

pVal

The initial instance to add to the instrumentation scope

C/C++ Prototype

```
HRESULT addToInstrumentationScope (  
    IRPClassifier* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteInitialInstance

Write method

Description

The [deleteInitialInstance](#) method deletes an instance from the list of build instances for the current configuration.

Visual Basic

Syntax

```
deleteInitialInstance (newVal As RPModelElement)
```

Arguments

 NewVal

 The initial instance to delete from list of initial instances for this configuration

C/C++ Prototype

```
HRESULT deleteInitialInstance (IRPModelElement* newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getDirectory

Read method

Description

The [getDirectory](#) method retrieves the build directory specified for the current configuration.

Visual Basic

Syntax

```
getDirectory (fullPath As Long, newName As String)  
As String
```

Arguments

fullPath

If this is 1, the returned directory contains the full path.

newName

Reserved for future use.

Return Value

The build directory for the current configuration

C/C++ Prototype

```
HRESULT getDirectory (long fullPath, BSTR newName,  
BSTR* retVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getItsComponent

Read method

Description

The [getItsComponent](#) method retrieves the component to which the current configuration belongs.

Visual Basic

Syntax

```
getItsComponent() As RPCComponent
```

Return Value

The component to which this configuration belongs

C/C++ Prototype

```
HRESULT getItsComponent (IRPComponent** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getMainName

Read method

Description

The [getMainName](#) method retrieves the name of the file where the `main()` routine for the current configuration resides.

Visual Basic

Syntax

```
getMainName() As String
```

Return Value

The location of the file that contains the `main()`

C/C++ Prototype

```
HRESULT getMainName (BSTR* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getMakefileName

Read method

Description

The [getMakefileName](#) method retrieves the name of the makefile generated for the current configuration.

Visual Basic

Syntax

```
getMakefileName (fullPath As Long) As String
```

Arguments

fullPath

Set this to one of the following values:

1--Return the full path.

0--Return the path relative to the project directory.

Return Value

The name of the makefile

C/C++ Prototype

```
HRESULT getMakefileName (long fullPath, BSTR* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getTargetName

Read method

Description

The [getTargetName](#) method retrieves the build name of the file to be generated for the current configuration.

Visual Basic

Syntax

```
getTargetName (fullPath As Long) As String
```

Arguments

fullPath

Set this to one of the following values:

1--Return the full path.

0--Return the path relative to the project directory.

Return Value

The name of the build file (for example, BuildName.exe or BuildName.lib)

C/C++ Prototype

```
HRESULT getTargetName (long fullPath, BSTR* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

removeFromInstrumentationScope

Write method

Description

The [removeFromInstrumentationScope](#) method removes the classifier from the instrumentation scope.

Visual Basic

Syntax

```
removeFromInstrumentationScope (pVal As RPCClassifier)
```

Arguments

pVal

The classifier to remove from the instrumentation scope

C/C++ Prototype

```
HRESULT removeFromInstrumentationScope (  
    IRPClassifier *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

removePackageFromInstrumentationScope

Write method

Description

The [removePackageFromInstrumentationScope](#) method removes the specified package from the instrumentation scope, including all its aggregated classes, actors, and nested packages.

Visual Basic

Syntax

```
removePackageFromInstrumentationScope (pVal As RPPackage)
```

Arguments

pVal

The package to remove from the instrumentation scope

C/C++ Prototype

```
HRESULT removePackageFromInstrumentationScope (  
    IRPPackage* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setDirectory

Note

Currently, this method has not been implemented.

Write method

Description

The [setDirectory](#) method sets the directory for the current configuration.

Visual Basic

Syntax

```
setDirectory (fullpath As Long, newName As String)
```

Arguments

fullpath (1 or 0)

Set this to 1 to include the full directory path.

newName

The new name for the directory.

C/C++ Prototype

```
HRESULT setDirectory (long fullpath, BSTR newName)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setItsComponent

Write method

Description

The [setItsComponent](#) method sets the owning component for the current configuration.

Visual Basic

Syntax

```
setItsComponent (newVal As RPComponent)
```

Arguments

newVal

The new owner component for this configuration

C/C++ Prototype

```
HRESULT setItsComponent (IRPComponent* newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPConnector Interface

The `IRPConnector` interface represents a connector in a statechart diagram. It inherits from `IRPStateVertex`.

VB Properties

Name	Type	Access	Description
connectorType	String	RW	The connector type (Termination, History, Condition, Fork, Join, or Unknown)

Method Summary

<code>getDerivedInEdges</code>	Retrieves the incoming transitions for the connector
<code>getDerivedOutEdge</code>	Retrieves the outgoing transition for the connector
<code>getOfState</code>	Returns the state connected to the current connector if it is a history connector
<code>isConditionConnector</code>	Determines whether the current connector is a condition connector
<code>isDiagramConnector</code>	Determines whether the current connector is a diagram connector
<code>isForkConnector</code>	Determines whether the current connector is a fork synch bar connector
<code>isHistoryConnector</code>	Determines whether the current connector is a history connector
<code>isJoinConnector</code>	Determines whether the current connector is a join synch bar connector
<code>isJunctionConnector</code>	Determines whether the current connector is a junction connector
<code>isStubConnector</code>	Determines whether the current connector is a stub connector
<code>isTerminationConnector</code>	Determines whether the current connector is a termination connector
<code>setOfState</code>	Updates the source state of the current connector with a new state

getDerivedInEdges

Read method

Description

The [getDerivedInEdges](#) method retrieves the incoming transitions for the connector.

Visual Basic

Syntax

```
getDerivedInEdges() As RPCollection
```

Return Value

The incoming transitions

C/C++ Prototype

```
HRESULT getDerivedInEdges (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getDerivedOutEdge

Read method

Description

The [getDerivedOutEdge](#) method retrieves the outgoing transition for the connector.

Visual Basic

Syntax

```
getDerivedOutEdge() As Transition
```

Return Value

The outgoing transition

C/C++ Prototype

```
HRESULT getDerivedOutEdge (IRPTransition** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getOfState

Read method

Description

The [getOfState](#) method returns the state connected to the current connector if it is a history connector. This is the state for which the history connector maintains historical state information.

Visual Basic

Syntax

```
getOfState() As RPState
```

Return Value

The state for which the history connector maintains state information

C/C++ Prototype

```
HRESULT getOfState (IRPState** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isConditionConnector

Read method

Description

The [isConditionConnector](#) method determines whether the current connector is a condition connector.

Visual Basic

Syntax

```
isConditionConnector() As Long
```

Return Value

1 if the connector is a condition connector; 0 otherwise

C/C++ Prototype

```
HRESULT isConditionConnector (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isDiagramConnector

Read method

Description

The [isDiagramConnector](#) method determines whether the current connector is a diagram connector.

Visual Basic

Syntax

```
isDiagramConnector() As Long
```

Return Value

1 if the connector is a diagram connector; 0 otherwise

C/C++ Prototype

```
HRESULT isDiagramConnector (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isForkConnector

Read method

Description

The [isForkConnector](#) method determines whether the current connector is a fork synch bar connector.

Visual Basic

Syntax

```
isForkConnector() As Long
```

Return Value

1 if the connector is a fork synch bar connector; 0 otherwise

C/C++ Prototype

```
HRESULT isForkConnector (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isHistoryConnector

Read method

Description

The [isHistoryConnector](#) method determines whether the current connector is a history connector.

Visual Basic

Syntax

```
isHistoryConnector() As Long
```

Return Value

1 if the connector is a history connector; 0 otherwise

C/C++ Prototype

```
HRESULT isHistoryConnector (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isJoinConnector

Read method

Description

The [isJoinConnector](#) method determines whether the current connector is a join synch bar connector.

Visual Basic

Syntax

```
isJoinConnector() As Long
```

Return Value

1 if the connector is a join synch bar connector; 0 otherwise

C/C++ Prototype

```
HRESULT isJoinConnector (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isJunctionConnector

Read method

Description

The [isJunctionConnector](#) method determines whether the current connector is a junction connector.

Visual Basic

Syntax

```
isJunctionConnector() As Long
```

Return Value

1 if the connector is a junction connector; 0 otherwise

C/C++ Prototype

```
HRESULT isJunctionConnector (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isStubConnector

Read method

Description

The [isStubConnector](#) method determines whether the current connector is a stub connector.

Visual Basic

Syntax

```
isStubConnector() As Long
```

Return Value

1 if the connector is a stub connector; 0 otherwise

C/C++ Prototype

```
HRESULT isStubConnector (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isTerminationConnector

Read method

Description

The [isTerminationConnector](#) method determines whether the current connector is a termination connector.

Visual Basic

Syntax

```
isTerminationConnector() As Long
```

Return Value

1 if the connector is a termination connector; 0 otherwise

C/C++ Prototype

```
HRESULT isTerminationConnector (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setOfState

Write method

Description

The [setOfState](#) method updates the source state of the current connector with a new state.

Visual Basic

Syntax

```
setOfState (OfState As RPState)
```

Arguments

OfState

The new source state for the connector

C/C++ Prototype

```
HRESULT setOfState (IRPState* OfState)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPConstraint Interface

The `IRPConstraint` interface represents a constraint in a Rhapsody model. It inherits from `IRPAnnotation`.

VB Properties

Name	Type	Access	Description
body	String	RW	The body of the constraint.
constraintsByMe	Collection of RPModelElements	RO	The model elements affected by this constraint. For example, if a constraint says that each Airplane must have at least two Pilots, this collection will contain both the Airplane and Pilot classes.

IRPControlledFile

Represents controlled files.

fullPathFileName

Property that represents the full path of the file.

open

Method that can be used to open the controlled file.

IRPDependency Interface

The `IRPDependency` interface represents the dependencies between model elements, for example, in terms of either an include or a friend relationship between classes. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
<code>dependent</code>	<code>RPModelElement</code>	RW	The source element in the dependency relation
<code>dependsOn</code>	<code>RPModelElement</code>	RW	The target element in the dependency relation

IRPDeploymentDiagram Interface

The `IRPDeploymentDiagram` interface represents deployment diagrams. It inherits from `IRPDiagram`.

IRPDiagram Interface

The `IRPDiagram` interface is an abstract interface that provides the common functionality of Rhapsody diagrams. Currently, the functionality provided by `IRPDiagram` (in addition to `IRPModelElement`) is to render the view as a metafile. This class inherits from `IRPUnit`, because diagrams are also units.

Method Summary

<code>getElementsInDiagram</code>	Returns a collection of all the model elements in the current diagram
<code>getPicture</code>	Renders this diagram into the specified extended metafile
<code>getPictureAs</code>	Saves a Rhapsody diagram in a specific graphic format.
<code>getPictureAsDividedMetafiles</code>	Enables you to split a large diagram into several metafiles when you export it

getElementsInDiagram

Read method

Description

The [getElementsInDiagram](#) method returns a collection of all the model elements in the current diagram.

Visual Basic

Syntax

```
getElementsInDiagram() As RPCollection
```

Return Value

A collection of all the model elements in the diagram

C/C++ Prototype

```
HRESULT getElementsInDiagram (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getPicture

Read method

Description

The [getPicture](#) method renders this diagram into the specified extended metafile.

Note: If the file cannot be written, this method flags the error.

Visual Basic

Syntax

```
getPicture (filename As String)
```

Arguments

filename

The name of the metafile that will contain the current diagram. The format of the created metafile is .emf. The created metafile is used later by the VB function **LoadPicture**, which creates a VB function object that can be used for placing pictures in documents.

C/C++ Prototype

```
HRESULT getPicture (BSTR filename)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getPictureAs

This method can be used to save a Rhapsody diagram in a specific graphic format. The method can also be used to retrieve diagram element information that can be used to create an HTML image map.

The method returns a list of the graphic files created.

```
getPictureAs(firstFileName As String, imageFormat As String, getImageMaps As Long, diagrammap As RPCollection, fileNames As RPCollection) As RPCollection
```

firstFileName

The naming convention to use for the files that will be created. For a detailed explanation, see [getPictureAsDividedMetafiles](#).

imageFormat

The graphic format in which the diagram should be saved. This can be one of the following: EMF, BMP, JPEG, JPG, TIFF.

getImageMaps

Use this argument to indicate whether the function should also return a collection of objects that can be used to construct an HTML image map for the diagram. (Use 1 if you want this information, else use 0.)

diagrammap

The collection to use when returning objects containing the required information for constructing an HTML image map.

fileNames

The collection to use for the names of the graphic files created.

getPictureAsDividedMetafiles

Read method

Description

The [getPictureAsDividedMetafiles](#) method enables you to split a large diagram into several metafiles when you export it.

This method is influenced by the property `General::Graphics::ExportedDiagramScale`. See the definition provided for the property on the applicable Properties tab of the Features dialog box.

Note: If the file cannot be written, this method flags the error.

Visual Basic

Syntax

```
getPictureAsDividedMetafiles (firstFileName As String)  
    As RPCollection
```

Arguments

`firstFileName`

The naming convention for the created files. For example, if you passed the value "Foo" as the `firstFileName`:

If the diagram can be drawn on one page, the name of the metafile is Foo.

If the diagram is split into multiple pages, the first file will be named FooZ_X_Y. The variables used in the name are as follows:

- ◆ Z—The number of the created file
- ◆ X—The number of the page along the X vector
- ◆ Y—The number of the page along the Y vector
- ◆ For example, the file Foo2_1_2 means that this is the second metafile created and it contains one page, which is the second page along the Y vector (the X vector is 1).

All the file names will be inserted in the `sent strings` list (`fileNames`).

Return Value

A collection that contains the names of the files that were created

C/C++ Prototype

```
HRESULT getPictureAsDividedMetafiles (  
    [in] BSTR firstFileName,  
    [out, retval] IRPCollection** fileNames)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

VBA Sample

```
Private Sub CommandButton1_Click()  
    Dim proj As RPPProject  
    Dim d As RPDDiagram  
    Dim col As RPCollection  
    On Error GoTo aa  
    Set proj = getProject  
    Set d = proj.findNestedElementRecursive(  
        "Dishwasher Cycle", "SequenceDiagram")  
    Set col = d.getPictureAsDividedMetafiles(  
        "D:\Temp\Diagram.emf")  
    Exit Sub  
aa:  
    MsgBox errorMessage  
End Sub
```

IRPEnumerationLiteral Interface

The `IRPEnumerationLiteral` interface supports the language-independent types introduced in Rhapsody 5.0. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
value	RPEvent	RW	An optional value for the literal

IRPEvent Interface

The `IRPEvent` interface represents an event. It derives from `IRPInterfaceItem`.

VB Properties

Name	Type	Access	Description
<code>baseEvent</code>	<code>RPEvent</code>	RW	The pointer to the base event (if this event is inherited from it).
<code>superEvent</code>	<code>RPEvent</code>	RW	The pointer to the super event (if this event is inherited from it) As a read method, <code>superEvent ()</code> provides the base event that an event was derived from. Thus, if event B is inherited from event A, <code>B.superEvent ()</code> returns a pointer to A. As a write method, <code>superEvent ()</code> inherits or reinherits an event from a new base (super) event. Thus, if you want event B to be inherited from A, set <code>B.superEvent () = A</code> .

IRPEventReception Interface

The `IRPEventReception` interface represents a relationship between a class and an event that is part of its interface. It derives from `IRPInterfaceItem`.

Method Summary

getEvent	Returns the event for the current event reception that serves as part of the interface for a class
--------------------------	--

getEvent

Read method

Description

The [getEvent](#) method returns the event for the current event reception that serves as part of the interface for a class.

Visual Basic

Syntax

```
getEvent() As RPEvent
```

Return Value

The `RPEvent` related to a class through the event reception interface

C/C++ Prototype

```
HRESULT getEvent (IRPEvent** pVal)
```

Return Value

`HRESULT` (0 for success, or a signed integer error code)

IRPExecutionOccurrence Interface

The `IRPExecutionOccurrence` interface represents an execution occurrence in a sequence diagram. It derives from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
message	RPMMessage	RO	The start message for the execution occurrence

IRPExternalCodeGenerator Interface

The `IRPExternalCodeGenerator` interface is a dispatch interface that defines events that *must* be handled by the external code generator.

The interface inherits from `IDispatch`.

Using an External Code Generator

Beginning with Version 4.1, you can integrate an external code generator with Rhapsody 6.1. The code generator application is loaded when Rhapsody 6.1 is loaded. This code generator should be a full-featured code generator that can generate all the model code. When you specify an external code generator, Rhapsody 6.1 does not generate any code. Rhapsody 6.1 in Ada uses an external code generator.

You can set the environment variable `ExternalGenerator` in the [codegen] section of the `rhapsody.ini` file to the path of the external code generator executable. This executable will be loaded when Rhapsody 6.1 is loaded and terminates when Rhapsody 6.1 exits. If you do not set this environment variable, you must manually load your code generator after Rhapsody 6.1 is loaded. Note the following:

- ◆ This variable setting applies only to full-featured external code generators.
- ◆ If you do not load your external code generator, it cannot display messages in the Rhapsody 6.1 output window.

In addition, you can integrate makefiles generated by a makefile generator other than the Rhapsody 6.1 generator; all other code generation is done by Rhapsody 6.1.

Restrictions

Note the following restrictions:

- ♦ Because the active code view uses the annotations generated by Rhapsody 6.1 to find the location of a model element in a source file, searching a file generated by an external code generator (unannotated) might not be accurate. There are other annotation issues concerning roundtrip and error highlighting. Therefore, the external code generator must generate annotations to make all of these features work properly.
- ♦ If you specify an external code generator, you cannot use the *CG In Browser* feature to generate code.
- ♦ You can integrate a *single* external code generator with *one* instance of a Rhapsody 6.1 application, running on the same machine.
- ♦ You can integrate an external code generator with Rhapsody 6.1 on a Solaris platform only if the client supports the COM framework.
- ♦ This functionality is supported only by Rhapsody 6.1 Developer Edition as a separate, add-on feature.

Event Handling

When you trigger code generator operations, Rhapsody 6.1 fires events that are handled by the registered, external code generator. The following table lists the different events and when they are fired.

Event	When Fired
generate	When you invoke any kind of generation command (forced or incremental), for selected classifiers, files, or for the entire configuration. The invocation can be explicit or by DMCA. When called, the external code generator generates the elements according to the settings for the active configuration. This method is called with all model elements that need to be generated.
Abort	Is invoked when the user selects the Abort option during code generation. When the external code generator receives this event, it stops the code generation process and notifies Rhapsody 6.1 that it is done.
getFileName	Is invoked when Rhapsody 6.1 needs the file name and path of a model element. If the event is not handled, Rhapsody 6.1 displays an error message stating that it could not get the file name from the external code generator. Note that if the external code generator uses the same file mapping scheme as Rhapsody 6.1, you do not need to implement this event.

Event	When Fired
GetMainFileName	Is invoked when Rhapsody 6.1 needs the main file name and path for a configuration. If the event is not handled, Rhapsody 6.1 displays an error message stating that it could not get the file name from the external code generator.
GetTargetfileName	Is invoked when Rhapsody 6.1 needs the target name and path for a configuration. If the event is not handled, Rhapsody 6.1 displays an error message stating that it could not get the makefile name from the external code generator. Note that if the external code generator uses the same file mapping scheme as Rhapsody 6.1, you do not need to implement this event.
WhoAml	Is invoked to identify the external code generator.
Exit	Is invoked before Rhapsody 6.1 exits. When the external code generator receives this event, it performs the necessary cleanup and terminates its process.

Implementing the External Code Generator

To implement an external code generator, follow these steps:

1. Implement the event handlers for the `IRPEXternalCodeGenerator` events:
 - ◆ Invoke the code generation process on another thread to return from the call to [generate](#) as soon as possible.
 - ◆ Notify the `IRPEXternalCodeGeneratorInvoker` when the generation session has ended.
2. Instantiate your event handler class when the external code generator is loaded.
3. Get the `IRPApplication` object.
4. Get the `IRPEXternalCodeGeneratorInvoker` singleton from the `IRPApplication` interface. See the method [getTheExternalCodeGeneratorInvoker](#) for more information.
5. Register the implemented `IRPEXternalCodeGenerator` as the external code generator on the `IRPEXternalCodeGeneratorInvoker` interface.
6. Print code generation messages using standard output. For example:


```
cout<<"Generating"<<class_name<<endl;
```
7. Terminate the external code generator process when [Exit](#) is called.

Rhapsody Settings

You must set the following environment variables and properties:

- ◆ Set the `ExternalGenerator` environment variable in the `rhapsody.ini` file to the path to the implemented code generator executable. See “Using an External Code Generator” for more information.
- ◆ Set the `<lang>_CG::<Environment>::CodeGeneratorTool` property for the configuration that should be generated with the external code generator.
- ◆ Set the `<lang>_CG::Configuration::ExternalGenerationTimeout` property with a reasonable time for an average class generation session.

See the definition provided for the property on the applicable Properties tab of the Features dialog box.

Sample

```

////////////////////////////////////
// MyCodeGenerator.h: interface for the CMyCodeGenerator
// class.
////////////////////////////////////

...

class CMyCodeGenerator:
public
IDispEventImpl<1,CMyCodeGenerator,
    &DIID_IRPExternalCodeGenerator, &LIBID_rhapsody,1,0>
{
    public:

        CMyCodeGenerator();
        virtual ~CMyCodeGenerator();
        void Register();

        //event handlers

        HRESULT __stdcall Generate(
            IDispatch* configuration,
            IDispatch* classifiers,IDispatch* files,
            BOOL genMain,BOOL genMake);
        BSTR __stdcall WhoAmI();
        BSTR __stdcall GetFileName(IDispatch* modelElement,
            IDispatch* configuration, int pathType,
            BOOL withExt);
        BSTR __stdcall GetTargetfileName(IDispatch*
            configuration, int pathType,BOOL withExt);

        BSTR __stdcall GetMainFileName(
            IDispatch* configuration, int pathType,
            BOOL withExt);
        BSTR __stdcall GetMakefileName(
            IDispatch* configuration, int pathType,
            BOOL withExt);
        VOID __stdcall OnExit();
        VOID __stdcall Abort();
        BEGIN_SINK_MAP(CMyCodeGenerator)
        SINK_ENTRY_EX(*nID =/ 1,
            DIID_IRPExternalCodeGenerator,
            /*dispid =/ 0x1, Generate)
        SINK_ENTRY_EX(*nID =/ 1,
            DIID_IRPExternalCodeGenerator,
            /*dispid =/ 0x2, OnExit)
        SINK_ENTRY_EX(*nID =/ 1,
            DIID_IRPExternalCodeGenerator,
            /*dispid =/ 0x3, GetFileName)
        SINK_ENTRY_EX(*nID =/ 1,
            DIID_IRPExternalCodeGenerator,
            /*dispid =/ 0x4, GetTargetfileName)
        SINK_ENTRY_EX(*nID =/ 1,
            DIID_IRPExternalCodeGenerator,
            /*dispid =/ 0x5, GetMainFileName)
        SINK_ENTRY_EX(*nID =/ 1,
            DIID_IRPExternalCodeGenerator,
            /*dispid =/ 0x6, GetMakefileName)
        SINK_ENTRY_EX(*nID =/ 1,
            DIID_IRPExternalCodeGenerator,
            /*dispid =/ 0x7, WhoAmI)

```

```
        SINK_ENTRY_EX(/*nID =*/ 1,  
                      DIID_IRPEXternalCodeGenerator,  
                      /*dispId =*/ 0x8, Abort)  
END_SINK_MAP()  
...
```

Method Summary

<u>Abort</u>	Is invoked when the user selects the Abort option during code generation
<u>Exit</u>	Is invoked before Rhapsody 6.1 exits
<u>generate</u>	Is invoked whenever a generation command of any kind is invoked
<u>getFileName</u>	Is invoked when Rhapsody 6.1 needs the file name and path of a model element
<u>GetMainFileName</u>	Is invoked when Rhapsody 6.1 needs the main file name and path for a configuration
<u>getMakefileName</u>	Is invoked when Rhapsody 6.1 needs the makefile name and path for a configuration
<u>GetTargetfileName</u>	Is invoked when Rhapsody 6.1 needs the target name and path for a configuration
<u>WhoAml</u>	Is invoked to identify the external code generator

Abort

Description

The [Abort](#) event is invoked when the user selects the **Abort** option during code generation. When the external code generator receives this event, it stops the code generation process and notifies Rhapsody 6.1 that it is done.

Visual Basic

Syntax

```
Event Abort()
```

C/C++ Prototype

```
void Abort()
```

Exit

Description

The [Exit](#) event is invoked before Rhapsody 6.1 exits. When the external code generator receives this event, it performs the necessary cleanup and terminates its process.

Visual Basic

Syntax

```
Event Exit()
```

C/C++ Prototype

```
void Exit()
```

generate

Description

The [generate](#) event is invoked whenever a generation command of any kind is invoked (including forced or incremental generation for selected classifiers; or files for the entire configuration either explicitly by the user or by DMCA).

When called, the external code generator generates the elements according to the settings for the active configuration.

Visual Basic

Syntax

```
Event generate (activeConfiguration As Object,  
               classifiersCollection As Object,  
               filesCollection As Object, generateMainFile As Long,  
               generateMakefile As Long)
```

Arguments

`activeConfiguration`

A pointer to the active configuration for this generation session. If this value is not NULL, configuration files (main and make) are generated.

The external code generator queries the activeConfiguration for its RPCConfiguration interface.

`classifiersCollection`

The container of classes and package interfaces to be generated. The container can be NULL if no classifiers need to be generated. Packages in this container are generated without their aggregates (the package's classes).

The external code generator queries the classifiersCollection for its RPCCollection interface.

`filesCollection`

The container of file and folder interfaces (RPFiles) to be generated. The container can be NULL if no files need to be generated.

Model elements that are mapped to a file or folder in the filesCollection container will be added to the classifiersCollection. Therefore, the external generator does not query the file for its mapped classifiers. However, the code generator does check the files for text elements.

The external code generator queries the filesCollection for its RPCCollection interface.

`generateMainFile` (1 or 0)

Set this to 1 to generate the main configuration files.

`generateMakefile` (1 or 0)

Set this to 1 to generate the makefile for the configuration.

C/C++ Prototype

```
HRESULT generate (IDispatch* activeConfiguration,  
                 IDispatch* classifiersCollection,  
                 IDispatch* filesCollection, long generateMainFile,  
                 long generateMakefile)
```

Return Value

S_OK for success, or an error code. If an error occurs, code generation is aborted.

getFileName

Description

The [getFileName](#) method is invoked when Rhapsody 6.1 needs the file name and path of a model element.

If the event is not handled, Rhapsody 6.1 displays an error message stating that it could not get the file name from the external code generator.

Note: If the external code generator uses the same file mapping scheme as Rhapsody 6.1, you do not need to implement this event.

Visual Basic

Syntax

```
Event getFileName (modelElement As Object,  
                  configuration As Object, pathType As Long,  
                  withExtensions As Long)
```

Arguments

modelElement

The model element whose name you want to retrieve. The model element can be a class, actor, package, event, or file.

The external code generator queries the modelElement for its RPSModelElement interface.

configuration

The configuration for which the file name is requested.

The external code generator queries the configuration for its RPConfiguration interface.

pathType

The requested path format. The possible values are as follows:

1. Include the full path. For example: C:\Project\Component\Config\Class1.h
2. Include only the name of the file. For example: Class1.h
3. Include the path relative from the project directory. For example: Component\Config\Class1.h
4. Include the path relative from the active configuration to the requested file.

For example, if the file is located under
C:\Project\Component\Subfolder\Class1.h, the external code generator
includes the following path: Subfolder\Class1.h.

`withExtensions`

Specifies whether to include the extension in the returned file name. For example,
Class1.h instead of Class1.

Return Value

The file names of the model elements, separated by commas. If there is more than one file in the list, Rhapsody 6.1 assumes that the first file is the specification file and the others are implementation files.

C/C++ Prototype

```
BSTR getFileName (IDispatch* modelElement,  
                  IDispatch* configuration, int pathType,  
                  long withExtensions)
```

GetMainFileName

Description

The [GetMainFileName](#) method is invoked when Rhapsody 6.1 needs the main file name and path for a configuration.

If the event is not handled, Rhapsody 6.1 displays an error message stating that it could not get the file name from the external code generator.

Visual Basic

Syntax

```
Event GetMainFileName (configuration As Object,  
    pathType As Long, withExtensions As Long)
```

Arguments

`configuration`

The configuration for which the main file name is requested.

The external code generator queries the `configuration` for its `RPConfiguration` interface.

`pathType`

The requested path format. The possible values are as follows:

- 1—Include the full path. For example: `C:\Project\Component\Config\Class1.h`
- 2—Include only the name of the file. For example: `Class1.h`
- 3—Include the path relative from the project directory. For example:
`Component\Config\Class1.h`
- 4—Include the path relative from the active configuration to the requested file.

For example, if the file is located under

`C:\Project\Component\Subfolder\Class1.h`, the external code generator will include the following path: `Subfolder\Class1.h`.

`withExtensions`

Specifies whether to include the extension in the returned file name. For example, `mainfile.cpp` instead of `mainfile`.

Return Value

The main file names of the model elements, separated by commas. If there is more than one file in the list, Rhapsody 6.1 assumes that the first file is the specification file and the second is the implementation file.

C/C++ Prototype

```
BSTR GetMainFileName (IDispatch* configuration,  
    int pathType, long withExtensions)
```

getMakefileName

Description

The [getMakefileName](#) method is invoked when Rhapsody 6.1 needs the makefile name and path for a configuration.

If the event is not handled, Rhapsody 6.1 displays an error message stating that it could not get the makefile name from the external code generator.

Visual Basic

Syntax

```
Event getMakefileName (configuration As Object,  
    pathType As Long, withExtensions As Long)
```

Arguments

configuration

The configuration for which the file name is requested.

The external code generator queries the configuration for its RPConfiguration interface.

pathType

The requested path format. The possible values are as follows:

- 1—Include the full path. For example: C:\Project\Component\Config\Class1.h
- 2—Include only the name of the file. For example: Class1.h
- 3—Include the path relative from the project directory. For example:
Component\Config\Class1.h
- 4—Include the path relative from the active configuration to the requested file.

For example, if the file is located under

C:\Project\Component\Subfolder\Class1.h, the external code generator will include the following path: Subfolder\Class1.h.

withExtensions

Specifies whether to include the extension in the returned file name. For example, makefile.mak instead of makefile.

Return Value

The name of the makefile

C/C++ Prototype

```
BSTR getMakefileName (IDispatch* configuration,  
    int pathType, long withExtensions)
```

GetTargetfileName

Description

The [GetTargetfileName](#) method is invoked when Rhapsody 6.1 needs the target name and path for a configuration.

If the event is not handled, Rhapsody 6.1 displays an error message stating that it could not get the makefile name from the external code generator.

Note: If the external code generator uses the same file mapping scheme as Rhapsody 6.1, you do not need to implement this event.

Visual Basic

Syntax

```
Event GetTargetfileName (configuration As Object,  
    pathType As Long, withExtensions As Long)
```

Arguments

configuration

The configuration for which the file name is requested.

The external code generator queries the configuration for its RPConfiguration interface.

pathType

The requested path format. The possible values are as follows:

1—Include the full path. For example: C:\Project\Component\Config\Class1.h

2—Include only the name of the file. For example: Class1.h

3—Include the path relative from the project directory. For example:
Component\Config\Class1.h

4—Include the path relative from the active configuration to the requested file.

For example, if the file is located under

C:\Project\Component\Subfolder\Class1.h, the external code generator will include the following path: Subfolder\Class1.h.

`withExtensions`

Specifies whether to include the extension in the returned file name. For example, `target.exe` instead of `target`.

Return Value

The name of the target file

C/C++ Prototype

```
BSTR GetTargetfileName (IDispatch* configuration,  
    int pathType, long withExtensions)
```

WhoAmI

Description

The [WhoAmI](#) event is invoked to identify the external code generator.

Visual Basic

Syntax

```
Event WhoAmI ( )
```

C/C++ Prototype

```
BSTR WhoAmI ( )
```

Return Value

A string that identifies the name and version number of the external code generator. It is printed to the output window before the [generate](#) event is invoked.

IRPEXternalCodeGeneratorInvoker Interface

The `IRPEXternalCodeGeneratorInvoker` is the interface that invokes the external code generator. The invoker is the object that fires all the events defined by the `IRPEXternalCodeGenerator` interface. The external code generator registers the invoker instance to get events, and notifies the `IRPEXternalCodeGeneratorInvoker` when a code generation session is over.

This interface inherits from `IDispatch`.

Method Summary

<u>notifyGenerationDone</u>	Is called by the external code generator after a generation session invoked by the <u>generate</u> event is done
---	--

notifyGenerationDone

Description

The [notifyGenerationDone](#) method is called by the external code generator after a generation session invoked by the [generate](#) event is done. You cannot invoke a new code generation session or make any changes to the model between the call to the [generate](#) and [notifyGenerationDone](#) events. However, you can set the timeout period using the property `<lang>_CG::Configuration::ExternalGenerationTimeout`. See the definition provided for the property on the applicable Properties tab of the Features dialog box.

Note: The external code generator *must* call this method after a code generation session (invoked by the [generate](#) event) was done or aborted (by the [Abort](#) event).

Visual Basic

Syntax

```
notifyGenerationDone()
```

C/C++ Prototype

```
HRESULT notifyGenerationDone()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPFile Interface

The `IRPFile` interface represents a file or folder to be generated during code generation. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
elements	Collection of <code>RPClassifiers</code>	RO	The elements to be mapped to the file or folder.
files	Collection of <code>RPFFiles</code>	RO	If <code>fileType</code> is "folder," <code>files</code> is the collection of all files contained in that folder.
fileType	String	RW	The file type ("folder," "implementation," "specification," "logical," or "other").
path(fullPath)	String(path) Boolean(fullPath)	RO	The string containing the path to the component. If <code>fullPath</code> is true, the full path is returned: <pre><drive>:\ <model dir>\ <component dir>\ <config dir></pre> If <code>fullPath</code> is false, the path relative to the project is returned: <pre><component dir>\ <config dir></pre>

Method Summary

<u>addElement</u>	Adds an element to the current file
<u>addPackageToScope</u>	Adds the specified package to the scope of the file or folder
<u>addTextElement</u>	Adds text to the file
<u>addToScope</u>	Places an element within the scope of the current file or folder
<u>getImpName</u>	Retrieves the name of the current file's implementation file, including its extension and, if specified, its relative path
<u>getSpecName</u>	Retrieves the name of the current file's specification file, including its extension and, if specified, its relative path
<u>isEmpty</u>	Determines whether the current file is empty
<u>setPath</u>	Sets the path to the specified file

addElement

Write method

Description

The [addElement](#) method adds an element to the current file or folder.

Visual Basic

Syntax

```
addElement (element As RPCClassifier,  
            fileFragmentType As String)
```

Arguments

element

An RPCClassifier that specifies the new element to be mapped to the current file. The possible values are as follows:

Actors

Classes

Data

Use cases

fileFragmentType

One of the following strings:

undefFragment—The element is not defined.

textFragment—The element is text.

implFragment—The implementation of the element is added to the file.

specFragment—The specification of the element is added to the file.

moduleFragment—Both implementation and specification of the element are added to the file.

C/C++ Prototype

```
HRESULT addElement (IRPClassifier *element,  
                    BSTR fileFragmentType)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addPackageToScope

Write method

Description

The [addPackageToScope](#) method adds the specified package to the scope of the file or folder.

Visual Basic

Syntax

```
addPackageToScope (p As RPPackage)
```

Arguments

p
The package to add

C/C++ Prototype

```
HRESULT addPackageToScope (IRPPackage *p)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addTextElement

Write method

Description

The [addTextElement](#) method adds text to the file.

Visual Basic

Syntax

```
addTextElement (text As String)
```

Arguments

text
The text to add to the file

C/C++ Prototype

```
HRESULT addTextElement (BSTR text)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addToScope

Write method

Description

The [addToScope](#) method places an element within the scope of the current file or folder. If the file represents a file, both the implementation and specification of the element are added to the file. If the file represents a folder, the element is added to the folder scope.

Visual Basic

Syntax

```
addToScope (element As RPCClassifier)
```

Arguments

element

The element to place in the scope of the file

C/C++ Prototype

```
HRESULT addToScope (IRPClassifier *element)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getImpName

Read method

Description

The [getImpName](#) method retrieves the name of the current file's implementation file, including its extension and, if specified, its relative path.

Visual Basic

Syntax

```
GetImpName (includingPath As Long) As String
```

Arguments

includingPath (1 or 0)

Set this to 1 to include the relative path in the implementation file name.

Return Value

The name of the implementation file

C/C++ Prototype

```
HRESULT getImpName (long includingPath, BSTR* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getSpecName

Read method

Description

The [getSpecName](#) method retrieves the name of the current file's specification file, including its extension and, if specified, its relative path.

Visual Basic

Syntax

```
getSpecName (includingPath As Long) As String
```

Arguments

includingPath(1 or 0)

Set this to 1 to include the relative path in the specification file name.

Return Value

The name of the specification file

C/C++ Prototype

```
HRESULT getSpecName (long includingPath, BSTR* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isEmpty**Read method****Description**

The [isEmpty](#) method determines whether the current file is empty.

Visual Basic**Syntax**

```
IsEmpty() As Long
```

Return Value

1 if the file is empty; otherwise 0

C/C++ Prototype

```
HRESULT isEmpty (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setPath

Write method

Description

The [setPath](#) method sets the path to the specified file.

Visual Basic

Syntax

```
setPath (path As String)
```

Arguments

path
The file path

C/C++ Prototype

```
HRESULT setPath (BSTR path)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPFlow Interface

The `IRPFlow` interface represents a flow. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
conveyed	<code>RPCollection</code>	RO	A read-only collection of information elements conveyed by the flow.
direction	<code>String</code>	RW	A string specifying the direction of the flow. The possible values are: <ul style="list-style-type: none"> • <code>toEnd1</code> • <code>toEnd2</code> • <code>bidirectional</code>
end1	<code>RPMModelElement</code>	RW	An association to a model object that is one of the ends of the flow.
end1Port	<code>RPPort</code>	RO	Valid when <code>end1</code> is an <code>RPIInstance</code> that is connected via a port defined by the class of the instance.
end2	<code>RPMModelElement</code>	RW	An association to a model object that is one of the ends of the flow.
end2Port	<code>RPPort</code>	RO	Valid when <code>end2</code> is an <code>RPIInstance</code> that is connected via a port defined by the class of the instance.

Method Summary

<u>addConveyed</u>	Adds an information element to the <code>conveyed</code> collection
<u>removeConveyed</u>	Removes an information element to the <code>conveyed</code> collection
<u>setEnd1ViaPort</u>	Connects <code>end1</code> of the flow to the specified instance via the given port (defined by the instance class)
<u>setEnd2ViaPort</u>	Connects <code>end2</code> of the flow to the specified instance via the given port (defined by the instance class)

addConveyed

Write method

Description

The [addConveyed](#) method adds an information element to the conveyed collection.

Visual Basic

Syntax

```
addConveyed (pElement As RPModelElement)
```

Arguments

pElement

The information element to add

C/C++ Prototype

```
HRESULT addConveyed (IRPModelElement* pElement)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

removeConveyed

Write method

Description

The [removeConveyed](#) method removes an information element from the conveyed collection.

Visual Basic

Syntax

```
removeConveyed (pElement As RPModelElement)
```

Arguments

pElement

The information element to remove

C/C++ Prototype

```
HRESULT removeConveyed (IRPModelElement* pElement)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setEnd1ViaPort

Write method

Description

The [setEnd1ViaPort](#) method connects end1 of the flow to the specified instance via the given port (defined by the instance class).

Visual Basic

Syntax

```
setEnd1ViaPort (pInstance As RPInstance, pPort As RPPort)
```

Arguments

pInstance

The instance to which to connect end1 of the flow

pPort

The port used to connect end1 of the flow to pInstance

C/C++ Prototype

```
HRESULT setEnd1ViaPort (IRPInstance* pInstance,  
IRPModelElement* pPort)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setEnd2ViaPort

Write method

Description

The [setEnd2ViaPort](#) method connects end2 of the flow to the specified instance via the given port (defined by the instance class).

Visual Basic

Syntax

```
setEnd2ViaPort (pInstance As RPInstance, pPort As RPPort)
```

Arguments

pInstance

The instance to which to connect end2 of the flow

pPort

The port used to connect end2 of the flow to pInstance

C/C++ Prototype

```
HRESULT setEnd2ViaPort (IRPInstance* pInstance,  
IRPModelElement* pPort)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPFlowchart Interface

The `IRPFlowchart` interface represents an activity diagram (formerly referred to as a flowchart). It inherits from `IRPStatechart`.

VB Properties

Name	Type	Access	Description
<code>isAnalysisOnly</code>	<code>Long</code>	RW	If this is set to 1 (as opposed to 0), this <code>IRPFlowchart</code> is for analysis only.
<code>itsOwner</code>	<code>RPOperation</code>	RW	The operation that owns this activity diagram
<code>swimlanes</code>	<code>RPCollection</code>	RO	The collection of swimlanes in the activity diagram

Method Summary

<code>addReferenceActivity</code>	Adds a reference activity to the activity diagram
<code>addSwimlane</code>	Adds a swimlane to the activity diagram

addReferenceActivity

Note

Currently, this method has not been implemented.

Write method

Description

The [addReferenceActivity](#) method adds the specified reference activity to the activity diagram.

Visual Basic

Syntax

```
addReferenceActivity (referenced As RPModelElement)  
    As RPState
```

Arguments

referenced

The referenced activity or activity chart

Return Value

The new reference activity

C/C++ Prototype

```
HRESULT addReferenceActivity (  
    IRPModelElement* referenced, IRPState** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addSwimlane

Note

Currently, this method has not been implemented.

Write method

Description

The [addSwimlane](#) method adds the specified swimlane to the activity diagram.

Visual Basic

Syntax

```
addSwimlane (name As String) As RPSwimlane
```

Arguments

name

The name for the new swimlane

Return Value

The new RPSwimlane

C/C++ Prototype

```
HRESULT addSwimlane (BSTR name, IRPSwimlane** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPFlowItem Interface

The `IRPFlowItem` interface represents a `flowItem`. It inherits from `IRPClassifier`. `IRPFlowItem` is a limited classifier (it cannot own attributes, operations, types, and so on), but the interface does support generalization.

VB Properties

Name	Type	Access	Description
<code>represented</code>	Collection of <code>RPFlowItems</code>	RO	A read-only collection of flow items represented by the <code>flowItem</code>

Method Summary

<code>addRepresented</code>	Adds a <code>flowItem</code> to the <code>represented</code> collection
<code>removeRepresented</code>	Removes a <code>flowItem</code> from the <code>represented</code> collection

addRepresented

Write method

Description

The [addRepresented](#) method adds a flowItem to the `represented` collection.

Visual Basic

Syntax

```
addRepresented (pElement As RPModelElement)
```

Arguments

`pElement`

The flow item to add

C/C++ Prototype

```
HRESULT addRepresented (IRPModelElement* pElement)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

removeRepresented

Write method

Description

The [removeRepresented](#) method removes a flowItem from the represented collection.

Visual Basic

Syntax

```
removeRepresented (pElement As RModelElement)
```

Arguments

pElement

The flow item to remove

C/C++ Prototype

```
HRESULT removeRepresented (IRPModelElement* pElement)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPGeneralization Interface

The `IRPGeneralization` interface represents an inheritance relation between two classifiers (class/use case/actor). It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
<code>baseClass</code>	<code>RPClassifier</code>	RW	The base class of the generalization
<code>derivedClass</code>	<code>RPClassifier</code>	RW	The derived class of the generalization
<code>extensionPoint</code>	<code>String</code>	RW	The extension point
<code>isVirtual</code>	<code>Long</code>	RO	A flag that indicates whether the generalization is virtual
<code>visibility</code>	<code>String</code>	RO	The visibility of the generalization (public, protected, or private)

The `baseClass` and `derivedClass` properties allow write access to update the generalization. For example, if class C is derived from class A and you want to derive it from class B instead, follow these steps:

```
C.getGeneralization.baseClass = B
```

Here, `getGeneralization` is used as pseudo-operation shorthand for the procedure involved in actually obtaining a `Generalization` object from a class.

Similarly, if class C is derived from A and you want to derive it from B instead, follow these steps:

```
B.getGeneralization.derivedClass = C
```


IRPGraphEdge Interface

The `IRPGraphEdge` interface represents a linear element of a diagram, such as a transition. It represents the UML `GraphEdge` class. `IRPGraphEdge` inherits from `IRPGraphElement`.

VB Properties

Name	Type	Access	Description
source	RPGraphNode	RO	The point at which the edge is connected to the source
target	RPGraphNode	RO	The point at which the edge is connected to the target

IRPGraphElement Interface

The `IRPGraphElement` interface is the base for all graphical elements on a diagram. It represents the UML Interchange `GraphElement` class. `IRPGraphElement` inherits from `IRPDispatch`.

VB Properties

Name	Type	Access	Description
graphicalParent	RPGraphElement	RO	The owning object
modelObject	RPMoDelElement	RO	The graphical object

Method Summary

<u>getAllGraphicalProperties</u>	Returns the list of graphical properties for a diagram element
<u>getGraphicalProperty</u>	Returns the specified graphical property for a diagram element
<u>setGraphicalProperty</u>	Allows the setting of graphical properties for a diagram element

getAllGraphicalProperties

Read method

Description

The [getAllGraphicalProperties](#) method returns the list of graphical properties for a diagram element.

Visual Basic

Syntax

```
getAllGraphicalProperties() As RPCollection
```

Return Value

An `RPCollection` that contains the read-only list of graphical properties

C/C++ Prototype

```
HRESULT getAllGraphicalProperties (IRPCollection** pVal)
```

Return Value

`HRESULT` (0 for success, or a signed integer error code)

getGraphicalProperty

Read method

Description

The [getGraphicalProperty](#) method returns the value of the specified graphical property for a diagram element.

Visual Basic

Syntax

```
getGraphicalProperty(name As String)  
    As RPSGraphicalProperty
```

Arguments

name

The name of the property whose value you want to retrieve (note that only the actual property name is required here, there is no need to specify the hierarchy, as is the case with [getPropertyValue](#))

Return Value

The value of the specified property, or null if the specified key is unsupported or invalid

C/C++ Prototype

```
HRESULT getGraphicalProperty (BSTR name,  
    IRPSGraphicalProperty **pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setGraphicalProperty

Write method

Description

The `setGraphicalProperty` method allows the setting of graphical properties for a diagram element.

Visual Basic

Syntax

```
setGraphicalProperty(name As String, value As String)
```

Arguments

name

The name of the graphical property whose value you want to set (note that only the actual property name is required here; there is no need to specify the hierarchy, as is the case with [setProperty](#))

value

The value of the specified graphical property

C/C++ Prototype

```
HRESULT setGraphicalProperty([in] BSTR name, [in] BSTR value)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

VBA Sample

```
Dim proj As RPPProject
Set d = proj.addNewAggr("ObjectModelDiagram", "MyDiagram")
Dim m As RPModelElement
Dim n1 As RPGraphNode
Dim n2 As RPGraphNode
Dim e As RPGraphEdge
Dim c1 As RPClass
Dim c2 As RPClass
Dim gp As RPGraphicalProperty

On Error GoTo aa

Set proj = getProject
Set d = proj.addNewAggr("ObjectModelDiagram", "MyDiagram")
Set m = proj.findNestedElementRecursive("C", "Class")
Set c1 = m

' Add node for existing element
```

```
Set n1 = d.AddNewNodeForElement(m, 10, 20, 50, 50)
Call n1.setGraphicalProperty("LineColor", "155.230.100")

' Add node with new element
Set n2 = d.AddNewNodeByType("Class", 110, 120, 50, 50)
Set c2 = n2.modelObject
c2.name = "D"

' Add edge for new dependency
Set e = d.AddNewEdgeByType("Dependency", n1, 60, 60, n2, 130, 140)
Set gp = e.getGraphicalProperty("LineStyle")
MsgBox gp.value

Exit Sub

aa:
MsgBox errorMessage
```

IRPGraphicalProperty Interface

The `IRPGraphicalProperty` interface represents a graphical elements on a diagram. It inherits from `IRPDispatch`.

VB Properties

Name	Type	Access	Description
key	String	RO	The name of the property
value	String	RO	The property value

IRPGraphNode Interface

The `IRPGraphNode` interface represents either a boxed element (for example, a class box) or a point element (for example, a connector) in a diagram. It represents the UML `GraphNode` class. `IRPGraphNode` inherits from `IRPGraphElement`.

IRPGuard Interface

The `IRPGuard` interface represents the guard of a transition in a statechart diagram. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
body	String	RW	The body of the guard

IRPHyperLink Interface

The `IRPHyperLink` interface enables you to read the attributes of hyperlink objects.

Note: You cannot create or modify hyperlinks using the COM API.

VB Properties

Name	Type	Access	Description
target	<code>RPMoDelElement</code>	RW	The target for the hyperlink
URL	<code>String</code>	RW	The URL for the hyperlink

Method Summary

<u>getDisplayOption</u>	Returns the display option (free text, target name, target label, or tag value) for the hyperlink
<u>setDisplayOption</u>	Sets the display option (free text, target name, target label, or tag value) for the hyperlink

getDisplayOption

Read method

Description

The [getDisplayOption](#) method returns the display option (free text, target name, target label, or tag value) for the hyperlink.

Visual Basic

Syntax

```
getDisplayOption (pVal As HYPNameType, [pDisplayName As String])
```

Arguments

pVal
The hyperlink

Return Value

A string that represents the display option for the hyperlink

C/C++ Prototype

```
HRESULT getDisplayOption (HYPNameType* pVal, BSTR *pDisplayName)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setDisplayOption

Write method

Description

The [setDisplayOption](#) method sets the display option (free text, target name, target label, or tag value) for the hyperlink.

Visual Basic

Syntax

```
setDisplayOption (pVal As HYPNameType, [pDisplayName AsString])
```

Arguments

pVal

The hyperlink

pDisplayName

The display type (free text, target name, target label, or tag value)

C/C++ Prototype

```
HRESULT setDisplayOption (HYPNameType* pVal, BSTR *pDisplayName)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPImageMap

Represents diagram element information that can be used to build an HTML image map for the diagram. IRPDiagram's `getPictureAs` method returns a collection of objects of this type.

interfaceName

This property is for future use.

isGUID

Indicates whether the target property is the GUID of the element.

name

Name of the element.

pictureFileName

Name of the image file.

points

String that represents the bounding rectangle for the element in the Rhapsody diagram (for example, "10,10,206,10,206,151,10,151").

shape

This property is for future use.

target

Target for the image map entry.

IRPInstance Interface

The `IRPInstance` interface represents an instance. It is derived from `IRPRelation`, because the instance is a relation between an owner and some class.

VB Properties

Name	Type	Access	Description
<code>instantiatedBy</code>	<code>RPOperation</code>	RW	The constructor used to create the instance, as defined by the user within the instance features dialog box

Method Summary

<code>getInLinks</code>	Retrieves the list of incoming links
<code>getListOfInitializerArguments</code>	Retrieves the list of initializer arguments
<code>getOutLinks</code>	Retrieves the list of outgoing links
<code>setInitializerArgumentValue</code>	Sets the value of the initializer argument

getInLinks

Read method

Description

The [getInLinks](#) method returns the list of links for which the instance is the target instance (identified by the “to” property of the link).

Visual Basic

Syntax

```
getInLinks() As RPCollection
```

Return Value

An `RPCollection` that contains the read-only list of incoming links

C/C++ Prototype

```
HRESULT getInLinks (IRPCollection** pVal)
```

Return Value

`HRESULT` (0 for success, or a signed integer error code)

getListOfInitializerArguments

Read method

Description

The [getListOfInitializerArguments](#) method returns the list of arguments for the initializer, as defined by the user in the instance features dialog box.

Visual Basic

Syntax

```
getListOfInitializerArguments() As RPCollection
```

Return Value

An `RPCollection` that contains the values of the arguments passed to the initializer. This list is a read-only list of strings.

C/C++ Prototype

```
HRESULT getListOfInitializerArguments(  
    IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getOutLinks

Read method

Description

The [getOutLinks](#) method returns the list of links for which the instance is the source instance (identified by the “from” property of the link).

Visual Basic

Syntax

```
getOutLinks() As RPCollection
```

Return Value

An `RPCollection` that contains the read-only list of outgoing links

C/C++ Prototype

```
HRESULT getOutLinks (IRPCollection** pVal)
```

Return Value

`HRESULT` (0 for success, or a signed integer error code)

setInitializerArgumentValue

Write method

Description

The [setInitializerArgumentValue](#) method sets the value of the initializer argument.

Visual Basic

Syntax

```
setInitializerArgumentValue(argName As String,  
    argValue as String)
```

Arguments

argName

The name of the initializer argument

argValue

The initial value of the initializer argument

C/C++ Prototype

```
HRESULT setInitializerArgumentValue (BSTR argName,  
    BSTR argValue)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPInteractionOccurrence Interface

The `IRPInteractionOccurrence` interface represents an interaction occurrence (reference sequence diagram). It derives from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
messagePoints	RPCollection	RO	The message points of the referenced sequence diagram
referenceSequenceDiagram	RPSequenceDiagram	RW	The sequence diagram being referenced

IRPInterfaceItem Interface

The `IRPInterfaceItem` interface represents the commonality of class interface elements. It derives from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
arguments	Collection of <code>RArguments</code>	RO	The arguments of this operation or event
signature	String	RO	The signature of this operation. For example: "f(int x, char *y)"

Method Summary

<code>addArgument</code>	Adds an argument for the operation to the end of its argument list
<code>addArgumentBeforePosition</code>	Adds an argument for the operation at the specified position in its argument list
<code>getSignatureNoArgNames</code>	Retrieves the signature of the current class interface element without argument names
<code>getSignatureNoArgTypes</code>	Retrieves the signature of the current class interface element without argument types
<code>matchOnSignature</code>	Determines whether the signature of the current class interface element matches that of another <code>IRPInterfaceItem</code>

addArgument

Write method

Description

The [addArgument](#) method adds an argument for the operation to the end of its argument list.

Visual Basic

Syntax

```
addArgument (newVal As String) As RPArgument
```

Arguments

NewVal

The new argument to append to the argument list

Return Value

The new argument added to the argument list

C/C++ Prototype

```
HRESULT addArgument (BSTR newVal, IRPArgument** argument)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addArgumentBeforePosition

Write method

Description

The [addArgumentBeforePosition](#) method adds an argument for the operation at the specified position in its argument list.

Visual Basic

Syntax

```
addArgumentBeforePosition (newVal As String, pos As Long)  
As RPArgument
```

Arguments

newVal

The new argument to add to the argument list

pos

A long that represents the position of the argument in argument list
(1,2,3,...n; left to right)

Return Value

The new argument added to the argument list

C/C++ Prototype

```
HRESULT addArgumentBeforePosition (BSTR newVal, long pos,  
IRPArgument** argument)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getSignatureNoArgNames

Read method

Description

The [getSignatureNoArgNames](#) method retrieves the signature of the current class interface element without argument names.

Visual Basic

Syntax

```
getSignatureNoArgNames() As String
```

Return Value

The signature of the element without argument names. For example:

```
f(string,int)
```

C/C++ Prototype

```
HRESULT getSignatureNoArgNames (BSTR *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getSignatureNoArgTypes

Read method

Description

The [getSignatureNoArgTypes](#) method retrieves the signature of the current class interface element without argument types.

Visual Basic

Syntax

```
getSignatureNoArgTypes() As String
```

Return Value

The signature of the element without argument types. For example:

```
f(x,y)
```

C/C++ Prototype

```
HRESULT getSignatureNoArgTypes (BSTR *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

matchOnSignature

Read method

Description

The [matchOnSignature](#) method determines whether the signature of the current class interface element matches that of another `IRPInterfaceItem`.

Visual Basic

Syntax

```
matchOnSignature (item As RPInterfaceItem) As Long
```

Arguments

item

A pointer to the `RPInterfaceItem` whose signature is being compared to that of the current interface item

Return Value

1 if the two signatures match; otherwise 0

C/C++ Prototype

```
HRESULT matchOnSignature (IRPInterfaceItem* item,  
                          long *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPLink Interface

The `IRPLink` interface represents a link-end that instantiates a relation. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
end1Multiplicity	String	RW	The multiplicity of the first end of the link
end1Name	String	RW	The name of the first end of the link
end2Multiplicity	String	RW	The multiplicity of the second end of the link
end2Name	String	RW	The name of the second end of the link
from	RPIInstance	RO	The source instance of the link.
instantiates	RPRelation	RO	The association the link instantiates.
other	RPLink	RO	The pair link. In most cases, this property is redundant.
to	RPIInstance	RO	The target instance of the link.

IRPMessage Interface

The `IRPMessage` interface represents a message sent between two classifier roles in a collaboration. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
actualParameterList	String	RO	A collection of strings that contain parameters.
communication Connection	RPAssociationRole	RO	The communication connection. This is always NULL for sequence diagrams.
condition	Cstring	RO	This is meaningful only if the message is of type "condition".
formalInterfaceItem	RPIInterfaceItem	RO	This can be NULL for timeouts or "default" for CTOR, DTOR, and non-specified methods.
messageType	Cstring	RO	The message type (constructor, destructor, event, operation, triggered, timeout, cancelled timeout, condition, or unspecified).
returnValue	Cstring	RO	The name of the element that receives the return value.
sequenceNumber	Cstring	RO	The number or position in an ordered list. For sequence diagrams, Rhapsody deduces the number.
source	RPClassifierRole	RO	Specifies who sent the message.
target	RPClassifierRole	RO	Specifies who received the message.
timerValue	String	RO	The timer value

Method Summary

<u>getSignature</u>	Retrieves the prototype of the <code>IRPMessage</code>
-------------------------------------	--

getSignature

Read method

Description

The [getSignature](#) method retrieves the prototype of the IRPMessage.

Visual Basic

Syntax

```
getSignature () As String
```

Return Value

The signature

C/C++ Prototype

```
HRESULT getSignature (BSTR* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPMessagePoint Interface

The `IRPMessagePoint` interface represents an event in a sequence diagram. It inherits from `IRPModelElement`.

Note that in a collaboration diagram, all events are send/receive pairs with nothing in between them.

VB Properties

Name	Type	Access	Description
message	<code>RPMMessage</code>	RO	The message that the current event refers to
type	<code>String</code>	RO	"Send" or "receive"

Method Summary

<u><code>getClassifierRole</code></u>	Retrieves the classifier role for this message point
---	--

getClassifierRole

Read method

Description

The [getClassifierRole](#) method retrieves the classifier role for this message point. This is the classifier role (object) that received this event and sent back a return message.

Visual Basic

Syntax

```
getClassifierRole() As RPCClassifierRole
```

Return Value

The `RPCClassifierRole` on which the message occurred

C/C++ Prototype

```
HRESULT getClassifierRole (  
    IRPCClassifierRole** classifierRole)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPModelElement Interface

The `IRPModelElement` interface is the base abstract interface for all Rhapsody 6.1 metamodel elements. It consists of all the common functionality shared by all the elements in the model (except for the `Application` class). It acts as an abstract interface.

VB Properties

Name	Type	Access	Description
annotations	Collection of <code>RAnnotations</code>	RO	The annotations that belong to this model element.
associationClasses	Collection of <code>IRPAssociationClasses</code>	RO	The association classes connected to this model element.
constraints	Collection of <code>RConstraints</code>	RO	The constraints that belong to this model element.
constraintsByHim	Collection of <code>IRPConstraints</code>	RO	The constraints that affect this model element.
dependencies	Collection of <code>RPDependency</code>	RO	The model elements on which this model element depends.
description	<code>String</code>	RW	The description of this model element.
descriptionHTML	<code>String</code>	RW	The description of the model element in HTML format.
descriptionRTF	<code>String</code>	RW	The description of the model element in RTF format.
displayName	<code>String</code>	RW	The display name.
GUID	<code>String</code>	RW	The GUID value.
hyperLinks	Collection of <code>IRPHyperLink-s</code>	RO	The hyperlinks added to an element.
isOfMetaclass (metaclass)	<code>Long</code>	RO	This is equal to 1 (as opposed to 0) if the current model element is a member of this metaclass. Requires the string metaclass.
isShowDisplayName	<code>Long</code>	RW	Specifies whether to show the display name.

Name	Type	Access	Description
mainDiagram	RPDiagram	RW	The main diagram of this element. Currently, this property is valid only for classes, packages, actors, and use cases.
metaClass	String	RO	The metaclass of this model element.
name	String	RW	The name of this model element.
ofTemplate	RPMoDelElement	RW	If the model element is an instantiation, this method will return the template used to instantiate it.
owner	RPMoDelElement	RW	<p>The object in which this model element is defined.</p> <p>You can use this property to establish ownership. For example, suppose <i>c</i> is a class and <i>p</i> is a package:</p> <pre>Dim c as RPClass Dim p as RPPackage set c = ... set p = ... c.owner = p</pre> <p>This will work for any two objects where one can contain the other.</p>
project	RPProject	RO	The project that owns this element.
requirementTraceabilityHandle	long	RW	The handle to this model element used by requirement traceability tools.
stereotype	RPStereotype	RW	The stereotype attached to this model element.
templateParameters	Collection of RPTemplateParameter	RO	If this model element is a template, the method returns the template's parameters.

Name	Type	Access	Description
ti	RPTemplate Instantiation	RW	If this model element is a template, it instantiates the template into a class as follows: <ol style="list-style-type: none">1. Create a class <code>c</code>.2. Create a template instantiation, <code>theTi</code>.3. Connect the new class with the template instantiation: <code>c.ti = theTi</code>

Method Summary

<u>addDependency</u>	Adds a dependency relationship to the specified object
<u>addDependencyTo</u>	Creates a new dependency between two objects
<u>addNewAggr</u>	Used to add a new model element to the current element, for example, adding a class to a package
<u>addProperty</u>	Adds a new property/value pair for the current element
<u>addStereotype</u>	Adds a stereotype relationship to the specified object
<u>becomeTemplateInstantiationOf</u>	Creates a template instantiation of another template (of another template class)
<u>clone</u>	Clones the element
<u>deleteDependency</u>	Deletes a dependency
<u>deleteFromProject</u>	Deletes the current model element from the project open in Rhapsody 6.1
<u>errorMessage</u>	Returns the most recent error message
<u>findElementsByFullName</u>	Searches for the specified element
<u>findNestedElement</u>	Retrieves the specified element nested in a model element
<u>findNestedElementRecursive</u>	Retrieves the specified element from a given model element at any level of nesting within that element
<u>getErrorMessage</u>	Returns the most recent error message

<u>getFullPathName</u>	Retrieves the full path name of a model element as a string
<u>getFullPathNameIn</u>	Retrieves the full path name of a model element as a string
<u>getNestedElements</u>	Retrieves the elements defined in the current object
<u>getNestedElementsRecursive</u>	Recursively retrieves the elements defined in the model element for the object and for objects defined in it
<u>getOverriddenProperties</u>	Retrieves the list of properties whose default values have been overridden
<u>getPropertyValue</u>	Returns the value associated with the specified key value
<u>getPropertyValueExplicit</u>	Returns an explicit value if it has been assigned to the metamodel
<u>getTag</u>	Returns the tag for the specified model element
<u>HighLightElement</u>	Highlights the current model element
<u>openFeaturesDialog</u>	Displays the information for an element in the Features dialog. Depending on parameter provided, opens new dialog or uses an already-open dialog.
<u>removeProperty</u>	Removes the property from the model element
<u>removeStereotype</u>	Removes the stereotype
<u>setPropertyValue</u>	Modifies the value of the specified property
<u>setTagValue</u>	Assigns the specified tag to the model element
<u>synchronizeTemplateInstantiation</u>	Is used to synchronize between a template and a template instantiation parameter

addDependency

Write method

Description

The [addDependency](#) method adds a dependency relationship to the specified object.

Visual Basic

Syntax

```
addDependency (dependsOnName As String, dependsOnType  
              As String) As RPDependency
```

Arguments

dependsOnName

The name of the object that this element depends on

dependsOnType

The type of object that this element depends on

Return Value

The newly created dependency

C/C++ Prototype

```
HRESULT addDependency (BSTR dependsOnName,  
                      BSTR dependsOnType, IRPDependency** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addDependencyTo

Write method

Description

The [addDependencyTo](#) method creates a new dependency relationship between two objects.

Visual Basic

Syntax

```
addDependencyTo (element As RPModelElement)  
    As RPDependency
```

Arguments

element

The name of the object that the current object depends on

Return Value

The newly created dependency

C/C++ Prototype

```
HRESULT addDependencyTo (IRPModelElement* element,  
    IRPDependency** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addNewAggr

Write method

Description

The [addNewAggr](#) method is used to add a new model element to the current element, for example, adding a new class to a package or adding a new diagram to a project.

Visual Basic

Syntax

```
addNewAggr (metaType As String, name As String)  
            As RPModelElement
```

Arguments

metaType

The type of element to add (the string to use is the name of the appropriate metaclass).

Note

The list of metaclass names that can be used for this argument can be found in the file *metaclasses.txt* in the *Doc* directory of your Rhapsody installation.

name

The name to use for the new element

Return Value

The newly created element

C/C++ Prototype

```
HRESULT addNewAggr (BSTR metaType, BSTR name,  
                    IRPModelElement** newObject)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

```
Set proj = getProject  
Set d = proj.addNewAggr("ObjectModelDiagram", "MyDiagram")
```

addProperty

Write method

Description

The [addProperty](#) method adds a new property/value pair for the current element.

This method is capable of flagging an error. For more information, see [Error Handling](#)

Visual Basic

Syntax

```
addProperty (propertyKey As String,  
            propertyType As String, propertyValue As String)
```

Arguments

propertyKey

The name of the new property.

propertyType

The property type. The possible values are as follows:

Int

String

Enum, <xxx>, <yyy>, <zzz> (i.e., Enum, followed by each of the defined values, for example: Enum,No,Prefix,Suffix)

Bool

propertyValue

The default value of the new property.

C/C++ Prototype

```
HRESULT addProperty (BSTR propertyKey, BSTR propertyType,  
                    BSTR propertyValue)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addStereotype

Write method

Description

The [addStereotype](#) method adds a stereotype relationship to the specified object.

Visual Basic

Syntax

```
addStereotype (name As String, metaType As String)  
As RPStereotype
```

Arguments

name

The name of the object in the new stereotype relationship

metaType

The type of the object in the new stereotype relationship

Return Value

The newly created stereotype relationship

C/C++ Prototype

```
HRESULT addStereotype (BSTR name, BSTR metaType,  
IRPStereotype** stereotype)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

```
Sub addNetwork(c As RPClass)  
Dim o As RPOperation  
c.addOperation ("serialize")  
c.addOperation ("unserialize")  
c.addConstructor ("")  
On Error Resume Next  
c.addDestructor ("")  
x = c.addStereotype("G3Network", "Class")  
End Sub
```

becomeTemplateInstantiationOf

Write method

Description

The [becomeTemplateInstantiationOf](#) method creates a template instantiation of another template (of another template class).

Visual Basic

Syntax

```
becomeTemplateInstantiationOf (newVal As RPModelElement)
```

Arguments

newVal

The template object that the template is an instantiation of

C/C++ Prototype

```
HRESULT becomeTemplateInstantiationOf (  
    IRPModelElement *newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

clone

Write method

Description

The [clone](#) method clones the element, names it, and adds it to the new owner.

Visual Basic

Syntax

```
clone (name As String, newOwner As RModelElement)  
      As RModelElement
```

Arguments

name

The name to use for the cloned element

newOwner

The new owner of the cloned element

C/C++ Prototype

```
HRESULT clone (BSTR string, IRModelElement *newOwner,  
               IRModelElement** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteDependency

Write method

Description

The [deleteDependency](#) method deletes a dependency.

Visual Basic

Syntax

```
deleteDependency (dependency As RPDependency)
```

Arguments

dependency

The dependency to delete

C/C++ Prototype

```
HRESULT deleteDependency (IRPDependency* dependency)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteFromProject

Write method

Description

The [deleteFromProject](#) method deletes the current model element from the project open in Rhapsody 6.1.

Visual Basic

Syntax

```
deleteFromProject()
```

C/C++ Prototype

```
HRESULT deleteFromProject()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

errorMessage**Read method****Description**

The [errorMessage](#) method returns the most recent error message.

Visual Basic**Syntax**

```
errorMessage() As String
```

Return Value

The most recent error message (a string)

C/C++ Prototype

```
HRESULT errorMessage (BSTR* __MIDL_0020)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findElementsByFullName

Read method

Description

The [findElementsByFullName](#) method searches for the specified element.

Visual Basic

Syntax

```
findElementsByFullName (name As String,  
    metaClass As String) As RPModelElement
```

Arguments

name
The name of the element to look for
metaClass
The element's metaclass

Return Value

The specified element

C/C++ Prototype

```
HRESULT findElementsByFullName (BSTR name,  
    BSTR metaClass, IRPModelElement** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

Suppose you have a class A, under package P. The following VBA code will find this class using the `findElementsByFullName` API call:

```
Dim proj As RPPProject  
Dim m As RPModelElement  
  
Set proj = getProject  
Set m = proj.findElementsByFullName("A in P", "Class")  
MsgBox m.name
```

Note

This method requires that you use the “full” notation, e.g., “A in P”. Otherwise, the method will not return the specified element.

findNestedElement

Read method

Description

The [findNestedElement](#) method retrieves the specified element nested in a model element.

For example, if x is of type `IRPModelElement` (or a type inherited from it), the following call returns an attribute of x named A (or null if there is no such element):

```
x.findNestedElement('A','Attribute')
```

Visual Basic

Syntax

```
findNestedElement (name As String, metaClass As String)  
As RPModelElement
```

Arguments

name
The name of the element
metaClass
The name of the metaclass

Return Value

If found, the retrieved `RPModelElement`; otherwise, `NULL`

C/C++ Prototype

```
HRESULT findNestedElement (BSTR name, BSTR metaClass,  
IRPModelElement** pVal)
```

Return Value

`HRESULT` (0 for success, or a signed integer error code)

Example

```
Sub addUi(c As RPClass)  
Dim x As Object  
Dim p As RPPackage  
Dim theClass As RPClass  
'all gui objects are derived from GUI.UIBase  
c.Description = "gui class"  
On Error Resume Next  
Set p = pr.findNestedElement("GUI", "Package")  
Set theClass = p.findNestedElement("UIBase", "Class")  
c.addGeneralization theClass  
  
If Not Err.Number = 0 Then
```

```
MsgBox (errorMessage)
End If

c.addStereotype "G3UI", "Class"

End Sub
```

findNestedElementRecursive

Read method

Description

The [findNestedElementRecursive](#) method retrieves the specified element from a given model element at any level of nesting within that element.

For example, if *x* is of type `IRPModelElement` (or a type inherited from it), the following call returns an attribute named *A* (or null if there is no such element) of *x*, or of any element nested within *x* at any level of ownership:

```
x.findNestedElementRecursive('A','Attribute')
```

Visual Basic

Syntax

```
IRPModelElement findNestedElementRecursive(  
    name As String, metaClass As String) As RPModelElement
```

Arguments

name
The name of the element
metaClass
The name of the metaclass

Return Value

If found, the retrieved `RPModelElement`; otherwise, `NULL`

C/C++ Prototype

```
HRESULT findNestedElementRecursive (BSTR name,  
    BSTR metaClass, IRPModelElement** pVal)
```

Return Value

`HRESULT` (0 for success, or a signed integer error code)

getErrorMessage

Read method

Description

The [getErrorMessage](#) method returns the most recent error message.

Visual Basic

Syntax

```
String getErrorMessage (__MIDL_0019 As String)
```

Return Value

The most recent error message

C/C++ Prototype

```
HRESULT getErrorMessage (BSTR* __MIDL_0019)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getFullPathName

Read method

Description

The [getFullPathName](#) method retrieves the full path name of a model element as a string with the following format:

```
<package>::<class>
```

Visual Basic

Syntax

```
getFullPathName() As String
```

Return Value

The full path of the model element

C/C++ Prototype

```
HRESULT getFullPathName (BSTR* name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

The following macro checks each transition to see if it has a trigger.

```
Sub checkNullTransitions()  
    Dim elem As RPModelElement  
    For Each elem In getProject.getNestedElementsRecursive  
        If elem.metaClass = "Transition" Then  
            Dim trans As RPTransition  
            Set trans = elem  
            If trans.getItsTrigger Is Nothing Then  
                Debug.Print "The trigger in transition '" +  
                    trans.getFullPathName + "' is null!"  
            End If  
        End If  
    Next elem  
End Sub  
...
```

getFullPathNameIn

Read method

Description

The [getFullPathNameIn](#) method retrieves the full path name of a model element as a string in the following format:

```
<class> in <package>
```

Visual Basic

Syntax

```
getFullPathNameIn() As String
```

Return Value

The full path of the model element

C/C++ Prototype

```
HRESULT getFullPathNameIn (BSTR* name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getNestedElements

Read method

Description

The [getNestedElements](#) method retrieves the elements defined in the current object.

Visual Basic

Syntax

```
getNestedElements() As RPCollection
```

Return Value

A collection of model elements defined in the current object

C/C++ Prototype

```
HRESULT getNestedElements (IRPCollection** __MIDL_0017)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getNestedElementsRecursive

Write method

Description

The [getNestedElementsRecursive](#) method recursively retrieves the elements defined in the model element for the object and for objects defined in it.

Visual Basic

Syntax

```
getNestedElementsRecursive() As RPCollection
```

Return Value

A collection of model elements defined in the current object and the objects nested within it

C/C++ Prototype

```
HRESULT getNestedElementsRecursive(  
    IRPCollection** __MISL__0018)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

The following macro checks each transition to see if it has a trigger.

```
Sub checkNullTransitions()  
    Dim elem As RPModelElement  
    For Each elem In getProject.getNestedElementsRecursive  
        If elem.metaClass = "Transition" Then  
            Dim trans As RPTransition  
            Set trans = elem  
            If trans.getItsTrigger Is Nothing Then  
                Debug.Print "The trigger in transition '" +  
                    trans.getFullPathName + "' is null!"  
            End If  
        End If  
    Next elem  
End Sub  
...
```

getOverriddenProperties

Read method

Description

The [getOverriddenProperties](#) method retrieves the list of properties whose default values have been overridden.

Visual Basic

Syntax

```
getOverriddenProperties (recursive As Long)  
As RPCollection
```

Arguments

recursive

Specifies whether to include the properties of ascendants of the unit

C/C++ Prototype

```
HRESULT getOverriddenProperties (long recursive,  
IRPCollection **pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getPropertyValue

Read method

Description

The [getPropertyValue](#) method returns the value associated with the specified key value.

This method is capable of flagging an error.

Visual Basic

Syntax

```
getPropertyValue (propertyKey As String) As String
```

Arguments

propertyKey

The name of the property whose value is to be retrieved

Return Value

The value of a property explicitly assigned to this instance or the default value (the value propagated from the containers of the instance as a default).

Notes

Property-related API calls can cause the following error conditions:

- ◆ RP_BAD_PROPERTY_KEY_ERROR—Illegal property key syntax (that is, not in a "<subject>.<metaclass>.<name>" format).
- ◆ RP_MISSING_PROPERTY_ERROR—The property requested does not exist.
- ◆ RP_PROPERTY_EXISTS_ERROR—You are attempting to add a property that already exists.

C/C++ Prototype

```
HRESULT getPropertyValue (BSTR propertyKey,  
                          BSTR* propertyValue)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

```
Set elt = getSelectedElement
theFileName = elt.getPropertyValue(
    "UserProperties.ExternalFile.FileName")
theFilePath = elt.getPropertyValue(
    "UserProperties.ExternalFile.FilePath")
theFileType = elt.getPropertyValue(
    "UserProperties.ExternalFile.FileType")
```

getPropertyValueExplicit

Read method

Description

The [getPropertyValueExplicit](#) method is similar to the `getPropertyValue` method, but it does not return a default value. Instead, it returns an explicit value if it has been assigned to the metamodel.

This method is capable of flagging an error. For more information, see [Error Handling](#)

Visual Basic

Syntax

```
getPropertyValueExplicit (propertyKey As String)
    As String
```

Arguments

propertyKey

The name of the property whose value is to be retrieved

Return Value

The explicit value of the property, if one has been assigned to the metamodel instance

C/C++ Prototype

```
HRESULT getPropertyValueExplicit (BSTR propertyKey,
    BSTR* propertyValue)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getTag

Read method

Description

The [getTag](#) method returns the tag for the specified model element.

Visual Basic

Syntax

```
getTag (name As String) As RPTag
```

Arguments

name

The name of the element whose tag you want to retrieve

Return Value

The tag

C/C++ Prototype

```
HRESULT getTag (BSTR name, IRPTag **pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

openFeaturesDialog

Description

The method `openFeaturesDialog` displays the information for an element in the Features dialog. Depending on the parameter you provide, a new Features dialog will be opened or an already-open Features dialog will be used to display the information:

- ◆ 1 - opens a new dialog
- ◆ 0 - displays information in already-open dialog; opens a new dialog if there is not a Features dialog currently open.

Syntax

```
openFeaturesDialog(newDialog As Long)
```

Example

The code below displays the information for class C in a new Features dialog. P is the name of the package that contains the class.

```
Dim proj As RPPProject
Dim m As RPModelElement
Set proj = getProject
Set m = proj.findElementsByFullName("C in P", "Class")
m.openFeaturesDialog(1)
```

HighLightElement

Read method

Description

The [HighLightElement](#) method highlights the current element.

Visual Basic

Syntax

```
HighLightElement ()
```

C/C++ Prototype

```
HRESULT highLightElement ()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

removeProperty

Write method

Description

The [removeProperty](#) method removes the property from the model element.

This method is capable of flagging an error.

Visual Basic

Syntax

```
removeProperty (propertyKey As String)
```

Arguments

propertyKey

The name of the property to be removed

C/C++ Prototype

```
HRESULT removeProperty (BSTR propertyKey)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

removeStereotype

Write method

Description

The [removeStereotype](#) method removes the stereotype from the model element.

Visual Basic

Syntax

```
removeSterotype (stereotype As RPSterotype)
```

Arguments

stereotype

The name of the stereotype to be removed

C/C++ Prototype

```
HRESULT removeStereotype (IRPStereotype* stereotype)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setPropertyValue

Write method

Description

The [setPropertyValue](#) method modifies the value of the specified property.

This method is capable of flagging an error. For more information, see [Error Handling](#)

Visual Basic

Syntax

```
setPropertyValue (propertyKey As String,  
    propertyValue As String)
```

Arguments

propertyKey

The name of the property whose value is to be set

Note: When providing the name of the property, the delimiter used should be a period, not a colon, for example, CPP_CG.Attribute.AccessorGenerate.

propertyValue

The value to be assigned to the property

C/C++ Prototype

```
HRESULT setPropertyValue (BSTR propertyKey,  
    BSTR propertyValue)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Sample Code

```
element.setPropertyValue "CPP_CG.Attribute.AccessorGenerate", "True"
```

setTagValue

Write method

Description

The [setTagValue](#) method assigns the specified tag to the current model element.

Visual Basic

Syntax

```
setTagValue (tag As RPTag, val As String) AS RPTag
```

Arguments

tag

The name of the tag to add to the element

val

The value of the new tag

Return Value

The new tag

C/C++ Prototype

```
HRESULT setTagValue (IRPTag *tag, BSTR val,  
                    IRPTag **pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

synchronizeTemplateInstantiation

Write method

Description

The [synchronizeTemplateInstantiation](#) method is used to synchronize between a template and a template instantiation parameter. For example, if you add a parameter to a template, this method updates the template instantiation. It is activated on template instantiation.

Visual Basic

Syntax

```
synchronizeTemplateInstantiation ( )
```

C/C++ Prototype

```
HRESULT synchronizeTemplateInstantiation ( )
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPModule Interface

The `IRPModule` interface represents a Rhapsody module. It inherits from `IRPInstance`.

IRPNode Interface

The `IRPNode` interface represents a node. It derives from `IRPClassifier`.

VB Properties

Name	Type	Access	Description
<code>componentInstances</code>	<code>RPCollection</code>	RO	The list of component instances
<code>CPUType</code>	<code>String</code>	RW	The CPU type

Method Summary

<code>addComponentInstance</code>	Adds a new component instance
<code>deleteComponentInstance</code>	Deletes the specified component instance
<code>findComponentInstance</code>	Retrieves the specified component instance

`addComponentInstance`

Write method

Description

The [`addComponentInstance`](#) method adds a component instance.

Visual Basic

Syntax

```
addComponentInstance (name As String)  
    As RPComponentInstance
```

Arguments

`name`

The name of the new component instance

Return Value

The new component instance

C/C++ Prototype

```
HRESULT addComponentInstance (BSTR name,  
                              IRPComponentInstance** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteComponentInstance

Write method

Description

The [deleteComponentInstance](#) method deletes the specified component instance.

Visual Basic

Syntax

```
deleteComponentInstance (BSTR name)
```

Arguments

name

The name of the new component instance

C/C++ Prototype

```
HRESULT deleteComponentInstance (BSTR name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findComponentInstance

Read method

Description

The [findComponentInstance](#) method retrieves the specified component instance.

Visual Basic

Syntax

```
findComponentInstance (name As String)  
As IRPComponentInstance
```

Arguments

name

The name of the component instance to look for

Return Value

The component instance

C/C++ Prototype

```
HRESULT findComponentInstance (BSTR name,  
                               IRPComponentInstance** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPObjectModelDiagram Interface

The `IRPObjectModelDiagram` interface represents an object model diagram. It inherits from `IRPDiagram`.

Currently, `IRPObjectModelDiagram` does not expose additional functionality to `IRPDiagram`.

IRPOperation Interface

The `IRPOperation` interface is an abstract class that represents an operation. It derives from `IRPInterfaceItem`.

VB Properties

Name	Type	Access	Description
body	String	RW	The body of the operation.
flowchart	RPFLOWchart	RW	The activity chart of the operation.
initializer	String	RW	If this operation is a constructor, this is a string containing the constructor initialization list.
isAbstract	Long	RW	This is equal to 1 (as opposed to 0) if the operation is abstract.
isCgDerived	Long	RO	This is equal to 1 (as opposed to 0) if this operation is automatically generated by Rhapsody 6.1.
isConst	Long	RO	This is equal to 1 (as opposed to 0) if the operation is a <code>const</code> .
isCtor	Long	RO	This is equal to 1 (as opposed to 0) if the operation is a constructor.
isDtor	Long	RO	This is equal to 1 (as opposed to 0) if the operation is a destructor.
isFinal	Long	RW	This is equal to 1 (as opposed to 0) if the operation is final (Java only).

Name	Type	Access	Description
isStatic	Long	RO	This is equal to 1 (as opposed to 0) if the operation is a static.
isTrigger	Long	RO	This is equal to 1 (as opposed to 0) if the operation is triggered.
isVirtual	Long	RO	This is equal to 1 (as opposed to 0) if the operation is virtual.
returns	RPClassifier	RW	The return type of this operation. In previous versions, this property was called "returnType".
returnType	RPTYPE	RW	The return type of this operation.
visibility	String	RW	The visibility of this operation (public, protected, or private).

Method Summary

<u>deleteArgument</u>	Deletes an argument from the current operation
<u>deleteFlowchart</u>	Deletes an activity diagram from the current operation
<u>getImplementationSignature</u>	Returns a string representing the signature of the operation as it will appear in the generated code.
<u>setReturnTypeDeclaration</u>	Specifies a new value for the return type declaration

deleteArgument

Write method

Description

The [deleteArgument](#) method deletes an argument from the current operation.

Visual Basic

Syntax

```
deleteArgument (argument As RArgument)
```

Arguments

argument

The argument to be deleted

C/C++ Prototype

```
HRESULT deleteArgument (IRPArgument* argument)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteFlowchart

Write method

Description

The [deleteFlowchart](#) method deletes an activity diagram from the current operation.

Visual Basic**Syntax**

```
deleteFlowchart()
```

C/C++ Prototype

```
HRESULT deleteFlowchart()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getImplementationSignature

Returns a string representing the signature of the operation as it will appear in the generated code.

setReturnTypeErrorDeclaration

Write method

Description

The [setReturnTypeErrorDeclaration](#) method specifies a new value for the return type declaration.

Visual Basic

Syntax

```
setReturnTypeErrorDeclaration (newVal As String)
```

Arguments

newVal

The new value for the return type declaration

C/C++ Prototype

```
HRESULT setReturnTypeErrorDeclaration (BSTR newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPPackage Interface

The `IRPPackage` interface represents Rhapsody packages, which are essentially definition spaces for diagrams and other model elements. It inherits from `IRPUnit`.

VB Properties

Name	Type	Access	Description
actors	Collection of <code>RPActors</code>	RO	The collection of actors defined in this package
classes	Collection of <code>RPClasses</code>	RO	The collection of classes defined in this package
collaborationDiagrams	Collection of <code>RPCollaborationDiagrams</code>	RO	The collection of collaboration diagrams defined in this package
componentDiagrams	Collection of <code>RPComponentDiagrams</code>	RO	The collection of component diagrams defined in this package
deploymentDiagrams	Collection of <code>RPDeploymentDiagrams</code>	RO	The collection of deployment diagrams defined in the package
events	Collection of <code>RPEvents</code>	RO	The collection of events defined in this package
eventsBaseId	Long	RO	The event base identifier
globalFunctions	Collection of <code>RPOperations</code>	RO	The collection of global functions defined in the package
globalObjects	Collection of <code>RPRelations</code>	RO	The collection of global objects defined in the package
globalVariables	Collection of <code>RPAtributes</code>	RO	The collection of global variables defined in the package
flowItems	Collection of <code>RPFlowItems</code>	RO	The collection of information items defined in this package
flows	Collection of <code>RPFlows</code>	RO	The collection of flows defined in this package
nestedClassifiers	Collection of classifiers	RO	The collection of classifiers defined in this package
nodes	<code>RPCollection</code>	RO	The list of package nodes
objectModelDiagrams	Collection of <code>RPObjectDiagrams</code>	RO	The collection of object model diagrams defined in this package

Name	Type	Access	Description
packages	Collection of RPPackages	RO	The collection of packages nested inside this package
SavedInSeperateDirectory	Long	RW	Determines whether each package is saved in a separate directory
sequenceDiagrams	Collection of RPSequenceDiagrams	RO	The collection of sequence diagrams defined in this package
types	Collection of RPTypes	RO	The collection of data types defined in this package
useCaseDiagrams	Collection of RPUseCaseDiagrams	RO	The collection of use case diagrams defined in this package
useCases	Collection of RPUseCases	RO	The collection of use cases defined in this package
userDefinedStereotypes	Collection of RPSTereotypes	RO	The collection of user-defined stereotypes defined in this package

Method Summary

<u>addActor</u>	Adds the specified actor to the current package
<u>addClass</u>	Adds the specified class to the current package
<u>addCollaborationDiagram</u>	Adds the specified collaboration diagram to the current package
<u>addComponentDiagram</u>	Adds the specified component diagram to the current package
<u>addDeploymentDiagram</u>	Adds the specified deployment diagram to the current package
<u>addEvent</u>	Adds the specified event to the current package
<u>addFlowItems</u>	Adds the specified flowItem to the <u>flowItems</u> collection
<u>addFlows</u>	Adds the specified flow to the <u>flows</u> collection
<u>addGlobalFunction</u>	Adds the specified global function to this package
<u>addGlobalObject</u>	Adds a global object (instance) to the current package

<u>addGlobalVariable</u>	Adds the specified global variable to the current package
<u>addLink</u>	Adds a link between two objects to the current package
<u>addNestedPackage</u>	Adds a nested package to the current package
<u>addNode</u>	Adds the specified node to the current package
<u>addObjectModelDiagram</u>	Adds the specified OMD to the current package
<u>addSequenceDiagram</u>	Adds the specified sequence diagram to the current package
<u>addType</u>	Adds the specified type to the current package
<u>addUseCase</u>	Adds the specified use case to the current package
<u>addUseCaseDiagram</u>	Adds the specified UCD to the current package
<u>deleteActor</u>	Deletes the specified actor from the current package
<u>deleteClass</u>	Deletes the specified class from the current package
<u>deleteCollaborationDiagram</u>	Deletes the specified collaboration diagram from the current package
<u>deleteComponentDiagram</u>	Deletes the specified component diagram from the current package
<u>deleteDeploymentDiagram</u>	Deletes the specified deployment diagram from the current package
<u>deleteEvent</u>	Deletes the specified event from the current package
<u>deleteFlowItems</u>	Deletes the specified flowItem from the <u>flowItems</u> collection
<u>deleteFlows</u>	Deletes the specified flow from the <u>flows</u> collection
<u>deleteGlobalFunction</u>	Deletes the specified global function from the current package
<u>deleteGlobalObject</u>	Deletes the specified global object from the current package
<u>deleteGlobalVariable</u>	Deletes the specified global variable from the current package
<u>deleteNode</u>	Deletes the specified node from the current package
<u>deleteObjectModelDiagram</u>	Deletes the specified OMD from the current package
<u>deletePackage</u>	Deletes the current package

<u>deleteSequenceDiagram</u>	Deletes the specified sequence diagram from the current package
<u>deleteType</u>	Deletes the specified type from the current package
<u>deleteUseCase</u>	Deletes the specified use case from the current package
<u>deleteUseCaseDiagram</u>	Deletes the specified use case diagram from the current package
<u>findActor</u>	Retrieves the specified actor, if it belongs to the current package
<u>findAllByName</u>	Searches all the elements and finds the first element of the specified name and metaclass in the current package
<u>findClass</u>	Retrieves the specified class, if it belongs to the current package
<u>findEvent</u>	Retrieves the specified event, if it belongs to the current package
<u>findGlobalFunction</u>	Retrieves the specified global function, if it belongs to the current package
<u>findGlobalObject</u>	Retrieves the specified global object, if it belongs to the current package
<u>findGlobalVariable</u>	Retrieves the specified global variable, if it belongs to the current package
<u>findNode</u>	Retrieves the specified node, if it belongs to the current package
<u>findType</u>	Retrieves the specified data type, if it belongs to the current package
<u>findUsage</u>	Retrieves the usage of the specified element in the current package
<u>findUseCase</u>	Retrieves the specified use case, if it belongs to the current package
<u>recalculateEventsBaseId</u>	Recalculates the events base ID of the package

addActor

Write method

Description

The [addActor](#) method adds the specified actor to the current package.

Visual Basic

Syntax

```
addActor (name As String) As RPActor
```

Arguments

name

The name of actor to add to this package

Return Value

The new actor added to the package

C/C++ Prototype

```
HRESULT addActor (BSTR name, IRPActor** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addClass

Write method

Description

The [addClass](#) method adds the specified class to the current package.

Visual Basic

Syntax

```
addClass (name As String) As RPCClass
```

Arguments

name
The name of the class to be added

Return Value

The class added to this package

C/C++ Prototype

```
HRESULT addClass (BSTR name, IRPClass** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addCollaborationDiagram

Write method

Description

The [addCollaborationDiagram](#) method adds the specified collaboration diagram to the current package.

Visual Basic

Syntax

```
addCollaborationDiagram (name As String)  
    As RPCollaborationDiagram
```

Arguments

name

The name of the collaboration diagram to be added

Return Value

The new collaboration diagram added to this package

C/C++ Prototype

```
HRESULT addCollaborationDiagram (BSTR name,  
    IRPCollaborationDiagram** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addComponentDiagram

Write method

Description

The [addComponentDiagram](#) method adds the specified component diagram to the current package.

Visual Basic

Syntax

```
addComponentDiagram (name As String)  
    As RPCComponentDiagram
```

Arguments

name

The name of the component diagram to be added

Return Value

The new component diagram added to this package

C/C++ Prototype

```
HRESULT addComponentDiagram (BSTR name,  
    IRPCComponentDiagram** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addDeploymentDiagram

Write method

Description

The [addDeploymentDiagram](#) method adds the specified deployment diagram to the current package.

Visual Basic

Syntax

```
addDeploymentDiagram (name As String)  
    As RPDeploymentDiagram
```

Arguments

name

The name of the deployment diagram to be added

Return Value

The new deployment diagram added to this package

C/C++ Prototype

```
HRESULT addDeploymentDiagram (BSTR name,  
    IRPDeploymentDiagram** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addEvent

Write method

Description

The [addEvent](#) method adds the specified event to the current package.

Visual Basic

Syntax

```
addEvent (name As String) As RPEvent
```

Arguments

name
The name of the event to be added

Return Value

The new event added to this package

C/C++ Prototype

```
HRESULT addEvent (BSTR name, IRPEvent** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addFlowItems

Write method

Description

The [addFlowItems](#) method adds the specified flowItem to the [flowItems](#) collection.

Visual Basic

Syntax

```
addFlowItems (name As String) As RPFItem
```

Arguments

name

The name of the flowItem to add to the collection

Return Value

The new flowItem added to this package

C/C++ Prototype

```
HRESULT addFlowItems (BSTR name,  
    IRPFItem** ppItem)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addFlows

Write method

Description

The [addFlows](#) method adds the specified flow to the [flows](#) collection.

Visual Basic

Syntax

```
addFlows (name As String) As RPFlow
```

Arguments

name

The name of the flow to add to the collection

Return Value

The new flow added to this package

C/C++ Prototype

```
HRESULT addFlows (BSTR name, IRPFlow** ppFlow)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addGlobalFunction

Write method

Description

The [addGlobalFunction](#) method adds the specified global function to this package.

Visual Basic

Syntax

```
addGlobalFunction (name As String) As RPOperation
```

Arguments

name
The global function to be added

Return Value

The new global function added to this package

C/C++ Prototype

```
HRESULT addGlobalFunction (BSTR name,  
IRPOperation** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addGlobalObject

Write method

Description

The [addGlobalObject](#) method adds a global object (instance) to the current package.

Visual Basic

Syntax

```
addGlobalObject (name As String,  
                otherClassName As String,  
                otherClassPackageName As String) As RPRelation
```

Arguments

name

The name of the global instance to add

otherClassName

The name of the class-defining instance

otherClassPackageName

The name of the package with the class-defining instance

Return Value

The new global instance in this package

C/C++ Prototype

```
HRESULT addGlobalObject (BSTR name, BSTR otherClassName,  
                        BSTR otherClassPackageName, IRPRelation** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addGlobalVariable

Write method

Description

The [addGlobalVariable](#) method adds the specified global variable to the current package.

Visual Basic

Syntax

```
addGlobalVariable (name As String) As RPAAttribute
```

Arguments

name

The name of the global variable to add

Return Value

The new global variable added to this package

C/C++ Prototype

```
HRESULT addGlobalVariable (BSTR name,  
IRPAttribute** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addLink

The `addLink` method adds a link between two objects to the current package.

Syntax

```
addLink(fromPart As RPInstance, toPart As RPInstance, assoc As RPRelation,  
fromPort As RPPort, toPort As RPPort) As RPLink
```

Arguments

`fromPart, toPart`

The objects that are being linked.

`assoc`

Association that is being instantiated (optional).

`fromPort, toPort`

Ports that are being linked (optional).

addNestedPackage

Write method

Description

The [addNestedPackage](#) method adds a nested package to the current package.

Visual Basic

Syntax

```
addNestedPackage (name As String) As RPPackage
```

Arguments

name

The name of the nested package to add

Return Value

The nested package added to this package

C/C++ Prototype

```
HRESULT addNestedPackage (BSTR name, IRPPackage** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addNode

Write method

Description

The [addNode](#) method adds a node to the current package.

Visual Basic

Syntax

```
addNode (name As String) As RPNode
```

Arguments

name
The name of the node to add

Return Value

The new node added to this package

C/C++ Prototype

```
HRESULT addNode (BSTR name, IRPNode** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addObjectModelDiagram

Write method

Description

The [addObjectModelDiagram](#) method adds the specified OMD to the current package.

Visual Basic

Syntax

```
addObjectModelDiagram (name As String)  
    As RPObjectModelDiagram
```

Arguments

name

The name of the OMD to add

Return Value

The OMD added to this package

C/C++ Prototype

```
HRESULT addObjectModelDiagram (BSTR name,  
    IRPObjectModelDiagram** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addSequenceDiagram

Write method

Description

The [addSequenceDiagram](#) method adds the specified sequence diagram to the current package.

Visual Basic

Syntax

```
addSequenceDiagram (name As String) As RPSequenceDiagram
```

Arguments

name

The name of the sequence diagram to add

Return Value

The sequence diagram added to this package

C/C++ Prototype

```
HRESULT addSequenceDiagram (BSTR name,  
IRPSequenceDiagram** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addType

Write method

Description

The [addType](#) method adds the specified type to the current package.

Visual Basic

Syntax

```
addType (name As String) As RPTYPE
```

Arguments

name

The name of the type to add

Return Value

The new type added to this package

C/C++ Prototype

```
HRESULT addType (BSTR name, IRPTYPE** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addUseCase

Write method

Description

The [addUseCase](#) method adds the specified use case to the current package.

Visual Basic

Syntax

```
addUseCase (name As String) As RPUseCase
```

Arguments

name

The name of the use case to add

Return Value

The use case added to this package

C/C++ Prototype

```
HRESULT addUseCase (BSTR name, IRPUseCase** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addUseCaseDiagram

Write method

Description

The [addUseCaseDiagram](#) method adds the specified UCD to the current package.

Visual Basic

Syntax

```
addUseCaseDiagram (name As String) As RPUseCaseDiagram
```

Arguments

name
The name of the UCD to add

Return Value

The UCD added to this package

C/C++ Prototype

```
HRESULT addUseCaseDiagram (BSTR name,  
    IRPUseCaseDiagram** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteActor

Write method

Description

The [deleteActor](#) method deletes the specified actor from the current package.

Visual Basic

Syntax

```
deleteActor (actor As RPActor)
```

Arguments

actor
The actor to delete

C/C++ Prototype

```
HRESULT deleteActor (IRPActor *actor)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteClass

Write method

Description

The [deleteClass](#) method deletes the specified class from the current package.

Visual Basic

Syntax

```
deleteClass (theClass As RPCClass)
```

Arguments

theClass
The class to delete

C/C++ Prototype

```
HRESULT deleteClass (IRPClass *theClass)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteCollaborationDiagram

Write method

Description

The [deleteCollaborationDiagram](#) method deletes the specified collaboration diagram from the current package.

Visual Basic

Syntax

```
deleteCollaborationDiagram (name As String)
```

Arguments

name

The name of the collaboration diagram to delete

C/C++ Prototype

```
HRESULT deleteCollaborationDiagram (BSTR name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteComponentDiagram

Write method

Description

The [deleteComponentDiagram](#) method deletes the specified component diagram from the current package.

Visual Basic

Syntax

```
deleteComponentDiagram (name As String)
```

Arguments

name

The name of the component diagram to delete

C/C++ Prototype

```
HRESULT deleteComponentDiagram (BSTR name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteDeploymentDiagram

Write method

Description

The [deleteDeploymentDiagram](#) method deletes the specified deployment diagram from the current package.

Visual Basic

Syntax

```
deleteDeploymentDiagram (name As String)
```

Arguments

name

The name of the deployment diagram to delete

C/C++ Prototype

```
HRESULT deleteDeploymentDiagram (BSTR name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteEvent

Write method

Description

The [deleteEvent](#) method deletes the specified event from the current package.

Visual Basic

Syntax

```
deleteEvent (event As RPEvent)
```

Arguments

event
The event to delete

C/C++ Prototype

```
HRESULT deleteEvent (IRPEvent *event)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteFlowItems

Write method

Description

The [deleteFlowItems](#) method deletes the specified flowItem from the [flowItems](#) collection.

Visual Basic

Syntax

```
deleteFlowItems (pItem As RPFlowItem)
```

Arguments

pItem

The name of the flowItem to remove from the collection

C/C++ Prototype

```
HRESULT deleteFlowItems (IRPFlowItem* pItem)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteFlows

Write method

Description

The [deleteFlows](#) method deletes the specified flow from the [flows](#) collection.

Visual Basic

Syntax

```
deleteFlows (pFlow As RPFlow)
```

Arguments

pFlow

The name of the flow to delete from the collection

C/C++ Prototype

```
HRESULT deleteFlows (IRPFlow* pFlow)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteGlobalFunction

Write method

Description

The [deleteGlobalFunction](#) method deletes the specified global function from the current package.

Visual Basic

Syntax

```
deleteGlobalFunction (operation As RPOperation)
```

Arguments

operation

The global function to delete

C/C++ Prototype

```
HRESULT deleteGlobalFunction (IRPOperation* operation)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteGlobalObject

Write method

Description

The [deleteGlobalObject](#) method deletes the specified global object from the current package.

Visual Basic

Syntax

```
deleteGlobalObject (relation As RPRelation)
```

Arguments

relation
The global object to delete

C/C++ Prototype

```
HRESULT deleteGlobalObject (IRPRelation* relation)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteGlobalVariable

Write method

Description

The [deleteGlobalVariable](#) method deletes the specified global variable from the current package.

Visual Basic

Syntax

```
deleteGlobalVariable (attribute As RPAttribute)
```

Arguments

attribute

The global variable to delete

C/C++ Prototype

```
HRESULT deleteGlobalVariable (IRPAttribute* attribute)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteNode

Write method

Description

The [deleteNode](#) method deletes the specified node from the current package.

Visual Basic

Syntax

```
deleteNode (name As String)
```

Arguments

name

The name of the node to delete

C/C++ Prototype

```
HRESULT deleteNode (BSTR name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteObjectModelDiagram

Write method

Description

The [deleteObjectModelDiagram](#) method deletes the specified OMD from the current package.

Visual Basic

Syntax

```
deleteObjectModelDiagram (name As String)
```

Arguments

name

The name of the OMD to delete

C/C++ Prototype

```
HRESULT deleteObjectModelDiagram (BSTR name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deletePackage

Write method

Description

The [deletePackage](#) method deletes the current package.

Visual Basic

Syntax

```
deletePackage( )
```

C/C++ Prototype

```
HRESULT deletePackage( )
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteSequenceDiagram

Write method

Description

The [deleteSequenceDiagram](#) method deletes the specified sequence diagram from the current package.

Visual Basic

Syntax

```
deleteSequenceDiagram (name As String)
```

Arguments

name

The name of the sequence diagram to delete

C/C++ Prototype

```
HRESULT deleteSequenceDiagram (BSTR name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteType

Write method

Description

The [deleteType](#) method deletes the specified type from the current package.

Visual Basic

Syntax

```
deleteType (type As RPTType)
```

Arguments

type

The type to delete

C/C++ Prototype

```
HRESULT deleteType (IRPType *type)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteUseCase

Write method

Description

The [deleteUseCase](#) method deletes the specified use case from the current package.

Visual Basic

Syntax

```
deleteUseCase (useCase As RPUseCase)
```

Arguments

<code>useCase</code>
The use case to delete

C/C++ Prototype

```
HRESULT deleteUseCase (IRPUseCase *useCase)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteUseCaseDiagram

Write method

Description

The [deleteUseCaseDiagram](#) method deletes the specified use case diagram from the current package.

Visual Basic

Syntax

```
deleteUseCaseDiagram (name As String)
```

Arguments

name

The name of the UCD to delete

C/C++ Prototype

```
HRESULT deleteUseCaseDiagram (BSTR name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findActor

Read method

Description

The [findActor](#) method retrieves the specified actor, if it belongs to the current package.

Visual Basic

Syntax

```
findActor (name As String) As RPActor
```

Arguments

name
The name of the actor to find

Return Value

If found, the `RPActor`; otherwise, `NULL`.

C/C++ Prototype

```
HRESULT findActor (BSTR name, IRPActor** pVal)
```

Return Value

`HRESULT` (0 for success, or a signed integer error code)

findAllByName

Read method

Description

The [findAllByName](#) method searches all the elements and finds the first element of the specified name and metaclass in the current package.

Visual Basic

Syntax

```
findAllByName (name As String, metaClass As String)  
As RModelElement
```

Arguments

name
The name of the element to find
metaClass
The name of the metaclass to find

Return Value

The first `RModelElement` that matches the specified name and metaclass, or `NULL` if not found

C/C++ Prototype

```
HRESULT findAllByName (BSTR name, BSTR metaClass,  
IRPModelElement** pVal)
```

Return Value

`HRESULT` (0 for success, or a signed integer error code)

findClass

Read method

Description

The [findClass](#) method retrieves the specified class, if it belongs to the current package.

Visual Basic

Syntax

```
findClass (name As String) As RPCClass
```

Arguments

name
The name of the class to find

Return Value

The `RPCClass`, or `NULL` if not found

C/C++ Prototype

```
HRESULT findClass (BSTR name, IRPCClass** pVal)
```

Return Value

`HRESULT` (0 for success, or a signed integer error code)

findEvent

Read method

Description

The [findEvent](#) method retrieves the specified event, if it belongs to the current package.

Visual Basic

Syntax

```
findEvent (name As String) As RPEvent
```

Arguments

name
The name of the event to find

Return Value

The `RPEvent*`, or `NULL` if not found

C/C++ Prototype

```
HRESULT findEvent (BSTR name, IRPEvent** pVal)
```

Return Value

`HRESULT` (0 for success, or a signed integer error code)

findGlobalFunction

Read method

Description

The [findGlobalFunction](#) method retrieves the specified global function, if it belongs to the current package.

Visual Basic

Syntax

```
findGlobalFunction (name As String) As RPOperation
```

Arguments

name

The name of the global function to find

Return Value

The RPOperation, or NULL if not found

C/C++ Prototype

```
HRESULT findGlobalFunction (BSTR name,  
IRPOperation** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findGlobalObject

Read method

Description

The [findGlobalObject](#) method retrieves the specified global object, if it belongs to the current package.

Visual Basic

Syntax

```
findGlobalObject (name As String) As RPRelation
```

Arguments

name

The name of the global object to find

Return Value

The RPRelation, or NULL if not found

C/C++ Prototype

```
HRESULT findGlobalObject (BSTR name, IRPRelation** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findGlobalVariable

Read method

Description

The [findGlobalVariable](#) method retrieves the specified global variable, if it belongs to the current package.

Visual Basic

Syntax

```
findGlobalVariable (name As String) As RPAAttribute
```

Arguments

name

The name of the global variable to look for

Return Value

The RPAAttribute, or NULL if not found

C/C++ Prototype

```
HRESULT findGlobalVariable (BSTR name,  
IRPAttribute** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findNode

Read method

Description

The [findNode](#) method retrieves the specified node, if it belongs to the current package.

Visual Basic

Syntax

```
findNode (name As String) As RPNode
```

Arguments

name
The name of the node to look for

Return Value

The RPNode, or NULL if not found

C/C++ Prototype

```
HRESULT findNode (BSTR name, IRPNode** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findType

Read method

Description

The [findType](#) method retrieves the specified data type, if it belongs to the current package.

Visual Basic

Syntax

```
findType (name As String) As RPTYPE
```

Arguments

name

The name of the type to find

Return Value

The RPTYPE, or NULL if not found

C/C++ Prototype

```
HRESULT findType (BSTR name, IRPTYPE** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findUsage

Read method

Description

The [findUsage](#) method retrieves the usage of the specified element in the current package.

Visual Basic

Syntax

```
findUsage (objToFind As IRPModelElement) As RPCollection
```

Arguments

objToFind

The model element to look for in the current package

Return Value

The collection of model elements that reference objToFind in this package

C/C++ Prototype

```
HRESULT findUsage (IRPModelElement* objToFind,  
                  IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findUseCase

Read method

Description

The [findUseCase](#) method retrieves the specified use case, if it belongs to the current package.

Visual Basic

Syntax

```
findUseCase (name As String) As RPUseCase
```

Arguments

name
The name of the use case to find

Return Value

The RPUseCase, or NULL if not found

C/C++ Prototype

```
HRESULT findUseCase (BSTR name, IRPUseCase** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

recalculateEventsBaseId

Write method

Description

The [recalculateEventsBaseId](#) method recalculates the events base ID of the package.

Visual Basic**Syntax**

```
recalculateEventsBaseId() As Long
```

Return Value

The events base ID

C/C++ Prototype

```
HRESULT recalculateEventsBaseId (long *success)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPPin Interface

The `IRPPin` interface represents action pins added to actions, or activity parameters added to action blocks, in an activity diagram. It inherits from `IRPConnector`.

To add an action pin to an action, use `addConnector`, for example:

```
action1.addConnector("InPin")  
  
or  
  
action1.addConnector("OutPin")
```

VB Properties

Name	Type	Access	Description
isParameter	long	RW	Indicates whether the element is an action pin or an activity parameter. If this is equal to 1 (as opposed to 0), the element is an activity parameter.
pinDirection	String	RW	The possible values for this property are "In", "Out", "InOut"
pinType	RPClassifier	RW	Represents the pin's argument type.

Sample Code

```
Sub action_pin_sample_IRPPin()  
  
    Dim currentProject As RPPProject  
    Dim newPackage As RPPackage  
    Dim newClass As RPClass  
    Dim newActivityDiagram As RPFlowchart  
    Dim washingAction As RPState  
    Dim pinOnWashing As RPPin  
    Dim intType As RPModelElement  
  
    On Error GoTo errorHandlingCode  
  
    Set currentProject = getProject
```

```
Set newPackage = currentProject.addPackage("Package_One")
Set newClass = newPackage.addClass("Class_A")
Set newActivityDiagram = newClass.addActivityDiagram

' set to Analysis-only because action pins are only available on analysis-
only diagrams
newActivityDiagram.isAnalysisOnly = 1

Set washingAction = newActivityDiagram.rootState.addState("Washing")

' create a pin whose direction is out
Set pinOnWashing = washingAction.addConnector("OutPin")

' set pin type to int
Set intType = currentProject.findNestedElementRecursive("int", "Type")
pinOnWashing.pinType = intType

Exit Sub
errorHandlingCode:
MsgBox errorMessage
End Sub
```

IRPPort Interface

The `IRPPort` interface represents a Rhapsody port. It inherits from `IRPInstance`.

VB Properties

Name	Type	Access	Description
contract	RPCClass	RW	Specifies the port contract.
isBehavioral	Long	RW	Determines whether messages sent to the port are relayed to the owner class.
isReversed	Long	RW	If this is equal to 1 (as opposed to 0), the provided interfaces become the required interfaces, and the required interfaces become the provided interfaces.
providedInterfaces	Collection of RPCClasses	RO	The collection of provided interfaces for the port.
requiredInterfaces	Collection of RPCClasses	RO	The collection of required interfaces for the port.

Method Summary

<u>addProvidedInterface</u>	Adds the specified interface to the collection of provided interfaces
<u>addRequiredInterface</u>	Adds the specified interface to the collection of required interfaces
<u>removeProvidedInterface</u>	Removes the specified interface from the collection of provided interfaces
<u>removeRequiredInterface</u>	Removes the specified interface from the collection of required interfaces

Example

The following script converts a black-box analysis block to a white-box analysis block, and vice versa. It simply toggles all the ports of a block to behavioral or non-behavioral.

```
Public Sub ConvertPortsBB()  
Dim curBlock As RPBlock  
Dim port As RPPort  
  
Set curBlock = getSelectedElement  
For Each port In curBlock.ObjectAsObjectType.ports  
port.isBehavioral = 1  
Next  
  
End Sub  
  
Public Sub ConvertPortsWB()  
Dim curBlock As RPBlock  
Dim port As RPPort  
  
Set curBlock = getSelectedElement  
For Each port In curBlock.ObjectAsObjectType.ports  
port.isBehavioral = 0  
Next  
  
End Sub
```

addProvidedInterface

Write method

Description

The [addProvidedInterface](#) method adds the specified interface to the collection of provided interfaces.

Visual Basic

Syntax

```
addProvidedInterface (newVal As RPCClass)
```

Arguments

newVal

The name of the class to add to the collection of provided interfaces for the port

C/C++ Prototype

```
HRESULT addProvidedInterface (IRPCClass* newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addRequiredInterface

Write method

Description

The [addRequiredInterface](#) method adds the specified interface to the collection of required interfaces.

Visual Basic

Syntax

```
addRequiredInterface (newVal As RPCClass)
```

Arguments

newVal

The name of the class to add to the collection of required interfaces for the port

C/C++ Prototype

```
HRESULT addRequiredInterface (IRPClass* newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

removeProvidedInterface

Write method

Description

The [removeProvidedInterface](#) method removes the specified interface from the collection of provided interfaces.

Visual Basic

Syntax

```
removeProvidedInterface (newVal As RPCClass)
```

Arguments

newVal

The name of the class to remove from the collection of provided interfaces for the port

C/C++ Prototype

```
HRESULT removeProvidedInterface (IRPCClass* newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

removeRequiredInterface

Write method

Description

The [removeRequiredInterface](#) method removes the specified interface from the collection of required interfaces.

Visual Basic

Syntax

```
removeRequiredInterface (newVal As RPCClass)
```

Arguments

newVal

The name of the class to remove from the collection of provided interfaces for the port

C/C++ Prototype

```
HRESULT removeRequiredInterface (IRPCClass* newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPPProfile Interface

The `IRPPProfile` interface represents a profile. It inherits from `IRPPackage`.

IRPPProject Interface

The `IRPPProject` interface represents a Rhapsody project (model). Use the `Application.openProject()` method to obtain a handle to the project. The `IRPPProject` object is a singleton instance that aggregates all other instances. This class inherits from `IRPPackage`.

`Project` is a concrete interface that inherits from `IRPPackage`.

VB Properties

Name	Type	Access	Description
activeComponent	<code>RPCComponent</code>	RW	The active component in the package.
activeConfiguration	<code>RPCConfiguration</code>	RW	The active configuration in the active component. The setting must be to a configuration from the active component, otherwise an error is flagged.
allStereotypes	Collection of <code>RPSTereotypes</code>	RO	A collection of all the stereotypes used in the current project.
components	Collection of <code>RPCComponents</code>	RO	A collection of all the components used in this project.
defaultDirectoryScheme	<code>String</code>	RW	The default directory scheme.
profiles	Collection of <code>RPPProfiles</code>	RO	The collection of profiles used in this project.

Method Summary

<code>addComponent</code>	Adds the specified component to the current project
<code>addPackage</code>	Adds the specified package to the current project

<u>addProfile</u>	Adds the specified profile to the current project
<u>checkEventsBaseIdsSolveCollisions</u>	Checks the values of the events base IDs for all packages in the model, detects collisions between the IDs, and resolves any incorrect values and collisions
<u>close</u>	Closes the current project
<u>deleteComponent</u>	Deletes the specified component from the current project
<u>findComponent</u>	Retrieves the specified component from the current project
<u>GenerateReport</u>	Generates a ReporterPLUS report for the model.
<u>getNewCollaboration</u>	Retrieves the new collaboration for the current project
<u>highlightFromCode</u>	Takes a filename and line number as arguments and then highlights in the Rhapsody browser the element that is associated with the line of code specified.
<u>importPackageFromRose</u>	Imports the specified package from Rational Rose
<u>importProjectFromRose</u>	Imports the specified project from Rational Rose
<u>recalculateEventsBaseIds</u>	Recalculates the events base IDs used by Rhapsody 6.1
<u>save</u>	Saves the current project
<u>saveAs</u>	Saves the current project to the specified file name and location
<u>setActiveComponent</u>	Sets the active configuration for the current project
<u>setActiveConfiguration</u>	Sets the active configuration for the current project

addComponent

Write method

Description

The [addComponent](#) method adds the specified component to the current project.

Visual Basic

Syntax

```
addComponent (name As String) As RPCComponent
```

Arguments

name

The name of the component to add

Return Value

The RPCComponent added to the current project

C/C++ Prototype

```
HRESULT addComponent (BSTR name,  
    IRPComponent** component)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addPackage

Write method

Description

The [addPackage](#) method adds the specified package to the current project.

Visual Basic

Syntax

```
addPackage (name As String) As RPPackage
```

Arguments

name

The name of the package to add

Return Value

The RPPackage* added to this project

C/C++ Prototype

```
HRESULT addPackage (BSTR name, IRPPackage** package)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addProfile

Write method

Description

The [addProfile](#) method adds the specified profile to the current project.

Visual Basic

Syntax

```
addProfile (name As String) As RPPProfile
```

Arguments

name
The name of the profile to add

Return Value

The RPPProfile added to this project

C/C++ Prototype

```
HRESULT addProfile (BSTR name, IRPPProfile** profile)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

checkEventsBaseIdsSolveCollisions

Read method

Description

The [checkEventsBaseIdsSolveCollisions](#) method checks the values of the events base IDs for all packages in the model, detects collisions between the IDs, and resolves any incorrect values and collisions.

Visual Basic

Syntax

```
checkEventsBaseIdsSolveCollisions()
```

C/C++ Prototype

```
HRESULT checkEventsBaseIdsSolveCollisions()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

close

Read method

Description

The [close](#) method closes the current project.

Note that helper applications might not close the current document. Therefore, you should not use [close](#) in a VBA macro that you specify as a helper.

Visual Basic

Syntax

```
close()
```

C/C++ Prototype

```
HRESULT close()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteComponent

Write method

Description

The [deleteComponent](#) method deletes the specified component from the current project.

Visual Basic

Syntax

```
deleteComponent (component As RPComponent)
```

Arguments

component

The component to delete

C/C++ Prototype

```
HRESULT deleteComponent (IRPComponent* component)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findComponent

Read method

Description

The [findComponent](#) method retrieves the specified component from the current project.

Visual Basic

Syntax

```
findComponent (name As String) As RPCComponent
```

Arguments

name
The name of the component to find

Return Value

The RPCComponent, or NULL if not found

C/C++ Prototype

```
HRESULT findComponent (BSTR name, IRPCComponent** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

GenerateReport

```
GenerateReport(modelscope As String, templatename As String, docType As String, filename As String, showDocument As Long, silentMode As Long)
```

Allows you to generate a ReporterPLUS report for the model. (When this method is used to generate a report, the Rhapsody model is saved before the report is generated.)

modelscope—the name of the package for which the report should be generated. If empty, a report is generated for the entire model. (This is similar to the "scope" command-line option for ReporterPLUS.)

templatename—the name of the template to use. If empty, then the ReporterPLUS report generation wizard will be launched and it will display the name of the last template used.

docType—the type of output to generate (doc, html, ppt, txt). If empty, the ReporterPLUS report generation wizard will be launched and it will display the last output type used.

filename—the filename to use for the generated report. If empty, the ReporterPLUS report generation wizard will be displayed and it will display the filename of the last generated report.

showDocument—In general, the user will be asked if they want to view the report after generation only if they have requested this by selecting *View > Options > Ask to open after generating report* from the main menu in ReporterPLUS. However, if the user has specified silent generation mode using the parameter `silentMode`, this parameter can be used to request that the generated document be displayed. To display the report, set this parameter to 1, otherwise use 0.

silentMode—If the template name, document type, or output file name has not been specified using the appropriate parameter, the ReporterPLUS report generation wizard is displayed so the user can provide the missing information. This is the behavior if this parameter is set to 0. If you want to prevent the wizard from being launched in such cases, you can specify silent generation mode by setting this parameter to 1. If set to silent mode, no report will be generated if one or more of the above parameters was not provided. (The report generation status dialog is displayed regardless of the value of this parameter.)

Sample code:

```
Dim proj As RPPProject
Set proj = getProject
proj.GenerateReport "", "C:\Rhapsody\reporterplus\Templates\Class.tpl",
"html", "C:\testreport.html", 0, 0
```

getNewCollaboration

Read method

Description

The [getNewCollaboration](#) method returns the new collaboration for the current project.

Visual Basic

Syntax

```
getNewCollaboration() As RPCollaboration
```

Return Value

The `RPCollaboration`

C/C++ Prototype

```
HRESULT getNewCollaboration(  
    IRPCollaboration** collaboration)
```

Return Value

`HRESULT` (0 for success, or a signed integer error code)

highlightFromCode

The method `highlightFromCode` takes a filename and line number as arguments and then highlights in the Rhapsody browser the element that is associated with the line of code specified.

The filename argument should consist of the absolute path for the file.

Syntax

```
highlightFromCode(filename As String, lineNumber As Long) As RPModelElement
```

Example

```
Dim proj As RPPProject
Dim m As RPModelElement
Set proj = getProject
Set m =
proj.highlightFromCode("C:\Temp\P\DefaultComponent\DefaultConfig\C.cpp", 30)
```

importPackageFromRose

Write method

Description

The [importPackageFromRose](#) method imports the specified package from Rational Rose into Rhapsody 6.1.

Visual Basic

Syntax

```
importPackageFromRose (projectName As String,  
    packageName As String, logFileName As String)
```

Arguments

projectName
The name of the project
packageName
The name of the package
logFileName
The name of the log file

C/C++ Prototype

```
importPackageFromRose (BSTR projectName,  
    BSTR packageName, BSTR logFileName)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

importProjectFromRose

Write method

Description

The [importProjectFromRose](#) method imports the specified project from Rational Rose into Rhapsody 6.1.

Visual Basic

Syntax

```
importProjectFromRose (projectName As String,  
    logFileName As String)
```

Arguments

projectName
The name of the project
logFileName
The name of the log file

C/C++ Prototype

```
HRESULT importProjectFromRose (BSTR projectName,  
    BSTR logFileName)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

recalculateEventsBaseIds

Write method

Description

The [recalculateEventsBaseIds](#) method recalculates the events base IDs used by the project.

Visual Basic

Syntax

```
recalculateEventsBaseIds ()
```

C/C++ Prototype

```
HRESULT recalculateEventsBaseIds ()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

save**Read method****Description**

The [save](#) method saves the current project.

Note: This method flags an error if one occurs.

Visual Basic**Syntax**

```
save( )
```

C/C++ Prototype

```
HRESULT save( )
```

Return Value

HRESULT (0 for success, or a signed integer error code)

saveAs

Read method

Description

The [saveAs](#) method saves the current project to the specified file name and location.

Note: This method flags an error if one occurs.

Visual Basic

Syntax

```
saveAs (filename As String)
```

Arguments

filename

The name of the file to which to save the project

C/C++ Prototype

```
HRESULT saveAs (BSTR filename)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setActiveComponent

Write method

Description

The [setActiveComponent](#) method sets the active component for the current project.

Note: This method flags an error if one occurs.

Visual Basic

Syntax

```
setActiveComponent (name As String)
```

Arguments

name

The name of the active component

C/C++ Prototype

```
HRESULT setActiveComponent (BSTR name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setActiveConfiguration

Write method

Description

The [setActiveConfiguration](#) method sets the active configuration for the current project.

Visual Basic

Syntax

```
setActiveConfiguration (name As String)
```

Arguments

name

The name of the active configuration

C/C++ Prototype

```
HRESULT setActiveConfiguration (BSTR name)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPRelation Interface

The `IRPRelation` interface represents a relationship between two classes (`ofClass` and `otherClass`). It inherits from `IRPUnit`.

VB Properties

Name	Type	Access	Description
<code>inverse</code>	<code>RPRelation</code>	RO	If the relation is symmetric, this is a pointer to the peer relation.
<code>isNavigable</code>	<code>Long</code>	RW	A flag indicating whether the relation is navigable.
<code>isSymmetric</code>	<code>Long</code>	RO	A flag indicating whether the relation is bidirectional. If this is equal to 1, the Navigability property is set as navigable for both ends. If this is equal to 0, the navigability of the inverse <code>RPRelation</code> is set to None.
<code>multiplicity</code>	<code>String</code>	RW	The multiplicity of the relation.
<code>ObjectAsObjectType</code>	<code>RPClass</code>	RO	If this relation is a Rhapsody in C object, it is returned as a class. An object (in RiC) plays two roles: as an instance of some class and the class itself. When you get an object (say by querying the package owning it), it comes "wearing" the <code>IRPRelation</code> "hat." If you want to use it as a class (<code>object_type</code>) invoke this method on it and the return value is the same object "wearing" the <code>IRPClass</code> "hat."
<code>ofClass</code>	<code>RPClassifier</code>	RW	The source class of the relation.
<code>otherClass</code>	<code>RPClassifier</code>	RW	The target class of the relation.
<code>qualifier</code>	<code>String</code>	RW	The qualifier of the relation, if one exists.

Name	Type	Access	Description
relationLabel	String	RW	The link name given to the relation.
relationLinkName	String	RW	The name of the relation link
relationRoleName	String	RW	<p>The name of role of the participating elements in the relation.</p> <p>A relation consists of two designations: a role name and a relation name. For example, two people can be in a relation called "marriage" (relation name) with each person designated by their role within the marriage as "spouse" (role name). For <code>IRPRelation</code> objects, the relation name is mapped to the <code>IRPModelElement</code> property name and the property <code>relationRoleName</code> is provided for the relation's role name.</p>
relationType	String	RW	The relation type (Association, Aggregation, or Composition).
visibility	String	RW	The visibility of the relation (Public, Protected, or Private).

Method Summary

<code>isTypelessObject</code>	Tests an object to see if it is defined explicitly or implicitly
<code>makeUnidirect</code>	Changes the current relation from a unidirectional (symmetric) one to one that is directional from the <code>me</code> of this relation to <code>me</code> 's inverse
<code>setInverse</code>	Adds or updates the inverse relation

`isTypelessObject`

Read method

Description

The [isTypelessObject](#) method tests an object to see if it is defined explicitly (“object of type X”) or implicitly (“typeless” or “unique”).

Visual Basic**Syntax**

```
isTypelessObject() As Long
```

Return Value

1 if the relation is typeless; otherwise 0

C/C++ Prototype

```
HRESULT isTypelessObject (long *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

makeUnidirect

Write method

Description

The [makeUnidirect](#) method changes the current relation from a unidirectional (symmetric) one to one that is directional from the me of this relation to me's inverse.

Visual Basic

Syntax

```
makeUnidirect()
```

C/C++ Prototype

```
HRESULT makeUnidirect()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setInverse

Write method

Description

The [setInverse](#) method adds or updates the inverse relation. It provides a means for turning a unidirectional relation into a symmetric one.

Visual Basic

Syntax

```
setInverse (roleName As String, linkType As String)
```

Arguments

roleName

The role name for the relation

linkType

The type of link (unidirectional or symmetric)

C/C++ Prototype

```
HRESULT setInverse (BSTR roleName, BSTR linkType)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPRequirement Interface

The `IRPRequirement` interface represents a Rhapsody requirement. It inherits from `IRPAnnotation`.

IRPSequenceDiagram Interface

The `IRPSequenceDiagram` interface represents a sequence diagram. It inherits from `IRPDiagram`.

Method Summary

<code>getLogicalCollaboration</code>	Retrieves the logic behind the collaboration diagram
<code>getRelatedUseCases</code>	Retrieves use cases related to the current sequence diagram

`getLogicalCollaboration`

Read method

Description

The [`getLogicalCollaboration`](#) method retrieves the logic behind the collaboration diagram.

Visual Basic

Syntax

```
getLogicalCollaboration() As RPCollaboration
```

Return Value

The collaboration diagram

C/C++ Prototype

```
HRESULT getLogicalCollaboration (  
    IRPCollaboration** collaboration)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

`getRelatedUseCases`

Read method

Description

The [getRelatedUseCases](#) method retrieves use cases related to the current sequence diagram.

Visual Basic**Syntax**

```
getRelatedUseCases() As RPCollection
```

Return Value

A collection of use cases related to this sequence diagram

C/C++ Prototype

```
HRESULT getRelatedUseCases (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPState Interface

The `IRPState` interface represents a state in a statechart. It inherits from `IRPStateVertex`.

VB Properties

Name	Type	Access	Description
defaultTransition	RPTransition*	RO	The default transition of this state, if there is one.
entryAction	String	RW	The actions executed when this state is entered.
exitAction	String	RW	The actions executed when this state is exited.
isOverridden	Long	RO	If this is equal to 1 (as opposed to 0), the state is overridden. Currently, this property has not been implemented.
isReferenceActivity	Long	RO	If this is equal to 1 (as opposed to 0), the state is an activity reference.
itsStateChart	RPStateChart	RO	The statechart of this state.
itsSwimlane	RPSwimlane	RW	The swimlane of this state. Currently, this property has not been implemented.
nestedStateChart	RPStateChart	RO	The statechart nested inside of this state.
referenceToActivity	RPMoDelElement	RW	The referenced activity or activity diagram.

Name	Type	Access	Description
stateType	String	RW	<p>The type of this state. The possible values are as follows:</p> <ul style="list-style-type: none"> • Or—state that contains no concurrent states • And—state that contains two or more concurrent states • LocalTermination—termination state element • Block—action block element • Action—action element • SubActivity—subactivity element • ObjectFlow—object node element • ReferenceActivity—call behavior element • CallOperation—call operation element • EventState—send action element
subStateVertices	RPCollection of RPStateVertex	RO	A collection of transitions and states that connect to this state.

Method Summary

<u>addConnector</u>	Adds a connector to the statechart
<u>addState</u>	Adds a state to the statechart
<u>addStaticReaction</u>	Adds a static reaction to the statechart
<u>addTerminationState</u>	Adds a termination state to the statechart
<u>createDefaultTransition</u>	Creates a default transition in the statechart
<u>createNestedStatechart</u>	Creates a nested statechart
<u>deleteConnector</u>	Deletes the specified connector from the statechart
<u>deleteStaticReaction</u>	Deletes the specified static reaction from the statechart

<u>getFullNameInStatechart</u>	Returns the full text name of this state within its statecharts
<u>getInheritsFrom</u>	Returns the base state from which the current state inherits
<u>getLogicalStates</u>	Retrieves the list of logical states
<u>getStaticReactions</u>	Returns a collection of static reaction transitions originating from the current state
<u>getSubStates</u>	Returns a collection of substates belonging to the current state
<u>isAnd</u>	Determines whether this state is an And state
<u>isCompound</u>	Determines whether the current state is a compound state
<u>isLeaf</u>	Determines whether the current state is a leaf state
<u>isRoot</u>	Determines whether the current state is a root state
<u>overrideInheritance</u>	Overrides inheritance for the current state
<u>resetEntryActionInheritance</u>	Resets the inheritance of the entry action of the current state
<u>resetExitActionInheritance</u>	Resets the inheritance of the exit action of the current state
<u>setStaticReaction</u>	Sets the static reaction for the current state
<u>unoverrideInheritance</u>	Removes the override on inheritance for this state

addConnector

Write method

Description

The [addConnector](#) method adds a connector to the current state.

Visual Basic

Syntax

```
addConnector (type As String) As RPConnector
```

Arguments

type

The connector type. The possible values are as follows:

Condition

Fork
History
Join
Termination

Return Value

The new connector

C/C++ Prototype

```
HRESULT addConnector (BSTR type,  
                      IRPConnector** connector)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addState

Write method

Description

The [addState](#) method adds a new state to the statechart.

Visual Basic

Syntax

```
addState (name As String) As RPState
```

Arguments

name
The name of the new state

Return Value

The new state added to the statechart

C/C++ Prototype

```
HRESULT addState (BSTR name, IRPState** state)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addStaticReaction

Write method

Description

The [addStaticReaction](#) method adds a static reaction to the state.

Visual Basic

Syntax

```
addStaticReaction (trigger As RPInterfaceItem)  
    As RPTransition
```

Arguments

trigger

The trigger to add to the statechart

Return Value

The new static reaction

C/C++ Prototype

```
HRESULT addStaticReaction (IRPInterfaceItem* trigger,  
    IRPTransition** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addTerminationState

Write method

Description

The [addTerminationState](#) method adds a termination state to the statechart.

Visual Basic

Syntax

```
addTerminationState() As RPState
```

Return Value

The new termination state

C/C++ Prototype

```
HRESULT addTerminationState (IRPState** state)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

createDefaultTransition

Write method

Description

The [createDefaultTransition](#) method creates a default transition.

Visual Basic

Syntax

```
createDefaultTransition (from As RPState) As RPTransition
```

Arguments

from

The default state to which the default transition points

Return Value

The default transition

C/C++ Prototype

```
HRESULT createDefaultTransition (IRPState* from,  
                                IRPTransition** transition)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

createNestedStatechart

Write method

Description

The [createNestedStatechart](#) method creates a nested statechart (substatechart).

Visual Basic

Syntax

```
createNestedStatechart() As RPStatechart
```

Return Value

The nested statechart

C/C++ Prototype

```
HRESULT createNestedStatechart (IRPStatechart** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteConnector

Write method

Description

The [deleteConnector](#) method deletes the specified connector from the statechart.

Visual Basic

Syntax

```
deleteConnector (connector As RPConnector)
```

Arguments

connector

The connector to delete

C/C++ Prototype

```
HRESULT deleteConnector (IRPConnector* connector)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteStaticReaction

Write method

Description

The [deleteStaticReaction](#) method deletes the specified static reaction.

Visual Basic

Syntax

```
deleteStaticReaction (pVal As RPTransition)
```

Argument

pVal
The static reaction to delete

C/C++ Prototype

```
HRESULT deleteStaticReaction (IRPTransition *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

entryAction

Write method

Description

The [entryAction](#) method specifies an entry action for the state.

Visual Basic

Syntax

```
entryAction(body As String)
```

Arguments

body
The entry action

C/C++ Prototype

```
HRESULT entryAction(BSTR body)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

exitAction**Write method****Description**

The [exitAction](#) method defines an exit action for the state.

Visual Basic**Syntax**

```
exitAction(body As String)
```

Arguments

body

The exit action

C/C++ Prototype

```
HRESULT exitAction(BSTR body)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getFullNameInStatechart**Read method****Description**

The [getFullNameInStatechart](#) method returns the full text name of this state within its statecharts.

Dot notation is used to indicate statechart nesting. For example, if statechart C is in statechart B, which is in statechart A, the full text name of the C statechart is A.B.C.

Visual Basic**Syntax**

```
getFullNameInStatechart() As String
```

Return Value

The full textual name of a state within its statecharts

C/C++ Prototype

```
HRESULT getFullNameInStatechart (BSTR* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getInheritsFrom

Read method

Description

The [getInheritsFrom](#) method returns the base state from which the current state inherits.

Visual Basic

Syntax

```
getInheritsFrom() As RPState
```

Return Value

The base state that this state inherits from

C/C++ Prototype

```
HRESULT getInheritsFrom (IRPState** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getLogicalStates

Read method

Description

The [getLogicalStates](#) method retrieves the list of logical states.

Visual Basic

Syntax

```
getLogicalStates() As RPCollection
```


Return Value

The list of logical states

C/C++ Prototype

```
HRESULT getLogicalStates (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getStaticReactions

Read method

Description

The [getStaticReactions](#) method returns a collection of static reaction transitions originating from the current state.

Given a transition with a trigger T, guard condition G, and static reactions A, if T occurs and G is true, the static reactions (also known as reactions in state) are executed while the object is still in its original state.

Visual Basic**Syntax**

```
getStaticReactions() As RPCollection
```

Return Value

A collection of the static reaction transitions originating from the current state

C/C++ Prototype

```
HRESULT getStaticReactions (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getSubStates

Read method

Description

The [getSubStates](#) method returns a collection of substates belonging to the current state.

Typically, this method retrieves the state members of a state (“substates”), unless the state contains a nested statechart. In this case, to see the substates, you must descend further into the nested statechart.

Visual Basic

Syntax

```
getSubStates() As RPCollection
```

Return Value

A collection of nested substates belonging to this state

C/C++ Prototype

```
HRESULT getSubStates (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isAnd

Read method

Description

The [isAnd](#) method determines whether this state is an And state.

Visual Basic

Syntax

```
isAnd() As Long
```

Return Value

1 if this state is an And state; otherwise 0

C/C++ Prototype

```
HRESULT isAnd (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isCompound

Read method

Description

The [isCompound](#) method determines whether the current state is a compound state.

Visual Basic**Syntax**

```
isCompound() As Long
```

Return Value

1 if this state is a compound state; otherwise 0

C/C++ Prototype

```
HRESULT isCompound (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isLeaf**Read method****Description**

The [isLeaf](#) method determines whether the current state is a leaf state.

Visual Basic**Syntax**

```
isLeaf() As Long
```

Return Value

1 if this state is a leaf state; otherwise 0

C/C++ Prototype

```
HRESULT isLeaf (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isRoot**Read method**

Description

The [isRoot](#) method determines whether the current state is a root state.

Visual Basic

Syntax

```
isRoot() As Long
```

Return Value

1 if this state is a root state; otherwise 0

C/C++ Prototype

```
HRESULT isRoot (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

overrideInheritance

Note

Currently, this method has not been implemented.

Write method

Description

The [overrideInheritance](#) method overrides inheritance for the current state.

Visual Basic

Syntax

```
overrideInheritance()
```

C/C++ Prototype

```
HRESULT overrideInheritance()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

resetEntryActionInheritance

Write method

Description

The [resetEntryActionInheritance](#) method resets the inheritance of the entry action of the current state.

Visual Basic

Syntax

```
resetEntryActionInheritance() As RPState
```

Return Value

The updated state

C/C++ Prototype

```
HRESULT resetEntryActionInheritance (IRPState** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

resetExitActionInheritance

Write method

Description

The [resetExitActionInheritance](#) method resets the inheritance of the exit action for the current state.

Visual Basic

Syntax

```
resetExitActionInheritance() As RPState
```

Return Value

The updated state

C/C++ Prototype

```
HRESULT resetExitActionInheritance (IRPState** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setStaticReaction

Write method

Description

The [setStaticReaction](#) method sets the static reaction for the current state.

Visual Basic

Syntax

```
setStaticReaction (trigVal As String, guardVal As  
String, actionVal As String)
```

Arguments

trigVal
The new value for the trigger
guardVal
The new value for the guard
actionVal
The new value for the action

C/C++ Prototype

```
HRESULT setStaticReaction (BSTR trigVal, BSTR guardVal,  
BSTR actionVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

unoverrideInheritance

Note

Currently, this method has not been implemented.

Write method

Description

The [unoverrideInheritance](#) method removes the override on inheritance for the current state.

Visual Basic**Syntax**

```
unoverrideInheritance()
```

C/C++ Prototype

```
HRESULT unoverrideInheritance()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

stateType

Read method

Description

The [stateType](#) method specifies the state type of the current state.

Visual Basic

Syntax

```
stateType(type As String)
```

Arguments

type

The state type. The possible values are as follows:

- ◆ Or—state that contains no concurrent states
- ◆ And—state that contains two or more concurrent states
- ◆ LocalTermination—termination state element
- ◆ Block—action block element
- ◆ Action—action element
- ◆ SubActivity—subactivity element
- ◆ ObjectFlow—object node element
- ◆ ReferenceActivity—call behavior element
- ◆ CallOperation—call operation element
- ◆ EventState—send action element

C/C++ Prototype

```
HRESULT stateType(BSTR pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPStatechart Interface

The `IRPStatechart` interface represents a statechart diagram. It inherits from `IRPDiagram`.

Note: You cannot create a statechart using the APIs. The statechart must already exist for you to use the APIs on it.

VB Properties

Name	Type	Access	Description
<code>isOverridden</code>	<code>Long</code>	RO	If this is equal to 1 (as opposed to 0), the state is overridden. Currently, this property has not been implemented.
<code>itsClass</code>	<code>RPClass</code>	RO	The class of this statechart.
<code>rootState</code>	<code>RPState</code>	RO	The default (starting) state of this statechart.

Method Summary

<u><code>createGraphics</code></u>	Creates graphics in the Rhapsody statechart
<u><code>deleteState</code></u>	Deletes the specified state from the Rhapsody statechart
<u><code>findTrigger</code></u>	Determines whether the current statechart has a trigger for the specified class interface element
<u><code>getAllTriggers</code></u>	Returns a collection of all the triggers for the current statechart
<u><code>getInheritsFrom</code></u>	Returns a pointer to the base statechart from which the current statechart inherits
<u><code>overrideInheritance</code></u>	Overrides inheritance for the current state
<u><code>unoverrideInheritance</code></u>	Removes the override on inheritance for the current state

createGraphics

Write method

Description

The [createGraphics](#) method creates graphics in the Rhapsody 6.1 statechart using the information in the COM API methods.

Visual Basic

Syntax

```
createGraphics()
```

C/C++ Prototype

```
HRESULT createGraphics()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteState

Write method

Description

The [deleteState](#) method deletes the specified state from the statechart.

Visual Basic

Syntax

```
deleteState (state As RPState)
```

Arguments

state
The state to delete

C/C++ Prototype

```
HRESULT deleteState (IRPState* state)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findTrigger

Read method

Description

The [findTrigger](#) method determines whether the current statechart has a trigger for the specified class interface element.

Visual Basic

Syntax

```
findTrigger (item As RPInterfaceItem) As Long
```

Arguments

item

The state to check

Return Value

1 if this statechart has a trigger; otherwise 0

C/C++ Prototype

```
HRESULT findTrigger (IRPInterfaceItem* item, long *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getAllTriggers

Read method

Description

The [getAllTriggers](#) method returns a collection of all the triggers for the current statechart.

Visual Basic

Syntax

```
getAllTriggers() As RPCollection
```

Return Value

A collection of all the triggers (RPInterfaceItems) for this statechart

C/C++ Prototype

```
HRESULT getAllTriggers (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getInheritsFrom

Read method

Description

The [getInheritsFrom](#) method returns a pointer to the base statechart from which the current statechart inherits.

Visual Basic

Syntax

```
getInheritsFrom() As RPStatechart
```

Return Value

The base statechart from which this statechart inherits

C/C++ Prototype

```
HRESULT getInheritsFrom (IRPStatechart** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

overrideInheritance

Note

Currently, this method has not been implemented.

Write method

Description

The [overrideInheritance](#) method overrides inheritance for the current state.

Visual Basic

Syntax

```
overrideInheritance()
```

C/C++ Prototype

```
HRESULT overrideInheritance()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

unoverrideInheritance

Note

Currently, this method has not been implemented.

Write method

Description

The [unoverrideInheritance](#) method removes the override on inheritance for the current state.

Visual Basic

Syntax

```
unoverrideInheritance()
```

C/C++ Prototype

```
HRESULT unoverrideInheritance()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPStateVertex Interface

The `IRPStateVertex` interface represents all model elements that can be connectors or states. It is an abstract interface that inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
parent	RPState	RW	The parent state or connector

Method Summary

addTransition	Creates a transition
deleteTransition	Deletes a transition
getInTransitions	Returns a collection of transitions that are directed into the current state or connector
getOutTransitions	Returns a collection of transitions that are directed out of the current state or connector

addTransition

Write method

Description

The [addTransition](#) method creates a transition.

Visual Basic

Syntax

```
addTransition (to As RPStateVertex) As RPTransition
```

Arguments

to

The "to" state for the transition

Return Value

The new transition

C/C++ Prototype

```
HRESULT addTransition (IRPStateVertex *to,  
                      IRPTransition** transition)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteTransition

Write method

Description

The [deleteTransition](#) method deletes the specified transition.

Visual Basic

Syntax

```
deleteTransition (transition As RPTransition)
```

Arguments

transition
The transition to delete

C/C++ Prototype

```
HRESULT deleteTransition (IRPTransition *transition)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getInTransitions

Read method

Description

The [getInTransitions](#) method returns a collection of transitions that are directed into the current state or connector.

Visual Basic

Syntax

```
getInTransitions() As RPCollection
```

Return Value

A collection of transitions going into this state or connector

C/C++ Prototype

```
HRESULT getInTransitions (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getOutTransitions

Read method

Description

The [getOutTransitions](#) method returns a collection of transitions that are directed out of the current state or connector.

Visual Basic

Syntax

```
getOutTransitions() As RPCollection
```

Return Value

A collection of transitions going out of this state or connector

C/C++ Prototype

```
HRESULT getOutTransitions (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

parent

Read method

Description

The [parent](#) method returns the parent state.

Visual Basic

Syntax

```
parent(newVal As RPState)
```

Arguments

newVal

The parent state

C/C++ Prototype

```
HRESULT parent(IRPState* newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPStereotype Interface

The `IRPStereotype` interface represents a stereotype in the model. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
icon	String	RO	The icon string attached to the stereotype
ofMetaClass	String	RO	The metaclass to which the stereotype applies

IRPStructureDiagram Interface

The `IRPStructureDiagram` interface represents a Rhapsody structure diagram. It inherits from `IRPDiagram`.

IRPSwimlane Interface

The `IRPSwimlane` interface represents a swimlane in an activity diagram. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
contents	RPCollection	RO	A collection of states in the swimlane
represents	RPModelElement	RW	The object that implements the swimlane

IRPTag Interface

The `IRPTag` interface represents a tag. It inherits from `IRPVariable`.

VB Properties

Name	Type	Access	Description
tagMetaClass	String	RW	The metaclass for the tag
value	String	RW	The default value for the tag

IRPTemplateInstantiation Interface

The `IRPTemplateInstantiation` interface represents a global variable in a Rhapsody model. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
templateInstantiationParameters	Collection of RPTemplate Instantiation Parameters	RO	A collection of parameters used for instantiation

IRPTemplateInstantiationParameter Interface

The `IRPTemplateInstantiationParameter` interface represents a parameter used in template instantiation in a Rhapsody model. It inherits from the `IRPModelElement`.

VB Properties

Name	Type	Access	Description
argValue	String	RW	The argument value for this parameter of a template instantiation

IRPTemplateParameter Interface

The `IRPTemplateParameter` interface represents a parameter for a template in a Rhapsody model. It inherits from `IRPVariable`.

VB Properties

Name	Type	Access	Description
typeName	RPTYPE	RW	The type of this template parameter

Method Summary

<u>setClassType</u>	Sets or changes the current template parameter to a class type parameter
-------------------------------------	--

setClassType

Write method

Description

The [setClassType](#) method sets or changes the current template parameter to a class type parameter. For example, parameter <int X> becomes <class X>.

Visual Basic

Syntax

```
setClassType( )
```

C/C++ Prototype

```
HRESULT setClassType( )
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPTransition Interface

The `IRPTransition` interface represents a transition in a statechart. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
<code>isOverridden</code>	<code>Long</code>	RO	If this is equal to 1 (as opposed to 0), the transition is overridden. Currently, this property has not been implemented.
<code>itsLabel</code>	<code>String</code>	RO	The transition label for this transition.
<code>itsSource</code>	<code>RPStateVertex</code>	RW	The source state of this transition.
<code>itsStateChart</code>	<code>RPStatechart</code>	RW	The statechart of this transition.
<code>itsTarget</code>	<code>RPStateVertex</code>	RW	The target state of this transition.

Method Summary

<code>getInheritsFrom</code>	Returns the base transition from which the current transition inherits
<code>getItsAction</code>	Returns the action code of the current transition
<code>getItsGuard</code>	Returns the guard condition of the current transition
<code>getItsTrigger</code>	Returns the trigger (event or triggered operation) of the current transition
<code>getOfState</code>	Returns the source state for which this transition is the default transition
<code>isDefaultTransition</code>	Determines whether the current transition is a default transition
<code>isStaticReaction</code>	Determines whether this is a static reaction
<code>itsCompoundSource</code>	Returns a collection of states that act as multiple sources for this single transition
<code>overrideInheritance</code>	Overrides inheritance for the current transition
<code>resetLabelInheritance</code>	Resets the label inheritance
<code>setItsAction</code>	Updates the current transition with a new action

<u>setItsGuard</u>	Updates the current transition with a new guard
<u>setItsLabel</u>	Updates this transition with a new label (trigger[guard]/action)
<u>setItsTrigger</u>	Updates the current transition with a new trigger
<u>unoverrideInheritance</u>	Removes the override on inheritance for the current transition

getInheritsFrom

Read method

Description

The [getInheritsFrom](#) method returns the base transition from which the current transition inherits.

Visual Basic

Syntax

```
getInheritsFrom() As RPTransition
```

Return Value

The base transition from which this transition inherits

C/C++ Prototype

```
HRESULT getInheritsFrom (IRPTransition** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getItsAction

Read method

Description

The [getItsAction](#) method returns the action code of the current transition.

Visual Basic

Syntax

```
getItsAction() As RPAAction
```

Return Value

The action code of this transition

C/C++ Prototype

```
HRESULT getItsAction (IRPAction** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getItsGuard**Read method****Description**

The [getItsGuard](#) method returns the guard condition of the current transition.

Visual Basic**Syntax**

```
getItsGuard() As RPGuard
```

Return Value

The guard condition of this transition

C/C++ Prototype

```
HRESULT getItsGuard (IRPGuard** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getItsTrigger

Read method

Description

The [getItsTrigger](#) method returns the trigger (event or triggered operation) of the current transition.

Visual Basic

Syntax

```
getItsTrigger() As RPTrigger
```

Return Value

The trigger of this transition

C/C++ Prototype

```
HRESULT getItsTrigger (IRPTrigger** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

Example

The following macro checks each transition to see if it has a trigger.

```
Sub checkNullTransitions()  
    Dim elem As RPModelElement  
    For Each elem In getProject.getNestedElementsRecursive  
        If elem.metaClass = "Transition" Then  
            Dim trans As RPTransition  
            Set trans = elem  
            If trans.getItsTrigger Is Nothing Then  
                Debug.Print "The trigger in transition '" +  
                    trans.getFullPathName + "' is null!"  
            End If  
        End If  
    Next elem  
End Sub  
...
```

getOfState

Read method

Description

The [getOfState](#) method returns the source state for which this transition is the default transition.

Suppose you want to figure out what event sequences lead to a state A. One way to retrieve those values is to travel backwards from A, looking for all the transitions going into it. If they are normal transitions, you can continue to their source. If they are default transitions, you must find the parent using the method `getOfState`.

Visual Basic

Syntax

```
getOfState() As RPState
```

Return Value

The parent state for which this transition is the default transition. If this transition is the default transition of its statechart, this method returns the parent; otherwise, it returns a NULL value.

C/C++ Prototype

```
HRESULT getOfState (IRPState** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isDefaultTransition

Read method

Description

The [isDefaultTransition](#) method determines whether the current transition is a default transition.

Visual Basic

Syntax

```
isDefaultTransition() As Long
```

Return Value

1 if this transition is a default transition; otherwise 0

C/C++ Prototype

```
HRESULT isDefaultTransition (long *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isStaticReaction

Read method

Description

The [isStaticReaction](#) method determines whether this is a static reaction.

Visual Basic

Syntax

```
isStaticReaction() As Long
```

Return Value

1 if this is a static reaction; otherwise 0

C/C++ Prototype

```
HRESULT isStaticReaction (long *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

itsCompoundSource

Read method

Description

The [itsCompoundSource](#) method returns a collection of states that act as multiple sources for this single transition.

For example, consider a junction connector. There can be many transitions from different states that are resolved into one transition leaving a junction connector. For the transition leaving a junction connector, this method gives all the source states.

Visual Basic

Syntax

```
itsCompoundSource() As RPCollection
```

Return Value

A collection of source states (RPStateVertexes) for this transition

C/C++ Prototype

```
HRESULT itsCompoundSource (IRPCollection** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

overrideInheritance

Note

Currently, this method has not been implemented.

Write method

Description

The [overrideInheritance](#) method overrides inheritance for the current transition.

Visual Basic

Syntax

```
overrideInheritance()
```

C/C++ Prototype

```
HRESULT overrideInheritance()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

resetLabelInheritance

Write method

Description

The [resetLabelInheritance](#) method resets the label inheritance.

Visual Basic

Syntax

```
resetLabelInheritance() As RPTransition
```

Return Value

The updated RPTransition

C/C++ Prototype

```
HRESULT resetLabelInheritance (IRPTransition** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setItsAction

Write method

Description

The [setItsAction](#) method updates the current transition with a new action.

Visual Basic

Syntax

```
setItsAction (action As String) As RPAction
```

Return Value

The new action for the transition

C/C++ Prototype

```
HRESULT setItsAction (BSTR action, IRPAction** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setItsGuard

Write method

Description

The [setItsGuard](#) method updates the current transition with a new guard.

Visual Basic

Syntax

```
setItsGuard() As RPGuard
```

Return Value

The new guard for this transition

C/C++ Prototype

```
HRESULT setItsGuard (BSTR guard, IRPGuard** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setItsLabel

Write method

Description

The [setItsLabel](#) method updates this transition with a new label (trigger[guard]/action)

Visual Basic

Syntax

```
setItsLabel (trigger As String, guard As String,  
            action As String)
```

Arguments

trigger

The new trigger value for this transition

guard

The new guard value for this transition

action

The new action value for this transition

C/C++ Prototype

```
HRESULT setItsLabel (BSTR trigger, BSTR guard,  
                    BSTR action)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setItsTrigger**Write method****Description**

The [setItsTrigger](#) method updates the current transition with a new trigger.

Visual Basic**Syntax**

```
setItsTrigger (trigger As String) As RPTrigger
```

Return Value

The new trigger for this transition

C/C++ Prototype

```
HRESULT setItsTrigger (BSTR trigger, IRPTrigger** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

unoverrideInheritance**Note**

Currently, this method has not been implemented.

Write method**Description**

The [unoverrideInheritance](#) method removes the override on inheritance for the current transition.

Visual Basic

Syntax

```
unoverrideInheritance()
```

C/C++ Prototype

```
HRESULT unoverrideInheritance()
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPTrigger Interface

The `IRPTrigger` interface represents a trigger of a transition in a statechart. It inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
body	String	RW	The body of this trigger

Method Summary

getItsOperation	Returns the event or triggered operation of the current trigger
isOperation	Determines whether the current trigger is an operation (event or triggered operation)
isTimeout	Determines whether the current trigger is a timeout

getItsOperation

Read method

Description

The [getItsOperation](#) method returns the event or triggered operation of the current trigger.

If the current trigger's transition is labeled $E[C]/A$ (where E is the event (event or triggered operation) the trigger refers to, C is the guard condition, and A is the action), this method returns the event E to which this trigger refers.

Visual Basic

Syntax

```
getItsOperation() As RPInterfaceItem
```

Return Value

The operation of this trigger

C/C++ Prototype

```
HRESULT getItsOperation (IRPInterfaceItem** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isOperation

Read method

Description

The [isOperation](#) method determines whether the current trigger is an operation (event or triggered operation).

Visual Basic

Syntax

```
isOperation() As Long
```

Return Value

1 if this trigger is an operation; otherwise 0

C/C++ Prototype

```
HRESULT isOperation (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isTimeout

Read method

Description

The [isTimeout](#) method determines whether the current trigger is a timeout.

Visual Basic

Syntax

```
isTimeout() As Long
```

Return Value

1 if this trigger is a timeout; otherwise 0

C/C++ Prototype

```
HRESULT isTimeout (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPType Interface

The `IRPType` interface represents Rhapsody 6.1 data types. It inherits from `IRPClassifier`.

VB Properties

Name	Type	Access	Description
declaration	String	RW	The type declaration.
enumerationLiterals	Collection of <code>RPEnumerationLiterals</code>	RO	A container that can be manipulated only if the kind of the type is <code>Enumerated</code>
isPredefined	Long	RO	A flag that indicates whether this type is a Rhapsody predefined types. Predefined types are defined in the package unit files: Share\Properties\Predefined<lang>.sbs
isTypedef	Long	RO	A flag that indicates whether this type is defined with a <code>typedef</code>
isTypedefConstant	Long	RW	A flag that indicates whether the <code>typedef</code> is defined as a constant (is read-only, such as the <code>const</code> qualifier in C++)
isTypedefOrdered	Long	RW	A flag that indicated whether the order of the reference type items is significant
isTypedefReference	Long	RW	A flag that indicates whether the <code>typedef</code> is referenced as a reference (such as a pointer (*) or an address (&) in C++)
kind	String	RW	Stores the type kind.
typedefBaseType	<code>RPClassifier</code>	RW	Specifies the basic type of the <code>typedef</code>
typedefMultiplicity	String	RW	Specifies the multiplicity of the <code>typedef</code>

Method Summary

<u>addEnumerationLiteral</u>	Creates an enumeration literal
<u>isArray</u>	Determines whether the current type is an array
<u>isEnum</u>	Determines whether the current type is an enumerated type
<u>isEqualTo</u>	Tests for equality between the type of the type and the type itself
<u>isImplicit</u>	Determines whether the current type is an implicit type
<u>isKindEnumeration</u>	Determines whether the current type is an enumeration
<u>isKindLanguage</u>	Determines whether the current type is a language declaration type
<u>isKindStructure</u>	Determines whether the current type is a structure
<u>isKindTypedef</u>	Determines whether the current type is a typedef
<u>isKindUnion</u>	Determines whether the current type is a union
<u>isPointer</u>	Determines whether the current type is a pointer
<u>isPointerToPointer</u>	Determines whether the current type is a pointer to another pointer
<u>isReference</u>	Determines whether the current type is a reference
<u>isReferenceToPointer</u>	Determines whether the current type is a reference to a pointer
<u>isStruct</u>	Determines whether the current type is a struct
<u>isTemplate</u>	Determines whether the current type is a template
<u>isUnion</u>	Determines whether the current type is a union

addEnumerationLiteral

Write method

Description

The [addEnumerationLiteral](#) method creates an enumeration literal.

Visual Basic

Syntax

```
addEnumerationLiteral (name As String)  
As RPEnumerationLiteral
```

Arguments

name

The name of the enumeration literal to create

Return Value

The new enumeration literal

C/C++ Prototype

```
HRESULT addEnumerationLiteral (BSTR name,  
IRPEnumerationLiteral** pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isArray

Read method

Description

The [isArray](#) method determines whether the current type is an array.

Visual Basic

Syntax

```
isArray() As Long
```

Return Value

1 if the type is an array; 0 otherwise

C/C++ Prototype

```
HRESULT isArray (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isEnum

Read method

Description

The [isEnum](#) method determines whether the current type is an enumerated type.

Visual Basic

Syntax

```
isEnum() As Long
```

Return Value

1 if the type is an array; 0 otherwise

C/C++ Prototype

```
HRESULT isEnum (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isEqualTo

Read method

Description

The [isEqualTo](#) method tests for equality between the type of the type and the type itself.

Visual Basic

Syntax

```
isEqualTo() As Long
```

Return Value

The method returns 1 if the “type of the type” is equal to the type depended on, otherwise 0.

For example, if the type definition is `typedef x`, the type is equal to the type it depends on. However, if the type definition is `typedef x*`, the type of the type is a pointer, and is therefore different from the type itself.

C/C++ Prototype

```
HRESULT isEqualTo (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isImplicit

Read method

Description

The [isImplicit](#) method determines whether the current type is an implicit type.

Visual Basic

Syntax

```
isImplicit() As Long
```

Return Value

1 if the type is an implicit type; 0 otherwise

C/C++ Prototype

```
HRESULT isImplicit (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isKindEnumeration

Read method

Description

The [isKindEnumeration](#) method determines whether the current type is an enumeration.

Visual Basic

Syntax

```
isKindEnumeration() As Long
```

Return Value

1 if the type is an enumeration; 0 otherwise

C/C++ Prototype

```
HRESULT isKindEnumeration (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isKindLanguage

Read method

Description

The [isKindLanguage](#) method determines whether the current type is a language declaration type.

Visual Basic

Syntax

```
isKindLanguage() As Long
```

Return Value

1 if the type is a language declaration type; 0 otherwise

C/C++ Prototype

```
HRESULT isKindLanguage (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isKindStructure

Read method

Description

The [isKindStructure](#) method determines whether the current type is a structure.

Visual Basic

Syntax

```
isKindStructure() As Long
```

Return Value

1 if the type is a structure; 0 otherwise

C/C++ Prototype

```
HRESULT isKindStructure (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isKindTypedef

Read method

Description

The [isKindTypedef](#) method determines whether the current type is a typedef.

Visual Basic

Syntax

```
isKindTypedef() As Long
```

Return Value

1 if the type is a typedef; 0 otherwise

C/C++ Prototype

```
HRESULT isKindTypedef (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isKindUnion

Read method

Description

The [isKindUnion](#) method determines whether the current type is a union.

Visual Basic

Syntax

```
isKindUnion() As Long
```

Return Value

1 if the type is a union; 0 otherwise

C/C++ Prototype

```
HRESULT isKindUnion (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isPointer

Read method

Description

The [isPointer](#) method determines whether the current type is a pointer.

Visual Basic

Syntax

```
isPointer() As Long
```

Return Value

1 if the type is a pointer; 0 otherwise

C/C++ Prototype

```
HRESULT isPointer (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isPointerToPointer

Read method

Description

The [isPointerToPointer](#) method determines whether the current type is a pointer to another pointer.

Visual Basic

Syntax

```
isPointerToPointer() As Long
```

Return Value

1 if the type is a pointer to a pointer; 0 otherwise

C/C++ Prototype

```
HRESULT isPointerToPointer (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isReference**Read method****Description**

The [isReference](#) method determines whether the current type is a reference.

Visual Basic**Syntax**

```
isReference() As Long
```

Return Value

1 if the type is a reference; 0 otherwise

C/C++ Prototype

```
HRESULT isReference (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isReferenceToPointer

Read method

Description

The [isReferenceToPointer](#) method determines whether the current type is a reference to a pointer.

Visual Basic

Syntax

```
isReferenceToPointer() As Long
```

Return Value

1 if this type is a reference to a pointer; otherwise 0

C/C++ Prototype

```
HRESULT isReferenceToPointer (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isStruct**Read method****Description**

The [isStruct](#) method determines whether the current type is a struct.

Visual Basic**Syntax**

```
isStruct() As Long
```

Return Value

1 if this type is a struct; otherwise 0

C/C++ Prototype

```
HRESULT isStruct (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isTemplate

Write method

Description

The [isTemplate](#) method determines whether the current type is a template.

Visual Basic

Syntax

```
isTemplate() As Long
```

Return Value

1 if this type is a template; otherwise 0

C/C++ Prototype

```
HRESULT isTemplate (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isUnion

Write method

Description

The [isUnion](#) method determines whether the current type is a union.

Visual Basic

Syntax

```
isUnion() As Long
```

Return Value

1 if this type is a union; otherwise 0

C/C++ Prototype

```
HRESULT isUnion (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPUnit Interface

The `IRPUnit` interface represents all model elements that can be stored as units for configuration management (CM) purposes. It is an abstract interface that inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
CMHeader	String	RW	The CM header of this unit
currentDirectory	String	RO	The current directory
filename	String	RW	The name of the file that stores the unit
includeInNextLoad	Long	RW	Indicates whether or not the unit should be loaded the next time the model is loaded.
isStub	Long	RO	Specifies whether this is a stub
structureDiagrams	Collection of RPStructureDiagrams	RO	Collection of structure diagrams that can be stored as units

Method Summary

<code>isReadOnly</code>	Determines whether the current unit is read-only
<code>isReferenceUnit</code>	Determines whether the current unit was added to the model as a reference
<code>isSeparateSaveUnit</code>	Determines whether the current unit is saved in its own (separate) file
<code>load</code>	Loads the specified unit
<code>save</code>	Saves the specified unit
<code>setReadOnly</code>	Specifies whether the current unit is read-only
<code>setSeparateSaveUnit</code>	Sets a unit to be stored to its own file

isReadOnly

Read method

Description

The [isReadOnly](#) method determines whether the current unit is read-only.

Visual Basic

Syntax

```
isReadOnly() As Long
```

Return Value

1 if this unit is read-only; otherwise 0

C/C++ Prototype

```
HRESULT isReadOnly (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isReferenceUnit

Read method

Description

The `isReferenceUnit` method determines whether the current unit was added to the model as a reference.

Visual Basic

Syntax

```
isReferenceUnit() As Long
```

Return Value

1 if this unit was added to the model as a reference; otherwise 0

C/C++ Prototype

```
HRESULT isReferenceUnit(long* val)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

isSeparateSaveUnit

Read method

Description

The [`isSeparateSaveUnit`](#) method determines whether the current unit is saved in its own (separate) file.

Visual Basic

Syntax

```
isSeparateUnit() As Long
```

Return Value

1 if this unit is saved to its own file; otherwise 0

C/C++ Prototype

```
HRESULT isSeparateSaveUnit (long* pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

load**Write method****Description**

The [load](#) method loads the specified unit.

Visual Basic**Syntax**

```
load (withSubs As Long) As RPUnt
```

Argument

withSubs

Set this to 1 to load the unit's subunits. Otherwise, set this to 0.

Return Value

The loaded unit

C/C++ Prototype

```
HRESULT load (long withSubs, IRPUnt** ret)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

save

Read method

Description

The [save](#) method saves the current unit.

Visual Basic

Syntax

```
save (withSubs As Long)
```

Argument

withSubs

Set this to 1 to load the unit's subunits. Otherwise, set this to 0.

C/C++ Prototype

```
HRESULT save (long withSubs)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setReadOnly

Write method

Description

The [setReadOnly](#) method specifies whether the current unit is read-only.

Visual Basic

Syntax

```
setReadOnly (pVal As Long)
```

Arguments

pVal

Set this argument to 1 to make the unit read-only; set it to 0 to make the unit read/write.

C/C++ Prototype

```
HRESULT setReadOnly (long pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

setSeparateSaveUnit**Write method****Description**

The [setSeparateSaveUnit](#) method sets a unit to be stored to its own file.

Visual Basic**Syntax**

```
setSeparateSaveUnit (pVal As Long)
```

Arguments

pVal

Set this argument to 1 to have the unit stored to its own file.
Otherwise, set it to 0.

C/C++ Prototype

```
HRESULT setSeparateSaveUnit (long pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPUseCase Interface

The `IRPUseCase` interface represents a Rhapsody use case. It inherits from `IRPClassifier`.

VB Properties

Name	Type	Access	Description
describingDiagrams	Collection of <code>RPSequenceDiagram</code>	RO	A collection of sequence diagrams that describe this use case
entryPoints	Collection of strings	RO	A collection of entry points into this use case
extensionPoints	<code>RPCollection</code>	RO	A collection of extension points

Method Summary

<code>addDescribingDiagram</code>	Adds a describing diagram for the current use case
<code>addExtensionPoint</code>	Adds an extension point to the current use case
<code>deleteDescribingDiagram</code>	Deletes the describing use case or sequence diagram for the current use case
<code>deleteEntryPoint</code>	Deletes the entry point of the current use case
<code>deleteExtensionPoint</code>	Deletes the specified extension point
<code>findEntryPoint</code>	Deletes the specified entry point
<code>findExtensionPoint</code>	Retrieves the extension point, given the generalization
<code>getDescribingDiagram</code>	Retrieves the use case diagram or sequence diagram linked to the current use case

addDescribingDiagram

Write method

Description

The [addDescribingDiagram](#) method adds a describing diagram for the current use case.

Visual Basic

Syntax

```
addDescribingDiagram (diagram As RPDiagram)
```

Arguments

diagram

The name for the new, describing diagram

C/C++ Prototype

```
HRESULT addDescribingDiagram (IRPDiagram* diagram)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

addExtensionPoint

Write method

Description

The [addExtensionPoint](#) method adds an extension point to the current use case.

Visual Basic

Syntax

```
addExtensionPoint (entryPoint As String)
```

Arguments

entryPoint

The name of the new entry point

C/C++ Prototype

```
HRESULT addExtensionPoint (BSTR entryPoint)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteDescribingDiagram

Write method

Description

The [deleteDescribingDiagram](#) method deletes the describing use case or sequence diagram for the current use case.

Visual Basic

Syntax

```
deleteDescribingDiagram (diagram As RPDiagram)
```

Arguments

diagram

The use case or sequence diagram that describes the current use case

C/C++ Prototype

```
HRESULT deleteDescribingDiagram (IRPDiagram* diagram)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteEntryPoint

Write method

Description

The [deleteEntryPoint](#) method deletes the entry point of the current use case.

Visual Basic

Syntax

```
deleteEntryPoint (entryPoint As String)
```

Arguments

entryPoint
The name of the entry point to delete

C/C++ Prototype

```
HRESULT deleteEntryPoint (BSTR entryPoint)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

deleteExtensionPoint

Write method

Description

The [deleteExtensionPoint](#) method deletes the specified extension point.

Visual Basic

Syntax

```
deleteExtensionPoint (point As String)
```

Arguments

entryPoint
The extension point to delete

C/C++ Prototype

```
HRESULT deleteExtensionPoint (BSTR entrypoint)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findEntryPoint

Read method

The [findEntryPoint](#) method returns the specified entry point of the current use case, given the generalization.

Visual Basic

Syntax

```
findEntryPoint (gen As RPGeneralization) As String
```

Arguments

gen

The generalization

Return Value

The entry point

C/C++ Prototype

```
HRESULT findEntryPoint (IRPGeneralization* gen,  
                        BSTR *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

findExtensionPoint

Read method

The [findExtensionPoint](#) method returns the specified extension point of the current use case, given the generalization.

Visual Basic

Syntax

```
findExtensionPoint (gen As RPGeneralization) As String
```

Arguments

gen
The generalization

Return Value

The extension point

C/C++ Prototype

```
HRESULT findExtensionPoint (IRPGeneralization* gen,  
BSTR *pVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

getDescribingDiagram

Read method

Description

The [getDescribingDiagram](#) method retrieves the use case diagram or sequence diagram linked to the current use case.

Visual Basic

Syntax

```
getDescribingDiagram (name As String) As RPDiagram
```

Arguments

name
The name of the use case diagram or sequence diagram that is linked (for descriptive purposes) to the current use case

Return Value

The diagram of the specified use case

C/C++ Prototype

```
HRESULT getDescribingDiagram (BSTR name,  
                              IRPDiagram** diagram)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

IRPUseCaseDiagram Interface

The `IRPUseCaseDiagram` interface represents a use case diagram. It inherits from `IRPDiagram`.

Currently, it does not expose additional functionality to `IRPDiagram`.

IRPInternalOEMPlugin

This interface is used for internal purposes only.

IRPVariable Interface

The `IRPVariable` interface represents a variable in a Rhapsody 6.1 model. It represents the UML `TypedElement`.

`IRPVariable` inherits from `IRPModelElement`.

VB Properties

Name	Type	Access	Description
declaration	String	RW	The declaration statement for the variable
defaultValue	String	RW	The default value for the variable
type	RPClassifier	RW	The data type of the variable

Method Summary

<u>setTypeDeclaration</u>	Updates the type declaration for the current attribute
---	--

setTypeDeclaration

Write method

Description

The [setTypeDeclaration](#) method updates the type declaration for the current attribute.

Visual Basic

Syntax

```
setTypeDeclaration (newVal As String)
```

Arguments

newVal

The type declaration for this attribute

C/C++ Prototype

```
HRESULT setTypeDeclaration (BSTR newVal)
```

Return Value

HRESULT (0 for success, or a signed integer error code)

The Callback API

The Callback API consists of a number of methods that can be used to respond to events that occur in Rhapsody. This response can consist of actions taken by an external application and/or preventing Rhapsody from proceeding with a specific action.

Callback API Introduction

The Callback API is implemented as a number of COM connection point interfaces. These callback methods can be used by:

- ◆ client applications using the Rhapsody COM or Java APIs, in the following languages:
 - VB
 - VBA
 - C++
 - Java
- ◆ client plug-ins to Rhapsody

For the methods that have boolean return values, the client application can return a value of *True* in order to prevent Rhapsody from proceeding with the action connected to the event, for example, preventing a diagram from being opened.

Clients can receive event notification by registering the corresponding COM connection point interface using the standard COM mechanism.

Multiple clients can register for any given callback, however, there is no guarantee that the clients will be notified in a specific order.

In cases where multiple clients have registered, if one client responds by cancelling the associated Rhapsody action, the remaining clients will not be notified of the event.

Rhapsody can log all callbacks invoked. For Rhapsody actions that can be cancelled by clients, it also logs the action taken. For details on enabling logging, see [Callback Logging](#).

Callback notification can be disabled completely, or **for specific interfaces by adding appropriate entries to the `rhapsody.ini` file**. For details on complete or partial disabling of callback notification, see [Disabling Callback Notification](#).

When callback notification is enabled, you have the option of disabling the ability of a client application to prevent Rhapsody from proceeding with an action. This can be done for all cancellable actions or just for specific cancellable actions. For details, see [Disabling Cancellable Actions](#).

Events with Callback Methods

The Rhapsody API includes callback methods for the following Rhapsody events:

- ♦ project about to be closed
- ♦ project closed
- ♦ feature dialog about to be opened
- ♦ diagram about to be opened
- ♦ Rhapsody about to perform roundtrip
- ♦ code generation completed

Note

These events can only be responded to by using the Rhapsody API. They are not available as triggers in the *Helpers* dialog (*Tools > Customize*).

API Details

This section lists individual Rhapsody APIs with the API format and a description of its uses.

IRPApplicationListener

The IRPApplicationListener API is called before and after Rhapsody closes a project.

BeforeProjectClose

```
BOOL BeforeProjectClose(IRPProject Project)
```

This is called before a project is closed. The argument is the project that is to be closed.

If a client returns *True*, then the project will not be closed.

Points to take into consideration:

- ♦ If a client returns *True* to prevent the closing of the project, other clients that have registered will not be notified of the event.
- ♦ When multiple projects are to be closed, the method is called separately for each project. If a client prevents the closing of a specific project, this does not affect the calling of the method for the remaining projects.

AfterProjectClose

```
void AfterProjectClose(BSTR ProjectName)
```

This is called after Rhapsody closes a project. The argument is the name of the project that was closed.

Points to take into consideration:

- ♦ When multiple projects are closed, the method is called separately for each project.
- ♦ This method is not available for VBA clients. (This is because the VBA application is part of the Rhapsody project so it cannot be run after the project is closed.)

OnDiagramOpen

```
BOOL OnDiagramOpen(IRPDiagram Diagram)
```

This is called before a diagram is opened. The argument is the diagram that Rhapsody is about to open.

If a client returns *True*, then the diagram will not be opened.

Points to take into consideration:

- ♦ If a client returns *True* to prevent the opening of the diagram, other clients that have registered will not be notified of the event.
- ♦ The method is only called when a diagram is explicitly opened using the Rhapsody GUI or the Rhapsody API. It is not called when a diagram is opened as part of the restoration of the previous Rhapsody workspace.

OnFeaturesOpen

```
BOOL OnFeaturesOpen(IRPModelElement ModelElement)
```

This is called before the Features dialog is opened for a given element. The argument is the model element for which the Features dialog is going to be opened.

If a client returns *True*, then the Features dialog will not be opened for the element.

Points to take into consideration:

- ♦ If a client returns *True* to prevent the opening of the Features dialog, other clients that have registered will not be notified of the event.
- ♦ The method is only called when the Features dialog is explicitly opened using the Rhapsody GUI or the Rhapsody API. It is not called when the Features dialog is opened as part of the restoration of the previous Rhapsody workspace.

IRPRoundTripListener

The IRPRoundTripListener is called before the source code files are roundtripped into the model.

BeforeRoundtrip

```
void BeforeRoundtrip(IRPCollection fileNames)
```

This is called before source code files are roundtripped into the model.

The argument consists of the files that are going to be roundtripped into the model.

IRPCodeGeneratorListener

The IRPCodeGeneratorListener is called after code generation.

CodeGenerationCompleted

```
void CodeGenerationCompleted()
```

This is called after code generation has been completed.

Points to take into consideration:

- ◆ Clients should not modify generated code files in the framework of the callback method. This will result in timestamp inconsistency in the model-generated code, creating potential problems.

Callback Logging

By default, Rhapsody does not maintain a log file of callback events. To enable logging of callback events and cancellable actions, add the entry `EnableCallbackLogging` to a section called `[Callback]` in the *rhapsody.ini* file and set it to `TRUE`.

If you enable logging, the events and actions will be logged to a file called *callback_log.txt* in the system temporary directory.

Disabling Callback Notification

Callback functionality can be disabled completely, or for specific interfaces by adding one or more of the following entries to a section called `[Callback]` in the *rhapsody.ini* file:

To disable the callback mechanism for project closing, opening diagrams, and opening the Features dialog, add the entry `EnableApplicationEventListening` and set it to `FALSE`. Rhapsody will not notify registered clients of these events.

To disable the callback mechanism for roundtripping, add the entry `EnableRoundTripEventListening` and set it to `FALSE`. Rhapsody will not notify registered clients of roundtripping events.

To disable the callback mechanism for code generation, add the entry `EnableCodeGenerationEventListening` and set it to `FALSE`. Rhapsody will not notify registered clients of code generation events.

To disable the callback mechanism completely, add the entry `EnableEventListening` and set it to `FALSE`. Rhapsody will not notify registered clients of any of the callback events.

Disabling Cancellable Actions

When callback notification is enabled, you can disable the ability of a client application to prevent Rhapsody from proceeding with an action by adding one or more of the following entries to a section called `[Callback]` in the *rhapsody.ini* file:

To disable the ability to prevent Rhapsody from closing a project, add the entry `CanCancelProjectClose` and set it to `FALSE`.

To disable the ability to prevent Rhapsody from opening a diagram, add the entry `CanCancelOpenDiagram` and set it to `FALSE`.

To disable the ability to prevent Rhapsody from opening the Features dialog for an element, add the entry `CanCancelOpenFeaturesDialog` and set it to `FALSE`.

If you don't want to allow clients to prevent any of the cancellable actions, add the entry `CanCancelAction` and set it to `FALSE`.

Sample Client Applications

Sample client applications that use the callback API to respond to Rhapsody events can be found in the Rhapsody samples directory ([installation directory]*Samples\ExtensibilitySamples\CallbackAPISamples*).

The samples provided are written in a number of different languages.

Quick Reference

This section lists the Rhapsody API methods and provides a brief description of each. For ease of use, the methods are presented in alphabetical order.

Method Name	Description
<u>Abort</u>	Is invoked when the user selects the Abort option during code generation
<u>activeProject</u>	Returns a pointer to the active (open) project
<u>addActivityDiagram</u>	Adds an activity diagram to the current class
<u>addActor</u>	Adds the specified actor to the current package
<u>addAnchor</u>	Adds an anchor from the annotation to the specified model element
<u>addArgument</u>	Adds an argument for the operation to the end of its argument list
<u>addArgumentBeforePosition</u>	Adds an argument for the operation at the specified position in its argument list
<u>addAttribute</u>	Adds an attribute to the current class
<code>addBlock</code>	Adds a block to the current package
<u>addClass</u>	Adds a class to the current class
<u>addClassifierRole</u>	Adds a classifier role
<u>addClassifierRoleByName</u>	Adds a classifier role, given its name
<u>addCollaborationDiagram</u>	Adds a collaboration diagram to the current package
<u>addComponent</u>	Adds the specified component to the current project
<u>addComponentDiagram</u>	Adds a component diagram to the current package
<u>addComponentInstance</u>	Adds a new component instance
<u>addConfiguration</u>	Adds a configuration to this component
<u>addConnector</u>	Adds a connector to the statechart
<u>addConstructor</u>	Adds a constructor to the current class

Method Name	Description
<u>addConveyed</u>	Adds an information element to the conveyed collection
<u>addCtor</u>	Adds a constructor
<u>addDependency</u>	Adds a dependency relationship to the specified object
<u>addDependencyTo</u>	Creates a new dependency between two objects
<u>addDeploymentDiagram</u>	Adds the specified deployment diagram to the current package
<u>addDescribingDiagram</u>	Adds a describing diagram for the current use case
<u>addDestructor</u>	Adds a destructor to the current class
<u>addDtor</u>	Adds a destructor
<u>addElement</u>	Adds an element to the current file
<u>addEnumerationLiteral</u>	Creates an enumeration literal
<u>addEvent</u>	Adds the specified event to the current package
<u>addEventReception</u>	Adds an event reception to the current class
<u>addExtensionPoint</u>	Adds an extension point to the current use case
<u>addFile</u>	Adds an empty file to the current component
<u>addFlowItems</u>	Adds the specified flowItem to the collection of flowItems
<u>addFlows</u>	Adds the specified flow to the collection of flows
<u>addFolder</u>	Adds an empty folder to the current component
<u>addGeneralization</u>	Adds a generalization to the current class
<u>addGlobalFunction</u>	Adds the specified global function to this package
<u>addGlobalObject</u>	Adds a global object (instance) to the current package
<u>addGlobalVariable</u>	Adds the specified global variable to the current package
<u>addInitialInstance</u>	Adds an instance to the list of initial instances for the current configuration
<u>addItem</u>	Adds an item to the collection
<u>addMessage</u>	Adds a message
<u>addNestedComponent</u>	Adds a component to the current component
<u>addNestedPackage</u>	Adds a nested package to the current package
<u>addNewAggr</u>	Used to add a new element to the current element, for example, adding a new class to a package
<u>addNode</u>	Adds the specified node to the current package

Method Name	Description
<u>addObjectModelDiagram</u>	Adds the specified OMD to the current package
<u>addOperation</u>	Adds an operation to the current class
<u>addPackage</u>	Adds the specified package to the current project
<u>addPackageToInstrumentationScope</u>	Adds the specified package to the instrumentation scope, including all its aggregated classes, actors, and nested packages
<u>addPackageToScope</u>	Adds the specified package to the scope of the file or folder
<u>addProperty</u>	Adds a new property/value pair for the current element
<u>addProvidedInterface</u>	Adds the specified interface to the collection of provided interfaces
<u>addReferenceActivity</u>	Adds a reference activity to the activity diagram
<u>addRelation</u>	Adds a symmetric relation between the current class and another one
<u>addRepresented</u>	Adds a flowItem to the <code>represented</code> collection
<u>addRequiredInterface</u>	Adds the specified interface to the collection of required interfaces
<u>addScopeElement</u>	Places a model element within the scope of the current component
<u>addSequenceDiagram</u>	Adds the specified sequence diagram to the current package
<u>addState</u>	Adds a state to the statechart
<u>addStatechart</u>	Adds a statechart to the current class
<u>addStaticReaction</u>	Adds a static reaction to the statechart
<u>addStereotype</u>	Adds a stereotype relationship to the specified object
<u>addSuperclass</u>	Adds a superclass to the current class
<u>addSwimlane</u>	Adds a swimlane to the activity diagram
<u>addSystemBorder</u>	Adds a system border to the collaboration diagram
<u>addTerminationState</u>	Adds a termination state to the statechart
<u>addTextElement</u>	Adds text to the file
<u>addTimeInterval</u>	Adds a time interval to the diagram
<u>addTimeout</u>	Adds a timeout
<u>addToInstrumentationScope</u>	Adds explicit initial instances to the instrumentation scope

Method Name	Description
<u>addToModel</u>	Adds a Rhapsody unit located in the specified file to the current model with or without descendant elements
<u>addToModelFromURL</u>	Adds a Rhapsody unit located at the specified URL to the current model
<u>addToScope</u>	Places the specified file, classes, and packages within the scope of the current component
<u>addTransition</u>	Creates a transition
<u>addTriggeredOperation</u>	Adds a triggered operation to the current class
<u>addType</u>	Adds a type to the current class
<u>addUnidirectionalRelation</u>	Adds a directional relation from the current class to another class
<u>addUseCase</u>	Adds the specified use case to the current package
<u>addUseCaseDiagram</u>	Adds the specified UCD to the current package
<u>allElementsInScope</u>	Places all model elements within the scope of the current component
<u>arcCheckOut</u>	Checks out files from the CM archive into the model
<u>becomeTemplateInstantiationOf</u>	Creates a template instantiation of another template (of another template class)
<u>build</u>	Builds the application
<u>checkEventsBaseIdsSolveCollisions</u>	Checks the values of the events base IDs for all packages in the model, detects collisions between the IDs, and resolves any incorrect values and collisions
<u>checkIn</u>	Checks in the specified unit within the model into the CM archive you have already connected to (using <code>connectToArchive</code>)
<u>checkModel</u>	Checks the current model
<u>checkOut</u>	Refreshes a unit in the model by checking it out from the CM archive
<u>clone</u>	Clones the element, names it, and adds it to the new owner
<u>close</u>	Closes a file or project
<u>connectToArchive</u>	Connects the Rhapsody project to the specified CM archive
<u>createDefaultTransition</u>	Creates a default transition in the statechart
<u>createGraphics</u>	Creates graphics in the Rhapsody statechart
<u>createNestedStatechart</u>	Creates a nested statechart

Method Name	Description
<u>createNewProject</u>	Creates a new project named <i><projectName></i> in <i><projectLocation></i>
<u>deleteActivityDiagram</u>	Deletes the specified activity diagram from the current class
<u>deleteActor</u>	Deletes the specified actor from the current package
<u>deleteArgument</u>	Deletes an argument from the current operation
<u>deleteAttribute</u>	Deletes the specified attribute from the current class
<u>deleteClass</u>	Deletes a class from the current class
<u>deleteCollaborationDiagram</u>	Deletes the specified collaboration diagram from the current package
<u>deleteComponent</u>	Deletes the specified component from the current project
<u>deleteComponentDiagram</u>	Deletes the specified component diagram from the current package
<u>deleteComponentInstance</u>	Deletes the specified component instance
<u>deleteConfiguration</u>	Deletes the specified configuration from the current component
<u>deleteConnector</u>	Deletes the specified connector from the statechart
<u>deleteConstructor</u>	Deletes a constructor from the current class
<u>deleteDependency</u>	Deletes a dependency
<u>deleteDeploymentDiagram</u>	Deletes the specified deployment diagram from the current package
<u>deleteDescribingDiagram</u>	Deletes the describing use case or sequence diagram for the current use case
<u>deleteDestructor</u>	Deletes a destructor from the current class
<u>deleteEntryPoint</u>	Deletes the entry point of the current use case
<u>deleteEvent</u>	Deletes the specified event from the current package
<u>deleteEventReception</u>	Deletes the specified event reception from the current class
<u>deleteExtensionPoint</u>	Deletes the specified extension point
<u>deleteFile</u>	Deletes the specified file from the current component
<u>deleteFlowchart</u>	Deletes an activity diagram from the current operation
<u>deleteFlowItems</u>	Deletes the specified flowItem from the collection of flowItems
<u>deleteFlows</u>	Deletes the specified flow from the collection of flows

Method Name	Description
<u>deleteFromProject</u>	Deletes the current model element from the project open in Rhapsody
<u>deleteGeneralization</u>	Deletes the specified generalization from the current class
<u>deleteGlobalFunction</u>	Deletes the specified global function from the current package
<u>deleteGlobalObject</u>	Deletes the specified global object from the current package
<u>deleteGlobalVariable</u>	Deletes the specified global variable from the current package
<u>deleteInitialInstance</u>	Deletes an instance from the list of build instances for the current configuration
<u>deleteNode</u>	Deletes the specified node from the current package
<u>deleteObjectModelDiagram</u>	Deletes the specified OMD from the current package
<u>deleteOperation</u>	Deletes the specified operation from the current class
<u>deletePackage</u>	Deletes the current package
<u>deleteRelation</u>	Deletes the specified relation from the current class
<u>deleteSequenceDiagram</u>	Deletes the specified sequence diagram from the current package
<u>deleteState</u>	Deletes the specified state from the Rhapsody statechart
<u>deleteStatechart</u>	Deletes the specified statechart from the current class
<u>deleteStaticReaction</u>	Deletes the specified static reaction from the statechart
<u>deleteSuperclass</u>	Deletes a superclass from the current class
<u>deleteTransition</u>	Deletes a transition
<u>deleteType</u>	Deletes a type from the current class
<u>deleteUseCase</u>	Deletes the specified use case from the current package
<u>deleteUseCaseDiagram</u>	Deletes the specified use case diagram from the current package
<u>enterAnimationCommand</u>	Specifies the command to begin animation
<u>errorMessage</u>	Returns the most recent error message
<u>Exit</u>	Is invoked before Rhapsody exits
<u>findActor</u>	Retrieves the specified actor, if it belongs to the current package
<u>findAllByName</u>	Searches all the elements and finds the first element of the specified name and metaclass in the current package

Method Name	Description
<u>findAttribute</u>	Retrieves the specified attribute of the classifier
<u>findBaseClassifier</u>	Retrieves a base (parent) classifier of a classifier
<u>findClass</u>	Retrieves the specified class, if it belongs to the current package
<u>findComponent</u>	Retrieves the specified component from the current project
<u>findComponentInstance</u>	Retrieves the specified component instance
<u>findConfiguration</u>	Retrieves the specified configuration in the current component
<u>findDerivedClassifier</u>	Retrieves the specified derived classifier of a classifier
<u>findElementsByFullName</u>	Searches for the specified element
<u>findEntryPoint</u>	Deletes the specified entry point
<u>findEvent</u>	Retrieves the specified event, if it belongs to the current package
<u>findExtensionPoint</u>	Retrieves the extension point, given the generalization
<u>findGeneralization</u>	Retrieves the specified generalization of a classifier
<u>findGlobalFunction</u>	Retrieves the specified global function, if it belongs to the current package
<u>findGlobalObject</u>	Retrieves the specified global object, if it belongs to the current package
<u>findGlobalVariable</u>	Retrieves the specified global variable, if it belongs to the current package
<u>findInterfaceltem</u>	Retrieves an operation or event reception of the given signature that belongs to a classifier
<u>findNestedClassifier</u>	Retrieves the specified classifier defined within this object
<u>findNestedClassifierRecursive</u>	Retrieves the specified classifier defined in this object and in objects defined within this object
<u>findNestedElement</u>	Retrieves the specified element nested in a model element
<u>findNestedElementRecursive</u>	Retrieves the specified element from a given model element at any level of nesting within that element
<u>findNode</u>	Retrieves the specified node, if it belongs to the current package
<u>findRelation</u>	Retrieves the specified relation that belongs to the current classifier
<u>findTrigger</u>	Retrieves the specified trigger in the statechart of the current class

Method Name	Description
<u>findType</u>	Retrieves the specified data type, if it belongs to the current package
<u>findUsage</u>	Retrieves the usage of the specified element in the current package
<u>findUseCase</u>	Retrieves the specified use case, if it belongs to the current package
<u>forceRoundtrip</u>	Forces a roundtrip of the code back into the Rhapsody model, and vice versa
<u>generate</u>	Generates code for the active configuration of the active component
<u>generateSequence</u>	Generates the specified sequence diagram
<u>getConcurrentGroup</u>	Retrieves the activation messages
<u>getAllGraphicalProperties</u>	Returns the list of graphical properties for the current diagram
<u>getAllTriggers</u>	Returns a collection of all the triggers for the current statechart
<u>getAttributesIncludingBases</u>	Retrieves the attributes defined for this class and the ones inherited from its superclasses
<u>getClassifierRole</u>	Retrieves the classifier role for this message point
<u>getClassifierRoles</u>	Returns a collection of <code>IRPClassifierRoles</code> linked by the current association role
<u>getConcurrentGroup</u>	Retrieves all the messages concurrent with the input message, including the input message itself
<u>getDerivedInEdges</u>	Retrieves the incoming transitions for the connector
<u>getDerivedOutEdge</u>	Retrieves the incoming transitions for the connector
<u>getDescribingDiagram</u>	Retrieves the use case diagram or sequence diagram linked to the current use case
<u>getDiagramOfSelectedElement</u>	Retrieves the diagram of the current element
<u>getDirectory</u>	Retrieves the build directory specified for the current configuration
<u>getElementsInDiagram</u>	Returns a collection of all the model elements in the current diagram
<u>getErrorMessage</u>	Returns the most recent error message
<u>getEvent</u>	Returns the event for the current event reception that serves as part of the interface for a class
<u>getFile</u>	Returns the file in which the specified classifier will be generated

Method Name	Description
<u>getFileName</u>	Retrieves the name of the file to which the specified classifier will be generated in this component
<u>getFormalRelations</u>	Returns a collection of <code>IRPRelations</code> for the current association role
<u>getFullNameInStatechart</u>	Returns the full text name of this state within its statecharts
<u>getFullPathName</u>	Retrieves the full path name of a model element as a string
<u>getFullPathNameIn</u>	Retrieves the full path name of a model element as a string
<u>getGraphicalProperty</u>	Returns the specified graphical property for the current diagram
<u>getImpName</u>	Retrieves the name of the current file's implementation file, including its extension and, if specified, its relative path
<u>getInheritsFrom</u>	Returns the base state from which the current state inherits
<u>getInLinks</u>	Returns the list of links for which the instance is the target instance (identified by the "to" property of the link)
<u>getInterfaceItemsIncludingBases</u>	Retrieves the operations and event receptions defined for this class and the ones it inherited from its superclasses
<u>getInTransitions</u>	Returns a collection of transitions that are directed into the current state or connector
<u>getItsAction</u>	Returns the action code of the current transition
<u>getItsComponent</u>	Retrieves the component to which the current configuration belongs
<u>getItsGuard</u>	Returns the guard condition of the current transition
<u>getItsOperation</u>	Returns the event or triggered operation of the current trigger
<u>getItsTrigger</u>	Returns the trigger (event or triggered operation) of the current transition
<u>getListOfFactoryProperties</u>	Returns the list of properties in the <code><lang>_factory.prp</code> file
<u>getListOfInitializerArguments</u>	Returns the list of arguments for the initializer, as defined by the user in the instance features dialog box
<u>getListOfSelectedElements</u>	Returns the collection of model elements
<u>getListOfSiteProperties</u>	Returns the list of properties in the <code><lang>_site.prp</code> file
<u>getLogicalCollaboration</u>	Retrieves the logic behind the collaboration diagram

Method Name	Description
<u>getLogicalStates</u>	Retrieves the list of logical states
<u>GetMainFileName</u>	Is invoked when Rhapsody needs the main file name and path for a configuration
<u>getMainName</u>	Retrieves the name of the file where the <code>main()</code> routine for the current configuration resides
<u>getMakefileName</u>	Retrieves the name of the makefile generated for the current configuration
<u>getMessagePoints</u>	Returns an ordered collection of all messagepoints occurring on this classifier
<u>getModelElementFileName</u>	Gets the file name of the specified model element
<u>getNestedElements</u>	Retrieves the elements defined in the current object
<u>getNestedElementsRecursive</u>	Recursively retrieves the elements defined in the model element for the object and for objects defined in it
<u>getNewCollaboration</u>	Retrieves the new collaboration for the current project
<u>getOfState</u>	Returns the state connected to the current connector if it is a history connector
<u>getOutLinks</u>	Returns the list of links for which the instance is the source instance (identified by the "from" property of the link)
<u>getOutTransitions</u>	Returns a collection of transitions that are directed out of the current state or connector
<u>getOverriddenProperties</u>	Retrieves the list of properties whose default values have been overridden
<u>getPackageFile</u>	Returns the package file
<u>getPicture</u>	Renders this diagram into the specified extended metafile
<u>getPictureAsDividedMetafiles</u>	Enables you to split a large diagram into several metafiles when you export it
<u>getPredecessor</u>	Retrieves the message that precedes the specified message
<u>getPropertyValue</u>	Returns the value associated with the specified key value
<u>getPropertyValueExplicit</u>	Returns an explicit value if it has been assigned to the metamodel
<u>getRelationsIncludingBases</u>	Retrieves the relations defined for this class and the ones it inherited from its superclasses
<u>getRelatedUseCases</u>	Retrieves use cases related to the current sequence diagram
<u>getSelectedElement</u>	Retrieves the current model element

Method Name	Description
<u>getSignature</u>	Retrieves the prototype of the IRPMessage
<u>getSignatureNoArgNames</u>	Retrieves the signature of the current class interface element without argument names
<u>getSignatureNoArgTypes</u>	Retrieves the signature of the current class interface element without argument types
<u>getSpecName</u>	Retrieves the name of the current file's specification file, including its extension and, if specified, its relative path
<u>getStaticReactions</u>	Returns a collection of static reaction transitions originating from the current state
<u>getSubStates</u>	Returns a collection of substates belonging to the current state
<u>getSuccessor</u>	Retrieves the message that follows the specified message
<u>GetTargetfileName</u>	Is invoked when Rhapsody needs the target name and path for a configuration
<u>getTargetName</u>	Retrieves the build name of the file to be generated for the current configuration
<u>getTheExternalCodeGeneratorInvoker</u>	Returns the invoker for the external code generator
<u>highlightByHandle</u>	Highlights an element, given its handle
<u>highLightElement</u>	Highlights the specified element
<u>importClasses</u>	Imports classes according to the reverse engineering setting stored in the current configuration
<u>importPackageFromRose</u>	Imports the specified package from Rational Rose
<u>importProjectFromRose</u>	Imports the specified project from Rational Rose
<u>isAnd</u>	Determines whether this state is an And state
<u>isArray</u>	Determines whether the current type is an array
<u>isCompound</u>	Determines whether the current state is a compound state
<u>isConditionConnector</u>	Determines whether the current connector is a condition connector
<u>isDefaultTransition</u>	Determines whether the current transition is a default transition
<u>isDiagramConnector</u>	Determines whether the current connector is a diagram connector
<u>isEmpty</u>	Determines whether the current file is empty
<u>isEnum</u>	Determines whether the current type is an enumerated type

Method Name	Description
<u>isEqualTo</u>	Tests for equality between the type of the type and the type itself
<u>isForkConnector</u>	Determines whether the current connector is a fork synch bar connector
<u>isHistoryConnector</u>	Determines whether the current connector is a history connector
<u>isImplicit</u>	Determines whether the type is an implicit type
<u>isJoinConnector</u>	Determines whether the current connector is a join synch bar connector
<u>isJunctionConnector</u>	Determines whether the current connector is a junction connector
<u>isKindEnumeration</u>	Determines whether the type is an enumeration
<u>isKindLanguage</u>	Determines whether the type is a language declaration type
<u>isKindStructure</u>	Determines whether the type is a structure
<u>isKindTypedef</u>	Determines whether the type is a <code>typedef</code>
<u>isKindUnion</u>	Determines whether the type is a union
<u>isLeaf</u>	Determines whether the current state is a leaf state
<u>isOperation</u>	Determines whether the current trigger is an operation (event or triggered operation)
<u>isPointer</u>	Determines whether the current type is a pointer
<u>isPointerToPointer</u>	Determines whether the current type is a pointer to another pointer
<u>isReadOnly</u>	Determines whether the current unit is read-only
<u>isReference</u>	Determines whether the current type is a reference
<u>isReferenceToPointer</u>	Determines whether the current type is a reference to a pointer
<u>isRoot</u>	Determines whether the current state is a root state
<u>isSeparateSaveUnit</u>	Determines whether the current unit is saved in its own (separate) file
<u>isStaticReaction</u>	Determines whether this is a static reaction
<u>isStruct</u>	Determines whether the current type is a <code>struct</code>
<u>isStubConnector</u>	Determines whether the current connector is a stub connector
<u>isTemplate</u>	Determines whether the current type is a template

Method Name	Description
<u>isTerminationConnector</u>	Determines whether the current connector is a termination connector
<u>isTimeout</u>	Determines whether the current trigger is a timeout
<u>isTypelessObject</u>	Tests an object to see if it is defined explicitly or implicitly
<u>isUnion</u>	Determines whether the current type is a union
<u>itsCompoundSource</u>	Returns a collection of states that act as multiple sources for this single transition
<u>load</u>	Loads the specified unit
<u>make</u>	Builds the current component following the current configuration
<u>makeUnidirect</u>	Changes the current relation from a unidirectional (symmetric) one to one that is directional from the <code>me</code> of this relation to <code>me</code> 's inverse
<u>matchOnSignature</u>	Determines whether the signature of the current class interface element matches that of another <code>IRPInterfaceItem</code>
<u>notifyGenerationDone</u>	Is called by the external code generator after a generation session invoked by the <code>generate</code> event is done
<u>open</u>	Opens a file
<u>openProject</u>	Opens a Rhapsody project
<u>openProjectFromURL</u>	Opens the Rhapsody product at the specified URL
<u>openProjectWithLastSession</u>	Opens the project using the settings from the previous Rhapsody session
<u>openProjectWithoutSubUnits</u>	Opens the Rhapsody project without subunits
<u>overrideInheritance</u>	Overrides inheritance for the current state
<u>quit</u>	Closes the active Rhapsody project
<u>rebuild</u>	Rebuilds the application
<u>recalculateEventsBaseId</u>	Recalculates the events base ID of the package or project
<u>refreshAllViews</u>	Refreshes all the views
<u>regenerate</u>	Regenerates the active configuration of the active component
<u>removeConveyed</u>	Removes an information element from the <code>conveyed</code> collection
<u>removeFromInstrumentationScope</u>	Removes the classifier from the instrumentation scope

Method Name	Description
<u>removePackageFromInstrumentationScope</u>	Removes the specified package from the instrumentation scope. including all its aggregated classes, actors, and nested packages
<u>removeProperty</u>	Removes the property from the model element
<u>removeProvidedInterface</u>	Removes the specified interface from the collection of required interfaces
<u>removeRepresented</u>	Removes a flowItem from the <code>represented</code> collection
<u>removeRequiredInterface</u>	Removes the specified interface from the collection of required interfaces
<u>removeScopeElement</u>	Deletes a scope element
<u>removeStereotype</u>	Removes the stereotype from the model element
<u>report</u>	Generates a report in ASCII or RTF into the specified file
<u>resetEntryActionInheritance</u>	Resets the inheritance of the entry action of the current state
<u>resetExitActionInheritance</u>	Resets the inheritance of the exit action of the current state
<u>resetLabelInheritance</u>	Resets the label inheritance
<u>roundtrip</u>	Roundtrips code changes back into the open model
<u>save</u>	Saves the current project
<u>saveAs</u>	Saves the current project to the specified file name and location
<u>setActiveComponent</u>	Sets the active configuration for the current project
<u>setActiveConfiguration</u>	Sets the active configuration for the current project
<u>setClassType</u>	Sets or changes the current template parameter to a class type parameter
<u>setComponent</u>	Sets the current component for the open project
<u>setConfiguration</u>	Sets the current configuration for the open project
<u>setDirectory</u>	Sets the directory for the current configuration
<u>setEnd1ViaPort</u>	Connects <code>end1</code> of the flow to the specified instance via the given port (defined by the instance class)
<u>setEnd2ViaPort</u>	Connects <code>end2</code> of the flow to the specified instance via the given port (defined by the instance class)
<u>setGraphicalProperty</u>	Allows the setting of graphical properties for a diagram element.
<u>setInverse</u>	Adds or updates the inverse relation
<u>setItsAction</u>	Updates the current transition with a new action

Method Name	Description
<u>setItsComponent</u>	Sets the owning component for the current configuration
<u>setItsGuard</u>	Updates the current transition with a new guard
<u>setItsLabel</u>	Updates this transition with a new label (trigger[guard]/action)
<u>setItsTrigger</u>	Updates the current transition with a new trigger
<u>setLog</u>	Creates a log file that records all the information that is normally displayed in the Rhapsody output window
<u>setOfState</u>	Updates the source state of the current connector with a new state
<u>setPath</u>	Sets the path of the application built for this component
<u>setPropertyValue</u>	Modifies the value of the specified property
<u>setReadOnly</u>	Specifies whether the current unit is read-only
<u>setReturnTypeDeclaration</u>	Specifies a new value for the return type declaration
<u>setSeparateSaveUnit</u>	Sets a unit to be stored to its own file
<u>setStaticReaction</u>	Sets the static reaction for the current state
<u>setTypeDeclaration</u>	Sets the C++ type declaration for this argument
<u>synchronizeTemplateInstantiation</u>	Is used to synchronize between a template and a template instantiation parameter
<u>unoverrideInheritance</u>	Removes the override inheritance for the current state
<u>version</u>	Returns the version of Rhapsody that corresponds to the current COM API version
<u>WhoAmI</u>	Is invoked to identify the external code generator
<u>write</u>	Writes to the specified file

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