Rational the e-development company™

SQABasic Language Reference

VERSION 2001A.04.00

PART NUMBER 800-024526-000

support@rational.com
http://www.rational.com

Rational®
the e-development company™

IMPORTANT NOTICE

COPYRIGHT

Copyright ©1998-2001, Rational Software Corporation. All rights reserved.

Part Number: 800-024526-000

PERMITTED USAGE

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION WHICH IS THE PROPERTY OF RATIONAL SOFTWARE CORPORATION (“RATIONAL”) AND IS FURNISHED FOR THE SOLE PURPOSE OF THE OPERATION AND THE MAINTENANCE OF PRODUCTS OF RATIONAL. NO PART OF THIS PUBLICATION IS TO BE USED FOR ANY OTHER PURPOSE, AND IS NOT TO BE REPRODUCED, COPIED, ADAPTED, DISCLOSED, DISTRIBUTED, TRANSMITTED, STORED IN A RETRIEVAL SYSTEM OR TRANSLATED INTO ANY HUMAN OR COMPUTER LANGUAGE, IN ANY FORM, BY ANY MEANS, IN WHOLE OR IN PART, WITHOUT THE PRIOR EXPRESS WRITTEN CONSENT OF RATIONAL.

TRADEMARKS

Rational, Rational Software Corporation, the Rational logo, Rational the e-development company, ClearCase, ClearQuest, Object Testing, Object-Oriented Recording, Objectory, PerformanceStudio, PureCoverage, PureDDTS, PureLink, Purify, Purify'd, Quantify, Rational Apex, Rational CRC, Rational PerformanceArchitect, Rational Rose, Rational Suite, Rational Summit, Rational Unified Process, Rational Visual Test, Requisite, RequisitePro, SiteCheck, SoDA, TestFactory, TestMate, TestStudio, and The Rational Watch are trademarks or registered trademarks of Rational Software Corporation in the United States and in other countries. All other names are used for identification purposes only, and are trademarks or registered trademarks of their respective companies.

Microsoft, the Microsoft logo, the Microsoft Internet Explorer logo, DeveloperStudio, Visual C++, Visual Basic, Windows, the Windows CE logo, the Windows logo, Windows NT, the Windows Start logo, and XENIX are trademarks or registered trademarks of Microsoft Corporation in the United States and other countries.

Java and all Java-based marks are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and other countries.

FLEXlm and GLOBEtrotter are trademarks or registered trademarks of GLOBEtrotter Software, Inc. Licensee shall not incorporate any GLOBEtrotter software (FLEXlm libraries and utilities) into any product or application the primary purpose of which is software license management.

PATENT

U.S. Patent Nos.5,193,180 and 5,335,344 and 5,535,329 and 5,835,701. Additional patents pending.

Purify is licensed under Sun Microsystems, Inc., U.S. Patent No. 5,404,499.

GOVERNMENT RIGHTS LEGEND

Use, duplication, or disclosure by the U.S. Government is subject to restrictions set forth in the applicable Rational Software Corporation license agreement and as provided in DFARS 277.7202-1(a) and 277.7202-3(a) (1995), DFARS 252.227-7013(c)(1)(ii) (Oct. 1988), FAR 12.212(a) (1995), FAR 52.227-19, or FAR 227-14, as applicable.

WARRANTY DISCLAIMER

This document and its associated software may be used as stated in the underlying license agreement. Rational Software Corporation expressly disclaims all other warranties, express or implied, with respect to the media and software product and its documentation, including without limitation, the warranties of merchantability or fitness for a particular purpose or arising from a course of dealing, usage, or trade practice.

▸ ▸ ▸ Contents

Preface

Audience xxi
Other Resources xxi
Accessing SQABasic Help xxi
Typographical Conventions xxiii
Contacting Rational Technical Publications xxiv
Contacting Rational Technical Support xxiv

Part I Introducing SQABasic

1 What Is SQABasic?

Automatic Script Generation 1-1
Working with Test Scripts 1-2
Your Work Environment 1-2
Source and Runtime Files 1-3
SQABasic Additions to the Basic Language 1-3
Other Commands Not Found in Basic 1-4
VU Scripting Language 1-4

2 Functional List

Arrays 2-1
Compiler Directives 2-1
Datapool Commands (SQABasic Additions) 2-2
Dates & Times 2-2
Declarations 2-2
Dialog Box Definition 2-3
Dialog Box Services 2-4

Disk and Directory Control 2-4
Dynamic Data Exchange (DDE) 2-5
Environmental Control 2-5
Error Handling 2-5
File Control 2-6
File Input/Output 2-6
Financial Functions 2-7
Flow Control 2-7
Numeric and Trigonometric Functions 2-8
Object Scripting Commands (SQABasic Additions) 2-8
Objects 2-9
ODBC 2-9
Screen Input/Output 2-10
SQABasic Commands 2-10
String Conversions 2-10
String Manipulation 2-11
Timing and Coordination Commands (SQABasic Additions) 2-12
User Action Commands (SQABasic Additions) 2-12
Utility Commands (SQABasic Additions) 2-15
Variants 2-17
Verification Point Commands (SQABasic Additions) 2-17

Part II Using SQABasic

3 SQABasic Fundamentals

Commands 3-2
Arguments 3-3
Passing Arguments By Value or By Reference 3-3
Passing Named Arguments 3-4
Data Types 3-5
Descriptions of SQABasic Data Types 3-6
Variant Data Types 3-7
User-Defined Data Types 3-8
Data Type Conversions 3-9
Arrays 3-10
Declaring an Array 3-10

Referencing an Array 3-10
Dynamic Arrays 3-11
Dimensions of a Dynamic Array 3-11
Dynamic Array Example 3-11
Expressions and Operators 3-12
Numeric Operators 3-12
String Concatenation Operators 3-12
Comparison Operators 3-13
Logical Operators 3-13
Scope of Variables and Constants 3-14
Year 2000 Compliance 3-15
Suggestions for Avoiding Year 2000 Problems 3-16
Trappable Errors 3-16
Responding to Errors 3-17
User-Defined Errors 3-17
Error-Handling Examples 3-17

4 SQABasic Scripts

What is a Script? 4-1
Script Source Files 4-2
Script Executable Files 4-2
Script Structure 4-2
Sample Script 4-4
User Action and Verification Point Commands 4-6
User Action Commands 4-6
Verification Point Commands 4-7
Syntax of User Action and Verification Point Commands 4-8
Components of a Recognition Method String 4-10
Recognition Method Order 4-10
Recognition Methods in Java Commands 4-13
Object Context 4-15
Establishing Context through a Window Command 4-15
Establishing Context through Context Notation 4-18
Default Context 4-20

Customizing Scripts 4-20
Script Editing Basics 4-21
Declaring Variables and Constants 4-21
Adding Custom Procedures to a Script 4-23
Adding Custom Procedures to a Library File 4-25
Using SQABasic Header Files 4-29
Sample Library and Header Files 4-32
SQABasic Path 4-33
Using the Template File 4-34

5 Enhancements to Recorded Scripts

Object Scripting 5-1
Specifying an Object 5-2
Specifying the Object Property 5-6
Array of Property Values 5-8
Getting Help Defining Recognition Methods 5-9
Object Scripting Status Codes 5-11
Managing Custom Verification Points 5-12
Summary of Verification Point Management Commands 5-13
Current Baseline and Logged Baseline 5-14
Using the Verification Point Management Commands 5-15
Ownership of Custom Verification Point Files 5-20
Comparing Environment States 5-20
Why Compare Environment States? 5-20
What Environment State Changes Are Detected? 5-21
Using the Environment State Comparison Commands 5-21
Specifying the Areas of the Environment To Test 5-22
Example of an Environment State Comparison 5-23
Displaying Messages in Robot 5-26
Displaying Messages in the Console Window 5-27
Displaying Messages in the LogViewer 5-28

Using Datapools 5-30
Summary of Datapool Commands 5-31
Using Datapools with GUI Scripts 5-31
Recording a GUI Script 5-32
Adding Datapool Commands to a GUI Script 5-32
Creating a Datapool 5-35
Example GUI Script 5-36
Accessing External Applications 5-37
Dynamic Data Exchange (DDE) 5-37
Objects 5-38

Part III Command Reference

6 Command Reference

Abs 6-2
AnimateControl 6-2
AnimateControlVP 6-4
AppActivate 6-6
Asc 6-7
Assert 6-7
Atn 6-8
Beep 6-8
Begin Dialog...End Dialog 6-9
Browser 6-13
Button 6-16
ButtonGroup 6-17
Calendar 6-18
CalendarVP 6-19
Call 6-21
CallScript 6-23
CancelButton 6-23
Caption 6-25
CCur 6-26
CDbl 6-27
ChDir 6-27
ChDrive 6-28

CheckBox (Statement) ... 6-29
CheckBox (User Action Command) ... 6-30
CheckBoxVP ... 6-32
Chr ... 6-35
CInt ... 6-36
Class List ... 6-37
Clipboard ... 6-37
ClipboardVP ... 6-38
CLng ... 6-39
Close ... 6-40
ComboBox (Statement) ... 6-41
ComboBox (User Action Command) ... 6-43
ComboBoxVP ... 6-45
ComboEditBox ... 6-48
ComboEditBoxVP ... 6-50
ComboListBox ... 6-53
ComboListBoxVP ... 6-56
Command ... 6-58
Const ... 6-59
Cos ... 6-60
CreateObject ... 6-61
CSng ... 6-62
CStr ... 6-63
'$CStrings ... 6-64
CurDir ... 6-65
CVar ... 6-66
CVDate ... 6-67
DataWindow ... 6-68
DataWindowVP ... 6-72
Date (Function) ... 6-74
Date (Statement) ... 6-75
DateSerial ... 6-76
DateTime ... 6-77
DateTimeVP ... 6-78
DateValue ... 6-79

Day 6-80
DDEAppReturnCode 6-81
DDEExecute 6-82
DDEInitiate 6-83
DDEPoke 6-85
DDERequest 6-86
DDETerminate 6-88
Declare 6-89
Deftype 6-91
DelayFor 6-93
Desktop 6-93
Dialog (Function) 6-95
Dialog (Statement) 6-96
Dim 6-97
Dir 6-101
DlgControlID 6-102
DlgEnable (Function) 6-104
DlgEnable (Statement) 6-106
DlgEnd 6-107
DlgFocus (Function) 6-109
DlgFocus (Statement) 6-110
DlgListBoxArray (Function) 6-111
DlgListBoxArray (Statement) 6-113
DlgSetPicture 6-115
DlgText (Function) 6-116
DlgText (Statement) 6-118
DlgValue (Function) 6-120
DlgValue (Statement) 6-121
DlgVisible (Function) 6-123
DlgVisible (Statement) 6-124
Do...Loop 6-125
DoEvents 6-126
DropComboBox 6-127
DropListBox 6-129
EditBox 6-130

EditBoxVP 6-133
EndSaveWindowPositions 6-136
Environ 6-137
Eof 6-138
Erase 6-139
Erl 6-140
Err (Function) 6-141
Err (Statement) 6-142
Error (Function) 6-143
Error (Statement) 6-144
Exit 6-145
Exp 6-146
FileAttr 6-147
FileCopy 6-148
FileDateTime 6-149
FileLen 6-150
FileVP 6-151
Fix 6-153
For...Next 6-153
Format 6-155
FreeFile 6-163
Function...End Function 6-164
FV 6-166
GenericObject 6-167
GenericObjectVP 6-169
Get 6-172
GetAttr 6-174
GetField 6-175
GetLastVPResult 6-176
GetObject 6-177
Global 6-178
GoTo 6-181
GroupBox (Statement) 6-182
GroupBox (User Action Command) 6-184
GroupBoxVP 6-185

Header 6-187
HeaderVP 6-189
Hex 6-191
HotKeyControl 6-192
HotKeyControlVP 6-193
Hour 6-194
HTML 6-195
HTMLVP 6-197
HTMLActiveX 6-198
HTMLActiveXVP 6-200
HTMLDocument 6-201
HTMLDocumentVP 6-203
HTMLHiddenVP 6-205
HTMLImage 6-206
HTMLImageVP 6-208
HTMLLink 6-209
HTMLLinkVP 6-211
HTMLTable 6-212
HTMLTableVP 6-214
If...Then...Else 6-216
'$Include 6-217
Input (Function) 6-218
Input (Statement) 6-220
InputBox 6-221
InputChars 6-222
InputKeys 6-223
InStr 6-229
Int 6-230
IPAddress 6-231
IPAddressVP 6-233
IPmt 6-234
IRR 6-236
Is 6-237
IsDate 6-238
IsEmpty 6-238

IsMissing 6-239
IsNull 6-240
IsNumeric 6-241
JavaCanvas 6-242
JavaCanvasVP 6-244
JavaListView 6-246
JavaListViewVP 6-248
JavaMenu 6-250
JavaMenuVP 6-251
JavaObject 6-253
JavaObjectVP 6-254
JavaPanel 6-256
JavaPanelVP 6-257
JavaPopupMenu 6-259
JavaPopupMenuVP 6-260
JavaSplitPane 6-262
JavaSplitPaneVP 6-264
JavaSplitter 6-266
JavaSplitterVP 6-267
JavaTable 6-269
JavaTableVP 6-271
JavaTableHeader 6-273
JavaTableHeaderVP 6-274
JavaTree 6-276
JavaTreeVP 6-278
JavaWindow 6-280
JavaWindowVP 6-281
Kill 6-283
Label 6-284
LabelVP 6-285
LBound 6-288
LCase 6-289
Left 6-290
Len 6-291
Let 6-292

Like 6-293
Line Input 6-294
ListBox (Statement) 6-295
ListBox (User Action Command) 6-296
ListBoxVP 6-300
ListView 6-303
ListViewVP 6-305
Loc 6-307
Lock 6-308
Lof 6-310
Log 6-311
Lset 6-311
LTrim 6-312
MenuIDSelect 6-313
MenuSelect 6-314
Mid (Function) 6-315
Mid (Statement) 6-317
Minute 6-318
MkDir 6-319
ModuleVP 6-320
Month 6-321
MsgBox (Function) 6-322
MsgBox (Statement) 6-324
Name 6-325
New 6-326
'$NoCStrings 6-327
Nothing 6-328
Now 6-329
NPV 6-330
Null 6-331
Object Class 6-332
Oct 6-333
OKButton 6-334
On...GoTo 6-335
On Error 6-336

Open ... 6-337
Option Base ... 6-339
Option Compare ... 6-340
Option Explicit ... 6-341
OptionButton ... 6-342
OptionGroup ... 6-343
Pager ... 6-344
PagerVP ... 6-346
PasswordBox ... 6-347
Picture ... 6-348
PlayJrnl ... 6-350
Pmt ... 6-350
PopupMenuIDSelect ... 6-351
PopupMenuSelect ... 6-352
PPmt ... 6-354
Print ... 6-355
ProgressBar ... 6-356
ProgressBarVP ... 6-358
PSGrid ... 6-360
PSGridHeader ... 6-364
PSGridHeaderVP ... 6-365
PSGridVP ... 6-367
PSMenu ... 6-370
PSMenuVP ... 6-371
PSNavigator ... 6-372
PSNavigatorVP ... 6-374
PSPanel ... 6-377
PSPanelVP ... 6-381
PSSpin ... 6-385
PSSpinVP ... 6-387
PSTree ... 6-389
PSTreeHeader ... 6-391
PSTreeHeaderVP ... 6-392
PSTreeVP ... 6-395
PushButton (Statement) ... 6-397

PushButton (User Action Command) 6-399
PushButtonVP 6-400
Put 6-403
PV 6-405
RadioButton 6-406
RadioButtonVP 6-407
Randomize 6-411
Rate 6-412
Rebar 6-413
RebarVP 6-414
ReDim 6-416
RegionVP 6-417
Rem 6-419
Reset 6-420
ResetTime 6-421
Resume 6-421
RichEdit 6-422
RichEditVP 6-424
Right 6-427
RmDir 6-428
Rnd 6-429
Rset 6-430
RTrim 6-431
ScrollBar 6-432
ScrollBarVP 6-434
Second 6-435
Seek (Function) 6-436
Seek (Statement) 6-438
Select Case 6-439
SendKeys 6-441
Set 6-441
SetAttr 6-442
SetField 6-444
SetThinkAvg 6-445
SetTime 6-446

Sgn 6-446
Shell 6-447
Sin 6-448
Space 6-449
Spc 6-450
SpinControl 6-451
SpinControlVP 6-452
SQAConsoleClear 6-454
SQAConsoleWrite 6-455
SQADatapoolClose 6-455
SQADatapoolFetch 6-456
SQADatapoolOpen 6-457
SQADatapoolRewind 6-460
SQADatapoolValue 6-461
SQAEnvCreateBaseline 6-463
SQAEnvCreateCurrent 6-464
SQAEnvCreateDelta 6-465
SQAFindObject 6-467
SQAGetCaptionTerminatorChar 6-468
SQAGetChildren 6-469
SQAGetDir 6-470
SQAGetLogDir 6-471
SQAGetOcrRegionRect 6-472
SQAGetOcrRegionText 6-473
SQAGetProperty 6-475
SQAGetPropertyArray 6-477
SQAGetPropertyArrayAsString 6-479
SQAGetPropertyArraySize 6-480
SQAGetPropertyAsString 6-482
SQAGetPropertyNames 6-484
SQAGetSystemLong 6-486
SQAInvokeMethod 6-487
SQALogMessage 6-489
SQAQueryKey 6-490
SQAResumeLogOutput 6-490

SQAScriptCmdFailure 6-491
SQASetAssignmentChar 6-492
SQASetCaptionTerminatorChar 6-492
SQASetDefaultBrowser 6-493
SQASetProperty 6-494
SQASetSeparatorChar 6-497
SQAShellExecute 6-497
SQASuspendLogOutput 6-499
SQASyncPointWait 6-499
SQAVpGetActualFileName 6-500
SQAVpGetBaselineFileName 6-501
SQAVpGetCurrentBaselineFileName 6-502
SQAVpLog 6-503
SQAWaitForObject 6-504
SQAWaitForPropertyValue 6-505
SQLClose 6-507
SQLError 6-508
SQLExecQuery 6-509
SQLGetSchema 6-511
SQLOpen 6-512
SQLRequest 6-514
SQLRetrieve 6-515
SQLRetrieveToFile 6-517
Sqr 6-518
StartApplication 6-519
StartAppUnderCoverage 6-520
StartAppUnderNone 6-521
StartAppUnderPnC 6-522
StartAppUnderPurify 6-523
StartAppUnderQuantify 6-524
StartBrowser 6-525
StartJavaApplication 6-526
StartSaveWindowPositions 6-528
StartTimer 6-529
Static 6-529

StaticComboBox 6-531
StatusBar 6-532
StatusBarVP 6-534
Stop 6-536
StopTimer 6-536
Str 6-537
StrComp 6-538
String 6-539
Sub...End Sub 6-540
SysMenuIDSelect 6-542
SysMenuSelect 6-542
Tab 6-543
TabControl 6-544
TabControlVP 6-546
Tan 6-549
Text 6-550
TextBox 6-551
Time (Function) 6-552
Time (Statement) 6-553
Timer 6-554
TimeSerial 6-555
TimeValue 6-556
Toolbar 6-558
ToolbarVP 6-559
Trackbar 6-561
TrackbarVP 6-563
TreeView 6-566
TreeViewVP 6-569
Trim 6-573
Type 6-574
Typeof 6-575
TypingDelays 6-576
UBound 6-576
UCase 6-578
Unlock 6-578

Val 6-580
VarType 6-581
WebSiteVP 6-582
Weekday 6-584
While...Wend 6-585
Width 6-586
Window 6-587
WindowVP 6-594
With 6-597
Write 6-599
Year 6-600

Appendixes

A SQABasic Syntax Summary

B Trappable Error Codes

C Object Scripting Status Codes

D Derived Trigonometric Functions

E Mouse Actions

Index

Contents

▸ ▸ ▸ Preface

Welcome to the *SQABasic Language Reference*. The *SQABasic Language Reference* describes the commands and conventions of the SQABasic scripting language. SQABasic includes most of the syntax rules and core commands found in the industry-standard Microsoft® Basic language.

Audience

This guide is intended to help QA managers, developers, and test engineers read and customize scripts generated with Rational Robot. Familiarity with Robot and other Rational Test software is assumed. Familiarity with programming language practices (but not necessarily Microsoft Basic programming) is also assumed.

Other Resources

- This product contains complete online Help. For information about calling SQABasic Help, see the following section.
- All manuals are available online in PDF format. The online manuals are on the Rational solutions for Windows Online Documentation CD.
- For information about training opportunities, see the Rational University Web site: http://www.rational.com/university.

Accessing SQABasic Help

You can access SQABasic Help in a variety of ways:

- From the Start menu, click SQABasic Language Reference in the installation directory of your Rational product (typically, Rational Test).
- From within Robot, click Help → SQABasic Reference.

- While you are editing a script in Robot, you can display context-sensitive information about a particular SQABasic command. To do so:

  1. Place the insertion point immediately before, after, or anywhere within the command name.
  2. Press F1.

  If a single Help topic is associated with the command name, reference information about that command appears immediately.

  If multiple Help topics are associated with the command, the topics are listed in the Topics Found dialog box. Select the topic you want and click Display.

Using the Examples in Help

The Help system offers a small working example or code fragment of most SQABasic commands. To see an example of a command, click the word Example under the command name.

Clicking on Example opens a separate window containing a code example. You can simply look at the contents of this window, or you can copy the example into a Robot script.

To copy an example into a script, follow these steps:

1. In Robot, click File → Open Script.
2. Type or select a script name and click OK.
3. In the SQABasic Help Example window, click the Copy button to copy the example to the Clipboard.

   To copy part of the example, select the text you want to copy and press CTRL + C.
4. Paste the contents into the Robot window. (If you copy the whole example, delete the lines of description that appear before the example.)

Notes About the Examples

- To run the examples that show ODBC commands (those beginning with SQL), you need to have Microsoft Access® installed on your machine.
- To run the examples that show Object commands, you need to have VISIO® installed on your machine.
- Some commands do not have examples associated with them.

Typographical Conventions

This manual uses the following typographical conventions:

Convention	Where used
`Monospace` type	SQABasic keywords and examples: Use the `Dim` statement to... `Dim i As Integer`

`Monospace` type with the first letter of key syllables uppercase	SQABasic commands:
	`Len(`*`string$`*`)`
	`DateValue(`*`string$`*`)`

`Italicized monospace` type	Arguments to commands: `RmDir` *`string$`* `CVar (`*`expression`*`)`

Italicized variables and/or type-declaration characters in brackets	Optional arguments:
	`[,` *`caption$`*`]`
	`[`*`type$`*`]`
	`[`*`$`*`]`

A list inside braces ({ }) with a vertical bar (|) separating choices	A list of required choices for an argument. One choice must be selected: `{Goto` *`label`* `| Resume Next | Goto 0}`
Bold type	New terms: An array has one or more **dimensions**.
Italicized type	Emphasized text, manual titles, and section headings: ...is assumed to be the *current context*. See *Dialog Box Commands* on page 1-19.
An arrow (→) between menu commands	Between a menu or sub-menu name and a menu command. Choose each command in sequence. For example, File → Save As means click File from the menu bar, and then click Save As from the menu.
The symbol ► ► ► before or after a table	Indicates a table is continued on the next page or continued from the previous page.

Contacting Rational Technical Publications

To send feedback about documentation for Rational products, please send e-mail to our technical publications department at techpubs@rational.com.

Contacting Rational Technical Support

If you have questions about installing, using, or maintaining this product, contact Rational Technical Support as follows:

Your Location	Telephone	Facsimile	E-mail
North America	(800) 433-5444 (toll free) (408) 863-4000 Cupertino, CA	(781) 676-2460 Lexington, MA	support@rational.com
Europe, Middle East, Africa	+31 (0) 20-4546-200 Netherlands	+31 (0) 20-4545-201 Netherlands	support@europe.rational.com
Asia Pacific	+61-2-9419-0111 Australia	+61-2-9419-0123 Australia	support@apac.rational.com

When you contact Rational Technical Support, please be prepared to supply the following information:

- Your name, telephone number, and company name
- Your computer's make and model
- Your operating system and version number
- Product release number and serial number
- Your case ID number (if you are following up on a previously-reported problem)

▸ ▸ ▸ Part I

Introducing SQABasic

▸ ▸ ▸ C H A P T E R 1

What Is SQABasic?

SQABasic is the Rational Software Corporation language for building GUI scripts.

SQABasic includes most of the syntax rules and core commands found in the industry-standard Microsoft Basic language. If you're familiar with Microsoft Basic or Visual Basic, you're already familiar with much of the SQABasic language.

Along with support for Basic commands, SQABasic includes command **additions** — commands specifically designed for use in Rational GUI test scripts.

Automatic Script Generation

Generating an SQABasic script might be the briefest development experience you'll ever have. That's because Rational Robot automatically generates a test script for you when you record the script.

During GUI recording, Robot "watches" every keyboard and mouse action you take in the application-under-test. Robot translates these actions into a series of SQABasic commands and stores them in the script. For example, when you click an OK button, Robot represents the action as `PushButton Click, "Text=OK"`:

Rational Robot

When you finish recording, you can play it back immediately. Robot compiles the script before beginning to play it back.

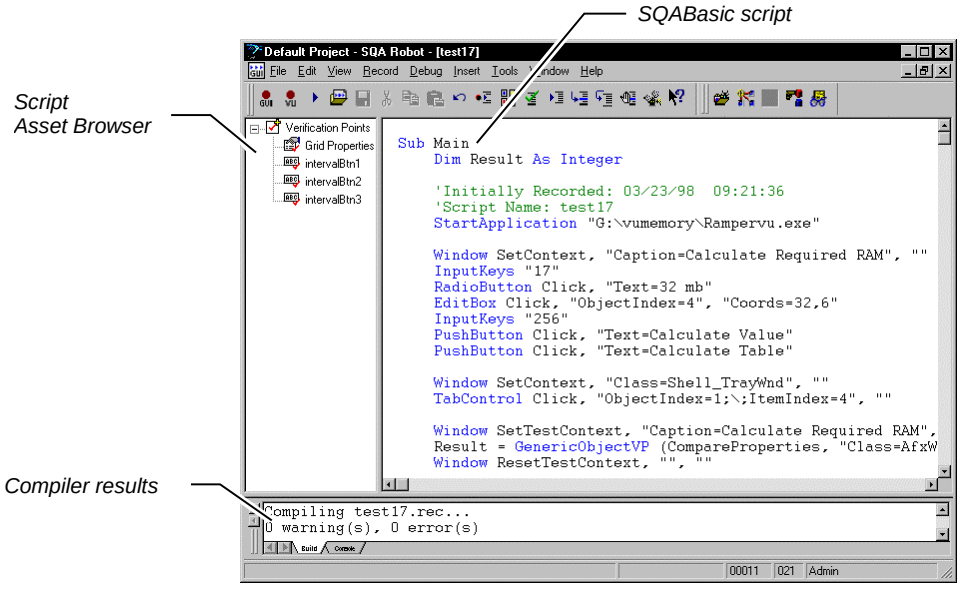
Working with Test Scripts

Although Robot generates complete, executable test scripts, sometimes you might want to edit a recorded script — for example, to:

- Add `Do...While` or For`...Next` loops to simplify repetitive actions
- Add conditional branching
- Perform Object Scripting functions
- Add datapool commands
- Access OLE or DDE resources
- Request user input during script playback, or display a message box to report some unusual event during playback
- Perform a variety of math, date, and time functions
- Respond to runtime errors

Your Work Environment

With SQABasic as your scripting language, you view, edit, compile, debug, and run scripts through Robot. Here is an example of the Robot environment:



For information about Robot, see the *Using Rational Robot* manual.

Source and Runtime Files

SQABasic supports the following kinds of files:

File type	Extension
Script file	.rec
Header file	.sbh
Library source file	.sbl, .rec
Script and library runtime files	.sbx

SQABasic Additions to the Basic Language

SQABasic provides a number of commands in addition to the commands in the Microsoft Basic language. The following categories of commands are provided to help you test your applications and analyze the results:

Datapool Commands – Control access to a datapool. You can use a datapool to supply values to scripts during playback. You create datapools with TestManager.

Object Scripting commands – Access an application's objects and object properties from within a script. Object scripting tasks include retrieving and setting an object's properties. Object Scripting commands can only be added to a script manually during editing. Robot does not generate these commands.

Timing and Coordination Commands – Time user activities and control the rate of script playback.

User Action commands – Perform user actions on specific objects while recording. Actions include choosing a menu command, scrolling a list box, clicking a button, or typing text into an edit box.

Utility commands – Perform a variety of actions such as calling other scripts, playing back low-level recordings, controlling output to the LogViewer or Robot console, and managing custom verification points.

Verification Point commands – Compare the results of a user action captured during playback against the results of the same action captured during recording. If the playback result matches the **recorded baseline** (the information captured during recording), the verification point passes. If the result is different, the verification point fails.

For a listing and brief description of the commands in each category, see Chapter 2, *Functional List.*

Other Commands Not Found in Basic

In addition to the above command categories, SQABasic provides these commands not found in standard Basic:

```
Assert                  '$CStrings
GetField$               '$Include
SetField$               '$NoCStrings
```

All SQABasic commands are described in Chapter 6, *Command Reference*.

VU Scripting Language

Because the SQABasic scripting language lets you capture keyboard and mouse actions as well as verify GUI objects, it is the language used in functional testing (testing the way your application looks and works).

But for testing client/server performance, you need to record a client's requests to the server. Capturing a client/server conversation requires the VU scripting language.

VU is a C-based language that Robot generates when recording requests such as HTTP, SQL, TUXEDO, and socket-level requests.

For more information about the VU language, see the *VU Language Reference*.

▸ ▸ ▸ C H A P T E R 2

Functional List

This chapter organizes the SQABasic commands into functional categories.

NOTE: The SQABasic command category Web commands (HTTP and HTTP/HTTPS API requests to a server) is no longer supported in SQABasic. However, actions on HTML objects are supported in User Action commands and Verification Point commands. Also, Virtual User commands (with the exception of `SQASyncPointWait`) are no longer supported in SQABasic. You will find commands that perform similar functions in Rational Software's VU language.

Arrays

Erase	Reinitialize the contents of an array.
LBound	Return the lower bound of an array subscript.
Option Base	Declare the default lower bound for array subscripts.
ReDim	Declare dynamic arrays and reallocate memory.
UBound	Return the upper bound of an array subscript.

Compiler Directives

'$CStrings (SQABasic addition)	Treat a backslash in a string as an escape character as in the C language.
'$Include (SQABasic addition)	Tell the compiler to include statements from another file.
'$NoCStrings (SQABasic addition)	Tell the compiler to treat a backslash as a normal character.
Rem	Treat the remainder of the line as a comment. Equivalent to an apostrophe (').

Datapool Commands (SQABasic Additions)

These commands let you access data in a datapool.

SQADatapoolClose	Close the specified datapool.
SQADatapoolFetch	Move the cursor for the datapool to the next row.
SQADatapoolOpen	Open the specified datapool.
SQADatapoolRewind	Reset the cursor for the specified datapool.
SQADatapoolValue	Retrieve the value of the specified datapool column.

Dates & Times

Date Function	Return the current date.
Date Statement	Set the system date.
DateSerial	Return the date value for year, month, and day specified.
DateValue	Return the date value for string specified.
Day	Return the day of month component of a date-time value.
Hour	Return the hour of day component of a date-time value.
IsDate	Determine whether a value is a legal date.
Minute	Return the minute component of a date-time value.
Month	Return the month component of a date-time value.
Now	Return the current date and time.
Second	Return the second component of a date-time value.
Time Function	Return the current time.
Time Statement	Set the current time.
Timer	Return the number of seconds since midnight.
TimeSerial	Return the time value for hour, minute, and second.
TimeValue	Return the time value for string specified.
Weekday	Return the day of the week for the specified date-time.
Year	Return the year component of a date-time value.

Declarations

Const	Declare a symbolic constant.
Declare	Forward declare a procedure in the same module or in a dynamic link library.

Def*type*	Declare the default data type for variables.
Dim	Declare variables.
Function ... End Function	Define a function.
Global	Declare a global variable.
Option Compare	Declare the default case sensitivity for string comparisons.
Option Explicit	Force all variables to be explicitly declared.
ReDim	Declare dynamic arrays and reallocate memory.
Static	Define a static variable or subprogram.
Sub ... End Sub	Define a subprogram.
Type	Declare a user-defined data type.

Dialog Box Definition

Begin Dialog	Begin a dialog box definition.
Button	Define a button dialog box control.
ButtonGroup	Begin definition of a group of button dialog box controls.
CancelButton	Define a Cancel button dialog box control.
Caption	Define the title of a dialog box.
CheckBox	Define a check box dialog box control.
ComboBox	Define a combo box dialog box control.
DropComboBox	Define a drop-down combo box dialog box control.
DropListBox	Define a drop-down list box dialog box control.
GroupBox (SQABasic Addition)	Define a group box dialog box control.
ListBox	Define a list box dialog box control.
OKButton	Define an OK button dialog box control.
OptionButton	Define an option button dialog box control.
OptionGroup	Begin definition of a group of option button controls.
Picture	Define a Picture control.
PushButton	Define a push button dialog box control.
StaticComboBox	Define a static combo box dialog box control.
Text	Define a line of text in a dialog box.
TextBox	Define a text box in a dialog box.

Dialog Box Services

Dialog Function	Display a dialog box and return the button pressed.
Dialog Statement	Display a dialog box.
DlgControlID	Return the numeric ID of a dialog control.
DlgEnable Function	Tell whether a dialog control is enabled or disabled.
DlgEnable Statement	Enable or disable a dialog control.
DlgEnd	Close the active dialog box.
DlgFocus Function	Return the ID of the dialog control having input focus.
DlgFocus Statement	Set focus to a dialog control.
DlgListBoxArray Function	Return the contents of a list box or combo box.
DlgListBoxArray Statement	Set the contents of a list box or combo box.
DlgSetPicture	Change the picture in the Picture control.
DlgText Function	Return the text associated with a dialog control.
DlgText Statement	Set the text associated with a dialog control.
DlgValue Function	Return the value associated with dialog control.
DlgValue Statement	Set the value associated with a dialog control.
DlgVisible Function	Tell whether a control is visible or hidden.
DlgVisible Statement	Show or hide a dialog control.

Disk and Directory Control

ChDir	Change the default directory for a drive.
ChDrive	Change the default drive.
CurDir	Return the current directory for a drive.
Dir	Return a filename that matches a pattern.
MkDir	Make a directory on a disk.
RmDir	Remove a directory from a disk.

Dynamic Data Exchange (DDE)

DDEAppReturnCode	Return a code from an application on a DDE channel.
DDEExecute	Send commands to an application on a DDE channel.
DDEInitiate	Open a dynamic data exchange (DDE) channel.
DDEPoke	Send data to an application on a DDE channel.
DDERequest	Return data from an application on a DDE channel.
DDETerminate	Close a DDE channel.

Environmental Control

AppActivate	Activate another application.
Command	Return the command line by the MAIN sub.
Date Statement	Set the current date.
DoEvents	Let the operating system process messages.
Environ	Return a string from the operating system's environment.
Randomize	Initialize the random-number generator.
Shell	Run an executable program.

Error Handling

Assert (SQABasic addition)	Trigger an error if a condition is false.
Erl	Return the line number where a runtime error occurred.
Err Function	Return a runtime error code.
Err Statement	Set the runtime error code.
Error Function	Return a string representing an error.
Error Statement	Generate an error condition.
On Error	Control runtime error handling.
Resume	End an error-handling routine.

See Appendix B for a list of SQABasic trappable error codes.

File Control

FileAttr	Return information about an open file.
FileCopy	Copy the contents of a file.
FileDateTime	Return modification date and time of a specified file.
FileLen	Return the length of specified file in bytes.
GetAttr	Return the attributes of a file, directory, or volume label.
Kill	Delete files from a disk.
Name	Rename a disk file.
SetAttr	Set attribute information for a file.

File Input/Output

Close	Close a file.
Eof	Check for end of file.
FreeFile	Return the next unused file number.
Get	Read bytes from a file.
Input Function	Return a string of characters from a file.
Input Statement	Read data from a file or from the keyboard.
Line Input	Read a line from a sequential file or from the keyboard.
Loc	Return the current position of an open file.
Lock	Keep other processes from accessing part or all of an open file.
Lof	Return the length of an open file.
Open	Open a disk file or device for I/O.
Print	Print data to a file or to the screen.
Put	Write data to an open file.
Reset	Close all open disk files.
Seek Function	Return the current position for a file.
Seek Statement	Set the current position for a file.
Spc	Output a given number of spaces.
Tab	Move the print position to the given column.
Unlock	Restore access to an open file (release the lock).
Width	Set output-line width for an open file.
Write	Write data to a sequential file.

Financial Functions

FV	Return the future value for a stream of periodic cash flows.
IPmt	Return interest payment for a given period.
IRR	Return internal rate of return for a cash flow stream.
NPV	Return net present value of a cash flow stream.
Pmt	Return a constant payment per period for an annuity.
PPmt	Return principal payment for a given period.
PV	Return present value of a future stream of cash flows.
Rate	Return interest rate per period.

Flow Control

Call	Transfer control to a subprogram.
Do...Loop	Control repetitive actions.
Exit	Cause the current procedure or loop structure to return.
For...Next	Loop a fixed number of times.
GoTo	Send control to a line label.
If...Then...Else	Branch on a conditional value.
Let	Assign a value to a variable.
Lset	Left-align one string or a user-defined variable within another.
On...GoTo	Branch to one of several labels depending upon value.
Rset	Right-align one string within another.
Select Case	Execute one of a series of statement blocks.
Set	Set an object variable to a value.
Stop	Stop program execution.
While...Wend	Control repetitive actions.
With	Execute a series of statements on a specified variable.

Numeric and Trigonometric Functions

Abs	Return the absolute value of a number.
Atn	Return the arc tangent of a number.
Cos	Return the cosine of an angle.
Exp	Return the value of *e* raised to a power.
Fix	Return the integer part of a number.
Int	Return the integer part of a number.
IsNumeric	Determine whether a value is a legal number.
Log	Return the natural logarithm of a value.
Rnd	Return a random number.
Sgn	Return a value indicating the sign of a number.
Sin	Return the sine of an angle.
Sqr	Return the square root of a number.
Tan	Return the tangent of an angle.

See Appendix D for a list of math functions derived from SQABasic Numeric and Trigonometric functions.

Object Scripting Commands (SQABasic Additions)

These commands let you work with an object's properties. The Object Scripting commands can only be used programmatically. Robot does not generate these commands during recording.

SQAFindObject	Search for a specified object.
SQAGetChildren	Retrieve an array containing recognition methods that identify each of an object's child objects.
SQAGetProperty	Retrieve the value of the specified property.
SQAGetPropertyArray	Retrieve an array of values for the specified property.
SQAGetPropertyArrayAsString	Retrieve the string equivalent of an array of values for the specified property.
SQAGetPropertyArraySize	Retrieve the number of elements in an array of property values.
SQAGetPropertyAsString	Retrieve a property value in `String` form.
SQAGetPropertyNames	Retrieve an array containing the names of all the object's properties.

SQAInvokeMethod	Execute the specified method of an object.
SQASetProperty	Assign a value to a specified property.
SQAWaitForObject	Pause execution of the script until the specified object can be found.
SQAWaitForPropertyValue	Pause execution of the script until a property is set to the specified value.

Objects

Class List	List of available classes.
Clipboard	Access the Windows Clipboard.
CreateObject	Create an OLE2 automation object.
GetObject	Retrieve an OLE2 object from a file or get the active OLE2 object for an OLE2 class.
Is	Determine if two object variables refer to the same object.
New	Allocate and initialize a new OLE2 object.
Nothing	Set an object variable to not refer to an object.
Object Class	Declare an OLE2 automation object.
Typeof	Check the class of an object.
With	Execute statements on an object or a user-defined type.

ODBC

SQLClose	Close a data source connection.
SQLError	Return a detailed error message for ODBC functions.
SQLExecQuery	Execute an SQL statement.
SQLGetSchema	Obtain information about data sources, databases, terminology, users, owners, tables, and columns.
SQLOpen	Connect to a data source for use by other functions.
SQLRequest	Make a connection to a data source, execute an SQL statement, and return the results.
SQLRetrieve	Return the results of a select that was executed by SQLExecQuery into a user-provided array.
SQLRetrieveToFile	Return the results of a select that was executed by SQLExecQuery into a user-specified file.

Screen Input/Output

Beep	Produce a short beeping tone through the speaker.
Input Function	Return a string of characters from a file.
Input Statement	Read data from a file or from the keyboard.
InputBox	Display a dialog box that prompts for input.
MsgBox Function	Display a Windows message box and return a value indicating which button the user selected.
MsgBox Statement	Display a prompt in a Windows message box.
PasswordBox	Display a dialog box for input. Do not echo input.
Print	Print data to a file or to the screen.

SQABasic Commands

Most SQABasic additions to the Basic language are grouped within the following categories of commands:

- Datapool Commands. See page 2-2.
- Object Scripting Commands. See page 2-8.
- Timing and Coordination Commands. See page 2-12.
- User Action Commands. See page 2-12.
- Utility Commands. See page 2-15.
- Verification Point Commands. See page 2-17.

String Conversions

Asc	Return an integer corresponding to a character code.
CCur	Convert a value to currency.
CDbl	Convert a value to double-precision floating point.
Chr	Convert a character code to a string.
CInt	Convert a value to an integer by rounding.
CLng	Convert a value to a long by rounding.
CSng	Convert a value to single-precision floating point.

CStr	Convert a value to a string.
CVar	Convert a number or string to a variant.
CVDate	Convert a value to a variant date.
Format	Convert a value to a string using a picture format.
Val	Convert a string to a number.

String Manipulation

GetField (SQABasic addition)	Return a substring from a delimited source string.
Hex	Return the hexadecimal representation of a number, as a string.
InStr	Return the position of one string within another.
LCase	Convert a string to lowercase.
Left	Return the left portion of a string.
Len	Return the length of a string or size of a variable.
Like Operator	Compare a string against a pattern.
LTrim	Remove leading spaces from a string.
Mid Function	Return a portion of a string.
Mid Statement	Replace a portion of a string with another string.
Oct	Return the octal representation of a number, as a string.
Right	Return the right portion of a string.
RTrim	Remove trailing spaces from a string.
SetField (SQABasic addition)	Replace a substring within a delimited target string.
Space	Return a string of spaces.
Str	Return the string representation of a number.
StrComp	Compare two strings.
String	Return a string consisting of a repeated character.
Trim	Remove leading and trailing spaces from a string.
UCase	Convert a string to uppercase.

Timing and Coordination Commands (SQABasic Additions)

These commands affect the flow of test procedure playback by setting wait times and starting and stopping timers:

DelayFor	Delay execution of the script for a specified number of milliseconds.
ResetTime	Reset the delay between execution of script commands to the default delay.
SetThinkAvg	Set the average "think time" for the next Robot action.
SetTime	Set the delay between script commands to the specified number of millisecond.
SQASyncPointWait	Define a sync point for coordination in multi-user testing.
StartTimer	Start the specified timer in the currently running script and write a message to the log.
StopTimer	Stop the specified timer in the currently running script and write the elapsed time in milliseconds to the log.
TypingDelays	Set one or more keystroke delays during playback of the next `InputKeys` command.

User Action Commands (SQABasic Additions)

These commands cause an action to be taken on a particular control. Actions include choosing a menu command, scrolling a list box, clicking on a button, or typing text in an edit box:

AnimateControl	Perform an action on an animation control.
Calendar	Perform an action on a month calendar control.
CheckBox	Perform an action on a check box control.
ComboBox	Perform an action on a combo box control.
ComboEditBox	Perform an action on a combo edit box control.
ComboListBox	Perform an action on a combo list box control.
DataWindow	Perform an action on a PowerBuilder DataWindow.
DateTime	Perform an action on a date and time (DTP) picker control.
Desktop	Perform an action on the Windows desktop.
EditBox	Perform an action on an edit box control.

GenericObject	Perform an action on a generic object.
GroupBox	Perform an action on a group box control.
Header	Perform an action on a header control.
HotKeyControl	Perform an action on a hot key control.
HTML	Perform a mouse action on an HTML tag.
HTMLActiveX	Perform a mouse action on an ActiveX control embedded in the page.
HTMLDocument	Perform a mouse click on the text of a Web page.
HTMLImage	Perform a mouse click on an image in a Web page.
HTMLLink	Perform a mouse click on link of a Web page.
HTMLTable	Perform a mouse click on a table in a Web page.
InputChars	Send one or more characters to the active window as if they had been entered at the keyboard.
InputKeys	Send one or more keystrokes to the active window as if they had been entered at the keyboard.
IPAddress	Perform an action on an IP Address control.
JavaCanvas	Perform an action on a Java canvas component.
JavaListView	Perform an action on a Java multi-column list component.
JavaMenu	Perform an action on a Java menu.
JavaObject	Perform an action on an unrecognized Java component.
JavaPanel	Perform an action on a Java panel or canvas.
JavaPopupMenu	Perform an action on a Java popup menu.
JavaSplitPane	Perform an action on a Java split pane.
JavaSplitter	Perform an action on a Java splitter.
JavaTable	Perform an action on a Java table.
JavaTableHeader	Perform an action on a Java table header.
JavaTree	Perform an action on a Java tree component.
JavaWindow	Perform an action on a Java window.
Label	Perform an action on a label control.
ListBox	Perform an action on a list box control.
ListView	Perform an action on a list view control.
MenuIDSelect	Perform a menu selection based on the internal ID of the menu item.
MenuSelect	Select a popup item through one or more mouse clicks.

Pager	Perform an action on a Pager control.
PopupMenuIDSelect	Perform a popup menu selection based on the internal ID of the menu item.
PopupMenuSelect	Select a popup menu item through one or more mouse clicks.
ProgressBar	Perform an action on a progress bar control.
PSGrid	Perform an action on a PeopleTools grid.
PSGridHeader	Perform an action on a column header in a PeopleTools grid.
PSMenu	Perform an action on a PeopleTools menu object.
PSNavigator	Perform an action on a PeopleTools Navigator window or a navigator map in the PeopleTools Business Process Designer.
PSPanel	Perform an action on a PeopleTools panel.
PSSpin	Perform an action on a PeopleTools spin control.
PSTree	Perform an action on a PeopleTools tree object.
PSTreeHeader	Perform an action on a column header in a PeopleTools tree object.
PushButton	Perform an action on a push button control.
RadioButton	Perform an action on an option button control.
Rebar	Perform an action on a Rebar control.
RichEdit	Perform an action on a rich edit control.
ScrollBar	Perform an action on a scroll bar control.
SpinControl	Perform an action on a spin control.
StatusBar	Perform an action on a status bar control.
SysMenuIDSelect	Perform a system menu selection based on the internal ID of the menu item.
SysMenuSelect	Perform a system menu selection based on the text of the menu item.
TabControl	Perform an action on a tab control.
Toolbar	Perform an action on a toolbar control.
Trackbar	Perform an action on a trackbar control.
TreeView	Perform an action on a treeview control.
Window	Perform an action on a window.

Utility Commands (SQABasic Additions)

These commands affect the flow of script playback by setting wait times, calling other scripts, starting applications, starting and stopping timers, and playing back low-level recordings. They also control output to the log, retrieve results from running scripts, and set characters used in SQABasic statements:

Browser	Perform an action on a Web browser.
CallScript	Cause a script to be executed from within the currently-running script.
DelayFor	Delay execution of the script for a specified number of milliseconds.
EndSaveWindowPositions	Mark the end of the script commands that save the window positions for restoration at playback.
GetLastVPResult	Return the result of the last verification point to have been evaluated in the current playback session.
PlayJrnl	Start playback of a series of low-level recorded mouse and keyboard actions.
ResetTime	Reset the delay between execution of script commands to the default delay.
SetTime	Set the delay between script commands to the specified number of millisecond.
SQAConsoleClear	Clear the text currently displayed in the console window.
SQAConsoleWrite	Write the specified text to the console window.
SQAEnvCreateBaseline	Capture a snapshot of the environment state before one or more tasks are performed that change or are suspected of changing the environment.
SQAEnvCreateCurrent	Capture a snapshot of the environment state just after some task is performed that changes or is suspected of changing the environment.
SQAEnvCreateDelta	Create a comparison report of the data captured in the pre-task and post-task snapshots.
SQAGetCaptionTerminatorChar	Retrieve the character that Robot is currently using as the window caption terminator character.
SQAGetDir	Retrieve the path of standard directories used by Rational test applications.
SQAGetLogDir	Retrieve the path of the runtime log.
SQAGetOcrRegionRect	Retrieve the coordinates of the specified OCR region.
SQAGetOcrRegionText	Retrieve the text in the specified OCR region.

SQAGetSystemLong	Retrieve a system value.
SQALogMessage	Write a message to a log and optionally insert a result flag (Pass, Fail, or Warning) in the Result column.
SQAQueryKey	Return the state of a locking key (Caps Lock, Num Lock, and Scroll Lock).
SQAResumeLogOutput	Resume the output of verification point and wait state results to the log.
SQAScriptCmdFailure	Generate a script command failure.
SQASetAssignmentChar	Set the character to be used by Robot as the assignment character in SQABasic statements.
SQASetCaptionTerminatorChar	Set the character that Robot uses as the window caption terminator character.
SQASetDefaultBrowser	Set the default browser to use during playback.
SQASetSeparatorChar	Set the character to be used by Robot as the separator character in SQABasic statements.
SQAShellExecute	Open an application or a file.
SQASuspendLogOutput	Suspend the output of verification point and wait state results to the log.
SQAVpGetActualFileName	Generate a unique path and name for an actual data file used in a custom verification point.
SQAVpGetBaselineFileName	Generate a unique path and name for a baseline data file used in a custom verification point.
SQAVpGetCurrentBaselineFileName	Generate the path and name for the current baseline data file used in a custom verification point.
SQAVpLog	Write a custom verification point record to a log.
StartApplication	Start the specified application from within the currently running script.
StartAppUnderCoverage	Start an application under Rational PureCoverage.
StartAppUnderNone	Start the specified application without using any of the Rational diagnostic tools during playback.
StartAppUnderPnC	Start the specified application under Rational Purify with code-coverage data.
StartAppUnderPurify	Start the specified application under Rational Purify.
StartAppUnderQuantify	Start the specified application under Rational Quantify.
StartBrowser	Start an instance of a Web browser.
StartJavaApplication	Start the specified Java application from within the currently running script.
StartSaveWindowPositions	Mark the start of the script commands that save the window positions for restoration at playback.

StartTimer	Start the specified timer in the currently running script and write a message to the log.
StopTimer	Stop the specified timer in the currently running script and write the elapsed time in milliseconds to the log.

NOTE: The command names now prefixed by SQA were prefixed by PLA in previous releases. The old form of each name should no longer be used, but it continues to be supported to maintain the upward compatibility of your existing scripts.

NOTE: `WriteLogMessage` has been replaced by `SQALogMessage`.

Variants

IsEmpty	Determine whether a variant has been initialized.
IsNull	Determine whether a variant contains a NULL value.
Null	Return a null variant.
VarType	Return the type of data stored in a variant.

Verification Point Commands (SQABasic Additions)

These commands compare the results of a user action captured during *playback* against the result of the same action captured during *recording*. If the playback result matches the recorded baseline, the verification point passes. If the result is different, the verification point fails:

AnimateControlVP	Establish a verification point for an animation control.
CalendarVP	Establish a verification point for a month calendar control.
CheckBoxVP	Establish a verification point for a check box control.
ClipboardVP	Establish an alphanumeric verification point for the contents of the Windows Clipboard.
ComboBoxVP	Establish a verification point for a combo box control.
ComboEditBoxVP	Establish a verification point for a combo edit box control.
ComboListBoxVP	Establish a verification point for a combo list box control.
DataWindowVP	Establish a verification point for a PowerBuilder DataWindow.

DateTimeVP	Establish a verification point for a date and time picker (DTP) control.
EditBoxVP	Establish a verification point for an edit box control.
FileVP	Establish a verification point for a file or files.
GenericObjectVP	Establish a verification point for a generic object.
GroupBoxVP	Establish a verification point for a group box control.
HeaderVP	Establish a verification point for a header control.
HotKeyControlVP	Establish a verification point for a hot key control.
HTMLVP	Establish a verification point for an HTML tag.
HTMLActiveXVP	Establish a verification point for an ActiveX control embedded in the page.
HTMLDocumentVP	Establish a verification point for Web page data.
HTMLHiddenVP	Establish a verification point for a hidden element.
HTMLImageVP	Establish a verification point for a Web page image.
HTMLLinkVP	Establish a verification point for a Web page link.
HTMLTableVP	Establish a verification point for a Web page table.
IPAddressVP	Establish a verification point for an IP Address control.
JavaCanvasVP	Establish a verification point for a Java canvas component.
JavaListViewVP	Establish a verification point for a Java multi-column list component.
JavaMenuVP	Establish a verification point for a Java menu.
JavaObjectVP	Establish a verification point for an unrecognized Java component.
JavaPanelVP	Establish a verification point for a Java panel or canvas.
JavaPopupMenuVP	Establish a verification point for a Java popup menu.
JavaSplitPaneVP	Establish a verification point for a Java split pane.
JavaSplitterVP	Establish a verification point for a Java splitter.
JavaTableVP	Establish a verification point for a Java table.
JavaTableHeaderVP	Establish a verification point for a Java table header.
JavaTreeVP	Establish a verification point for a Java tree component.
JavaWindowVP	Establish a verification point for a Java window.
LabelVP	Establish a verification point for a label control.
ListBoxVP	Establish a verification point for a list box control.
ListViewVP	Establish a verification point for a list view control.

ModuleVP	Verify whether a specified module is in memory during playback.
PagerVP	Establish a verification point for a pager control.
ProgressBarVP	Establish a verification point for a progress bar control.
PSGridHeaderVP	Establish a verification point for a column header in a PeopleTools grid.
PSGridVP	Establish a verification point for a PeopleTools grid.
PSMenuVP	Establish a verification point for a PeopleTools menu object.
PSNavigatorVP	Establish a verification point for a PeopleTools Navigator window or a navigator map in the PeopleTools Business Process Designer.
PSPanelVP	Establish a verification point for a PeopleTools panel.
PSSpinVP	Establish a verification point for a PeopleTools spin control.
PSTreeHeaderVP	Establish a verification point for a column header in a PeopleTools tree object.
PSTreeVP	Establish a verification point for a PeopleTools tree object.
PushButtonVP	Establish a verification point for a push button control.
RadioButtonVP	Establish a verification point for an option button control.
RebarVP	Establish a verification point for a rebar control.
RegionVP	Establish a verification point for a specified rectangular screen region.
RichEditVP	Establish a verification point for a rich edit control.
ScrollBarVP	Establish a verification point for a scroll bar control.
SpinControlVP	Establish a verification point for a spin control.
StatusBarVP	Establish a verification point for a status bar control.
TabControlVP	Establish a verification point for a tab control.
ToolbarVP	Establish a verification point for a toolbar control.
TrackbarVP	Establish a verification point for a trackbar control.
TreeViewVP	Establish a verification point for a tree view control.
WebSiteVP	Test for defects (such as missing or broken links) on a Web site, or compare Web sites.
WindowVP	Establish a verification point for a window.

▸ ▸ ▸ Part II

Using SQABasic

▸▸▸CHAPTER 3

SQABasic Fundamentals

This chapter describes the following SQABasic language elements:

- Commands
- Arguments
- Data types
- Arrays
- Dynamic arrays
- Expressions and operators
- Scope of variables and constants
- Two-digit year conversions
- Trappable errors

See Appendix A for a summary of SQABasic syntax conventions.

Commands

These are the major categories of SQABasic commands:

Command	Description	User-definable?

Statement	A keyword that specifies an action, declaration, or definition. Examples:
	`Option Explicit`
	`GoTo ErrorRoutine`
	`Dim i As Integer`
	`Let i = 10`
		No. Statement keywords are predefined elements of the SQABasic language.

Function procedure (referred to as *functions*)	One or more lines of code that perform a specific task. Functions return a value. Examples:
	`i = Len(MyString)`
	`RtnVal = MyFunction(x)`
	`Call MyFunction(x)`
		Yes. Functions begin with the statement `Function` and end with the statement `End Function`.

Sub procedure	One or more lines of code that perform a specific task. Sub procedures don't return values. Examples:
	`MySubProc x`
	`Call MySubProc(x)`
		Yes. Sub procedures begin with the statement `Sub` and end with the statement `End Sub`.

See Chapter 6 for a description of the `Function...End Function` statement and the `Sub...End Sub` statement.

NOTE: A script contains one or more sub procedures. When you record a script, SQA Robot declares the sub procedure it generates as `Sub Main`.

Arguments

Most SQABasic functions and sub procedures take one or more arguments:

- If a function takes arguments, enclose the arguments in parentheses and separate them with commas.
- If a sub procedure takes arguments, separate the arguments with commas, but do not enclose the arguments in parentheses.

NOTE: If you use the Call statement to call a sub procedure, you enclose the arguments in parentheses just as you would for a function.

Passing Arguments By Value or By Reference

You can pass an argument to a function or sub procedure in one of two ways:

By value – The value of the argument variable is unchanged when the function or sub procedure returns control to the caller.

By reference – The value of the variable *can be changed* by the function or sub procedure. If the value changes, the calling function or sub procedure uses the new value in subsequent processing.

By default, values are passed by reference.

Syntax of By-Value and By-Reference Arguments

- To pass an argument **by value**, enclose the argument in parentheses. When you do this, an argument for a function (or a sub procedure called with the `Call` statement) is enclosed in double parentheses.

  In the following examples, the argument `x` is passed by value. The argument `y` is passed by reference:

```
Call MySub((x))
Call MySub ((x),y)
MySub(x)
MySub(x),y
z=MyFunction((x))
Call MyFunction((x))
```

- To pass an argument **by reference**, no special syntax is required.

  In the following examples, all arguments are passed by reference:

```
Call MySub(x)
Call MySub (x,y)
MySub x,y
Z=MyFunction(x)
Call MyFunction(x)
```

Syntax for Passing Arguments to External Procedures

To use a procedure stored in an external module or .DLL file, you must first `Declare` the module or procedure. The `Declare` statement uses different syntax for specifying whether arguments are to be passed by value or by reference, as follows:

- To pass an argument **by value**, use the `ByVal` statement.
- To pass an argument **by reference**, no special syntax is required. Passing an argument by reference is the default.

For example:

```
Declare Sub MySub Lib "MyDll"(ByVal x As Integer, y As String)
```

Passing Named Arguments

When you call an SQABasic command that takes arguments, you usually supply values for those arguments by listing them in a particular order — the order in which the arguments appear in the syntax definition. This rule applies to built-in SQABasic commands as well as functions and sub procedures you create.

For example, suppose you declare a function this way:

```
Function MyFunction(id, action, value)
```

From the above syntax, you know that `MyFunction` requires three arguments: *`id`*, *`action`*, and *`value`*. When you call this function, you supply the arguments in the order shown in the declaration.

If a command contains just a few arguments, it's fairly easy to remember the order of the arguments. However, if a command has several arguments, and you want to be sure the values you supply are assigned to the correct arguments, consider using named arguments.

Named arguments are arguments identified by name rather than by syntax position. With named arguments, the order of the arguments is not important.

All SQABasic commands accept named arguments.

Syntax of Named Arguments

Named arguments have this syntax:

```
namedarg:= value
```

In the `MyFunction` example, both function calls below assign the correct values to the appropriate arguments:

```
MyFunction id:=1, action:="get", value:=0
MyFunction action:="get", value:=0, id:=1
```

If an argument is optional and you don't want to provide a value for the optional argument, simply omit it.

For example, if the *action* argument of the `MyFunction` call is optional, you could call the function like this:

```
MyFunction action:="get",id:=1
```

NOTE: Although you can shift the order of named arguments, you can't omit required arguments.

Data Types

You declare the data type of a variable in any of these ways:

Explicit declaration – Data types are explicitly declared with the `Dim` statement.

Type-declaration character – When first referencing a variable, you can declare the variable by adding a type-declaration character (such as $ for `String` or % for `Integer`) to the end of the variable name.

Implicit declaration – If neither a `Dim` statement nor a type-declaration character is used to declare a variable, SQA automatically assigns the variable the default data type `Variant`.

Once a data type is declared, a variable can only contain data of the declared type.

NOTE: You must always explicitly declare variables of a `User-Defined` data type. If you use the `Option Explicit` statement, you must explicitly declare all variables.

Descriptions of SQABasic Data Types

These are the data types SQABasic supports:

Data type	Type character	Storage size	Range
`Integer` (short)	%	2 bytes	-32,768 to 32,767
`Long` (long)	&	4 bytes	-2,147,483,648 to 2,147,483,647
`Single` (single-precision floating point)	!	4 bytes	-3.402E38 to -1.401E-45 (for negative values) 1.401E-45 to 3.402E38 (for positive values)
`Double` (double-precision floating-point)	#	8 bytes	-1.797E308 to -4.94E-324 (for negative values) 4.94E-324 to 1.797E308 (for positive values)
`Currency`	@	8 bytes (fixed)	-922,337,203,685,477.5808 to 922,337,203,685,477.5807
`String` (variable length)	$	0 to about 32 KB	0 characters to 32,767 characters
`String` (fixed length)	None	1 to about 32 KB	1 character to 32,767 characters
`Object`	None	n/a	n/a
`Variant`	None	A `Variant`'s storage size and range depend on the way the `Variant` is used. For example, a `Variant` used as an `Integer` is stored in 2 bytes and has a range between -32,768 and 32,767	
`User-Defined`	None	Byte size is set by individual elements	The range of each element is determined by the element's declared data type

Data Type Notes

- `Variants` support most of the data type in the table. The unsupported data types are fixed-length `Strings` and `User-Defined` data types.
- `Variants` can also be used as a Date data type. A `Variant` used as a date is stored as an 8-byte `Double`. Values range from Jan 1st, 100 to Dec 31st, 9999.
- Numeric values are always signed.
- SQABasic has no true Boolean variables. SQABasic considers `0` to be FALSE and any other numeric value to be TRUE. Only numeric values can be used as Booleans. Comparison operator expressions always return `0` for FALSE and `-1` for TRUE.
- `Integer` constants can be expressed in decimal, octal, or hexadecimal notation. Decimal constants are expressed by simply using the decimal representation. To represent an octal value, precede the constant with `&O` or `&o` (for example, `&o177`). To represent a hexadecimal value, precede the constant with `&H` or `&h` (for example, `&H8001`).
- There are no restrictions on the characters you can include in a string. For example, the character whose ANSI value is 0 can be embedded in a string.
- See the following sections for more information about `Variant` and `User-Defined` data types.

Variant Data Types

You declare a `Variant` data type in either of these ways:

- Explicitly through the `Dim` statement.
- Implicitly by using a variable without declaring it explicitly or through a type-declaration character. By default, SQABasic assigns the data type `Variant` to any undeclared variable.

Valid Variant Data Types

A `Variant` data type can be used to store any type of data except fixed-length `String` data and `User-Defined` data.

In addition, there are these special `Variant` data types:

Empty Variants – Any newly-defined `Variant` defaults to the `Variant` type Empty. Empty `Variants` contain no initialized data.

An Empty `Variant` is zero when used in a numeric expression, and it is an empty string when used in a string expression. Call the `IsEmpty` function to test whether a `Variant` is uninitialized (empty).

Null Variants – These `Variants` have no associated data and serve only to represent invalid or ambiguous results. Call the `IsNull` function to test whether a `Variant` contains a null value.

Date Variants – Date values range from Jan 1st, 100 to Dec 31st, 9999. See the `Format` function in Chapter 6 for information about valid date formats.

Identifying the Type of Data Stored in a Variant

A tag stored with `Variant` data identifies the type of data the `Variant` contains. You can examine the tag by calling the `VarType` function.

User-Defined Data Types

A `User-Defined` data type is a set of related variables that can be referenced by a single variable name. It is similar to a C data structure.

`User-Defined` data types contain one or more elements. An **element** in a `User-Defined` data type can contain any type of data that SQABasic supports. An element can also contain an array or another `User-Defined` type.

Declaring a Variable as a User-Defined Data Type

Before you can declare a variable as a `User-Defined` data type, you first must define the data type. You can then declare as many variables of that type as you like — just as you can declare as many variables as you like of type `Integer` or `String`.

Here are the basic steps for defining a `User-Defined` type:

1. Use the `Type` statement to define the `User-Defined` data type, as in:

```
Type CustData                    ' Name of the data type
    CustName As String           ' Element for customer's name
    CustID As Long               ' Element for customer's ID
End Type
```

2. Use the `Dim` statement to declare a variable of the type you just defined:

```
Dim Customer As CustData         ' Declare the variable Customer
```

Use dot-notation syntax to reference an individual element — for example:

```
Customer.CustName = "Jennifer Farriday"
Customer.CustID = 533128
```

Dialog Box Records

In SQABasic, you create a dialog box by first defining a dialog box record. **Dialog box records** look like any other user-defined data type, but there are two important differences:

- You define a dialog box record with the `Begin Dialog...End Dialog` statements, not the `Type...End Type` statements.
- The elements in a dialog box record refer to the objects (such as buttons, entry fields, and labels) in the dialog box.

Once you define a dialog box record, you declare an instance of that record. Like other user-defined types, you use the `Dim` statement to declare an instance of a dialog box. Also, you use dot-notation syntax to refer to the objects in a dialog box:

```
MyDialog.Columns = "2"
```

See the `Begin Dialog` statement in Chapter 6 for more information about creating dialog boxes.

Data Type Conversions

SQABasic attempts to convert one dissimilar data type to another when moving data between the following data types:

- Between any two numeric types – When converting from a larger type to a smaller type (for example, a `Long` to an `Integer`), a runtime numeric overflow error might occur. This error indicates that the number of the larger type is too large for the target data type. For example, loss of precision is not a runtime error when converting from `Double` to `Single`, or from either float type to either `Integer` type.
- Between fixed-length strings and dynamic (variable-length) strings – When converting a fixed-length string to dynamic, a dynamic string that has the same length and contents as the fixed-length string is created. When converting from a dynamic string to a fixed-length string, some adjustment might be required. If the dynamic string is shorter than the fixed-length string, the resulting fixed-length string is extended with spaces. If the dynamic string is longer than the fixed-length string, the resulting fixed-length string is a truncated version of the dynamic string. No runtime errors are caused by string conversions.
- Between any data type and **`Variant`** data types – Any data type (other than a `User-Defined` type) can be converted to a `Variant` data type. SQABasic converts variant strings to numbers when required. A type mismatch error occurs if the variant string does not contain a valid representation of a number.

No other implicit conversions are supported. In particular, SQABasic does not automatically convert between numeric and string data. Use the functions `Val` and `Str$` for such conversions.

Arrays

An **array** is a variable made up of individual elements that have the same data type. Each element is accessed through a unique index number.

An array has one or more **dimensions** (sets of elements). An array can have up to 60 dimensions.

Array **subscripts** specify the number of elements in a dimension by setting its starting and ending index values. For example, the following array `MyArray` has one dimension with a starting index value of 1 and an ending index value of 100:

```
Dim MyArray(1 To 100) As String
```

If only one subscript is provided (which is typically the case), it is assumed to specify the ending index value. The starting index value defaults to 0. You can set the starting index default to either 0 or 1 through the `Option Base` statement.

Arrays support all SQABasic data types. Arrays of arrays and dialog box records are not supported.

Declaring an Array

The following array has two dimensions containing 11 elements and 101 elements, respectively (the default starting index is 0 for each dimension):

```
Dim MyArray (10,100) as Integer
```

See the `Dim` statement in Chapter 6 for more information.

Referencing an Array

You reference array elements by enclosing the proper index values in parentheses after the array name – for example, `ArrayName(i,j)= x`.

Dynamic Arrays

When you declare a **dynamic array**, you don't specify a subscript range for the array elements. Instead, you use the `ReDim` statement to set the subscript range.

The advantage of using dynamic arrays is that you can base the number of array elements on unpredictable conditions that only become known at runtime. Because you don't have to pre-define the number of elements in the array, you avoid having to reserve space for elements that you might not use.

For example, suppose you want to use an array to store a set of values entered by a user, but you don't know in advance how many values the user needs to store. In this case, you dimension the array without specifying a subscript range, and then you execute a `ReDim` statement to increase the range by 1 each time the user is about to enter a new value. Or, you might want to prompt for the number of values the user wants to enter, and then execute one `ReDim` statement to set the size of the array accordingly before prompting for the entry.

NOTE: `ReDim` destroys the current contents of the array. To preserve the array's contents, include the `Preserve` argument in your `ReDim` statement.

Dimensions of a Dynamic Array

If you `Dim` a dynamic array before using it, the maximum number of dimensions it can have is 8. To create dynamic arrays with more dimensions (up to 60), do not `Dim` the array at all. Instead, use the `ReDim` statement inside your procedure.

Dynamic Array Example

In this example, the dynamic array *`varray`* contains user-defined cash flow values:

```
Sub main
   Dim aprate as Single
   Dim varray() as Double
   Dim cflowper as Integer
   Dim msgtext
   Dim x as Integer
   Dim netpv as Double
   cflowper=InputBox("Enter number of cash flow periods")
   ReDim varray(cflowper)
   For x= 1 to cflowper
      varray(x)=InputBox("Enter cash flow for period #" & x & ":")
   Next x
   aprate=InputBox("Enter discount rate: ")
   If aprate>1 then
      aprate=aprate/100
   End If
   netpv=NPV(aprate,varray())
   msgtext="The net present value is: "
   msgtext=msgtext & Format(netpv, "Currency")
   MsgBox msgtext
End Sub
```

Expressions and Operators

An **expression** is a collection of two or more terms that perform a mathematical, comparative, or logical operation. The type of operation performed is determined by the **operator** in the expression.

Expressions are evaluated according to an established order of precedence for operators. Use parentheses to override the default precedence order.

Operator precedence order (from high to low) is:

Numeric operators
String concatenation operators
Comparison operators
Logical operators

Numeric Operators

Numeric operators are shown in order of precedence (from high to low):

Operator	Description
^	Exponentiation.
-,+	Unary minus and plus.
*, /	Numeric multiplication or division. For division, the result is a `Double`.
\	`Integer` division. The operands can be `Integer` or `Long`.
`Mod`	Modulus or Remainder. The operands can be `Integer` or `Long`.
-, +	Numeric addition and subtraction. The + operator can also be used for string concatenation.

String Concatenation Operators

The string concatenation operator is the ampersand (&). Alternatively, you can use a plus sign (+).

Comparison Operators

Comparison operators have equal precedence. They are evaluated from left to right:

Operator	Description
>	Greater than
<	Less than
=	Equal to
<=	Less than or equal to
>=	Greater than or equal to
<>	Not equal to

Comparison operators compare numbers and strings:

- For numbers, operands are widened to the least common type (`Integer` is preferred over `Long`, `Long` is preferred over `Single`, and `Single` is preferred over `Double`).
- For English strings, comparisons are case-sensitive by default. You can change the default through the `Option Compare` statement.

  String comparisons return `0` for FALSE and `-1` for TRUE.

Logical Operators

Logical operators are shown in order of precedence (from high to low):

Operator	Description
`Not`	Unary Not – operand can be `Integer` or `Long`. The operation is performed bitwise (one's complement).
`And`	And – operands can be `Integer` or `Long`. The operation is performed bitwise.
`Or`	Inclusive Or – operands can be `Integer` or `Long`. The operation is performed bitwise.

▶ ▶ ▶

▸ ▸ ▸

Operator	Description
`Xor`	Exclusive Or – operands can be `Integer` or `Long`. The operation is performed bitwise.
`Eqv`	Equivalence – operands can be `Integer` or `Long`. The operation is performed bitwise. `(A Eqv B)` is the same as `(Not (A Xor B))`.
`Imp`	Implication – operands can be `Integer` or `Long`. The operation is performed bitwise. `(A Imp B)` is the same as `((Not A) Or B )`.

Scope of Variables and Constants

The scope of variables and constants can be any of the following:

- Local. Accessible only to the function or sub procedure containing the variable or constant declaration. Use the statement `Dim` to declare local variables and `Const` for local constants.
- Module-level. Accessible to any function or sub procedure in the same module (script or library file) as the `Dim` or `Const` statement. With module-level declarations, place the `Dim` or `Const` statement above the first procedure in the module.
- Global. Accessible to any function or sub procedure in any module. Use the Global statement for global declarations. Global declarations can appear in a module or in a header file.

For more information about the scope of variables and constants, including how to declare each type, see the section *Declaring Variables and Constants* in Chapter 4, *SQABasic Scripts*.

For information on module-level and global procedures, see the sections *Adding Custom Procedures to a Script* and *Adding Custom Procedures to a Library File* in Chapter 4, *SQABasic Scripts*.

Year 2000 Compliance

SQABasic converts two-digit years to four-digit years in the following situations:

Command or assignment	Two-digit year conversion
Input string with a two-digit year, when converted to an internal date value	00 through 29 is converted to 2000 through 2029 30 through 99 is converted to 1930 through 1999
`Date` statement	80 through 99 is converted to 1980 through 1999 00 through 79 is converted to 2000 through 2079
`Format` function with the following *`format`* argument values: General Date Short Date c ddddd	Two-digit dates are formatted as four-digit dates
`CVDate`, `DateValue`, and `Year` functions	00 through 29 is converted to 2000 through 2029 30 through 99 is converted to 1930 through 1999

Of course, you can force a two-digit year through a user-defined date format — for example:

```
Sub Main
    Dim datestr

    datestr = InputBox("Enter a date with a 2-digit year" + _
        Chr$(13) + "(in the format mm/dd/yy):")

    'CVDate converts to a 4-digit year
    datestr = CVDate(datestr)
    MsgBox "Default format: " + datestr

    'Now change the format to use a 2-digit year
    datestr = Format(datestr, "m/d/yy")
    MsgBox  "Custom format: " + datestr
End Sub
```

Suggestions for Avoiding Year 2000 Problems

Here are some guidelines for avoiding year 2000 problems in your scripts:

- Always maintain internal date information as date values.
- Store date values in variables with numeric or variant data types.
- Use date values, not strings, when performing date calculations.
- When accepting date information from the user, always display the value received in a format that explicitly identifies the century.
- When displaying data information, always use a format that explicitly identifies the century.
- When exchanging data information with external data sources or external programs, you should use double-precision floating point numbers or data strings with at least four characters for identifying the century.

Trappable Errors

Trappable errors are runtime errors that you can respond to in any way you choose. If you don't provide a response to a trappable error, SQABasic displays an error dialog box at runtime.

SQABasic provides the following error-handling commands:

Command	Description
`Err` statement	Sets a runtime error code without simulating an occurrence of the error
`Err` function	Returns the error code for the last error trapped
`Error` statement	Simulates the occurrence of a runtime error
`Error` function	Returns the error message that corresponds to the specified error code
`On Error` statement	Specifies how your program responds to a runtime error

Error codes aren't automatically returned. You must retrieve them with `Err`.

See Appendix B for a list of trappable error codes.

Responding to Errors

You can respond to errors in either of these ways:

- Put error-handling code directly before a line of code where an error might occur (such as after a `File Open` statement).
- Create a separate section of the procedure just for error handling, and assign the section an appropriate label. When an error occurs, program flow jumps to the label.

  You typically use this method to test for and react to different error codes.

Use the `On Error` statement to specify either method.

User-Defined Errors

In addition to the standard runtime errors reported by SQABasic, you might want to create your own set of codes for trapping errors specific to your program. For example, if your program establishes rules for file input, you might want to trap for errors that result when the user doesn't follow the rules.

You can trigger an error and respond appropriately through the same statements and functions you use for standard SQABasic error codes.

Error-Handling Examples

SQABasic online Help contains examples of how you can respond to runtime errors. To see the examples:

1. Choose Using SQABasic from Contents.
2. Choose Error Handling.
3. Choose Trapping Errors Returned by SQABasic or Trapping User-Defined (Non-SQABasic) Errors.

▸▸▸CHAPTER 4

SQABasic Scripts

Rational Robot automatically generates test scripts for you during recording. However, because you may want to edit the scripts that Robot generates, and even create custom procedures and library files, you should have a fundamental understanding of the structure and contents of a script.

This chapter includes the following topics:

- What is a script?
- User action and verification point commands
- Object context
- Customizing scripts

What is a Script?

A **script** is an ASCII text file that contains SQABasic commands. A compiled script can be executed (played back) by Robot or by the `CallScript` command.

When you record a script, Robot translates your actions into a series of SQABasic commands and stores them in the script. When you play back the script, Robot performs the actions you recorded by executing the SQABasic commands.

Typically, GUI scripts include user actions such as mouse clicks and keystrokes. GUI scripts also include verification points that you insert during recording.

Scripts that Robot generates consist of a single sub procedure called `Main`. Optionally, you can add custom sub procedures and functions to the script file, as described in the section *Adding Custom Procedures to a Script* on page 4-23.

NOTE: A script is also associated with properties such as the purpose of the script and the type of script. Typically, you define script properties when you plan the script with TestManager. You can also view and edit script properties in Robot.

Script Source Files

GUI scripts have the extension .rec.

If changes are made to a script, Robot automatically saves the script when you compile it, play it back, or debug it. To explicitly save a script during editing, click File → Save, or click the Save button on the toolbar.

Script Executable Files

A compiled script has the extension .sbx. Only Robot can execute a .sbx file.

At the start of playback or debugging, Robot automatically compiles a script if it has changed since it last ran. To explicitly compile a script during editing, click File → Compile, or click the Compile button on the toolbar.

Script Structure

The typical `Main` sub procedure that Robot generates in a script can be broken into four general sections:

- Initialization
- Window restoration (optional)
- Script body (window context, user actions, and verification points)
- Close

Script Initialization

All Robot scripts begin with the following commands:

- `Sub Main`

  Defines a subroutine named `Main`. This is normally the first command in the script and should not be edited.

  The name `Main` is reserved for scripts Robot generates. Do not assign this name to any custom procedures you may write.

- `Dim Result As Integer`

  Defines the variable `Result` as an integer variable. Robot returns values from verification point commands into the variable `Result`. The value of `Result` is local to the `Main` subroutine.

- `'Initially Recorded: 06/16/98 14:08:33`
  `'Script Name: CdOrder`

  Robot writes two comment lines in the initialization section of each script. The first shows when the script was recorded, and the second shows the script name. These comments are not required and can be edited or removed.

Window Restoration

Robot includes the following two commands at the beginning of a script if Save window positions is selected in the General tab of the GUI Record Options dialog box:

```
StartSaveWindowPositions
. . .                              ' Window restoration commands
EndSaveWindowPositions
```

During playback, the window restoration commands bracketed between `StartSaveWindowPositions` and `EndSaveWindowPositions` restore the specified windows to the size and position they were in at the start of recording. Also, a context window (a window within which subsequent user actions are to occur) may be specified — for example, with MDI applications.

The referenced windows must exist during playback before the window restoration commands can be properly executed.

`StartSaveWindowPositions` and `EndSaveWindowPositions` also tell Robot that, during playback, the intervening `Window SetContext`, `Window MoveTo`, and `Window SetPosition` commands are for window restoration only. During window restoration, all playback timing defaults are set to zero in order to process the commands as quickly as possible.

If any command fails between `StartSaveWindowPositions` and `EndSaveWindowPositions`, that failure is reported to the log as a warning, not as a script command failure.

NOTE: Additionally, you can save the positions of all active windows (except hidden windows) after every `Window SetContext` command by selecting the GUI recording option Auto Record Window Size (on the General tab). During playback, Robot restores the windows to their positions when the script was recorded. Robot writes warning messages to the log for any windows it can't find during playback.

Script Body

The script body is the primary processing section of the script. The script body typically includes SQABasic commands that:

- Perform *user actions* — for example, keystrokes and mouse clicks you make to navigate through the application and to provide data to the application.

  For more information, see *User Action Commands* on page 4-6.

- Establish *verification points* by comparing information captured for an object during recording with information captured for the object during playback.

  For more information, see *Verification Point Commands* on page 4-7.

- Set the *context window*. When you set the context window, Robot expects subsequent actions and verification points to be performed within that window.

  For more information, see *Establishing Context through a Window Command* on page 4-15.

Script Close

All scripts that Robot generates end with the following command. This command terminates the script.

```
End Sub
```

This line indicates the end of the `Main` subroutine.

Sample Script

The following short script illustrates the four sections of a script as well as typical actions you can record in a script.

In this example, the application-under-test is Classics.exe, a Visual Basic application for ordering CDs. As the user places an order for two CDs of the same title, Robot records the user's actions. In the dialog box where the user provides credit card and other ordering information, the user performs verification points on the following dialog box objects:

- `txtAlbumInfo` – An edit box that displays the name of the CD being purchased.
- `txtQuantity` – An edit box that displays the number of CDs ordered.
- `lblTotal` – A non-modifiable label object that displays the cost of the order.

Initialization

Window Restoration (optional)

Script body
- *Context window*
- *User actions*
- *Verification points*

```
Sub Main
    Dim Result As Integer

    'Initially Recorded: 06/16/98  16:09:16
    'Script Name: CdOrder

    ' Restore all windows to their size and position during recording
    StartSaveWindowPositions
    Window SetPosition, "Caption=Program Manager",
        "Coords=0,0,1024,768;Status=NORMAL"
    Window SetPosition, "Caption=Exploring - C:\Classics\AccessData",
        "Coords=-32000,-32000,160,24;Status=MINIMIZED"
    Window SetPosition, "Caption=Untitled - Notepad",
        "Coords=76,18,558,418;Status=NORMAL"
    Window SetPosition, "Caption=Microsoft Excel - Book1",
        "Coords=363,247,639,460;Status=NORMAL"
    Window SetContext, "Caption=Microsoft Excel - Book1", ""
    Window SetPosition, "Caption=Book1;ChildWindow",
        "Coords=-6,-25,639,349;Status=NORMAL"
    Window SetPosition, "Class=Shell_TrayWnd",
        "Coords=-2,740,1028,30;Status=NORMAL"
    EndSaveWindowPositions

    ' Start the application-under-test
    StartApplication "C:\Classics Online\Classics.exe"

    ' Select the title of the CD to purchase
    Window SetContext, "Name=frmMain", ""
    TreeView Click, "Name=treMain;\;ItemText=Bach->Brandenburg
        Concertos Nos. 1  3", ""
    PushButton Click, "Name=cmdOrder"

    ' Login
    Window SetContext, "Name=frmOrderLogin", ""
    PushButton Click, "Name=cmdOK"
```

Script body (Cont.)
- *Context window*
- *User actions*
- *Verification points*

```
    ' Specify the number of CDs to purchase
    Window SetContext, "Name=frmOrder", ""
    EditBox Left_Drag, "Name=txtQuantity", "Coords=25,10,-120,11"
    InputKeys "2"

    ' Provide credit card information
    ComboBox Click, "Name=comboCardType", "Coords=104,7"
    ComboListBox Click, "ObjectIndex=1", "Text=MasterCard"
    EditBox Click, "Name=txtCreditCard", "Coords=49,11"
    InputKeys "1535399178421813"
    EditBox Click, "Name=txtExpirationDate", "Coords=11,5"
    InputKeys "12/31/00"

    ' Verify that the correct CD is being purchased
    Result = EditBoxVP (CompareText, "Name=txtAlbumInfo",
        "VP=TitleText;Type=CaseSensitive")

    ' Verify that the number of CDs being purchased is correct
    Result = EditBoxVP (CompareText, "Name=txtQuantity",
        "VP=QuantityText;Type=CaseInsensitive")

    ' Verify the correct total purchas price
    Result = LabelVP (CompareProperties, "Name=lblTotal",
        "VP=CostObjProp")

    ' Close the application-under-test
    PushButton Click, "Name=cmdCancel"
    Window SetContext, "Name=frmMain", ""
    Window CloseWin, "", ""
```

Close

```
End Sub
```

User Action and Verification Point Commands

To read or edit a script successfully, you need to have a basic understanding of two important categories of commands that are executed within the body of a script. These categories are:

- User action commands
- Verification point commands

The following sections describe these commands.

User Action Commands

User actions include all of the GUI actions you perform during recording — for example, clicking a button that opens a dialog box, selecting an item in a list, or typing data into an order form.

You perform user actions as you navigate through the application-under-test and as you supply data to the application-under-test.

User action command names (such as `PushButton`, `Window`, or `EditBox`) reflect the object being acted upon. User action command names are followed by the *`action`* argument (containing values such as `Click`, `Resize`, or `VScrollTo`), which specifies the action taken against the object — for example:

```
PushButton Click, "Name=cmdOK"
```

For a summary of all user action commands, see the section *User Action Commands (SQABasic Additions)* in Chapter 2, *Functional List*.

Verification Point Commands

In functional testing, you need to verify that the objects in the application-under-test look and work as designed from build to build. To accomplish this, you establish **verification points** for the objects. Here is an overview of how verification points work:

- During *recording*, a verification point command captures information about an object — for example, the size, position, and other properties of the object, or any data that might be associated with the object. Information captured during recording establishes a **baseline** for future tests. The information is stored in a baseline data file and written to the LogViewer.
- During *playback*, the same verification point command again captures information about the object. The information captured during playback is compared against the baseline information captured for the object during recording — thus verifying whether the information is the same or has changed.

  If there is a discrepancy between the baseline data and the data captured during playback, the latter is stored in an **actual data file** and written to the LogViewer.

At any time, you can re-record a verification point for an object, thus establishing a new baseline. For example, if the position of a push button changes in build 20 of the application-under-test, you need to record a new baseline for the push button to verify its new position in subsequent builds.

Verification point command names (such as `PushButtonVP`, `WindowVP`, or `EditBoxVP`) reflect the object you are verifying. Verification point command names are followed by the *`action`* argument (containing values such as `CompareData`, `CompareText`, or `CompareProperties`), which indicates the type of verification you are performing on the object — for example:

```
Result = EditBoxVP (CompareText, "Name=txtQuantity",
       "VP=QuantityText;Type=CaseInsensitive")
```

Verification point commands return a value to the *Result* variable. If the information captured during playback matches the baseline, the verification point passes, and *Result* equals 1. If there is no match, the verification point fails, and *Result* equals 0.

For a summary of all the verification point commands, see the section *Verification Point Commands (SQABasic Additions)* in Chapter 2, *Functional List*.

Syntax of User Action and Verification Point Commands

Syntax conventions for user action and verification point commands are similar.

The general format for a user action command is:

```
ObjectType action, recMethod, parameters
```

The general format for a verification point command is:

```
Result = ObjectTypeVP (action, recMethod, parameters)
```

Here is a summary of the key syntax elements:

Syntax Element	Description
ObjectType	The command name. User action command names always begin with the name of the object being acted upon — for example, ComboBox. When you record an action against an object, Robot automatically determines the object type.
*ObjectType*VP	Like user action command names, verification point command names indicate the target object. However, verification point names include the suffix VP — for example, ComboBoxVP.
action	The action performed against the object, or the type of verification point established for the object — for example: `ComboBox **Click**,"Name=lstUserName","Coords=75,6"`
recMethod	Information Robot uses to identify and locate the target object during playback — for example: `ComboBox Click,**"Name=lstUserName"**,"Coords=75,6"` Use double quotation marks to delimit the recognition method string.

► ► ►

► ► ►

Syntax Element	Description
	If multiple recognition method values are needed to uniquely identify an object, enclose the entire recognition method string within a single set of quotes. For more information about multiple component values in a recognition method string, see *Components of a Recognition Method String* on page 4-10. Because multiple values might be required to uniquely identify an object, each object is associated with an *ordered* set of possible recognition method values that Robot can use to identify the object. For information about the order of recognition method values, see *Recognition Method Order* on page 4-10. *recMethod* can have up to 2,048 characters.
parameters	Any additional information required by the *action* argument. For example, if the action is a mouse click on a combo box, *parameters* might contain the coordinates of the click relative to the combo box — as in: `ComboBox Click,"Name=lstUserName","Coords=75,6"` Use double quotation marks to delimit parameters. If multiple parameter values are listed, enclose them all in a single set of quotes, and use semicolons to separate the individual values. *parameters* can have up to 968 characters.
Result	A variable that specifies whether a verification point passes (value is 1) or fails (value is 0) during playback.

NOTE: The *recMethod* argument is also used in Object Scripting commands. For more information, see the section *Object Scripting* in Chapter 5, *Enhancements to Recorded Scripts*.

Components of a Recognition Method String

Robot uses the recognition method (*recMethod*) argument of user action and verification point commands to uniquely identify the target object.

Sometimes, more than one recognition method value is required to uniquely identify an object. If a recognition method string consists of multiple component values, enclose the entire string within a single set of quote marks (").

A recognition method string can have two types of component values:

- Values that further define, or *qualify*, the object. These types of values are delimited by a semicolon (;). For example, the recognition method string in this command identifies a window titled Classics Online:

  ```
  Window SetContext,"Caption=Classics Online;Class=#32770",""
  ```

- Values that show a *hierarchy of objects*, such as a window and an object in that window. These types of values are delimited by a semicolon, backslash, and semicolon (;\;). For example, the recognition method string in this command identifies an item in a tree view object named `treMain`:

  ```
  TreeView Click,"Name=treMain;\;ItemText=Haydn","Location=Button"
  ```

  In this example, the tree view object is in the current context window. You can also use context notation to specify an object. For more information, see *Establishing Context through Context Notation* on page 4-18.

Recognition Method Order

There are many possible pieces of information that Robot can use to uniquely identify an object. Choosing the right recognition method balances script reliability and readability.

Most of the standard object types are associated with a pre-defined, ordered list of recognition method values. While recording an action on an object, Robot tries each listed value in sequence until it can uniquely identify the object. In most cases, the object can be uniquely identified through the first value in the list for that object type, but occasionally additional information is required.

The following table lists the object types that Robot supports for user action and verification point commands, and also the default order of recognition method values it checks for each object type:

Object type		Order of recognition method values
AnimateControl/VP	JavaTableHeader/VP	*ObjectName*
CheckBox/VP	JavaTree/VP	*Text*
DataWindow/VP	JavaWindow/VP	*Index*
GroupBox/VP	Label/VP	*ID*
Header/VP	ListView/VP	
HTML/VP	Pager/VP	
HTMLActiveX/VP	ProgressBar/VP	
HTMLDocument/VP	PSCalendar/VP	
HTMLHiddenVP	PSGridHeader/VP	
HTMLImage/VP	PSNavigator/VP	
HTMLLink/VP	PSPanel/VP	
HTMLTable/VP	PSTreeHeader/VP	
JavaCanvas/VP	PushButton/VP	
JavaListView/VP	RadioButton/VP	
JavaMenu/VP	Rebar/VP	
JavaObject/VP	SpinControl/VP	
JavaPanel/VP	TabControl/VP	
JavaPopupMenu/VP	Toolbar/VP	
JavaSplitPane/VP	Trackbar/VP	
JavaSplitter/VP	TreeView/VP	
JavaTable/VP		
ComboBox/VP	ListBox/VP	*ObjectName*
ComboEditBox/VP	PSGrid	*Label*
ComboListBox/VP	PSMenu/VP	*Index*
EditBox/VP	PSSpin/VP	*ID*
HotKeyControl/VP	PSTree	
IPAddress/VP	RichEdit/VP	
Calendar/VP		*ObjectName*
DateTime/VP		*Label*
		Text
		Index
		ID

► ► ►

► ► ►

Object type	Order of recognition method values
ScrollBar/VP StatusBar/VP	*ObjectName* *Index* *ID*
Desktop	None (the Windows desktop is automatically recognized)
Window/VP	*ObjectName* *Caption* *CaptionClass* * *Class* * Writes both *Caption* and *Class* to the script.
GenericObject/VP	*Object Name* *Text* *ClassIndex* * *Index* *ID* * Writes both *Class* and *ClassIndex* to the script.

NOTE: In C++ development environments, the default order of recognition method values is different from the order shown in this table. See the next section for more information.

Changing the Default Order

You can view and optionally modify the order of recognition method values for a given object type. To do so:

1. In Robot, click Tools → GUI Record Options.
2. Click the Object Recognition Order tab.
3. Select an object type in the Object type box.
4. View and optionally modify the order of recognition method values in the Recognition method order box.

Robot can more efficiently identify the objects in a C++ application if you change the default recognition method order that it uses for other application environments. To change the recognition method order for all object types in C++ applications, select C++ Recognition Order in the Object Order Preference list.

Recognition Methods in Java Commands

When recording actions against Java objects, Robot is aware of a parent object and a child object. The parent object is the outermost Java container — for example, a frame with Java applications, or an applet with Java applets. The child object is the object being acted upon. Robot ignores any objects between the parent object and the target child object.

The *recMethod* argument in Java commands always specifies the child object. The parent object can be specified in either of these ways:

- Through the same *recMethod* argument that specifies the child object.

  If a recognition method in a Java command specifies both the parent and child objects, the objects are separated by a semicolon, backslash, and semicolon (`;\;`), which is standard syntax for hierarchical objects in all recognition method strings. Here is an example:

  ```
  JavaTree Expand, "Name=Main;\;Type=JavaTree;Name=Music",
       "Text=Music->Jazz"
  ```

- Through a preceding `Browser` command.

  If a recognition method in a Java command doesn't explicitly specify the parent object, the parent object must be specified through a preceding `Browser` command. To specify a parent Java object, the Browser command includes the *action* `SetApplet` and an appropriate *recMethod* (`Name`, `JavaCaption`, or `JavaClass`, and possibly the qualifier `Index`).

  Here is an example of a `Browser` command specifying a parent object named Main:

  ```
  Browser SetApplet, "Name=Main", ""
  JavaTree Expand, "Type=JavaTree;Name=Music", "Text=Music->Jazz"
  ```

  The parent object in a `Browser SetApplet` command applies to all subsequent Java commands that do not explicitly specify a parent object in *recMethod*.

Using Object Scripting Commands with Java Objects

Object Scripting commands (such as `SQAGetChildren`, `SQAGetProperty`, and `SQAInvokeMethod`) cannot extract information about parent Java objects from a preceding Browser command, as other commands can. As a result, the

recMethod argument of an Object Scripting command *must* include the parent object and child object, separated by a semicolon, backslash, and semicolon (;\;).

When you're editing your script, simply copy the parent object information from the *recMethod* argument of the preceding Browser command into the *recMethod* argument of the Object Scripting command.

For a list of the SQABasic Object Scripting commands, see *Object Scripting Commands (SQABasic Additions)* in Chapter 2.

Specifying Parent Objects in *recMethod*

When you record user actions or verification points against Java objects, Robot can write the following kinds of commands to the script:

- Commands used only with objects in the Java environment — for example, JavaMenu, JavaPanel, or JavaTree. These commands have the prefix Java.
- Commands used with objects in the Java and other environments — for example, PushButton, EditBox, or ListBox.

When either of these kinds of commands refers to a Java object, the command's *recMethod* argument can specify the Java parent object. When specifying a parent object, *recMethod* uses the recognition method Name= or either of the following recognition methods:

- JavaCaption=*$*

  The text of the Java window caption. The caption can be used to identify the parent Java object when the object has no programmatic name. The wildcards ? and * are supported. (See *Using Wildcards in Window Captions* on page 4-17.)

  This recognition method is used only with window-based parent objects, not with browser-based applets.

- JavaClass=*$*

  The Java class name. The class name can be used to identify the parent Java object when the object has no programmatic name or window caption.

  With JavaObject and JavaObjectVP, JavaClass= can also be used to identify the child Java object.

The recognition method qualifier Index= can appear after Name=, JavaCaption=, and JavaClass=.

Object Context

For Robot to find the edit boxes, buttons, and other objects that you test, it has to know where to look. For example, if you reference a list view object named MyList, Robot needs to know which window the list is in. If you reference a particular item in MyList, Robot needs to know both the list that the item is in and the window that the list is in.

Robot locates an object through the object's **context**. Context helps Robot identify an object by providing a point of reference for the object. In other words, the identity of a parent object provides the context for its child objects.

Context for objects is established in either or both of these ways:

- Through a `Window SetContext`, `Window SetTestContext`, or `Window ResetTestContext` action taken against a particular window.

  When context is established in this way, Robot assumes that subsequent actions occur in the specified window until another `Window` command changes the context.

- Through SQABasic context notation in the *`recMethod`* argument of a command.

  This method establishes context only for the command in which the *`recMethod`* appears. Subsequent commands are not affected.

The following sections describe these methods of establishing context.

Establishing Context through a Window Command

Robot uses the `Window` command to identify a window as the context for subsequent user actions.

NOTE: In this document, a **window** is a top-level object on the desktop. For example, a dialog box is typically a top-level desktop object.

Suppose you click a push button in the application-under-test during recording. In the script, Robot might describe the action like this:

```
Window SetContext, "Caption=Classics Online", ""
PushButton Click, "Name=cmdOrder"
```

Here's what each line tells Robot:

- The first line specifies that you took an action in a window. The window is identified by the caption Classics Online in the window title bar. The `SetContext` action establishes the specified window as the **current context window** for subsequent user actions.
- The second line specifies that you clicked a push button with the developer-assigned object name cmdOrder. The push button object is assumed to be in the current context window — in this case, the window identified by the caption Classics Online.

Robot assumes that the context for subsequent user actions is the current context window. The current context window can (and usually does) change often in a script.

Actions that Set Context

The following *`action`* argument values for the `Window` command set the context for an object:

`SetContext` – Establishes the current context window for all user action and verification point commands that follow.

`SetTestContext` – Establishes a test context for an object that is outside the scope of the current context window or Object Scripting command. When test context is established for an object, subsequent verification point operations are performed on the specified object until the context changes.

`ResetTestContext` – Restores the context to its state before the last `SetTestContext` action.

See the `Window` user action command in Chapter 6 for more information about `SetContext`, `SetTestContext`, and `ResetTestContext` actions.

Assigning Context to the Currently Active Window

You can assign context to the currently active window without specifically identifying the window. To do so, use the *`recMethod`* value `CurrentWindow`. For example:

```
Window SetContext, "CurrentWindow", ""
PushButton Click, "Name=cmdOrder"
```

Using Wildcards in Window Captions

If you are using the Window command to establish the context window, you can identify the window through its caption. The caption is located in the title bar.

When you specify a window caption, you can type the entire caption, or you can use the following wildcards:

Wildcard character	Description
Question mark (?)	Matches a single character in a caption.
Asterisk (*)	Matches any number of caption characters from the asterisk to the next character or, if there are no characters after the asterisk, to the end of the caption.

When using wildcard characters in a caption, enclose the caption within braces.

Here are some examples of using caption wildcards in the `Window` command to establish context:

```
Window SetContext, "Caption={?otepad}",""
    ' Matches the window caption "Notepad"

Window SetContext, "Caption={Query*}",""
    ' Matches any window caption beginning with "Query"

Window SetContext, "Caption={Class*line}",""
    ' Matches any window caption beginning with "Class" and
    ' ending with "line" (such as "Classics Online")
```

NOTE: Wildcards are not supported in the `Text` recognition method of `DataWindow` and `DataWindowVP` commands.

Using Wildcard Characters as Ordinary Characters

If you want to include a question mark or an asterisk as just another character in a caption rather than as a wildcard, precede the question mark or asterisk with the backslash (\) escape character. Also, to use a backslash as an ordinary character in a caption, precede it with another backslash.

For example, to match the path c:*.* in a window caption, use:

```
Caption={c:\\\*.\*}
```

Alternatively, you could simply omit the braces:

```
Caption=c:\*.*
```

Establishing Context through Context Notation

Context notation is *recMethod* argument syntax that defines hierarchical relationships between objects. Context notation is used in the *recMethod* argument of user action, verification point, and Object Scripting commands.

In context notation, context for the target object is established by identifying its parent object(s). Note that:

- Sometimes, the parent object is a window or the desktop. The parent object could also be another object within a window.
- Sometimes, a child object is actually an item such as a tree view item. These low-level items do not have associated properties, as objects do.

Context notation does not change the current context window. Context notation establishes context only for the command using the context notation in its *recMethod* argument.

With context notation, the *recMethod* argument follows these syntax rules:

- A backslash (\ ) between two objects specifies that the first object is the parent of (and the context for) the second object. The backslash is delimited by semicolons (;\;)

  For example, the following code specifies that the tab labeled Album was clicked in a tabbed dialog box:

  ```
  TabControl Click, "Name=tabMain;\;ItemText=Album", ""
  ```

  In this example, the item Data.mdb was clicked in a list view object:

  ```
  ListView Click, "ObjectIndex=1;\;ItemText=Data.mdb","Coords=10,8"
  ```

  This type of context notation is used with hierarchical objects (such as list view and tree view) and with Object Scripting commands.

- A backslash at the beginning of a recognition method specifies that the next object in the path is a child of the desktop. The backslash is followed by a semicolon (\;).

  This example shows a *recMethod* argument that specifies a path from the desktop to the target object:

  ```
  "\;Type=Window;Caption=Notepad;\;Type=EditBox;ObjectIndex=1"
  ```

  This type of context notation is used only with Object Scripting commands.

- A dot-backslash (.\ ) represents the current context window. If the path includes an object after the dot-backslash, the dot-backslash is followed by a semicolon (.\;).

In this example, Robot retrieves the recognition string for the current context window:

```
Result = SQAGetProperty (".\", "Recognition", value)
```

In this example, Robot retrieves the number of rows in the grid `myGrid`, which is in the current context window:

```
Result = SQAGetProperty (".\;Name=myGrid", "Rows", value)
```

This type of context notation is used only with Object Scripting commands.

- Backslash and dot-backslash characters are delimited by semicolons (;).
- In addition, with user action and verification point commands, use the *`recMethod`* value `ChildWindow` when specifying an MDI window. In this example, Book2 is shown to be a child window of Microsoft Excel:

```
Window SetContext, "Caption=Microsoft Excel", ""
Window WMinimize, "Caption=Book2;ChildWindow", ""
```

NOTE: Multi-object recognition method paths can be difficult to construct. To be sure you define the correct recognition method for an object, record a temporary script and click on the object. Robot will find the correct recognition method for you. You can then copy the recognition method into your own script. For more information, including information about finding recognition method information programmatically, see the section *Getting Help Defining Recognition Methods* in Chapter 5, *Enhancements to Recorded Scripts*.

Using Wildcards in Window Captions

If you are establishing a window as the context for a child object, you can identify the window through its caption. The caption is located in the title bar.

When you specify a window caption, you can type the entire caption, or you can use the following wildcards:

Wildcard character	Description
Question mark (?)	Matches a single character in a caption.
Asterisk (*)	Matches any number of caption characters from the asterisk to the next character or, if there are no characters after the asterisk, to the end of the caption.

When using wildcard characters in a caption, enclose the caption within braces.

Here are some examples of using caption wildcards in the *recMethod* argument of an Object Scripting command:

```
"\;Type=Window;Caption={?otepad};\;Type=EditBox;ObjectIndex=1"
    ' Matches the window caption "Notepad"

"\;Type=Window;Caption={Query*};\;Type=EditBox;ObjectIndex=1"
    ' Matches any window caption beginning with "Query"

"\;Type=Window;Caption={Class*line};\;Type=PushButton;ObjectIndex=1"
    ' Matches any window caption beginning with "Class" and
    ' ending with "line" (such as "Classics Online")
```

Using Wildcard Characters as Ordinary Characters

If you want to include a question mark or an asterisk as just another character in a caption rather than as a wildcard, precede the question mark or asterisk with the backslash (\) escape character. Also, to use a backslash as an ordinary character in a caption, precede it with another backslash.

For example, to match the path c:*.* in a window caption, use:

```
Caption={c:\\\*.\*}
```

Alternatively, you could simply omit the braces:

```
Caption=c:\*.*
```

Default Context

Object context has different defaults in different situations:

- The default context for a window is the desktop.
- The default context for other objects is the context set through the most recent `SetContext`, `SetTestContext`, or `ResetTestContext` action.

Customizing Scripts

The SQABasic scripting language gives you much of the programming flexibility of Microsoft Basic and other programming languages. For example, you can:

- Edit the scripts that Robot automatically generates.
- Add new commands, variables, and constants to scripts.
- Create custom sub procedures and functions for a script.
- Create library files for sub procedures and functions called from multiple scripts.
- Declare variables, constants, functions, and sub procedures in header files.
- Create a script template.

Script Editing Basics

To edit a script in Robot:

1. Click File → Open → Script.
2. Select the script to edit.
3. Click OK.

You can edit the SQABasic commands that Robot generates during recording, and you can add new commands. Add and edit commands according to the syntax descriptions in Chapter 6, *Command Reference*.

Declaring Variables and Constants

Declaring variables and constants is a fundamental script editing task you perform when editing a script. The following sections describe local, module-level, and global declarations of variables and constants.

Declaring Local Variables and Constants

You can declare local variables in a script or library source file.

The scope of local variables and constants is confined to the procedure in which the declarations appear.

You can insert a local declaration of a variable or constant anywhere within a procedure, as long as the declaration appears before its first use. Typically, however, variable and constant declarations appear at the beginning of the procedure.

Use `Dim` to declare a variable and `Const` to declare a constant.

In the following example, the variables *`Result`* and *`value`*, and the constant `TESTID`, are local to the `Main` sub procedure. Other procedures that may exist in this script file cannot access *`Result`*, *`value`*, or `TESTID`.

```
Sub Main
    Dim Result As Integer
    Dim value As String
    Const TESTID As String = "Test Plan Alpha: "
    . . .          ' Continue processing Main sub procedure
End Sub
```

Declaring Module-Level Variables and Constants

A module is an SQABasic script or library source file.

If you declare module-level variables and constants inside a script or library file, their scope spans all the sub procedures and functions in that file.

Module-level variable and constant declarations appear at the beginning of the file, above the `Main` sub procedure (for scripts) and any other procedures in the file. Use `Dim` to declare a module-level variable and `Const` to declare a module-level constant.

In this example, the variable *`value`* and the constant `TESTID` can be accessed by all the procedures in the script file. The variable *`Result`*, however, is local to the `Main` sub procedure.

```
Dim value as String
Const TESTID As String = "Test Plan Alpha: "

Sub Main
    Dim Result As Integer
    . . .          ' Continue processing Main sub procedure
End Sub
```

NOTE: For information about declaring variables and constants that are available to any module, see *Using SQABasic Header Files* on page 4-29.

Declaring Global Variables and Constants

If you declare a global variable or constant in a module, the variable or constant is validated at module load time:

- *Variables*. If you attempt to load a module that has a global variable declared, and the variable has a different data type than an existing global variable of the same name, the module load fails.
- *Constants*. If a declared constant has already been added to the runtime global area, the constant's type and value are compared to the previous definition, and the load fails if a mismatch is found. This is useful as a mechanism for detecting version mismatches between modules.

A definition for each global constant is stored in every compiled module. Other constants are only stored in a module if they are referenced by the module

Because global variables and constants have the potential to make modules large and slow, you should declare global variables and constants only when necessary.

The following table shows the difference between local or module-level declarations and global declarations:

Local or module-level declaration	Global declaration
`Dim myVariable as Integer`	`Global myVariable as Integer`
`Const MYCONSTANT as String = "aa"`	`Global Const MYCONSTANT as String = "aa"`

You can also declare global variables and constants in a header file.

Adding Custom Procedures to a Script

You can write custom sub procedures and functions and add them to the `Main` sub procedure that Robot generates in a script. If you add a custom sub procedure or function to a script, you can call it from `Main` or other procedures in the script.

For information about defining procedures in a script, see the following sections of Chapter 6, *Command Reference*:

- `Sub` . . . `End Sub` to define a sub procedure
- `Function` . . . `End Function` to define a function

Declaring a Procedure Residing in a Script

Procedure declarations typically appear at the beginning of a file, before the first `Sub ...` or `Function ...` statement in the file. Procedure declarations cannot appear within a procedure's `Sub` . . . `End Sub` or `Function` . . . `End Function` statements.

However, you can insert a procedure declaration anywhere within a file, as long as the declaration appears before its first use and does not appear within a procedure.

Use the `Declare` statement to declare procedures.

NOTE: For information about declaring custom procedures that are available to any module, see *Using SQABasic Header Files* on page 4-29.

Declaring a Sub Procedure

Here is an example of declaring a sub procedure named MySub. MySub has a string argument and an integer argument:

```
Declare Sub MySub(arg1 As String, arg2 As Integer)

Sub Main
    Dim s As String
    Dim i As Integer
    . . .
    Call MySub(s,i)
    . . .
End Sub

Sub MySub(arg1 As String, arg2 As Integer)
    . . .          ' Process the passed values
End Sub
```

Declaring a Function

Here is an example of declaring a function named MyFunc. MyFunc has a string argument and an integer argument. It also returns a status code as a string:

```
Declare Function MyFunc(arg1 As String, arg2 As Integer) As String

Sub Main
    Dim s As String
    Dim i As Integer
    Dim status As String
    . . .
    status=MyFunc(s,i)
    If status = "Success" Then
        . . .
    End If
    . . .
End Sub

Function MyFunc(arg1 As String, arg2 As Integer) As String
    . . .          ' Process the passed values
    MyFunc="Success"
End Function
```

Using a Procedure Definition as a Declaration

A procedure definition also serves as a declaration. As a result, procedure declarations are not always required. For instance, in the previous example, if the order of the procedures is reversed, no declaration is needed for MyFunc:

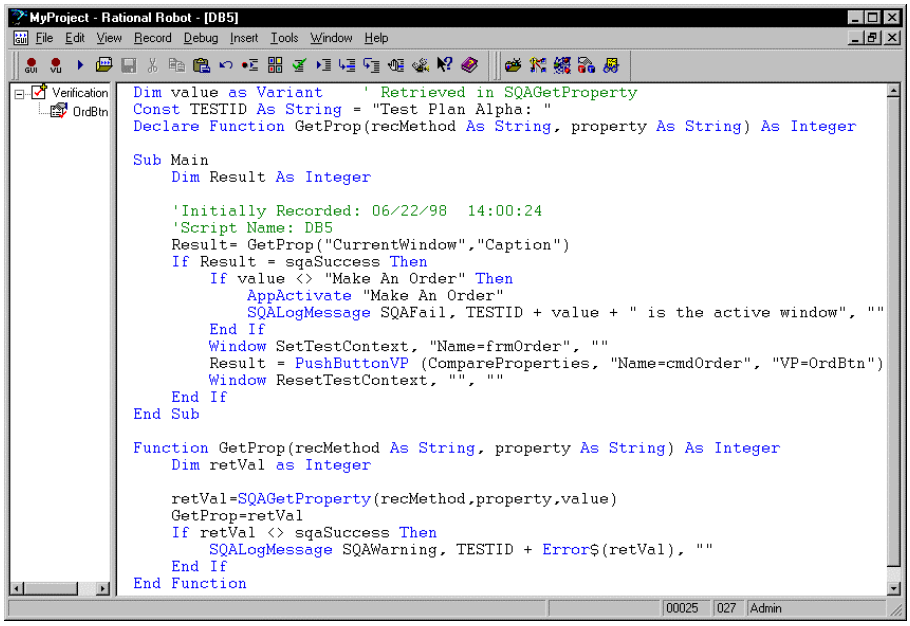
```
Function MyFunc(arg1 As String, arg2 As Integer) As String
    . . .          ' Process the passed values
    MyFunc="Success"
End Function

Sub Main
    Dim s As String
    Dim i As Integer
    dim status As String
    . . .
    status=MyFunc(s,i)
    If status = "Success" Then
        . . .
    End If
    . . .
End Sub
```

Example of a Custom Procedure

In the following example, the custom function MyProp is added to the script file DB5. MyProp gets information about a property by calling `SQAGetProperty`, and reports any `SQAGetProperty` errors to the log as warnings.

The calling procedure, `Main`, expects a window entitled Make An Order to be the currently active window. If it isn't the active window, `Main` makes it the active window and reports an error to the log. `Main` then performs an object property verification point on the window's Order button.



Adding Custom Procedures to a Library File

A library file contains one or more sub procedures and functions that are called from procedures in other files.

SQABasic supports these kinds of library files:

- SQABasic library files. SQABasic library source files can have either a .sbl or .rec extension. Compiled SQABasic library files have the extension .sbx.

  Note that .rec files can be used as script files or as library files, but .sbl files can only be used as library files.

- Dynamic-link library files (extension .dll).

The following table summarizes the differences between library files:

	.sbl	.rec	.dll
Location	SQABasic path	Datastore (folder TMS_Scripts) in the current project	TMS_Scripts\dll folder, or a user assigned location
Scope	When in the SQABasic path, available to files in the same project or other projects	Available to files in the same project	Depends on location
Verification points	No support	Supports all standard Robot verification points	Supports custom verification points

NOTE: For information about the SQABasic path, see page 4-33.

Any .rec file can be used as a library file. However, if a .rec file is also to be used as a script (that is, if it is to be executable directly from Robot or from the `CallScript` command), it must have a `Main` sub procedure.

To see a working example of a library file, open the Rational Robot Help and search the index for *library source files*.

The following sections describe how to work with library files.

Working With SQABasic Library Files

Adding custom procedures to an SQABasic library file is the same as adding custom procedures to a script. For information, see the following sections of Chapter 6, *Command Reference*:

- `Sub . . . End Sub` to define a sub procedure
- `Function . . . End Function` to define a function

Creating SQABasic Library Files

To create a new .sbl library file:

1. In Robot, click File → New → SQABasic File.
2. Click Library Source File, and then click OK.

You name the file (or accept the default name) the first time you save it.

.sbl library files are saved in the SQABasic path.

A library file cannot have the same name as the script file that calls it. For instance, myscript.rec cannot call a function in myscript.sbl.

NOTE: For your convenience, Robot provides a blank library source file, called global.sbl, in each project. You can add your custom procedures to this file and/or create new library source files. To open this file in Robot, click File → Open → SQABasic File, select global.sbl, and then click Open.

To create a new .rec library file:

1. In Robot, click File → New → Script.
2. Type the name of the file to create and optionally, a description.
3. Click the file type GUI if it is not already selected.
4. Click OK.

.rec library files are saved in folder TMS_Scripts in the current project.

Editing SQABasic Library Files

To open an existing .sbl library file:

1. In Robot, click File → Open → SQABasic File.

   Robot looks for the file in the SQABasic path.
2. In Files of type, select Library Source Files (*.sbl).
3. Click the file to edit, and then click Open.

To open an existing .rec library file:

1. In Robot, click File → Open → Script.

   Robot looks for the file in the current project.
2. Click the name of the file to edit, and then click OK.

Compiling SQABasic Library Files

Compile the SQABasic library file before you attempt to access it at test runtime.

Compiling SQABasic library files is the same for both .sbl files and .rec files. The fastest way to compile is to click the Compile button on the Robot toolbar. Compiling the file also saves it.

Compiled .sbl and .rec library files have the extension .sbx.

When you compile a .sbl file, the .sbx file is stored in the SQABasic path. This is true even if the .sbl file is not in the SQABasic path.

Declaring a Procedure Residing in an SQABasic Library File

If a custom procedure is in an SQABasic library file, you declare the library file in the same `Declare` statement you use to declare the procedure.

Here is an example of a declaration of a custom procedure (MySub) and an SQABasic library file (MyLib):

```
Declare Sub MySub BasicLib "MyLib" (arg1 As String, arg2 As Integer)
```

Note the differences (shown in bold type) between this procedure declaration and the module-level procedure declaration example on page 4-23:

- The word `BasicLib` is added to the declaration, indicating that the declared procedure MySub is in an SQABasic library file.
- The name of the library file (MyLib), in quote marks, follows the `BasicLib` designation.

  Because the `BasicLib` keyword indicates that a .sbx library file (as opposed to a .dll library file) is being declared, the .sbx extension in the declaration is not required or recommended.

Where to Declare an SQABasic Library File

You can declare an SQABasic library file in any of these locations:

- In a script or other library file, for use by the procedures in that module only
- In a header file, for use by any module that references the header file

Working With DLL Files

SQABasic procedures can call procedures stored in DLL files. For example, they can call the procedures stored in Microsoft Windows DLLs such as Kernel32.dll.

Robot does not provide a tool for creating DLLs. To add procedures to a DLL file, you need a tool such as Microsoft Visual C++ or Visual Basic.

Declaring a Procedure Residing in a DLL File

If a procedure is in a DLL file, you declare the DLL file in the same `Declare` statement you use to declare the procedure.

Here is an example of a declaration of a custom procedure (MySub) and a DLL file (MyDLL):

```
Declare Sub MySub Lib "MyDLL" (ByVal arg1 As String, ByVal arg2 As Integer)
```

Note the differences (shown in bold type) between this procedure declaration and the module-level procedure declaration example on page 4-23:

- The word `Lib` is added to the declaration, indicating that the declared procedure MySub is in a .dll library file (as opposed to a .sbl or .rec SQABasic library file).
- The name of the library file (MyDLL), in quote marks, follows the `Lib` designation.
- Argument declarations include the keyword `ByVal`. For information about using the keyword `ByVal` (or `Any`) with argument declarations for DLL procedures, see the `Declare` statement in Chapter 6, *Command Reference*.

If the compiled library file (.dll) is located in TMS_Scripts\dll for the current project and datastore or in the system path, you don't need to specify the path in the declaration. Otherwise, you do need to specify the path — for example:

```
Declare Sub MySub Lib "E:\MyDLL" (ByVal arg1 As String, ByVal arg2 As Integer)
```

Where to Declare a DLL File

You can declare a DLL file in any of these locations:

- In a script or SQABasic library file, for use by the procedures in that module only
- In a header file, for use by any module that references the header file

Using SQABasic Header Files

An SQABasic header file contains a list of declarations. You can use header files to declare constants, variables, custom sub procedures, and custom functions.

The declarations in a header file apply to any module (script or library file) that references the header file. Use `'$Include` to reference a header file.

SQABasic supports two types of header files. These header files and their default locations are:

- Header files, stored in the SQABasic path. When a header file is in the SQABasic path, it is available to all modules in the same project or in other projects.
- Project header files, stored in the TMS_Scripts folder of the project. Project header files are available to all modules in the same project.

Both types of SQABasic header files have the extension .sbh.

To see a working example of a header file, open the Rational Robot Help and search the index for *header files*.

Creating and Editing a Header File

To create a header file in the current SQABasic path:

1. In Robot, click File → New → SQABasic File.
2. Click Header File, and then click OK.

Save the file in the default location. You name the file (or accept the default name) the first time you save it.

NOTE: For your convenience, Robot provides a blank header file, called global.sbh, in each project. You can add your global declarations to this file and/or create new header files. To open this file in Robot, click File → Open → SQABasic File, select global.sbh, and then click Open.

To edit a header file in the current SQABasic path:

1. In Robot, click File → Open → SQABasic File.
2. In Files of type, select Header Files (*.sbh).
3. Click the file to edit, and then click Open.

Creating and Editing a Project Header File

To create a project header file in the current project:

- In Robot, click File → New → Project Header File.

Save the file in the default location. You name the file (or accept the default name) the first time you save it.

To edit a project header file in the current project:

1. In Robot, click File → Open → Project Header File.
2. Click the file to edit, and then click Open.

Saving SQABasic Header Files

After you add declarations to an SQABasic header file, save the file. When you create or edit an SQABasic header file, save it before you compile a script or library file that references the SQABasic header file. You don't compile SQABasic header files.

Scope of Declarations in SQABasic Header Files

At compile time, the `'$Include` command logically inserts the SQABasic header file declarations into the script at the line where the `'$Include` command is located (*logically*, because the script is not physically changed).

As a result, the scope of the declarations in the SQABasic header file is determined, in part, by the location of the `'$Include` command. When the `'$Include` command is located before the first procedure in the module, the SQABasic header file declarations apply to all the procedures in the module.

Scope is also determined by whether you declare a variable or constant as global. For more information, see *Declaring Global Variables and Constants* on page 4-22.

Declaring Global Variables and Constants Inside Header Files

You can declare global variables and constants inside an SQABasic header file, just as you can declare them inside a module. For information, see *Declaring Global Variables and Constants* on page 4-22.

Declaring Global Procedures inside Header Files

You declare sub procedures and functions in an SQABasic header file exactly as you declare them in a script:

- For information about declaring procedures that reside in a script file, see *Declaring a Procedure Residing in a Script* on page 4-23.
- For information about declaring procedures that reside in an SQABasic library file, see *Declaring a Procedure Residing in an SQABasic Library File* on page 4-28.
- For information about declaring procedures that reside in a DLL file, see *Declaring a Procedure Residing in a DLL File* on page 4-28.

Referencing an SQABasic Header File

For the procedures in a script or SQABasic library file to be able to use the variables, constants, and procedures declared in an SQABasic header file, the script or library file needs to reference the header file. You reference a header file through the `'$Include` command.

To have header file declarations apply to all the procedures in a module, place `'$Include` at the beginning of the module — for example:

```
'$Include "global.sbh"

Sub Main
    . . .
End Sub
```

Note that:

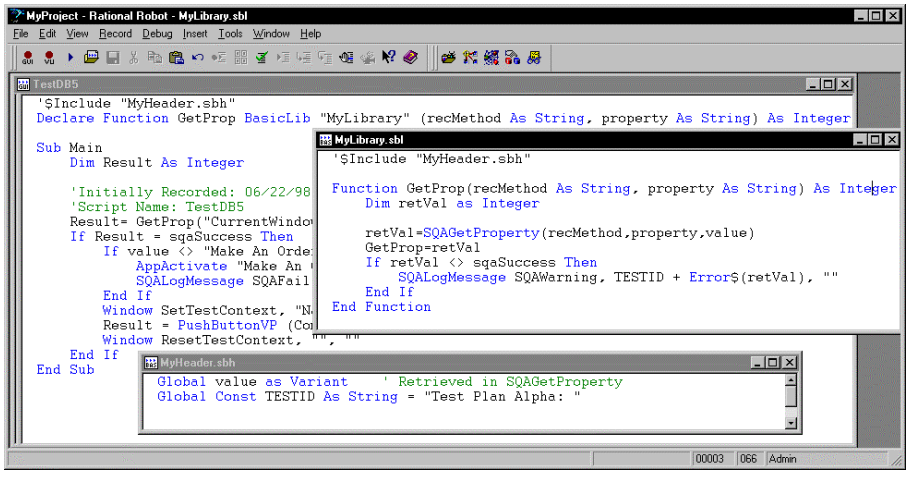
- The SQABasic header file name is enclosed in double quotation marks (").
- SQABasic header file names are not case sensitive.
- If a header file resides in the SQABasic path, or a project header file resides in the default TMS_Scripts folder of the current project, no path is necessary in the '`$Include` command.
- Optionally, you can use an absolute or relative path to reference header files and project header files. For example, if you want a script to reference the header file MyHeader.sbh, regardless of the current SQABasic path, and the script and header file are in the default locations of the same project, you can use the following declaration:

```
'$Include "SQABas32\MyHeader.sbh"
```

The '`$Include` command begins with a single quotation mark ('), which normally indicates a comment. But when a single quotation mark is followed by a dollar sign ($), a special SQABasic command is indicated.

Sample Library and Header Files

The following figure contains the same code as the script DB5 on page 4-25. But now, the variable and constant declarations have been moved to the header file MyHeader.sbh, and the custom procedure has been moved to the library file MyLibrary.sbl.



Note that:

- The variable and constant declarations in the header file have a different syntax than they did when declared inside the script.
- The declaration of the function GetProp now includes the fact that it resides within an SQABasic library (through the keyword `BasicLib`). The declaration also specifies the name of the compiled library (MyLibrary).
- For the script TestDB5 and the library file MyLibrary to access the same variables and constants, both files '`$Include` the header file MyHeader.sbh, where the variable and constant declarations reside.
- Because the custom procedure GetProp is declared inside the script DB5, it can be called by all procedures (such as `Main`) in that script.

  GetProp can also be declared in a header file, so that procedures in any script can call it. However, GetProp cannot be declared in the header file MyHeader.sbh, because the library where GetProp resides (MyLibrary) references that header file. A library file cannot `'$Include` a header file that contains a declaration of a procedure residing within that library file.

  If the declaration of GetProp resided in a header file named MyProcs.sbh, this is how the script TestDB5 would begin:

```
'$Include "MyHeader.sbh"
'$Include "MyProcs.sbh"

Sub Main
    . . .
End Sub
```

SQABasic Path

The SQABasic path is where Robot saves and looks for .sbl library files and header files.

The SQABasic path is user definable in Robot.

Once you explicitly define the SQABasic path in Robot, the path is persistent. However, Robot automatically sets the SQABasic path when all of the following conditions are true:

- You have not yet explicitly defined an SQABasic path in Robot.
- You have created a new project and datastore in Rational Administrator.
- You open Robot using the newly created project and datastore.

When all of these conditions are true, Robot automatically sets the SQABasic path to the following location in the new project and datastore:

*NewProject**NewDatastore*\DefaultTestScriptDatastore\TMS_Scripts\SQABas32

To set the SQABasic path in Robot:

1. Click Tools → General Options.
2. Click the Preferences tab.
3. Type a path in the SQABasic path box.

Using the Template File

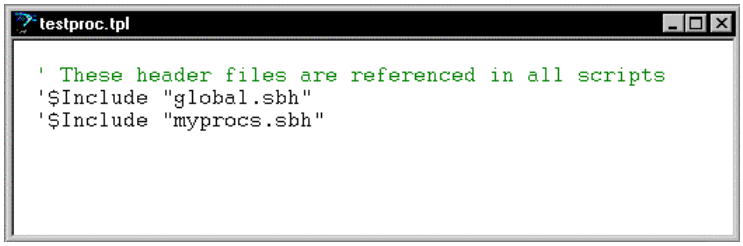
Each time you create a new datastore, a script template file named testproc.tpl is created in the datastore's SQABas32 folder.

When a testproc.tpl template file is in the SQABasic path, any new script you create will include the text inside the template file. You can modify the template file with any text you like — for example, you might want to automatically insert specific comments and include statements into scripts you create.

Template entries are only added to new scripts. They are not added to new library files or header files.

To edit the testproc.tpl template file:

1. In Robot, click File → Open → SQABasic File.
2. In Files of type, select Template Files (*.tpl).
3. Select testproc.tpl, and then click Open.
4. Define the template entries you want — for example:



5. Click File → Save.
6. Click File → Close.

▸▸▸CHAPTER 5

Enhancements to Recorded Scripts

During recording, Rational Robot automatically generates most of the activities that you will need a script to perform. However, there are some activities that Robot does not generate during recording. These activities include:

- Object scripting
- Managing custom verification points
- Comparing environment states
- Displaying messages in Robot
- Using datapools
- Accessing external applications

Object Scripting

SQABasic's powerful **Object Scripting** commands let you access an application's objects and object properties from within a script. The tasks you can perform with Object Scripting commands include retrieving and setting an object's properties. For example, you could use the `SQAGetProperty` command to retrieve properties such as the height, location, or value of an edit box.

You can also perform other kinds of tasks with Object Scripting commands, such as executing a method associated with an object, and checking to see if an object exists before performing actions against the object.

Object Scripting commands can only be inserted by manually editing the script. Robot does not generate these commands during recording.

See *Object Scripting Commands* in Chapter 2, *Functional List*, for a summary of each Object Scripting command.

Specifying an Object

You specify the object you want to access through a recognition string in the recognition method (*recMethod*) argument of an Object Scripting command.

The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the PushButton user action command. (See the description of the PushButton command in Chapter 6, *Command Reference*.)

In addition, you might need to specify one or both of the following kinds of information to uniquely identify an object for an Object Scripting command:

- Object type
- Object context

Object Type

With Object Scripting commands, just as with user action and verification point commands, the recognition method argument uniquely identifies the object to be accessed. However, where the object *type* is implicit in the specific user action or verification point command name itself, you sometimes have to explicitly define the object type in Object Scripting commands.

For example, suppose you record a mouse click on an OK push button. Robot records the user action with this command:

```
PushButton Click, "Text=OK"
```

The object type, a push button, is made clear from the command name itself.

But suppose you want to determine whether the OK button's Enabled property is set to True or False. If you call the Object Scripting command SQAGetProperty to retrieve this information, and the command uses the same *recMethod* value that the above PushButton command used, this is the way the new command looks:

```
Result=SQAGetProperty("Text=OK","Enabled",value)
```

Nowhere in this command is the object type — a push button — specified. If no other object on the current context window contains the text OK, there is no confusion about the object you're accessing. But if another object uses the same label as the push button (for example, a check box with the caption OK), the command can't be sure which object you want and may retrieve the wrong value.

To be sure that you uniquely identify the object you want to access, include the object type in the *recMethod* argument, as follows:

```
Result=SQAGetProperty("Type=PushButton;Text=OK","Enabled",value)
```

SQABasic Object Type Names

The table below lists the valid object types you can specify in the *recMethod* argument of an Object Scripting command.

The names may not be exactly the same as the names used in the development environment. (For example, the SQABasic object type ComboBox may be called DropDownList in the development environment.)

Object type names are not case sensitive.

Note that some development environments offer special object types beyond those available to all development environments.

Here is the table of valid *recMethod* object types:

Development environment	Valid values for Type= in *recMethod*	
Microsoft Windows objects available to all development environments	AnimateControl Calendar CheckBox ComboBox ComboEditBox ComboListBox DateTime Desktop EditBox Generic GroupBox HDItem Header HotKeyControl Image IPAddress Label ListBox ListView	LVItem Pager ProgressBar PushButton RadioButton Rebar RichEdit ScrollBar SpinControl StatusBar TabControl TBItem TCItem Toolbar Trackbar TreeView TVItem Window
HTML	HTML HTMLActiveX HTMLDocument HTMLHidden	HTMLImage HTMLLink HTMLTable

► ► ►

► ► ►

Development environment	Valid values for Type= in *recMethod*	
Java	JavaCanvas	JavaSplitPane
	JavaListView	JavaSplitter
	JavaMenu	JavaTable
	JavaObject	JavaTableHeader
	JavaPanel	JavaTree
	JavaPopupMenu	JavaWindow
Oracle	Block	LOV*
	Canvas	OLEContainer
	ChartItem	RadioGroup
	DisplayItem	RecordGroup*
	Form	UserArea
	Image	
PeopleSoft	Border	PSNavigator
	Calendar	PSPanel
	Field	PSSpin
	Frame	PSTtimeSpin
	Image	PSTree
	LongEdit	PSTreeItem
	PSCalendar	PSTreeHeader
	PSColumn	SecondaryPanel
	PSGrid	SubPanel
	PSGridHeader	StaticImage
	PSMapItem	Text
	PSMenu	
PowerBuilder	DataWindow	DWLine
	DropDownDataWindow	DWOLE
	DropDownListBox	DWRectangle
	DWBitmap	DWReport
	DWColumn	DWRoundRectangle
	DWComputedField	DWTableBlob
	DWEllipse	DWText
	DWGraph	
Visual Basic	Image	OLE
	Line	Shape

* This object can only be accessed through Object Scripting commands. It can't be accessed when you record user actions or verification points with Robot.

NOTE: Developers assign a name to an object to uniquely identify the object in the development environment. Because object names are usually unique, you typically can use `Name=` to identify an object without using `Type=`.

Object Context

By default, the context for an object you specify in the recognition method argument is the current context window. For example, the following push button object is assumed to be in the current context window (*`recMethod`* is the first argument in the `SQAGetProperty` command):

```
Result=SQAGetProperty("Type=PushButton;Text=OK","Enabled",value)
```

If the object you want to access isn't a direct child of the current context window, or if you want to define a full object path for the Object Scripting command, you define the context through context notation, as described in the section *Establishing Context through Context Notation* in Chapter 4, *SQABasic Scripts.*

For example, the following two code fragments each access a combo box object in a window whose caption is Make An Order. The first `SQAGetProperty` example uses the current context window:

```
Window SetContext, "Caption=Make An Order",""
Result=SQAGetProperty("Type=ComboBox;Name=cmbCardType","Text",value)
```

The second `SQAGetProperty` example uses context notation to establish context:

```
Result=SQAGetProperty("\;Caption=Make An Order;\;Type=ComboBox;
                      Name=cmbCardType","Text",value)
```

Remember, context notation assigns context *locally* — it only affects the command in which the context notation appears. Context notation does not change the current context window.

Other Ways to Specify an Object

The following *`recMethod`* values are useful when you don't know the name of the object you want to access:

`CurrentWindow` – Specifies the currently active window as the window object to access. For example, the following command retrieves the text displayed in the title bar of the currently active window:

```
Result=SQAGetProperty("CurrentWindow","Caption",value)
```

`CurrentFocus` – Specifies the object that currently has the Windows focus as the object to access. For example, the following command retrieves the height of the object with the Windows focus:

```
Result=SQAGetProperty("CurrentFocus","Height",value)
```

Specifying the Object Property

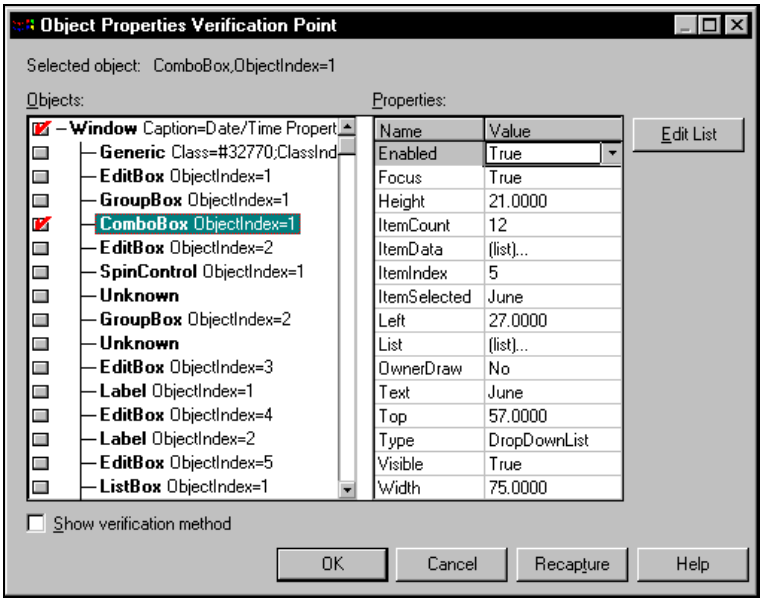
To specify a property to access with an Object Scripting command, assign the property name to the command's *property* argument.

The following sections describe how you can find out which properties you can access through an Object Scripting command.

Properties Assigned in the Development Environment

The properties you can access for a given object include the properties you can define for the object in the development environment.

These are the same properties you see when you perform an Object Properties verification point for the object. For example, suppose you capture verification point information for the Months field object of the Windows NT Date/Time Properties dialog box. These are the object properties you see listed on the Object Properties Verification Point dialog box:



The properties you can access for the Month field (a combo box) are listed in the Name column in the preceding figure. To specify a property to access in an Object Scripting command, insert the property name in the *property* argument of the Object Scripting command you're using.

NOTE: Property names are case sensitive. Names must be typed exactly as listed in the Name column of the Object Properties Verification Point dialog box.

Here's an example of how to use the `SQAGetProperty` command to retrieve the current value of the Month field on the Windows NT Date/Time Properties dialog box. The *`property`* argument is in bold type:

```
Sub Main
    Dim Result As Integer
    Dim value as Variant
    Window SetContext,"Caption=Date/Time Properties",""
    Result=SQAGetProperty("Type=ComboBox;ObjectIndex=1","Text",value)
    MsgBox "Current month is " + value
End Sub
```

To display this dialog box before running the script, double-click the date in the Windows NT taskbar.

Additional Properties

In addition to the properties that are captured when you record an Object Properties verification point for a given object, you can access the following properties for any object:

Property	Description
`Class`	The object's class name.
`ClientRect`	The coordinates of the object, in pixels, relative to the client area of the window (in the format "x1,y1 to x2,y2").
`Environment`	The name of the development environment (such as Visual Basic or PowerBuilder) in which the object was created.
`FullRecognition`	A full-path recognition string that identifies the object and all its parent objects up to the desktop.
`hWnd`	The window handle, if any, associated with an object.
`ModuleFileName`	The full path and file name of the library file or executable file that controls the specified object. For example, `ModuleFileName` could be: ▸ The application's executable file name (as is often the case for top-level windows). ▸ A .DLL (for example, objects within a standard File Open dialog box may have a `ModuleFileName` of C:\WIN95\SYSTEM\COMDLG32.DLL, which is the common dialog box library).

▸ ▸ ▸

► ► ►

Property	Description
`Name`	The object name that is assigned in the development environment.
`ObjectType`	The SQABasic name for the object's type. For a list of the object names that SQABasic supports, see the table beginning on page 5-3.
`ParentRecognition`	A full-path recognition string that uniquely identifies the object's immediate parent.
`Recognition`	A recognition string that uniquely identifies the object within its parent.
`ScreenRect`	The coordinates of the object, in pixels, relative to the screen (in the format "x1,y1 to x2,y2").

NOTE: Because a `Rect` can't be stored as a `Variant`, you can't use `SQAGetProperty` to retrieve a value for the `ClientRect` or `ScreenRect` property. Instead, use `SQAGetPropertyAsString` to retrieve the value in `String` form ("x1,y1 to x2,y2").

Array of Property Values

Some property values are stored as arrays — for example, the list of items stored in a combo box control.

Specifying Individual Elements in an Array

You use standard SQABasic array notation to access the elements in an array of property values. For example, in the following code, the *`property`* argument (argument 2) shows how to specify the third item in a combo box:

```
SQAGetPropertyAsString "Type=ComboBox;ObjectIndex=1","List(2)",item
```

Note that the array is 0-based. Indices to arrays of property values are almost always 0-based. The only exceptions are some Visual Basic or OCX/ActiveX controls where the array has been specifically declared as 1-based.

Because 1-based arrays of property values are rare, assume that the array you're accessing is 0-based. If you have a problem accessing an OCX/ActiveX array, consult the documentation for the OCX/ActiveX control to find out how the array is indexed.

Retrieving an Entire Array

You can retrieve the entire array of values for a property by calling either of these commands:

- `SQAGetPropertyArray`
- `SQAGetPropertyArrayAsString`

These commands return values as a Basic array which is always 0-based.

NOTE: `SQAGetProperty` and `SQAGetPropertyAsString` retrieve just a single element in an array. If you use these commands to try to retrieve an entire array (by not specifying an index value in the *`property`* argument), the error `sqaArraysNotSupported` is returned.

Retrieving the Number of Elements in an Array

If you want to retrieve the number of elements in an array, use the command `SQAGetPropertyArraySize`.

Getting Help Defining Recognition Methods

When specifying the object to access, you have to uniquely identify the object in the *`recMethod`* argument of the Object Scripting command.

Multi-object recognition method paths can be difficult to construct. The following sections describe two ways you can get help in defining recognition method values:

- Letting Robot define recognition method values for you
- Finding recognition method values programmatically

Letting Robot Define Recognition Method Values

In many cases, Robot can define recognition method values for you. To have Robot do so, perform these steps:

1. Record a temporary script, click on the object you want to define a recognition method for, and then stop recording.
2. Copy the recorded recognition method.
3. Open your own script and paste the recognition method into the *`recMethod`* argument of the appropriate command.

When using this method, keep the following points in mind:

- Make sure that the context window is the same for the command in your script and the `Click` action you recorded in the temporary script.

  For information about the context window, see the section *Establishing Context through a Window Command* in Chapter 4, *SQABasic Scripts*.

- If you are defining a recognition method for an Object Scripting command, and the above method doesn't work, you might need to add a `Type=` value to the recognition method.

  For information about `Type=` values, see the section *Object Type* on page 5-2.

Finding Recognition Method Values Programmatically

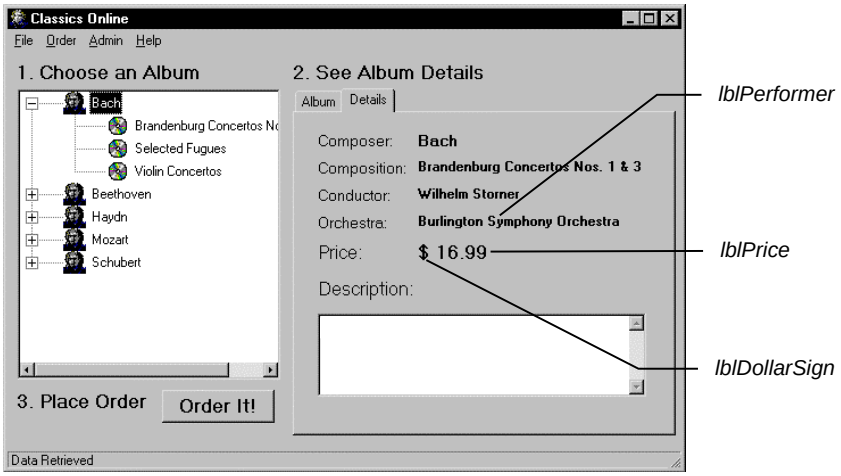
The following Object Scripting commands may be useful if you need to construct a recognition method path programmatically within your script:

- `SQAGetProperty` or `SQAGetPropertyAsString`, when used to retrieve a `Recognition`, `ParentRecognition`, or `FullRecognition` property. These properties are listed in the table on page 5-7.
- `SQAGetChildren`.

When you retrieve recognition methods through these commands, a `Type=` object definition is included in all returned values.

Examples

All of the following examples are in the context of the Classics Online window (`Name=frmMain`) shown below. The clicked item is Bach (`ItemText=Bach`), an item in the tree view object (`Name=treMain`):



- To find the recognition method of the currently active window:

```
Result=SQAGetProperty(".\","Recognition",value)
```

  Returned value:

```
Type=Window;Name=frmMain
```

- To find the immediate parent of the tree view item Bach:

```
Result=SQAGetProperty("Name=treMain;\;ItemText=Bach",
    "ParentRecognition",value)
```

  Returned value:

```
Type=TreeView;Name=treMain
```

- To find the complete object path of the tree view item Bach, beginning with the desktop and ending with the target object itself:

```
Result=SQAGetProperty("Name=treMain;\;ItemText=Bach",
       "FullRecognition",value)
```

  Returned value:

```
Type=Window;Name=frmMain;\;Type=TreeView;Name=treMain;\;
       Type=TVItem;ItemText=Bach
```

- To find the full-path recognition method for each child object in the currently active window and store it in the array *`children()`*:

```
Dim children() as String
Result=SQAGetChildren(".\",children)
```

  The first three items in the array are:

```
"\;Type=Window;Name=frmMain;\;Type=Label;Name=lblDollarSign"
"\;Type=Window;Name=frmMain;\;Type=Label;Name=lblPrice"
"\;Type=Window;Name=frmMain;\;Type=Label;Name=lblPerformer"
```

Object Scripting Status Codes

Object Scripting commands return `sqaSuccess` upon successful execution. If an error occurs, most Object Scripting commands return a status code that identifies the problem. See Appendix C for a listing of the status codes that an Object Scripting command can pass back.

NOTE: If an error occurs during the execution of an Object Scripting command, the command will never log an error message or cause a script to fail. If you want to respond to an error in a particular way, test for the status code and program your response manually.

You can use the SQABasic `Error` function to retrieve a string description of a status code — for example:

```
Result=SQAGetProperty("Name=myObject","Enabled",value)
If Result <> sqaSuccess Then
    SQALogMessage sqaFail, Error$(Result),""
End If
```

Managing Custom Verification Points

Robot provides a variety of ways you can verify standard objects — for example, Robot can automatically verify an object's properties (Object Properties verification point), data (Object Data verification point), and text (Alphanumeric verification point).

After script playback, you can view the **baseline data** (captured during recording) in the LogViewer. If the baseline result is different than the **actual data** (captured during playback), you can view both the baseline data and the actual data in a LogViewer Comparator.

You can also verify objects through **custom procedures**, and perform the same kind of verification and LogViewer tasks that Robot performs automatically. For example, if you need to verify the properties of a custom object from build to build, you could write one or more procedures that:

- Retrieve the target object's properties (similar to recording a standard verification point in Robot).
- Store the captured data in a .csv file or other file type. This is the baseline file.
- Play back the custom procedure, and compare the data captured during playback with the data stored in the baseline file (similar to playing back a standard verification point in Robot).
- Write the baseline data and, if necessary, the actual data, to a log.

The SQABasic verification point management commands can help you with some of these tasks, as described next.

After you capture data for a custom verification point, you can view the data through the LogViewer and the Comparators. The LogViewer and the Comparators display the contents of files of type .csv and .txt. With other file types (such as .doc), the LogViewer opens the appropriate editor to display the file contents.

NOTE: In most cases, the LogViewer and Comparators use the same conventions for .csv files that Microsoft Excel uses. However, the LogViewer and the Comparators ignore leading white space (space or tab characters), where Excel considers leading space characters to be part of the field's value.

Summary of Verification Point Management Commands

To help you perform custom object verification, SQABasic provides a set of verification point management commands.

Most of the verification point management commands return a file name and path — that is, the name and location where LogViewer expects to find a particular data file. For example, if the LogViewer can find a data file, it can display the baseline or actual data in the file.

Here is a summary of the commands:

Command	Purpose
SQAVpGetBaselineFileName	Generates the full path and name of a baseline data file. The baseline data file is a copy of the current baseline data file. It is stored in a log for a particular test.
SQAVpGetActualFileName	Generates the full path and name of an actual data file captured during playback.
SQAVpGetCurrentBaselineFileName	Generates the full path and name of the current baseline data file. You never store the contents of this file in a log directly. Instead, in any given test, you copy the contents of this file to a baseline data file. The latter file is stored in a log for that particular test.
SQAVpLog	Writes a custom verification point record to a log. The record is viewable in the LogViewer.

See Chapter 6, C*ommand Reference*, for syntax information on these commands.

Current Baseline and Logged Baseline

It is important to understand the difference between the current baseline and the historic, or logged, baseline:

- The **current baseline** data file contains the data that is currently available for comparison against data captured during playback of a particular test. There is only one current baseline data file per custom verification point.

  The current baseline data file can change. For example, suppose a button has the caption OK. In your initial test, you capture this information and store it in the current baseline data file. In subsequent builds, you test to make sure the caption has not changed. But suppose usability testing demonstrates that the caption of this button should be Accept. You change the object's caption, and then you change the current baseline data file so that subsequent tests can be compared against the new caption.

  To view the current baseline for a particular verification point, double-click the verification point name in the Robot Asset pane (to left of the script).

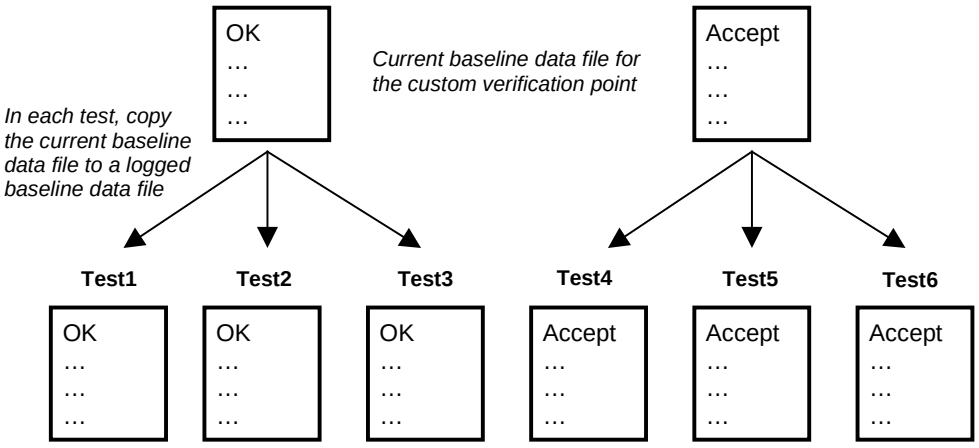
- The historic, or **logged**, baseline represents the current baseline as it appears in a particular test. The logged baseline data file is copied from the current baseline data file and stored in a log. There is a separate logged baseline data file for each playback result stored in a log. Logs are stored in the datastore and can be accessed through a LogViewer Comparator.

  To view the logged baseline (and if present, the actual data), double-click the verification point name in the Log Event column of the LogViewer.

  You can't change a logged baseline data file through the LogViewer. A logged baseline data file represents the contents of the current baseline data file during a particular test. If you change baseline data through the LogViewer, you are changing the current baseline, not the logged baseline.

You can have many logged baseline data files stored for a given custom verification point. But you can have only one current baseline data file associated with that custom verification point.

In the following figure, the caption OK is changed to Accept between Test3 and Test4. The current baseline data file is modified to accommodate the change:



Logged baseline data files viewable with the LogViewer

Actual Data Files

Note that there is not a "current" version of an actual data file. If the actual data captured during playback of a particular test doesn't match the contents of the current baseline data file:

- Create an actual data file.
- Copy the both actual data file and a copy of the current baseline data file to a log. Both files remain part of the log entry for that particular test.

Using the Verification Point Management Commands

This section contains a high-level scenario of typical tasks you perform in custom verification point procedures. It is a guide to help you determine where in your script to use the SQABasic verification point management commands.

All of these tasks are performed in your custom verification point procedures:

1. Create the current baseline data file, as follows:
   - Capture data for the target object. Store the data in a file of any format you choose (such as a .csv file).
   - Call `SQAVpGetCurrentBaselineFileName` to get the file's path and name.

     After you call this command, the referenced custom verification point is listed in the Robot Asset pane (to the left of the script) with the script's other verification points. You might have to click View → Refresh to see it.

   This step is equivalent to recording a standard verification point in Robot.
2. Play back your first test in Robot. During script playback:
   - Copy the current baseline data file. Assign the new file the name and path returned by `SQAVpGetBaselineFileName`. This action creates a baseline file *for this test only* and stores it in a log.

     If the baseline data and the actual data (captured during playback) don't match, you will typically want to keep the baseline data file and the actual data file stored in the log. But even if the baseline data and the actual data do match, you might find it useful to keep a historic record of the baseline data in the log for each test you run.
   - Capture data for the target object (just the way you captured it in step 1). This is the actual data for this test.
   - Compare the contents of the baseline file against the actual data you just captured. If the baseline data matches the actual data (that is, if the custom verification point passes), skip to step 3.
   - If the baseline data does not match the actual data, create a file and write the actual data to it. Store this actual data file in the name and location returned by `SQAVpGetActualFileName`. These actions create an actual data file for this test and store the data file in a log.

     The LogViewer can now display the baseline data and the actual data for this test.
3. Call `SQAVpLog` to enter a record into the LogViewer, based on the results of the data comparison in step 2. This record includes the verification point name or a message, and optionally, the notation Pass, Fail, or Warning, in the LogViewer Result column.
4. Repeat steps 2 and 3 for each regression test.

For each test, there is a different copy of the baseline data file saved in a log. If the actual data captured during a test doesn't match the baseline data, an actual data file is also logged for that test.

5. Modify the current baseline data file whenever necessary. There is only one current baseline data file per custom verification point.

   You can change the contents of the current baseline data file by changing the baseline data displayed in the log (for example, you can replace the baseline data with the actual data).

Example

The following example illustrates the steps in the previous section:

- If the script is executed with `runType="GET BASELINE"`, the current baseline data is captured and stored in a file (as described in step 1). This step is similar to recording a standard verification point with Robot.
- If the script is executed with `runType="GET ACTUAL"`, the captured actual data is compared against the baseline. The baseline data and, on verification point failure, the actual data, are stored in a log for this test run, and the test results are reported in the log (as described in steps 2 and 3). These steps are similar to playing back a standard verification point.

To run this example, copy it from the SQABasic online Help. Run the Help and search for *custom verification points, example of managing* in the Help Index tab.

```
' Script performs the custom verification point MyVP

' Procedure captures data and writes it to the file specified by
' argument DataPath.  Returns True if successful, False on error.
Declare Function CustomCaptureData(DataPath As String) As Integer

' Procedure compares the two data files.  Returns True if
' successful, False on error.
Declare Function CustomCompareData(BaselinePath As String, _
                                   ActualPath As String) As Integer


Dim runType as String   ' Flag retrieval of baseline or actual data


Sub Main()

Dim currFilepath As String      ' Current baseline data file path
Dim loggedFilepath As String    ' Logged baseline data file path
Dim actFilepath As String       ' Actual data file path
Dim captureResult as Integer    ' Result of MyVP data capture
Dim compareResult as Integer    ' Result of custom verif. pt. MyVP

compareResult = True    ' Default to true.
captureResult = True    ' Default to true.
```

```
' ***** TO SIMULATE BASELINE AND ACTUAL DATA CAPTURES: *****
' ==========================================================
' * Set runType to "GET BASELINE" to capture baseline data.
' * Set runType to "GET ACTUAL" to capture actual data and
'   to compare it against the baseline.
runType = "GET BASELINE"
'runType = "GET ACTUAL"

If runType = "GET BASELINE" Then

    ' Step 1
    ' ============================================================
    ' This portion captures baseline data. It is similar to
    ' recording a standard verification point.
    ' ============================================================

    ' Get path and file name for current baseline data file
    currFilepath = SQAVpGetCurrentBaselineFileName("MyVP","CSV")

    ' Procedure captures data for custom object and records it in
    ' the correct datastore location for current baseline files
    captureResult = CustomCaptureData(currFilePath)

  Else

    ' Step 2
    ' ============================================================
    ' This portion captures the actual data for a particular build
    ' and compares it against the baseline data generated earlier.
    ' Run this portion during playback when testing a build.
    ' ============================================================

    ' Get path and file name for current baseline data file
    currFilepath = SQAVpGetCurrentBaselineFileName("MyVP","CSV")

    ' Get LogViewer's path and file name for logged baseline file
    loggedFilepath = SQAVpGetBaselineFileName("MyVP","CSV")

    ' Copy contents of current baseline file to file name/location
    ' where LogViewer expects to find baseline file for this test run
    Call FileCopy(currFilepath,loggedFilepath)

    ' Get LogViewer's path and file name for actual data file
    ' for the data captured in this test run
    actFilepath = SQAVpGetActualFileName("MyVP","CSV")

    ' Procedure captures actual data for custom object
    captureResult=CustomCaptureData(actFilepath)

    ' Procedure compares actual data with baseline data
   compareResult=CustomCompareData(loggedFilePath,actFilepath)

    ' Step 3
    ' Log the results of the custom verification point appropriately
    If compareResult = False Then
        Call SQAVpLog(sqaFail,"MyVP","",loggedFilepath,actFilepath)
      Else
        Call SQAVpLog(sqaPass,"MyVP","",loggedFilepath,"")
    End If

End If

End Sub
```

```
' ===================
' *** Subroutines ***
' ===================


' Call this function to "capture" data and write it to a file
Function CustomCaptureData(DataPath As String) As Integer

    Dim Message As String
    Dim captureType As String

    Open DataPath For Output As #1
    ' Write to baseline or actual data file
    If runType="GET BASELINE" Then
        Write #1,"Baseline data captured during 'recording'"
        captureType = "baseline"
      Else
        Write #1,"Actual data captured during playback"
        captureType = "actual"
    End If
    Close #1

    Message="Now capturing " + captureType + " data." + Chr$(13)
    Message=Message + "Data file path: " + DataPath + Chr$(13)
    MsgBox Message

    CustomCaptureData = True

    If runType="GET BASELINE" Then
        Message="Before you run this example again to simulate "
        Message=Message + "test playback, change" _
            + Chr$(13) + Chr$(13)
        Message=Message + "     runType = ""GET BASELINE""" _
            + Chr$(13) + Chr$(13) + "to" + Chr$(13) + Chr$(13)
        Message=Message + "     runType = ""GET ACTUAL"""
        MsgBox Message
    End If

End Function

' Call this fuction to compare two data files
Function CustomCompareData( BaselinePath As String, _
                            ActualPath As String ) As Integer

    Dim Message As String
    Message="Now comparing baseline and actual data." + Chr$(13)
    Message=Message + "Baseline file path: " + BaselinePath + _
             Chr$(13) + Chr$(13)
    Message=Message + "Actual file path: " + ActualPath
    MsgBox Message

    ' If the function returns True, Pass is reported in the log,
    ' and the actual data file is not stored in the log record
    CustomCompareData = False    ' Baseline/actual data don't match

    Message = "To see the data comparison, right-click "
    Message = Message + """Fail"" in the LogViewer Result column "
    Message = Message + "for the verification point MyVP, "
    Message = Message + "then click View Verification Point."
    MsgBox Message

End Function
```

Ownership of Custom Verification Point Files

Verification point files are associated with, or "owned" by, the following Robot or LogViewer features:

- LogViewer log – If you delete a log, all of that log's events (including standard and custom verification point entries) are deleted. This includes the logged baseline and actual data files pointed to by `SQAVpGetBaselineFileName` and `SQAVpGetActualFileName`. However, the current baseline data file pointed to by `SQAVpGetCurrentBaselineFileName` remains.
- Robot verification point – If you delete a custom verification point from the verification point list in the Asset pane, the associated current baseline data file pointed to by `SQAVpGetCurrentBaselineFileName` is deleted. However, the logged baseline and actual data files remain.
- Robot script – If you delete a script, all verification points and associated current baseline files are deleted. However, the log associated with the script as well as the logged baseline and actual data files remain.

Comparing Environment States

Robot is shipped with a utility called the VeriTest-Rational Installation Analyzer™. This utility is designed to help you detect changes in the environment of a Windows system before and after the performance of some task (such as the installation of an application-under-test) that affects the system's environment.

You can run the Installation Analyzer directly by running ANALYZER.EXE in the default Rational Test directory. Alternatively, you can run the Analyzer within a Robot script, as this section describes.

For more information about the Installation Analyzer, see USING.HTM in the Rational Test directory.

Why Compare Environment States?

Comparing environment states is useful in situations such as these:

- To test whether a given task in the application-under-test has the *unintended* result of changing the system's environment.
- To test whether a given task causes *intended* changes in the system's environment, and whether these changes remain consistent in build after build of the application-under-test.

What Environment State Changes Are Detected?

The Installation Analyzer detects environment changes such as:

- Registry settings
- Changes to the files WIN.INI, SYSTEM.INI, AUTOEXEC.BAT, and CONFIG.SYS
- File and file extension changes

Using the Environment State Comparison Commands

You must manually script an environment state comparison.

Use the following SQABasic commands when setting up an environment state comparison:

Command	Purpose
SQAEnvCreateBaseline	Creates a snapshot of a "clean machine" — that is, the state of the environment before one or more tasks are performed that change or are suspected of changing the environment.
SQAEnvCreateCurrent	Creates a snapshot of the environment state just after some task is performed that changes or is suspected of changing the environment.
SQAEnvCreateDelta	Creates a comparison report of the pre-task and post-task snapshots. Optionally, displays the comparison report in a browser.

See Chapter 6, C*ommand Reference*, for syntax information on these commands.

When To Use the Environment State Comparison Commands

Follow these guidelines when using the environment state comparison commands in a script:

- Call `SQAEnvCreateBaseline` near the beginning of your script, before performing any tasks with your application-under-test that might affect the environment state.

- After you perform a task with the application-under-test and you want to see if the task has affected the environment state, do the following:
  - Call `SQAEnvCreateCurrent` to capture a snapshot of the current state of the environment.
  - Call `SQAEnvCreateDelta` to compare the current snapshot with the baseline snapshot. Optionally, this command lets you display the comparison results in a browser.

Typically, you call `SQAEnvCreateBaseline` only once in a script. You call `SQAEnvCreateCurrent` and `SQAEnvCreateDelta` whenever you want to test the current state of the environment.

A snapshot captured with `SQAEnvCreateCurrent` can be used as both a post-task snapshot and, at a later point in the script, as a pre-task snapshot. For example, you might want to compare the post-task snapshot captured after you installed the application-under-test with a current snapshot taken after you perform a particular task with the application-under-test. In this case, both snapshots are created with `SQAEnvCreateCurrent`.

Specifying the Areas of the Environment To Test

By default, the environment state commands take snapshots of the following areas:

- Your local hard drive
- The following Registry hives:
  - HKEY_LOCAL_MACHINE
  - HKEY_CURRENT_USER
  - HKEY_CLASSES_ROOT
- File extensions

Before you run a script that takes a snapshot of the environment, you can change the defaults as follows:

1. Run the Installation Analyzer ANALYZER.EXE. By default, it is located in the Rational Test directory.
2. Click Tools → Options.
3. Specify the areas you want to test.
4. To set the areas you specified as the default areas to test, select Save Settings.
5. Click OK, and then close the Installation Analyzer.

Example of an Environment State Comparison

The following example uses `SQAEnvCreateBaseline` to capture a snapshot of a "clean machine" — that is, a snapshot of the environment before any tasks are performed that might change the state of the environment. The example then calls `SQAEnvCreateCurrent` to capture a snapshot of the environment after each of the following tasks is performed:

- The sample application Classics Online is installed.
- The Classics Online application is executed.
- The Classics Online application is uninstalled.

After each of these tasks, the example calls `SQAEnvCreateDelta` to compare the current state of the environment to the "clean-machine" state captured with `SQAEnvCreateBaseline`. The results are displayed in a browser.

This example requires either Microsoft Systems Installer (MSI) or Windows 2000.

To run this example, copy it from the SQABasic online Help. Run the Help and search for *environment state, complete example* in the Help Index tab.

```
'====================================================================
'
' Script Copyright (c) 2000 by Rational Software
' Author:  Pete Jenney   - pjenney@rational.com
' Date:  18-Jan-2000
' Notes:  Script to demonstrate the use of the SQAEnv* commands in
'         the testing process.
' Depends:  Microsoft System Installer (MSI) and/or Windows 2000
'
'====================================================================

'$Include "sqautil.sbh"

Sub Main
    Dim Result As Integer
    Dim szSampleInstall As String

' Create a baseline snapshot
    Result = SQAEnvCreateBaseLine("CleanMachine")
    If( Result = 0 ) Then
        MsgBox "Failed to create Environment Baseline!",16,"Error!"
        SQALogMessage sqaFail,"Failed to create Baseline Snapshot!",""
        Exit Sub
    End If

' Install the application
    szSampleInstall = "msiexec /qb+ /i """ & _
         SQAGetDir(SQA_DIR_REPOSITORY) & "Samples\" & _
         "ClassicsOnline.msi"""

    StartApplication szSampleInstall

    Result = WindowVP (Exists, _
             "Caption=Rational Test Samples - Classics Online", _
             "VP=Complete Dialog;Wait=1,120")
```

```
    If( Result = 0 ) Then
        MsgBox "Completion Dialog never appeared", 16, "Error!"
        SQALogMessage sqaFail,"Completion Dialog never appeared",""
        Exit Sub
    End If

    Window SetContext, _
           "Caption=Rational Test Samples – ClassicsOnline;" + _
           "Level=2;State=Disabled", "Activate=0"

    Label Click, "Text=Please wait while Windows configures " + _
           "Rational Test Samples - Classics"
    Window SetContext, _
           "Caption=Rational Test Samples - Classics Online", ""
    PushButton Click, "Text=OK"

' Create the PostInstall snapshot
    Result = SQAEnvCreateCurrent("PostInstall")
    If( Result = 0 ) Then
      MsgBox "Failed to create PostInstall Environment Snapshot!", _
             16, "Error!"
      SQALogMessage sqaFail, "Failed to create PostInstall " + _
             "Environment Snapshot!", ""
      Exit Sub
    End If

' Create the Delta Report
    Result = SQAEnvCreateDelta("CleanMachine", "PostInstall", 1)
    If( Result = 0 ) Then
      MsgBox "Failed to create CleanMachine/PostInstall Report!", _
             16, "Error!"
      SQALogMessage sqaFail, + _
             "Failed to create CleanMachine/PostInstall Report!",""
      Exit Sub
    End If

' Prompt the user to continue or abort
    Result=MsgBox("Press OK to continue or Cancel to halt testing", _
           65, "Action")
    If( Result = 2 ) Then
        SQALogMessage sqaFail, "Testing halted by user at " + _
            "CleanMachine/PostInstall Report", ""
        Exit Sub
    End If

' Exercise the application
    CallScript "PlayWithClassics"
```

```
' Create the PostRun snapshot
    Result = SQAEnvCreateCurrent("PostRun")
    If( Result = 0 ) Then
        MsgBox "Failed to create PostRun Environment Snapshot!", _
            16, "Error!"
        SQALogMessage sqaFail, _
           "Failed to create PostRun Environment Snapshot!", ""
        Exit Sub
    End If

' Create the Delta Report
    Result = SQAEnvCreateDelta("PostInstall", "PostRun", 1)
    If( Result = 0 ) Then
        MsgBox "Failed to create PostInstall/PostRun Report!", _
            16, "Error!"
        SQALogMessage sqaFail, _
           "Failed to create PostInstall/PostRun Report!", ""
        Exit Sub
    End If

' Prompt the user to continue or abort
    Result=MsgBox("Press OK to continue or Cancel to halt testing", _
            65, "Action")
    If( Result = 2 ) Then
        SQALogMessage sqaFail, "Testing halted by user at " + _
            "PostInstall/PostRun Report", ""
        Exit Sub
    End If

' Uninstall the application
    szSampleInstall = "msiexec /qb+ /x """ & _
            SQAGetDir(SQA_DIR_REPOSITORY) & "Samples\" & _
            "ClassicsOnline.msi"""
    StartApplication szSampleInstall

    Result = WindowVP (Exists, _
            "Caption=Rational Test Samples - Classics Online", _
            "VP=Complete Dialog;Wait=1,120")
    If( Result = 0 ) Then
        MsgBox "Error!", 16, "Completion Dialog never appeared"
        SQALogMessage sqaFail,"Completion Dialog never appeared",""
        Exit Sub
    End If

    Window SetContext, _
            "Caption=Rational Test Samples - Classics Online;" + _
            "Level=2;State=Disabled", "Activate=0"
    Label Click, "Text=Please wait while Windows configures " + _
            "Rational Test Samples - Classics"

    Window SetContext, _
            "Caption=Rational Test Samples - Classics Online", ""
    PushButton Click, "Text=OK"
```

```
' Create the PostUninstall snapshot

    Result = SQAEnvCreateCurrent("PostUninstall")
    If( Result = 0 ) Then
      MsgBox "Failed to create PostUninstall Environment " + _
            "Snapshot!", 16, "Error!"
      SQALogMessage sqaFail, "Failed to create PostUninstall " + _
            "Environment Snapshot!", ""
      Exit Sub
    End If

' Create the Delta Report
    Result = SQAEnvCreateDelta("CleanMachine", "PostUninstall", 1)
    If( Result = 0 ) Then
        MsgBox "Failed to create PostUninstall/CleanMachine " + _
            "Report!", 16, "Error!"
        SQALogMessage sqaFail, "Failed to create " + _
            "PostUninstall/CleanMachine Report!", ""
        Exit Sub
    End If

End Sub
```

Displaying Messages in Robot

During playback, you can use the following commands to display messages in the Robot console window and in the LogViewer:

Command	Purpose
SQAConsoleWrite	Displays text in the Robot console window.
SQAConsoleClear	Remove all text in the Robot console window.
SQALogMessage	Write a message in the LogViewer, and optionally add the notation Pass, Fail, or Warning.
SQAScriptCmdFailure	Report a serious runtime error in the LogViewer and stop script playback.
SQAVpLog	Write information about custom verification point results to the LogViewer.

For more information about SQAVpLog, see *Managing Custom Verification Points* on page 5-12. The following sections describe the other messaging commands.

NOTE: You can also display a message in a dialog box during runtime with the SQABasic command MsgBox. However, the dialog box must be explicitly dismissed before the script can continue running.

Displaying Messages in the Console Window

The console window is the area just below the Robot script area. Typically, this area is reserved for your messages.

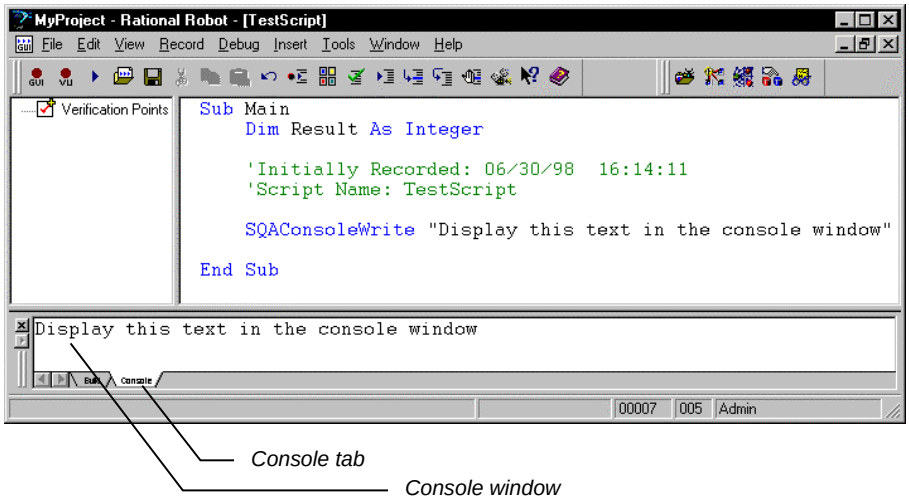
However, Robot may write certain system messages to the console window. For example:

- Robot reports script command failures in the console window.
- Robot may display a message in the console window if it detects that you are testing a Java environment that is not ready for Robot due to the use of old class libraries or the lack of a Java enabler.

Displaying the Console Window

If the console window is not displayed, take either or both of these actions to display it:

- Make sure the Output choice on the View menu is checked.
- If the Output choice is checked but the console window is still not displayed, click the Console tab in the lower left corner of the Robot main window:



Writing to the Console Window

Use SQAConsoleWrite to write text to the console window.

You can insert a carriage return through Chr$(13). For example, to display a blank line between the text Line1 and Line2, call:

```
SQAConsoleWrite "Line1" + Chr$(13) + Chr$(13) + "Line2"
```

If SQAConsoleWrite is called multiple times during playback, subsequent messages are appended to the original message.

Removing Messages from the Console Window

Robot clears the console window at the beginning of playback.

To explicitly clear text from the console window, call SQAConsoleClear.

Displaying Messages in the LogViewer

You can display messages in the LogViewer through SQALogMessage and through SQAScriptCmdFailure.

NOTE: SQAVpLog also writes messages to the LogViewer. For more information, see *Managing Custom Verification Points* on page 5-12.

Using SQALogMessage

This command writes an entry in the Log Event column of the LogViewer. You can use this command to report the success or failure of an event, or to display any informational text you choose.

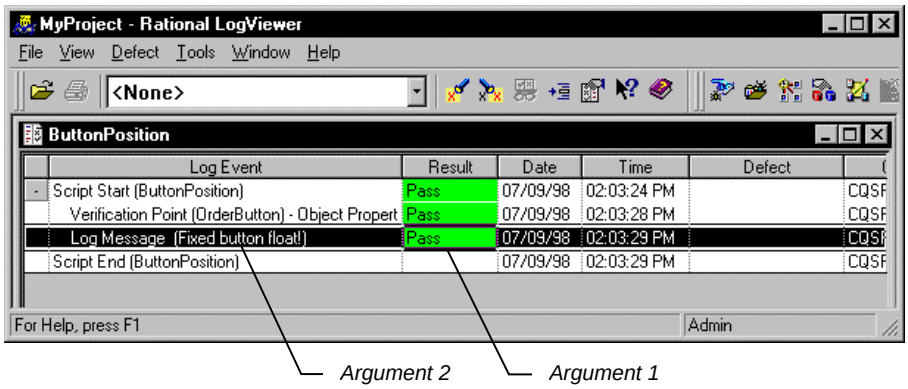
In addition to the information in the Log Event column, you can insert the notation Pass, Fail, or Warning in the Result column. If you insert Fail, the LogViewer reports Fail for the entire script.

You can also include a description of the event or informational text you display. The description appears in the Result tab of the Log Event Properties dialog box.

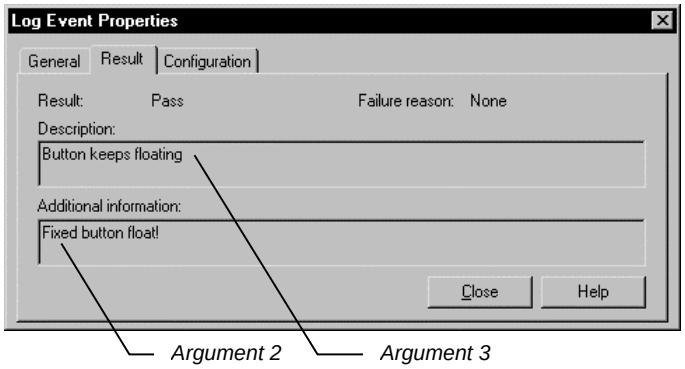
Here is an example of an SQALogMessage command and how its arguments are displayed in the LogViewer:

```
SQALogMessage sqaPass, "Fixed button float!", "Button keeps floating"
```

This is the text that is displayed in the LogViewer:



And this is the text that's displayed in the Log Event Properties dialog box:



To display the Result tab of the Log Event Properties dialog box:

1. In the LogViewer, right-click the message you displayed in the Log Event column.
2. Click Properties.
3. Click the Result tab.

Using SQAScriptCmdFailure

This command writes and message to the LogViewer and *stops the execution of the script*. Use this command only for reporting serious events.

`SQAScriptCmdFailure` takes just one argument — the description of the event.

This command displays the following text in the LogViewer:

- The text "Script Command Failure" appears in the Log Event column. You can't modify this text.
- The notation Fail appears in the Result column. You can't modify it.
- The text you provide through this command is displayed in the Result tab of the Log Event Properties dialog box.

In addition, the description you provide of the script command failure and the line where it occurs are displayed in the Robot console window.

Using Datapools

A **datapool** is a test dataset. It supplies data values to the variables in a script during script playback.

Datapools let you automatically pump test data to a script that is being played back repeatedly, allowing the script to send a different set of data to the server in each iteration.

If you do not use a datapool during script playback, the same values (the values that were captured when you recorded the script) are sent to the server each time the script is executed.

For example, suppose you record a script that sends order number 53328 to a database server. If you play back this script 100 times, order number 53328 is sent to the server 100 times. If you use a datapool, each iteration of the script can send a different order number to the server.

To access the data in a datapool from a GUI script, you must add the datapool commands manually, as described in the following sections.

Summary of Datapool Commands

These are the SQABasic commands that let you access the data in a datapool.

- `SQADatapoolClose` – Close the specified datapool.
- `SQADatapoolFetch` – Move the datapool cursor to the next row.
- `SQADatapoolOpen` – Open the specified datapool.
- `SQADatapoolRewind` – Reset the cursor for the specified datapool.
- `SQADatapoolValue` – Retrieve the value of the specified datapool column.

See Chapter 6, *Command Reference*, for syntax information about these commands.

Using Datapools with GUI Scripts

A GUI script can access a datapool when it is played back in Robot. Also, when a GUI script is played back in a TestManager suite, the GUI script can access the same datapool as other GUI scripts and/or VU scripts.

There are differences in the way GUI scripts and VU scripts are set up for datapool access:

- You must add datapool commands to GUI scripts manually while editing the script in Robot. Robot adds datapool commands to VU scripts automatically.
- There is no `DATAPOOL_CONFIG` statement in a GUI script. The `SQADatapoolOpen` command defines the access method to use for the datapool.

The following are the general tasks involved in providing access to a datapool from a GUI script. These tasks are not in a fixed order — you can create the datapool at any point:

- Record the GUI script.
- Add datapool commands to the script.
- Create the datapool.

Recording a GUI Script

During GUI recording, as you provide values to the client application, follow the guidelines below. These guidelines will simplify the task of adding datapool commands to the script after you record it.

- Before you provide a value to the client application, insert a comment that describes the value you are providing. Later, when you are editing the script, comments will simplify the task of searching for the values you provided during recording.

  To insert a comment, click the Comment button on the GUI Insert floating toolbar.

- Specify a value for each application field that is to be supplied with a datapool value during script playback. Do this even for fields that contain default values.

  Remember, during GUI recording, that Robot records your GUI actions. If you do not act on a field that contains a default value, that field object and its default value will not appear in the script. You will either have to re-record that portion of the script or add the information to the script manually.

Adding Datapool Commands to a GUI Script

Once you have recorded values for all of the fields in the client application that require values from the datapool, edit the script and perform the following basic tasks:

- Reference the `sqautil.sbh` header file.
- Substitute variables for the literal values that you provided during recording.
- Add datapool commands that open the datapool, fetch a row of data from the datapool, retrieve the individual values in the fetched row, and assign each value to a script variable.

The following code fragment highlights the role of the primary datapool commands:

```
'$Include "sqautil.sbh"
Sub Main

    ... Declare variables with Dim statements

    ' Open a datapool named CD Orders
    dp=SQADatapoolOpen("CD Orders")

    ' Perform the transaction 100 times, using a new
    '   set of data from the datapool each time
```

```
    For x = 1 to 100

        ' Fetch a row from the datapool
         Call SQADatapoolFetch(dp)

        ' Begin the transaction

        ' Credit Card Number
        Window SetContext, "Caption=Make An Order", ""
        EditBox Click, "ObjectIndex=3", "Coords=13,11"
        ' Assign ccNum a value from datapool column #4
        Call SQADatapoolValue(dp,4,ccNum)
        InputKeys ccNum ' Pass the datapool value to the application

            ...     ' Assign other datapool values to other variables

        Next x

        Call SQADatapoolClose(dp)

End Sub
```

For details about using these datapool commands and the `SQADatapoolRewind` command, see the *SQABasic Language Reference*.

Substituting Variables for Literal Values

The values that you provided during recording are included in the script as literal values. If you do not substitute a variable for a literal value, the literal value is sent to the server each time the transaction is executed.

The recorded literal values are represented in the script in various ways. For example, if you type a value into an edit box, the `InputKeys` command specifies the characters you typed. If you click an item in a combo list box, the value is specified in the *`parameters`* argument of `ComboListBox`.

Edit Box Example

The following is an example of how Robot records the value `Fred` as it is typed into an edit box:

```
'Customer's First Name
   EditBox Click, "ObjectIndex=5", "Coords=104,12"
InputKeys "Fred"
```

And the following is an example of replacing that literal value with the variable *`fName`*:

```
'Customer's First Name
EditBox Click, "ObjectIndex=5", "Coords=104,12"
Call SQADatapoolValue(dp,1,fName)
InputKeys fName
```

Combo List Box Example

The following is an example of how Robot records the value `Discover` as it is selected from a list of credit card types:

```
'Credit Card Type
ComboBox Click, "ObjectIndex=1", "Coords=104,7"
ComboListBox Click, "ObjectIndex=1", "Text=Discover"
```

And the following is an example of replacing that literal value with the variable *ccType*:

```
'Credit Card Type
ComboBox Click, "ObjectIndex=1", "Coords=104,7"
Call SQADatapoolValue(dp,5,ccType)
ComboListBox Click, "ObjectIndex=1", "Text=" + ccType
```

Assigning Datapool Values to Variables

Once you substitute variables for the literal values that you recorded, you assign datapool values to the variables. You do so through the `SQADatapoolFetch` and `SQADatapoolValue` commands. Use these commands as follows:

- Call `SQADatapoolFetch` to retrieve an entire row of values (also called a record) from the datapool.
- Call `SQADatapoolValue` to retrieve an individual value from the fetched datapool row and assign it to a script variable.

For example, suppose a datapool row consists of three columns of values: Part Number, Part Name, and Unit Price.

1. At the beginning of the transaction, just before the lines of code where Robot recorded these three values, call `SQADatapoolFetch`.
2. Next, call `SQADatapoolValue` three times — once for each of the three datapool columns that you are accessing in the fetched row. `SQADatapoolValue` retrieves a value from the specified column in the fetched row and assigns the value to a script variable.

In the following example, `SQADatapoolValue` retrieves a value from the first column in the fetched datapool row and assigns the value to the variable *fName*:

```
'Customer's First Name
EditBox Click, "ObjectIndex=5", "Coords=104,12"
Call SQADatapoolValue(dp,1,fName)
InputKeys fName
```

Optionally, `SQADatapoolValue` can refer to the column by column name rather than by column number. In the following example, the datapool column name *fName* matches the variable name *fName*:

```
Call SQADatapoolValue(dp,"fName",fName)
```

If you refer to the datapool column by name, the reference must match the datapool column name exactly, including a case match.

Datapool column names and column numbers are indicated in the TestManager Datapool Specification dialog box and in the TestManager Edit Datapool dialog box.

Creating a Datapool

You use TestManager to create datapools and to automatically generate datapool data.

Although there are differences in setting up datapool access in GUI scripts and VU scripts, you define a datapool for either type of script using TestManager in exactly the same way.

Finding Out What Data Types You Need

One of the tasks you perform when creating and defining a datapool in TestManager is to assign data types to the datapool columns.

To decide whether to assign a standard data type or a user-defined data type to each datapool column, you need to know the kinds of values that will be supplied to script variables during playback — for example, whether a variable will contain names, dates, order numbers, and so on.

After recording a script, search the script for each value that you provided to the application during recording. Later, you will replace these literal values with variables (as described on page 5-34). During playback, the variables will be supplied values from the datapool.

Finding Values in GUI Scripts

The following are two examples of literal values in GUI scripts. The values are in bold type:

```
'Credit Card Type
ComboBox Click, "ObjectIndex=1", "Coords=104,7"
ComboListBox Click, "ObjectIndex=1", "Text=Discover"

'Credit Card Expiration Date
EditBox Left_Drag, "ObjectIndex=4", "Coords=19,13,16,12"
InputKeys "12/31/99"
```

To simplify the task of searching for values, insert a descriptive comment into the script before providing a value to the client application during recording.

NOTE: The only values that Robot records are those that you specifically provide during recording. if you accept a default, Robot doesn't record that value.

Example GUI Script

The following GUI script was edited to access the CD Orders datapool:

```
'$Include "sqautil.sbh"

Sub Main

Dim Result As Integer

'Initially Recorded: 05/06/98  17:56:15
'Script Name: CD Order

Dim x as Integer
Dim dp as Long          ' Reference to datapool

'Variables to be assigned data from datapool
Dim ccNum as String
Dim ccType as String
Dim ccExpDate as String
Dim fName as String
Dim lName as String
Dim custID as String

' Open a datapool named CD Orders
dp=SQADatapoolOpen("CD Orders")

' Execute transaction 100 times.
For x = 0 to 99

    ' Fetch a row from the datapool
    Call SQADatapoolFetch(dp)

    'Begin the order
    Window SetContext,"Caption=Classics Online;Class=ThunderForm",""
    PushButton Click, "Text=Order It!"
    Window SetContext, "Caption=Classics Login", ""
    PushButton Click, "Text=OK"

    ' The following section uses data from the CD Orders datapool

    'Credit Card Number
    Window SetContext, "Caption=Make An Order", ""
    EditBox Click, "ObjectIndex=3", "Coords=13,11"
    Call SQADatapoolValue(dp,4,ccNum)
    InputKeys ccNum

    'Credit Card Type
    ComboBox Click, "ObjectIndex=1", "Coords=104,7"
    Call SQADatapoolValue(dp,5,ccType)
    ComboListBox Click, "ObjectIndex=1", "Text=" + ccType

    'Credit Card Expiration Date
    EditBox Left_Drag, "ObjectIndex=4", "Coords=19,13,16,12"
    Call SQADatapoolValue(dp,6,ccExpDate)
    InputKeys ccExpDate

    'Customer's First Name
    EditBox Click, "ObjectIndex=5", "Coords=104,12"
    Call SQADatapoolValue(dp,1,fName)
    InputKeys fName
```

```
        'Customer's Last Name
        EditBox Left_Drag, "ObjectIndex=6", "Coords=67,4,-309,15"
        Call SQADatapoolValue(dp,2,lName)
        InputKeys lName

        'Customer's ID
        EditBox Left_Drag, "ObjectIndex=7", "Coords=115,11,-305,20"
        Call SQADatapoolValue(dp,3,custID)
        InputKeys custID

        'Place the order
        PushButton Click, "Text=Place Order"

        'Acknowledge the placement of the order
        Window SetContext, "Caption=Classics Online;Class=#32770", ""
        PushButton Click, "Text=OK"

    Next x                          ' End the current transaction

    Call SQADatapoolClose(dp)

    End Sub
```

Accessing External Applications

SQABasic lets you access applications through dynamic data exchange (DDE) and through object linking and embedding (OLE).

Dynamic Data Exchange (DDE)

DDE is a process by which two applications communicate and exchange data. One application can be an SQABasic script.

Opening a DDE Channel

To "talk" to another application and send it data, open a connection (called a DDE channel) using the statement `DDEInitiate`.

`DDEInitiate` requires two arguments:

- DDE application name. This name is usually the name of the .EXE file used to start the application. Specify the name without the .EXE extension. For example, the DDE name for Microsoft Word is WINWORD.
- Topic name. This name is usually a filename to get or send data to, although there are some reserved DDE topic names, such as `System`. See the application's documentation for a list of the available topic names.

The application must already be running before you can open a DDE channel. To start an application, use the `Shell` command.

Communicating with the Application

After you open a channel to an application, you can get text and numbers (`DDERequest`), send text and numbers (`DDEPoke`), or send commands (`DDEExecute`). See the application's documentation for a list of supported DDE commands.

To make sure the application performs a DDE task as expected, use `DDEAppReturnCode`. If an error does occur, your program can notify the user.

Closing the Channel

When you're finished communicating with the application, you should close the DDE channel using `DDETerminate`. Because you have a limited number of channels available at once (depending on the operating system in use and the amount of memory you have available), it's a good idea to close a channel as soon as you finish using it.

Objects

SQABasic supports OLE2 Object Handling. OLE2 provides the ability to link and embed objects from one application into another. Key OLE2 terms:

- **Objects** are the end products of a software application, such as a spreadsheet, graph, or document objects, and OLE Automation objects. Each application has its own set of properties and methods that change the characteristics of an object.
- **Properties** affect how an object behaves. For example, width is a property of a range of cells in a spreadsheet, colors are a property of graphs, and margins are a property of word processing documents.
- **Methods** cause the application to do something to an object. Examples are Calculate for a spreadsheet, Snap to Grid for a graph, and AutoSave for a document.

SQABasic lets you access an external object and use the originating application to change properties and methods of that object.

Before you can use an object in a procedure, you must access the application associated with the object by assigning the object to an object variable. Then you attach an object name (with or without properties and methods) to the variable to manipulate the object.

For example code, see the Overview topic for the `Set` statement in the SQABasic online Help.

Step 1: Create an Object Variable to Access the Application

In the lines of code below, the `Dim` statement creates an object variable called `visio`. The `Set` statement associates the variable `visio` with the VISIO application by calling the `GetObject function:`

```
Dim visio as Object
...
Set visio = GetObject(,"visio.application")  ' find Visio
```

Note that `GetObject` is used if the application is already open on the Windows desktop. Use `CreateObject` if the application is not open.

Step 2: Use Methods and Properties to Act on Objects

To access an object, property or method, use this syntax:

`appvariable.object`
`appvariable.object.property`
`appvariable.object.method`

For example, `visio.documents.count` references the Count method of the Document object for the VISIO application.

Optionally, you can create a second object variable and assign the Document object to it using VISIO's Document method, as the following `Set` statement shows:

```
dim doc as Object
dim I as Integer, doccount as Integer
dim msgtext as String
...
doccount = visio.documents.count
If doccount = 0 then
      MsgBox "No open Visio documents."
  else
      msgtext = "The open files are: " & Chr$(13)
      For i = 1 to doccount
          Set doc = visio.documents(i)
          msgtext = msgtext & chr$(13) & doc.name
      Next I
End If
```

NOTE: Object, property, and method names vary from one application to another. See the application's documentation for the applicable names to use.

▸ ▸ ▸ Part III

Command Reference

▸ ▸ ▸ C H A P T E R 6

Command Reference

This command reference contains the following categories of information:

- The Microsoft Basic **functions**, **statements**, and **operators** that SQABasic supports.
- SQABasic command additions to standard Basic. Most additions fall into these categories:

  Datapool commands – Access data in a datapool.

  Object Scripting commands – Access objects and object properties.

  Timing and Coordination commands – Time user activities and control the rate of script playback.

  User Action commands – Capture a user's keyboard and mouse actions during recording.

  Utility commands – Perform a variety of tasks in an SQABasic script.

  Verification Point commands – Compare the results of a user action during recording to the results of the same action when it's later played back.

In addition to the above categories of command additions, SQABasic provides the following new commands — the `Assert` statement, the `GetField` function, the `SetField` function, and the metacommands `'$CStrings`, `'$Include`, and `'NoCStrings`.

▸▸▸SQA▸

NOTE: The icon in the margin appears next to the names of SQABasic command additions. You may find this icon useful when scanning for the additions.

Abs
Function

Description Returns the absolute value of a number.

Syntax **Abs**(*number*)

Syntax Element	Description
number	Any valid numeric expression.

Comments The data type of the return value matches the type of the *number*. If *number* is a Variant string (VarType 8), the return value will be converted to VarType 5 (Double). If the absolute value evaluates to VarType 0 (Empty), the return value will be VarType 3 (Long).

Example This example finds the difference between two variables, oldacct and newacct.

```
Sub main
Dim oldacct, newacct, count
   oldacct=InputBox("Enter the oldacct number")
   newacct=InputBox("Enter the newacct number")
   count=Abs(oldacct-newacct)
   MsgBox "The absolute value is: " &count
End Sub
```

See Also

Exp	Rnd
Fix	Sgn
Int	Sqr
Log	Variant

AnimateControl
User Action Command ▸▸▸SQA▸

Description Performs an action on an animation control.

Syntax **AnimateControl** *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ Name=*$*. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ▸ State=*$*. An optional qualifier for any other recognition method. There are two possible values for this setting: Enabled and Disabled. The default state is the state of the current context window (as set in the most recent Window SetContext command), or Enabled if the state has not been otherwise declared. ▸ Text=*$*. The text displayed on the object. ▸ VisualText=*$*. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▸ Coords=*x1,y1,x2,y2*. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

None.

Example This example clicks the first animation control in the window (`ObjectIndex=1`) at *x*,*y* coordinates of 50,25.

```
AnimateControl Click, "ObjectIndex=1", "Coords=50,25"
```

See Also `AnimateControlVP`

AnimateControlVP

Verification Point Command

Description Establishes a verification point for an animation control.

Syntax *Result* = **AnimateControlVP**(*action%*,*recMethod$*,*parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The text displayed on the object.

▸ ▸ ▸

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback.

With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example This example captures the properties of the first animation control in the window (`ObjectIndex=1`) and compares them to the recorded baseline in verification point `TEST1A`.

```
Result = AnimateControlVP (CompareProperties, "ObjectIndex=1",
"VP=TEST1A")
```

See Also `AnimateControl`

AppActivate

Statement

Description Activates an application window.

Syntax **`AppActivate`** *`title$`*

Syntax Element	Description
`title$`	A string expression for the title-bar name of the application window to activate.

Comments *`Title`* must match the name of the window character for character, but the comparison is not case-sensitive. For example, "Notepad" is the same as "notepad" or "NOTEPAD". If there is more than one window with a name matching *`title`*, a window is chosen at random.

`AppActivate` changes the focus to the specified window but does not change whether the window is minimized or maximized. Use `AppActivate` with the `InputKeys` statement to send keys to another application.

Example This example runs Microsoft Notepad and types some text into the editor.

```
Sub Main
   StartApplication("notepad.exe")
   AppActivate "Untitled - Notepad"
   DoEvents
   InputKeys "Hello, world.{ENTER}"
End Sub
```

See Also `InputKeys`
`Shell`

Asc
Function

Description Returns an integer corresponding to the character code of the first character in the specified string.

Syntax **Asc**(*string$*)

Syntax Element	Description
string$	A string expression of one or more characters.

Comments To change a character code to a character string, use Chr.

To obtain the first byte of a string, use AscB.

Example This example asks the user for a letter and returns its ASCII value.

```
Sub main
   Dim userchar
   userchar=InputBox("Type a letter:")
   MsgBox "The ASC value for " & userchar & " is: " & Asc(userchar)
End Sub
```

See Also Chr

Assert
Statement ▸▸▸SQA▸

Description Triggers a runtime error if the condition specified is FALSE.

Syntax **Assert** *condition*

Syntax Element	Description
condition	A numeric or string expression that can evaluate to TRUE or FALSE.

Comments The Assert statement should be used to handle an application-specific error. An assertion error cannot be trapped by the On Error statement.

Use the Assert statement to ensure that a script is performing as expected.

Example None.

See Also None.

Atn
Function

Description Returns the angle (in radians) for the arc tangent of the specified number.

Syntax **Atn**(*number*)

Syntax Element	Description
number	Any valid numeric expression.

Comments The Atn function assumes *number* is the ratio of two sides of a right triangle: the side opposite the angle to find and the side adjacent to the angle. The function returns a single-precision value for a ratio expressed as an integer, a currency, or a single-precision numeric expression. The return value is a double-precision value for a long, Variant or double-precision numeric expression.

To convert radians to degrees, multiply by (180/PI). The value of PI is approximately 3.14159.

Example This example finds the roof angle necessary for a house with an attic ceiling of 8 feet (at the roof peak) and a 16 foot span from the outside wall to the center of the house.

```
Sub main
   Dim height, span, angle, PI
   PI=3.14159
   height=8
   span=16
   angle=Atn(height/span)*(180/PI)
   MsgBox "The angle is " & Format(angle, "##.##") & " degrees"
End Sub
```

See Also Cos
Sin
Tan
Derived Trigonometric functions (Appendix D)

Beep
Statement

Description Produces a tone through the computer speaker.

Syntax **Beep**

Comments The frequency and duration of the tone depends on the hardware.

Example This example beeps and displays a message in a box if the variable *balance* is less than 0. (If you have a set of speakers hooked up to your computer, you might need to turn them on to hear the beep.)

```
Sub main
   Dim expenses, balance, msgtext
   balance=InputBox("Enter your account balance")
   expenses=1000
   balance=balance-expenses
   If balance<0 then
      Beep
      MsgBox "I'm sorry, your account is overdrawn."
   Else
      MsgBox "Your balance minus expenses is: " & balance
   End If
End Sub
```

See Also `InputBox` `Print` `MsgBox`

Begin Dialog...End Dialog

Statement

Description Begins and ends a definition of a dialog box record.

Syntax

```
Begin Dialog dialogName [x, y,] dx, dy [, caption$]
   [, .dialogfunction ]
...                ' dialog box definition statements
End Dialog
```

Syntax Element	Description
dialogName	The record name for the dialog box definition.
x, y	The coordinates for the upper left corner of the dialog box.
dx, dy	The width and height of the dialog box (relative to *x* and *y*).
caption$	The title for the dialog box.
.dialogfunction	A function to process user actions in the dialog box.

Comments

To create and display a dialog box:

1. Define the dialog box and its controls using the `Begin Dialog...End Dialog` statements and the object definition statements (such as `TextBox`, `OKButton`).
2. Optionally, use the `.dialogfunction` argument to call a function you define to handle user actions in the dialog box.
3. Use the `Dim` statement to declare an instance of the dialog box you defined in step 1.
4. Display the dialog box using either the `Dialog` function or the `Dialog` statement.

For example code, see the Overview topic for the `Begin Dialog...End Dialog` statement in the SQABasic online Help.

The *x* and *y* coordinates are relative to the upper left corner of the client area of the parent window. The *x* argument is measured in units that are 1/4 the average width of the system font. The *y* argument is measured in units 1/8 the height of the system font. For example, to position a dialog box 20 characters in, and 15 characters down from the upper left hand corner, enter 80, 120 as the *x, y* coordinates. If these arguments are omitted, the dialog box is centered in the client area of the parent window.

The *dx* argument is measured in 1/4 system-font character-width units. The *dy* argument is measured in 1/8 system-font character-width units. For example, to create a dialog box 80 characters wide, and 15 characters in height, enter 320, 120 for the *dx, dy* coordinates.

If the *caption$* argument is omitted, a standard default caption is used.

The optional *.dialogfunction* function must be defined (using the `Function` statement) or declared (using `Dim`) before being used in the `Begin Dialog` statement. Define the *dialogfunction* with the following three arguments:

```
Function dialogfunction% (id$, action%, suppvalue&)
...                              'function body
End Function
```

Here are the descriptions of the arguments:

Argument	Description
id$	The text string that identifies the dialog control that triggered the call to the dialog function (usually because the user changed this control). *id$* is the same value for the dialog control that you use in the definition of that control. For example, the *id$* value for a text box is `Text1` if it is defined this way: `Textbox 271, 78, 33, 18, .Text1` *id$* values are case-sensitive and don't include the dot (.) that appears before the ID in the definition of the control.
action%	One of the following values. The values identify the reason why the dialog function was called. 1. Dialog box initialization. This value is passed before the dialog box becomes visible. 2. Command button selected or dialog box control changed (except typing in a text box or combo box). 3. Change in a text box or combo box. This value is passed when the control loses the input focus: the user presses the TAB key or clicks another control. 4. Change of control focus. *Id$* is the id of the dialog control gaining focus. *Suppvalue&* contains the numeric id of the control losing focus. A dialog function cannot display a message box or dialog box in response to an action value 4. 5. An idle state. As soon as the dialog box is initialized (*action%* = 1), the dialog function will be continuously called with *action%* = 5 if no other action occurs. If *dialog function* wants to receive this message continuously while the dialog box is idle, return a non-zero value. If 0 (zero) is returned, *action%* = 5 will be passed only while the user is moving the mouse. For this action, *Id$* is equal to empty string ("") and *suppvalue&* is equal to the number of times action 5 was passed before.
Suppvalue&	Gives more specific information about why the dialog function was called. If the user clicks a command button or changes a dialog box control, *action%* returns 2 or 3 and *suppvalue&* identifies the control affected. The value returned depends on the type of control or button the user changed or clicked. See the table below for valid *Suppvalue&* values.

The following table summarizes the possible values for *suppvalue&*:

Value	Control
Any number	List box. Number of the item selected, 0-based.
1 - selected 0 - cleared -1 - grayed	Check box.
Any number	Option button. Number of the option button in the option group, 0-based.
Any number	Text box. Number of characters in the text box.
Any number	Combo box. The number of the item selected (0-based) when *action%* = 2, or the number of characters in its text box when *action%* = 3.
1	OK button.
2	Cancel button.

In most cases, the return value of *dialogfunction* is ignored. The exceptions are a return value of 2 or 5 for *action%*. If the user clicks the OK button, Cancel button, or a command button (as indicated by an *action%* return value of 2 and the corresponding *id$* for the button clicked), and the dialog function returns a non-zero value, the dialog box will *not* be closed.

Unless the `Begin Dialog` statement is followed by at least one other dialog-box definition statement and the `End Dialog` statement, an error will result. The definition statements must include an `OKButton`, `CancelButton` or `Button` statement. If this statement is left out, there will be no way to close the dialog box, and the script will be unable to continue executing.

Example

This example defines and displays a dialog box with each type of item in it: list box, combo box, buttons, etc.

```
Sub main
  Dim ComboBox1() as String
  Dim ListBox1() as String
  Dim DropListBox1() as String
  Dim x as Integer
  ReDim ListBox1(0)
  ReDim ComboBox1(0)
  ReDim DropListBox1(3)
  ListBox1(0)="C:\"
  ComboBox1(0)=Dir("C:\*.*")
  For x=0 to 2
  DropListBox1(x)=Chr(65+x) & ":"
  Next x
```

```
Begin Dialog UserDialog 274, 171, "SQABasic Dialog Box"
    ButtonGroup .ButtonGroup1
    Text 9, 3, 69, 13, "Filename:", .Text1
    DropComboBox 9, 14, 81, 119, ComboBox1(), .ComboBox1
    Text 106, 2, 34, 9, "Directory:", .Text2
    ListBox  106, 12, 83, 39, ListBox1(), .ListBox2
    Text 106, 52, 42, 8, "Drive:", .Text3
    DropListBox 106, 64, 95, 44, DropListBox1(), .DropListBox1
    CheckBox 9, 142, 62, 14, "List .TXT files", .CheckBox1
    GroupBox 106, 111, 97, 57, "File Range"
    OptionGroup .OptionGroup2
       OptionButton 117, 119, 46, 12, "All pages", .OptionButton3
       OptionButton 117, 135, 67, 8, "Range of pages", .OptionButton4
    Text 123, 146, 20, 10, "From:", .Text6
    Text 161, 146, 14, 9, "To:", .Text7
    TextBox 177, 146, 13, 12, .TextBox4
    TextBox 145, 146, 12, 11, .TextBox5
    OKButton 213, 6, 54, 14
    CancelButton 214, 26, 54, 14
    PushButton 213, 52, 54, 14, "Help", .Push1
  End Dialog
  Dim mydialog as UserDialog
  On Error Resume Next
  Dialog mydialog
  If Err=102 then
    MsgBox "Dialog box canceled."
  End If
End Sub
```

See Also

Button	Dialog	OptionGroup
ButtonGroup	DropComboBox	Picture
CancelButton	GroupBox	StaticComboBox
Caption	ListBox	Text
CheckBox	OKButton	TextBox
ComboBox	OptionButton	

Browser

Utility Command ▸▸▸SQA▸

Description

Performs an action on a Web browser.

Syntax

Browser *action$, recMethod$, parameters$*

Syntax Element	Description
action$	The following actions: ▸ Back. Navigate back one page in the history list. The equivalent of clicking the Back button on the browser toolbar. ▸ Forward. Navigate forward one page in the history list. The equivalent of clicking the Forward button on the browser toolbar.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `GotoURL`. Navigate to the specified URL. Specify the URL ID string as the *`recMethod$`*. ► `NewPage`. Robot waits for a new Web page to load before continuing with the next script command. Robot records a `NewPage` action just before the first action or verification point recorded on the current page. You can use the optional *`parameter$`* `Wait` with this action. ► `Refresh`. Reload the current page in the browser. The equivalent of clicking the Refresh button on the browser toolbar. ► `SetApplet`. Indicates that the Browser command is specifying the parent Java object for subsequent Java commands. The parent object is identified in *`recMethod$`*. ► `SetFrame`. Specifies the Web page frame for subsequent script commands. Requires the *`recMethod$`* `Name`. ► `StopLoading`. Stop loading the current page in the browser. The equivalent of clicking the Stop button on the browser toolbar. ► CloseWin. Close the browser.
`recMethod$`	Valid values: ► `[empty quotes]`. Robot waits for the page to load in the top-most frame. ► `HTMLId=$`. The text from the ID attribute of the HTML object. ► `HTMLTitle=$`. The text from the Title attribute of the HTML object. Used with *`action$`* `NewPage`. If the document has no title, `HTMLTitle` is blank. If *`recMethod$`* identifies a document through a frame (with the `Type` qualifier) but no title, Robot assumes that the next documented loaded is the intended new page. ► `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`.

► ► ►

► ► ►

Syntax Element	Description
	► `JavaCaption=$`. The text of the Java window caption. The caption can be used to identify the parent Java object when the object has no programmatic name. The wildcards ? and * are supported. (See *Establishing Context through a Window Command* in Chapter 4 for information.) Used only with window-based parent objects, not with browser-based applets. ► `JavaClass=$`. The Java class name. The class name can be used to identify the parent Java object when the object has no programmatic name or window caption. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for an applet might be Color Chooser. ► Type=*$*. Used to identify the specific frame within a Frameset.
parameters$	Valid value: ► `Wait=%`. An optional identifier that specifies the number of seconds that Robot will wait for the page specified in *`recMethod$`* to load (or, if no page is specified, for the next page to load). If a page is specified in *`recMethod$`*, the `Wait` value applies to that page only, not to any pages that may load between the time the `Browse` command is executed and the loading of the specified page. If the page does not load within the specified time, Robot issues a warning, and the script continues executing. If you do not specify a `Wait` time, Robot waits 30 seconds. Wait applies only to *`action$`* `NewPage`.

Comments

Before using this command, use `StartBrowser` to run the browser and enable Web object recognition.

You can also enable Web object recognition by opening the Web page rbtstart.htm. This web page references the Rational ActiveX Test Control, which enables object recognition in subsequent activity within the browser. By default, rbtstart.htm is located in:

```
C:\Program Files\Rational\Rational Test
```

Once you enable Web object recognition in Robot, Web object recognition is enabled for all subsequent actions against that browser and any new browser windows opened from that browser. For example, if you run StartBrowser to open Browser1, and then from Browser1 you open Browser2 through a JavaScript command or by holding down the Shift key and clicking on a link in Internet Explorer, Web testing is enabled for both Browser1 and Browser2.

If a timeout occurs during a `NewPage` action, Robot returns a warning.

`Browser` can be used to specify the parent Java object for subsequent user action and verification point commands that act upon child objects in the Java environment. However, `Browser` cannot be used in this way with Object Scripting commands. For more information about parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example waits for a new Web page to load before executing the next script command.

```
Browser NewPage,"HTMLTitle=My Web Page",""
```

See Also

`StartBrowser`

Button

Statement

Description

Defines a custom push button.

Syntax

Syntax A **`Button`** *`x, y, dx, dy, text$`* `[, .id]`

Syntax B **`PushButton`** *`x, y, dx, dy, text$`* `[, .id]`

Syntax Element	Description
`x, y`	The position of the button relative to the upper left corner of the dialog box.
`dx, dy`	The width and height of the button.
`text$`	The name for the push button. If the width of this string is greater than *`dx`*, trailing characters are truncated.
`.id`	An optional identifier used by the dialog statements that act on this control.

Comments

A *dy* value of 14 typically accommodates text in the system font. Use this statement to create buttons other than OK and Cancel. Use this statement in conjunction with the `ButtonGroup` statement. The two forms of the statement (`Button` and `PushButton`) are equivalent.

Use the `Button` statement only between a `Begin Dialog` and an `End Dialog` statement.

Example

This example defines a dialog box with a combination list box and three buttons.

```
Sub main
   Dim fchoices as String
   fchoices="File1" & Chr(9) & "File2" & Chr(9) & "File3"
   Begin Dialog UserDialog 185, 94, "SQABasic Dialog Box"
      Text  9, 5, 69, 10, "Filename:", .Text1
      DropComboBox  9, 17, 88, 71, fchoices, .ComboBox1
      ButtonGroup .ButtonGroup1
      OKButton  113, 14, 54, 13
      CancelButton  113, 33, 54, 13
      Button 113, 57, 54, 13, "Help", .Push1
   End Dialog
   Dim mydialog as UserDialog
   On Error Resume Next
   Dialog mydialog
   If Err=102 then
      MsgBox "Dialog box canceled."
   End If
End Sub
```

See Also

`Begin Dialog`	`ComboBox`	`OptionButton`
`End Dialog`	`DropComboBox`	`OptionGroup`
`ButtonGroup`	`DropListBox`	`Picture`
`CancelButton`	`GroupBox`	`StaticComboBox`
`Caption`	`ListBox`	`Text`
`CheckBox`	`OKButton`	`TextBox`

ButtonGroup

Statement

Description

Begins the definition of a group of custom buttons for a dialog box.

Syntax

`ButtonGroup` *`.field`*

Syntax Element	Description
`.field`	The field to contain the user's custom button selection.

Comments

If `ButtonGroup` is used, it must appear before any `PushButton` (or `Button`) statement that creates a custom button (one other than OK or Cancel). Only one `ButtonGroup` statement is allowed within a dialog box definition.

Use the `ButtonGroup` statement only between a `Begin Dialog` and an `End Dialog` statement.

Example

This example defines a dialog box with a group of three buttons.

```
Sub main
  Begin Dialog UserDialog 34,0,231,140, "SQABasic Dialog Box"
      ButtonGroup .bg
      PushButton 71,17,88,17, "&Button 0"
      PushButton 71,50,88,17, "&Button 1"
      PushButton 71,83,88,17, "&Button 2"
  End Dialog
  Dim mydialog as UserDialog
  Dialog mydialog
  MsgBox "Button " & mydialog.bg & " was pressed."
End Sub
```

See Also

`Begin Dialog`	`ComboBox`	`OptionButton`
`End Dialog`	`DropComboBox`	`OptionGroup`
`Button`	`DropListBox`	`Picture`
`CancelButton`	`GroupBox`	`StaticComboBox`
`Caption`	`ListBox`	`Text`
`CheckBox`	`OKButton`	`TextBox`

Calendar

User Action Command ▸▸▸SQA▸

Description

Performs an action on a month calendar control.

Syntax

`Calendar` *`action%, recMethod$, parameters$`*

Syntax Element	Description
`action%`	One of these mouse actions: ▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*. ▸ *`MouseDrag`*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *`action%`* contains a mouse-drag value, *`parameters$`* must contain `Coords=`*`x1,y1,x2,y2`*. See Appendix E for a list of mouse click and drag values. ▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
recMethod$	Valid values: ▶ `ID=%`. The object's internal Windows ID. ▶ `Label=$`. The text of the label object that immediately precedes the control in the internal order (Z order) of windows. ▶ `Name=$`. A unique name that a developer assigns to an object to identify the object in the development environment. For example, the object name for a command button might be Command1. ▶ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▶ `Text=$`. The text displayed on the object. ▶ `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▶ `Coords=x,y`. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▶ `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

None.

Example

This example clicks the month calendar control labeled "Select a Date" at *x*,*y* coordinates of 135,105.

```
Calendar Click, "Label=Select a Date", "Coords=135,105"
```

See Also

`CalendarVP`
`DateTime`

CalendarVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a month calendar control.

Syntax

Result = **CalendarVP** (*action%, recMethod$, parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Label=$`. The text of the label object that immediately precedes the control in the internal order (Z order) of windows. ▸ `Name=$`. A unique name that a developer assigns to an object to identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The text displayed on the object. ▸ `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▸ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▸ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example

This example captures the properties of the month calendar control labeled “Select a Date” and compares them to the recorded baseline in verification point CALENDAR1.

```
Result = CalendarVP (CompareProperties, "Label=Select a Date",
"VP=CALENDAR1")
```

See Also

`Calendar`

Call

Statement

Description

Transfers control to a sub procedure or function.

Syntax

Syntax A **`Call`** *`subprocedure-name`* `[(`*`argumentlist`*`)]`

Syntax B *`subprocedure-name argumentlist`*

Syntax Element	Description
`subprocedure-name`	The name of the sub procedure or function to call.
`argumentlist`	The arguments for the sub procedure or function (if any).

Comments

Use the `Call` statement to call a sub procedure or function written in SQABasic or to call C procedures in a DLL. These C procedures must be described in a `Declare` statement or be implicit in the application.

If a procedure accepts named arguments, you can use the names to specify the argument and its value. Order is not important. For example, if a procedure is defined as follows:

```
Sub mysub(aa, bb, optional cc, optional dd)
```

The following calls to this procedure are all equivalent:

```
call mysub(1, 2, , 4)
mysub aa := 1, bb := 2, dd :=4
call mysub(aa := 1, dd:=4, bb := 2)
mysub 1, 2, dd:=4
```

Note that the syntax for named arguments is as follows:

```
argname:= argvalue
```

where *`argname`* is the name for the argument as supplied in the `Sub` or `Function` statement and *`argvalue`* is the value to assign to the argument when you call it.

The advantage to using named arguments is that you do not have to remember the order specified in the procedure's original definition, and if the procedure takes optional arguments, you do not need to include commas (,) for arguments that you leave out.

The procedures that use named arguments include:

- All functions defined with the `Function` statement.
- All sub procedures defined with the `Sub` statement.
- All procedures declared with `Declare` statement.
- Many built-in functions and statements (such as `InputBox`).
- Some externally registered DLL functions and methods.

Arguments are passed by reference to procedures written in SQABasic. If you pass a variable to a procedure that modifies its corresponding formal parameter, and you do not want to have your variable modified, enclose the variable in parentheses in the `Call` statement. This will tell SQABasic to pass a copy of the variable. Note that this will be less efficient, and should not be done unless necessary.

When a variable is passed to a procedure that expects its argument by reference, the variable must match the exact type of the formal parameter of the function. (This restriction does not apply to expressions or Variants.)

When calling an external DLL procedure, arguments can be passed by value rather than by reference. This is specified either in the `Declare` statement, the `Call` itself, or both, using the `ByVal` keyword. If `ByVal` is specified in the declaration, then the `ByVal` keyword is optional in the call. If present, it must precede the value. If `ByVal` was not specified in the declaration, it is illegal in the call unless the data type specified in the declaration was `Any`.

Example

This example calls a sub procedure named CREATEFILE to open a file, write the numbers 1 to 10 in it and leave it open. The calling procedure then checks the file's mode. If the mode is `1` (open for Input) or 2 (open for Output), the procedure closes the file.

```
Declare Sub createfile()
Sub main
   Dim filemode as Integer
   Dim attrib as Integer
   Call createfile
   attrib=1
   filemode=FileAttr(1,attrib)
   If filemode=1 or 2 then
      MsgBox "File was left open. Closing now."
      Close #1
   End If
   Kill "C:\TEMP001"
End Sub
```

```
Sub createfile()
   Rem Put the numbers 1-10 into a file
   Dim x as Integer
   Open "C:\TEMP001" for Output as #1
   For x=1 to 10
      Write #1, x
   Next x
End Sub
```

See Also `Declare`

CallScript

Utility Command ▸▸▸SQA▸

Description Causes a script to be executed from within the currently-running script.

Syntax **`CallScript`** *`script$`*

Syntax Element	Description
`script$`	Name of the script to be called and executed.

Comments This event control statement causes a script to call another script. The called, or nested, script executes completely, and then control returns to the calling script. The calling script is suspended while the called script finishes. You can nest scripts up to 16 levels deep (the original script plus up to 15 scripts below it).

This statement corresponds to the Call Script option in the Robot Insert menu. During script recording, use this option to insert a call to another script. You can select the Run Now check box to execute the called script while recording, or deselect it to execute the called script at playback only.

Example This example plays back the script `MyScript` from within the currently executing script.

```
CallScript "MyScript"
```

See Also None.

CancelButton

Statement

Description Sets the position and size of a Cancel button in a dialog box.

Syntax

CancelButton *x, y, dx, dy* [, *.id*]

Syntax Element	Description
x, y	The position of the Cancel button relative to the upper left corner of the dialog box.
dx, dy	The width and height of the button.
.id	An optional identifier for the button.

Comments

A *dy* value of 14 can usually accommodate text in the system font.

.Id is used by the dialog statements that act on this control. If you use the Dialog statement to display the dialog box and the user clicks Cancel, the box is removed from the screen and an Error 102 is triggered. If you use the Dialog function to display the dialog box, the function will return 0 and no error occurs.

Use the CancelButton statement only between a Begin Dialog and an End Dialog statement.

Example

This example defines a dialog box with a combo box and buttons.

```
Sub main
  Dim fchoices as String
  fchoices="File1" & Chr(9) & "File2" & Chr(9) & "File3"
  Begin Dialog UserDialog 185, 94, "SQABasic  Dialog Box"
      Text  9, 5, 69, 10, "Filename:", .Text1
      DropComboBox  9, 17, 88, 71, fchoices, .ComboBox1
      ButtonGroup .ButtonGroup1
      OKButton  113, 14, 54, 13
      CancelButton  113, 33, 54, 13
      PushButton 113, 57, 54, 13, "Help", .Push1
  End Dialog
  Dim mydialog as UserDialog
  On Error Resume Next
  Dialog mydialog
  If Err=102 then
     MsgBox "Dialog box canceled."
  End If
End Sub
```

See Also

Begin Dialog	ComboBox	OptionButton
End Dialog	DropComboBox	OptionGroup
Button	DropListBox	Picture
CancelButton	GroupBox	StaticComboBox
Caption	ListBox	Text
CheckBox	OKButton	TextBox

Caption
Statement

Description
Defines the title of a dialog box.

Syntax
Caption *text$*

Syntax Element	Description
text$	A string expression containing the title of the dialog box.

Comments
Use the `Caption` statement only between a `Begin Dialog` and an `End Dialog` statement.

If no `Caption` statement is specified for the dialog box, a default caption is used.

Example
This example defines a dialog box with a combination list box and three buttons. The Caption statement changes the dialog box title to `Example-Caption Statement`.

```
Sub main
   Dim fchoices as String
   fchoices="File1" & Chr(9) & "File2" & Chr(9) & "File3"
   Begin Dialog UserDialog 185, 94
      Caption "Example-Caption Statement"
      Text  9, 5, 69, 10, "Filename:", .Text1
      DropComboBox  9, 17, 88, 71, fchoices, .ComboBox1
      ButtonGroup .ButtonGroup1
      OKButton  113, 14, 54, 13
      CancelButton  113, 33, 54, 13
      PushButton 113, 57, 54, 13, "Help", .Push1
   End Dialog
   Dim mydialog as UserDialog
   On Error Resume Next
   Dialog mydialog
   If Err=102 then
      MsgBox "Dialog box canceled."
   End If
End Sub
```

See Also
`Begin Dialog` `ComboBox` `OptionButton`
`End Dialog` `DropComboBox` `OptionGroup`
`Button` `DropListBox` `Picture`
`CancelButton` `GroupBox` `StaticComboBox`
`Caption` `ListBox` `Text`
`CheckBox` `OKButton` `TextBox`

CCur
Function

Description

Converts an expression to the data type `Currency`.

Syntax

`CCur`(*`expression`*)

Syntax Element	Description
`expression`	Any expression that evaluates to a number.

Comments

`CCur` accepts any type of *`expression`*. Numbers that do not fit in the `Currency` data type result in an `Overflow` error. Strings that cannot be converted result in a `Type Mismatch` error. Variants containing null result in an `Illegal Use of Null` error.

Example

This example converts a yearly payment on a loan to a currency value with four decimal places. A subsequent Format statement formats the value to two decimal places before displaying it in a message box.

```
Sub main
Dim aprate, totalpay,loanpv
   Dim loanfv, due, monthlypay
   Dim yearlypay, msgtext
   loanpv=InputBox("Enter the loan amount: ")
   aprate=InputBox("Enter the annual percentage rate: ")
   If aprate > 1 then
      Aprate = aprate/100
   End If
   aprate=aprate/12
   totalpay=InputBox("Enter the total number of pay periods: ")
   loanfv=0
Rem Assume payments are made at end of month
   due=0
   monthlypay=Pmt(aprate,totalpay,-loanpv,loanfv,due)
   yearlypay=CCur(monthlypay*12)
   msgtext="The yearly payment is: " & Format(yearlypay,"Currency")
   MsgBox msgtext
End Sub
```

See Also

`CDbl` `CInt` `CLng` `CSng` `CStr` `CVar` `CVDate`

CDbl
Function

Description Converts an expression to the data type `Double`.

Syntax **`CDbl`**(*`expression`*)

Syntax Element	Description
`expression`	Any expression that evaluates to a number.

Comments `CDbl` accepts any type of *`expression`*. Strings that cannot be converted to a double-precision floating point result in a `Type Mismatch` error. Variants containing null result in an `Illegal Use of Null` error.

Example This example calculates the square root of 2 as a double-precision floating point value and displays it in scientific notation.

```
Sub main
Dim value
   Dim msgtext
   value=CDbl(Sqr(2))
   msgtext= "The square root of 2 is: " & Value
   MsgBox msgtext
End Sub
```

See Also

```
CCur      CStr
CInt      CVar
CLng      CVDate
CSng
```

ChDir
Statement

Description Changes the default directory for the specified drive. .

Syntax **`ChDir`** *`path$`*

Syntax Element	Description
`path$`	A string expression identifying the new default directory.

Comments The syntax for *`path$`* is:

```
[drive:][\]directory[\directory]
```

If the drive argument is omitted, `ChDir` changes the default directory on the current drive. The `ChDir` statement does not change the default drive. To change the default drive, use `ChDrive`.

Example

This example changes the current directory to C:\WINDOWS, if it is not already the default.

```
Sub main
   Dim newdir as String
   newdir="c:\windows"
   If CurDir <> newdir then
      ChDir newdir
   End If
   MsgBox "The default directory is now: " & newdir
End Sub
```

See Also

`ChDrive` `MkDir`
`CurDir` `RmDir`
`Dir`

ChDrive
Statement

Description

Changes the default drive.

`ChDrive` *`drive$`*

Syntax Element	Description
`drive$`	A string expression designating the new default drive.

Comments

This drive must exist and must be within the range specified by the LASTDRIVE statement in the CONFIG.SYS file. If a null argument (`""`) is supplied, the default drive remains the same. If the *`drive$`* argument is a string, `ChDrive` uses the first letter only. If the argument is omitted, an error message is produced. To change the current directory on a drive, use `ChDir`.

Example

This example changes the default drive to A:.

```
Sub main
   Dim newdrive as String
   newdrive="A:"
   If Left(CurDir,2) <> newdrive then
      ChDrive newdrive
   End If
   MsgBox "The default drive is now " & newdrive
End Sub
```

See Also `ChDir` `MkDir` `CurDir` `RmDir` `Dir`

CheckBox

Statement

Description

Creates a check box in a dialog box.

Syntax

`CheckBox` *`x, y , dx, dy, text$, .field`*

Syntax Element	Description
`x, y`	The upper left corner coordinates of the check box, relative to the upper left corner of the dialog box.
`dx`	The sum of the widths of the check box and *`text$`*.
`dy`	The height of *`text$`*.
`text$`	The title shown to the right of the check box.
`.field`	The name of the dialog-record field that will hold the current check box setting (`0` = unchecked, `-1` = grey, `1` = checked).

Comments

The *`x`* argument is measured in 1/4 system-font character-width units. The *`y`* argument is measured in 1/8 system-font character-height units. (See `Begin Dialog` for more information.)

Because proportional spacing is used, the *`dx`* argument width will vary with the characters used. To approximate the width, multiply the number of characters in the *`text$`* field (including blanks and punctuation) by 4 and add 12 for the check box.

A *`dy`* value of 12 is standard, and should cover typical default fonts. If larger fonts are used, the value should be increased. As the *`dy`* number grows, the check box and the accompanying text will move down within the dialog box.

If the width of the *`text$`* field is greater than *`dx`*, trailing characters will be truncated. If you want to include underlined characters so that the check box selection can be made from the keyboard, precede the character to be underlined with an ampersand (&).

SQABasic treats any other value of *.field* the same as a 1. The *.field* argument is also used by the dialog statements that act on this control.

Use the CheckBox statement only between a Begin Dialog and an End Dialog statement.

Example

This example defines a dialog box with a combination list box, a check box, and three buttons.

```
Sub main
   Dim ComboBox1() as String
   ReDim ComboBox1(0)
   ComboBox1(0)=Dir("C:\*.*")
   Begin Dialog UserDialog 166, 76, "SQABasic Dialog Box"
      Text  9, 3, 69, 13, "Filename:", .Text1
      DropComboBox  9, 14, 81, 119, ComboBox1(), .ComboBox1
      CheckBox  10, 39, 62, 14, "List .TXT files", .CheckBox1
      OKButton  101, 6, 54, 14
      CancelButton  101, 26, 54, 14
      PushButton 101, 52, 54, 14, "Help", .Push1
   End Dialog
   Dim mydialog as UserDialog
   On Error Resume Next
   Dialog mydialog
   If Err=102 then
      MsgBox "Dialog box canceled."
   End If
End Sub
```

See Also

Begin Dialog	ComboBox	OptionButton
End Dialog	DropComboBox	OptionGroup
Button	DropListBox	Picture
CancelButton	GroupBox	StaticComboBox
Caption	ListBox	Text
CheckBox	OKButton	TextBox

CheckBox

User Action Command

Description

Performs an action on a check box control.

Syntax

CheckBox *action%, recMethod$*

Syntax Element	Description
action%	The following mouse action: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). Does not require coordinate information. See Appendix E for a list of mouse click values.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The text of a check box in a Web page INPUT form element. The text is from the Value attribute of the INPUT tag. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object. ▸ `ID=%`. The object's internal Windows ID. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the object in the user interface. ▸ `Name=$`. A unique name that a developer assigns to an object to identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` statement), or `Enabled` if the state has not been otherwise declared. ▸ `Text=$`. The text displayed on the object.

► ► ►

▸ ▸ ▸

Syntax Element	Description
	▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▸ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.

Comments

None.

Example

This example clicks the check box with the Visual Basic object name of `"Overdraft"`.

```
CheckBox Click, "Name=Overdraft"
```

This example clicks the check box with a Value attribute of 2. The check box is located within the Web page frame named Main.

```
CheckBox Click,
    "Type=HTMLFrame;HTMLId=Main;\;Type=CheckBox;HTMLText=2"
```

See Also

`Label`
`PushButton`
`RadioButton`

CheckBoxVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a check box control.

Syntax

`Result` = **`CheckBoxVP`** (*`action%, recMethod$, parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the contents or HTML text of the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ► `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ► `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional. ► `VerifyIsBlank`. Checks that the object has no text. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `HTMLId=$`. The text from the ID attribute of the HTML object. ► `HTMLText=$`. The visible text of a check box in a Web page INPUT form element. The text is from the Name attribute of the INPUT tag. ► `HTMLTitle=$`. The text from the Title attribute of the HTML object. ► `ID=%`. The object's internal Windows ID. ► `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=$`. A label that identifies the object in the user interface. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object.

► ► ►

► ► ►

Syntax Element	Description
	► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`).
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when performing a numeric equivalence comparison, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the check box identified by the text `Read Only` and compares them to the recorded baseline in verification point `VPTEN`. At playback, the comparison is retried every 6 seconds and times out after 30 seconds.

```
Result = CheckBoxVP (CompareProperties, "Text=Read Only",
    "VP=VPTEN;Wait=6,30")
```

This example captures the properties of the check box with a Name attribute of Check1. The check box is located within the Web page frame named Main. `CheckBoxVP` compares the properties to the recorded baseline in verification point `CHKVPTEN`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Result = CheckBoxVP (CompareData,
   "Type=HTMLFrame;HTMLId=Main;\;Type=CheckBox;Name=Check1",
   "VP=CHKVPTEN;Wait=2,30")
```

See Also

`LabelVP`
`PushButton`
`RadioButtonVP`

Chr

Function

Description

Returns a one-character string corresponding to a character code.

Syntax

`Chr``[$]( `*`charcode%`*` )`

Syntax Element	Description
`$`	Optional. If specified, the return type is `String`. If omitted, the function will return a `Variant` of `VarType` 8 (`String`).
`charcode%`	A number representing the character to be returned.

Comments

To obtain a byte representing a given character, use `ChrB`.

Example

This example displays the character equivalent for an ASCII code between 65 and 122 typed by the user.

```
Sub main
   Dim numb as Integer
   Dim msgtext
   Dim out
   out=0
   Do Until out
      numb=InputBox("Type a number between 65 and 122:")
      If Chr$(numb)>="A" AND Chr$(numb)<="Z" OR
         Chr$(numb)>="a" AND Chr$(numb)<="z" then
         msgtext="The letter for the number " & numb  &"
           is: " & Chr$(numb)
         out=1
      ElseIf numb=0 then
         Exit Sub
      Else
         Beep
         msgtext="Does not convert to a character; try again."
      End If
      MsgBox msgtext
   Loop
End Sub
```

See Also

`Asc` `CCur` `CDbl` `CInt` `CLng` `CSng` `CStr` `CVar` `CVDate` `Format` `Val`

CInt

Function

Description

Converts an expression to the data type `Integer` by rounding.

Syntax

`CInt`(*`expression`*)

Syntax Element	Description
`expression`	Any expression that can evaluate to a number.

Comments

After rounding, the resulting number must be within the range of -32767 to 32767, or an error occurs.

Strings that cannot be converted to an integer result in a `Type Mismatch` error. Variants containing null result in an `Illegal Use of Null` error.

Example This example calculates the average of ten golf scores.

```
Sub main
   Dim score As Integer
   Dim x, sum
   Dim msgtext
   Let sum=0
   For x=1 to 10
      score=InputBox("Enter golf score #"&x &":")
      sum=sum+score
   Next x
   msgtext="Your average is: " & Format(CInt(sum/(x-1)))
   MsgBox msgtext
End Sub
```

See Also

```
CCur      CStr
CDbl      CVar
CLng      CVDate
CSng
```

Class List

Description The `Object` class can be used in a `Dim` statement, a `Typeof` expression, or with the `New` operator.

Syntax **`Object`**

Comments Provides access to OLE2 automation.

Example None.

See Also None.

Clipboard

Description The Windows Clipboard can be accessed directly in your program to enable you to get text from and put text into other applications that support the Clipboard.

Syntax

```
Clipboard.Clear
Clipboard.GetText()
Clipboard.SetText string$
Clipboard.GetFormat(1)
```

Syntax Element	Description
string$	A string or string expression containing the text to send to the Clipboard. Used with the `.SetText` method.

Comments

The following Clipboard methods are supported:

Method	Description
`.Clear`	Clears the contents of the Clipboard.
`.GetText`	Returns a text string from the Clipboard.
`.SetText`	Puts a text string to the Clipboard.
`.GetFormat`	This method always takes the argument 1. Returns TRUE (non-0) if the format of the item on the Clipboard is text. Otherwise, returns FALSE (0).

Data on the Clipboard is lost when another set of data of the same format is placed on the Clipboard (either through code or a menu command).

Example

This example places the text string `Hello, world` on the Clipboard.

```
Sub main
   Dim mytext as String
   mytext="Hello, World"
   Clipboard.Settext mytext
   MsgBox "The text: '" & mytext & "' added to the Clipboard."
End Sub
```

See Also

None.

ClipboardVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for the contents of the Windows Clipboard.

Result = **ClipboardVP** (*action%, "", parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▸ `Compare`. Captures the text of the Clipboard and compares it to a recorded baseline. *parameters$* VP is required; `ExpectedResult` and `Wait` are optional.
`""`	The second argument is always left blank.

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
parameters$	Valid values: ▶ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and Timeout value, as in `Wait=1,30` where 1 indicates the verification point is to be retried every second but timed-out after 30 seconds.

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Only textual data on the Clipboard can be compared.

Example This example captures the contents of the Clipboard and compares it to a recorded baseline in verification point CBOARDA.

```
Result = ClipboardVP (Compare, "", "VP=CBOARDA")
```

See Also None.

CLng
Function

Description Converts an expression to the data type `Long` by rounding.

Syntax **`CLng`**(*`expression`*)

Syntax Element	Description
expression	Any expression that can evaluate to a number.

Comments

After rounding, the resulting number must be within the range of -2,147,483,648 to 2,147,483,647, or an error occurs.

Strings that cannot be converted to a long result in a `Type Mismatch` error. Variants containing null result in an `Illegal Use of Null` error.

Example

This example divides the US national debt by the number of people in the country to find the amount of money each person would have to pay to wipe it out. This figure is converted to a Long integer and formatted as `Currency`.

```
Sub Main
   Dim debt As Single
   Dim msgtext
   Const Populace = 250000000
   debt=InputBox("Enter the current US national debt:")
   msgtext = "The debt per citizen is: "
   msgtext = msgtext + Format(CLng(Debt/Populace), "Currency")
   MsgBox msgtext
End Sub
```

See Also

`CCur` `CDbl` `CInt` `CSng` `CStr` `CVar` `CVDate`

Close
Statement

Description

Closes a file, concluding input/output to that file.

Syntax

`Close` `[[#]`*`filenumber%`*`[, [#]`*`filenumber%`*`]]`

Syntax Element	Description
`filenumber%`	An integer expression identifying the number of the file to close. If omitted, all open files are closed.

Comments

`Filenumber%` is the number assigned to the file in the `Open` statement. Once a `Close` statement is executed, the association of a file with *`filenumber%`* is ended, and the file can be reopened with the same or a different file number.

When the `Close` statement is used, the final output buffer is written to the operating system buffer for that file. `Close` frees all buffer space associated with the closed file. Use the `Reset` statement so that the operating system will flush its buffers to disk.

This example opens a file for Random access, gets the contents of one variable, and closes the file again. The sub procedure CREATEFILE creates the file C:\TEMP001 used by the main sub procedure.

```
Declare Sub createfile()
Sub main
   Dim acctno as String*3
   Dim recno as Long
   Dim msgtext as String
   Call createfile
   recno=1
   newline=Chr(10)
   Open "C:\TEMP001" For Random As #1 Len=3
   msgtext="The account numbers are:" & newline & newline
   Do Until recno=11
         Get #1,recno,acctno
         msgtext=msgtext & acctno
         recno=recno+1
   Loop
   MsgBox msgtext
   Close #1
   Kill "C:\TEMP001"
End Sub

Sub createfile()
   Rem Put the numbers 1-10 into a file
   Dim x as Integer
   Open "C:\TEMP001" for Output as #1
   For x=1 to 10
      Write #1, x
   Next x
   Close #1
End Sub
```

See Also `Open` `Reset` `Stop`

ComboBox

Statement

Description

Creates a combination text box and list box in a dialog box.

Syntax

Syntax A **ComboBox** *x, y, dx, dy, text$, .field*

Syntax B **ComboBox** *x, y, dx, dy, stringarray$, .field*

Syntax Element	Description
x, y	The upper left corner coordinates of the list box, relative to the upper left corner of the dialog box.

► ► ►

► ► ►

Syntax Element	Description
dx, dy	The width and height of the combo box in which the user enters or selects text.
text$	A string containing the selections for the combo box.
stringarray$	An array of dynamic strings for the selections in the combo box.
.field	The name of the dialog-record field that will hold the text string entered in the text box or chosen from the list box.

Comments

The *x* argument is measured in 1/4 system-font character-width units. The *y* argument is measured in 1/8 system-font character-width units. (See `Begin Dialog` for more information.)

The *text$* argument must be defined, using a `Dim` statement, before the `Begin Dialog` statement is executed. The arguments in the *text$* string are entered as shown in the following example:

```
dimname="listchoice"+Chr$(9)+"listchoice"+Chr$(9)+"listchoice"...
```

The string in the text box will be recorded in the field designated by the *.field* argument when the OK button (or any push button other than Cancel) is pushed. The *field* argument is also used by the dialog statements that act on this control.

Use the `ComboBox` statement only between a `Begin Dialog` and an `End Dialog` statement.

Example

This example defines a dialog box containing a combo box and three buttons.

```
Sub main
  Dim ComboBox1() as String
  ReDim ComboBox1(0)
  ComboBox1(0)=Dir("C:\*.*")
  Begin Dialog UserDialog 166, 142, "SQABasic Dialog Box"
      Text  9, 3, 69, 13, "Filename:", .Text1
      ComboBox  9, 14, 81, 119, ComboBox1(), .ComboBox1
      OKButton  101, 6, 54, 14
      CancelButton  101, 26, 54, 14
      PushButton 101, 52, 54, 14, "Help", .Push1
  End Dialog
  Dim mydialog as UserDialog
  On Error Resume Next
  Dialog mydialog
  If Err=102 then
      MsgBox "Dialog box canceled."
  End If
End Sub
```

See Also

Begin Dialog	ComboBox	OptionGroup
End Dialog	DropComboBox	Picture
Button	DropListBox	StaticComboBox
ButtonGroup	GroupBox	Text
CancelButton	ListBox	TextBox
Caption	OKButton	
CheckBox	OptionButton	

ComboBox

User Action Command

Description

Performs an action on a combo box control.

Syntax

ComboBox *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ `MakeSelection`. Selects the specified item from a Java combo box. Used only for the Java environment. *recMethod$* must contain one of the Java recognition methods, and *parameters$* must contain either `Text` or `Index`. ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain `Coords=`*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain `Coords=`*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The visible text of a Web page SELECT form element. The text is from the Value attribute of the OPTION tag. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object. ▸ `ID=%`. The object's internal Windows ID.

► ► ►

► ► ►

Syntax Element	Description
	► `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=$`. A label that identifies the object in the user interface. ► `Label=$`. The text of the label object that immediately precedes the combo box in the internal order (Z order) of windows. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
`parameters$`	Valid values: ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ► `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object. ► `Index=%`. If *`action%`* is `MakeSelection`, identifies the index of an item in the list. ► `Text=$`. If *`action%`* is `MakeSelection`, identifies the text of an item in the list.

Comments None.

Example This example clicks the second combo box in the window (`ObjectIndex=2`) at *x*,*y* coordinates of 49,14. The combo box is preceded by a label with the text "Name:".

```
ComboBox Click, "ObjectIndex=2;VisualText=Name:", "Coords=49,14"
```

This example clicks the combo box with a Name attribute of Selectlist. The combo box is located within the Web page frame named Main.

```
ComboBox Click, "Type=HTMLFrame;HTMLId=Main;\;Type=ComboBox;
   Name=Selectlist", ""
```

See Also

ComboEditBox	EditBox
ComboListBox	ListBox

ComboBoxVP

Verification Point Command

▸▸▸SQA▸

Description Establishes a verification point for a combo box control.

Syntax *Result* = **ComboBoxVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `Compare`. Captures the entire textual contents of the object into a grid and compares it to a recorded baseline. *parameters$* VP is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareData`. Captures the contents or HTML text of the object and compares it to a recorded baseline. *parameters$* VP is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* VP and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* VP is required; `ExpectedResult` and `Wait` are optional.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional. ► `VerifyIsBlank`. Checks that the object has no text. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `HTMLId=`*`$`*. The text from the ID attribute of the HTML object. ► `HTMLText=`*`$`*. The visible text of a Web page SELECT form element. The text is from the Value attribute of the OPTION tag. ► `HTMLTitle=`*`$`*. The text from the Title attribute of the HTML object. ► `ID=`*`%`*. The object's internal Windows ID. ► `Index=`*`%`*. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=`*`$`*`;Index=`*`%`*. ► `JavaText=`*`$`*. A label that identifies the object in the user interface. ► `Label=`*`$`*. The text of the label object that immediately precedes the combo box in the internal order (Z order) of windows. ► `Name=`*`$`*. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=`*`%`*. The number of the object among all objects of the same type in the same window. ► `Type=`*`$`*. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=`*`$`*`;recMethod=`*`$`*. Parent/child values are separated by a backslash and semicolons (`;\;`).

► ► ►

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the first combo box control in the window (`ObjectIndex=1`) and compares them to the recorded baseline in verification point VPFIVE. At playback, the comparison is retried every 4 seconds and times out after 30 seconds.

```
Result = ComboBoxVP (CompareProperties, "ObjectIndex=1",
   "VP=VPFIVE; Wait=4,30")
```

This example captures the properties of the select list with a Name attribute of Sselectlist. The list is located within the Web page frame named Main. `ComboBoxVP` compares the properties to the recorded baseline in verification point `SELECTVP1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Result = ComboBoxVP (CompareData,
   "Type=HTMLFrame;HTMLId=Main;\;Type=ComboBox;Name=Selectlist",
   "VP=SELECTVP1;Wait=2,30")
```

See Also

`ComboEditBoxVP` `EditBoxVP`
`ComboListBoxVP` `ListBoxVP`

ComboEditBox

User Action Command

Description

Performs an action on a combo edit box control.

Syntax

`ComboEditBox` *`action%, recMethod$, parameters$`*

Syntax Element	Description
`action%`	One of these mouse actions: ▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ► HTMLId=*$*. The text from the ID attribute of the HTML object. ► HTMLText=*$*. The visible text of a Web page SELECT form element. The text is from the Value attribute of the OPTION tag. ► HTMLTitle=*$*. The text from the Title attribute of the HTML object. ► ID=*%*. The object's internal Windows ID. ► Index=*%*. The number of the object among all objects identified with the same base recognition method. Typically, Index is used after another recognition method qualifier — for example, Name=*$*;Index=*%*. ► Label=*$*. The text of the label object that immediately precedes the combo edit box in the internal order (Z order) of windows. ► Name=*$*. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ► State=*$*. An optional qualifier for any other recognition method. There are two possible values for this setting: Enabled and Disabled. The default state is the state of the current context window (as set in the most recent Window SetContext command), or Enabled if the state has not been otherwise declared. ► VisualText=*$*. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ► Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object.

► ► ►

► ► ►

Syntax Element	Description
	► `Coords=`*`x1,y1,x2,y2`*. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates of the drag. The coordinates are relative to the top left of the object.

Comments

None.

Example

This example clicks the second combo edit box in the window (`ObjectIndex=2`) at *x*,*y* coordinates of 59,10.

```
ComboEditBox Click, "ObjectIndex=2", "Coords=59,10"
```

See Also

`ComboBox` `EditBoxVP`
`ComboListBox` `ListBoxVP`

ComboEditBoxVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a combo edit box control.

Syntax

`Result` = **`ComboEditBoxVP`** (*`action%,recMethod$,parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ► `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ► `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ► `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.

► ► ►

► ► ►

Syntax Element	Description
	► `VerifyIsBlank`. Checks that the object has no text. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `HTMLId=$`. The text from the ID attribute of the HTML object. ► `HTMLText=$`. The visible text of a Web page SELECT form element. The text is from the Value attribute of the OPTION tag. ► `HTMLTitle=$`. The text from the Title attribute of the HTML object. ► `ID=%`. The object's internal Windows ID. ► `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `Label=$`. The text of the label object that immediately precedes the combo edit box in the internal order (Z order) of windows. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window.
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – PASS. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive.

► ► ►

► ► ►

Syntax Element	Description
	► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function. – `Function=$`. The name of the custom function to use in comparing the text. ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the text of the second combo edit box in the window (`ObjectIndex=2`) and performs a case-sensitive comparison with the recorded baseline in verification point `VPNESTED`. At playback, the comparison is retried every 3 seconds and times out after 30 seconds.

```
Result = ComboEditBoxVP (CompareText, "ObjectIndex=2",
   "VP=VPNESTED;Type=CaseSensitive;Wait=3,30")
```

See Also

`ComboBoxVP` `EditBoxVP`
`ComboListBoxVP` `ListBoxVP`

ComboListBox

User Action Command

Description Performs an action on a combo list box (the list box part of a combo box).

Syntax **ComboListBox** *action%, recMethod$, parameters$*

Syntax Element	Description

action%	One of these actions:
	▸ `MakeSelection`. Selects the specified item from a Java combo box. Used only for the Java environment. *recMethod$* must contain one of the Java recognition methods, and *parameters$* must contain either `Text` or `Index`.
	▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain one of the following: `Text`, `ItemData`, `Index`, or `Coords=`*x,y*.
	▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain `Coords=`*x1,y1,x2,y2*.
	See Appendix E for a list of mouse click and drag values.
	▸ *ScrollAction*. One of these scroll actions:
	`ScrollPageRight` `ScrollPageDown`
	`ScrollRight` `ScrollLineDown`
	`ScrollPageLeft` `ScrollPageUp`
	`ScrollLeft` `ScrollLineUp`
	`HScrollTo` `VScrollTo`
	`HScrollTo` and `VScrollTo` take the required parameter `Position=%`.
	If Robot cannot interpret the action being applied to a scroll bar, which happens with certain custom standalone scroll bars, it records the action as a click or drag.

recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object.

► ► ►

► ► ►

Syntax Element	Description
	► `HTMLText=$`. The text of an item in a Web page SELECT form element. The text is from the Value attribute of the OPTION tag. ► `HTMLTitle=$`. The text from the Title attribute of the HTML object. ► `ID=%`. The object's internal Windows ID. ► `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=$`. A label that identifies the object in the user interface. ► `Label=$`. The text of the label object that immediately precedes the combo list box in the internal order (Z order) of windows. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific environment. ► `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. Robot uses this parameter only if the item contents or index cannot be retrieved — for example, if the combo list box is empty or disabled.

► ► ►

► ► ►

Syntax Element	Description
	► `Coords=x1,x2,y1,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object. ► `Index=%`. If *`action%`* is a mouse click or `MakeSelection`, identifies the index of an item in the list. ► `ItemData=&`. If *`action%`* is a mouse click, identifies the internal value, or ItemData, associated with an item in the list. All items in a list have an associated value. The uniqueness and significance of this value is entirely up to the application. Robot uses this parameter only if the combo list box item's text cannot be retrieved (for example, if it is an OwnerDrawn combo box), and if the Identify List Selections By recording option is set to Contents. ► `Position=%`. If *`action%`* is a `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position. Every scroll bar has an internal range, and this value is specific to that range. ► `Text=$`. If *`action%`* is a mouse click or `MakeSelection`, identifies the text of an item in the list.

Comments

None.

Example

This example clicks the item identified by the text VGA in the combo list box identified by the label `Display`.

```
ComboListBox Click, "Label=Display:", "Text=VGA"
```

This example clicks a select list item with a Value attribute of 1. The list is located within the Web page frame named Main.

```
ComboListBox Click,
   "Type=HTMLFrame;HTMLId=Main;\;Type=ComboListBox;
   Name=Selectlist", "Index=1"
```

See Also

`ComboBox` `EditBox`
`ComboEditBox` `ListBox`

ComboListBoxVP

Verification Point Command

Description Establishes a verification point for a combo list box.

Syntax *Result* = **ComboListBoxVP** (*action%*,*recMethod$*,*parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `Compare`. Captures the entire textual contents of the object into a grid and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the currently selected item and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The text of an item in a Web page SELECT form element. The text is from the Value attribute of the OPTION tag. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object. ▸ `ID=%`. The object's internal Windows ID. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the object in the user interface.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `Label=$`. The text of the label object that immediately precedes the combo list box in the internal order (Z order) of windows. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window.
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function. – `Function=$`. The name of the custom function to use in comparing the text. ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points.

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the combo list box control identified by the label `Display` and compares them to the recorded baseline in verification point `VPNEW`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Result = ComboListBoxVP (CompareProperties,
  "Label=Display:", "VP=VPNEW;Wait=2,30")
```

See Also

`ComboBox` `EditBox` `ComboEditBox` `ListBox`

Command
Function

Description

Returns the command line specified when the MAIN sub procedure was invoked.

Syntax

`Command``[$]`

Syntax Element	Description
`$`	Optional. If specified, the return type is `String`. If omitted, the function returns a `Variant` of `VarType` 8 (`String`).

Comments

After the MAIN sub procedure returns, further calls to the `Command` function will yield an empty string. This function might not be supported in some implementations of SQABasic.

Example This example opens the file entered by the user on the command line.

```
Sub main
   Dim filename as String
   Dim cmdline as String
   Dim cmdlength as Integer
   Dim position as Integer
   cmdline=Command
   If cmdline="" then
      MsgBox "No command line information."
      Exit Sub
   End If
   cmdlength=Len(cmdline)
   position=InStr(cmdline,Chr(32))
   filename=Mid(cmdline,position+1,cmdlength-position)
   On Error Resume Next
   Open filename for Input as #1
   If Err<>0 then
      MsgBox "Error loading file."
      Exit Sub
   End If
   MsgBox "File " & filename & " opened."
   Close #1
   MsgBox "File " & filename & " closed."
End Sub
```

See Also `AppActivate` `InputKeys` `DoEvents` `Shell` `Environ`

Const

Statement

Description Declares symbolic constants for use in an SQABasic program.

Syntax `[Global] Const` *`constantName`* `[As` *`type`*`]=` *`expression`* `[,`*`constantName`* `[As` *`type`*`]=` *`expression`* `]...`

Syntax Element	Description
`constantName`	The variable name to contain a constant value.
`type`	The data type of the constant (`Number` or `String`).
`expression`	Any expression that evaluates to a constant number.

Comments Instead of using the `As` clause, the type of the constant can be specified by using a type-declaration character as a suffix (`#` for numbers, `$` for strings) to the *`constantName`*. If no type-declaration character is specified, the type of the *`constantName`* is derived from the type of the expression.

If `Global` is specified, the constant is validated at module load time. If the constant has already been added to the runtime global area, the constant's type and value are compared to the previous definition, and the load fails if a mismatch is found. This is useful as a mechanism for detecting version mismatches between modules.

Example

This example divides the US national debt by the number of people in the country to find the amount of money each person would have to pay to wipe it out. This figure is converted to a Long integer and formatted as `Currency`.

```
Sub Main
   Dim debt As Single
   Dim msgtext
   Const Populace = 250000000
   debt=InputBox("Enter the current US national debt:")
   msgtext = "The debt per citizen is: "
   msgtext = msgtext + Format(CLng(Debt/Populace), "Currency")
   MsgBox msgtext
End Sub
```

See Also

`Declare` `Let`
`Def`*`type`* `Type`
`Dim`

Cos
Function

Description

Returns the cosine of an angle.

Syntax

`Cos`(*`number`*)

Syntax Element	Description
`number`	An angle in radians.

Comments

The return value will be between `-1` and `1`. The return value is a single-precision number if the angle has a data type `Integer`, `Currency`, or is a single-precision value. The return value will be a double precision value if the angle has a data type `Long`, `Variant`, or is a double-precision value.

The angle can be either positive or negative. To convert degrees to radians, multiply by (PI/180). The value of PI is approximately 3.14159.

Example

This example finds the length of a roof, given its pitch and the distance of the house from its center to the outside wall.

```
Sub main
   Dim bwidth, roof, pitch
   Dim msgtext
   Const PI=3.14159
   Const conversion=PI/180
   pitch=InputBox("Enter roof pitch in degrees")
   pitch=Cos(pitch*conversion)
   bwidth=InputBox("Enter 1/2 of house width in feet")
   roof=bwidth/pitch
   msgtext="The length of the roof is " & Format(roof,
     "##.##") & " feet."
   MsgBox msgtext
End Sub
```

See Also

Atn
Sin
Tan
Derived Trigonometric Functions (Appendix D)

CreateObject

Function

Description

Creates a new OLE2 automation object.

Syntax

CreateObject(*class*)

Syntax Element	Description
class	The name of the application, a period, and the name of the object to be used.

Comments

To create an object, you first must declare an object variable, using Dim, and then Set the variable equal to the new object, as follows:

```
Dim OLE2 As Object
Set OLE2 = CreateObject("spoly.cpoly")
```

To refer to a method or property of the newly created object, use the syntax *objectvar.property* or *objectvar.method*, as follows:

```
OLE2.reset
```

Refer to the documentation provided with your OLE2 automation server application for correct application and object names.

Example

This example uses the CreateObject function to open the software product VISIO (if it is not already open).

```
Sub main
   Dim visio as Object
   Dim doc as Object
   Dim i as Integer, doccount as Integer

'Initialize Visio
   on error resume next
   Set visio = GetObject(,"visio.application")
   If (visio Is Nothing) then
      Set visio = CreateObject("visio.application")
      If (visio Is Nothing) then
         MsgBox "Couldn't find Visio!"
         Exit Sub
      End If
   End If
   MsgBox "Visio is open."
End Sub
```

See Also

Class List
GetObject
Is
New
Nothing
Object Class
Typeof

CSng
Function

Description

Converts an expression to the data type `Single`.

Syntax

CSng(*expression*)

Syntax Element	Description
expression	Any expression that can evaluate to a number.

Comments

The *expression* must have a value within the range allowed for the `Single` data type, or an error occurs.

Strings that cannot be converted to an integer result in a `Type Mismatch` error. Variants containing null result in an `Illegal Use of Null` error.

Example

This example calculates the factorial of a number. A factorial (represented as an exclamation mark, !) is the product of a number and each integer between it and the number 1. For example, 5 factorial, or `5!`, is the product of `5*4*3*2*1`, or the value 120.

```
Sub main
   Dim number as Integer
   Dim factorial as Double
   Dim x as Integer
   Dim msgtext
   number=InputBox("Enter an integer between 1 and 170:")
```

```
   If number<=0 then
      Exit Sub
   End If
   factorial=1
   For x=number to 2 step -1
      factorial=factorial*x
   Next x
Rem If number =<35, then its factorial is small enough to
Rem be stored as a single-precision number
   If number<35 then
      factorial=CSng(factorial)
   End If
   msgtext="The factorial of " & number & " is: " & factorial
   MsgBox msgtext
End Sub
```

See Also

CCur
CDbl
CInt
CLng
CStr
CVar
CVDate

CStr

Function

Description

Converts an expression to the data type `String`.

Syntax

`CStr`(*`expression`*)

Syntax Element	Description
`expression`	Any expression that can evaluate to a number. The `CStr` statement accepts any type of *`expression`*: ▸ `Boolean`. A String containing TRUE or FALSE. ▸ `Date`. A String containing a date. ▸ `Empty`. A zero-length String (`""`). ▸ `Error`. A String containing the word `Error` followed by the error number. ▸ `Null`. A runtime error. ▸ `Other Numeric`. A String containing the number.

Comments

None.

Example

This example converts a variable from a value to a string and displays the result. Variant type 5 is `Double` and type 8 is `String`.

```
Sub main
   Dim var1
   Dim msgtext as String
   var1=InputBox("Enter a number:")
```

```
    var1=var1+10
    msgtext="Your number + 10 is: " & var1 & Chr(10)
    msgtext=msgtext & "which makes its Variant type: " &
        Vartype(var1)
    MsgBox  msgtext
    var1=CStr(var1)
    msgtext="After conversion to a string," & Chr(10)
    msgtext=msgtext & "the Variant type is: " & Vartype(var1)
    MsgBox msgtext
End Sub
```

See Also

```
Asc       CInt      CVar
CCur      CLng      CVDate
CDbl      CSng      Format
Chr
```

'$CStrings

Metacommand

Description

Tells the compiler to treat a backslash character (\) inside a string as an escape character.

Syntax

'$CStrings [Save | Restore]

Syntax Element	Description
Save	Saves the current '$CStrings setting.
Restore	Restores a previously saved $CStrings setting.

Comments

This treatment of a backslash in a string is based on the C language.

All metacommands must begin with an apostrophe (') and are recognized by the compiler only if the command starts at the beginning of a line.

Save and Restore operate as a stack and allow the user to change the setting for a range of the program without impacting the rest of the program.

The supported special characters are:

\n	Newline (Linefeed)	\f	Formfeed
\t	Horizontal Tab	\\	Backslash
\v	Vertical Tab	\'	Single Quote
\b	Backspace	\"	Double Quote
\r	Carriage Return	\0	Null Character

The instruction "Hello\r World" is the equivalent of "Hello" + Chr$(13) + "World".

In addition, any character can be represented as a 3-digit octal code or a 3-digit hexadecimal code:

`\ddd` Octal Code `\xddd` Hexadecimal Code

For both hexadecimal and octal, fewer than 3 characters can be used to specify the code as long as the subsequent character is not a valid (hex or octal) character.

To tell the compiler to return to the default string processing mode, where the backslash character has no special meaning, use the `'$NoCStrings` metacommand.

Example

This example displays two lines, the first time using the C-language characters `\n` for a carriage return and line feed.

```
Sub main
   '$CStrings
   MsgBox "This is line 1\n This is line 2 (using C Strings)"
   '$NoCStrings
   MsgBox "This is line 1" +Chr$(13)+Chr$(10)+"This is
      line 2 (using Chr)"
End Sub
```

See Also

`$Include` `Rem`
`$NoCStrings`

CurDir
Function

Description

Returns the default directory (and drive) for the specified drive.

Syntax

`CurDir``[$] [(`*`drive$`*`)]`

Syntax Element	Description
`$`	Optional. If specified, the return type is `String`. If omitted, the function will return a `Variant` of `VarType` 8 (`String`).
`drive$`	A string expression containing the drive to search.

Comments

The drive must exist, and must be within the range specified in the LASTDRIVE statement of the CONFIG.SYS file. If a null argument (`""`) is supplied, or if no *`drive$`* is indicated, the path for the default drive is returned.

To change the current drive, use `ChDrive`. To change the current directory, use `ChDir`.

Example This example changes the current directory to C:\WINDOWS, if it is not already the default.

```
Sub main
   Dim newdir as String
   newdir="c:\windows"
   If CurDir <> newdir then
      ChDir newdir
   End If
   MsgBox "The default directory is now: " & newdir
End Sub
```

See Also `ChDir` `MkDir` `ChDrive` `RmDir` `Dir`

CVar
Function

Description Converts an expression to the data type `Variant`.

Syntax **`CVar`**(*`expression`*)

Syntax Element	Description
`expression`	Any expression that can evaluate to a number.

Comments `CVar` accepts any type of *`expression`*.

`CVar` generates the same result as you would get by assigning the *`expression`* to a `Variant` variable.

Example This example converts a string variable to a variant variable.

```
Sub main
    Dim answer as Single
    answer=100.5
    MsgBox "'Answer' is DIMed as Single with the value: " & answer
    answer=CVar(answer)
    answer=Fix(answer)
    MsgBox "'Answer' is now a variant with type: " & VarType(answer)
End Sub
```

See Also `CCur` `CLng` `CStr` `CDbl` `CSng` `CVDate` `CInt`

CVDate
Function

Description

Converts an expression to the data type `Variant Date`.

Syntax

`CVDate`(*`expression`*)

Syntax Element	Description
`expression`	Any expression that can evaluate to a number.

Comments

`CVDate` accepts both string and numeric values.

The `CVDate` function returns a `Variant` of `VarType` 7 (date) that represents a date from January 1, 100 through December 31, 9999. A value of 1 represents December 31, 1899, and a value of -1 represents December 29, 1899. Times are represented as fractional days.

With this function, a two-digit year is converted to a four-digit year, as follows:

- 00 through 29 is converted to 2000 through 2029
- 30 through 99 is converted to 1930 through 1999

When exchanging data information with external data sources or external programs, you should use double-precision floating point numbers or data strings with at least four characters for identifying the century.

Example

This example displays the date for one week from the date entered by the user.

```
Sub main
Dim str1 as String
   Dim x as Integer
   Dim nextweek
   Dim msgtext
i: str1=InputBox$("Enter a date:")
   answer=IsDate(str1)
   If answer=-1 then
      str1=CVDate(str1)
      nextweek=DateValue(str1)+7
      msgtext="One week from the date entered is:"
      msgtext=msgtext & Format(nextweek,"dddddd")
      MsgBox msgtext
   Else
      MsgBox "Invalid date or format. Try again."
      Goto i
   End If
End Sub
```

See Also

```
Asc       CInt      CVar
CCur      CLng      Format
CDbl      CSng      Val
Chr       CStr
```

DataWindow

User Action Command

Description

Performs an action on a PowerBuilder DataWindow.

Syntax

DataWindow *action%, recMethod$, parameters$*

Syntax Element	Description

action%	One of these actions:
	▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift).
	When *action%* contains a mouse-click value, *parameters$* identifies the DataWindow *row* that was clicked. See *Comments* for more information.
	▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain `Coords=x1,y1,x2,y2`.
	See Appendix E for a list of mouse click and drag values.
	▸ *ScrollAction*. One of these scroll actions:
	`ScrollPageRight` `ScrollPageDown`
	`ScrollRight` `ScrollLineDown`
	`ScrollPageLeft` `ScrollPageUp`
	`ScrollLeft` `ScrollLineUp`
	`HScrollTo` `VScrollTo`
	`HScrollTo` and `VScrollTo` take the required parameter `Position=%`.

recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. Applies to both the DataWindow itself and to its child objects (such as columns). For example a clicked column might be identified as follows: `"Name=datawindow;\;Name=col_custid"`

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ► `Text=$`. The caption of the DataWindow. Wildcards are not supported. ► `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ► `Col=%;Value=x`. If *`action%`* is a mouse click, these two parameters specify the row being clicked: – `Col` is the numeric position of a column in the DataWindow (the leftmost column = 1, the next column = 2, and so forth) – `Value` is the contents of the cell located at the intersection of column `Col` and the clicked row ► `ColName=$;Value=x`. If *`action%`* is a mouse click, these two parameters specify the row being clicked: – `ColName` is the developer-assigned object name of a column in the DataWindow – `Value` is the contents of the cell located at the intersection of column `ColName` and the clicked row ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the cell or column being clicked. ► `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object or the item. ► `CurrentRow`. If *`action%`* is a mouse click, the currently selected row in the DataWindow is clicked. ► `Index=%`. An optional 1-based clarifier for `Text=$` or column/value *`parameters$`*. For example, `Text=Yes;Index=3` specifies the third DataWindow row containing the value `Yes`.

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ `LastRow`. If *`action%`* is a mouse click, the last row in the DataWindow is clicked. ▶ `Position=%`. If *`action%`* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position in the scroll box. Every scroll bar has an internal range, and this value is specific to that range. ▶ `Row=%`. If *`action%`* is a mouse click, the number of the DataWindow row being clicked (first row = 1). ▶ `Text=$`. If *`action%`* is a mouse click, the visible text in the row being clicked. ▶ `VisibleRow=%`. If *`action%`* is a mouse click, the number of the visible row being clicked. The range of row numbers begins with the first visible row (first visible row = 1).

Comments

With mouse-click actions, *`recMethod$`* specifies the column being clicked, and *`parameters$`* specifies the row being clicked.

Whenever possible during recording, Robot specifies the clicked row by using one of these *`parameters$`* values (or pairs of values) in the following default order of priority:

1. `CurrentRow` (when the user action takes place in the currently selected row, and the user's previous action also took place in that row).
2. One or more pairs of a column identifier (`Col=%` or `ColName=$`) followed by `Value=`*`x`*. Robot uses as many column/value pairs as necessary to uniquely identify the clicked row — for example:

   ```
   ColName=acct_type;Value=Savings;ColName=acct_number;Value=388217
   ```

3. `Text=$` (when the DataWindow is not editable and has less than four visible columns).
4. `Row=%`. If the current user action is in the last row of the DataWindow, and the action occurs in an editable column, Robot uses `LastRow`.
5. `Coords=`*`x,y`*.

Note the following points about column/value pairs:

- `Value` must *immediately* follow `Col` or `ColName`.
- The values are separated by a semicolon (;) — for example:

  ```
  "ColName=custid;Value=0253319"
  ```

- The column identifier (`Col` or `ColName`) isn't necessarily the column that was clicked. Robot looks for one or more *key* columns of unique values. If a key column is found:
  - The column identifier specifies the key column
  - `Value` specifies the contents of the cell at the intersection of the key column and the row that the user clicked

  If there are no key columns, Robot uses as many column/value pairs as necessary to uniquely identify the clicked row, starting with the leftmost column.
- *`parameters$`* has a maximum length of 968 characters. If multiple column/row pairs cause *`parameters$`* to exceed the maximum length, Robot uses another way to uniquely identify the clicked row.

Robot treats the following pairs of *`parameters$`* values equally:

`Row=0` and `CurrentRow`
`Row=-1` and `LastRow`

Example

This example clicks the DataWindow cell that's identified by the column `custname` and the row specified by the column/value pair `Col=1;Value=11739`.

```
DataWindow Click,"Name=dw;\;Name=custname","Col=1;Value=11739"
```

This example uses the relative row indicator `CurrentRow` and the coordinates of the click to specify the row being clicked.

```
DataWindow Click,"Name=dw;\;Name=custname","CurrentRow;Coords=5,5"
```

This example uses the relative row indicator `VisibleRow=%` to specify that the second visible row is being clicked. Note that the clicked row may or may not be the second row in the entire DataWindow table.

```
DataWindow Click,"Name=dw;\;Name=custname","VisibleRow=2"
```

See Also

`DataWindowVP`

DataWindowVP

Verification Point Command

Description Establishes a verification point for a PowerBuilder DataWindow.

Syntax `Result = DataWindowVP (action%, recMethod$, parameters$)`

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `Compare`. Captures the data of the object into a grid and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the caption of the DataWindow and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The caption of the DataWindow. Wildcards are not supported.

► ► ►

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function. – `Function=$`. The name of the custom function to use in comparing the text. ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the Type=$ parameter, CaseSensitive and CaseInsensitive require a full match between the current baseline text and the text captured during playback. With FindSubStr and FindSubStrI, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the contents of the DataWindow control identified by the PowerBuilder object name dw_trans and compares it to a recorded baseline in verification point QBDW1.

```
Result = DataWindowVP (Compare, "Name=dw_trans", "VP=QBDW1")
```

See Also

None.

Date
Function

Description

Returns a string representing the current date.

Syntax

Date[$]

Syntax Element	Description
$	Optional. If specified, the return type is String. If omitted, the function will return a Variant of VarType 8 (String).

Comments

The Date function returns a ten character string.

Example

This example displays the date for one week from the today's date (the current date on the computer).

```
Sub main
   Dim nextweek
   nextweek=CVar(Date)+7
   MsgBox "One week from today is: " & Format(nextweek, "ddddd")
End Sub
```

See Also

CVDate
Date statement
Format
Now
Time function
Time statement
Timer
TimeSerial

Date
Statement

Description

Sets the system date.

Syntax

Date = *expression*

Syntax Element	Description
Expression	A string in one of the following forms: *mm-dd-yy* *mm-dd-yyyy* *mm/dd/yy* *mm/dd/yyyy* where *mm* denotes a month (01-12), *dd* denotes a day (01-31), and *yy* or *yyyy* denotes a year (1980-2099).

Comments

If *expression* is not already a `Variant` of `VarType` 7 (date), `Date` attempts to convert it to a valid date from January 1, 1980 through December 31, 2099. `Date` uses the Short Date format in the International section of Windows Control Panel to recognize day, month, and year if a string contains three numbers delimited by valid date separators. In addition, `Date` recognizes month names in either full or abbreviated form.

With this function, a two-digit year is converted to a four-digit year, as follows:

- 80 through 99 is converted to 1980 through 1999
- 00 through 79 is converted to 2000 through 2079

When exchanging data information with external data sources or external programs, you should use double-precision floating point numbers or data strings with at least four characters for identifying the century.

Example

This example changes the system date to a date entered by the user.

```
Sub main
   Dim userdate
   Dim answer
i: userdate= InputBox("Enter date for the system clock:")
   If userdate="" then
      Exit Sub
   End If
   answer=IsDate(userdate)
```

```
   If answer=-1 then
         Date=userdate
      Else
         MsgBox "Invalid date or format. Try again."
         Goto i
      End If
   End Sub
```

See Also

```
Date function
Time function
Time statement
```

DateSerial

Function

Description

Returns a date value for year, month, and day specified.

Syntax

DateSerial(*year%, month%, day%*)

Syntax Element	Description
year%	A year between 100 and 9999, or a numeric expression.
month%	A month between 1 and 12, or a numeric expression.
day%	A day between 1 and 31, or a numeric expression.

Comments

The `DateSerial` function returns a `Variant` of `VarType` 7 (date) that represents a date from January 1, 100 through December 31, 9999.

A numeric expression can be used for any of the arguments to specify a relative date: a number of days, months, or years before or after a certain date.

Example

This example finds the day of the week New Year's day will be for the year 2000.

```
Sub main
   Dim newyearsday
   Dim daynumber
   Dim msgtext
   Dim newday as Variant
   Const newyear=2000
   Const newmonth=1
   Let newday=1
   newyearsday=DateSerial(newyear, newmonth, newday)
   daynumber=Weekday(newyearsday)
   msgtext="New Year's day 2000 is a " & Format(daynumber, "dddd")
   MsgBox msgtext
End Sub
```

See Also

```
DateValue     Now             Weekday
Day           TimeSerial      Year
Month         TimeValue
```

DateTime

User Action Command

Description

Performs an action on a date and time picker (DTP) control.

Syntax

DateTime *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ Label=*$*. The text of the label object that immediately precedes the control in the internal order (Z order) of windows. ▸ Name=*$*. A unique name that a developer assigns to an object to identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ▸ Text=*$*. The text displayed on the object. ▸ VisualText=*$*. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▸ Coords=*x1,y1,x2,y2*. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments None.

Example This example clicks the date and time picker control labeled “Select a Date” at *x,y* coordinates of 77,15.

```
DateTime Click, "Label=Select a Date", "Coords=77,15"
```

See Also `Calendar`
`DateTimeVP`

DateTimeVP

Verification Point Command

Description Establishes a verification point for a date and time picker (DTP) control.

Syntax *`Result`* = **`DateTimeVP`** (*`action%`*, *`recMethod$`*, *`parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ▸ `ID=%`. The object’s internal Windows ID. ▸ `Label=$`. The text of the label object that immediately precedes the control in the internal order (Z order) of windows. ▸ `Name=$`. A unique name that a developer assigns to an object to identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The text displayed on the object. ▸ `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
parameters$	Valid values: ▶ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example This example captures the properties of the date and time picker control labeled "Select a Date" and compares them to the recorded baseline in the verification point DATETIME1.

```
Result = DateTimeVP (CompareProperties, "Label=Select a Date",
"VP=DATETIME1")
```

See Also `DateTime`

DateValue

Function

Description Returns a date value for the string specified.

Syntax **`DateValue`**(*`date$`*)

Syntax Element	Description
date$	A string representing a valid date.

Comments

The `DateValue` function returns a `Variant` of `VarType` 7 (date) that represents a date from January 1, 100 through December 31, 9999.

`DateValue` accepts several different string representations for a date. It makes use of the operating system's international settings for resolving purely numeric dates.

With this function, a two-digit year is converted to a four-digit year, as follows:

- 00 through 29 is converted to 2000 through 2029
- 30 through 99 is converted to 1930 through 1999

When exchanging data information with external data sources or external programs, you should use double-precision floating point numbers or data strings with at least four characters for identifying the century.

Example

This example displays the date for one week from the date entered by the user.

```
Sub main
   Dim str1 as String
   Dim answer as Integer
   Dim nextweek
   Dim msgtext
i: str1=InputBox$("Enter a date:")
   answer=IsDate(str1)
   If answer=-1 then
      str1=CVDate(str1)
      nextweek=DateValue(str1)+7
      msgtext = "One week from your date is: "
      msgtext = msgtext + Format(nextweek,"dddddd")
      MsgBox msgtext
   Else
      MsgBox "Invalid date or format. Try again."
      Goto i
   End If
End Sub
```

See Also

`DateSerial` `Now` `Weekday`
`Day` `TimeSerial` `Year`
`Month` `TimeValue`

Day
Function

Description

Returns the day of the month (1-31) of a date-time value.

Syntax

`Day`(*`date`*)

Syntax Element	Description
`date`	Any expression that can evaluate to a date.

Comments `Day` attempts to convert the input value of *`date`* to a date value. The return value is a `Variant` of `VarType` 2 (integer). If the value of *`date`* is null, a Variant of `VarType 1` (null) is returned.

Example This example finds the month (1-12) and day (1-31) values for this Thursday.

```
Sub main
    Dim x, today, msgtext
    Today=DateValue(Now)
    Let x=0
    Do While Weekday(Today+x)<> 5
        x=x+1
    Loop
    msgtext="This Thursday is: " & Month(Today+x)  & "/" & Day(Today+x)
    MsgBox msgtext
End Sub
```

See Also

`Date function`	`Minute`	`Second`
`Date statement`	`Month`	`Weekday`
`Hour`	`Now`	`Year`

DDEAppReturnCode

Function

Description Returns a code received from an application on an open dynamic data exchange (DDE) channel.

Syntax **`DDEAppReturnCode()`**

Comments To open a DDE channel, use `DDEInitiate`. Use `DDEAppReturnCode` to check for error return codes from the server application after using `DDEExecute`, `DDEPoke` or `DDERequest`.

Example None.

See Also

`DDEExecute`	`DDERequest`
`DDEInitiate`	`DDETerminate`
`DDEPoke`	

DDEExecute
Statement

Description

Sends one or more commands to an application via a dynamic-data exchange (DDE) channel.

Syntax

DDEExecute *channel%, cmd$*

Syntax Element	Description
channel%	An integer or expression for the channel number of the DDE conversation as returned by `DDEInitiate`.
cmd$	One or more commands recognized by the application.

Comments

If *channel* does not correspond to an open channel, an error occurs.

You can also use the format described under `InputKeys` to send specific key sequences. If the server application cannot perform the specified command, an error occurs.

In many applications that support DDE, *cmd$* can be one or more statements or functions in the application's macro language. Note that some applications require that each command received through a DDE channel be enclosed in brackets and quotation marks.

You can use a single `DDEExecute` instruction to send more than one command to an application.

Many commands require arguments in the form of strings enclosed in quotation marks. Because quotation marks indicate the beginning and end of a string in SQABasic, use `Chr$(34)` to include a quotation mark in a command string. For example, the following instruction tells Microsoft Excel to open MYFILE.XLS:

```
DDEExecute channelno, "[OPEN(" + Chr$(34) + "MYFILE.XLS" +
    Chr$(34) + ")]"
```

Example

This example opens Microsoft Word, uses `DDEPoke` to write the text `Hello, World` to the open document (Untitled) and uses `DDEExecute` to save the text to the file TEMP001. The example assumes that WINWORD.EXE is in the path C:\MSOFFICE\WINWORD.

```
Sub main
   Dim channel as Integer
   Dim appname as String
   Dim topic as String
   Dim testtext as String
   Dim item as String
   Dim pcommand as String
   Dim msgtext as String
```

```
Dim answer as String
Dim x as Integer
Dim path as String
appname="WinWord"
path="c:\msoffice\winword\"
topic="System"
item="Page1"
testtext="Hello, world."
On Error Goto Errhandler
x=Shell(path & appname & ".EXE")
channel = DDEInitiate(appname, topic)
If channel=0 then
   MsgBox "Unable to open Word."
   Exit Sub
End If
DDEPoke channel, item, testtext
pcommand="[FileSaveAs .Name = "
pcommand=pcommand + Chr$(34) & "C:\TEMP001" & Chr$(34) & "]"
DDEExecute channel, pcommand
pcommand="[FileClose]"
DDEExecute channel, pcommand
msgtext="The text: " & testtext &  " saved to C:\TEMP001."
msgtext=msgtext & Chr$(13) & "Delete? (Y/N)"
answer=InputBox(msgtext)
If answer="Y" or answer="y" then
   Kill "C:\TEMP001.doc"
End If
DDETerminate channel
Exit Sub
Errhandler:
   If Err<>0 then
       MsgBox "DDE Access failed."
   End If
End Sub
```

See Also `DDEAppReturnCode` `DDEInitiate` `DDERequest` `DDETerminate` `DDEPoke`

DDEInitiate

Function

Description Opens a dynamic-data exchange (DDE) channel and returns the DDE channel number (1,2, etc.).

Syntax **`DDEInitiate`**(*`appname$, topic$`*)

Syntax Element	Description
`appname$`	A string or expression for the name of the DDE application to talk to.
`topic$`	A string or expression for the name of a topic recognized by *`appname$`*.

Comments

If `DDEInitiate` is unable to open a channel, it returns zero (0).

`Appname$` is usually the name of the application's .EXE file without the .EXE file name extension. If the application is not running, `DDEInitiate` cannot open a channel and returns an error. Use `Shell` to start an application.

`Topic$` is usually an open file name. If *`appname$`* does not recognize *`topic$`*, `DDEInitiate` generates an error. Many applications that support DDE recognize a topic named `System`, which is always available and can be used to find out which other topics are available. For more information on the `System` topic, see `DDERequest`.

The maximum number of channels that can be open simultaneously is determined by the operating system and your system's memory and resources. If you aren't using an open channel, you should conserve resources by closing it using `DDETerminate`.

Example

This example uses `DDEInitiate` to open a channel to Microsoft Word. It uses `DDERequest` to obtain a list of available topics (using the `System` topic). The example assumes that `WINWORD.EXE` is in the path `C:\MSOFFICE\WINWORD`.

```
Sub main
   Dim channel as Integer
   Dim appname as String
   Dim topic as String
   Dim item as String
   Dim msgtext as String
   Dim path as String
   appname="winword"
   topic="System"
   item="Topics"
   path="c:\msoffice\winword\"
   channel = -1
   x=Shell(path & appname & ".EXE")
   channel = DDEInitiate(appname, topic)
   If channel= -1 then
      msgtext="M/S Word not found -- please place on your path."
   Else
      On Error Resume Next
      msgtext="The Word topics available are:" & Chr$(13)
      msgtext=msgtext & Chr$(13) & DDERequest(channel,item)
      DDETerminate channel
      If Err<>0 then
         msgtext="DDE Access failed."
      End If
   End If
   MsgBox msgtext
End Sub
```

See Also

`DDEAppReturnCode` `DDEExecute` `DDEPoke` `DDERequest` `DDETerminate`

DDEPoke

Statement

Description

Sends data to an application on an open dynamic-data exchange (DDE) channel.

Syntax

DDEPoke *channel%*, *item$*, *data$*

Syntax Element	Description
channel%	An integer or expression for the open DDE channel number.
item$	A string or expression for the name of an item in the currently opened topic.
data$	A string or expression for the information to send to the topic.

Comments

If *channel%* does not correspond to an open channel, an error occurs.

When you open a channel to an application using DDEInitiate, you also specify a topic, such as a file name, to communicate with. The *item$* is the part of the topic you want to send data to. DDEPoke sends data as a text string; you cannot send text in any other format, nor can you send graphics.

If the server application does not recognize *item$*, an error occurs.

Example

This example opens Microsoft Word, uses DDEPoke to write the text Hello, World to the open document (Untitled) and uses DDEExecute to save the text to the file TEMP001. The example assumes that WINWORD.EXE is in the path C:\MSOFFICE\WINWORD.

```
Sub main
   Dim channel as Integer
   Dim appname as String
   Dim topic as String
   Dim testtext as String
   Dim item as String
   Dim pcommand as String
   Dim msgtext as String
   Dim answer as String
   Dim x as Integer
   Dim path as String
   appname="WinWord"
   path="c:\msoffice\winword\"
   topic="System"
   item="Page1"
   testtext="Hello, world."
   On Error Goto Errhandler
   x=Shell(path & appname & ".EXE")
   channel = DDEInitiate(appname, topic)
```

```
   If channel=0 then
      MsgBox "Unable to open Word."
      Exit Sub
   End If
   DDEPoke channel, item, testtext
   pcommand="[FileSaveAs .Name = " & Chr$(34)
   pcommand=pcommand & "C:\TEMP001" & Chr$(34) & "]"
   DDEExecute channel, pcommand
   pcommand="[FileClose]"
   DDEExecute channel, pcommand
   msgtext="The text " & testtext &  " is saved to C:\TEMP001."
   msgtext=msgtext & Chr$(13) & "Delete? (Y/N)"
   answer=InputBox(msgtext)
   If answer="Y" or answer="y" then
      Kill "C:\TEMP001.doc"
   End If
   DDETerminate channel
   Exit Sub
Errhandler:
   If Err<>0 then
     MsgBox "DDE Access failed."
   End If
End Sub
```

See Also `DDEAppReturnCode` `DDERequest` `DDEExecute` `DDETerminate` `DDEInitiate`

DDERequest

Function

Description

Returns data from an application through an open dynamic data exchange (DDE) channel.

Syntax

`DDERequest``[$] (`*`channel%, item$`*`)`

Syntax Element	Description
`channel%`	An integer or expression for the open DDE channel number.
`item$`	A string or expression for the name of an item in the currently opened topic to get information about. Many applications that support DDE recognize a topic named `System`. Three standard items in the `System` topic are as follows: ▸ `SysItems`. A list of all items in the `System` topic ▸ `Topics`. A list of available topics ▸ `Formats`. A list of all the Clipboard formats supported

Comments If *channel%* does not correspond to an open channel, an error occurs.

If the server application does not recognize *item$*, an error occurs.

If DDERequest is unsuccessful, it returns an empty string ("").

When you open a channel to an application using DDEInitiate, you also specify a topic, such as a file name, to communicate with. The *item$* is the part of the topic whose contents you are requesting.

DDERequest returns data as a text string. Data in any other format cannot be transferred, nor can graphics.

Example This example uses DDEInitiate to open a channel to Microsoft Word. It uses DDERequest to obtain a list of available topics (using the System topic). The example assumes that WINWORD.EXE is in the path C:\MSOFFICE\WINWORD.

```
Sub main
   Dim channel as Integer
   Dim appname as String
   Dim topic as String
   Dim item as String
   Dim msgtext as String
   Dim path as String
   appname="winword"
   topic="System"
   item="Topics"
   path="c:\msoffice\winword\"
   channel = -1
   x=Shell(path & appname & ".EXE")
   channel = DDEInitiate(appname, topic)
   If channel= -1 then
      msgtext="M/S Word not found -- please place on your path."
   Else
      On Error Resume Next
      msgtext="The Word topics available are:" & Chr$(13)
      msgtext=msgtext & Chr$(13) & DDERequest(channel,item)
      DDETerminate channel
      If Err<>0 then
         msgtext="DDE Access failed."
      End If
   End If
   MsgBox msgtext
End Sub
```

See Also DDEAppReturnCode, DDEExecute, DDEInitiate, DDEPoke, DDETerminate

DDETerminate

Statement

Description Closes the specified dynamic data exchange (DDE) channel.

Syntax

DDETerminate *channel%*

Syntax Element	Description
channel%	An integer or expression for the open DDE channel number.

Comments

To free system resources, you should close channels you aren't using. If *channel%* does not correspond to an open channel, an error occurs.

Example

This example uses `DDEInitiate` to open a channel to Microsoft Word. It uses `DDERequest` to obtain a list of available topics (using the `System` topic), and then terminates the channel using `DDETerminate`. The example assumes that `WINWORD.EXE` is in the path `C:\MSOFFICE\WINWORD`.

```
Sub main
   Dim channel as Integer
   Dim appname as String
   Dim topic as String
   Dim item as String
   Dim msgtext as String
   Dim path as String
   appname="winword"
   topic="System"
   item="Topics"
   path="c:\msoffice\winword\"
   channel = -1
   x=Shell(path & appname & ".EXE")
   channel = DDEInitiate(appname, topic)
   If channel= -1 then
      msgtext="M/S Word not found -- please place on your path."
   Else
      On Error Resume Next
      msgtext="The Word topics available are:" & Chr$(13)
      msgtext=msgtext & Chr$(13) & DDERequest(channel,item)
      DDETerminate channel
      If Err<>0 then
         msgtext="DDE Access failed."
      End If
   End If
   MsgBox msgtext
End Sub
```

See Also

`DDEAppReturnCode`
`DDEExecute`
`DDEInitiate`
`DDEPoke`
`DDERequest`

Declare
Statement

Description

Declares a procedure in a module or dynamic link library (DLL).

Syntax

Syntax A
```
Declare Sub name [libSpecification]
[( arg [As type],...)]
```

Syntax B
```
Declare Function name [libSpecification]
[( arg [As type],...)] [As functype ]
```

Syntax Element	Description
name	The sub procedure or function procedure to declare.
libSpecification	The location of the procedure (module or DLL).
arg	An argument to pass to the procedure or function when it is called. Multiple arguments are separated by commas.
type	The data type of an argument in *arg*.
functype	The data type of the return value for a function procedure.

Comments

A `Sub` procedure does not return a value. A `Function` procedure returns a value and can be used in an expression. To specify the data type for the return value of a function, end the function name with a type declaration character or use the `As` *functype* clause shown above. If no type is provided, the return value defaults to data type `Variant`.

If the *libSpecification* is of the format:

```
BasicLib "libName" [Alias "aliasname"]
```

the procedure is in another SQABasic module (.sbl or .rec) named *libName*. The `Alias` keyword specifies that the procedure in *libName* is called *aliasname*. The other module will be loaded on demand whenever the procedure is called. SQABasic will not automatically unload modules that are loaded in this fashion. SQABasic will detect errors of mis-declaration.

If the *libSpecification* is of the format:

```
Lib "libName" [Alias ["]ordinal["]]  or
Lib "libName" [Alias "aliasname"]
```

the procedure is in a Dynamic Link Library (DLL) named *libName*. The *ordinal* argument specifies the ordinal number of the procedure within the external DLL. Alternatively, *aliasname* specifies the name of the procedure within the external DLL. If neither *ordinal* nor *aliasname* is specified, the DLL function is accessed by name. It is recommended that the *ordinal* be used

whenever possible, since accessing functions by name might cause the module to load more slowly.

A forward declaration is needed only when a procedure in the current module is referenced before it is defined. In this case, the `BasicLib`, `Lib` and `Alias` clauses are not used.

`arg` contains an argument being passed to the sub procedure or function. An argument is represented by a variable name. Multiple arguments are separated by commas.

Note the following information about the arguments being passed:

- The data type of an argument can be specified through a type declaration character or through the `As` clause.
- Arguments of a `User-Defined` data type are declared through an `As` clause and a *`type`* that has previously been defined through the `Type` statement.
- If an argument is an array, use empty parentheses after the argument name. The array dimensions are not specified within the `Declare` statement.

External DLL procedures are called with the PASCAL calling convention (the actual arguments are pushed on the stack from left to right). By default, the actual arguments are passed by Far reference. For external DLL procedures, there are two additional keywords, `ByVal` and `Any`, that can be used in the argument list.

When `ByVal` is used, it must be specified before the argument it modifies. When applied to numeric data types, `ByVal` indicates that the argument is passed by value, not by reference. When applied to string arguments, `ByVal` indicates that the string is passed by Far pointer to the string data. By default, strings are passed by Far pointer to a string descriptor.

`Any` can be used as a type specification, and permits a call to the procedure to pass a value of any data type. When `Any` is used, type checking on the actual argument used in calls to the procedure is disabled (although other arguments not declared as type `Any` are fully type-safe). The actual argument is passed by Far reference, unless `ByVal` is specified, in which case the actual value is placed on the stack (or a pointer to the string in the case of string data). `ByVal` can also be used in the call. It is the external DLL procedure's responsibility to determine the type and size of the passed-in value.

When an empty string ("") is passed `ByVal` to an external procedure, the external procedure will receive a valid (non-NULL) pointer to a character of 0. To send a NULL pointer, `Declare` the procedure argument as `ByVal As Any`, and call the procedure with an argument of `0`.

Example

This example declares a function that is later called by the main sub procedure. The function does nothing but set its return value to 1.

```
Declare Function SBL_exfunction()
Sub main
   Dim y as Integer
   Call SBL_exfunction
   y=SBL_exfunction
   MsgBox "The value returned by the function is: " & y
End Sub

Function SBL_exfunction()
   SBL_exfunction=1
End Function
```

See Also

Call
Const
Def*type*
Dim
Static
Type

Def*type*

Statement

Description

Declares the default data type for variables whose names start with the specified characters.

Syntax

DefCur *letterrange*
DefDbl *letterrange*
DefInt *letterrange*
DefLng *letterrange*
DefSng *letterrange*
DefStr *letterrange*
DefVar *letterrange*

Syntax Element	Description
letterrange	The first letter of a variable name. The value can be a single letter, a comma-separated list of letters, or a range of letters. For example, a-d specifies a, b, c and d.

Comments

The case of the letters is not important, even in a letter range. The letter range a-z is treated as a special case. It denotes all alphabetic characters, including international characters.

The Def*type* statement affects only the module in which it is specified. It must precede any variable definition within the module. The following table shows the variable type for each statement:

Statement	Declares variables of type
DefCur	Currency
DefInt	Integer
DefLng	Long
DefSng	Single
DefDbl	Double
DefStr	String
DefVar	Variant

Variables defined using the Global or Dim can override the Def*type* statement by using an As clause or a type character.

Example

This example finds the average of bowling scores entered by the user. Since the variable average begins with a, it is automatically defined as a single-precision floating point number. The other variables will be defined as Integers.

```
DefInt c,s,t
DefSng a
Sub main
   Dim count
   Dim total
   Dim score
   Dim average
   Dim msgtext
   For count=0 to 4
      score=InputBox("Enter bowling score #" & count+1 & ":")
      total=total+score
   Next count
   average=total/count
   msgtext="Your average is: " & average
   MsgBox msgtext
End Sub
```

See Also

Declare Let
Dim Type

DelayFor

Utility Command

Description — Delays execution of the script for a specified number of milliseconds.

Syntax — **DelayFor** *TimeInterval&*

Syntax Element	Description
TimeInterval&	Time in milliseconds to delay.

Comments — This command pauses execution of the script for a specified period of time. During this time, Robot yields control to Windows, which may service other applications.

This command corresponds to the Delay option in Robot's Wait States menu.

For Wait parameters in verification points, see the individual verification point (VP) commands.

Example — This example pauses playback for 2000 milliseconds, or 2 seconds.

```
DelayFor 2000
```

See Also — None.

Desktop

User Action Command

Description — Performs an action on the Windows desktop.

Syntax — **Desktop** *action%, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
parameters$	Valid values: ► Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ► Coords=*x1,y1,x2,y2*. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

No recognition methods are used to identify the desktop object type because there is only one Windows desktop and it is automatically recognized.

Since screen coordinates are used in this statement, it fails after the automatic timeout period if a window obscures the specified position on the desktop.

Example

This example double-clicks the desktop at *x,y* coordinates of 306,223. (Double-clicking the desktop accesses the Windows Task List.)

```
Desktop DblClick, "Coords=306,223"
```

This example performs a left drag against the desktop at the designated *x1,y1,x2,y2* coordinates.

```
Desktop Left_Drag, "Coords=219,335,118,326"
```

See Also

ComboBox EditBox
ComboListBox ListBox

Dialog
Function

Description Displays a dialog box and returns a number for the button selected (`-1` = OK, `0` = Cancel).

Syntax **`Dialog`** (*`recordName`*)

Syntax Element	Description
`recordName`	A variable name declared as a dialog box record.

Comments If the dialog box contains additional command buttons (for example, Help), the `Dialog` function returns a number greater than 0. `1` corresponds to the first command button, `2` to the second, and so on.

The dialog box *`recordName`* must have been declared using the `Dim` statement with the `As` parameter followed by a dialog box definition name. This name comes from the name argument used in the `Begin Dialog` statement.

To trap a user's selections within a dialog box, you must create a function and specify it as the last argument to the `Begin Dialog` statement. See `Begin Dialog` for more information.

The `Dialog` function does not return until the dialog box is closed.

Example This example creates a dialog box with a drop down combo box in it and three buttons: OK, Cancel, and Help. The Dialog function used here enables the sub procedure to trap when the user clicks on any of these buttons.

```
Sub main
  Dim cchoices as String
  Dim answer as Integer
  cchoices="All"+Chr$(9)+"Nothing"
  Begin Dialog UserDialog 180, 95, "SQABasic Dialog Box"
      ButtonGroup .ButtonGroup1
      Text  9, 3, 69, 13, "Filename:", .Text1
      ComboBox  9, 17, 111, 41, cchoices, .ComboBox1
      OKButton  131, 8, 42, 13
      CancelButton  131, 27, 42, 13
      PushButton 132, 48, 42, 13, "Help", .Push1
  End Dialog
  Dim mydialogbox As UserDialog
  answer= Dialog(mydialogbox)
```

```
    Select Case answer
       Case -1
          MsgBox "You pressed OK"
       Case 0
          MsgBox "You pressed Cancel"
       Case 1
          MsgBox "You pressed Help"
    End Select
End Sub
```

See Also `Begin Dialog` `Dialog statement` `End Dialog`

Dialog
Statement

Description

Displays a dialog box.

Syntax

`Dialog` *`recordName`*

Syntax Element	Description
`recordName`	A variable name declared as a dialog box record.

Comments

The dialog box *`recordName`* must have been declared using the `Dim` statement with the `As` parameter followed by a dialog box definition name. This name comes from the name argument used in the `Begin Dialog` statement.

If the user exits the dialog box by pushing the Cancel button, the runtime error 102 is triggered, which can be trapped using `On Error`.

To trap a user's selections within a dialog box, you must create a function and specify it as the last argument to the `Begin Dialog` statement. See `Begin Dialog` for more information.

The `Dialog` statement does not return until the dialog box is closed.

Example

This example defines and displays a dialog box defined as *UserDialog* and named *mydialogbox*. If the user presses the Cancel button, an error code of 102 is returned and is trapped by the `If...Then` statement listed after the `Dialog` statement.

```
Sub main
  Dim cchoices as String
  On Error Resume Next
  cchoices="All"+Chr$(9)+"Nothing"
  Begin Dialog UserDialog 180, 95, "SQABasic Dialog Box"
       ButtonGroup .ButtonGroup1
       Text  9, 3, 69, 13, "Filename:", .Text1
       ComboBox  9, 17, 111, 41, cchoices, .ComboBox1
       OKButton  131, 8, 42, 13
       CancelButton  131, 27, 42, 13
  End Dialog
  Dim mydialogbox As UserDialog
  Dialog mydialogbox
  If Err=102 then
      MsgBox "You pressed Cancel."
  Else
      MsgBox "You pressed OK."
  End If
End Sub
```

See Also

`Begin Dialog`
`End Dialog`
`Dialog statement`

Dim

Statement

Description

Declares variables for use in an SQABasic program.

Syntax

Dim [Shared] *variableName* [As [New] *type*] [,*variableName* [As [New] *type*]] ...

Syntax Element	Description
variableName	The name of the variable to declare.

type	The data type of the variable. Valid values include:
	`Integer` `String (variable)`
	`Long` `String * length (fixed)`
	`Single` `Object`
	`Double` `Variant`
	`Currency`
	In addition, you can specify any `User-Defined` data type, including a dialog box record.

Comments

VariableName must begin with a letter and contain only letters, numbers and underscores. A name can also be delimited by brackets, and any character can be used inside the brackets, except for other brackets.

```
Dim my_1st_variable As String
Dim [one long and strange! variable name] As String
```

Basic is a strongly typed language. All variables must be assigned a data type or they will be automatically assigned the data type `Variant`.

If the `As` clause is not used, the *type* of the variable can be specified by using a type-declaration character as a suffix to *variableName*. The two different type-specification methods can be intermixed in a single `Dim` statement (although not on the same variable).

Regardless of which mechanism you use to declare a global variable, you can choose to use or omit the type-declaration character when referring to the variable in the rest of your program. The type suffix is not considered part of the variable name.

Arrays

Arrays support all SQABasic data types. Arrays of arrays and dialog box records are not supported.

Array variables are declared by including a subscript list as part of the *variableName*. The syntax to use for *variableName* is:

```
Dim variable([subscriptRange, ... ]) As typeName  or
Dim variable_with_suffix([subscriptRange, ... ])
```

where *subscriptRange* is of the format:

```
[startSubscript To] endSubscript
```

If *startSubscript* is not specified, 0 is used as the default. The `Option Base` statement can be used to change the default.

Both the *startSubscript* and the *endSubscript* are valid subscripts for the array. The maximum number of subscripts that can be specified in an array definition is 60. The maximum total size for an array is only limited by the amount of memory available.

If no *subscriptRange* is specified for an array, the array is declared as a dynamic array. In this case, the `ReDim` statement must be used to specify the dimensions of the array before the array can be used.

Numbers

Numeric variables can be declared using the `As` clause and one of the following numeric types: `Currency`, `Integer`, `Long`, `Single`, `Double`. Numeric variables can also be declared by including a type character as a suffix to the name. Numeric variables are initialized to 0.

Objects

Object variables are declared using an As clause and a *typeName* of a class. Object variables can be Set to refer to an object, and then used to access members and methods of the object using dot notation.

```
Dim OLE2  As Object
Set OLE2 = CreateObject("spoly.cpoly")
OLE2.reset
```

An object can be declared as New for some classes. In such instances, the object variable does not need to be Set; a new object will be allocated when the variable is used.

```
Dim variableName As New className
variableName.methodName
```

Note: The class Object does not support the New operator.

Strings

SQABasic supports two types of strings: fixed-length and dynamic. Fixed-length strings are declared with a specific length (between 1 and 32,767) and cannot be changed later. Use the following syntax to declare a fixed-length string:

```
Dim variableName As String*length
```

Dynamic strings have no declared length, and can vary in length from 0 to 32,767. The initial length for a dynamic string is 0. Use the following syntax to declare a dynamic string:

```
Dim variableName$  or
Dim variableName As String
```

When initialized, fixed-length strings are filled with zeros. Dynamic strings are initialized as zero-length strings.

User-Defined

Variables of a user-defined type are declared by using an As clause and a *typeName* that has been defined previously using the Type statement. The syntax is:

```
Dim variableName As typeName
```

Variables of a user-defined type are made up of a collection of data elements called fields. These fields can be of any numeric, string, Variant, or other user-defined type. See Type for details on accessing fields within a user-defined type.

You can also use the Dim statement to declare an instance of a dialog box record. In this case, *typeName* is specified as *dialogName*, where *dialogName* matches a dialog box record previously defined using Begin Dialog. The declared dialog box variable can then be used in a Dialog statement.

Variants

Declare variables as Variants when the type of the variable is not known at the start of, or might change during, the procedure. For example, a Variant is useful for holding input from a user when valid input can be either text or numbers. Use the following syntax to declare a Variant:

```
Dim variableName  or
Dim variableName As Variant
```

Variant variables are initialized to `VarType Empty`.

Variables can be shared across modules. A variable declared inside a procedure has scope Local to that procedure. A variable declared outside a procedure has scope Local to the module. If you declare a variable with the same name as a module variable, the module variable is not accessible. See the `Global` statement for details.

The `Shared` keyword is included for backward compatibility with older versions of Basic. It is not allowed in `Dim` statements inside a procedure. It has no effect.

It is considered good programming practice to declare all variables. To force all variables to be explicitly declared use the `Option Explicit` statement. It is also recommended that you place all procedure-level `Dim` statements at the beginning of the procedure.

Regardless of which mechanism you use to declare a variable, you can choose to use or omit the type character when referring to the variable in the rest of your program. The type suffix is not considered part of the variable name.

Example

This example shows a `Dim` statement for each of the possible data types.

```
Rem Must define a user-defined type before you can declare a
variable of that type
   Type TestType
      Custno As Integer
      Custname As String
   End Type

Sub main
   Dim counter As Integer
   Dim fixedstring As String*25
   Dim varstring As String
   Dim MyType As TestType
   Dim ole2var As Object
   Dim F(1 to 10), A()
   ...       Code here
End Sub
```

See Also

`Global` `Option Base` `ReDim` `Set` `Static` `Type`

Dir
Function

Description

Returns a file name that matches the specified pattern.

Syntax

Dir[$] [(*pathname$* [,*attributes%*)]

Syntax Element	Description
$	Optional. If specified the return type is `String`. If omitted the function will return a `Variant` of `VarType` 8 (`String`).
pathname$	A string expression identifying a path or file name.
attributes%	An integer expression specifying the file attributes to select. Valid attributes: `0`. Return normal files `2`. Add hidden files `4`. Add system files `8`. Return volume label `16`. Add directories

Comments

Pathname$* can include a drive specification and wildcard characters (? and *). `Dir` returns the first file name that matches the *pathname$ argument. An empty string ("") passed as *pathname$* is interpreted as the current directory (same as "."). To retrieve additional matching file names, call the `Dir` function again, omitting the *pathname$* and *attributes%* arguments. If no file is found, an empty string ("") is returned.

The default value for *attributes%* is 0. In this case, `Dir` returns only files without directory, hidden, system, or volume label attributes set.

The *attributes%* values can be added together to select multiple attributes. For example, to list hidden and system files in addition to normal files set *attributes%* to 6 (6 = 2 + 4).

If *attributes%* is set to 8, the `Dir` function returns the volume label of the drive specified in the *pathname$*, or of the current drive if drive is not explicitly specified. If volume label attribute is set, all other attributes are ignored.

Example

This example lists the contents of the diskette in drive A.

```
Sub main
   Dim msgret
   Dim directory, count
   Dim x, msgtext
   Dim A()
```

```
    msgret=MsgBox("Insert a disk in drive A.")
    count=1
    ReDim A(100)
    directory=Dir ("A:\*.*")
    Do While directory<>""
       A(count)=directory
       count=count+1
       directory=Dir
    Loop
    msgtext="Contents of drive A:\ is:" & Chr(10) & Chr(10)
    For x=1 to count
       msgtext=msgtext & A(x) & Chr(10)
    Next x
    MsgBox msgtext
End Sub
```

See Also `ChDir` `MkDir` `ChDrive` `RmDir` `CurDir`

DlgControlID

Function

Description

Returns the numeric ID of a dialog box control with the specified *Id$* in the active dialog box.

Syntax

DlgControlID (*Id$*)

Syntax Element	Description
Id$	The string ID for a dialog control.

Comments

The `DlgControlID` function translates a string *Id$* into a numeric ID. This function can only be used from within a dialog box function. The value of the numeric identifier is based on the position of the dialog box control with the dialog; it will be `0` (zero) for the first control, `1` (one) for the second control, and so on.

Given the following example, the statement `DlgControlID( "doGo")` will return the value `1`.

```
Begin Dialog newdlg 200, 200
    PushButton 40, 50, 80, 20, "&Stop", .doStop
    PushButton 40, 80, 80, 20, "&Go", .doGo
End Dialog
```

The advantage of using a dialog box control's numeric ID is that it is more efficient, and numeric values can sometimes be more easily manipulated.

Rearranging the order of a control within a dialog box will change its numeric ID. For example, if a PushButton control originally had a numeric value of 1, and a TextBox control is added before it, the PushButton control's new numeric value will be 2. This is shown in the following example:

```
CheckBox 40, 110, 80, 20, "CheckBox", .CheckBox1
TextBox 40, 20, 80, 20, .TextBox1    this is the new added control
PushButton 40, 80, 80, 20, "&Go", .doGo
```

The string IDs come from the last argument in the dialog definition statement that created the dialog control, such as the TextBox or ComboBox statements. The string ID does not include the period (.) and is case-sensitive.

Use DlgControlID only while a dialog box is running. See the Begin Dialog statement for more information.

Example

This example displays a dialog box similar to File Open.

```
Declare Sub ListFiles(str1$)
Declare Function FileDlgFunction(identifier$, action, suppvalue)

Sub main
  Dim identifier$
  Dim action as Integer
  Dim suppvalue as Integer
  Dim filetypes as String
  Dim exestr$()
  Dim button as Integer
  Dim x as Integer
  Dim directory as String
  filetypes="Program files (*.exe)"+Chr$(9)+ "All Files (*.*)"
  Begin Dialog newdlg 230, 145, "Open", .FileDlgFunction
    '$CStrings Save
    Text  8, 6, 60, 11, "&Filename:"
    TextBox  8, 17, 76, 13, .TextBox1
    ListBox  9, 36, 75, 61, exestr$(), .ListBox1
    Text  8, 108, 61, 9, "List Files of &Type:"
    DropListBox  7, 120, 78, 30, filetypes, .DropListBox1
    Text  98, 7, 43, 10, "&Directories:"
    Text  98, 20, 46, 8, "c:\\windows"
    ListBox  99, 34, 66, 66, "", .ListBox2
    Text  98, 108, 44, 8, "Dri&ves:"
    DropListBox  98, 120, 68, 12, "", .DropListBox2
    OKButton  177, 6, 50, 14
    CancelButton  177, 24, 50, 14
    PushButton 177, 42, 50, 14, "&Help"
    '$CStrings Restore
  End Dialog
  Dim dlg As newdlg
  button = Dialog(dlg)
End Sub


Sub ListFiles(str1$)
  DlgText 1,str1$
  x=0
  Redim exestr$(x)
   directory=Dir$("c:\windows\" & str1$,16)
   If directory<>"" then
     Do
```

```
            exestr$(x)=LCase$(directory)
            x=x+1
            Redim Preserve exestr$(x)
            directory=Dir
         Loop Until directory=""
      End If
       DlgListBoxArray 2,exestr$()
   End Sub

   Function FileDlgFunction(identifier$, action, suppvalue)
      Select Case action
         Case 1
            str1$="*.exe"    'dialog box initialized
            ListFiles str1$
         Case 2              'button or control value changed
            If DlgControlID(identifier$) = 4 Then
                If DlgText(4)="All Files (*.*)" then
                   str1$="*.*"
                Else
                   str1$="*.exe"
                End If
            ListFiles str1$
            End If
         Case 3              'text or combo box changed
            str1$=DlgText$(1)
            ListFiles str1$
         Case 4              'control focus changed
         Case 5              'idle
      End Select
   End Function
```

See Also

```
Begin Dialog                    DlgSetPicture statement
End Dialog                      DlgText function
DlgEnable function              DlgText statement
DlgEnable statement             DlgValue function
DlgFocus function               DlgValue statement
DlgFocus statement              DlgVisible function
DlgListBoxArray function        DlgVisible statement
DlgListBoxArray statement
```

DlgEnable

Function

Description

Returns the enable state for the specified dialog control (`1` = enabled, `0` = disabled).

Syntax

`DlgEnable` (*`Id`*)

Syntax Element	Description
`Id`	The control ID for the dialog control.

Comments

If a dialog box control is enabled, it is accessible to the user. You might want to disable a control if its use depends on the selection of other controls.

Use the DlgControlID function to find the numeric ID for a dialog control, based on its string identifier.

Use DlgEnable only while a dialog box is running. See the Begin Dialog statement for more information.

Example

This example displays a dialog box with two check boxes, one labeled Either, the other labeled Or. If the user clicks on Either, the Or option is grayed. Likewise, if Or is selected, Either is grayed. The example uses the DlgEnable statement to toggle the state of the buttons.

```
Declare Function FileDlgFunction(identifier$, action, suppvalue)
Sub Main
   Dim button as integer
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Begin Dialog newdlg 186,92,"DlgEnable example",.FileDlgFunction
      OKButton  130, 6, 50, 14
      CancelButton  130, 23, 50, 14
      CheckBox  34, 25, 75, 19, "Either", .CheckBox1
      CheckBox  34, 43, 73, 25, "Or", .CheckBox2
   End Dialog
   Dim dlg As newdlg
   button = Dialog(dlg)
End Sub

Function FileDlgFunction(identifier$, action, suppvalue)
   Select Case action
      Case 2         'button or control value changed
       If DlgControlID(identifier$) = 2 Then
         DlgEnable 3
       Else
         DlgEnable 2
         End If
   End Select
End Function
```

See Also

Begin Dialog
End Dialog
DlgControlID function
DlgEnable function
DlgFocus function
DlgFocus statement
DlgListBoxArray function
DlgListBoxArray statement
DlgSetPicture statement
DlgText function
DlgText statement
DlgValue function
DlgValue statement
DlgVisible function
DlgVisible statement

DlgEnable

Statement

Description

Enables, disables, or toggles the state of the specified dialog control.

Syntax

DlgEnable *Id* [, *mode*]

Syntax Element	Description
Id	The control ID for the dialog control to change.
mode	An integer representing the enable state (1 = enable, 0 = disable).

Comments

If *mode* is omitted, the DlgEnable toggles the state of the dialog control specified by *Id*. If a dialog box control is enabled, it is accessible to the user. You might want to disable a control if its use depends on the selection of other controls.

Use the DlgControlID function to find the numeric ID for a dialog control, based on its string identifier. The string IDs come from the last argument in the dialog definition statement that created the dialog control, such as the TextBox or ComboBox statements.

Use DlgEnable only while a dialog box is running. See the Begin Dialog statement for more information.

Example

This example displays a dialog box with one check box, labeled Show More, and a group box, labeled More, with two option buttons, Option 1 and Option 2. It uses the DlgEnable function to enable the More group box and its options if the Show More check box is selected.

```
Declare Function FileDlgFunction(identifier$, action, suppvalue)
Sub Main
   Dim button as integer
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Begin Dialog newdlg 186,92,"DlgEnable example",.FileDlgFunction
      OKButton  130, 6, 50, 14
      CancelButton  130, 23, 50, 14
      CheckBox  13, 6, 75, 19, "Show more", .CheckBox1
      GroupBox  16, 28, 94, 50, "More"
      OptionGroup .OptionGroup1
         OptionButton  23, 40, 56, 12, "Option 1", .OptionButton1
         OptionButton  24, 58, 61, 13, "Option 2", .OptionButton2
   End Dialog
   Dim dlg As newdlg
   button = Dialog(dlg)
End Sub
```

```
Function FileDlgFunction(identifier$, action, suppvalue)
   Select Case action
      Case 1
         DlgEnable 3,0
         DlgEnable 4,0
         DlgEnable 5,0
      Case 2          'button or control value changed
       If DlgControlID(identifier$) = 2 Then
          If DlgEnable (3)=0 then
               DlgEnable 3,1
               DlgEnable 4,1
               DlgEnable 5,1
          Else
             DlgEnable 3,0
             DlgEnable 4,0
             DlgEnable 5,0
          End If
       End If
   End Select
End Function
```

See Also

`Begin Dialog`
`End Dialog`
`DlgControlID function`
`DlgEnable statement`
`DlgFocus function`
`DlgFocus statement`
`DlgListBoxArray function`
`DlgListBoxArray statement`
`DlgSetPicture statement`
`DlgText function`
`DlgText statement`
`DlgValue function`
`DlgValue statement`
`DlgVisible function`
`DlgVisible statement`

DlgEnd

Statement

Description

Closes the active dialog box.

Syntax

`DlgEnd` *`exitCode`*

Syntax Element	Description
`exitCode`	The return value after closing the dialog box (`-1` = OK, `0` = Cancel).

Comments

`ExitCode` contains a return value only if the dialog box was displayed using the `Dialog` function. That is, if you used the `Dialog` statement, *`exitCode`* is ignored.

If the dialog box contains additional command buttons (for example, Help), the `Dialog` function returns a number greater than `0`. `1` corresponds to the first command button, `2` to the second, and so on.

Use `DlgEnd` only while a dialog box is running. See the `Begin Dialog` statement for more information.

Example

This example displays a dialog box with the message `You have 30 seconds to cancel.` The dialog box counts down from 30 seconds to 0. If the user clicks OK or Cancel during the countdown, the dialog box closes. If the countdown reaches 0, however, the `DlgEnd` statement closes the dialog box.

```
Function timeout(id$,action%,suppvalue&)
  Static timeoutStart as Long
  Static currentSecs as Long
  Dim thisSecs as Long
  Select Case action%
    Case 1
   'initialize the dialog box. Set the ticker value to 30
   'and remember when we put up the dialog box
      DlgText "ticker", "30"
      timeoutStart = timer
      currentSecs = 30
    Case 5
   'this is an idle message - set thisSecs to the number
   'of seconds left until timeout
      thisSecs = timer
      If thisSecs < timeoutStart Then thisSecs =
          thisSecs + 24*60*60
      thisSecs = 30 - (thisSecs - timeoutStart)
      ' if there are negative seconds left, timeout!
      If thisSecs < 0 Then DlgEnd -1
      ' If the seconds left has changed since last time,
      ' update the dialog box
      If thisSecs <> currentSecs Then
         DlgText "ticker", trim$(str$(thisSecs))
         currentSecs = thisSecs
      End If
      ' make sure to return non-zero so we keep getting
      ' idle messages
      timeout = 1
   End Select
End Function

Sub main
  Begin Dialog newdlg 167, 78, "Do You Want to Continue?", .timeout
    '$CStrings Save
    OKButton  27, 49, 50, 14
    CancelButton  91, 49, 50, 14
    Text  24, 14, 119, 8, "This is your last chance to bail out."
    Text  27, 30, 35, 8, "You have"
    Text  62, 30, 13, 8, "30", .ticker
    Text  74, 30, 66, 8, "seconds to cancel."
    '$CStrings Restore
  End Dialog
  Dim dlgVar As newdlg
  If dialog(dlgvar) = 0 Then
     Exit Sub          ' abort
  End If
  ' do whatever it is we want to do
End Sub
```

See Also

BeginDialog
End Dialog
DlgControlID function
DlgEnable function
DlgEnable statement
DlgFocus function
DlgFocus statement
DlgListBoxArray function
DlgListBoxArray statement
DlgSetPicture statement
DlgText function
DlgText statement
DlgValue function
DlgValue statement
DlgVisible function
DlgVisible statement

DlgFocus

Function

Description

Returns the control ID of the dialog control having the input focus.

Syntax

DlgFocus[$]()

Comments

A control has focus when it is active and responds to keyboard input.

Use DlgFocus only while a dialog box is running. See the Begin Dialog statement for more information.

Example

This example displays a dialog box with a check box, labeled Check1, and a text box, labeled Text Box 1, in it. When the box is initialized, the focus is set to the text box. As soon as the user clicks the check box, the focus goes to the OK button.

```
Declare Function FileDlgFunction(identifier$, action, suppvalue)
Sub main
   Dim button as integer
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Begin Dialog newdlg 186, 92, "DlgFocus Example", .FileDlgFunction
      OKButton  130, 6, 50, 14
      CancelButton  130, 23, 50, 14
      TextBox  15, 37, 82, 12, .TextBox1
      Text  15, 23, 57, 10, "Text Box 1"
      CheckBox  15, 6, 75, 11, "Check1", .CheckBox1
   End Dialog
   Dim dlg As newdlg
   button = Dialog(dlg)
End Sub

Function FileDlgFunction(identifier$, action, suppvalue)
   Select Case action
      Case 1
          DlgFocus 2
      Case 2    'user changed control or clicked a button
          If DlgFocus() <> "OKButton" then
              DlgFocus 0
          End If
      End Select
End Function
```

See Also

```
Begin Dialog                    DlgSetPicture statement
End Dialog                      DlgText function
DlgControlID function           DlgText statement
DlgEnable function              DlgValue function
DlgEnable statement             DlgValue statement
DlgFocus statement              DlgVisible function
DlgListBoxArray function        DlgVisible statement
DlgListBoxArray statement
```

DlgFocus

Statement

Description

Sets the focus for the specified dialog control.

Syntax

DlgFocus *Id*

Syntax Element	Description
Id	The control ID for the dialog control to make active.

Comments

Use the `DlgControlID` function to find the numeric ID for a dialog control, based on its string identifier. The string IDs come from the last argument in the dialog definition statement that created the dialog control, such as the `TextBox` or `ComboBox` statements.

Use `DlgFocus` only while a dialog box is running. See the `Begin Dialog` statement for more information.

Example

This example displays a dialog box with a check box, labeled `Check1`, and a text box, labeled `Text Box 1`, in it. When the box is initialized, the focus is set to the text box. As soon as the user clicks the check box, the focus goes to the OK button.

```
Declare Function FileDlgFunction(identifier$, action, suppvalue)
Sub Main
   Dim button as integer
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Begin Dialog newdlg 186, 92, "DlgFocus Example", .FileDlgFunction
      OKButton  130, 6, 50, 14
      CancelButton  130, 23, 50, 14
      TextBox  15, 37, 82, 12, .TextBox1
      Text  15, 23, 57, 10, "Text Box 1"
      CheckBox  15, 6, 75, 11, "Check1", .CheckBox1
   End Dialog
   Dim dlg As newdlg
   button = Dialog(dlg)
End Sub
```

```
Function FileDlgFunction(identifier$, action, suppvalue)
   Select Case action
      Case 1
          DlgFocus 2
      Case 2   'user changed control or clicked a button
          If DlgFocus() <> "OKButton" then
             DlgFocus 0
          End If
      End Select
End Function
```

See Also

BeginDialog
End Dialog
DlgControlID function
DlgEnable function
DlgEnable statement
DlgFocus function
DlgListBoxArray function
DlgListBoxArray statement
DlgSetPicture statement
DlgText function
DlgText statement
DlgValue function
DlgValue statement
DlgVisible function
DlgVisible statement

DlgListBoxArray

Function

Description

Returns the number of elements in a list or combo box.

Syntax

DlgListBoxArray (*Id*[, *Array$*])

Syntax Element	Description
Id	The control ID for the list or combo box.
Array$	The entries in the list box or combo box returned.

Comments

Array$* is a one-dimensional array of dynamic strings. If *array$ is dynamic, its size is changed to match the number of strings in the list or combo box. If *array$* is not dynamic and it is too small, an error occurs. If *array$* is omitted, the function returns the number of entries in the specified dialog control.

Use the DlgControlID function to find the numeric ID for a dialog control, based on its string identifier. The string IDs come from the last argument in the dialog definition statement that created the dialog control, such as the TextBox or ComboBox statements.

Use DlgListBoxArray only while a dialog box is running. See the Begin Dialog statement for more information.

Example

This example displays a dialog box with a check box, labeled `Display List`, and an empty list box. If the user clicks the check box, the list box is filled with the contents of the array called `myarray`. The `DlgListBox Array` function makes sure the list box is empty.

```
Declare Function FileDlgFunction(identifier$, action, suppvalue)
Sub Main
   Dim button as integer
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Begin Dialog newdlg 186,92,"DlgListBoxArray Example",.FileDlgFunction
      '$CStrings Save
      OKButton  130, 6, 50, 14
      CancelButton  130, 23, 50, 14
      ListBox  19, 26, 74, 59, "", .ListBox1
      CheckBox  12, 4, 86, 13, "Display List", .CheckBox1
      '$CStrings Restore
   End Dialog
   Dim dlg As newdlg
   button = Dialog(dlg)
End Sub

Function FileDlgFunction(identifier$, action, suppvalue)
Dim myarray$(3)
Dim msgtext as Variant
Dim x as Integer
For x= 0 to 2
   myarray$(x)=Chr$(x+65)
Next x
   Select Case action
      Case 1
      Case 2    'user changed control or clicked a button
         If DlgControlID(identifier$)=3 then
             If DlgListBoxArray(2)=0 then
                    DlgListBoxArray 2, myarray$()
             End If
         End If
      End Select
End Function
```

See Also

`BeginDialog`
`End Dialog`
`DlgControlID function`
`DlgEnable function`
`DlgEnable statement`
`DlgFocus function`
`DlgFocus statement`
`DlgListBoxArray statement`
`DlgSetPicture statement`
`DlgText function`
`DlgText statement`
`DlgValue function`
`DlgValue statement`
`DlgVisible function`
`DlgVisible statement`

DlgListBoxArray

Statement

Description

Fills a list or combo box with an array of strings.

Syntax

DlgListBoxArray *Id*, *Array$*

Syntax Element	Description
Id	The control ID for the list or combo box.
Array$	The entries for the list box or combo box.

Comments

Array$ has to be a one-dimensional array of dynamic strings. One entry appears in the list box for each element of the array. If the number of strings changes depending on other selections made in the dialog box, you should use a dynamic array and `ReDim` the size of the array whenever it changes.

Use `DlgListBoxArray` only while a dialog box is running. See the `Begin Dialog` statement for more information.

Example

This example displays a dialog box similar to File Open.

```
Declare Sub ListFiles(str1$)
Declare Function FileDlgFunction(identifier$, action, suppvalue)

Sub main
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Dim filetypes as String
   Dim exestr$()
   Dim button as Integer
   Dim x as Integer
   Dim directory as String
   filetypes="Program files (*.exe)"+Chr$(9)+"All Files (*.*)"
   Begin Dialog newdlg 230, 145, "Open", .FileDlgFunction
      '$CStrings Save
      Text  8, 6, 60, 11, "&Filename:"
      TextBox  8, 17, 76, 13, .TextBox1
      ListBox  9, 36, 75, 61, exestr$(), .ListBox1
      Text  8, 108, 61, 9, "List Files of &Type:"
      DropListBox  7, 120, 78, 30, filetypes, .DropListBox1
      Text  98, 7, 43, 10, "&Directories:"
      Text  98, 20, 46, 8, "c:\\windows"
      ListBox  99, 34, 66, 66, "", .ListBox2
      Text  98, 108, 44, 8, "Dri&ves:"
      DropListBox  98, 120, 68, 12, "", .DropListBox2
      OKButton  177, 6, 50, 14
      CancelButton  177, 24, 50, 14
      PushButton 177, 42, 50, 14, "&Help"
      '$CStrings Restore
   End Dialog
```

```
Dim dlg As newdlg
   button = Dialog(dlg)
End Sub

Sub ListFiles(str1$)
   DlgText 1,str1$
   x=0
   Redim exestr$(x)
   directory=Dir$("c:\windows\" & str1$,16)
   If directory<>"" then
     Do
        exestr$(x)=LCase$(directory)
        x=x+1
        Redim Preserve exestr$(x)
        directory=Dir
     Loop Until directory=""
   End If
   DlgListBoxArray 2,exestr$()
End Sub

Function FileDlgFunction(identifier$, action, suppvalue)
   Select Case action
     Case 1
       str1$="*.exe"   'dialog box initialized
       ListFiles str1$
     Case 2          'button or control value changed
       If DlgControlId(identifier$) = 4 Then
           If DlgText(4)="All Files (*.*)" then
              str1$="*.*"
           Else
              str1$="*.exe"
           End If
       ListFiles str1$
       End If
     Case 3        'text or combo box changed
       str1$=DlgText$(1)
       ListFiles str1$
     Case 4         'control focus changed

     Case 5         'idle
  End Select
End Function
```

See Also

BeginDialog
End Dialog
DlgControlID function
DlgEnable function
DlgFocus function
DlgFocus statement
DlgListBoxArray function
DlgEnable
DlgSetPicture statement
DlgText function
DlgText statement
DlgValue function
DlgValue statement
DlgVisible function
DlgVisible statement

DlgSetPicture
Statement

Description
Changes the picture in a picture dialog control for the current dialog box.

Syntax
DlgSetPicture *Id*, *filename$*, *type*

Syntax Element	Description
Id	The control ID for the picture dialog control.
filename$	The name of the bitmap file (.BMP) to use.
type	An integer representing the location of the file (0 = *filename$*, 3 = Clipboard)

Comments
Use the DlgControlID function to find the numeric ID for a dialog control, based on its string identifier. The string IDs come from the last argument in the dialog definition statement that created the dialog control, such as the TextBox or ComboBox statements.

Use DlgListBoxArray only while a dialog box is running. See the Begin Dialog statement for more information.

See the Picture statement for more information about displaying pictures in dialog boxes.

Example
This example displays a picture in a dialog box and changes the picture if the user clicks the check box labeled Change Picture. The example assumes the picture bitmaps are in the C:\WINDOWS directory.

```
Declare Function FileDlgFunction(identifier$, action, suppvalue)
Sub Main
   Dim button as integer
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Begin Dialog newdlg 186,92,"DlgSetPicture Example",.FileDlgFunction
      OKButton  130, 6, 50, 14
      CancelButton  130, 23, 50, 14
      Picture  43, 28, 49, 31, "C:\WINDOWS\CIRCLES.BMP", 0
      CheckBox  30, 8, 62, 15, "Change Picture", .CheckBox1
   End Dialog
   Dim dlg As newdlg
   button = Dialog(dlg)
End Sub

Function FileDlgFunction(identifier$, action, suppvalue)
   Select Case action
      Case 1
      Case 2    'user changed control or clicked a button
         If DlgControlID(identifier$)=3 then
```

```
                    If suppvalue=1 then
                      DlgSetPicture 2, "C:\WINDOWS\TILES.BMP",0
                    Else
                      DlgSetPicture 2, "C:\WINDOWS\CIRCLES.BMP",0
                    End If
                 End If
            End Select
         End Function
```

See Also

BeginDialog	DlgFocus statement
End Dialog	DlgText function
DlgControlID function	DlgText statement
DlgEnable function	DlgValue function
DlgEnable statement	DlgValue statement
DlgListBoxArray function	DlgVisible function
DlgListBoxArray statement	DlgVisible statement
DlgFocus function	

DlgText

Function

Description

Returns the text associated with a dialog control for the current dialog box.

Syntax

DlgText[$] (*Id*)

Syntax Element	Description
Id	The control ID for a dialog control.

Comments

If the control is a text box or a combo box, `DlgText` function returns the text that appears in the text box. If it is a list box, the function returns its current selection. If it is a text box, `DlgText` returns the text. If the control is a command button, option button, option group, or a check box, the function returns its label.

Use `DlgText` only while a dialog box is running. See the `Begin Dialog` statement for more information.

Example

This example displays a dialog box similar to File Open. It uses `DlgText` to determine what group of files to display.

```
Declare Sub ListFiles(str1$)
Declare Function FileDlgFunction(identifier$, action, suppvalue)

Sub main
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Dim filetypes as String
   Dim exestr$()
   Dim button as Integer
```

```
   Dim x as Integer
   Dim directory as String
   filetypes="Program files (*.exe)"+Chr$(9)+"All Files (*.*)"
   Begin Dialog newdlg 230, 145, "Open", .FileDlgFunction
      '$CStrings Save
      Text  8, 6, 60, 11, "&Filename:"
      TextBox  8, 17, 76, 13, .TextBox1
      ListBox  9, 36, 75, 61, exestr$(), .ListBox1
      Text  8, 108, 61, 9, "List Files of &Type:"
      DropListBox  7, 120, 78, 30, filetypes, .DropListBox1
      Text  98, 7, 43, 10, "&Directories:"
      Text  98, 20, 46, 8, "c:\\windows"
      ListBox  99, 34, 66, 66, "", .ListBox2
      Text  98, 108, 44, 8, "Dri&ves:"
      DropListBox  98, 120, 68, 12, "", .DropListBox2
      OKButton  177, 6, 50, 14
      CancelButton  177, 24, 50, 14
      PushButton 177, 42, 50, 14, "&Help"
      '$CStrings Restore
   End Dialog
   Dim dlg As newdlg
   button = Dialog(dlg)
End Sub

Sub ListFiles(str1$)
   DlgText 1,str1$
   x=0
   Redim exestr$(x)
   directory=Dir$("c:\windows\" & str1$,16)
   If directory<>"" then
     Do
       exestr$(x)=LCase$(directory)
       x=x+1
       Redim Preserve exestr$(x)
       directory=Dir
     Loop Until directory=""
   End If
   DlgListBoxArray 2,exestr$()
End Sub

Function FileDlgFunction(identifier$, action, suppvalue)
   Select Case action
     Case 1
       str1$="*.exe"      'dialog box initialized
       ListFiles str1$
     Case 2         'button or control value changed
       If DlgControlId(identifier$) = 4 Then
           If DlgText(4)="All Files (*.*)" then
              str1$="*.*"
           Else
              str1$="*.exe"
           End If
       ListFiles str1$
       End If
     Case 3          'text or combo box changed
       str1$=DlgText$(1)
       ListFiles str1$
     Case 4         'control focus changed

     Case 5         'idle
   End Select
End Function
```

See Also

```
BeginDialog                    DlgFocus function
End Dialog                     DlgSetPicture statement
DlgControlID function          DlgText statement
DlgEnable function             DlgValue function
DlgEnable statement            DlgValue statement
DlgListBoxArray function       DlgVisible function
DlgListBoxArray statement      DlgVisible statement
DlgFocus statement
```

DlgText
Statement

Description

Changes the text associated with a dialog control for the current dialog box.

Syntax

DlgText *Id*, *text$*

Syntax Element	Description
Id	The control ID for a dialog control.
text$	The text to use for the dialog control.

Comments

If the dialog control is a text box or a combo box, `DlgText` sets the text that appears in the text box. If it is a list box, a string equal to *text$* or beginning with *text$* is selected. If the dialog control is a text control, `DlgText` sets it to *text$*. If the dialog control is a command button, option button, option group, or a check box, the statement sets its label.

The `DlgText` statement does not change the identifier associated with the control.

Use `DlgText` only while a dialog box is running. See the `Begin Dialog` statement for more information.

Example

This example displays a dialog box similar to File Open. It uses the `DlgText` statement to display the list of files in the Filename list box.

```
Declare Sub ListFiles(str1$)
Declare Function FileDlgFunction(identifier$, action, suppvalue)

Sub main
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Dim filetypes as String
   Dim exestr$()
   Dim button as Integer
   Dim x as Integer
   Dim directory as String
   filetypes="Program files (*.exe)"+Chr$(9)+"All Files (*.*)"
```

```
   Begin Dialog newdlg 230, 145, "Open", .FileDlgFunction
      '$CStrings Save
      Text  8, 6, 60, 11, "&Filename:"
      TextBox  8, 17, 76, 13, .TextBox1
      ListBox  9, 36, 75, 61, exestr$(), .ListBox1
      Text  8, 108, 61, 9, "List Files of &Type:"
      DropListBox  7, 120, 78, 30, filetypes, .DropListBox1
      Text  98, 7, 43, 10, "&Directories:"
      Text  98, 20, 46, 8, "c:\\windows"
      ListBox  99, 34, 66, 66, "", .ListBox2
      Text  98, 108, 44, 8, "Dri&ves:"
      DropListBox  98, 120, 68, 12, "", .DropListBox2
      OKButton  177, 6, 50, 14
      CancelButton  177, 24, 50, 14
      PushButton 177, 42, 50, 14, "&Help"
      '$CStrings Restore
   End Dialog
   Dim dlg As newdlg
   button = Dialog(dlg)
End Sub

Sub ListFiles(str1$)
   DlgText 1,str1$
   x=0
   Redim exestr$(x)
   directory=Dir$("c:\windows\" & str1$,16)
   If directory<>"" then
     Do
       exestr$(x)=LCase$(directory)
       x=x+1
       Redim Preserve exestr$(x)
       directory=Dir
     Loop Until directory=""
   End If
   DlgListBoxArray 2,exestr$()
End Sub

Function FileDlgFunction(identifier$, action, suppvalue)
   Select Case action
     Case 1
       str1$="*.exe"      'dialog box initialized
       ListFiles str1$
     Case 2           'button or control value changed
       If DlgControlId(identifier$) = 4 Then
           If DlgText(4)="All Files (*.*)" then
              str1$="*.*"
           Else
              str1$="*.exe"
           End If
       ListFiles str1$
       End If
     Case 3          'text or combo box changed
       str1$=DlgText$(1)
       ListFiles str1$
     Case 4          'control focus changed

     Case 5          'idle
  End Select
End Function
```

See Also

```
BeginDialog                  DlgFocus statement
End Dialog                   DlgSetPicture statement
DlgControlID function        DlgText function
DlgEnable function           DlgValue function
DlgEnable statement          DlgValue statement
DlgListBoxArray function     DlgVisible function
DlgListBoxArray statement    DlgVisible statement
DlgFocus function
```

DlgValue
Function

Description

Returns a numeric value for the state of a dialog control for the current dialog box.

Syntax

`DlgValue` (*`Id`*)

Syntax Element	Description
`Id`	The control ID for a dialog control. The values returned depend on the type of dialog control: ▸ CheckBox `1` = Selected, `0` = Cleared, `-1` = Grayed ▸ Option Group `0` = 1st button selected, `1` = 2nd button selected, etc. ▸ ListBox `0` = 1st item, `1` = 2nd item, etc. ▸ ComboBox `0` = 1st item, `1` = 2nd item, etc. ▸ Text, Textbox, Button Error occurs

Comments

Use `DlgValue` only while a dialog box is running. See the `Begin Dialog` statement for more information.

Example

This example changes the picture in the dialog box if the check box is selected and changes the picture to its original bitmap if the check box is turned off. The example assumes the picture bitmaps are in the C:\WINDOWS directory.

```
Declare Function FileDlgFunction(identifier$, action, suppvalue)
Sub Main
   Dim button as integer
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Begin Dialog newdlg 186,92,"DlgSetPicture Example",.FileDlgFunction
```

```
      OKButton  130, 6, 50, 14
      CancelButton  130, 23, 50, 14
      Picture  43, 28, 49, 31, "C:\WINDOWS\CIRCLES.BMP", 0
      CheckBox  30, 8, 62, 15, "Change Picture", .CheckBox1
   End Dialog
   Dim dlg As newdlg
   button = Dialog(dlg)
End Sub

Function FileDlgFunction(identifier$, action, suppvalue)
   Select Case action
      Case 1
      Case 2    'user changed control or clicked a button
         If DlgControlID(identifier$)=3 then
            If DlgValue(3)=1 then
              DlgSetPicture 2, "C:\WINDOWS\TILES.BMP",0
            Else
              DlgSetPicture 2, "C:\WINDOWS\CIRCLES.BMP",0
            End If
         End If
   End Select
End Function
```

See Also

BeginDialog
End Dialog
DlgControlID function
DlgEnable function
DlgEnable statement
DlgListBoxArray function
DlgListBoxArray statement
DlgFocus function
DlgFocus statement
DlgSetPicture statement
DlgText function
DlgText statement
DlgValue statement
DlgVisible function
DlgVisible statement

DlgValue

Statement

Description

Changes the value associated with the dialog control for the current dialog box.

Syntax

DlgValue *Id, value%*

Syntax Element	Description
Id	The control ID for a dialog control.
value%	The new value for the dialog control. The values you use to set the control depend on the type of the control: ▸ CheckBox `1` = Select, `0` = Clear, `-1` = Gray. ▸ Option Group `0` = Select 1st button, `1` = Select 2nd button.

► ► ►

► ► ►

Syntax Element	Description
	► ListBox `0` = Select 1st item, `1` = Select 2nd item, etc. ► ComboBox `0` = Select 1st item, `1` = Select 2nd item, etc. ► Text, Textbox, Button Error occurs

Comments

Use `DlgValue` only while a dialog box is running. See the `Begin Dialog` statement for more information.

Example

This example displays a dialog box with a check box, labeled Change Option, and a group box with two option buttons, labeled Option 1 and Option 2. When the user clicks the Change Option button, Option 2 is selected.

```
Declare Function FileDlgFunction(identifier$, action, suppvalue)
Sub Main
   Dim button as integer
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Begin Dialog newdlg 186, 92, "DlgValue Example", .FileDlgFunction
      OKButton  130, 6, 50, 14
      CancelButton  130, 23, 50, 14
      CheckBox  30, 8, 62, 15, "Change Option", .CheckBox1
      GroupBox  28, 34, 79, 47, "Group"
      OptionGroup .OptionGroup1
         OptionButton  41, 47, 52, 10, "Option 1", .OptionButton1
         OptionButton  41, 62, 58, 11, "Option 2", .OptionButton2
   End Dialog
   Dim dlg As newdlg
   button = Dialog(dlg)
End Sub

Function FileDlgFunction(identifier$, action, suppvalue)
   Select Case action
      Case 1
      Case 2    'user changed control or clicked a button
        If DlgControlID(identifier$)=2 then
            If DlgValue(2)=1 then
                DlgValue 4,1
            Else
                DlgValue 4,0
            End If
        End If
   End Select
End Function
```

See Also

BeginDialog
End Dialog
DlgControlID function
DlgEnable function
DlgEnable statement
DlgListBoxArray function
DlgListBoxArray statement
DlgFocus function
DlgFocus statement
DlgSetPicture statement
DlgText function
DlgText statement
DlgValue function
DlgVisible function
DlgVisible statement

DlgVisible

Function

Description

Returns `-1` if a dialog control is visible, `0` if it is hidden.

Syntax

`DlgVisible` (*`Id`*)

Syntax Element	Description
`Id`	The control ID for a dialog control.

Comments

Use `DlgVisible` only while a dialog box is running. See the `Begin Dialog` statement for more information.

Example

This example displays Option 2 in the Group box if the user clicks the check box labeled `Show Option 2`. If the user clicks the box again, Option 2 is hidden.

```
Declare Function FileDlgFunction(identifier$, action, suppvalue)
Sub Main
   Dim button as integer
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Begin Dialog newdlg 186,92,"DlgVisible Example",.FileDlgFunction
      OKButton  130, 6, 50, 14
      CancelButton  130, 23, 50, 14
      CheckBox  30, 8, 62, 15, "Show Option 2", .CheckBox1
      GroupBox  28, 34, 79, 47, "Group"
      OptionGroup .OptionGroup1
         OptionButton  41, 47, 52, 10, "Option 1", .OptionButton1
         OptionButton  41, 62, 58, 11, "Option 2", .OptionButton2
   End Dialog
   Dim dlg As newdlg
   button = Dialog(dlg)
End Sub

Function FileDlgFunction(identifier$, action, suppvalue)
   Select Case action
      Case 1
         DlgVisible 6,0
      Case 2    'user changed control or clicked a button
        If DlgControlID(identifier$)=2 then
```

```
                If DlgVisible(6)<>1 then
                    DlgVisible 6
                End If
            End If
        End Select
    End Function
```

See Also

```
BeginDialog                 DlgFocus statement
End Dialog                  DlgSetPicture statement
DlgControlID function       DlgText function
DlgEnable function          DlgText statement
DlgEnable statement         DlgValue function
DlgListBoxArray function    DlgValue statement
DlgListBoxArray statement   DlgVisible statement
DlgFocus function
```

DlgVisible

Statement

Description

Hides or displays a dialog control for the current dialog box.

Syntax

DlgVisible *Id*[,*mode*]

Syntax Element	Description
Id	The control ID for a dialog control.
mode	Value to use to set the dialog control state: 1. Display a previously hidden control. 0. Hide the control.

Comments

If you omit the *mode*, the dialog box state is toggled between visible and hidden.

Use `DlgVisible` only while a dialog box is running. See the `Begin Dialog` statement for more information.

Example

This example displays Option 2 in the Group box if the user clicks the check box. labeled `Show Option 2`. If the user clicks the box again, Option 2 is hidden.

```
Declare Function FileDlgFunction(identifier$, action, suppvalue)
Sub Main
   Dim button as integer
   Dim identifier$
   Dim action as Integer
   Dim suppvalue as Integer
   Begin Dialog newdlg 186,92,"DlgVisible Example",.FileDlgFunction
      OKButton  130, 6, 50, 14
      CancelButton  130, 23, 50, 14
      CheckBox  30, 8, 62, 15, "Show Option 2", .CheckBox1
      GroupBox  28, 34, 79, 47, "Group"
```

```
      OptionGroup .OptionGroup1
         OptionButton  41, 47, 52, 10, "Option 1", .OptionButton1
         OptionButton  41, 62, 58, 11, "Option 2", .OptionButton2
   End Dialog
   Dim dlg As newdlg
   button = Dialog(dlg)
End Sub

Function FileDlgFunction(identifier$, action, suppvalue)
   Select Case action
      Case 1
         DlgVisible 6,0
      Case 2    'user changed control or clicked a button
        If DlgControlID(identifier$)=2 then
            If DlgVisible(6)<>1 then
                DlgVisible 6
            End If
         End If
   End Select
End Function
```

See Also

BeginDialog	DlgFocus function
End Dialog	DlgFocus statement
DlgControlID function	DlgSetPicture statement
DlgEnable function	DlgText function
DlgEnable statement	DlgText statement
DlgListBoxArray function	DlgValue function
DlgListBoxArray statement	DlgVisible function

Do...Loop

Statement

Description

Repeats a series of program lines as long as (or until) an expression is TRUE.

Syntax

Syntax A

```
Do [{While | Until} condition]
   [statement_block]
   [Exit Do]
   [statement_block]
Loop
```

Syntax B

```
Do
   [statement_block]
   [Exit Do]
   [statement_block]
Loop [{While | Until} condition]
```

Syntax Element	Description
Condition	Any expression that evaluates to TRUE (nonzero) or FALSE (0).

► ► ►

▶ ▶ ▶

Syntax Element	Description
statement_block(s)	Program lines to repeat while (or until) *condition* is TRUE.

Comments When an `Exit Do` statement is executed, control goes to the statement after the `Loop` statement. When used within a nested loop, an `Exit Do` statement moves control out of the immediately enclosing loop.

Example This example lists the contents of the diskette in drive A.

```
Sub main
Dim msgret
   Dim directory, count
   Dim x, msgtext
   Dim A()
   msgret=MsgBox("Insert a disk in drive A.")
   count=1
   ReDim A(100)
   directory=Dir ("A:\*.*")
   Do While directory<>""
      A(count)=directory
      count=count+1
      directory=Dir
   Loop
   msgtext="Directory of drive A:\ is:" & Chr(10)
   For x=1 to count
      msgtext=msgtext & A(x) & Chr(10)
   Next x
   MsgBox msgtext
End Sub
```

See Also `Exit` `Stop` `For...Next` `While...Wend`

DoEvents
Statement

Description Yields execution to Windows for processing operating system events.

Syntax **`DoEvents`**

Comments `DoEvents` does not return until Windows has finished processing all events in the queue and all keys sent by the `InputKeys` statement.

`DoEvents` should not be used if other tasks can interact with the running program in unforeseen ways. Since SQABasic yields control to the operating system at regular intervals, `DoEvents` should only be used to force SQABasic to allow other applications to run at a known point in the program.

Example

This example activates the Windows Phone Dialer application, dials the number, and then allows the operating system to process events.

```
Sub Main
    Dim phoneNumber, msgtext
    Dim i
    InputKeys "{LeftWin}"
    InputKeys "r"
    InputKeys "dialer.exe{enter}"
    phoneNumber=InputBox("Type telephone number to call:")
    AppActivate "Phone Dialer"
    For i = 1 to 5
       DoEvents
    Next i
    InputKeys phoneNumber + "{Enter}"
    msgtext="Dialing..."
    MsgBox msgtext
    DoEvents
End Sub
```

See Also

`AppActivate`
`InputKeys`
`Shell`

DropComboBox

Statement

Description

Creates a combination of a drop-down list box and a text box.

Syntax

Syntax A **`DropComboBox`** *`x, y, dx, dy, text$, .field`*

Syntax B **`DropComboBox`** *`x, y, dx, dy, stringarray$(), .field`*

Syntax Element	Description
`x, y`	The upper left corner coordinates of the list box, relative to the upper left corner of the dialog box.
`dx, dy`	The width and height of the combo box in which the user enters or selects text.
`text$`	A string containing the selections for the combo box.

► ► ►

► ► ►

Syntax Element	Description
stringarray$	An array of dynamic strings for the selections in the combo box.
.field	The name of the dialog-record field that will hold the text string entered in the text box or chosen from the list box.

Comments

The *x* argument is measured in 1/4 system-font character-width units. The *y* argument is measured in 1/8 system-font character-width units. (See `Begin Dialog` for more information.)

The *text$* argument must be defined, using a `Dim` statement, before the `Begin Dialog` statement is executed. The arguments in the *text$* string are entered as shown in the following example:

```
dimname="listchoice"+Chr$(9)+"listchoice"+Chr$(9)+"listchoice"...
```

The string in the text box will be recorded in the field designated by the *.field* argument when the OK button (or any PushButton other than Cancel) is pushed. The *field* argument is also used by the dialog statements that act on this control.

You use a drop combo box when you want the user to be able to edit the contents of the list box (such as file names or their paths). You use a drop list box when the items in the list should remain unchanged.

Use the `DropComboBox` statement only between a `Begin Dialog` and an `End Dialog` statement.

Example

This example defines a dialog box with a drop combo box and the OK and Cancel buttons.

```
Sub main
   Dim cchoices as String
   On Error Resume Next
   cchoices="All"+Chr$(9)+"Nothing"
   Begin Dialog UserDialog 180, 95, "SQABasic Dialog Box"
       ButtonGroup .ButtonGroup1
       Text  9, 3, 69, 13, "Filename:", .Text1
       DropComboBox  9, 17, 111, 41, cchoices, .ComboBox1
       OKButton  131, 8, 42, 13
       CancelButton  131, 27, 42, 13
   End Dialog
   Dim mydialogbox As UserDialog
   Dialog mydialogbox
   If Err=102 then
      MsgBox "You pressed Cancel."
   Else
      MsgBox "You pressed OK."
   End If
End Sub
```

See Also

Begin Dialog	CheckBox	OptionButton
End Dialog	ComboBox	OptionGroup
Button	DropListBox	Picture
ButtonGroup	GroupBox	StaticComboBox
CancelButton	ListBox	Text
Caption	OKButton	TextBox

DropListBox

Statement

Description

Creates a drop-down list of choices.

Syntax

Syntax A **DropListBox** *x, y, dx, dy, text$, .field*

Syntax B **DropListBox** *x, y, dx, dy, stringarray$(), .field*

Syntax Element	Description
x, y	The upper left corner coordinates of the list box, relative to the upper left corner of the dialog box.
dx, dy	The width and height of the combo box in which the user enters or selects text.
text$	A string containing the selections for the combo box.
stringarray$	An array of dynamic strings for the selections in the combo box.
.field	The name of the dialog-record field that will hold the text string entered in the text box or chosen from the list box.

Comments

The *x* argument is measured in 1/4 system-font character-width units. The *y* argument is measured in 1/8 system-font character-width units. (See Begin Dialog for more information.)

The *text$* argument must be defined, using a Dim statement, before the Begin Dialog statement is executed. The arguments in the *text$* string are entered as shown in the following example:

```
dimname="listchoice"+Chr$(9)+"listchoice"+Chr$(9)+"listchoice"...
```

The string in the text box will be recorded in the field designated by the *.field* argument when the OK button (or any PushButton other than Cancel) is pushed. The *field* argument is also used by the dialog statements that act on this control.

A drop list box is different from a list box. The drop list box only displays its list when the user selects it; the list box also displays its entire list in the dialog box.

Use the DropListBox statement only between a Begin Dialog and an End Dialog statement.

Example

This example defines a dialog box with a drop list box and the OK and Cancel buttons.

```
Sub main
   Dim DropListBox1() as String
   Dim x as Integer
   ReDim DropListBox1(3)
   For x=0 to 2
     DropListBox1(x)=Chr(65+x) & ":"
   Next x
   Begin Dialog UserDialog 186, 62, "SQABasic Dialog Box"
      Text  8, 4, 42, 8, "Drive:", .Text3
      DropListBox  8, 16, 95, 44, DropListBox1(), .DropListBox1
      OKButton  124, 6, 54, 14
      CancelButton  124, 26, 54, 14
   End Dialog
   Dim mydialog as UserDialog
   On Error Resume Next
   Dialog mydialog
   If Err=102 then
      MsgBox "Dialog box canceled."
   End If
End Sub
```

See Also

Begin Dialog, CheckBox, OptionGroup, End Dialog, ComboBox, Picture, Button, DropComboBox, StaticComboBox, ButtonGroup, ListBox, Text, CancelButton, OKButton, TextBox, Caption, OptionButton

EditBox

User Action Command

Description

Performs an action on an edit box control.

Syntax

EditBox *action%*, *recMethod$*, *parameters$*

Syntax Element	Description
action%	One of these actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values. ► *ScrollAction*. One of these scroll actions: ScrollPageRight ScrollPageDown ScrollRight ScrollLineDown ScrollPageLeft ScrollPageUp ScrollLeft ScrollLineUp HScrollTo VScrollTo HScrollTo and VScrollTo take the required parameter Position=*%*.
recMethod$	Valid values: ► HTMLId=*$*. The text from the ID attribute of the HTML object. ► HTMLText=*$*. The visible text of a Web page INPUT form element where the type is either Text or Textarea. ► HTMLTitle=*$*. The text from the Title attribute of the HTML object. ► ID=*%*. The object's internal Windows ID. ► Index=*%*. The number of the object among all objects identified with the same base recognition method. Typically, Index is used after another recognition method qualifier — for example, Name=*$*;Index=*%*. ► JavaText=*$*. A label that identifies the object in the user interface. ► Label=*$*. The text of the label object that immediately precedes the edit box in the internal order (Z order) of windows. ► Name=*$*. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► ObjectIndex=*%*. The number of the object among all objects of the same type in the same window.

► ► ►

► ► ►

Syntax Element	Description
	► `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ► `Coords=x,y`. If *action%* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the object. ► `Coords=x1,y1,x2,y2`. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object. ► `Position=%`. If *action%* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position in the scroll box. Every scroll bar has an internal range, and this value is specific to that range.

Comments

None.

Example

This example double-clicks the first edit box in the window (`ObjectIndex=1`) at *x*,*y* coordinates of 33,75.

```
EditBox DblClick, "ObjectIndex=1", "Coords=33,75"
```

This example clicks the edit box with a Name attribute of Email. The edit box is located within the Web page frame named Main.

```
EditBox Click,
   "Type=HTMLFrame;HTMLId=Main;\;Type=EditBox;Name=Email",
   "Coords=42,16"
```

See Also

`ComboBox` `ComboListBox` `ComboEditBox` `ListBox`

EditBoxVP

Verification Point Command

Description Establishes a verification point for an edit box control.

Syntax `Result = EditBoxVP (action%, recMethod$, parameters$)`

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `Compare`. Captures the entire textual contents of the object into a grid and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareData`. Captures the contents or HTML text of the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional. ▸ `VerifyIsBlank`. Checks that the object has no text. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The visible text of a Web page INPUT form element where the type is either Text or Textarea. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `ID=%`. The object's internal Windows ID. ► `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=$`. A label that identifies the object in the user interface. ► `Label=$`. The text of the label object that immediately precedes the edit box in the internal order (Z order) of windows. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`).
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive.

► ► ►

► ► ►

Syntax Element	Description
	► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the edit box identified by the label `Name` and compares them to the recorded baseline in verification point `VPTWO`. At playback, the comparison is retried every 6 seconds and times out after 30 seconds.

```
Result = EditBoxVP(CompareProperties, "Label=Name:", "VP=VPTWO;
   Wait=6,30")
```

This example captures the data of the edit box with a Name attribute of Email. The edit box is located within the Web page frame named Main. `EditBoxVP` compares the data to the recorded baseline in verification point `TXTVP1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Result = EditBoxVP (CompareData,
   "Type=HTMLFrame;HTMLId=Main;\;Type=EditBox;Name=Email",
   "VP=TXTVP1;Wait=2,30")
```

See Also `LabelVP`
`PushButtonVP`
`RadioButtonVP`

EndPlay

Flow Control Command ▸▸▸SQA▸

This command is obsolete in the current version of SQABasic and should no longer be used. To maintain the upward compatibility of your existing scripts, the command does not cause an error, but it has no effect on script execution.

EndSaveWindowPositions

Utility Command ▸▸▸SQA▸

Description Marks the end of the script commands that save the window positions for restoration at playback.

Syntax **`EndSaveWindowPositions`**

Comments When you record a script, Robot optionally saves the positions of all windows at the beginning of the recording. Scripts have `Window SetPosition` and `Window MoveTo` statements between `StartSaveWindowPositions` and `EndSaveWindowPositions` commands, identifying the locations and status of the windows to be restored.

`StartSaveWindowPositions` sets all playback synchronization and timeout values to zero to speed up the processing of the Window commands. `EndSaveWindowPositions` resets all sync and timeout values to their default values.

Script commands between `StartSaveWindowPositions` and `EndSaveWindowPositions` generate a Warning in the LogViewer if not executed properly on playback.

If you do not want to store the window position information, you can turn off this feature in the Recording Options dialog box.

On playback, the Unexpected Active Window checking is turned off between the `StartSaveWindowPositions` and `EndSaveWindowPositions` commands.

Example

This example marks the end of the script commands that save the window positions for restoration at playback.

```
StartSaveWindowPositions
    Window SetPosition, "Caption=TEXT.DOC",
        "Coords=21,408,36,36;Status=MINIMIZED"
    Window SetPosition, "Caption=Program Manager",
        "Coords=-4,-4,648,488;Status=MAXIMIZED"
EndSaveWindowPositions
```

See Also

`StartSaveWindowPositions`
`Window (Actions - SetPosition and MoveTo)`

Environ

Function

Description

Returns the string setting for a keyword in the operating system's environment table.

Syntax

Syntax A **`Environ`**`[$](`*`environment-string$`*`)`

Syntax B **`Environ`**`[$](`*`numeric expression%`*`)`

Syntax Element	Description
`$`	Optional. If specified the return type is `String`. If omitted the function will return a `Variant` of `VarType` 8 (`String`).
`environment-string$`	The name of a keyword in the operating system environment.
`numeric expression%`	A number for the position of the string in the environment table. (1st, 2nd, 3rd, etc.)

Comments

If you use the *`environment-string$`* parameter, enter it in uppercase, or `Environ` returns a null string (`""`). The return value for Syntax A is the string associated with the keyword requested.

If you use the *`numeric expression%`* parameter, the numeric expression is automatically rounded to a whole number, if necessary. The return value for Syntax B is a string in the form `keyword=value`.

`Environ` returns a null string if the specified argument cannot be found.

Example This example lists all the strings from the operating system environment table.

```
Sub main
   Dim str1(100)
   Dim msgtext
   Dim count, x
   Dim newline
   newline=Chr(10)
   x=1
   str1(x)= Environ(x)
   Do While Environ(x)<>""
      str1(x)= Environ(x)
      x=x+1
      str1(x)=Environ(x)
   Loop
   msgtext="The Environment Strings are:" & newline & newline
   count=x
   For x=1 to count
      msgtext=msgtext & str1(x) & newline
   Next x
   MsgBox msgtext
End Sub
```

See Also None.

Eof
Function

Description Returns the value `-1` if the end of the specified open file has been reached, `0` otherwise.

Syntax **`Eof`**(*`filenumber%`*)

Syntax Element	Description
`filenumber%`	An integer expression identifying the open file to use.

Comments See the `Open` statement for more information about assigning numbers to files when they are opened.

Example This example uses the `Eof` function to read records from a Random file, using a `Get` statement. The `Eof` function keeps the `Get` statement from attempting to read beyond the end of the file. The sub procedure CREATEFILE creates the file C:\TEMP001 used by the main sub procedure.

```
Declare Sub createfile()
Sub main
   Dim acctno
   Dim msgtext as String
   Dim newline as String
   newline=Chr(10)
   Call createfile
```

```
   Open "C:\temp001" For Input As #1
   msgtext="The account numbers are:" & newline
   Do While Not Eof(1)
         Input #1,acctno
         msgtext=msgtext & newline & acctno & newline
   Loop
   MsgBox msgtext
   Close #1
   Kill "C:\TEMP001"
End Sub

Sub createfile()
   Rem Put the numbers 1-10 into a file
   Dim x as Integer
   Open "C:\TEMP001" for Output as #1
   For x=1 to 10
      Write #1, x
   Next x
   Close #1
End Sub
```

See Also

Get	Loc
Input function	Lof
Input statement	Open
Line Input	

Erase

Statement

Description

Reinitializes the contents of a fixed array or frees the storage associated with a dynamic array.

Syntax

Erase *Array*[, *Array*]

Syntax Element	Description
Array	The name of the array variable to re-initialize.

Comments

The effect of using `Erase` on the elements of a fixed array varies with the type of the element:

Element Type	Erase Effect
`numeric`	Each element set to zero.
`variable length string`	Each element set to zero length string.
`fixed length string`	Each element's string is filled with zeros.
`Variant`	Each element set to `Empty`.

► ► ►

► ► ►

Element Type	Erase Effect
user-defined type	Members of each element are cleared as if the members were array elements, i.e. numeric members have their value set to zero, etc.
object	Each element is set to the special value `Nothing`.

Example

This example prompts for a list of item numbers to put into an array and clears array if the user wants to start over.

```
Sub main
   Dim msgtext
   Dim inum(100) as Integer
   Dim x, count
   Dim newline
   newline=Chr(10)
   x=1
   count=x
   inum(x)=0
   Do
     inum(x)=InputBox("Enter item #" & x & " (99=start over; 0=end):")
     If inum(x)=99 then
        Erase inum()
        x=0
     ElseIf inum(x)=0 then
        Exit Do
     End If
     x=x+1
  Loop
  count=x-1
  msgtext="You entered the following numbers:" & newline
  For x=1 to count
     msgtext=msgtext & inum(x) & newline
  Next x
  MsgBox msgtext
End Sub
```

See Also

`Dim` `LBound`
`ReDim` `UBound`

Erl

Function

Description

Returns the line number where an error was trapped.

Syntax

`Erl`

Comments

If you use a `Resume` or `On Error` statement after `Erl`, the return value for `Erl` is reset to `0`. To maintain the value of the line number returned by `Erl`, assign it to a variable.

The value of the `Erl` function can be set indirectly through the `Error` statement.

Example

This example prints the error number using the `Err` function and the line number using the `Erl` statement if an error occurs during an attempt to open a file. Line numbers are automatically assigned, starting with `1`, which is the `Sub main` statement.

```
Sub main
   Dim msgtext, userfile
   On Error GoTo Debugger
   msgtext="Enter the filename to use:"
   userfile=InputBox$(msgtext)
   Open userfile For Input As #1
   MsgBox "File opened for input."
'  ....etc....
   Close #1
done:
   Exit Sub
Debugger:
   msgtext="Error number " & Err & " occurred at line: " & Erl
   MsgBox msgtext
   Resume done
End Sub
```

See Also

`Err function` `On Error` `Err statement` `Resume` `Error function` `Trappable Error Codes (Appendix B)` `Error statement`

Err

Function

Description

Returns the runtime error code for the last error trapped.

Syntax

`Err`

Comments

If you use a `Resume` or `On Error` statement after `Erl`, the return value for `Err` is reset to `0`. To maintain the value of the line number returned by `Erl`, assign it to a variable.

The value of the `Err` function can be set directly through the `Err` statement, and indirectly through the `Error` statement.

Example

This example prints the error number using the `Err` function and the line number using the `Erl` statement if an error occurs during an attempt to open a file. Line numbers are automatically assigned, starting with `1`, which is the `Sub main` statement.

```
Sub main
   Dim msgtext, userfile
   On Error GoTo Debugger
   msgtext="Enter the filename to use:"
   userfile=InputBox$(msgtext)
   Open userfile For Input As #1
   MsgBox "File opened for input."
'   ....etc....
   Close #1
done:
   Exit Sub
Debugger:
   msgtext="Error number " & Err & " occurred at line: " & Erl
   MsgBox msgtext
   Resume done
End Sub
```

See Also

`Erl`
`Err statement`
`Error function`
`Error statement`
`On Error`
`Resume`
`Trappable Error Codes (Appendix B)`

Err

Statement

Description

Sets a runtime error code.

Syntax

`Err` = *n%*

Syntax Element	Description
n%	An integer expression for the error code (between 1 and 32,767) or 0 for no runtime error.

Comments

The `Err` statement is used to send error information between procedures.

Example

This example generates an error code of 10000 and displays an error message if a user does not enter a customer name when prompted for it. It uses the `Err` statement to clear any previous error codes before running the loop the first time and it also clears the error to allow the user to try again.

```
Sub main
   Dim custname as String
   On Error Resume Next
   Do
      Err=0
      custname=InputBox$("Enter customer name:")
      If custname="" then
         Error 10000
      Else
         Exit Do
      End If
      Select Case Err
         Case 10000
            MsgBox "You must enter a customer name."
         Case Else
            MsgBox "Undetermined error. Try again."
      End Select
   Loop Until custname<>""
   MsgBox "The name is: " & custname
End Sub
```

See Also

Erl
Err function
Error function
Error statement
On Error
Resume
Trappable Error Codes (Appendix B)

Error

Function

Description

Returns the error message that corresponds to the specified error code.

Syntax

Error[$] [(*errornumber%*)]

Syntax Element	Description
$	Optional. If specified, the return type is a String. If omitted, the function returns a Variant of VarType 8 (String).
errornumber%	An Integer between 1 and 32,767 specifying the error code.

Comments

If the argument is omitted, SQABasic returns the error message for the most recent runtime error.

If no error message is found to match the error code in *errornumber%*, an empty string ("") is returned.

Example

This example prints the error number, using the Err function, and the text of the error, using the Error$ function, if an error occurs during an attempt to open a file.

```
Sub main
   Dim msgtext, userfile
   On Error GoTo Debugger
   msgtext="Enter the filename to use:"
   userfile=InputBox$(msgtext)
   Open userfile For Input As #1
   MsgBox "File opened for input."
'  ....etc....
   Close #1
done:
   Exit Sub
Debugger:
   msgtext="Error " & Err & ": " & Error$
   MsgBox msgtext
   Resume done
End Sub
```

See Also

`Erl` `On Error`
`Err function` `Resume`
`Err statement` `Trappable Error Codes (Appendix B)`
`Error statement`

Error

Statement

Description

Simulates the occurrence of an SQABasic or user-defined error.

Syntax

`Error` *`errornumber%`*

Syntax Element	Description
`errornumber%`	An integer between 1 and 32,767 for the error code.

Comments

If an *`errornumber%`* is one that SQABasic already uses, the `Error` statement will simulate an occurrence of that error.

User-defined error codes should employ values greater than those used for standard SQABasic error codes. To help ensure that non-SQABasic error codes are chosen, user-defined codes should work down from 32,767.

If an `Error` statement is executed, and there is no error-handling routine enabled, SQABasic produces an error message and halts program execution. If an `Error` statement specifies an error code not used by SQABasic, the message `User-defined error` is displayed.

Example

This example generates an error code of 10000 and displays an error message if a user does not enter a customer name when prompted for it.

```
Sub main
   Dim custname as String
   On Error Resume Next
   Do
      Err=0
      custname=InputBox$("Enter customer name:")
      If custname="" then
         Error 10000
      Else
         Exit Do
      End If
      Select Case Err
         Case 10000
            MsgBox "You must enter a customer name."
         Case Else
            MsgBox "Undetermined error. Try again."
      End Select
   Loop Until custname<>""
   MsgBox "The name is: " & custname
End Sub
```

See Also `Erl` `Err function` `Err statement` `Error function` `On Error` `Resume` `Trappable Error Codes (Appendix B)`

Exit

Statement

Description Terminates Loop statements or transfers control to a calling procedure.

Syntax **`Exit`** `{Do | For | Function | Sub}`

Comments Use `Exit Do` inside a `Do...Loop` statement. Use `Exit For` inside a `For...Next` statement. When the `Exit` statement is executed, control transfers to the statement after the Loop or Next statement. When used within a nested loop, an Exit statement moves control out of the immediately enclosing loop.

Use `Exit Function` inside a `Function...End Function` procedure. Use `Exit Sub` inside a `Sub...End Sub` procedure.

Example This example uses the `On Error` statement to trap runtime errors. If there is an error, the program execution continues at the label `Debugger`. The example uses the `Exit` statement to skip over the debugging code when there is no error.

```
Sub main
   Dim msgtext, userfile
   On Error GoTo Debugger
   msgtext="Enter the filename to use:"
   userfile=InputBox$(msgtext)
   Open userfile For Input As #1
   MsgBox "File opened for input."
```

```
'  ....etc....
   Close #1
done:
   Exit Sub
Debugger:
   msgtext="Error " & Err & ": " & Error$
   MsgBox msgtext
   Resume done
End Sub
```

See Also

```
Do...Loop                  Stop
For...Next                 Sub...End Sub
Function...End Function
```

Exp
Function

Description Returns the value *e* (the base of natural logarithms) raised to a power.

Syntax **Exp**(*number*)

Syntax Element	Description
number	The exponent value for *e*.

Comments If the variable to contain the return value has a data type `Integer`, `Currency`, or `Single`, the return value is a single-precision value. If the variable has a date type of `Long`, `Variant`, or `Double`, the value returned is a double-precision number.

The constant *e* is approximately 2.718282.

Example This example estimates the value of a factorial of a number entered by the user. A factorial (represented as an exclamation mark, !) is the product of a number and each integer between it and the number 1. For example, 5 factorial, or `5!`, is the product of `5*4*3*2*1`, or the value 120.

```
Sub main
   Dim x as Single
   Dim msgtext, PI
   Dim factorial as Double
   PI=3.14159
i: x=InputBox("Enter an integer between 1 and 88: ")
   If x<=0 then
      Exit Sub
   ElseIf x>88 then
      MsgBox "The number you entered is too large.  Try again."
      Goto i
   End If
```

```
    factorial=Sqr(2*PI*x)*(x^x/Exp(x))
      msgtext="The estimated factorial is: "
      msgtext=msgtext + Format(factorial, "Scientific")
      MsgBox msgtext
   End Sub
```

See Also

```
Abs    Rnd
Fix    Sgn
Int    Sqr
Log
```

FileAttr

Function

Description

Returns the file mode or the operating system handle for the open file.

Syntax

FileAttr(*filenumber%, returntype*)

Syntax Element	Description
filenumber%	An integer expression identifying the open file to use.
returntype	1 = Return file mode, 2 = Return operating system handle The following table lists the return values and corresponding file modes if *returntype* is 1: 1 - Input 2 - Output 8 - Append

Comments

The argument *filenumber%* is the number used in the Open statement to open the file.

Example

This example closes an open file if it is open for Input or Output. If open for Append, it writes a range of numbers to the file. The second sub procedure, CREATEFILE, creates the file and leaves it open.

```
Declare Sub createfile()
Sub main
   Dim filemode as Integer
   Dim attrib as Integer
   Dim x as Integer
   Call createfile
   attrib=1
   filemode=FileAttr(1,attrib)
   If filemode=1 or 2 then
      MsgBox "File was left open. Closing now."
      Close #1
```

```
 Else
      For x=11 to 15
         Write #1, x
      Next x
      Close #1
   End If
   Kill "C:\TEMP001"
End Sub

Sub createfile()
   Rem Put the numbers 1-10 into a file
   Dim x as Integer
   Open "C:\TEMP001" for Output as #1
   For x=1 to 10
      Write #1, x
   Next x
End Sub
```

See Also `GetAttr`
`Open`
`SetAttr`

FileCopy
Statement

Description

Copies the contents of a file.

Syntax

`FileCopy` *`source$, destination$`*

Syntax Element	Description
`source$`	A string expression for the name (and path) of the file to copy.
`destination$`	A string expression for the name (and path) of the file receiving the contents of *`source$`*.

Comments

The contents of the file *`source$`* are copied to the file *`destination$`*. The original contents of *`destination$`* are overwritten.

Wildcards (`*` or `?`) are not allowed for either the *`source$`* or *`destination$`*. The *`source$`* file cannot be copied if it is opened by SQABasic for anything other than `Read` access.

Example

This example copies one file to another. Both file names are specified by the user.

```
Sub main
   Dim oldfile, newfile
   Dim msgtext as String
   On Error Resume Next
   oldfile= InputBox("Copy which file?")
```

```
      newfile= InputBox("Copy to?")
      FileCopy oldfile,newfile
      If Err<>0 then
         msgtext="Error during copy. Rerun program."
      Else
         msgtext="Copy successful."
      End If
      MsgBox msgtext
   End Sub
```

See Also

```
FileAttr         Kill
FileDateTime     Name
GetAttr
```

FileDateTime

Function

Description

Returns the last modification date and time for the specified file.

Syntax

FileDateTime(*pathname$*)

Syntax Element	Description
pathname$	A string expression for the name of the file to query.

Comments

Pathname$ can contain path and disk information, but cannot include wildcards (* and ?).

Example

This example writes data to a file if it hasn't been saved within the last 2 minutes.

```
Sub main
   Dim tempfile
   Dim filetime, curtime
   Dim msgtext
   Dim acctno(100) as Single
   Dim x, I
   tempfile="C:\TEMP001"
   Open tempfile For Output As #1
   filetime=FileDateTime(tempfile)
   x=1
   I=1
   acctno(x)=0
   Do
      curtime=Time
      acctno(x)=InputBox("Enter an account number (99 to end):")
      If acctno(x)=99 then
         For I=1 to x-1
            Write #1, acctno(I)
         Next I
         Exit Do
```

```
   ElseIf (Minute(filetime)+2)<=Minute(curtime) then
            For I=I to x
               Write #1, acctno(I)
            Next I
         End If
         x=x+1
      Loop
      Close #1
      x=1
      msgtext="Contents of C:\TEMP001 is:" & Chr(10)
      Open tempfile for Input as #1
      Do While Eof(1)<>-1
         Input #1, acctno(x)
         msgtext=msgtext & Chr(10) & acctno(x)
         x=x+1
      Loop
      MsgBox msgtext
      Close #1
      Kill "C:\TEMP001"
   End Sub
```

See Also `FileLen`
`GetAttr`

FileLen

Function

Description

Returns the length of the specified file.

Syntax

FileLen(*pathname$*)

Syntax Element	Description
pathname$	A string expression that contains the name of the file to query.

Comments

Pathname$ can contain path and disk information, but cannot include wildcards (* and ?).

If the specified file is open, this function returns the length of the file before the file was opened.

Example

This example returns the length of a file.

```
Sub main
   Dim length as Long
   Dim userfile as String
   Dim msgtext
   On Error Resume Next
   msgtext="Enter a filename:"
   userfile=InputBox(msgtext)
   length=FileLen(userfile)
```

```
      If Err<>0 then
         msgtext="Error occurred.  Rerun program."
      Else
         msgtext="The length of " & userfile & " is: " & length
      End If
      MsgBox msgtext
   End Sub
```

See Also `FileDateTime` `GetAttr` `FileLen` `Lof`

FileVP

Verification Point Command

▸▸▸SQA▸

Description Establishes a verification point for a file or files. Tests for the existence of a file or compares two different files.

Syntax *Result* = **FileVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `Compare`. Performs a binary comparison of two specified files. *recMethod$* File1 and File2 are required. Also, *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `Exists`. Checks whether a specified file exists at playback. *recMethod$* Name is required. Also, *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `File1=$;File2=$`. The full path and file names of the two files that should be compared for the action `Compare`. ▸ `Name=$`. Name specifies the full path and file name of the file that should be tested for the action Exists.

▸ ▸ ▸

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

The file names specified in *recMethod$* should contain a fully qualified path. If a drive and path are not specified, Robot uses the current directory, which is undetermined at the time of playback and will likely vary depending upon the environment and application being tested.

Verification points established through `FileVP` are not stored in the datastore and do not appear in Robot's Asset pane.

Example

This example tests for the existence of the MYPROG.INI file, located in the C:\WINDOWS directory. At playback, the test is retried every 4 seconds and times out after 30 seconds.

```
Result = FileVP (Exists, "Name=C:\WINDOWS\MYPROG.INI",
   "VP=FXMYPROG;Wait=4,30")
```

This example compares the contents of the files C:\MYPROG.EXE and C:\OLDPROG.EXE.

```
Result = FileVP (Compare, "File1=C:\MYPROG.EXE;
   File2=C:\OLDPROG.EXE", "VP=FCMYPROG")
```

See Also

`ModuleVP`

Fix
Function

Description Returns the integer part of a number.

Syntax **Fix**(*number*)

Syntax Element	Description
number	Any valid numeric expression.

Comments The return value's data type matches the type of the numeric expression. This includes Variant expressions, unless the numeric expression is a string (VarType 8) that evaluates to a number, in which case the data type for its return value is VarType 5 (double). If the numeric expression is VarType 0 (empty), the data type for the return value is VarType 3 (long).

For both positive and negative *numbers*, Fix removes the fractional part of the expression and returns the integer part only. For example, Fix (6.2) returns 6; Fix (-6.2) returns -6.

Example This example returns the integer portion of a number provided by the user.

```
Sub main
   Dim usernum
   Dim intvalue
   usernum=InputBox("Enter a number with decimal places:")
   intvalue=Fix(usernum)
   MsgBox "The integer portion of " & usernum & " is: " & intvalue
End Sub
```

See Also

Abs	Int	Sgn
CInt	Log	Sqr
Exp	Rnd	

For...Next
Statement

Description Repeats a series of program lines a fixed number of times.

Syntax

```
For counter = start TO end [STEP increment]
   [statement_block]
   [Exit For]
   [statement_block]
Next [counter]
```

Syntax Element	Description
counter	A numeric variable for the loop counter.
start	The beginning value of the counter.
end	The ending value of the counter.
increment	The amount by which the counter is changed each time the loop is run. (The default is one.)
statement_block	Basic functions, statements, or methods to be executed.

Comments

The *start* and *end* values must be consistent with *increment*: If *end* is greater than *start*, *increment* must be positive. If *end* is less than *start*, *increment* must be negative. SQABasic compares the sign of (*start-end*) with the sign of *increment*. If the signs are the same, and *end* does not equal *start*, the `For...Next` loop is started. If not, the loop is omitted in its entirety.

With a `For...Next` loop, the program lines following the `For` statement are executed until the `Next` statement is encountered. At this point, the `Step` amount is added to the *counter* and compared with the final value, *end*. If the beginning and ending values are the same, the loop executes once, regardless of the `Step` value. Otherwise, the `Step` value controls the loop as follows:

Step Value	Loop Execution
Positive	If *counter* is less than or equal to *end*, the `Step` value is added to *counter*. Control returns to the statement after the `For` statement and the process repeats. If *counter* is greater than *end*, the loop is exited; execution resumes with the statement following the `Next` statement.
Negative	The loop repeats until *counter* is less than *end*.
Zero	The loop repeats indefinitely.

Within the loop, the value of the *counter* should not be changed, as changing the *counter* will make programs more difficult to maintain and debug.

`For...Next` loops can be nested within one another. Each nested loop should be given a unique variable name as its *counter*. The `Next` statement for the inside loop must appear before the `Next` statement for the outside loop. The `Exit For` statement can be used as an alternative exit from `For...Next` loops.

If the variable is left out of a `Next` statement, the `Next` statement will match the most recent `For` statement. If a `Next` statement occurs prior to its corresponding `For` statement, SQABasic will return an error message.

Multiple consecutive `Next` statements can be merged together. If this is done, the counters must appear with the innermost counter first and the outermost counter last. For example:

```
For i = 1 To 10
   [statement_block]
   For j = 1 To 5
   [statement_block]
Next j, I
```

Example

This example calculates the factorial of a number. A factorial (represented as an exclamation mark, `!`) is the product of a number and each integer between it and the number 1. For example, 5 factorial, or `5!`, is the product of `5*4*3*2*1`, or the value 120.

```
Sub main
   Dim number as Integer
   Dim factorial as Double
   Dim msgtext
   Dim x as Integer
   number=InputBox("Enter an integer between 1 and 170:")
   If number<=0 then
      Exit Sub
   End If
   factorial=1
   For x=number to 2 step -1
      factorial=factorial*x
   Next x
Rem If number<= 35, then its factorial is small enough
Rem to be stored as a single-precision number
   If number<35 then
      factorial=CSng(factorial)
   End If
   msgtext="The factorial of " & number & " is: " & factorial
   MsgBox msgtext
End Sub
```

See Also

`Do...Loop`
`Exit`
`While...Wend`

Format

Function

Description

Returns a formatted string of an expression based on a given format.

Syntax

Format[$](*expression* [, *format*])

Syntax Element	Description
$	Optional. If specified the return type is `String`. If omitted the function will return a `Variant` of `VarType` 8 (`String`).
expression	The value to be formatted. It can be a number, Variant, or string.
format	A string expression representing the format to use. See the tables in the Comments section for the string values you can assign to this argument.

Comments

`Format` formats the *expression* as a number, date, time, or string depending upon the *format* argument. As with any string, you must enclose the *format* argument in quotation marks ("").

Numeric values are formatted as either numbers or date/times. If a numeric expression is supplied and the *format* argument is omitted or null, the number will be converted to a string without any special formatting.

Both numeric values and Variants can be formatted as dates. When formatting numeric values as dates, the value is interpreted according the standard Basic date encoding scheme. The base date, December 30, 1899, is represented as zero, and other dates are represented as the number of days from the base date.

Strings are formatted by transferring one character at a time from the input *expression* to the output string.

When exchanging data information with external data sources or external programs, you should use double-precision floating point numbers or data strings with at least four characters for identifying the century.

Formatting Numbers

The predefined numeric formats with their meanings are as follows:

Format	Description
`General Number`	Display the number without thousand separator.
`Fixed`	Display the number with at least one digit to the left and at least two digits to the right of the decimal separator.
`Standard`	Display the number with thousand separator and two digits to the right of decimal separator.
`Scientific`	Display the number using standard scientific notation.

► ► ►

▶ ▶ ▶

Format	Description
`Currency`	Display the number using a currency symbol as defined in the International section of the Control Panel. Use thousand separator and display two digits to the right of decimal separator. Enclose negative value in parentheses.
`Percent`	Multiply the number by 100 and display with a percent sign appended to the right; display two digits to the right of decimal separator.
`TRUE/FALSE`	Display `FALSE` for `0`, `TRUE` for any other number.
`Yes/No`	Display `No` for `0`, `Yes` for any other number.
`On/Off`	Display `Off` for `0`, `On` for any other number.

To create a user-defined numeric format, follow these guidelines:

For a simple numeric format, use one or more digit characters and (optionally) a decimal separator. The two format digit characters provided are zero (`0`) and number sign (`#`). A zero forces a corresponding digit to appear in the output; while a number sign causes a digit to appear in the output if it is significant (in the middle of the number or non-zero).

Number	Format	Result
1234.56	`#`	1235
1234.56	`#.##`	1234.56
1234.56	`#.#`	1234.6
1234.56	`######.##`	1234.56
1234.56	00000.000	01234.560
0.12345	`#.##`	.12
0.12345	`0.##`	0.12

A comma placed between digit characters in a format causes a comma to be placed between every three digits to the left of the decimal separator.

Number	Format	Result
1234567.8901	`#,#.##`	1,234,567.89
1234567.8901	`#,#.####`	1,234,567.8901

Note: Although a comma and period are used in the *`format`* to denote separators for thousands and decimals, the output string will contain the appropriate character, based upon the current international settings for your machine.

Numbers can be scaled either by inserting one or more commas before the decimal separator or by including a percent sign in the *format* specification. Each comma preceding the decimal separator (or after all digits if no decimal separator is supplied) will scale (divide) the number by 1000. The commas will not appear in the output string. The percent sign will cause the number to be multiplied by 100. The percent sign will appear in the output string in the same position as it appears in *format*.

Number	Format	Result
1234567.8901	#,.##	1234.57
1234567.8901	#,,.####	1.2346
1234567.8901	#,#,.##	1,234.57
0.1234	#0.00%	12.34%

Characters can be inserted into the output string by being included in the *format* specification. The following characters will be automatically inserted in the output string in a location matching their position in the *format* specification:

```
-   +   $   (   )   space   :   /
```

Any set of characters can be inserted by enclosing them in double quotes. Any single character can be inserted by preceding it with a backslash (\ ).

Number	Format	Result
1234567.89	$#,0.00	$1,234,567.89
1234567.89	"TOTAL:" $#,#.00	TOTAL: $1,234,567.89
1234	\=\> #,#\<\=	=> 1,234 <=

You can use the SQABasic `'$CStrings` metacommand or the `Chr` function if you need to embed quotation marks in a format specification. The character code for a quotation mark is 34.

Numbers can be formatted in scientific notation by including one of the following exponent strings in the *format* specification:

```
E-   E+   e-   e+
```

The exponent string should be preceded by one or more digit characters. The number of digit characters following the exponent string determines the number of exponent digits in the output. *Format* specifications containing an upper case `E` will result in an upper case `E` in the output.

Those containing a lower case e will result in a lower case `e` in the output. A minus sign following the `E` will cause negative exponents in the output to be preceded by a minus sign. A plus sign in the *`format`* will cause a sign to always precede the exponent in the output.

Number	Format	Result
1234567.89	###.##E-00	123.46E04
1234567.89	###.##e+#	123.46e+4
0.12345	0.00E-00	1.23E-01

A numeric *`format`* can have up to four sections, separated by semicolons. If you use only one section, it applies to all values. If you use two sections, the first section applies to positive values and zeros, the second to negative values. If you use three sections, the first applies to positive values, the second to negative values, and the third to zeros. If you include semicolons with nothing between them, the undefined section is printed using the format of the first section. The fourth section applies to Null values. If it is omitted and the input expression results in a NULL value, `Format` will return an empty string.

Number	Format	Result
1234567.89	#,0.00;(#,0.00);"Zero";"NA"	1,234,567.89
-1234567.89	#,0.00;(#,0.00);"Zero";"NA"	(1,234,567.89)
0.0	#,0.00;(#,0.00);"Zero";"NA#"	Zero
0.0	#,0.00;(#,0.00);;"NA"	0.00
Null	#,0.00;(#,0.00);"Zero";"NA"	NA
Null	"The value is: "	0.00

Formatting Dates and Times

As with numeric formats, there are several predefined formats for formatting dates and times:

Format	Description
`General Date`	If the number has both integer and real parts, display both date and time. (for example, 11/8/1993 1:23:45 PM); if the number has only integer part, display it as a date; if the number has only fractional part, display it as time. The year value is generated into the formatted output as a four-digit year.
`Long Date`	Display a Long Date. Long Date is defined in the International section of the Control Panel.

► ► ►

▶ ▶ ▶

Format	Description
`Medium Date`	Display the date using the month abbreviation and without the day of the week. (as in 08-Nov-93). The year value is generated into the formatted output as a two-digit year.
`Short Date`	Display a Short Date. Short Date is defined in the International section of the Control Panel. The year value is generated into the formatted output as a four-digit year.
`Long Time`	Display Long Time. Long Time is defined in the International section of the Control Panel and includes hours, minutes, and seconds.
`Medium Time`	Do not display seconds; display hours in 12-hour format and use the AM/PM designator.
`Short Time`	Do not display seconds; use 24-hour format and no AM/PM designator.

When using a user-defined format for a date, the *`format`* specification contains a series of tokens. Each token is replaced in the output string by its appropriate value.

A complete date can be output using the following tokens:

Token	Output
`c`	The date time as if the *format* was: “ddddd ttttt”. See the definitions below. The year value is generated into the formatted output as a four-digit year.
`ddddd`	The date including the day, month, and year according to the machine’s current Short Date setting. The default Short Date setting for the United States is m/d/yyyy. The year value is generated into the formatted output as a four-digit year.
`dddddd`	The date including the day, month, and year according to the machine’s current Long Date setting. The default Long Date setting for the United States is mmmm dd, yyyy.
`ttttt`	The time including the hour, minute, and second using the machine’s current time settings The default time format is h:mm:ss AM/PM.

Finer control over the output is available by including *format* tokens that deal with the individual components of the date time. These tokens are:

Token	Output
d	The day of the month as a one or two digit number (1-31).
dd	The day of the month as a two digit number (01-31).
ddd	The day of the week as a three letter abbreviation (Sun-Sat).
dddd	The day of the week without abbreviation (Sunday-Saturday).
w	The day of the week as a number (Sunday as 1, Saturday as 7).
ww	The week of the year as a number (1-53).
m	The month of the year or the minute of the hour as a one or two digit number. The minute will be output if the preceding token was an hour; otherwise, the month will be output.
mm	The month or the year or the minute of the hour as a two digit number. The minute will be output if the preceding token was an hour; otherwise, the month will be output.
mmm	The month of the year as a three letter abbreviation (Jan-Dec).
mmmm	The month of the year without abbreviation(January-December).
q	The quarter of the year as a number (1-4).
y	The day of the year as a number (1-366).
yy	The year as a two-digit number (00-99).
yyyy	The year as a four-digit number (100-9999).
h	The hour as a one or two digit number (0-23).
hh	The hour as a two digit number (00-23).
n	The minute as a one or two digit number (0-59).
nn	The minute as a two digit number (00-59).
s	The second as a one or two digit number (0-59).
ss	The second as a two digit number (00-59).

By default, times will be displayed using a military (24-hour) clock. Several tokens are provided in date time *format* specifications to change this default. They all cause a 12 hour clock to be used. These are:

Token	Output
AM/PM	An uppercase AM with any hour before noon; an uppercase PM with any hour between noon and 11:59 PM.
am/pm	A lowercase am with any hour before noon; a lowercase pm with any hour between noon and 11:59 PM.
A/P	An uppercase A with any hour before noon; an uppercase P with any hour between noon and 11:59 PM.
a/p	A lowercase a with any hour before noon; a lowercase p with any hour between noon and 11:59 PM.
AMPM	The contents of the 1159 string (s1159) in the WIN.INI file with any hour before noon; the contents of the 2359 string (s2359) with any hour between noon and 11:59 PM. Note, ampm is equivalent to AMPM.

Any set of characters can be inserted into the output by enclosing them in double quotes. Any single character can be inserted by preceding it with a backslash (\ ). See number formatting above for more details.

Formatting Strings

By default, string formatting transfers characters from left to right. The exclamation point (!), when added to the *format* specification, causes characters to be transferred from right to left.

By default, characters being transferred will not be modified. The less than (<) and the greater than (>) characters can be used to force case conversion on the transferred characters. Less than forces output characters to be in lowercase. Greater than forces output characters to be in uppercase.

Character transfer is controlled by the at sign (@) and ampersand (&) characters in the *format* specification. These operate as follows:

Character	Interpretation
@	Output a character or a space. If there is a character in the string being formatted in the position where the @ appears in the format string, display it; otherwise, display a space in that position.
&	Output a character or nothing. If there is a character in the string being formatted in the position where the & appears, display it; otherwise, display nothing.

A *format* specification for strings can have one or two sections separated by a semicolon. If you use one section, the format applies to all string data. If you use two sections, the first section applies to string data, the second to Null values and zero-length strings.

Example

This example calculates the square root of 2 as a double-precision floating point value and displays it in scientific notation.

```
Sub main
    Dim value
    Dim msgtext
    value=CDbl(Sqr(2))
    msgtext="The square root of 2 is " & Format(Value,"Scientific")
    MsgBox msgtext
End Sub
```

See Also

Asc CCur CDbl Chr CInt CLng CSng CStr CVar CVDate Str

FreeFile

Function

Description

Returns the lowest unused file number.

Syntax

FreeFile

Comments

The FreeFile function is used when you need to supply a file number and want to make sure that you are not choosing a file number that is already in use. The value returned can be used in a subsequent Open statement.

Example

This example opens a file and assigns to it the next file number available.

```
Sub main
   Dim filenumber
   Dim filename as String
   filenumber=FreeFile
   filename=InputBox("Enter a file to open: ")
   On Error Resume Next
   Open filename For Input As filenumber
   If Err<>0 then
      MsgBox "Error loading file.  Re-run program."
      Exit Sub
   End If
```

```
    MsgBox "File " & filename & " opened as number: " & filenumber
      Close #filenumber
      MsgBox "File now closed."
End Sub
```

See Also `Open`

Function...End Function

Statement

Description

Defines a function procedure.

Syntax

```
[Static] [Private] Function name [([Optional] arg [As type],... )] [As functype]
   name = expression
End Function
```

Syntax Element	Description
name	A function name.
arg	An argument to pass to the function when it is called. Multiple arguments are separated by commas.
type	The data type of an argument in *arg*.
functype	The data type of the return value.
name=expression	The expression that sets the return value for the function.

Comments

The purpose of a function is to produce and return a single value of a specified type. Recursion is supported.

The data type of *name* determines the type of the return value. Use a type declaration character as part of the *name*, or use the `As` *functype* clause to specify the data type. If you don't specify a data type, the default data type `Variant` is used. When calling the function, you need not specify the type declaration character.

arg contains an argument being passed to the function. An argument is represented by a variable name. Multiple arguments are separated by commas. Note the following information about the arguments being passed:

- The data type of an argument can be specified through a type declaration character or through the `As` clause.
- Arguments of a `User-Defined` data type are declared through an `As` clause and a *type* that has previously been defined through the `Type` statement.

- If an argument is an array, use empty parentheses after the argument name. The array dimensions are not specified within the `Function` statement. All references to the array within the body of the function must have a consistent number of dimensions.
- If you declare an argument as `Optional`, a procedure can omit its value when calling the function. Only arguments with `Variant` data types can be declared as optional, and all optional arguments must appear after any required arguments in the `Function` statement. Use the function `IsMissing` to check whether an optional argument was actually sent to the function or was omitted.
- Arguments can be listed in a particular order, or they can be identified by name. See the `Call` statement for information on named arguments.

You specify the return value for the function name using the *name=expression* assignment, where *name* is the name of the function and *expression* evaluates to a return value. If omitted, the value returned is 0 for numeric functions, an empty string (`""`) for string functions, and `VarType` 0 (Empty) for functions that return a `Variant`.

The function returns to the caller when the `End Function` statement is reached or when an `Exit Function` statement is executed.

The `Static` keyword specifies that all the variables declared within the function will retain their values as long as the program is running, regardless of the way the variables are declared.

The `Private` keyword specifies that the function will not be accessible to functions and sub procedures from other modules. Only procedures defined in the same module will have access to a `Private` function.

SQABasic procedures use the call-by-reference convention by default. This means that if the called procedure changes the value of an argument passed in *arg*, the new value will apply in the calling procedure as well. This feature should be used with great care.

Use `Sub` to define a procedure with no return value.

Example

This example declares a function that is later called by the main sub procedure. The function does nothing but set its return value to 1.

```
Declare Function SBL_exfunction()
Sub main
   Dim y as Integer
   Call SBL_exfunction
   y=SBL_exfunction
   MsgBox "The value returned by the function is: " & y
End Sub
```

```
Function SBL_exfunction()
   SBL_exfunction=1
End Function
```

See Also

```
Call          Option Explicit
Dim           Static
Global        Sub...End Sub
IsMissing
```

FV
Function

Description

Returns the future value for a constant periodic stream of cash flows as in an annuity or a loan.

Syntax

FV (*rate*, *nper*, *pmt*, *pv*, *due*)

Syntax Element	Description
rate	Interest rate per period.
nper	Total number of payment periods.
pmt	Constant periodic payment per period.
pv	Present value or the initial lump sum amount paid (as in the case of an annuity) or received (as in the case of a loan).
due	An integer value for when the payments are due (`0` = end of each period, `1` = beginning of the period).

Comments

The given interest rate is assumed constant over the life of the annuity.

If payments are on a monthly schedule and the annual percentage rate on the annuity or loan is 9%, the *rate* is 0.0075 (.0075 = .09/12).

Example

This example finds the future value of an annuity, based on terms specified by the user.

```
Sub main
   Dim aprate, periods
   Dim payment, annuitypv
   Dim due, futurevalue
   Dim msgtext
   annuitypv=InputBox("Enter present value of the annuity: ")
   aprate=InputBox("Enter the annual percentage rate: ")
   If aprate > 1 then
      Aprate = aprate/100
   End If
```

```
periods=InputBox("Enter the total number of pay periods: ")
   payment=InputBox("Enter the initial amount paid to you: ")
Rem Assume payments are made at end of month due=0
   futurevalue=FV(aprate/12,periods,-payment,- annuitypv,due)
   msgtext="The future value is: " & Format(futurevalue,"Currency")
   MsgBox msgtext
End Sub
```

See Also

IPmt PPmt
IRR PV
NPV Rate
Pmt

GenericObject

User Action Command

Description

Performs an action on a generic object.

GenericObject *action%*, *recMethod$*, *parameters$*

Syntax Element	Description
action%	One of these actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values. ▸ *ScrollAction*. One of these scroll actions: ScrollPageRight ScrollPageDown ScrollRight ScrollLineDown ScrollPageLeft ScrollPageUp ScrollLeft ScrollLineUp HScrollTo VScrollTo HScrollTo and VScrollTo take the required parameter Position=*%*. If Robot cannot interpret the action being applied to a scroll bar, which happens with certain custom standalone scroll bars, it records the action as a click or drag.

► ► ►

► ► ►

Syntax Element	Description
recMethod$	Valid values: ► `Class=$`. The object's class name. `Class` and `ClassIndex` are used together as a single recognition method. ► `ClassIndex=%`. The index or number count of the object among all objects of the same class within a given window. `Class` and `ClassIndex` are used together as a single recognition method. ► `ID=%`. The object's internal Windows ID. ► `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=$`. A label that identifies the object in the user interface. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` statement), or `Enabled` if the state has not been otherwise declared. ► `Text=$`. The text displayed on the object. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object.

► ► ►

► ► ►

Syntax Element	Description
	► `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object. ► `Position=%`. If *`action%`* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position in the scroll box. Every scroll bar has an internal range, and this value is specific to that range.

Example This example double-clicks the first generic object in the window (`ObjectIndex=1`) at *x*,*y* coordinates of 276,329.

```
GenericObject DblClick, "ObjectIndex=1", "Coords=276,329"
```

See Also `GenericObjectVP`

GenericObjectVP

Verification Point Command ▸▸▸SQA▸

Description Establishes a verification point for a generic object.

Syntax *`Result`* = **`GenericObjectVP`** (*`action%`*,*`recMethod$`*,*`parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ► `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ► `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ► `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.

► ► ►

► ► ►

Syntax Element	Description
	► `CompareVBXData`. Captures the data from an OCX/ActiveX or VBX control and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. `VerifyIsBlank`. Checks that the object has no text. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `Class=$`. The object's class name. `Class` and `ClassIndex` are used together as a single recognition method. ► `ClassIndex=%`. The index or number count of the object among all objects of the same class within a given window. `Class` and `ClassIndex` are used together as a single recognition method. ► `ID=%`. The object's internal Windows ID. ► `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=$`. A label that identifies the object in the user interface. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`).

► ► ►

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the Type=$ parameter, CaseSensitive and CaseInsensitive require a full match between the current baseline text and the text captured during playback. With FindSubStr and FindSubStrI, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the text of the first generic object in the window (ObjectIndex=1) and performs a case-sensitive comparison with the recorded baseline in verification point NEWVP.

```
Result = GenericObjectVP (CompareText, "ObjectIndex=1",
  "VP=NEWVP;Type=CaseSensitive")
```

See Also

ComboBoxVP, ComboListBoxVP, EditBoxVP, GenericObject, ListBoxVP

Get

Statement

Description

Reads data from a file opened in Random or Binary mode and puts it in a variable.

Syntax

Get [#]*filenumber%*, [*recnumber&*], *varname*

Syntax Element	Description
filenumber%	An integer expression identifying the open file to use.
recnumber&	A Long expression containing the number of the record (for Random mode) or the offset of the byte (for Binary mode) at which to start reading.
varname	The name of the variable into which Get reads file data. *Varname* can be any variable except Object or Array variables (single array elements can be used).

Comments

For more information about how files are numbered when they're opened, see the Open statement.

recnumber& is in the range 1 to 2,147,483,647. If omitted, the next record or byte is read.

Note: The commas before and after the *recnumber&* are required, even if you do not supply a *recnumber&*.

For Random mode, the following rules apply:

- Blocks of data are read from the file in chunks whose size is equal to the size specified in the Len clause of the Open statement. If the size of *varname* is smaller than the record length, the additional data is discarded. If the size of *varname* is larger than the record length, an error occurs.
- For variable length String variables, Get reads two bytes of data that indicate the length of the string, then reads the data into *varname*.
- For Variant variables, Get reads two bytes of data that indicate the type of the Variant, then it reads the body of the Variant into *varname*. Note that Variants containing strings contain two bytes of data type information followed by two bytes of length followed by the body of the string.
- User defined types are read as if each member were read separately, except no padding occurs between elements.

Files opened in Binary mode behave similarly to those opened in Random mode, except:

- Get reads variables from the disk without record padding.
- Variable length Strings that are not part of user defined types are not preceded by the two-byte string length. Instead, the number of bytes read is equal to the length of *varname*.

Example

This example opens a file for Random access, gets its contents, and closes the file again. The second sub procedure, CREATEFILE, creates the C:\TEMP001 file used by the main sub procedure.

```
Declare Sub createfile()
Sub main
   Dim acctno as String*3
   Dim newline as String
   Dim recno as Long
   Dim msgtext as String
   Call createfile
   recno=1
   newline=Chr(10)
   Open "C:\TEMP001" For Random As #1 Len=3
   msgtext="The account numbers are:" & newline
   Do Until recno=11
         Get #1,recno,acctno
         msgtext=msgtext & acctno
         recno=recno+1
   Loop
   MsgBox msgtext
   Close #1
   Kill "C:\TEMP001"
End Sub

Sub createfile()
   Rem Put the numbers 1-10 into a file
   Dim x as Integer
```

```
   Open "C:\TEMP001" for Output as #1
   For x=1 to 10
      Write #1, x
   Next x
   Close #1
End Sub
```

See Also `Open`
`Put`
`Type`

GetAttr
Function

Description

Returns the attributes of a file, directory, or volume label.

Syntax

`GetAttr`(*`pathname$`*)

Syntax Element	Description
`pathname$`	A `String` expression for the name of the file, directory, or label to query.

Comments

`Pathname$` cannot contain wildcards (`*` and `?`).

The file attributes returned by `GetAttr` are as follows:

Value	Meaning
`0`	Normal file
`1`	Read-only file
`2`	Hidden file
`4`	System file
`8`	Volume label
`16`	Directory
`32`	Archive - file has changed since last backup

Example

This example tests the attributes for a file and if it is hidden, changes it to a non-hidden file.

```
Sub main
   Dim filename as String
   Dim attribs, saveattribs as Integer
   Dim answer as Integer
   Dim archno as Integer
   Dim msgtext as String
   archno=32
```

```
On Error Resume Next
msgtext="Enter name of a file:"
filename=InputBox(msgtext)
attribs=GetAttr(filename)
If Err<>0 then
   MsgBox "Error in filename. Re-run Program."
   Exit Sub
End If
saveattribs=attribs
If attribs>= archno then
   attribs=attribs-archno
End If
Select Case attribs
   Case 2,3,6,7
      msgtext="  File: " &filename & " is hidden." & Chr(10)
      msgtext=msgtext & Chr(10) & "   Change it?"
      answer=MsgBox(msgtext,308)
      If answer=6 then
         SetAttr filename, saveattribs-2
         MsgBox "File is no longer hidden."
         Exit Sub
      End If
      MsgBox "Hidden file not changed."
   Case Else
      MsgBox "File was not hidden."
End Select
End Sub
```

See Also `FileAttr`
`SetAttr`

GetField

Function

▸▸▸SQA▸

Description

Returns a substring from a source string.

Syntax

`GetField``[$](`*`string$, field_number%, separator_chars$`*`)`

Syntax Element	Description
`$`	Optional. If specified, the return type is `String`. If omitted, the function typically returns a `Variant` of `VarType` 8 (`String`).
`string$`	A list of fields, divided by separator characters.
`field_number%`	The number of the field to return, starting with `1`.
`separator_chars$`	The characters separating each field.

Comments

If *`field_number`* is greater than the number of fields in the string, an empty string (`""`) is returned.

Multiple separator characters can be specified, but they can't be used together. For example, the code in the first bullet below is correct, but the code in the second bullet retrieves an incorrect field:

- `retvalue = GetField("9-8;7;6-5",3,"-;")`
- `retvalue = GetField("9-;8-;7-;6-;5",3,"-;")`

Example

This example finds the third value in a string, delimited by plus signs (+).

```
Sub main
  Dim teststring,retvalue
  Dim msgtext
  teststring="9+8+7+6+5"
  retvalue=GetField(teststring,3,"+")
  MsgBox "The third field in: " & teststring & " is: " & retvalue
End Sub
```

See Also

`Left` `LTrim` `Mid function` `Mid statement` `Right` `RTrim` `SetField` `StrComp` `Trim`

GetLastVPResult

Utility Command

▸▸▸SQA▸

Description

Returns the result of the last verification point to have been evaluated in the current playback session.

Syntax

`Result` = **`GetLastVPResult()`**

Comments

Each time a verification point is evaluated, a PASS or FAIL result is saved. This command returns, as an integer, the result of the last verification point to have been evaluated. The result is either PASS (integer value of `1`) or FAIL (integer value of 0).

This command is useful for determining the result of a verification point that is executed in a nested script.

Example

This example shows conditional execution of a script based on the result of the last verification point evaluated.

```
LastResult% = GetLastVPResult()
If LastResult% = PASS Then
   ...     '(If-Then routine)
End If
```

See Also

None.

GetObject

Function

Description

Returns an OLE2 object associated with the file name or the application name.

Syntax

Syntax A **GetObject**(*pathname*)

Syntax B **GetObject**(*pathname, class*)

Syntax C **GetObject**(*, class*)

Syntax Element	Description
pathname	The path and file name for the object to retrieve.
class	A string containing the class of the object.

Comments

Use `GetObject` with the `Set` statement to assign a variable to the object for use in an SQABasic procedure. The variable used must first be dimensioned as an `Object`.

Syntax A of `GetObject` accesses an OLE2 object stored in a file. For example, the following two lines dimension the variable, FILEOBJECT as an Object and assign the object file PAYABLES to it. PAYABLES is located in the subdirectory SPREDSHT:

```
Dim FileObject As Object
Set FileObject = GetObject("\spredsht\payables")
```

If the application supports accessing component OLE2 objects within the file, you can append an exclamation point and a component object name to the file name, as follows:

```
Dim ComponentObject As Object
Set ComponentObject = GetObject("\spredsht\payables!R1C1:R13C9")
```

Syntax B of `GetObject` accesses an OLE2 object of a particular class that is stored in a file. *`Class`* uses the syntax: *`appname.objtype`*, where *`appname`* is the name of the application that provides the object, and *`objtype`* is the type or class of the object. For example:

```
Dim ClassObject As Object
Set ClassObject =
GetObject("\spredsht\payables","turbosht.spreadsheet")
```

The third form of `GetObject` accesses the active OLE2 object of a particular class. For example:

```
Dim ActiveSheet As Object
SetActiveSheet = GetObject(, "turbosht.spreadsheet")
```

Example

This example displays a list of open files in the software application, VISIO. It uses the `GetObject` function to access VISIO. To see how this example works, you need to start VISIO and open one or more documents.

```
Sub main
   Dim visio as Object
   Dim doc as Object
   Dim msgtext as String
   Dim i as Integer, doccount as Integer

'Initialize Visio
   Set visio = GetObject(,"visio.application") ' find Visio
   If (visio Is Nothing) then
      MsgBox "Couldn't find Visio!"
      Exit Sub
   End If
'Get # of open Visio files
   doccount = visio.documents.count            'OLE2 call to Visio
   If doccount=0 then
      msgtext="No open Visio documents."
   Else
      msgtext="The open files are: " & Chr$(13)
      For i = 1 to doccount
         ' access Visio's document method
         Set doc=visio.documents(i)
         msgtext=msgtext & Chr$(13) & doc.name
      Next i
   End If
   MsgBox msgtext
End Sub
```

See Also

`Class List` `Nothing`
`CreateObject` `Object Class`
`Is` `Typeof`
`New`

Global

Statement

Description

Declare Global variables for use in an SQABasic program.

Syntax

`Global` *`variableName`* [`As` *`type`*] [`,`*`variableName`* [`As` *`type`*]]`...`

Syntax Element	Description
`variableName`	A variable name

► ► ►

► ► ►

Syntax Element	Description

type	The data type of the variable. Valid values include:
	`Integer` `String (variable)`
	`Long` `String * length (fixed)`
	`Single` `Object`
	`Double` `Variant`
	`Currency`
	In addition, you can specify any `User-Defined` data type, including a dialog box record.

Comments

Global data is shared across all loaded modules. If an attempt is made to load a module that has a global variable declared that has a different data type than an existing global variable of the same name, the module load will fail.

Basic is a strongly typed language. All variables must be assigned a data type or they will be automatically assigned a type of `Variant`.

If the `As` clause is not used, the type of the global variable can be specified by using a type-declaration character as a suffix to *`variableName`*. The two different type-specification methods can be intermixed in a single `Global` statement (although not on the same variable).

Regardless of which mechanism you use to declare a global variable, you can choose to use or omit the type-declaration character when referring to the variable in the rest of your program. The type suffix is not considered part of the variable name.

Arrays

Arrays support all SQABasic data types. Arrays of arrays and dialog box records are not supported.

Array variables are declared by including a subscript list as part of the *`variableName`*. The syntax to use for *`variableName`* is:

```
Global variable([subscriptRange, ... ]) [As typeName]
```

where *`subscriptRange`* is of the format:

```
[startSubscript To] endSubscript
```

If *`startSubscript`* is not specified, 0 is used as the default. The `Option Base` statement can be used to change the default.

Both the startSubscript and the endSubscript are valid subscripts for the array. The maximum number of subscripts that can be specified in an array definition is 60.

If no subscriptRange is specified for an array, the array is declared as a dynamic array. In this case, the `ReDim` statement must be used to specify the dimensions of the array before the array can be used.

Numbers

Numeric variables can be declared using the `As` clause and one of the following numeric types: `Currency`, `Integer`, `Long`, `Single`, `Double`. Numeric variables can also be declared by including a type character as a suffix to the name.

User-Defined

Variables of a user-defined type are declared by using an `As` clause and a *`type`* that has been defined previously using the `Type` statement. The syntax is:

```
Global variableName As typeName
```

Variables of a user-defined type are made up of a collection of data elements called fields. These fields can be of any numeric, string, Variant, or other user-defined type. See `Type` for details on accessing fields within a user-defined type.

You cannot use the `Global` statement to declare a dialog box record (as you can with the `Dim` statement).

Strings

SQABasic supports two types of strings, fixed-length and dynamic. Fixed-length strings are declared with a specific length (between 1 and 32767) and cannot be changed later. Use the following syntax to declare a fixed-length string:

```
Global variableName As String*length
```

Dynamic strings have no declared length, and can vary in length from 0 to 32767. The initial length for a dynamic string is 0. Use the following syntax to declare a dynamic string:

```
Global variableName$   or
Global variableName As String
```

Variants

Declare variables as Variants when the type of the variable is not known at the start of, or might change during, the procedure. For example, a Variant is useful for holding input from a user when valid input can be either text or numbers. Use the following syntax to declare a Variant:

```
Global variableName   or
Global variableName As Variant
```

Variant variables are initialized to `VarType Empty`.

Example

This example contains two sub procedures that share the variables TOTAL and ACCTNO, and the user-defined type GRECORD.

```
Type acctrecord
   acctno As Integer
End Type

Global acctno as Integer
Global total as Integer
Global grecord as acctrecord
Declare Sub createfile

Sub main
   Dim msgtext
   Dim newline as String
   Dim x as Integer
   newline=Chr$(10)
   Call createfile
   Open "C:\TEMP001" For Input as #1
   msgtext="The new account numbers are: " & newline
   For x=1 to total
      Input #1, grecord.acctno
      msgtext=msgtext  & newline & grecord.acctno
   Next x
   MsgBox msgtext
   Close #1
   Kill "C:\TEMP001"
End Sub

Sub createfile
   Dim x
   x=1
   grecord.acctno=1
   Open "C:\TEMP001" For Output as #1
   Do While grecord.acctno<>0
      grecord.acctno=InputBox("Enter 0 or new account #" & x & ":")
      If grecord.acctno<>0 then
         Print #1, grecord.acctno
         x=x+1
      End If
   Loop
   total=x-1
   Close #1
End Sub
```

See Also

```
Const           ReDim
Dim             Static
Option Base     Type
```

GoTo

Statement

Description

Transfers program control to the specified label.

Syntax

GoTo {*label*}

Syntax Element	Description
label	A name beginning in the first column of a line of code and ending with a colon (:).

Comments

A label has the same format as any other SQABasic name. See Appendix A for more information about SQABasic labels and names.

To be recognized as a label, a name must begin in the first column of a line of code, and must be immediately followed by a colon (:). Keywords (such as command names) are reserved words and are not valid labels.

GoTo cannot be used to transfer control out of the current function or sub procedure.

Example

This example displays the date for one week from the date entered by the user. If the date is invalid, the Goto statement sends program execution back to the beginning.

```
Sub main
   Dim str1 as String
   Dim answer as Integer
   Dim nextweek
   Dim msgtext
i: str1=InputBox$("Enter a date:")
   answer=IsDate(str1)
   If answer=-1 then
      str1=CVDate(str1)
      nextweek=DateValue(str1)+7
      msgtext="One week from the date entered is:"
      msgtext=msgtext & Format(nextweek,"dddddd")
      MsgBox msgtext
   Else
      MsgBox "Invalid date or format. Try again."
      GoTo i
   End If
End Sub
```

See Also

Do...Loop Select Case
For...Next While...Wend
If...Then...Else

GroupBox

Statement

▸▸▸SQA▸

Description

Defines and draws a box that encloses sets of dialog box items, such as option boxes and check boxes.

Syntax

GroupBox *x, y, dx, dy, text$*[,*.id*]

Syntax Element	Description
x, y	The upper left corner coordinates of the group box, relative to the upper left corner of the dialog box.
dx, dy	The width and height of the group box.
text$	A string containing the title for the top border of the group box.
.id	The optional string ID for the group box, used by the dialog statements that act on this control.

Comments

The *x* argument is measured in 1/4 system-font character-width units. The *y* argument is measured in 1/8 system-font character-width units. (See Begin Dialog for more information.)

If *text$* is wider than *dx*, the additional characters are truncated. If *text$* is an empty string (""), the top border of the group box will be a solid line.

Use the GroupBox statement only between a Begin Dialog and an End Dialog statement.

Example

This example creates a dialog box with two group boxes.

```
Sub main
   Begin Dialog UserDialog 242, 146, "Print Dialog Box"
      '$CStrings Save
      GroupBox 115, 14, 85, 57, "Page Range"
      OptionGroup .OptionGroup2
         OptionButton  123, 30, 46, 12, "All Pages", .OptionButton1
         OptionButton  123, 50, 67, 8,"Current Page",.OptionButton2
      GroupBox 14, 12, 85, 76, "Include"
      CheckBox 26, 17, 54, 25, "Pictures", .CheckBox1
      CheckBox 26, 36, 54, 25, "Links", .CheckBox2
      CheckBox 26, 58, 63, 25, "Header/Footer", .CheckBox3
      PushButton 34, 115, 54, 14, "Print"
      PushButton 136, 115, 54, 14, "Cancel"
      '$CStrings Restore
   End Dialog
   Dim mydialog as UserDialog
   Dialog mydialog
End Sub
```

See Also

Begin Dialog	CheckBox	OptionButton
End Dialog	ComboBox	OptionGroup
Button	Dialog	Picture
ButtonGroup	DropComboBox	StaticComboBox
CancelButton	ListBox	Text
Caption	OKButton	TextBox

GroupBox

User Action Command

Description

Performs an action on a group box control.

Syntax

GroupBox *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ Name=*$*. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ▸ State=*$*. An optional qualifier for any other recognition method. There are two possible values for this setting: Enabled and Disabled. The default state is the state of the current context window (as set in the most recent Window SetContext command), or Enabled if the state has not been otherwise declared. ▸ Text=*$*. The text displayed on the object. ▸ VisualText=*$*. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object.

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
	▶ `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

None.

Example

This example clicks the group box identified by the text `CountryCodes` at *x*,*y* coordinates of 306,223.

```
GroupBox Click, "Text=CountryCodes", "Coords=306,223"
```

See Also

`ComboBox` `EditBox` `ComboListBox` `ListBox`

GroupBoxVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a group box control.

Syntax

`Result` = **`GroupBoxVP`** (*`action%`*, *`recMethod$`*, *`parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ▶ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▶ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ▶ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.

▶ ▶ ▶

► ► ►

Syntax Element	Description
	► `VerifyIsBlank`. Checks that the object has no text. *`Parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `ID=%`. The object's internal Windows ID. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object.
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the group box identified by the text `Icons` and compares them to the recorded baseline in verification point GRPVP.

```
Result = GroupBoxVP (CompareProperties, "Text=Icons", "VP=GRPVP")
```

See Also

`ComboBoxVP` `EditBoxVP` `ComboListBoxVP` `ListBoxVP`

Header

User Action Command

▸▸▸SQA▸

Description

Performs an action on a header control.

Syntax

`Header` *`action%, recMethod$, parameters$`*

Header

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ Name=*$*. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ▸ State=*$*. An optional qualifier for any other recognition method. There are two possible values for this setting: Enabled and Disabled. The default state is the state of the current context window (as set in the most recent Window SetContext command), or Enabled if the state has not been otherwise declared. ▸ Text=*$*. The text displayed on the object. ▸ VisualText=*$*. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ Coords=*x1,y1*. If *action%* is a mouse click, specifies the *x,y* coordinates of the click, relative to the top left of the object. ▸ Coords=*x1,x2,y1,y2*. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

None.

Example This example clicks the first header control in the window (`ObjectIndex=1`) at *x*,*y* coordinates of 50,25.

```
Header Click, "ObjectIndex=1", "Coords=50,25"
```

See Also `HeaderVP`

HeaderVP

Verification Point Command ▸▸▸SQA▸

Description Establishes a verification point for a header control.

Syntax *Result* = **HeaderVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The text displayed on the object.

▸ ▸ ▸

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action CompareNumeric when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback.

With FindSubStr and FindSubStrI, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the first header control in the window (ObjectIndex=1) and compares them to the recorded baseline in verification point TEST1A.

```
Result = HeaderVP (CompareProperties, "ObjectIndex=1", "VP=TEST1A")
```

See Also

Header

Hex
Function

Description

Returns the hexadecimal representation of a number as a string.

Syntax

Hex[$](*number*)

Syntax Element	Description
$	Optional. If specified the return type is String. If omitted the function will return a Variant of VarType 8 (String).
number	Any numeric expression that evaluates to a number.

Comments

If *number* is an integer, the return string contains up to four hexadecimal digits; otherwise, the value will be converted to a Long Integer, and the string can contain up to 8 hexadecimal digits.

To represent a hexadecimal number directly, precede the hexadecimal value with &H. For example, &H10 equals decimal 16 in hexadecimal notation.

Example

This example returns the hex value for a number entered by the user.

```
Sub main
   Dim usernum as Integer
   Dim hexvalue
   usernum=InputBox("Enter a number to convert to hexadecimal:")
   hexvalue=Hex(usernum)
   MsgBox "The HEX value is: " & hexvalue
End Sub
```

See Also

Oct
Format

HotKeyControl

User Action Command

Description

Performs an action on a hot key control.

Syntax

HotKeyControl *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain `Coords=x,y`. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain `Coords=x1,y1,x2,y2`. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Label=$`. The text of the label object that immediately precedes the hot key control in the internal order (Z order) of windows. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `State=$` . An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled.` The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared.
parameters$	Valid values: ▸ `Coords=x,y`. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object.

► ► ►

▸ ▸ ▸

Syntax Element	Description
	▸ `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments None.

Example This example clicks the first hot key control in the window (`ObjectIndex=1`) at *x*,*y* coordinates of 50,25.

```
HotKeyControl Click, "ObjectIndex=1", "Coords=50,25"
```

See Also `HotKeyControlVP`

HotKeyControlVP

Verification Point Command

▸▸▸SQA▸

Description Establishes a verification point for a hot key control.

Syntax *`Result`* = **`HotKeyControlVP`** (*`action%`*,*`recMethod$`*,*`parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Label=$`. The text of the label object that immediately precedes the hot key control in the internal order (Z order) of windows. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window.

▸ ▸ ▸

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example This example captures the properties of the first hot key control in the window (`ObjectIndex=1`) and compares them to the recorded baseline in verification point `TEST1A`.

```
Result = HotKeyControlVP (CompareProperties, "ObjectIndex=1",
"VP=TEST1A")
```

See Also `HotKeyControl`

Hour
Function

Description Returns the hour of day component (0-23) of a date-time value.

Syntax **`Hour`**(*`time`*)

Syntax Element	Description
time	Any numeric or string expression that can evaluate to a date and time.

Comments

`Hour` accepts any type of *`time`* including strings and will attempt to convert the input value to a date value.

The return value is a `Variant` of `VarType` 2 (integer). If the value of *`time`* is Null, a `Variant` of `VarType 1` (null) is returned.

`Time` is a double-precision value. The numbers to the left of the decimal point denote the date and the decimal value denotes the time (from 0 to .99999). Use the `TimeValue` function to obtain the correct value for a specific time.

Example

This example extracts just the time (hour, minute, and second) from a file's last modification date and time.

```
Sub main
   Dim filename as String
   Dim ftime
   Dim hr, min
   Dim sec
   Dim msgtext as String
i: msgtext="Enter a filename:"
   filename=InputBox(msgtext)
   If filename="" then
      Exit Sub
   End If
   On Error Resume Next
   ftime=FileDateTime(filename)
   If Err<>0 then
      MsgBox "Error in file name. Try again."
      Goto i:
   End If
   hr=Hour(ftime)
   min=Minute(ftime)
   sec=Second(ftime)
   MsgBox "The file's time is: " & hr &":" &min &":" &sec
End Sub
```

See Also

`DateSerial` `DateValue` `Day` `Minute` `Month` `Now` `Second` `Time function` `Time statement` `TimeSerial` `TimeValue` `Weekday` `Year`

HTML

User Action Command

▸▸▸SQA▸

Description

Performs a mouse action on an HTML tag.

Syntax

HTML *action%, recMethod$, parameters$*

Syntax Element	Description
action%	The following mouse action: ▸ `Click`. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). *parameters$* must contain `Coords=x,y`.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The text of a Web page. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `Name=$`. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The `Type` qualifier uses the form `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▸ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid value: ▸ `Coords=x,y`. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object.

Comments

None.

Example

This example clicks on the Web page with the ID Obj2. This page is located within the second frame of the page.

```
Browser SetFrame, "Type=HTMFrame;Index=2",""
Browser NewPage,"",""
HTML Click, "HTMLId=Obj2", "Coords=481,8"
```

See Also

HTMLVP

HTMLVP

Verification Point Command

Description

Establishes a verification point for HTML tag.

Syntax

Result = **HTMLVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The text of a Web page. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `Name=$`. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The `Type` qualifier uses the form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▸ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.

▸ ▸ ▸

▸ ▸ ▸

Syntax Element	Description
parameters$	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▸ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▸ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example This example captures data from the tag with the ID cmdGo. `HTMLVP` compares the data to the recorded baseline in verification point `WebTest2`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Window SetContext, "WindowTag=WEBBrowser", ""
Browser NewPage, "", ""
Result = HTMLVP (CompareData, "HTMLId=cmdGo",
  "VP=WebTest2;Wait=2,30")
```

See Also `HTML`

HTMLActiveX

User Action Command

▸▸▸SQA▸

Description Performs a mouse action on ActiveX controls embedded in the page.

Syntax

HTMLActiveX *action%, recMethod$, parameters$*

Syntax Element	Description
action%	The following mouse action: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. See Appendix E for a list of mouse click values.
recMethod$	Valid values: ▸ HTMLId=*$*. The text from the ID attribute of the HTML object. ▸ HTMLText=*$*. The text of a Web page. ▸ HTMLTitle=*$*. The text from the Title attribute of the HTML object. ▸ Index=*%*. The number of the object among all objects identified with the same base recognition method. Typically, Index is used after another recognition method qualifier — for example, Name=*$*;Index=*%*. ▸ Name=*$*. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment. ▸ Type=*$*. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The Type qualifier uses the following form: Type=*$*;*recMethod=$*. Parent/child values are separated by a backslash and semicolons (;\;). ▸ VisualText=*$*. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid value: ▸ Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object.

Comments

None.

Example

This example clicks on the ActiveX element with the ID of cmdGo.

```
Window SetContext, "WindowTag=WEBBrowser", ""
HTMLActiveX Click, "HTMLId=cmdGo", "Coords=25,11"
```

See Also

HTMLActiveXVP

HTMLActiveXVP

Verification Point Command

Description

Establishes a verification point for an ActiveX control embedded in the page.

Syntax

```
Result = HTMLActiveXVP (action%, recMethod$, parameters$)
```

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The text of a Web page. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `Name=$`. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The `Type` qualifier uses the following form: `Type=$;`*`recMethod=$`*. Parent/child values are separated by a backslash and semicolons (`;\;`). ▸ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.

► ► ►

▸ ▸ ▸

Syntax Element	Description
parameters$	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▸ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▸ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example

This example captures properties for the ActiveX with the ID cmdGo. `HTMLActiveXVP` compares the properties to the recorded baseline in verification point `WebTest2`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Window SetContext, "WindowTag=WEBBrowser", ""
Browser NewPage, "", ""
Result = HTMLActiveXVP (CompareProperties, "HTMLId=cmdGo",
  "VP=WebTest2;Wait=2,30")
```

See Also

`HTMLActiveX`

HTMLDocument

User Action Command ▸▸▸SQA▸

Description

Performs a mouse action on the text of a Web page. Primarily used to position the cursor.

Syntax

HTMLDocument *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ `Click`. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). *parameters$* must contain `Coords=x,y`. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain `Coords=x1,y1,x2,y2`. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The text of a Web page. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `Name=$`. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▸ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ `Coords=x,y`. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▸ `Coords=x1,y1,x2,y2`. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments None.

Example This example clicks on the Web page with the title My Web Page. This page is located within the second frame of the page.

```
Browser SetFrame, "Type=HTMFrame;Index=2",""
Browser NewPage,"HTMLTitle=My Web Page",""
HTMLDocument Click, "HTMLTitle=My Web Page", "Coords=481,8"
```

See Also HTMLDocumentVP

HTMLDocumentVP

Verification Point Command

Description Establishes a verification point for Web page data.

Syntax *Result* = **HTMLDocumentVP** (*action%*,*recMethod$*,*parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ CompareData. Captures the data of the object and compares it to a recorded baseline. *parameters$* VP is required; ExpectedResult and Wait are optional. ▸ CompareProperties. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* VP is required; ExpectedResult and Wait are optional.
recMethod$	Valid values: ▸ HTMLId=*$*. The text from the ID attribute of the HTML object. ▸ HTMLText=*$*. The text of a Web page. ▸ HTMLTitle=*$*. The text from the Title attribute of the HTML object. ▸ Index=*%*. The number of the object among all objects identified with the same base recognition method. Typically, Index is used after another recognition method qualifier — for example, Name=*$*;Index=*%*. ▸ Name=*$*. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example

This example captures data from the Web page titled My Web Page. The page is located within the second frame of the page. `HTMLDocumentVP` compares the data to the recorded baseline in verification point `WebTest2`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Browser SetFrame, "Type=HTMFrame;Index=2",""
Browser NewPage, "HTMLTitle=My Web Page",""
Result = HTMLDocumentVP (CompareData, "HTMLTitle=My Web Page",
   "VP=WebTest2;Wait=2,30")
```

See Also

`HTMLDocument`

HTMLHidden

Keyword

▸▸▸SQA▸

`HTMLHidden` is an unused reserved keyword.

HTMLHiddenVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a hidden element.

Syntax

```
Result = HTMLHiddenVP (action%, recMethod$, parameters$)
```

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `HTMLId=`*`$`*. The text from the ID attribute of the HTML object. ▸ `HTMLText=`*`$`*. The text of a Web page. ▸ `HTMLTitle=`*`$`*. The text from the Title attribute of the HTML object. ▸ `Index=`*`%`*. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=`*`$`*`;Index=`*`%`*. ▸ `Name=`*`$`*. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment. ▸ `Type=`*`$`*. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The `Type` qualifier uses the following form: `Type=`*`$`*`;recMethod=`*`$`*. Parent/child values are separated by a backslash and semicolons (`;\;`).

▸ ▸ ▸

Syntax Element	Description
	▸ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▸ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▸ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example This example captures data from the hidden element with the ID Hidden. The element is located within the second frame of the page. `HTMLHiddenVP` compares the data to the recorded baseline in verification point `WebTest2`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Browser SetFrame, "Type=HTMFrame;Index=2",""
Browser NewPage,"",""
Result = HTMLHiddenVP (CompareData, "HTMLId=Hidden",
   "VP=WebTest2;Wait=2,30")
```

See Also None.

HTMLImage

User Action Command

▸▸▸SQA▸

Description Performs a mouse click on an image of a Web page.

Syntax

`HTMLImage` *`action%, recMethod$, parameter$`*

Syntax Element	Description
`action%`	The following mouse action: ▸ `Click`. A mouse click on an image.
`recMethod$`	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The text of a Web page. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `Name=$`. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▸ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
`parameter$`	Valid values: ▸ `AreaId=$`. An ID assigned to an area in an HTML image map. Used with client-side image maps. ▸ `AreaIndex=%`. An ID assigned to an HTML image map. The number of the area among all areas of the same type within an HTML image map. Used with client-side image maps. ▸ `AreaName=$`. A name assigned to an area in an HTML image map. Used with client-side image maps. ▸ `Coords=x,y`. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. Used with server-side image maps.

Comments

This command supports both client-side and server-side image maps.

Example

This example clicks the image with a Value attribute of Button. The image is located within the second frame of the page.

```
Browser SetFrame, "Type=HTMFrame;Index=2",""
Browser NewPage, "HTMLTitle=My Web Page",""
HTMLImage Click, "Type=HTMLImage;HTMLText=Button","Coords=12,13"
```

See Also

HTMLImageVP

HTMLImageVP

Verification Point Command

Description

Establishes a verification point for a Web page image.

Syntax

Result = **HTMLImageVP** (*action%*, *recMethod$*, *parameter$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ CompareData. Captures the data of the object and compares it to a recorded baseline. *parameters$* VP is required; ExpectedResult and Wait are optional. ▸ CompareProperties. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* VP is required; ExpectedResult and Wait are optional.
recMethod$	Valid values: ▸ HTMLId=*$*. The text from the ID attribute of the HTML object. ▸ HTMLText=*$*. The text of a Web page. ▸ HTMLTitle=*$*. The text from the Title attribute of the HTML object. ▸ Index=*%*. The number of the object among all objects identified with the same base recognition method. Typically, Index is used after another recognition method qualifier — for example, Name=*$*;Index=*%*. ▸ Name=*$*. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment. ▸ Type=*$*. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The Type qualifier uses the following form: Type=*$*;*recMethod*=*$*. Parent/child values are separated by a backslash and semicolons (;\;).

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
	▶ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameter$	Valid values: ▶ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example This example captures data from the image with the Name attribute of Red Button. The image is located within the second frame of the page. `HTMLImageVP` compares the data to the recorded baseline in verification point `ImageData2`.

```
Browser SetFrame, "Type=HTMFrame;Index=2",""
Browser NewPage,"HTMLTitle=My Web Page",""
Result = HTMLImageVP (CompareData, " Type=HTMLImage;
   Name=Red Button", "VP=ImageData2")
```

See Also `HTMLImage`

HTMLLink

User Action Command

▸▸▸SQA▸

Description Performs a mouse click on a Web page link.

Syntax **`HTMLLink`** *`action%, recMethod$, parameter$`*

Syntax Element	Description
action%	The following mouse action: ▸ `Click`. A mouse click on a link.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The text of a Web page link. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `Name=$`. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▸ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameter$	Valid value: ▸ `[empty quotes]`. Robot performs the click based upon the recognition method.

Comments

None.

Example

This example clicks on the Web page link with the text Home Page. The link is located within the second frame of the page.

```
Browser SetFrame, "Type=HTMFrame;Index=2",""
Browser NewPage,"HTMLTitle=My Web Page",""
HTMLLink Click, "Type=HTMLLink;HTMLText=Home Page", ""
```

See Also

`HTMLLinkVP`

HTMLLinkVP

Verification Point Command

Description

Establishes a verification point for a Web page link.

Syntax

```
Result = HTMLLinkVP (action%, recMethod$, parameter$)
```

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The text of a Web page link. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `Name=$`. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▸ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.

▸ ▸ ▸

Syntax Element	Description
parameter$	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▸ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▸ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example This example captures the text of the Web page link Home Page and compares the data to the recorded baseline in verification point `WebLink1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Browser SetFrame, "Type=HTMFrame;Index=2",""
Browser NewPage,"HTMLTitle=My Web Page",""
Result = HTMLLinkVP (CompareData, "HTMLText=Home Page",
   "VP=WebLink1";Wait=2,30")
```

See Also `HTMLLink`

HTMLTable

User Action Command

▸▸▸SQA▸

Description Performs a mouse action on the text of a Web page. Primarily used to position the cursor.

Syntax **HTMLDocument** *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ HTMLId=*$*. The text from the ID attribute of the HTML object. ▸ HTMLText=*$*. The text of a Web page. ▸ HTMLTitle=*$*. The caption of the table. ▸ Index=*%*. The number of the object among all objects identified with the same base recognition method. Typically, Index is used after another recognition method qualifier — for example, Name=*$*;Index=*%*. ▸ Name=*$*. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment. ▸ Type=*$*. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The Type qualifier uses the following form: Type=*$*;*recMethod=$*. Parent/child values are separated by a backslash and semicolons (;\;). ▸ VisualText=*$*. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ Col=*%*. The column number of the table. ▸ Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object. ► `Row=%`. The row number of the table.

Comments None.

Example This example clicks on the Web table with the title My Table. This page is located within the second frame of the page.

```
Browser SetFrame, "Type=HTMFrame;Index=2",""
Browser NewPage,"HTMLTitle=My Web Page",""
HTMLTable Click, "Type=HTMLTable;HTMLTitle=My Table", "Row=6,Col=1"
```

See Also `HTMLDocumentVP`

HTMLTableVP

Verification Point Command

▸▸▸SQA▸

Description Establishes a verification point for a Web page table.

Syntax *`Result`* = **`HTMLTableVP`** (*`action%, recMethod$, parameter$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ► `CompareData`. Captures the data of the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ► `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `HTMLId=$`. The text from the ID attribute of the HTML object. ► `HTMLText=$`. The text of a Web page link. ► `HTMLTitle=$`. The caption of the table.

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▶ `Name=$`. The Name attribute that an HTML developer assigns to an object to uniquely identify the object in the development environment. ▶ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a Frameset. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▶ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameter$	Valid values: ▶ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example

This example captures the text of the first Web page table and compares the data to the recorded baseline in verification point `WebTable1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Browser SetFrame, "Type=HTMFrame;Index=2",""
Browser NewPage,"HTMLTitle=My Web Page",""
Result = HTMLTableVP (CompareData, "Type=HTMLTable;HTMLIndex=1",
   "VP=WebTable1";Wait=2,30")
```

See Also `HTMLLink`

If...Then...Else

Statement

Description

Executes alternative blocks of program code based on one or more expressions.

Syntax

Syntax A

```
If condition Then then_statement [Else
   else_statement]
```

Syntax B

```
If condition Then
   statement_block
[ElseIf expression Then
   statement_block]...
[Else
   statement_block]
End If
```

Syntax Element	Description
condition	Any expression that evaluates to TRUE (non-zero) or FALSE (zero).
then_statement	Any valid single expression.
else_statement	Any valid single expression.
expression	Any expression that evaluates to TRUE (non-zero) or FALSE (zero).
statement_block	0 or more valid expressions, separated by colons (:), or on different lines.

Comments

When multiple statements are required in either the `Then` or `Else` clauses, use the block version (Syntax B) of the `If` statement.

Example

This example checks the time and the day of the week, and returns an appropriate message.

```
Sub main
   Dim h, m, m2, w
   h = hour(now)
   If h > 18 then
      m= "Good evening, "
```

```
    Elseif h >12 then
         m= "Good afternoon, "
      Else
         m= "Good morning, "
      End If
         w = weekday(now)
      If w = 1 or w = 7 then m2 = "the office is closed."
      else m2 = "please hold for company operator."
      MsgBox m & m2
   End Sub
```

See Also

```
Do...Loop        On...Goto
For...Next       Select Case
Goto             While...Wend
```

'$Include

Metacommand ▸▸▸SQA▸

Description

Includes statements from the specified header file.

Syntax

'$Include: "*filename*"

Syntax Element	Description
filename	The name and location of the file to include.

Comments

It is recommended (although not required) that you specify a file extension of .SBH if *filename* is a header file.

If a header files is in the SQABasic path, it can be accessed by modules within the same project or within any other project. For information, see *Using SQABasic Header Files* in Chapter 4.

All metacommands must begin with an apostrophe (') and are recognized by the compiler only if the command starts at the beginning of a line.

Typically, the '$Include metacommand is located before the beginning of the sub procedure. It is also possible to place the metacommand inside the sub procedure. However, it is not recommended that you do so, since compiler errors occur if the metacommand is located after a reference to a variable or constant that the included file defines, or if the included file contains a function definition used in the sub procedure.

If no directory or drive is specified, the compiler will search for *filename* on the source file search path.

For compatibility with other versions of Basic, you can enclose the *filename* in single quotation marks (').

A comment after an `'$Include` statement results in a compiler error if the included file is enclosed in double quotes. However, a comment can be added successfully if the included file is enclosed in single quotes. For example, the first line below is correct, but the second line results in an error:

```
'$Include 'header1.sbh'       ' Compiles correctly
'$Include "header2.sbh"       ' Results in compiler error
```

Use of the colon (:) after the metacommand name is optional.

Example

This example includes a file containing the list of global variables, called GLOBALS.SBH. For this example to work correctly, you must create the GLOBALS.SBH file with at least the following statement: `Dim msgtext as String`. The Option Explicit statement is included in this example to prevent SQABasic from automatically dimensioning the variable as a `Variant`.

```
Option Explicit
'$Include: "c:\globals.sbh"
Sub main
   Dim msgtext as String
   gtext=InputBox("Enter a string for the global variable:")
   msgtext="The variable for the string '"
   msgtext=msgtext & gtext & " ' was DIM'ed in GLOBALS.SBH."
   MsgBox msgtext
End Sub
```

See Also

`'$CStrings`
`'$NoCStrings`

InitPlay

Flow Control Command ▸▸▸SQA▸

This command is obsolete in the current version of SQABasic and should no longer be used. To maintain the upward compatibility of your existing scripts, the command does not cause an error, but it has no effect on script execution.

Input

Function

Description

Returns a string containing the characters read from a file.

Syntax

Input[$](*number%*, [#]*filenumber%*)

Syntax Element	Description
$	Optional. If specified the return type is String. If omitted the function will return a Variant of VarType 8 (String).
number%	The number of characters to be read from the file.
filenumber%	An integer expression identifying the open file to use.

Comments

The file pointer is advanced the number of characters read. Unlike the Input statement, Input returns all characters it reads, including carriage returns, line feeds, and leading spaces.

To return a given number of bytes from a file, use InputB.

Example

This example opens a file and prints its contents to the screen.

```
Sub main
   Dim fname
   Dim fchar()
   Dim x as Integer
   Dim msgtext
   Dim newline
   newline=Chr(10)
   On Error Resume Next
   fname=InputBox("Enter a filename to print:")
   If fname="" then
      Exit Sub
   End If
   Open fname for Input as #1
   If Err<>0 then
      MsgBox "Error loading file.  Re-run program."
      Exit Sub
   End If
   msgtext="The contents of " & fname & " is: " & newline & newline
   Redim fchar(Lof(1))
    For x=1 to Lof(1)
        fchar(x)=Input(1,#1)
        msgtext=msgtext & fchar(x)
   Next x
   MsgBox msgtext
   Close #1
End Sub
```

See Also

Get
Input statement
Line Input
Open
Write

Input
Statement

Description Reads data from a sequential file and assigns the data to variables.

Syntax

Syntax A **Input** [#]*filenumber%, variable*[, *variable*]...

Syntax B **Input** [*prompt$*,] *variable*[, *variable*]...

Syntax Element	Description
filenumber%	An integer expression identifying the open file to read from.
variable	The variable(s) to contain the value(s) read from the file.
prompt$	An optional string that prompts for keyboard input.

Comments The *filenumber%* is the number used in the Open statement to open the file. The list of *variables* is separated by commas.

If *filenumber%* is not specified, the user is prompted for keyboard input, either with *prompt$* or with a question mark (?), if *prompt$* is omitted.

Example This example prompts a user for an account number, opens a file, searches for the account number and displays the matching letter for that number. It uses the Input statement to increase the value of x and at the same time get the letter associated with each value. The second sub procedure, CREATEFILE, creates the file C:\TEMP001 used by the main sub procedure.

```
Declare Sub createfile()
Global x as Integer
Global y(100) as String

Sub main
   Dim acctno as Integer
   Dim msgtext
   Call createfile
i: acctno=InputBox("Enter an account number from 1-10:")
   If acctno<1 Or acctno>10 then
      MsgBox "Invalid account number. Try again."
      Goto i:
   End if
   x=1
   Open "C:\TEMP001" for Input as #1
```

```
Do Until x=acctno
      Input #1, x,y(x)
   Loop
   msgtext="The letter for account number " & x & " is: " & y(x)
   Close #1
   MsgBox msgtext
   Kill "C:\TEMP001"
End Sub

Sub createfile()
' Put the numbers 1-10 and letters A-J into a file
   Dim startletter
   Open "C:\TEMP001" for Output as #1
   startletter=65
   For x=1 to 10
      y(x)=Chr(startletter)
      startletter=startletter+1
   Next x
   For x=1 to 10
      Write #1, x,y(x)
   Next x
   Close #1
End Sub
```

See Also `Get` `Open` `Input function` `Write` `Line Input`

InputBox

Function

Description

Displays a dialog box containing a prompt and returns a string entered by the user.

Syntax

InputBox[$](*prompt$*, [*title$*], [*default$*], [*xpos%*, *ypos%*])

Syntax Element	Description
$	Optional. If specified the return type is `String`. If omitted the function will return a `Variant` of `VarType` 8 (`String`).
prompt$	A string expression containing the text to show in the dialog box.
title$	The caption to display in the dialog box's title bar.
default$	The string expression to display in the edit box as the default response.
xpos%, ypos%	Numeric expressions, specified in dialog box units, that determine the position of the dialog box.

Comments

The length of *prompt$* is restricted to 255 characters. This figure is approximate and depends on the width of the characters used. Note that a carriage return and a line-feed character must be included in *prompt$* if a multiple-line prompt is used.

If either *prompt$* or *default$* is omitted, nothing is displayed.

Xpos% determines the horizontal distance between the left edge of the screen and the left border of the dialog box. *Ypos%* determines the horizontal distance from the top of the screen to the dialog box's upper edge. If these arguments are not entered, the dialog box is centered roughly one third of the way down the screen. A horizontal dialog box unit is 1/4 of the average character width in the system font; a vertical dialog box unit is 1/8 of the height of a character in the system font.

Note: If you want to specify the dialog box's position, you must enter both of these arguments. If you enter one without the other, the default positioning is set.

If the user presses Enter, or selects the OK button, `InputBox` returns the text contained in the input box. If the user selects Cancel, the `InputBox` function returns a null string (`""`).

Example

This example uses `InputBox` to prompt for a file name and then prints the file name using `MsgBox`.

```
Sub main
   Dim filename
   Dim msgtext
   msgtext="Enter a filename:"
   filename=InputBox$(msgtext)
   MsgBox "The file name you entered is: " & filename
End Sub
```

See Also

`Dialog Boxes` `MsgBox function`
`Input function` `MsgBox statement`
`Input statement` `PasswordBox`

InputChars

User Action Command ▸▸▸SQA▸

Description

Sends one or more characters to the active window as if they had been entered at the keyboard.

Syntax

`InputChars` *`Keytext$`*

Syntax Element	Description
`Keytext$`	String of characters to be sent to the active window.

Comments

Do not confuse `InputChars` with `InputKeys`:

- `InputChars` treats all characters as literal characters to be entered into the active window.
- `InputKeys` treats some characters as being representative of a keypress.

  For example, if *`Keytext`* is `{NumDelete}`, `InputKeys` causes the Delete key on the numeric keypad to be pressed, but `InputChars` prints the literal string `{NumDelete}`.

Strings that represent special characters (for example, Tab or Enter in Basic) can be included in an `InputChars` statement.

Example

This example enters the characters `This is Robot.{Enter}` into the current window. Compare this example with Example 1 for `InputKeys`.

```
InputChars "This is Robot.{Enter}"
```

See Also

`InputKeys`

InputKeys

User Action Command

Description

Sends one or more keystrokes to the active window as if they had been entered at the keyboard.

Syntax

`InputKeys` *`Keytext$`*

Syntax Element	Description
`Keytext$`	String of characters representing the keys to be sent to the active window.

Comments

Some characters in *`Keytext$`* are passed to the active window as literal characters, meaning that they are passed just as they appear in the *`Keytext$`* string — for example, the letters a through z and the numbers 0 through 9.

The following characters in Keytext$ cause a keyboard activity to be performed:

- ~ Causes the Enter key to be pressed.
- + Causes the Shift key to be pressed and held down while the next character in *`Keytext$`* is pressed.
- ^ Causes the Control key to be pressed and held down while the next character in *`Keytext$`* is pressed.

% Causes the Alt key to be pressed and held down while the next character in *Keytext$* is pressed.

If a group of characters is enclosed in parentheses, all the characters are affected by the special character that precedes the parentheses. for example, the following command inserts ABCD into the active window:

```
InputKeys "+(abcd)"
```

Keys associated with non-printable characters (such as the Escape key and arrow keys) and keys on the numeric and extended keypads are represented by descriptive names in curly braces ({}). Names are not case-sensitive. The valid key names you can specify in curly braces are included in the table at the end of the Comments section.

To insert one of the above special characters — that is, ~ + ^ %({ — as itself rather than as the special activity that it represents, enclose the character in curly braces. For example, the following command inserts a plus sign (+) into the active window:

```
InputKeys "{+}"
```

Do not confuse `InputChars` with `InputKeys`:

- `InputChars` treats all characters as literal characters to be entered into the active window.
- `InputKeys` treats some characters as being representative of a keyboard activity, as indicated in the above comments.

Use the following table to determine the *Keytext* value for the keyboard key you want:

Keytext value	Keyboard equivalent
Actual printable character. Examples: A1.&	Letters A–Z, a–z, numbers 0–9, punctuation, other printable characters on the main keypad.
{Alt}	Default Alt key (either left or right). Default is left if there are no preceding {LKeys} or {RKeys}.
{Apps}	Applications key (Microsoft Natural Keyboard).
{LeftAlt}	Left Alt.
{RightAlt}	Right Alt.
{Backspace} *or* {BS} *or* {BkSp}	Backspace.
{Break}	Break or Pause.
{CapsLock}	Caps Lock.

► ► ►

► ► ►

Keytext value	Keyboard equivalent
{Clear}	Clear (key 5 on the numeric keypad when Num Lock is unlocked).
{Ctrl}	Default Control key (either left or right). Default is left if there are no preceding {LKeys} or {RKeys}.
{LeftCtrl}	Left Control.
{RightCtrl}	Right Control.
{Delete} *or* {Del} *or* {NumDelete} *or* {ExtDelete}	Delete.
{Down} *or* {NumDown} *or* {ExtDown}	Down Arrow.
{End} *or* {NumEnd} *or* {ExtEnd}	End.
{Enter} *or* ~ *or* {NumEnter} *or* {Num~}	Enter.
{Escape} *or* {Esc}	Escape.
{Help}	Help (a non-standard key on some PC keyboards).
{Home} *or* {NumHome} *or* {ExtHome}	Home.
{Insert} *or* {NumInsert} *or* {ExtInsert}	Insert.
{Left} *or* {NumLeft} *or* {ExtLeft}	Left Arrow.
{LKeys}	Sets the default for {Alt}, {Ctrl}, {Shift}, and {Win} entries as left Alt, Control, Shift, and Windows keys.
{Numlock}	Num Lock.
{PgDn} or {NumPgDn} *or* {ExtPgDn}	Page Down.

► ► ►

► ► ►

Keytext value	Keyboard equivalent
{PgUp} *or* {NumPgUp} *or* {ExtPgUp}	Page Up.
{PrtSc}	Print Screen.
{RKeys}	Sets the default for {Alt}, {Ctrl}, {Shift}, and {Win} entries as right Alt, Control, Shift, and Windows keys.
{Right} *or* {NumRight} *or* {ExtRight}	Right Arrow.
{ScrollLock}	Scroll Lock.
{Shift}	Default Shift key (either left or right). Default is left if there are no preceding {LKeys} or {RKeys}.
{LeftShift}	Left Shift.
{RightShift}	Right Shift.
{Tab}	Tab.
{Up} *or* {NumUp} *or* {ExtUp}	Up Arrow.
{Win}	Default Windows key (either left or right). Default is left if there are no preceding {LKeys} or {RKeys}. (Used on the Microsoft Natural Keyboard.)
{LeftWin}	Left Windows (Microsoft Natural Keyboard).
{RightWin}	Right Windows (Microsoft Natural Keyboard).
{Num*n*}, where *n* is a number from 0 through 9 Example: {Num5}	0-9 (numeric keypad).
{Num.} *or* .	. (period, decimal).
{Num-} *or* -	- (dash, subtraction sign).
{Num*} *or* *	* (asterisk, multiplication sign).
{Num/} *or* /	/ (slash, division sign).
{Num+} *or* {+}	+ (addition sign).
{^}	^ (caret character).
{%}	% (percent character).
{~}	~ (tilde character).
{(}	((left parenthesis character).

► ► ►

► ► ►

Keytext value	Keyboard equivalent
) *or* {)}	) (right parenthesis character).
{{}	{ (left brace character).
} *or* {}}	} (right brace character).
[	[(left bracket character).
]	] (right bracket character).
{F#} Example: {F6}	F# (function keys 1-12).
+ Example: +{F6}	Shift (used while pressing down another key).
^ Example: ^{F6}	Control (used while pressing down another key).
% Example: %{F6}	Alt (used while pressing down another key).
{*key n*}, where *key* is any key, and *n* is the number of times that *key* is pressed. Example: {a 10}	Repeats the *key* press *n* number of times.
{*key* KeyDn}, where *key* is any key. Example: {a KeyDn}	Presses and holds down *key*, and generates continuous WM_KEYDOWN events, until{*key* KeyUp} appears in InputKeys, or until the end of the InputKeys statement.
{*key* KeyUp}, where *key* is any key. Example: {a KeyUp}	Generates a WM_KEYUP event for *key*.

Table notes:

- *Keytext* values for special words that represent keys are not case-sensitive. For example, {alt}, {Alt}, and {ALT} are all valid *Keytext* values.
- *Keytext* values with the prefix Num represent keys in the numeric keypad. *Keytext* values with the prefix Ext represent keys in the extended keypad (in between the main keypad and the numeric keypad).
- *Keytext* values for keys that appear in both the numeric and extended keypads, but do not have a Num or Ext prefix, are assumed to be in the numeric keypad.
- *Keytext* values for keys that appear in both the main and numeric keypads, but do not have a Num prefix, are assumed to be in the main keypad.

- If {CapsLock} appears in an InputKeys statement an odd number of times, the CapsLock state of the keyboard changes when the execution of InputKeys is complete. However, a {CapsLock} entry has no effect on subsequent keys within an InputKeys statement. Within InputKeys, the CapsLock state is always off.
- {Alt}, {Ctrl}, and {Shift} and the left/right designations of these keys can't be recorded. They can only be scripted manually. However, if you press Alt, Ctrl, and/or Shift in combination with other keys, Robot does record them, but as%, ^, and +, respectively.
- When{NumLock} or {ScrollLock} appears in an InputKeys statement an odd number of times, the corresponding state of the keyboard changes. However, these entries have no effect on the way subsequent keys within an InputKeys statement are recognized.
- {*key* KeyDn} and {*key* KeyUp} do not have to reflect the expected sequence of events for an actual keypress. For example, you can use {*key* KeyUp} with no preceding {*key* KeyDn}, or you can use two consecutive {*key* KeyUp} entries.

Example 1

This example enters This is Robot. into the current window and adds a carriage return after it. Compare this example with the example for InputChars.

```
InputKeys "This is Robot.{Enter}"
```

Example 2

This example opens Microsoft Notepad and enters the same text three times, using slightly different *Keytext$* values each time. In each case, the output is the same:

```
Dear Sir:
This letter is to inform you . . .
```

The example is as follows:

```
Sub Main
    StartApplication "Notepad"

    InputKeys "Dear Sir:{Enter 2}"
    InputKeys "This letter is to inform you . . . {Enter 3}"

    InputKeys "{Shift}+dear {shift}+sir:{Enter 2}"
    InputKeys "This letter is to inform you . . . {Enter 3}"

    InputKeys "Dear Sir:{Enter 2}This letter is to inform
               you . . . {Enter 3}"
End Sub
```

See Also

InputChars
SQAQueryKey

InStr
Function

Description

Returns the position of the first occurrence of one string within another string.

Syntax

Syntax A **InStr**([*start%*,] *string1$*, *string2$*)

Syntax B **InStr**(*start*, *string1$*, *string2$*[, *compare*])

Syntax Element	Description
start%	The position in *string1$* to begin the search. (1 = first character in string.)
string1$	The string to search.
string2$	The string to find.
compare	An integer expression for the method to use to compare the strings. (0 = case-sensitive, 1 = case-insensitive.)

Comments

If not specified, the search starts at the beginning of the string (equivalent to a *start%* of 1). *string1$* and *string2$* can be of any type. They will be converted to strings.

InStr returns a zero under the following conditions:

- *start%* is greater than the length of *string2$*.
- *string1$* is a null string.
- *string2$* is not found.

If either *string1$* or *string2$* is a null Variant , Instr returns a null Variant.

If *string2$* is a null string (""), Instr returns the value of *start%*.

If *compare* is 0, a case-sensitive comparison based on the ANSI character set sequence is performed. If *compare* is 1, a case-insensitive comparison is done based upon the relative order of characters as determined by the country code setting for your system. If *compare* is omitted, the module level default, as specified with Option Compare, is used.

To obtain the byte position of the first occurrence of one string within another string, use InStrB.

Example

This example generates a random string of characters then uses `InStr` to find the position of a single character within that string.

```
Sub main
   Dim x as Integer
   Dim y
   Dim str1 as String
   Dim str2 as String
   Dim letter as String
   Dim randomvalue
   Dim upper, lower
   Dim position as Integer
   Dim msgtext, newline
   upper=Asc("z")
   lower=Asc("a")
   newline=Chr(10)
   For x=1 to 26
      Randomize timer() + x*255
      randomvalue=Int(((upper - (lower+1)) * Rnd) +lower)
      letter=Chr(randomvalue)
      str1=str1 & letter
'Need to waste time here for fast processors
      For y=1 to 1000
      Next y
   Next x
   str2=InputBox("Enter a letter to find")
   position=InStr(str1,str2)
   If position then
      msgtext="The position of " & str2 & " is: " & position
      msgtext=msgtext & newline & "in string: " & str1
   Else
      msgtext="Letter: " & str2 & " was not found in: " & newline
      msgtext=msgtext & str1
   End If
   MsgBox msgtext
End Sub
```

See Also

`GetField` `Left` `Mid function` `Mid statement` `Option Compare` `Right` `Str` `StrComp`

Int

Function

Description

Returns the integer part of a *`number`*.

Syntax

`Int`(*`number`*)

Syntax Element	Description
`number`	Any numeric expression.

Comments

For positive *numbers*, `Int` removes the fractional part of the expression and returns the integer part only. For negative *numbers*, `Int` returns the largest integer less than or equal to the expression. For example, `Int (6.2)` returns 6; `Int(-6.2)` returns -7.

The return type matches the type of the numeric expression. This includes `Variant` expressions that will return a result of the same `VarType` as input except `VarType` 8 (string) will be returned as `VarType` 5 (double) and `VarType` 0 (empty) will be returned as `VarType` 3 (long).

Example

This example uses Int to generate random numbers in the range between the ASCII values for lowercase a and z (97 and 122). The values are converted to letters and displayed as a string.

```
Sub main
   Dim x as Integer
   Dim y
   Dim str1 as String
   Dim letter as String
   Dim randomvalue
   Dim upper, lower
   Dim msgtext, newline
   upper=Asc("z")
   lower=Asc("a")
   newline=Chr(10)
   For x=1 to 26
      Randomize timer() + x*255
      randomvalue=Int(((upper - (lower+1)) * Rnd) +lower)
      letter=Chr(randomvalue)
      str1=str1 & letter
'Need to waste time here for fast processors
      For y=1 to 1500
      Next y
   Next x
   msgtext="The string is:" & newline
   msgtext=msgtext & str1
   MsgBox msgtext
End Sub
```

See Also

`Exp` `Rnd`
`Fix` `Sgn`
`Log` `Sqr`

IPAddress

User Action Command

Description

Performs an action on an IP Address control.

Syntax

IPAddress *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ Label=*$*. The text of the label object that immediately precedes the control in the internal order (Z order) of windows. ▸ Name=*$*. A unique name that a developer assigns to an object to identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ▸ Text=*$*. The text displayed on the object. ▸ VisualText=*$*. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▸ Coords=*x1,y1,x2,y2*. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

None.

Example This example clicks the IP Address control labeled “IP Address” at *x*,*y* coordinates of 47,5.

```
IPAddress Click, "Label=IP Address:", "Coords=47,5"
```

See Also `IPAddressVP`

IPAddressVP

Verification Point Command ▸▸▸SQA▸

Description Establishes a verification point for an IP Address control.

Syntax *`Result`* = **`IPAddressVP`** (*`action%`*, *`recMethod$`*, *`parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ▸ `ID=%`. The object’s internal Windows ID. ▸ `Label=$`. The text of the label object that immediately precedes the control in the internal order (Z order) of windows. ▸ `Name=$`. A unique name that a developer assigns to an object to identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The text displayed on the object. ▸ `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.

► ► ►

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example This example captures the properties of the IP Address calendar control labeled "IP Address" and compares them to the recorded baseline in verification point IPADDR1.

```
Result = IPAddressVP (CompareProperties, "Label=IP Address:",
"VP=IPADDR1")
```

See Also `IPAddress`

IPmt
Function

Description Returns the interest portion of a payment for a given period of an annuity.

Syntax **`IPmt`**`(rate, per, nper, pv, fv, due)`

Syntax Element	Description
rate	Interest rate per period.
per	Particular payment period in the range 1 through *nper*.
nper	Total number of payment periods.
pv	Present value of the initial lump sum amount paid (as in the case of an annuity) or received (as in the case of a loan).
fv	Future value of the final lump sum amount required (as in the case of a savings plan) or paid (0 as in the case of a loan).
due	0 if payments are due at the end of each payment period, and 1 if they are due at the beginning of the period.

Comments

The given interest rate is assumed constant over the life of the annuity. If payments are on a monthly schedule, then *rate* will be 0.0075 if the annual percentage rate on the annuity or loan is 9%.

Example

This example finds the interest portion of a loan payment amount for payments made in last month of the first year. The loan is for $25,000 to be paid back over 5 years at 9.5% interest.

```
Sub main
   Dim aprate, periods
   Dim payperiod
   Dim loanpv, due
   Dim loanfv, intpaid
   Dim msgtext
   aprate=.095
   payperiod=12
   periods=120
   loanpv=25000
   loanfv=0
Rem Assume payments are made at end of month
   due=0
   intpaid=IPmt(aprate/12,payperiod,periods,-loanpv,loanfv,due)
   msgtext="For a loan of $25,000 @ 9.5% for 10 years," & Chr(10)
   msgtext=msgtext+ "the interest paid in month 12 is: "
   msgtext=msgtext + Format(intpaid, "Currency")
   MsgBox msgtext
End Sub
```

See Also

FV Pmt
IRR PV
NPV Rate
Pmt

IRR
Function

Description

Returns the internal rate of return for a stream of periodic cash flows.

Syntax

IRR(*valuearray*(), *guess*)

Syntax Element	Description
valuearray()	An array containing cash flow values.
guess	A ballpark estimate of the value returned by IRR.

Comments

valuearray() must have at least one positive value (representing a receipt) and one negative value (representing a payment). All payments and receipts must be represented in the exact sequence. The value returned by IRR will vary with the change in the sequence of cash flows.

In general, a *guess* value of between 0.1 (10 percent) and 0.15 (15 percent) would be a reasonable estimate.

IRR is an iterative function. It improves a given guess over several iterations until the result is within 0.00001 percent. If it does not converge to a result within 20 iterations, it signals failure.

Example

This example calculates an internal rate of return (expressed as an interest rate percentage) for a series of business transactions (income and costs). The first value entered must be a negative amount, or IRR generates an `Illegal Function Call` error.

```
Sub main
   Dim cashflows() as Double
   Dim guess, count as Integer
   Dim i as Integer
   Dim intnl as Single
   Dim msgtext as String
   guess=.15
   count=InputBox("How many cash flow amounts do you have?")
   ReDim cashflows(count+1)
   For i=0 to count-1
      cashflows(i)=InputBox("Enter income for month " & i+1 & ":")
   Next i
   intnl=IRR(cashflows(),guess)
   msgtext="The IRR for your cash flow amounts is: "
   msgtext=msgtext & Format(intnl, "Percent")
   MsgBox msgtext
End Sub
```

See Also

FV
IPmt
NPV
Pmt
PPmt
PV
Rate

Is
Operator

Description

Compares two object expressions and returns `-1` if they refer to the same object, `0` otherwise.

Syntax

`objectExpression` **`Is`** *`objectExpression`*

Syntax Element	Description
`objectExpression`	Any valid object expression.

Comments

`Is` can also be used to test if an object variable has been `Set` to `Nothing`.

Example

This example displays a list of open files in the software application, VISIO. It uses the `Is` operator to determine whether VISIO is available. To see how this example works, you need to start VISIO and open one or more documents.

```
Sub main
   Dim visio as Object
   Dim doc as Object
   Dim msgtext as String
   Dim i as Integer, doccount as Integer

'Initialize Visio
   Set visio = GetObject(,"visio.application") ' find Visio
   If (visio Is Nothing) then
      MsgBox "Couldn't find Visio!"
      Exit Sub
   End If
'Get # of open Visio files
   doccount = visio.documents.count            'OLE2 call to Visio
   If doccount=0 then
      msgtext="No open Visio documents."
   Else
      msgtext="The open files are: " & Chr$(13)
      For i = 1 to doccount
         ' access Visio's doc method
         Set doc = visio.documents(i)
         msgtext=msgtext & Chr$(13) & doc.name
      Next i
   End If
   MsgBox msgtext
End Sub
```

See Also

```
Class List          Nothing
Create Object       Object
Get Object          Typeof
```

IsDate
Function

Description

Returns `-1` (TRUE) if an expression is a legal date, `0` (FALSE) if it is not.

Syntax

`IsDate`(*`expression`*)

Syntax Element	Description
`expression`	Any valid expression.

Comments

`IsDate` returns `-1` (TRUE) if the expression is of `VarType` 7 (date) or a string that can be interpreted as a date.

Example

This example accepts a string from the user and checks to see if it is a valid date.

```
Sub main
   Dim theDate
   theDate = InputBox("Enter a date:")
   If IsDate(theDate) = -1 Then
      MsgBox "The new date is: " & Format(CVDate(theDate), "dddddd")
   Else
      MsgBox "The date is not valid."
   End If
End Sub
```

See Also

```
CVDate        IsNumeric
IsEmpty       VarType
IsNull
```

IsEmpty
Function

Description

Returns `-1` (TRUE) if a Variant has been initialized. `0` (FALSE) otherwise.

Syntax

`IsEmpty`(*`expression`*)

Syntax Element	Description
`expression`	Any expression with a data type of `Variant`.

Comments `IsEmpty` returns `-1` (TRUE) if the Variant is of `VarType` `0` (empty). Any newly-defined Variant defaults to being of Empty type, to signify that it contains no initialized data. An Empty Variant converts to zero when used in a numeric expression, or an empty string (`""`) in a string expression.

Example This example prompts for a series of test scores and uses `IsEmpty` to determine whether the maximum allowable limit has been hit. (`IsEmpty` determines when to exit the `Do...Loop`.)

```
Sub main
   Dim arrayvar(10)
   Dim x as Integer
   Dim msgtext as String
   Dim tscore as Single
   Dim total as Integer
   x=1
   Do
      tscore=InputBox("Enter test score #" & x & ":")
      arrayvar(x)=tscore
      x=x+1
   Loop Until IsEmpty(arrayvar(10))<>-1
   total=x-1
   msgtext="You entered: " & Chr(10)
   For x=1 to total
       msgtext=msgtext & Chr(10) & arrayvar(x)
   Next x
   MsgBox msgtext
End Sub
```

See Also `IsDate` `IsNumeric` `IsNull` `VarType`

IsMissing

Function

Description Returns `-1` (TRUE) if an optional argument was not supplied by the user, `0` (FALSE) otherwise.

Syntax **`IsMissing`**(*`argname`*)

Syntax Element	Description
`argname`	An optional argument for an SQABasic command.

Comments `IsMissing` is used in procedures that have optional arguments to find out whether the argument's value was supplied or not.

Example

This example prints a list of letters. The number printed is determined by the user. If the user wants to print all letters, the sub procedure `myfunc` is called without any argument. The sub procedure uses `IsMissing` to determine whether to print all the letters or just the number specified by the user.

```
Sub myfunc(Optional arg1)
   If IsMissing(arg1)=-1 then
      arg1=26
   End If
   msgtext="The letters are: " & Chr$(10)
   For x= 1 to arg1
      msgtext=msgtext & Chr$(x+64) & Chr$(10)
   Next x
   MsgBox msgtext
End Sub

Sub Main
   Dim arg1
   arg1=InputBox("How many letters to print (0 for all):")
   If arg1=0 then
      myfunc
   Else
      myfunc arg1
   End If
End Sub
```

See Also `Function...End Function`

IsNull

Function

Description

Returns `-1` (TRUE) if a Variant expression contains the `Null` value, `0` (FALSE) otherwise.

Syntax

`IsNull`(*`expression`*)

Syntax Element	Description
`expression`	Any expression with a data type of `Variant`.

Comments

Null Variants have no associated data and serve only to represent invalid or ambiguous results. `Null` is not the same as `Empty`, which indicates that a Variant has not yet been initialized.

Example

This example asks for ten test score values and calculates the average. If any score is negative, the value is set to `Null`. Then `IsNull` is used to reduce the total count of scores (originally 10) to just those with positive values before calculating the average.

```
Sub main
   Dim arrayvar(10)
   Dim count as Integer
   Dim total as Integer
   Dim x as Integer
   Dim msgtext as String
   Dim tscore as Single
   count=10
   total=0
   For x=1 to count
      tscore=InputBox("Enter test score #" & x & ":")
      If tscore<0 then
         arrayvar(x)=Null
      Else
         arrayvar(x)=tscore
         total=total+arrayvar(x)
      End If
   Next x
   Do While x<>0
      x=x-1
      If IsNull(arrayvar(x))=-1 then
         count=count-1
      End If
   Loop
   msgtext="The average (excluding negative values) is: " & Chr(10)
   msgtext=msgtext & Format (total/count, "##.##")
   MsgBox msgtext
End Sub
```

See Also `IsDate` `IsNumeric` `IsEmpty` `VarType`

IsNumeric

Function

Description

Returns `-1` (TRUE) if an expression has a data type of `Numeric`, `0` (FALSE) otherwise.

Syntax

`IsNumeric`(*`expression`*)

Syntax Element	Description
`expression`	Any valid expression.

Comments

`IsNumeric` returns `-1` (TRUE) if the expression is of `VarType` 2 through `VarType` 6 (numeric) or a string that can be interpreted as a number.

Example

This example uses `IsNumeric` to determine whether a user selected an option (1-3) or typed Q to quit.

```
Sub main
    Dim answer
    answer=InputBox("Enter a choice (1-3) or type Q to quit")
    If IsNumeric(answer)=-1 then
        Select Case answer
            Case 1
                MsgBox "You chose #1."
            Case 2
                MsgBox "You chose #2."
            Case 3
                MsgBox "You chose #3."
        End Select
    Else
            MsgBox "You typed Q."
    End If
End Sub
```

See Also `IsDate` `IsNull` `IsEmpty` `VarType`

JavaCanvas

User Action Command

Description Performs an action on a Java canvas component.

Syntax **JavaCanvas** *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain `Coords=x,y`, `AreaIndex=%`, or `AreaName=$`. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain `Coords=x1,y1,x2,y2`. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`.

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ `JavaText=$`. A label that identifies the child object in the user interface. ▶ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. For example, the object name for a command button might be Command1. ▶ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
`parameters$`	Valid values: ▶ `AreaIndex=%`. An ID assigned to a Java canvas. The number of the area among all areas of the same type within a Java canvas. Used with client-side canvasses. ▶ `AreaName=$`. A name assigned to an area in a Java canvas. Used with client-side canvasses. ▶ `Coords=x,y`. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. Robot uses this parameter only if the item contents or index cannot be retrieved — for example, if the list view is empty or disabled. ▶ `Coords=x1,x2,y1,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

In earlier releases of Robot, Java canvas components were treated as Java panel components. Consequently, for backward compatibility, the recognition method value Index = % includes panel components as well as canvas components. For example, a canvas component that is the first canvas component but that is nested inside several panels can be specified as Index = 4 — because the panel components are included in the index.

If the parent object is not specified in the *`recMethod`* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example performs a left-mouse click at the specified coordinates relative to the top left corner of the canvas component.

```
JavaCanvas Click,
    "JavaCaption="Sample App\;\Type=JavaCanvas;Index=3",
    "Coords=10,16"
```

See Also

`JavaCanvasVP`

JavaCanvasVP

Verification Point Command

Description

Establishes a verification point for a Java canvas component.

Syntax

`Result` = **`JavaCanvasVP`**(*`action%, recMethod$, parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the child object in the user interface. ▸ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. For example, the object name for a command button might be Command1.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

If the parent object is not specified in the *`recMethod`* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example captures the properties of a Java canvas component.

```
Result = JavaCanvasVP(CompareProperties,
    "JavaCaption="Sample App;\;Type=JavaCanvas;Index=4,
    "VP=Object Properties")
```

See Also

`JavaCanvas`

JavaListView

User Action Command

Description

Performs an action on a Java multi-column list component.

Syntax

JavaListView *action%, recMethod$, parameters$*

Syntax Element	Description

action%	One of these actions:
	▸ `Deselect`. Deselects the specified item from an extended Java list view component in multipleMode. *recMethod$* must contain one of the Java recognition methods, and *parameters$* must contain either `Text` or `Index`.
	▸ `ExtendSelection`. Selects the specified item from an extended Java list view component in multipleMode. *recMethod$* must contain one of the Java recognition methods, and *parameters$* must contain either `Text` or `Index`.
	▸ `MakeSelection`. Selects the specified item in a Java list view. *recMethod$* must contain one of the Java recognition methods, and *parameters$* must contain either `Text` or `Index`.
	▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain `Coords=`*x,y*.
	▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain `Coords=`*x1,y1,x2,y2*.
	See Appendix E for a list of mouse click and drag values.
	▸ *ScrollAction*. One of these scroll actions:
	`ScrollPageRight` `ScrollPageDown`
	`ScrollRight` `ScrollLineDown`
	`ScrollPageLeft` `ScrollPageUp`
	`ScrollLeft` `ScrollLineUp`
	`HScrollTo` `VScrollTo`
	`HScrollTo` and `VScrollTo` take the required parameter `Position=`*%*.
	If Robot cannot interpret the action being applied to a scroll bar, which happens with certain custom standalone scroll bars, it records the action as a click or drag. ▸ ▸ ▸

► ► ►

Syntax Element	Description
recMethod$	Valid values: ► `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=$`. A label that identifies the child object in the user interface. ► `Name=$`. A name that a developer assigns to a parent or child object to identify the object. For example, the object name for a command button might be Command1. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid values: ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. Robot uses this parameter only if the item contents or index cannot be retrieved — for example, if the list view is empty or disabled. ► `Coords=x1,x2,y1,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object. ► `Index=%`. If *`action%`* is a select or deselect action, identifies the index of an item in the list. ► `Position=%`. If *`action%`* is a `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position. Every scroll bar has an internal range, and this value is specific to that range. ► `Text=$`. If *`action%`* is a select or deselect action, identifies the text of an item in the list.

Comments

If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example selects a row in a Java list view component.

```
JavaListView MakeSelection,
    "JavaCaption=Sample App;\;Type=JavaListView;Index=1",
    "Text=Hooked on Java"
```

See Also

`JavaListViewVP`

JavaListViewVP

Verification Point Command

Description

Establishes a verification point for a Java multi-column list component.

Syntax

Result = **JavaListViewVP**(*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the child object in the user interface. ▸ `Name=$`. A name that a developer assigns to a parent or child object to identify the object.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

If the parent object is not specified in the *`recMethod`* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example captures the properties of a Java list view component.

```
Result = JavaListViewVP(CompareProperties,
    "JavaCaption=Sample App;\;Type=JavaListView;Index=1",
    VP=ObjectProperties")
```

See Also

`JavaListView`

JavaMenu

User Action Command

Description

Performs an action on a Java menu.

Syntax

JavaMenu *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ `MakeSelection`. Selects the specified item from a Java menu. ▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*. See Appendix E for a list of mouse click values.
recMethod$	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the child object in the user interface. ▸ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. For example, the object name for a command button might be Command1. ▸ `Path=$`. If *`action%`* is `MakeSelection`, identifies the text of the item as a path. Sub-menus are separated by a pointer (`->`). ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;`*`recMethod`*`=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid value: ▸ `Coords=`*`x,y`*. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object.

Comments

Robot can recognize menus and sub-menus up to five levels deep.

If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example selects the Java menu option Color Chooser from the Choosers menu. The menu bar is located within the Java applet named Main.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
JavaMenu MakeSelection, "Type=JavaMenu;Name=Swing
  menus;Path=Choosers->Color Chooser", ""
```

See Also

`JavaMenuVP`

JavaMenuVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a Java menu.

Syntax

Result = **JavaMenuVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the child object in the user interface. ▸ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. For example, the object name for a command button might be Command1.

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
	▶ `Path=$`. Identifies the text of the item as a path. Sub-menus are separated by a pointer (`->`). ▶ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid values: ▶ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Robot can recognize menus and sub-menus up to five levels deep.

If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example captures the properties of the Java menu with a Name attribute of MainMenu. The menu is located within the Java applet named Main. `JavaMenuVP` compares the properties to the recorded baseline in verification point `MENUVP1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
Result = JavaMenuVP(CompareProperties,"Type=JavaMenu;Name=MainMenu",
    "VP=MENUVP1;Wait=2,30")
```

See Also `JavaMenu`

JavaObject

User Action Command ▸▸▸SQA▸

Description

Performs an action on an unrecognized Java component.

Syntax

JavaObject *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain `Coords=x,y`. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain `Coords=x1,y1,x2,y2`. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the child object in the user interface. ▸ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.

▸ ▸ ▸

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ► `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments If the parent object is not specified in the *`recMethod`* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example This example clicks a Java object titled MyObject at coordinates 20,40. The object is located within the Java applet named Main.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
JavaObject Click, "Type=JavaObject;Name=MyObject","Coords=20,40"
```

See Also `JavaObjectVP`

JavaObjectVP

Verification Point Command

▸▸▸SQA▸

Description Establishes a verification point for an unrecognized Java component.

Syntax *`Result`* = **`JavaObjectVP`** (*`action%`*, *`recMethod$`*, *`parameters$`*)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ► `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.

► ► ►

► ► ►

Syntax Element	Description
recMethod$	Valid values: ► `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=$`. A label that identifies the child object in the user interface. ► `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example captures the properties of the Java object named MyObject. The object is located within the Java applet named Main. `JavaObjectVP` compares the properties to the recorded baseline in verification point `JOBJECTVP1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
Result = JavaObjectVP (CompareProperties,
 "Type=JavaObject;Name=MyObject", "VP=JOBJECTVP1;Wait=2,30")
```

See Also

`JavaObject`

JavaPanel

User Action Command

▸▸▸SQA▸

Description

Performs an action on a Java panel or canvas.

Syntax

`JavaPanel` *`action%, recMethod$, parameters$`*

Syntax Element	Description
`action%`	One of these mouse actions: ▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*. ▸ *`MouseDrag`*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *`action%`* contains a mouse-drag value, *`parameters$`* must contain `Coords=`*`x1,y1,x2,y2`*. See Appendix E for a list of mouse click and drag values.
`recMethod$`	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the child object in the user interface.

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
	▶ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ▶ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid values: ▶ `Coords=x,y`. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▶ `Coords=x1,y1,x2,y2`. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example clicks the panel titled EmployeeList at coordinates 25,50. The panel is located within the Java applet named Main.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
JavaPanel Click, "Type=JavaPanel;Name=EmployeeList", "Coords=25,50"
```

See Also

`JavaPanelVP`

JavaPanelVP

Verification Point Command ▸▸▸SQA▸

Description

Establishes a verification point for a Java panel or canvas.

Syntax

Result = **JavaPanelVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the child object in the user interface. ▸ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▸ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▸ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example captures the properties of the Java panel named EmployeeList. The panel is located within the Java applet named Main. `JavaPanelVP` compares the properties to the recorded baseline in verification point `JPANELVP1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
Result = JavaPanelVP (CompareProperties,
 "Type=JavaPanel;Name=EmployeeList", "VP=JPANELVP1;Wait=2,30")
```

See Also

`JavaPanel`

JavaPopupMenu

User Action Command

▸▸▸SQA▸

Description

Performs an action on a Java popup menu.

Syntax

JavaPopupMenu *action%, recMethod$, parameters$*

Syntax Element	Description
action%	The following action: ▸ `MakeSelection`. Selects the specified item from a Java menu. ▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*.
recMethod$	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `JavaText=$`. A label that identifies the child object in the user interface. ► `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ► `Path=$`. If *`action%`* is `MakeSelection`, the name of the popup menu and menu item. Sub-menus are separated by a pointer (`->`). ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
`parameters$`	Valid value: ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object.

Comments

Robot can recognize menus and sub-menus up to five levels deep.

If the parent object is not specified in the *`recMethod`* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example opens the Java popup menu with a Name attribute of PopMenu1 and selects the Open option. The popup menu is located within the Java applet named Main.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
JavaPopupMenu MakeSelection, "Type=JavaPopupMenu;Index=1;
    Path=PopMenu1->Open",""
```

See Also

`JavaPopupMenuVP`

JavaPopupMenuVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a Java popup menu.

Syntax

Result = **JavaPopupMenuVP**(*action%*,*recMethod$*,*parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the child object in the user interface. ▸ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ▸ `Path=$`. The name of the popup menu and menu item. Sub-menus are separated by a pointer (`->`). ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail.

► ► ►

► ► ►

Syntax Element	Description
	► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Robot can recognize menus and sub-menus up to five levels deep.

If the parent object is not specified in the *`recMethod`* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example This example captures the properties of the first Java popup menu in the applet (`Index=1`). The menu bar is located within the Java applet named Main. `JavaPopupMenuVP` compares the properties to the recorded baseline in verification point `POPMENUVP1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
Result = JavaPopupMenuVP (CompareProperties,
  "Type=JavaPopupMenu;Index=1","VP=POPMENUVP1;Wait=2,30")
```

See Also `JavaPopupMenu`

JavaSplitPane

User Action Command

▸▸▸SQA▸

Description Performs an action on a Java split pane.

Syntax **`JavaSplitPane`** *`action%, recMethod$, parameters$`*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. See Appendix E for a list of mouse click values. ▸ *ScrollAction*. One of these scroll actions: HScrollTo VScrollTo HScrollTo and VScrollTo take the required parameter Position=*%*.
recMethod$	Valid values: ▸ Index=*%*. The number of the parent or child object among all objects identified with the same base recognition method. Typically, Index is used after another recognition method qualifier — for example, Name=*$*;Index=*%*. ▸ JavaText=*$*. A label that identifies the child object in the user interface. ▸ Name=*$*. A name that a developer assigns to a parent or child object to identify the object. ▸ Type=*$*. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The Type qualifier uses the following form: Type=*$*;*recMethod*=*$*. Parent/child values are separated by a backslash and semicolons (;\;). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid values: ▸ Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▸ Position=*%*. If *action%* is VScrollTo or HScrollTo, specifies the scroll bar value of the new scrolled-to position. Every scroll bar has an internal range and this parameter value is specific to that range.

Comments

If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding Browser command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example This example clicks the Java split pane at coordinates 36, 25. The popup menu is located within the Java applet named Main.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
JavaSplitPane Click, "Type=JavaSplitPane;Name=SplitPane example",
    "Coords=36,25"
```

See Also `JavaSplitPaneVP` `JavaSplitter`

JavaSplitPaneVP

Verification Point Command

Description Establishes a verification point for a Java split pane.

Syntax ***Result*** = **JavaSplitPaneVP**(*action%*,*recMethod$*,*parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the child object in the user interface. ▸ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.

▸ ▸ ▸

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example captures the properties of the first Java split pane named `SplitPane example`. The split pane is located within the Java applet named Main. `JavaSplitPaneVP` compares the properties to the recorded baseline in verification point `SPLITPVP1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
Result = JavaSplitPaneVP (CompareProperties,
          "Type=JavaSplitPane;Name=SplitPane example",
          "VP=SPLITPVP1;Wait=2,30")
```

See Also

`JavaSplitPane`

JavaSplitter

User Action Command

Description

Performs an action on a Java splitter.

Syntax

JavaSplitter *action%, recMethod$, parameters$*

Syntax Element	Description
action%	Valid values: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. See Appendix E for a list of mouse click values. ▸ *ScrollAction*. One of these scroll actions: HScrollTo VScrollTo HScrollTo and VScrollTo take the required parameter Position=*%*.
recMethod$	Valid values: ▸ Index=*%*. The number of the parent or child object among all objects identified with the same base recognition method. Typically, Index is used after another recognition method qualifier — for example, Name=*$*;Index=*%*. ▸ Name=*$*. A name that a developer assigns to a parent or child object to identify the object. ▸ Type=*$*. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The Type qualifier uses the following form: Type=*$*;*recMethod=$*. Parent/child values are separated by a backslash and semicolons (;\;). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid values: ▸ Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▸ Position=*%*. If *action%* is VScrollTo or HScrollTo, specifies the scroll bar value of the new scrolled-to position. Every scroll bar has an internal range and this parameter value is specific to that range.

Comments

`JavaSplitter` acts on the splitter object itself. `JavaSplitPane` relies on the split pane to perform the splitter action.

If the parent object is not specified in the *`recMethod`* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

The following example sets the scroll-to position of a Java splitter component as 234.

```
Sub Main
    Dim Result As Integer

    'Initially Recorded: 06/09/99  14:15:21
    'Script Name: JavaSplitter

    Window SetContext, "Caption=Project1", ""
    JavaSplitter VScrollTo,
              "JavaCaption=Project1;\;Type=JavaSplitter;Index=1",
              "Position=234"
    Window SetTestContext, "Caption=Project1", ""
    Result = JavaSplitterVP (CompareProperties,
              "JavaCaption=Project1;\;Type=JavaSplitter;Index=1",
              "VP=Object Properties")
    Window ResetTestContext, "", ""

End Sub
```

See Also

`JavaSplitPane` `JavaSplitterVP`

JavaSplitterVP

Verification Point Command

Description

Establishes a verification point for a Java splitter.

Syntax

`Result` = **`JavaSplitterVP`**(*`action%`*,*`recMethod$`*,*`parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
recMethod$	Valid values: ▶ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▶ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ▶ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid values: ▶ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

The following example establishes an object properties verification point for a Java splitter component.

```
Sub Main
    Dim Result As Integer

    'Initially Recorded: 06/09/99  14:15:21
    'Script Name: JavaSplitter

    Window SetContext, "Caption=Project1", ""
    JavaSplitter VScrollTo,
              "JavaCaption=Project1;\;Type=JavaSplitter;Index=1",
              "Position=234"
    Window SetTestContext, "Caption=Project1", ""
    Result = JavaSplitterVP (CompareProperties,
              "JavaCaption=Project1;\;Type=JavaSplitter;Index=1",
              "VP=Object Properties")
    Window ResetTestContext, "", ""

End Sub
```

See Also `JavaSplitter`

JavaTable

User Action Command

▸▸▸SQA▸

Description

Performs an action on a Java table.

Syntax

`JavaTable` *`action%, recMethod$, parameters$`*

Syntax Element	Description
`action%`	One of these mouse actions: ▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*. ▸ *`MouseDrag`*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *`action%`* contains a mouse-drag value, *`parameters$`* must contain `Coords=`*`x1,y1,x2,y2`*. See Appendix E for a list of mouse click and drag values.

▸ ▸ ▸

► ► ►

Syntax Element	Description
recMethod$	Valid values: ► `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=$`. A label that identifies the child object in the user interface. ► `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid values: ► `Coords=x,y`. If *`action%`* is a mouse click in a writeable cell, specifies the coordinates of the click, relative to the top left of the cell being acted upon. ► `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag in a writeable cell, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the cell being acted upon. ► `Col=%`. Identifies the index of a column in the table. ► `ColTitle=$`. Identifies the title of the table column. ► `EndCol=%`. Identifies the index of the ending column in the table. ► `EndColTitle=$`. Identifies the title of the ending column for a *`MouseDrag`* action. ► `Row=%`. Identifies the index of a row in the table. ► `StartCol=%`. Identifies the index of the starting column. ► `StartColTitle=$`. Identifies the title of the starting column. ► `Text=$`. Identifies the text of an item in the table. ► `Value=%`. The current value of the table item.

Comments If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example This example clicks the first table in the Java applet named Main. The click occurs in the column titled Favorite Number at coordinates 36, 10. The value is 2.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
JavaTable Click, "Type=JavaTable;Index=1",
    "StartColTitle=LastName;ColTitle=FavoriteNumber;Value=2;
    Coords=36,10"
```

See Also `JavaTableVP`

JavaTableVP

Verification Point Command

▸▸▸SQA▸

Description Establishes a verification point for a Java table.

Syntax *Result* = **JavaTableVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the child object in the user interface. ▸ `Name=$`. A name that a developer assigns to a parent or child object to identify the object.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

If the parent object is not specified in the *`recMethod`* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example captures the properties of the Java table named EmployeeList. The table is located within the Java applet named Main. `JavaTableVP` compares the properties to the recorded baseline in verification point `TABLEVP1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
Result = JavaTableVP (CompareProperties,
    "Type=JavaTable;Name=EmployeeList", "VP=TABELVP1;Wait=2,30")
```

See Also `JavaTable`

JavaTableHeader

User Action Command

Description Performs an action on a Java table header.

Syntax **`JavaTableHeader`** *`action%, recMethod$, parameters$`*

Syntax Element	Description
`action%`	One of these mouse actions: ▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*. ▸ *`MouseDrag`*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *`action%`* contains a mouse-drag value, *`parameters$`* must contain `Coords=`*`x1,y1,x2,y2`*. See Appendix E for a list of mouse click and drag values.
`recMethod$`	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the child object in the user interface. ▸ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;`*`recMethod=$`*. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
parameters$	Valid values: ▶ `Coords=`*`x1,y1,x2,y2`*. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the specified start column header cell. ▶ `Col=`*`%`*. Identifies the index of a column in the table. ▶ `ColTitle=`*`$`*. Identifies the title of the table column.

Comments If the parent object is not specified in the *`recMethod`* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example This example clicks the table column header title Employee Number in a table named EmployeeList. The table is located within the Java applet named Main.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
JavaTableHeader Click, "Type=JavaTable;Name=EmployeeList",
   "ColTitle=Employee Number"
```

See Also `JavaTable`
`JavaTableVP`
`JavaTableHeaderVP`

JavaTableHeaderVP

Verification Point Command

▸▸▸SQA▸

Description Establishes a verification point for a Java table header.

Syntax *`Result`* = **`JavaTableHeaderVP`** (*`action%`*,*`recMethod$`*,*`parameters$`*)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▶ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* VP is required; `ExpectedResult` and `Wait` are optional.

▶ ▶ ▶

▶ ▶ ▶

Syntax Element	Description
recMethod$	Valid values: ▶ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▶ `JavaText=$`. A label that identifies the child object in the user interface. ▶ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ▶ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid values: ▶ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example captures the properties of the Java table header named EmployeeList. The table is located within the Java applet named Main. `JavaTableHeaderVP` compares the properties to the recorded baseline in verification point `TABLEHEADERVP1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
Result=JavaTableHeaderVP (CompareProperties,
    "Type=JavaTableHeader;    Name=EmployeeList",
    "VP=TABELHEADERVP1;Wait=2,30")
```

See Also

`JavaTable`
`JavaTableHeader`

JavaTree

User Action Command

▸▸▸SQA▸

Description

Performs an action on a Java tree component.

Syntax

`JavaTree` *`action%, recMethod$, parameters$`*

Syntax Element	Description
`action%`	One of these mouse actions: ▸ `Collapse`. Collapses the tree. *`recMethod$`* must contain one of the Java recognition methods, and *`parameters$`* must contain either `Text` or `JavaRow`. ▸ `Deselect`. Deselects the specified item from an extended Java tree component in multipleMode. *`recMethod$`* must contain one of the Java recognition methods, and *`parameters$`* must contain either `Text` or `JavaRow`. ▸ `Expand`. Expands the tree. *`recMethod$`* must contain one of the Java recognition methods, and *`parameters$`* must contain either `Text` or `JavaRow`. ▸ `ExtendSelection`. Selects the specified item from an extended Java tree component in multipleMode. *`recMethod$`* must contain one of the Java recognition methods, and *`parameters$`* must contain either `Text` or `JavaRow`.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `MakeSelection`. Selects the specified item in a Java tree. *`recMethod$`* must contain one of the Java recognition methods, and *`parameters$`* must contain either `Text` or `JavaRow`. ► *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*. See Appendix E for a list of mouse click values.
`recMethod$`	Valid values: ► `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=`*`$`*. A label that identifies the child object in the user interface. ► `Name=`*`$`*. A name that a developer assigns to a parent or child object to identify the object. ► `Type=`*`$`*. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=`*`$`*`;recMethod=`*`$`*. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
`parameters$`	Valid values: ► `Coords=`*`x,y`*. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ► `JavaRow=%`. Identifies the row number of an item in the list. ► `Text=`*`$`*. Identifies the text of an item in the list. The tree items are separated by a pointer (`->`).

Comments

If the parent object is not specified in the *`recMethod`* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example This example expands the Jazz node of the Java tree with a Name attribute of Music. The menu bar is located within the Java applet named Main.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
JavaTree Expand, "Type=JavaTree;Name=Music", "Text=Music->Jazz"
```

See Also `JavaTreeVP`

JavaTreeVP

Verification Point Command

Description Establishes a verification point for a Java tree component.

Syntax *`Result`* = **`JavaTreeVP`** (*`action%`*, *`recMethod$`*, *`parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ▸ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the child object in the user interface. ▸ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
parameters$	Valid values: ▶ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example captures the properties of the Java tree with a Name attribute of JavaTree1. The tree is located within the Java applet named Main. `JavaTreeVP` compares the properties to the recorded baseline in verification point `TREEVP1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
Result = JavaTreeVP (CompareProperties,
  "Type=JavaTree;Name=JavaTree1", "VP=TREEVP1;Wait=2,30")
```

See Also

`JavaTree`

JavaWindow

User Action Command

Description

Performs an action on a Java window.

Syntax

JavaWindow *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ Index=%. The number of the parent or child object among all objects identified with the same base recognition method. Typically, Index is used after another recognition method qualifier — for example, Name=$;Index=%. ▸ JavaText=*$*. A label that identifies the child object in the user interface. ▸ Name=*$*. A name that a developer assigns to a parent or child object to identify the object. ▸ Type=*$*. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The Type qualifier uses the following form: Type=*$;recMethod=$*. Parent/child values are separated by a backslash and semicolons (;\;). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.

► ► ►

▶ ▶ ▶

Syntax Element	Description
parameters$	Valid values: ▶ `Coords=x,y`. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▶ `Coords=x1,y1,x2,y2`. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example This example clicks the window titled EmployeeList. The window is located within the Java applet named Main.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
JavaWindow Click,"Type=JavaWindow;Name=EmployeeList","Coords=25,50"
```

See Also `JavaWindowVP`

JavaWindowVP

Verification Point Command

▸▸▸SQA▸

Description Establishes a verification point for a Java window.

Syntax *Result* = **JavaWindowVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▶ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional.

▶ ▶ ▶

▶ ▶ ▶

Syntax Element	Description
recMethod$	Valid values: ▶ `Index=%`. The number of the parent or child object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▶ `JavaText=$`. A label that identifies the child object in the user interface. ▶ `Name=$`. A name that a developer assigns to a parent or child object to identify the object. ▶ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Recognition Methods in Java Commands* in Chapter 4 for other recognition methods that specify the parent object.
parameters$	Valid values: ▶ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

If the parent object is not specified in the *recMethod* argument of this command, it must be specified in a preceding `Browser` command. For more information about specifying parent and child Java objects, see *Recognition Methods in Java Commands* in Chapter 4.

Example

This example captures the properties of the Java window named EmployeeList. The table is located within the Java applet named Main. `JavaWindowVP` compares the properties to the recorded baseline in verification point `JAVAWINDOWVP1`. At playback, the comparison is retried every 2 seconds and times out after 30 seconds.

```
Window SetContext, "Caption=Java demo", ""
Browser SetApplet,"Name=Main",""
Result = JavaWindowVP (CompareProperties,
  "Type=JavaWindow;Name=EmployeeList","VP=JAVAWINDOWVP1;Wait=2,30")
```

See Also `JavaWindow`

Kill

Statement

Description

Deletes files from a hard disk or diskette.

Syntax

`Kill` *`pathname$`*

Syntax Element	Description
`pathname$`	An expression that specifies a valid DOS file specification.

Comments

The *`pathname$`* specification can contain paths and wildcards. `Kill` deletes files only, not directories. Use the `RmDir` function to delete directories.

Example

This example prompts a user for an account number, opens a file, searches for the account number and displays the matching letter for that number. The second sub procedure, CREATEFILE, creates the file C:\TEMP001 used by the main sub procedure. After processing is complete, the first sub procedure uses `Kill` to delete the file.

```
Declare Sub createfile()
Global x as Integer
Global y(100) as String

Sub main
   Dim acctno as Integer
   Dim msgtext
   Call createfile
i: acctno=InputBox("Enter an account number from 1-10:")
   If acctno<1 Or acctno>10 then
      MsgBox "Invalid account number. Try again."
      Goto i:
   End if
   x=1
   Open "C:\TEMP001" for Input as #1
```

```
 Do Until x=acctno
      Input #1, x,y(x)
   Loop
   msgtext="The letter for account number " & x & " is: " & y(x)
   Close #1
   MsgBox msgtext
   Kill "C:\TEMP001"
End Sub

Sub createfile()
' Put the numbers 1-10 and letters A-J into a file
   Dim startletter
   Open "C:\TEMP001" for Output as #1
   startletter=65
   For x=1 to 10
      y(x)=Chr(startletter)
      startletter=startletter+1
   Next x
   For x=1 to 10
      Write #1, x,y(x)
   Next x
   Close #1
End Sub
```

See Also `FileAttr` `GetAttr` `FileDateTime` `RmDir`

Label

User Action Command

▸▸▸SQA▸

Description

Performs an action on a label control.

Syntax

`Label` *`action%, recMethod$`*

Syntax Element	Description
`action%`	The following mouse action: ▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). Does not require coordinate information. See Appendix E for a list of mouse click values.
`recMethod$`	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`.

► ► ►

Syntax Element	Description
	▸ `JavaText=$`. A label that identifies the object in the user interface. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ▸ `Text=$`. The text displayed on the object. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.

Comments

None.

Example

This example clicks the label identified with the text `Tuesday, March 12, 1999`.

```
Label Click, "Text=Tuesday, March 12, 1999"
```

See Also

`CheckBox`
`PushButton`
`RadioButton`

LabelVP

Verification Point Command

Description

Establishes a verification point for a label control.

Syntax

Result = **LabelVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional. ▸ `VerifyIsBlank`. Checks that the object has no text. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the object in the user interface. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The text displayed on the object. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`).

► ► ►

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function. – `Function=$`. The name of the custom function to use in comparing the text. ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback.

With FindSubStr and FindSubStrI, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the text of the second label object in the window ObjectIndex=2 and performs a case-sensitive comparison with the recorded baseline in verification point VPTRIAL.

```
Result = LabelVP (CompareText, "ObjectIndex=2",
    "VP=VPTRIAL;Type=CaseSensitive")
```

See Also

ComboBoxVP EditBoxVP
ComboListBoxVP ListBoxVP

LBound

Function

Description

Returns the lower bound of the subscript range for the specified array.

Syntax

LBound(*arrayname* [, *dimension*])

Syntax Element	Description
arrayname	The name of the array to use.
dimension	The dimension to use.

Comments

The dimensions of an array are numbered starting with 1. If the *dimension* is not specified, 1 is used as a default.

LBound can be used with UBound to determine the length of an array.

Example

This example resizes an array if the user enters more data than can fit in the array. It uses LBound and UBound to determine the existing size of the array and ReDim to resize it. Option Base sets the default lower bound of the array to 1.

```
Option Base 1
Sub main
   Dim arrayvar() as Integer
   Dim count as Integer
   Dim answer as String
   Dim x, y as Integer
   Dim total
   total=0
   x=1
   count=InputBox("How many test scores do you have?")
   ReDim arrayvar(count)
start:
```

```
    Do until x=count+1
      arrayvar(x)=InputBox("Enter test score #" &x & ":")
      x=x+1
    Loop
    answer=InputBox$("Do you have more scores? (Y/N)")
    If answer="Y" or answer="y" then
      count=InputBox("How many more do you have?")
      If count<>0 then
        count=count+(x-1)
        ReDim Preserve arrayvar(count)
        Goto start
      End If
    End If
    x=LBound(arrayvar,1)
    count=UBound(arrayvar,1)
    For y=x to count
         total=total+arrayvar(y)
    Next y
    MsgBox "Average of " & count & " scores is: " & Int(total/count)
End Sub
```

See Also

Dim	ReDim
Global	Static
Option Base	UBound

LCase

Function

Description

Returns a copy of a string, with all uppercase letters converted to lowercase.

Syntax

LCase[$](*string$*)

Syntax Element	Description
$	Optional. If specified the return type is String. If omitted the function will typically return a Variant of VarType 8 in the function name is (String).
string$	A string, or an expression containing the string to use.

Comments

The translation is based on the country specified in the Windows Control Panel. LCase accepts expressions of type String. LCase accepts any type of argument and will convert the input value to a string.

If the value of *string$* is NULL, a Variant of VarType 1 (Null) is returned.

Example This example converts a string entered by the user to lowercase.

```
Sub main
Dim userstr as String
   userstr=InputBox$("Enter a string in upper and lowercase letters")
   userstr=LCase$(userstr)
   MsgBox "The string now is: " & userstr
End Sub
```

See Also `UCase`

Left
Function

Description Returns a string of a specified number of characters copied from the beginning of another string.

Syntax **`Left`**`[$](`*`string$, length%`*`)`

Syntax Element	Description
`$`	Optional. If specified, the return type is `String`. If omitted, the function will typically return a `Variant` of `VarType` 8 (`String`).
`string$`	A string or an expression containing the string to copy.
`length%`	The number of characters to copy.

Comments If *`length%`* is greater than the length of *`string$,`* this function returns the whole string.

`Left` accepts expressions of type `String`. `Left` accepts any type of *`string$,`* including numeric values, and will convert the input value to a string.

If the value of *`string$`* is NULL, a Variant of `VarType` 1 (Null) is returned.

To obtain a string of a specified number of bytes, copied from the beginning of another string, use `LeftB`.

Example This example extracts a user's first name from the entire name entered.

```
Sub main
    Dim username as String
    Dim count as Integer
    Dim firstname as String
    Dim charspace
    charspace=Chr(32)
```

```
    username=InputBox("Enter your first and last name")
    count=InStr(username,charspace)
    firstname=Left(username,count)
    MsgBox "Your first name is: " &firstname
End Sub
```

See Also

GetField	Mid statement	StrComp
Len	Right	Trim
LTrim	RTrim	
Mid function	Str	

Len

Function

Description

Returns the length of a string or variable.

Syntax

Syntax A **Len**(*string$*)

Syntax B **Len**(*varname*)

Syntax Element	Description
string$	A string or an expression that evaluates to a string.
varname	A variable that contains a string.

Comments

If the argument is a string, the number of characters in the string is returned. If the argument is a Variant variable, Len returns the number of bytes required to represent its value as a string. Otherwise, the length of the built-in data type or user-defined type is returned.

If syntax B is used, and *varname* is a Variant containing a NULL, Len will return a Null Variant.

To return the number of bytes in a string, use LenB.

Example

This example returns the length of a name entered by the user (including spaces).

```
Sub Main
    Dim username as String
    Dim Count as Integer
    username=InputBox("Enter your name")
    count=Len(username)
    MsgBox "The length of your name is: " &count
End Sub
```

See Also

Instr

Let
Statement

Description Assigns an expression to an SQABasic variable.

Syntax `[Let] variable = expression`

Syntax Element	Description
variable	The name of a variable to assign to the *expression*.
expression	The expression to assign to the variable.

Comments The keyword `Let` is optional.

The `Let` statement can be used to assign a value or expression to a variable of `Numeric`, `String`, `Variant` or `User-Defined` type. You can also use the `Let` statement to assign to an element of an array.

When assigning a value to a numeric or string variable, standard conversion rules apply.

`Let` differs from `Set` in that `Set` assigns a variable to an OLE object. For example:

- `Set o1 = o2` sets the object reference.
- `Let o1 = o2` sets the value of the default member.

Example This example uses the `Let` statement to assign an initial value to the variable *sum*. The sub procedure finds an average of 10 golf scores.

```
Sub main
    Dim score As Integer
    Dim x, sum
    Dim msgtext
    Let sum=0
    For x=1 to 10
      score=InputBox("Enter your last ten golf scores #" & x & ":")
      sum=sum+score
    Next x
    msgtext="Your average is: " & CInt(sum/(x-1))
    MsgBox msgtext
End Sub
```

See Also `Const`
`Lset`
`Set`

Like
Operator

Description Returns the value `-1` (TRUE) if a string matches a pattern, 0 (FALSE) otherwise.

Syntax *`string$`* **`LIKE`** *`pattern$`*

Syntax Element	Description
`string$`	Any string expression.
`pattern$`	Any string expression to match to *`string$`*.

Comments *`pattern$`* can include the following special characters:

Character:	Matches:
`?`	A single character
`*`	A set of zero or more characters
`#`	A single digit character (0-9)
[*chars*]	A single character in *`chars`*
[!*chars*]	A single character not in *`chars`*
[*schar-echar*]	A single character in range *`schar`* to *`echar`*
[!*schar-echar*]	A single character not in range *`schar`* to *`echar`*

Both ranges and lists can appear within a single set of square brackets. Ranges are matched according to their ANSI values. In a range, *`schar`* must be less than *`echar`*.

If either *`string$`* or *`pattern$`* is `NULL` then the result value is `NULL`.

The `Like` operator respects the current setting of `Option Compare`.

Example This example tests whether a letter is lowercase.

```
Sub main
   Dim userstr as String
   Dim revalue as Integer
   Dim retvalue as Integer
   Dim msgtext as String
   Dim pattern
   pattern="[a-z]"
   userstr=InputBox$("Enter a letter:")
   retvalue=userstr LIKE pattern
```

```
      If retvalue=-1 then
         msgtext="The letter " & userstr & " is lowercase."
      Else
         msgtext="Not a lowercase letter."
      End If
      MsgBox msgtext
   End Sub
```

See Also `Expressions` `Option Compare` `Instr` `StrComp`

Line Input

Statement

Description

Reads a line from the a sequential file or from the keyboard into a string variable.

Syntax

Syntax A **`Line Input`** `[#]`*`filenumber%, varname$`*

Syntax B **`Line Input`** `[`*`prompt$`*`,]` *`varname$`*

Syntax Element	Description
`filenumber%`	An integer expression identifying the open file to use.
`prompt$`	An optional string that can be used to prompt for keyboard input; it must be a literal string.
`varname$`	A string variable to contain the line read.

Comments

If specified, the *`filenumber%`* is the number used in the `Open` statement to open the file. If *`filenumber%`* is not provided, the line is read from the keyboard.

If *`prompt$`* is not provided, a prompt of a question mark (`?`) is used.

Example

This example reads the contents of a sequential file line by line (to a carriage return) and displays the results. The second sub procedure, CREATEFILE, creates the file C:\TEMP001 used by the main sub procedure.

```
Declare Sub createfile()
Sub main
   Dim msgtext as String
   Dim testscore as String
   Dim x
   Dim y
   Dim newline
   Call createfile
   Open "c:\temp001" for Input as #1
   x=1
   newline=Chr(10)
   msgtext= "The contents of c:\temp001 is: " & newline
   Do Until x=Lof(1)
```

```
            Line Input #1, testscore
            x=x+1
            y=Seek(1)
            If y>Lof(1) then
               x=Lof(1)
             Else
               Seek 1,y
            End If
            msgtext=msgtext & testscore & newline
         Loop
         MsgBox msgtext
         Close #1
         Kill "C:\TEMP001"
      End Sub

      Sub createfile()
         Rem Put the numbers 1-10 into a file
         Dim x as Integer
         Open "C:\TEMP001" for Output as #1
         For x=1 to 10
            Write #1, x
         Next x
         Close #1
      End Sub
```

See Also

```
Get                  InputBox
Input function       Open
Input statement
```

ListBox

Statement

Description

Defines a list box of choices for a dialog box.

Syntax

Syntax A **ListBox** *x, y, dx, dy, text$, .field*

Syntax B **ListBox** *x, y, dx, dy, stringarray$(), .field*

Syntax Element	Description
x, y	The upper left corner coordinates of the list box, relative to the upper left corner of the dialog box.
dx, dy	The width and height of the list box.
text$	A string containing the selections for the list box.
stringarray$	An array of dynamic strings for the selections in the list box.
.field	The name of the dialog-record field that will hold a number for the choice made in the list box.

Comments

The *x* argument is measured in 1/4 system-font character-width units. The *y* argument is measured in 1/8 system-font character-width units. (See `Begin Dialog` for more information.)

The *`text$`* argument must be defined, using a `Dim` statement, before the `Begin Dialog` statement is executed. The arguments in the *`text$`* string are entered as shown in the following example:

```
dimname="listchoice"+Chr$(9)+"listchoice"+Chr$(9)+"listchoice"...
```

A number representing the selection's position in the *`text$`* string is recorded in the field designated by the *`.field`* argument when the OK button (or any PushButton other than Cancel) is pushed. The numbers begin at 0. If no item is selected, it is `-1`. The *`field`* argument is also used by the dialog statements that act on this control.

Use the `ListBox` statement only between a `Begin Dialog` and an `End Dialog` statement.

Example

This example defines a dialog box with a list box and two buttons.

```
Sub main
   Dim ListBox1() as String
   ReDim ListBox1(0)
   ListBox1(0)="C:\"
   Begin Dialog UserDialog 133, 66, 171, 65, "SQABasic Dialog Box"
      Text  3, 3, 34, 9, "Directory:", .Text2
      ListBox  3, 14, 83, 39, ListBox1(), .ListBox2
      OKButton  105, 6, 54, 14
      CancelButton  105, 26, 54, 14
   End Dialog
   Dim mydialog as UserDialog
   On Error Resume Next
   Dialog mydialog
   If Err=102 then
      MsgBox "Dialog box canceled."
   End If
End Sub
```

See Also

`Begin/End Dialog` `Button` `ButtonGroup` `CancelButton` `Caption` `CheckBox` `ComboBox` `Dialog` `DropComboBox` `GroupBox` `OKButton` `OptionButton` `OptionGroup` `Picture` `StaticComboBox` `Text` `TextBox`

ListBox

User Action Command

▸▸▸SQA▸

Description

Performs an action on a list box control.

Syntax **ListBox** *action%, recMethod$, parameters$*

Syntax Element	Description

action%	One of these actions:
	▸ `Deselect`. Deselects the specified item from an extended Java listbox in multipleMode. Used only for the Java environment. *recMethod$* must contain one of the Java recognition methods, and *parameters$* must contain either `Text` or `Index`.
	▸ `ExtendSelection`. Selects the specified item from an extended Java listbox in multipleMode. Used only for the Java environment. *recMethod$* must contain one of the Java recognition methods, and *parameters$* must contain either `Text` or `Index`.
	▸ `MakeSelection`. Selects the specified item from a Java listbox. Used only for the Java environment. *recMethod$* must contain one of the Java recognition methods, and *parameters$* must contain either `Text` or `Index`.
	▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain one of the following: `Text`, `ItemData`, `Index`, or `Coords=`*x,y*.
	▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain `Coords=`*x1,y1,x2,y2*.
	See Appendix E for a list of mouse click and drag values.
	▸ *ScrollAction*. One of these scroll actions:
	`ScrollPageRight` `ScrollPageDown`
	`ScrollRight` `ScrollLineDown`
	`ScrollPageLeft` `ScrollPageUp`
	`ScrollLeft` `ScrollLineUp`
	`HScrollTo` `VScrollTo`
	`HScrollTo` and `VScrollTo` take the required parameter `Position=`*%*.
	If Robot cannot interpret the action being applied to a scroll bar, which happens with certain custom standalone scroll bars, it records the action as a click or drag.

► ► ►

► ► ►

Syntax Element	Description
recMethod$	Valid values: ► `HTMLId=$`. The text from the ID attribute of the HTML object. ► `HTMLText=$`. The visible text of a Web page SELECT form element. The text is from the Value attribute of the OPTION tag. ► `HTMLTitle=$`. The text from the Title attribute of the HTML object. ► `ID=%`. The object's internal Windows ID. ► `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=$`. A label that identifies the object in the user interface. ► `Label=$`. The text of the label object that immediately precedes the list box in the internal order (Z order) of windows. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.

► ► ►

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. Robot uses this parameter only if the item contents or index cannot be retrieved — for example, if the list box is empty or disabled. ► `Coords=x1,x2,y1,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object. ► `Index=%`. If *`action%`* is a select or deselect action, identifies the index of an item in the list. ► `ItemData=&`. If *`action%`* is a mouse click, identifies the internal value, or ItemData, associated with an item in the list. All items in a list have an associated value. The uniqueness and significance of this value is entirely up to the application. Robot uses this parameter only if the list box item's text cannot be retrieved (for example, if it is an Owner Drawn list box), and if the Identify List Selections By recording option is set to Contents. ► `Position=%`. If *`action%`* is a `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position. Every scroll bar has an internal range, and this value is specific to that range. ► `Text=$`. If *`action%`* is a select or deselect action, identifies the text of an item in the list.

Comments

None.

Example

This example clicks the item identified by the text `Epson on LPT1:` in the first list box control in the window (`ObjectIndex=1`).

```
ListBox Click, "ObjectIndex=1", "Text=Epson on LPT1:"
```

This example clicks the item identified by the text Option 1 in the list box named SelectList1. The list box is located within the Web page frame named Main.

```
ListBox Click,
    "Type=HTMLFrame;HTMLId=Main;\;Type=ListBox; Name=SelectList1",
    "Text=Option 1"
```

See Also

`ComboBox` `ComboListBox`
`ComboEditBox` `EditBox`

ListBoxVP

Verification Point Command

Description

Establishes a verification point for a list box control.

Syntax

```
Result = ListBoxVP (action%, recMethod$, parameters$)
```

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `Compare`. Captures the entire contents of the list box into a grid and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareData`. Captures the contents or HTML text of the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional. ▸ `VerifyIsBlank`. Checks that the object has no text. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The visible text of a Web page SELECT form element. The text is from the Value attribute of the OPTION tag. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `ID=%`. The object's internal Windows ID. ► `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=$`. A label that identifies the object in the user interface. ► `Label=$`. The text of the label object that immediately precedes the list box in the internal order (Z order) of windows. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`).
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive.

► ► ►

► ► ►

Syntax Element	Description
	► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the list box identified by the label `Files:` and compares them to the recorded baseline in verification point `FILELIST`.

```
Result = ListBoxVP(CompareProperties,"Label=Files:","VP=FILELIST")
```

This example captures the data from the list box identified by the name SelectList1. The list is located within the Web page frame named Main. `ListBoxVP` compares the data to the recorded baseline in verification point `WebList1`.

```
Result = ListBoxVP (CompareData,
    "Type=HTMLFrame;HTMLId=main;\;Type=ListBox;Name=SelectList1",
    "VP=WebList1")
```

See Also

```
ComboBoxVP
ComboEditBoxVP
EditBoxVP
```

ListView

User Action Command

▸▸▸SQA▸

Description

Performs an action on a list view control.

Syntax

ListView *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values. ▸ *ScrollAction*. One of these scroll actions: ScrollPageRight ScrollPageDown ScrollRight ScrollLineDown ScrollPageLeft ScrollPageUp ScrollLeft ScrollLineUp HScrollTo VScrollTo HScrollTo and VScrollTo take the required parameter Position=*%*. If Robot cannot interpret the action being applied to a scroll bar, which happens with certain custom standalone scroll bars, it records the action as a click or drag.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID.

► ► ►

► ► ►

Syntax Element	Description
	► `ItemIndex=%`. The index of the list view item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `ItemText=$`. The text of the list view item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ► `Text=$`. The text displayed on the object. ► `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
`parameters$`	Valid values: ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the object or the item. ► `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object or the item. ► `Position=%`. If *`action%`* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position in the scroll box. Every scroll bar has an internal range, and this value is specific to that range.

Comments

None.

Example This example clicks the item identified by the text `System` at *x*,*y* coordinates of 50,25 in the first list view control in the window (`ObjectIndex=1`).

```
ListView Click, "ObjectIndex=1;\;ItemText=System", "Coords=50,25"
```

See Also `ListViewVP`

ListViewVP

Verification Point Command

▸▸▸SQA▸

Description Establishes a verification point for a list view control.

Syntax *`Result`* = **`ListViewVP`** (*`action%`*, *`recMethod$`*, *`parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `ItemIndex=%`. The index of the list view item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`).

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `ItemText=$`. The text of the list view item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object.
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the first list view control in the window (`ObjectIndex=1`) and compares them to the recorded baseline in verification point `TEST1A`.

```
Result = ListViewVP (CompareProperties,"ObjectIndex=1","VP=TEST1A")
```

See Also

`ListView`

Loc
Function

Description

Returns the current offset within an open file.

Syntax

`Loc`(*`filenumber%`*)

Syntax Element	Description
`filenumber%`	An integer expression identifying the open file to query.

Comments

The *filenumber%* is the number used in the Open statement of the file.

For files opened in Random mode, Loc returns the number of the last record read or written. For files opened in Append, Input, or Output mode, Loc returns the current byte offset divided by 128. For files opened in Binary mode, Loc returns the offset of the last byte read or written.

Example

This example creates a file of account numbers as entered by the user. When the user finishes, the example displays the offset in the file of the last entry made.

```
Sub main
   Dim filepos as Integer
   Dim acctno() as Integer
   Dim x as Integer
   x=0
   Open "c:\TEMP001" for Random as #1
   Do
     x=x+1
     Redim Preserve acctno(x)
     acctno(x)=InputBox("Enter account #" & x & " or 0 to end:")
     If acctno(x)=0 then
        Exit Do
     End If
     Put #1,, acctno(x)
   Loop
   filepos=Loc(1)
   Close #1
   MsgBox "The offset is: " & filepos
   Kill "C:\TEMP001"
End Sub
```

See Also

Eof
Lof
Open

Lock
Statement

Description

Keeps other processes from accessing an open file.

Syntax

Lock [#]*filenumber%* [, [*start&*] [To *end&*]]

Syntax Element	Description
filenumber%	An integer expression identifying the open file.
start&	Number of the first record or byte offset to lock/unlock.
end&	Number of the last record or byte offset to lock/unlock.

Comments

The *filenumber%* is the number used in the Open statement of the file.

For Binary mode, *start&*, and *end&* are byte offsets. For Random mode, *start&*, and *end&* are record numbers. If *start&* is specified without *end&*, only the record or byte at *start&* is locked. If To *end&* is specified without *start&*, all records or bytes from record number or offset 1 to *end&* are locked.

For Input, Output and Append modes, *start&*, and *end&* are ignored and the whole file is locked.

Lock and Unlock always occur in pairs with identical parameters. All locks on open files must be removed before closing the file or unpredictable results occur.

Example

This example locks a file that is shared by others on a network, if the file is already in use. The second sub procedure, CREATEFILE, creates the file used by the main sub procedure.

```
Declare Sub createfile
Sub main
   Dim btngrp, icongrp
   Dim defgrp
   Dim answer
   Dim noaccess as Integer
   Dim msgabort
   Dim msgstop as Integer
   Dim acctname as String
   noaccess=70
   msgstop=16
   Call createfile
   On Error Resume Next
   btngrp=1
   icongrp=64
   defgrp=0
   answer=MsgBox("Open the account file?" & Chr(10),
      btngrp+icongrp+defgrp)
   If answer=1 then
      Open "C:\TEMP001" for Input as #1
      If Err=noaccess then
         msgabort=MsgBox("File Locked",msgstop,"Aborted")
      Else
         Lock #1
         Line Input #1, acctname
         MsgBox "The first account name is: " & acctname
         Unlock #1
      End If
      Close #1
   End If
   Kill "C:\TEMP001"
End Sub

Sub createfile()
   Rem Put the letters A-J into the file
   Dim x as Integer
   Open "C:\TEMP001" for Output as #1
```

```
   For x=1 to 10
         Write #1, Chr(x+64)
      Next x
      Close #1
   End Sub
```

See Also `Open`
`Unlock`

Lof
Function

Description Returns the length in bytes of an open file.

Syntax **`Lof`**(*`filenumber%`*)

Syntax Element	Description
`filenumber%`	An integer expression identifying the open file.

Comments The *`filenumber%`* is the number used in the `Open` statement of the file.

Example This example opens a file and prints its contents to the screen.

```
Sub main
   Dim fname
   Dim fchar()
   Dim x as Integer
   Dim msgtext
   Dim newline
   newline=Chr(10)
   fname=InputBox("Enter a filename to print:")
   On Error Resume Next
   Open fname for Input as #1
   If Err<>0 then
      MsgBox "Error loading file. Re-run program."
      Exit Sub
   End If
   msgtext="The contents of " & fname & " is: " &
      newline &newline
   Redim fchar(Lof(1))
    For x=1 to Lof(1)
        fchar(x)=Input(1,#1)
        msgtext=msgtext & fchar(x)
   Next x
   MsgBox msgtext
   Close #1
End Sub
```

See Also `Eof` `Loc`
`FileLen` `Open`

Log
Function

Description Returns the natural logarithm of a number.

Syntax **Log**(*number*)

Syntax Element	Description
number	Any valid numeric expression.

Comments The return value is single-precision for an integer, currency or single-precision numeric expression, double precision for a long, Variant or double-precision numeric expression.

Example This example uses the Log function to determine which number is larger: 999^1000 (999 to the 1000 power) or 1000^999 (1000 to the 999 power). Note that you cannot use the exponent (^) operator for numbers this large.

```
Sub main
   Dim a as Integer
   Dim b as Integer
    Dim x
    Dim y
    x=999
    y=1000
    a=y*(Log(x))
    b=x*(Log(y))
    If a>b then
        MsgBox "999^1000 is greater than 1000^999"
    Else
        MsgBox "1000^999 is greater than 999^1000"
    End If
End Sub
```

See Also

Exp	Rnd
Fix	Sgn
Int	Sqr

Lset
Statement

Description Copies one string to another, or assigns a user-defined type variable to another.

Syntax Syntax A **Lset** *string$ = string-expression*

Syntax B **Lset** *variable1 = variable2*

Syntax Element	Description
string$	A string or string expression to contain the copied characters.
string-expression	An expression containing the string to copy.
variable1	A variable with a user-defined type to contain the copied variable.
variable2	A variable with a user-defined type to copy.

Comments

If *string$* is shorter than *string-expression*, `Lset` copies the leftmost character of *string-expression* into *string$*. The number of characters copied is equal to the length of *string$*.

If *string$* is longer than *string-expression*, all characters of *string-expression* are copied into *string$*, filling it from left to right. All leftover characters of *string$* are replaced with spaces.

In Syntax B, the number of characters copied is equal to the length of the shorter of *variable1* and *variable2*.

`Lset` cannot be used to assign variables of different user-defined types if either contains a `Variant` or a variable-length string.

Example

This example puts a user's last name into the variable LASTNAME. If the name is longer than the size of LASTNAME, then the user's name is truncated. If you have a long last name and you get lots of junk mail, you've probably seen how this works already.

```
Sub main
    Dim msgtext, lastname as String
    Dim strlast as String*8
    lastname=InputBox("Enter your last name")
    Lset strlast=lastname
    msgtext="Your last name is: " & strlast
    MsgBox msgtext
End Sub
```

See Also

`Rset`

LTrim

Function

Description

Returns a copy of a string with all leading space characters removed.

Syntax **LTrim**[$](*expression*)

Syntax Element	Description
$	Optional. If specified, the return type is String. If omitted, the function typically returns a Variant of VarType 8 (String).
expression	The expression to trim. The expression can be a string, or it can be a numeric data type which Robot passes to the command as a string.

Comments If the value of *string$* is NULL, a Variant of VarType 1 (Null) is returned.

Example This example trims the leading spaces from a string padded with spaces on the left.

```
Sub main
   Dim userinput as String
   Dim numsize
   Dim str1 as String*50
   Dim strsize
   strsize=50
   userinput=InputBox("Enter a string of characters:")
   numsize=Len(userinput)
   str1=Space(strsize-numsize) & userinput
' Str1 has a variable number of leading spaces.
   MsgBox "The string is: " &str1
   str1=LTrim$(str1)
' Str1 now has no leading spaces.
   MsgBox "The string now has no leading spaces: " & str1
End Sub
```

See Also

GetField
Left
Mid function
Mid statement
Right
RTrim
Trim

MenuIDSelect

User Action Command ▸▸▸SQA▸

Description Performs a menu selection based on the internal ID of the menu item.

Syntax **MenuIDSelect** *MenuID&*

Syntax Element	Description
MenuID&	The internal ID of a menu item.

Comments This command is necessary for making selections from menu items that do not contain text, such as owner drawn or bitmap menus.

Example This example selects the menu item identified by the internal ID 1145 from the current context window.

```
MenuIDSelect 1145
```

See Also `MenuSelect` `PopupMenuIDSelect` `PopupMenuSelect` `SysMenuIDSelect` `SysMenuSelect`

MenuSelect

User Action Command ▸▸▸SQA▸

Description Selects a menu item through one or more mouse clicks.

Syntax **`MenuSelect`** *`menuPath$`*

Syntax Element	Description
`menuPath$`	A sequential list of the menu, any sub-menus, and the target menu item that a user clicks. Each is separated by a pointer (`->`). If you are specifying an item by position or by ID rather than by name, *`menuPath`* must begin with `Menu=`. For example, `Menu=File->pos(3)` selects the third item in the File menu. See *Comments* for more information.

Comments During recording, Robot identifies menu item selections by item name. Each name represents a mouse click. For example, Robot might record a command to open a file as follows:

```
MenuSelect "File->Open..."        ' User clicks File, then Open
```

During manual scripting, you can reference a menu item selection in any of the following ways. All of the following examples select the About Rational Administrator... item of the Rational Administrator Help menu:

- Through the menu item name:

  ```
  MenuSelect "Help->About Rational Administrator..."
  ```

- Through the position of the menu item on the menu:

  ```
  MenuSelect "Menu=Help->pos(4)"
  ```

The first item in a menu is position 1, not 0. Also, ignore menu item separators when counting the position of an item in a menu.

- Through the menu item ID:

```
MenuSelect "Menu=Help->id(32884)"
```

You can use any of the above methods to represent both intermediate menu items and the target menu item.

When using `MenuSelect` to select a menu item, you must reference the top-level menu and every lower-level menu up to and including the menu where the target item is located. However, you can select a menu item directly by its item ID, without specifying any menu or sub-menu, by calling `MenuIDSelect`.

During manual scripting, you can select a menu item through a series of `InputKeys` commands, or through a combination of `MenuSelect` and `InputKeys` commands. This feature lets you play back a menu item selection entirely through keystrokes, or through a combination of keystrokes and mouse clicks, rather than through mouse clicks alone. For example, the following commands select the menu item Computer from the Microsoft Explorer's Tools menu and Find sub-menu:

```
Window SetContext, "Caption={Exploring*}", ""
MenuSelect "Tools"        ' MenuSelect "menu=pos(4)" also works
InputKeys "f"
InputKeys "c"
```

If a menu is selected, you can clear it by calling `MenuSelect ""`.

Example

This example selects the sub-menu item Change System Settings... from the top-level Options menu of the current context window.

```
MenuSelect "Options->Change System Settings..."
```

See Also

`MenuIDSelect` `SysMenuIDSelect` `PopupMenuIDSelect` `SysMenuSelect` `PopupMenuSelect`

Mid

Function

Description

Returns a portion of a string, starting at a specified character position.

Syntax

Mid[$](*string$*, *start%* [, *length%*])

Syntax Element	Description
$	Optional. If specified, the return type is String. If omitted, the function typically returns a Variant of VarType 8 (String).
string$	A string or expression that contains the string to retrieve.
start%	The starting position in *string$* where the string to retrieve begins.
length%	An optional argument specifying the number of characters to retrieve.

Comments

Upon successful execution, Mid returns the string retrieved from *string$*.

Mid accepts any type of *string$*, including numeric values, and will convert the input value to a string.

If the *length%* argument is omitted, or if *string$* is smaller than *length%*, Mid returns all characters from *start%* through the end of *string$*. If *start%* is larger than *string$*, Mid returns a null string ("").

The index of the first character in a string is 1.

If the value of *string$* is Null, a Variant of VarType 1 (Null) is returned. Mid$ requires the string argument to be of type string or variant. Mid allows the string argument to be of any data type.

To modify a portion of a string value, see Mid Statement.

To return a specified number of bytes from a string, use MidB. With MidB, *start%* specifies a byte position, and *length%* specifies a number of bytes.

Example

This example uses the Mid function to find the last name in a string.

```
Sub main
   Dim username as String
   Dim position as Integer
   username=InputBox("Enter your full name:")
   Do
     position=InStr(username," ")
     If position=0 then
       Exit Do
     End If
     position=position+1
     username=Mid(username,position)
   Loop
   MsgBox "Your last name is: " & username
End Sub
```

See Also

GetField, Len, Right, LCase, LTrim, RTrim, Left, Mid statement, Trim

Mid
Statement

Description

Replaces part (or all) of one string with another, starting at a specified location.

Syntax

Mid (*stringvar$*, *start%* [, *length%*]) = *string$*

Syntax Element	Description
stringvar$	The string to change.
start%	The position where character replacement begins.
length%	The number of characters to replace.
string$	The string to place into *stringvar$*.

Comments

If the *length%* argument is omitted, or if there are fewer characters in *string$* than specified in *length%*, then Mid replaces all the characters from the *start%* to the end of the *string$*. If *start%* is larger than the number of characters in the indicated *stringvar$*, then Mid appends *string%* to *stringvar$*.

If *length%* is greater than the length of *string$*, then *length%* is set to the length of *string$*. If *start%* is greater than the number of characters in *stringvar$*, an illegal function call error will occur at runtime. If *length%* plus *start%* is greater than the length of *stringvar$*, then only the characters up to the end of *stringvar$* are replaced.

Mid never changes the number of characters in *stringvar$*.

The index of the first character in a string is 1.

To replace a specified number of bytes in a string with those from another string, use MidB. With MidB, *start%* specifies a byte position, and *length%* specifies a number of bytes.

Example

This example uses the Mid statement to replace the last name in a user-entered string to asterisks(*).

```
Sub main
   Dim username as String
   Dim position as Integer
   Dim count as Integer
   Dim uname as String
   Dim replacement as String
   Dim x as Integer
   username=InputBox("Enter your full name:")
   uname=username
   replacement="*"
   Do
      position=InStr(username," ")
```

```
         If position=0 then
            Exit Do
         End If
         username=Mid(username,position+1)
         count=count+position
      Loop
      For x=1 to Len(username)
         count=count+1
         Mid(uname,count)=replacement
      Next x
      MsgBox "Your name now is: " & uname
   End Sub
```

See Also

GetField	Mid function
Left	Right
Len	RTrim
LTrim	Trim

Minute

Function

Description

Returns an integer for the minute component (0-59) of a date-time value.

Syntax

Minute(*time*)

Syntax Element	Description
time	Any expression that can evaluate to a date-time value.

Comments

`Minute` accepts any type of *time*, including strings, and will attempt to convert the input value to a date value.

The return value is a `Variant` of VarType 2 (Integer). If the value of *time* is null, a Variant of VarType 1 (null) is returned.

Example

This example extracts just the time (hour, minute, and second) from a file's last modification date and time.

```
Sub main
   Dim filename as String
   Dim ftime
   Dim hr, min
   Dim sec
   Dim msgtext as String
i: msgtext="Enter a filename:"
   filename=InputBox(msgtext)
   If filename="" then
      Exit Sub
   End If
   On Error Resume Next
   ftime=FileDateTime(filename)
```

```
   If Err<>0 then
      MsgBox "Error in file name. Try again."
      Goto i:
   End If
   hr=Hour(ftime)
   min=Minute(ftime)
   sec=Second(ftime)
   MsgBox "The file's time is: " & hr &":" &min &":" &sec
End Sub
```

See Also

DateSerial, DateValue, Day, Hour, Month, Now, Second, Time function, Time statement, TimeSerial, TimeValue, Weekday, Year

MkDir

Statement

Description

Creates a new directory.

Syntax

MkDir *path$*

Syntax Element	Description
path$	A string expression identifying the new default directory to create.

Comments

The syntax for *path$* is:

[*drive*:][\]*directory*[*directory*]

The *drive* argument is optional. If *drive* is omitted, MkDir makes a new directory on the current drive. The directory argument is any directory name.

Example

This example makes a new temporary directory in C:\ and then deletes it.

```
Sub main
    Dim path as String
    Dim C as String
    On Error Resume Next
    path=CurDir(C)
    If path<>"C:\" then
        ChDir "C:\"
    End If
    MkDir "C:\TEMP01"
    If Err=75 then
        MsgBox "Directory already exists"
```

```
        Else
            MsgBox "Directory C:\TEMP01 created"
            MsgBox "Now removing directory"
            RmDir "C:\TEMP01"
        End If
    End Sub
```

See Also

`ChDir` `Dir`
`ChDrive` `RmDir`
`CurDir`

ModuleVP

Verification Point Command

Description

Verifies whether a specified module is in memory during playback.

Syntax

`Result` = **`ModuleVP`** (*`action%`*, *`recMethod$`*, *`parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ▸ `Exists`. Checks whether the specified module is in memory. *`parameters$`* VP is required; `ExpectedResult` and `Wait` are optional. ▸ `DoesNotExist`. Checks whether the specified module is not in memory. *`parameters$`* VP is required; `ExpectedResult` and `Wait` are optional. **Note:** This action cannot be accessed during recording. It must be inserted manually.
`recMethod$`	Valid value: ▸ `Name=$`. The name of the module to be verified. The name must include the three-character extension and may optionally include a fully qualified path.
`parameters$`	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► VP=*$*. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry and Timeout values, as in `Wait=10,40` (retry the test every 10 seconds, and timeout after 40 seconds).

Comments Within Microsoft Windows, modules are defined as programs (.EXE), libraries (.DLL or other), device drivers (.SYS or .DRV), and display fonts (.FON).

Verification points that check for a module's existence are not kept in the datastore and do not appear in Robot's Asset pane.

Example This example verifies the existence in memory of the module named USER.EXE.

```
Result = ModuleVP (Exists, "Name=USER.EXE", "VP=MOD01")
```

See Also `FileVP`

Month
Function

Description Returns an integer for the month component (1-12) of a date-time value.

Syntax **`Month`**(*`date`*)

Syntax Element	Description
`date`	Any expression that evaluates to a date-time value.

Comments This function accepts any type of *`date`*, including strings, and will attempt to convert the input value to a date value.

The return value is a `Variant` of VarType 2 (integer). If the value of *`date`* is null, a Variant of VarType 1 (null) is returned.

Example This example finds the month (1-12) and day (1-31) values for this Thursday.

```
Sub main
    Dim x, today
    Dim msgtext
    Today=DateValue(Now)
    Let x=0
    Do While Weekday(Today+x)<> 5
```

```
            x=x+1
        Loop
        msgtext="This Thursday is: " & Month(Today+x)&"/"&Day(Today+x)
        MsgBox msgtext
    End Sub
```

See Also

```
Date function       Hour            TimeValue
Date statement      Minute          Weekday
DateSerial          Now             Year
DateValue           Second
Day                 TimeSerial
```

MsgBox
Function

Description

Displays a message box and returns a value (1-7) indicating which button the user selected.

Syntax

MsgBox(*prompt$*,[*buttons%*][, *title$*])

Syntax Element	Description
prompt$	The text to display in a dialog box.
buttons%	An integer value for the buttons, the icon, and the default button choice to display in a dialog box. *buttons%* is the sum of three values, one from each of the following groups: ▸ Group 1: Buttons 0. OK only 1. OK, Cancel 2. Abort, Retry, Ignore 3. Yes, No, Cancel 4. Yes, No 5. Retry, Cancel ▸ Group 2: Icons 16. Critical Message (STOP) 32. Warning Query (?) 48. Warning Message (!) 64. Information Message (i)

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
	▶ Group 3: Defaults `0`. First button `256`. Second button `512`. Third button If *`buttons%`* is omitted, `MsgBox` displays a single OK button.
`title$`	A string expression containing the title for the message box.

Comments

`Prompt$` does not accept strings of more than 1,023 characters.

After the user clicks a button, `MsgBox` returns a value indicating the user's choice. The return values for the `MsgBox` function are:

Value	Button Pressed
`1`	OK
`2`	Cancel
`3`	Abort
`4`	Retry
`5`	Ignore
`6`	Yes
`7`	No

Example

This example displays one of each type of message box.

```
Sub main
   Dim btngrp as Integer
   Dim icongrp as Integer
   Dim defgrp as Integer
   Dim msgtext as String
   icongrp=16
   defgrp=0
   btngrp=0
   Do Until btngrp=6
     Select Case btngrp
        Case 1, 4, 5
           defgrp=0
        Case 2
           defgrp=256
        Case 3
           defgrp=512
      End Select
      msgtext="  Icon group = " & icongrp & Chr(10)
      msgtext=msgtext + "   Button group = " & btngrp &
         Chr(10)
```

```
            msgtext=msgtext + "   Default group = " & defgrp &
               Chr(10)
            msgtext=msgtext + Chr(10) + "   Continue?"
            answer = MsgBox(msgtext, btngrp+icongrp+defgrp)
            Select Case answer
              Case 2,3,7
                Exit Do
            End Select
            If icongrp<>64 then
               icongrp=icongrp+16
            End If
            btngrp=btngrp+1
         Loop
      End Sub
```

See Also `Dialog Boxes` `MsgBox statement` `InputBox` `PasswordBox`

MsgBox
Statement

Description

Displays a prompt in a message box.

Syntax

MsgBox *prompt$,* [*buttons%*][, *title$*]

Syntax Element	Description
prompt$	The text to display in a dialog box.
buttons%	An integer value for the buttons, the icon, and the default button choice to display in a dialog box. *buttons%* is the sum of three values, one from each of the following groups: ▸ Group 1: Buttons 0. OK only 1. OK, Cancel 2. Abort, Retry, Ignore 3. Yes, No, Cancel 4. Yes, No 5. Retry, Cancel ▸ Group 2: Icons 16. Critical Message (STOP) 32. Warning Query (?) 48. Warning Message (!) 64. Information Message (i)

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
	▶ Group 3: Defaults 0. First button 256. Second button 512. Third button If *buttons%* is omitted, MsgBox displays a single OK button.
title$	A string expression containing the title for the message box.

Comments *Prompt$* does not accept strings of more than 1,023 characters.

Example This example finds the future value of an annuity, whose terms are defined by the user. It uses the MsgBox statement to display the result.

```
Sub main
   Dim aprate, periods
   Dim payment, annuitypv
   Dim due, futurevalue
   Dim msgtext
   annuitypv=InputBox("Enter present value of the annuity: ")
   aprate=InputBox("Enter the annual percentage rate: ")
   If aprate > 1 then
       Aprate = aprate/100
   End If
   periods=InputBox("Enter the total number of pay periods: ")
   payment=InputBox("Enter the initial amount paid to you: ")
Rem Assume payments are made at end of month
   due=0
   futurevalue=FV(aprate/12,periods,-payment,- annuitypv,due)
   msgtext="The future value is: " & Format(futurevalue,"Currency")
   MsgBox msgtext
End Sub
```

See Also InputBox
MsgBox function
PasswordBox

Name
Statement

Description Renames a file or moves a file from one directory to another.

Syntax **Name** *oldfilename$* As *newfilename$*

Syntax Element	Description
oldfilename$	A string expression containing the file to rename.
newfilename$	A string expression containing the name for the file.

Comments

A path can be part of either file name argument. If the paths are different, the file is moved to the new directory.

A file must be closed in order to be renamed. If the file *oldfilename$* is open or if the file *newfilename$* already exists, SQABasic generates an error message.

Example

This example creates a temporary file, C:\TEMP001, renames the file to C:\TEMP002, then deletes them both. It calls the sub procedure CREATEFILE to create the C:\TEMP001 file.

```
Declare Sub createfile()
Sub main
   Call createfile
   On Error Resume Next
   Name "C:\TEMP001" As "C:\TEMP002"
   MsgBox "The file has been renamed"
   MsgBox "Now deleting both files"
   Kill "TEMP001"
   Kill "TEMP002"
End Sub

Sub createfile()
   Rem Put the numbers 1-10 into a file
   Dim x as Integer
   Dim y()
   Dim startletter
   Open "C:\TEMP001" for Output as #1
   For x=1 to 10
      Write #1, x
   Next x
   Close #1
End Sub
```

See Also

`FileAttr` `GetAttr`
`FileCopy` `Kill`

New
Operator

Description

Allocates and initializes a new OLE2 object of the named class.

Syntax

```
Set objectVar = New className

Dim objectVar As New className
```

Syntax Element	Description
objectVar	The OLE2 object to allocate and initialize.
className	The class to assign to the object.

Comments

In the `Dim` statement, `New` marks *`objectVar`* so that a new object will be allocated and initialized when *`objectVar`* is first used. If *`objectVar`* is not referenced, then no new object will be allocated.

Note: An object variable that was declared with `New` will allocate a second object if *`objectVar`* is `Set` to `Nothing` and referenced again.

Example

None.

See Also

`Dim` `Set`
`Global` `Static`

'$NoCStrings

Metacommand ▸▸▸SQA▸

Description

Tells the compiler to treat a backslash (\) inside a string as a normal character.

Syntax

`'$NoCStrings` `[Save]`

Syntax Element	Description
`Save`	Saves the current `'$CStrings` setting before restoring the treatment of the backslash (\) to a normal character.

Comments

Use the `'$CStings Restore` command to restore a previously saved setting. `Save` and `Restore` operate as a stack and allow the user to change the `'$CStrings` setting for a range of the program without impacting the rest of the program.

Use the `'$CStrings` metacommand to tell the compiler to treat a backslash (\ ) inside of a string as an Escape character.

All metacommands must begin with an apostrophe (') and are recognized by the compiler only if the command starts at the beginning of a line.

Example

This example displays two lines, the first time using the C-language characters \n for a carriage return and line feed.

```
Sub main
   '$CStrings
```

```
      MsgBox "This is line 1\n This is line 2 (using C
         Strings)"
      '$NoCStrings
      MsgBox "This is line 1" +Chr$(13)+Chr$(10)+"This
         is line 2 (using Chr)"
   End Sub
```

See Also

```
'$CStrings
'$Include
Rem
```

Nothing

Function

Description

Returns an object value that does not refer to an object.

Syntax

`Set` *`variableName`* `=` **`Nothing`**

Syntax Element	Description
`variableName`	The name of the object variable to set to nothing.

Comments

`Nothing` is the value object variables have when they do not refer to an object, either because the have not been initialized yet or because they were explicitly `Set` to `Nothing`. For example:

```
If Not objectVar Is Nothing then
   objectVar.Close
   Set objectVar = Nothing
End If
```

Example

This example displays a list of open files in the software application VISIO. It uses the Nothing function to determine whether VISIO is available. To see how this example works, you need to start VISIO and open one or more documents.

```
Sub main
   Dim visio as Object
   Dim doc as Object
   Dim msgtext as String
   Dim i as Integer, doccount as Integer

'Initialize Visio
   ' find Visio
   Set visio = GetObject(,"visio.application")
   If (visio Is Nothing) then
      MsgBox "Couldn't find Visio!"
      Exit Sub
   End If
   'Get # of open Visio files
   'OLE2 call to Visio
   doccount = visio.documents.count
```

```
   If doccount=0 then
      msgtext="No open Visio documents."
   Else
      msgtext="The open files are: " & Chr$(13)
      For i = 1 to doccount
         ' access Visio's document method
         Set doc = visio.documents(i)
         msgtext=msgtext & Chr$(13) & doc.name
      Next i
   End If
   MsgBox msgtext
End Sub
```

See Also `Is`
`New`

Now
Function

Description Returns the current date and time.

Syntax **`Now()`**

Comments The `Now` function returns a `Variant` of `VarType` 7 (date) that represents the current date and time according to the setting of the computer's system date and time.

Example This example finds the month (1-12) and day (1-31) values for this Thursday.

```
Sub main
    Dim x, today
    Dim msgtext
    Today=DateValue(Now)
    Let x=0
    Do While Weekday(Today+x)<> 5
        x=x+1
    Loop
    msgtext="This Thursday is: " & Month(Today+x)&"/"&Day(Today+x)
    MsgBox msgtext
End Sub
```

See Also

`Date function`	`Minute`	`Time statement`
`Date statement`	`Month`	`Weekday`
`Day`	`Second`	`Year`
`Hour`	`Time function`	

NPV
Function

Description

Returns the net present value of an investment based on a stream of periodic cash flows and a constant interest rate.

Syntax

NPV (*rate, valuearray*())

Syntax Element	Description
rate	Discount rate per period.
valuearray()	An array containing cash flow values.

Comments

Valuearray() must have at least one positive value (representing a receipt) and one negative value (representing a payment). All payments and receipts must be represented in the exact sequence. The value returned by NPV will vary with the change in the sequence of cash flows.

If the discount rate is 12% per period, *rate* is the decimal equivalent, i.e. 0.12.

NPV uses future cash flows as the basis for the net present value calculation. If the first cash flow occurs at the beginning of the first period, its value should be added to the result returned by NPV and must not be included in *valuearray*().

Example

This example finds the net present value of an investment, given a range of cash flows by the user.

```
Sub main
   Dim aprate as Single
   Dim varray() as Double
   Dim cflowper as Integer
   Dim x as Integer
   Dim netpv as Double
   cflowper=InputBox("Enter number of cash flow periods")
   ReDim varray(cflowper)
   For x= 1 to cflowper
     varray(x)=InputBox("Cash flow amount for period #" & x & ":")
   Next x
   aprate=InputBox("Enter discount rate: ")
   If aprate>1 then
      aprate=aprate/100
   End If
   netpv=NPV(aprate,varray())
   MsgBox "The net present value is: " & Format(netpv, "Currency")
End Sub
```

See Also

FV PPmt
IPmt PV
IRR Rate
Pmt

Null
Function

Description Returns a `Variant` value set to `NULL`.

Syntax **`Null`**

Comments `Null` is used to set a Variant to the `Null` value explicitly, as follows:

```
variableName = Null
```

Note that Variants are initialized by SQABasic to the `empty` value, which is different from the `null` value.

Example This example asks for ten test score values and calculates the average. If any score is negative, the value is set to `Null`. Then `IsNull` is used to reduce the total count of scores (originally 10) to just those with positive values before calculating the average.

```
Sub main
   Dim arrayvar(10)
   Dim count as Integer
   Dim total as Integer
   Dim x as Integer
   Dim msgtext as String
   Dim tscore as Single
   count=10
   total=0
   For x=1 to count
      tscore=InputBox("Enter test score #" & x & ":")
      If tscore<0 then
         arrayvar(x)=Null
      Else
         arrayvar(x)=tscore
         total=total+arrayvar(x)
      End If
   Next x
   Do While x<>0
      x=x-1
      If IsNull(arrayvar(x))=-1 then
         count=count-1
      End If
   Loop
   msgtext="Average (excluding negative values) is: " & Chr(10)
   msgtext=msgtext & Format (total/count, "##.##")
   MsgBox msgtext
End Sub
```

See Also `IsEmpty`
`IsNull`
`VarType`

Object Class

Description

A class that provides access to OLE2 automation objects.

Syntax

```
Dim variableName As Object
```

Syntax Element	Description
variableName	The name of the object variable to declare.

Comments

To create a new object, first dimension a variable, using the `Dim` statement, then `Set` the variable to the return value of `CreateObject` or `GetObject`, as follows:

```
Dim OLE2 As Object
SetOLE2 = CreateObject("spoly.cpoly")
```

To refer to a method or property of the newly created object, use the syntax: *`objectvar.property`* or *`objectvar.method`*, as follows:

```
OLE2.reset
```

Example

This example displays a list of open files in the software application VISIO. It uses the Object class to declare the variables used for accessing VISIO and its document files and methods.

```
Sub main
   Dim visio as Object
   Dim doc as Object
   Dim msgtext as String
   Dim i as Integer, doccount as Integer

'Initialize Visio
   ' find Visio
   Set visio = GetObject(,"visio.application")
   If (visio Is Nothing) then
      MsgBox "Couldn't find Visio!"
      Exit Sub
   End If
'Get # of open Visio files
   'OLE2 call to Visio
   doccount = visio.documents.count
   If doccount=0 then
      msgtext="No open Visio documents."
   Else
      msgtext="The open files are: " & Chr$(13)
      For i = 1 to doccount
         ' access Visio's document method
         Set doc = visio.documents(i)
         msgtext=msgtext & Chr$(13) & doc.name
      Next i
   End If
   MsgBox msgtext
End Sub
```

See Also

Class List
Create Object
Get Object
New
Nothing
Typeof

Oct

Function

Description

Returns the octal representation of a number, as a string.

Syntax

Oct[$](*number*)

Syntax Element	Description
$	Optional. If specified the return data type is String. If omitted the function will return a Variant of VarType 8 (string).
number	A numeric expression for the number to convert to octal.

Comments

If the numeric expression has a data type of Integer, the string contains up to six octal digits; otherwise, the expression will be converted to a data type of Long, and the string can contain up to 11 octal digits.

To represent an octal number directly, precede the octal value with &O. For example, &O10 equals decimal 8 in octal notation.

Example

This example prints the octal values for the numbers from 1 to 15.

```
Sub main
   Dim x,y
   Dim msgtext
   Dim nofspaces
   msgtext="Octal numbers from 1 to 15:" & Chr(10)
   For x=1 to 15
     nofspaces=10
     y=Oct(x)
     If Len(x)=2 then
        nofspaces=nofspaces-2
     End If
     msgtext=msgtext & Chr(10) & x & Space(nofspaces) & y
   Next x
   MsgBox msgtext
End Sub
```

See Also

Hex

OKButton
Statement

Description
Determines the position and size of an OK button in a dialog box.

Syntax
OKButton *x, y, dx, dy*[, *.id*]

Syntax Element	Description
x, y	The position of the OK button relative to the upper left corner of the dialog box.
dx, dy	The width and height of the button.
.id	An optional identifier for the button.

Comments
A *dy* value of 14 typically accommodates text in the system font.

.id is an optional identifier used by the dialog statements that act on this control.

Use the OKButton statement only between a Begin Dialog and an End Dialog statement.

Example
This example defines a dialog box with a DropComboBox and the OK and Cancel buttons.

```
Sub main
   Dim cchoices as String
   On Error Resume Next
   cchoices="All"+Chr$(9)+"Nothing"
   Begin Dialog UserDialog 180, 95, "SQABasic Dialog Box"
       ButtonGroup .ButtonGroup1
       Text  9, 3, 69, 13, "Filename:", .Text1
       DropComboBox  9, 17, 111, 41, cchoices, .ComboBox1
       OKButton  131, 8, 42, 13
       CancelButton  131, 27, 42, 13
    End Dialog
       Dim mydialogbox As UserDialog
       Dialog mydialogbox
       If Err=102 then
          MsgBox "You pressed Cancel."
       Else
          MsgBox "You pressed OK."
       End If
End Sub
```

See Also
Begin/End Dialog, Button, ButtonGroup, CancelButton, Caption, CheckBox, ComboBox, Dialog, DropComboBox, GroupBox, ListBox, OptionButton, OptionGroup, Picture, StaticComboBox, Text, TextBox

On...GoTo

Statement

Description

Branch to a label in the current procedure based on the value of a numeric expression.

Syntax

ON *numeric-expression* **GoTo** *label1*[, *label2,...*]

Syntax Element	Description
numeric-expression	Any numeric expression that evaluates to a positive number.
label1, label2	A label in the current procedure to branch to if *numeric-expression* evaluates to 1, 2, and so on.

Comments

If *numeric expression* evaluates to 0 or to a number greater than the number of labels following GoTo, the program continues at the next statement. If *numeric-expression* evaluates to a number less than 0 or greater than 255, an `Illegal function call` error is issued.

A label has the same format as any other SQABasic name. See Appendix A for more information about SQABasic labels and names.

Example

This example sets the current system time to the user's entry. If the entry cannot be converted to a valid time value, this sub procedure sets the variable to Null. It then checks the variable and if it is Null, uses the `On...GoTo` statement to ask again.

```
Sub main
    Dim answer as Integer
    answer=InputBox("Enter a choice (1-3) or 0 to quit")
    On answer GoTo c1, c2, c3
    MsgBox("You typed 0.")
    Exit Sub
c1: MsgBox("You picked choice 1.")
    Exit Sub
c2: MsgBox("You picked choice 2.")
    Exit Sub
c3: MsgBox("You picked choice 3.")
    Exit Sub
End Sub
```

See Also

`Goto`
`Select Case`

On Error
Statement

Description

Specifies the location of an error-handling routine within the current procedure.

Syntax

```
ON [Local] Error {GoTo label [Resume Next]
GoTo 0}
```

Syntax Element	Description
label	A string used as a label in the current procedure to identify the lines of code that process errors.

Comments

`On Error` can also be used to disable an error-handling routine. Unless an `On Error` statement is used, any runtime error will be fatal (SQABasic will terminate the execution of the program).

An `On Error` statement is composed of the following parts:

Part	Definition
`Local`	Keyword allowed in error-handling routines at the procedure level. Used to ensure compatibility with other Variants of SQABasic.
`GoTo` *label*	Enables the error-handling routine that starts at *label*. If the designated label is not in the same procedure as the `On Error` statement, SQABasic generates an error message.
`Resume Next`	Designates that error-handling code is handled by the statement that immediately follows the statement that caused an error. At this point, use the `Err` function to retrieve the error-code of the runtime error.
`GoTo 0`	Disables any error handler that has been enabled.

When it is referenced by an `On Error GoTo` *label* statement, an error-handler is enabled. Once this enabling occurs, a runtime error will result in program control switching to the error-handling routine and "activating" the error handler. The error handler remains active from the time the runtime error has been trapped until a `Resume` statement is executed in the error handler.

If another error occurs while the error handler is active, SQABasic will search for an error handler in the procedure that called the current procedure (if this fails, SQABasic will look for a handler belonging to the caller's caller, and so on). If a handler is found, the current procedure will terminate, and the error handler in the calling procedure will be activated.

It is an error (No Resume) to execute an `End Sub` or `End Function` statement while an error handler is active. The `Exit Sub` or `Exit Function` statement can be used to end the error condition and exit the current procedure.

A label has the same format as any other SQABasic name. See Appendix A for more information about SQABasic labels and names.

Example

This example prompts the user for a drive and directory name and uses `On Error` to trap invalid entries.

```
Sub main
      Dim userdrive, userdir, msgtext
in1:  userdrive=InputBox("Enter drive:",,"C:")
      On Error Resume Next
      ChDrive userdrive
      If Err=68 then
         MsgBox "Invalid Drive. Try again."
         Goto in1
      End If
in2:  On Error Goto Errhdlr1
      userdir=InputBox("Enter directory path:")
      ChDir userdrive & userdir
      MsgBox "New default directory is: " & userdrive & userdir
      Exit Sub
Errhdlr1:
      Select Case Err
         Case 75
            msgtext="Path is invalid."
         Case 76
            msgtext="Path not found."
         Case 70
            msgtext="Permission denied."
         Case Else
            msgtext="Error " & Err & ": " & Error$ & "occurred."
      End Select
      MsgBox msgtext & " Try again."
      Resume in2
End Sub
```

See Also

`Erl` `Err function` `Err statement` `Error function` `Error statement` `Resume`

Open

Statement

Description

Opens a file or device for input or output.

Syntax

Open *filename$* [For *mode*] [Access *access*] [*lock*] As [#]*filenumber%* [Len = *reclen*]

Syntax Element	Description
filename$	A string or string expression for the name of the file to open.
mode	One of the following keywords: ▸ `Input`. Read data from the file sequentially. ▸ `Output`. Put data into the file sequentially. ▸ `Append`. Add data to the file sequentially. ▸ `Random`. Get data from the file by random access. ▸ `Binary`. Get binary data from the file.
access	One of the following keywords: ▸ `Read`. Read data from the file only. ▸ `Write`. Write data to the file only. ▸ `Read Write`. Read or write data to the file.
lock	One of the following keywords to designate access by other processes: ▸ `Shared`. Read or write available on the file. ▸ `Lock Read`. Read data only. ▸ `Lock Write`. Write data only. ▸ `Lock Read Write`. No read or write available.
filenumber%	An integer or expression containing the integer to assign to the open file (between 1 and 255).
reclen	The length of the records (for Random or Binary files only).

Comments

A file must be opened before any input/output operation can be performed on it.

If *filename$* does not exist, it is created when opened in `Append`, `Binary`, `Output` or `Random` modes.

If *mode* is not specified, it defaults to `Random`.

If *access* is not specified for `Random` or `Binary` modes, *access* is attempted in the following order: `Read Write`, `Write`, `Read`.

If *lock* is not specified, *filename$* can be opened by other processes that do not specify a *lock*, although that process cannot perform any file operations on the file while the original process still has the file open.

Use the `FreeFile` function to find the next available value for *filenumber%*.

Reclen is ignored for `Input`, `Output`, and `Append` *modes*.

Example

This example opens a file for Random access, gets the contents of the file, and closes the file again. The second sub procedure, CREATEFILE, creates the file C:\TEMP001 used by the main sub procedure.

```
Declare Sub createfile()
Sub main
   Dim acctno as String*3
   Dim recno as Long
   Dim msgtext as String
   Dim newline as String
   Call createfile
   recno=1
   newline=Chr(10)
   Open "C:\TEMP001" For Random As #1 Len=3
   msgtext="The account numbers are:" & newline
   Do Until recno=11
         Get #1,recno,acctno
         msgtext=msgtext & acctno
         recno=recno+1
   Loop
   MsgBox msgtext
   Close #1
   Kill "C:\TEMP001"
End Sub

Sub createfile()
   Rem Put the numbers 1-10 into a file
   Dim x as Integer
   Open "C:\TEMP001" for Output as #1
   For x=1 to 10
      Write #1, x
   Next x
   Close #1
End Sub
```

See Also

`Close`
`FreeFile`

Option Base

Statement

Description

Specifies the default lower bound to use for array subscripts.

Syntax

`Option Base` *`lowerBound%`*

Syntax Element	Description
`lowerBound%`	A number or expression containing a number for the default lower bound: either 0 or 1.

Comments

If no `Option Base` statement is specified, the default lower bound for array subscripts will be 0.

The Option Base statement is *not* allowed inside a procedure, and must precede any use of arrays in the module. Only one Option Base statement is allowed per module.

Example

This example resizes an array if the user enters more data than can fit in the array. It uses LBound and UBound to determine the existing size of the array and ReDim to resize it. Option Base sets the default lower bound of the array to 1.

```
Option Base 1
Sub main
   Dim arrayvar() as Integer
   Dim count as Integer
   Dim answer as String
   Dim x, y as Integer
   Dim total
   total=0
   x=1
   count=InputBox("How many test scores do you have?")
   ReDim arrayvar(count)
start:
   Do until x=count+1
     arrayvar(x)=InputBox("Enter test score #" &x & ":")
     x=x+1
   Loop
   answer=InputBox$("Do you have more scores? (Y/N)")
   If answer="Y" or answer="y" then
     count=InputBox("How many more do you have?")
     If count<>0 then
       count=count+(x-1)
       ReDim Preserve arrayvar(count)
       Goto start
     End If
   End If
   x=LBound(arrayvar,1)
   count=UBound(arrayvar,1)
   For y=x to count
        total=total+arrayvar(y)
   Next y
   MsgBox "The average of " & count & " scores is " & Int(total/count)
End Sub
```

See Also

Dim ReDim
Global Static
LBound

Option Compare

Statement

Description

Specifies the default method for string comparisons: either case-sensitive or case-insensitive.

Syntax **Option Compare** { Binary | Text }

Syntax Element	Description
Binary	Comparisons are case-sensitive (lowercase and uppercase letters are different).
Text	Comparisons are not case-sensitive.

Comments `Binary` comparisons compare strings based upon the ANSI character set. `Text` comparisons are based upon the relative order of characters as determined by the country code setting for your system.

Example This example compares two strings: "Jane Smith" and "jane smith". When `Option Compare` is `Text`, the strings are considered the same. If `Option Compare` is `Binary`, they will not be the same. `Binary` is the default. To see the difference, run the example once, and then run it again, commenting out the `Option Compare` statement.

```
Option Compare Text
Sub main
   Dim strg1 as String
   Dim strg2 as String
   Dim retvalue as Integer
   strg1="JANE SMITH"
   strg2="jane smith"
i:
   retvalue=StrComp(strg1,strg2)
   If retvalue=0 then
      MsgBox "The strings are identical"
   Else
      MsgBox "The strings are not identical"
      Exit Sub
   End If
End Sub
```

See Also `Instr`
`StrComp`

Option Explicit

Statement

Description Specifies that all variables in a module *must* be explicitly declared.

Syntax **Option Explicit**

Comments By default, SQABasic automatically declares any variables that do not appear in a `Dim`, `Global`, `Redim`, or `Static` statement. `Option Explicit` causes such variables to produce a `Variable Not Declared` error.

Example

This example specifies that all variables must be explicitly declared, thus preventing any mistyped variable names.

```
Option Explicit
Sub main
   Dim counter As Integer
   Dim fixedstring As String*25
   Dim varstring As String
...            Code here
End Sub
```

See Also

Const	End function	Sub
Def*type*	Global	End Sub
Dim	ReDim	
Function	Static	

OptionButton

Statement

Description

Defines the position and text associated with an option button in a dialog box.

Syntax

OptionButton *x, y, dx, dy, text$*[, .*id*]

Syntax Element	Description
x, y	The position of the button relative to the upper left corner of the dialog box.
dx, dy	The width and height of the button.
text$	A string to display next to the option button. If the width of this string is greater than *dx*, trailing characters are truncated.
.id	An optional identifier used by the dialog statements that act on this control.

Comments

You must have at least two `OptionButton` statements in a dialog box. You use these statements in conjunction with the `OptionGroup` statement.

A *dy* value of 12 typically accommodates text in the system font.

To enable the user to select an option button by typing a character from the keyboard, precede the character in *text$* with an ampersand (&).

Use the `OptionButton` statement only between a `Begin Dialog` and an `End Dialog` statement.

Example

This example creates a dialog box with a group box with two option buttons: All pages and Range of pages.

```
Sub main
   Begin Dialog UserDialog 183, 70, "SQABasic Dialog Box"
      GroupBox  5, 4, 97, 57, "File Range"
      OptionGroup .OptionGroup2
         OptionButton 16, 12, 46, 12, "All pages", .OptionButton3
         OptionButton 16, 28, 67, 8, "Range of pages", .OptionButton4
      Text  22, 39, 20, 10, "From:", .Text6
      Text  60, 39, 14, 9, "To:", .Text7
      TextBox  76, 39, 13, 12, .TextBox4
      TextBox  44, 39, 12, 11, .TextBox5
      OKButton  125, 6, 54, 14
      CancelButton  125, 26, 54, 14
   End Dialog
   Dim mydialog as UserDialog
   On Error Resume Next
   Dialog mydialog
   If Err=102 then
      MsgBox "Dialog box canceled."
   End If
End Sub
```

See Also

Begin/End Dialog	ComboBox	OptionGroup
Button	Dialog	Picture
ButtonGroup	DropComboBox	StaticComboBox
CancelButton	GroupBox	Text
Caption	ListBox	TextBox
CheckBox	OKButton	

OptionGroup

Statement

Description

Groups a series of option buttons under one heading in a dialog box.

Syntax

OptionGroup *.field*

Syntax Element	Description
.field	A value for the option button selected by the user: `0` for the first option button, `1` for the second button, and so on.

Comments

The `OptionGroup` statement is used in conjunction with `OptionButton` statements to set up a series of related options. The `OptionGroup` statement begins the definition of the option buttons and establishes the dialog-record field that will contain the option selection.

Use the `OptionGroup` statement only between a `Begin Dialog` and an `End Dialog` statement.

Example

This example creates a dialog box with a group box with two option buttons: All Pages and Range of Pages.

```
Sub main
   Begin Dialog UserDialog 192, 71, "SQABasic Dialog Box"
      GroupBox  7, 6, 97, 57, "File Range"
      OptionGroup .OptionGroup2
         OptionButton 18, 14, 46, 12,"All Pages", .OptionButton3
         OptionButton 18, 30, 67, 8,"Range of Pages",.OptionButton4
      Text  24, 41, 20, 10, "From:", .Text6
      Text  62, 41, 14, 9, "To:", .Text7
      TextBox  78, 41, 13, 12, .TextBox4
      TextBox  46, 41, 12, 11, .TextBox5
      OKButton  126, 6, 54, 14
      CancelButton  126, 26, 54, 14
   End Dialog
   Dim mydialog as UserDialog
   On Error Resume Next
   Dialog mydialog
   If Err=102 then
      MsgBox "Dialog box canceled."
   End If
End Sub
```

See Also

`Begin/End Dialog` `Button` `ButtonGroup` `CancelButton` `Caption` `CheckBox` `ComboBox` `Dialog` `DropComboBox` `GroupBox` `ListBox` `OKButton` `OptionButton` `Picture` `StaticComboBox` `Text` `TextBox`

Pager

User Action Command ▸▸▸SQA▸

Description

Performs an action on a Pager control.

Syntax

`Pager` *`action%, recMethod$, parameters$`*

Syntax Element	Description
`action%`	One of these mouse actions: ▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ► ID=*%*. The object's internal Windows ID. ► Label=*$*. The text of the label object that immediately precedes the control in the internal order (Z order) of windows. ► Name=*$*. A unique name that a developer assigns to an object to identify the object in the development environment. For example, the object name for a command button might be Command1. ► ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ► Text=*$*. The text displayed on the object. ► VisualText=*$*. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ► Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ► Coords=*x1,y1,x2,y2*. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

None.

Example

This example clicks the first pager control in the window (ObjectIndex=1) at *x*,*y* coordinates of 202,12.

```
Pager Click, "ObjectIndex=1", "Coords=202,12"
```

See Also

PagerVP

PagerVP

Verification Point Command

Description

Establishes a verification point for a pager control.

Syntax

Result = **PagerVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Label=$`. The text of the label object that immediately precedes the control in the internal order (Z order) of windows. ▸ `Name=$`. A unique name that a developer assigns to an object to identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The text displayed on the object. ▸ `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail.

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ VP=*$*. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ Wait=*%,%*. A Wait State that specifies the verification point's Retry value and a Timeout value, as in Wait=10,40 (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example This example captures the properties of the first pager control in the window (ObjectIndex=1) and compares them to the recorded baseline in verification point PAGER1.

```
Result = PagerVP (CompareProperties, "ObjectIndex=1", "VP=PAGER1")
```

See Also Pager

PasswordBox

Function

Description Returns a string entered by the user without echoing it to the screen.

Syntax **PasswordBox**[$](*prompt$*,[*title$*],[*default$*][,*xpos%*,*ypos%*])

Syntax Element	Description
$	Optional. If specified the return type is String. If omitted, the function will return a Variant of VarType 8 (String).
prompt$	A string expression containing the text to show in the dialog box.
title$	The caption for the dialog box's title bar.
default$	The string expression shown in the edit box as the default response.
xpos% , ypos%	The position of the dialog box, relative to the upper left corner of the screen.

Comments

The PasswordBox function displays a dialog box containing a prompt. Once the user has entered text, or made the button choice being prompted for, the contents of the box are returned.

The length of *prompt$* is restricted to 255 characters. This figure is approximate and depends on the width of the characters used. Note that a carriage return and a line-feed character must be included in *prompt$* if a multiple-line prompt is used.

If either *prompt$* or *default$* is omitted, nothing is displayed.

Xpos% determines the horizontal distance between the left edge of the screen and the left border of the dialog box, measured in dialog box units. *Ypos%* determines the horizontal distance from the top of the screen to the dialog box's upper edge, also in dialog box units. If these arguments are not entered, the dialog box is centered roughly one third of the way down the screen. A horizontal dialog box unit is 1/4 of the average character width in the system font; a vertical dialog box unit is 1/8 of the height of a character in the system font.

Note: To specify the dialog box's position, you must enter both of these arguments. If you enter one without the other, the default positioning is used.

Once the user presses Enter, or selects the OK button, PasswordBox returns the text contained in the password box. If the user selects Cancel, the PasswordBox function returns a null string ("").

Example

This example asks the user for a password.

```
Sub main
   Dim retvalue
   Dim a
   retvalue=PasswordBox("Enter your login password",Password)
   If retvalue<>"" then
      MsgBox "Verifying password"
      ...     'Continue code here
   Else
      MsgBox "Login canceled"
   End If
End Sub
```

See Also

InputBox
MsgBox

Picture

Statement

Description

Defines a picture control in a dialog box.

Syntax

Picture *x, y, dx, dy, filename$, type*[, *.id*]

Syntax Element	Description
x, y	The position of the picture relative to the upper left corner of the dialog box.
dx, dy	The width and height of the picture.
filename$	The name of the bitmap file (a file with .BMP extension) where the picture is located.
type	An integer for the location of the bitmap (0 = *filename$*, 3 = Windows Clipboard).
.id	An optional identifier used by the dialog statements that act on this control.

Comments

The `Picture` statement can only be used between a `Begin Dialog` and an `End Dialog` statement.

Note: The picture will be scaled equally in both directions and centered if the dimensions of the picture are not proportional to *dx* and *dy*.

If *type%* is 3, *filename$* is ignored.

If the picture is not available (the file *filename$* does not exist, does not contain a bitmap, or there is no bitmap on the Clipboard), the picture control will display the picture frame and the text `(missing picture)`. This behavior can be changed by adding 16 to the value of *type%*. If *type%* is 16 or 19 and the picture is not available, a runtime error occurs.

Example

This example defines a dialog box with a picture along with the OK and Cancel buttons. The example assumes that your Windows directory is named Windows.

```
Sub main
   Begin Dialog UserDialog 148, 73, "SQABasic Dialog Box"
      Picture  8, 7, 46, 46, "C:\WINDOWS\CIRCLES.BMP", 0
      OKButton  80, 10, 54, 14
      CancelButton  80, 30, 54, 14
   End Dialog
   Dim mydialog as UserDialog
   On Error Resume Next
   Dialog mydialog
   If Err=102 then
      MsgBox "Dialog box canceled."
   End If
End Sub
```

See Also

Begin/End Dialog	ComboBox	OptionButton
Button	Dialog	OptionGroup
ButtonGroup	DropComboBox	StaticComboBox
CancelButton	GroupBox	Text
Caption	ListBox	TextBox
CheckBox	OKButton	

PlayJrnl

Utility Command

Description Starts playback of a series of low-level recorded mouse and keyboard actions.

Syntax **PlayJrnl** *scriptID*

Syntax Element	Description
scriptID	A unique number that Robot assigns to the low-level script file.

Comments When you click Record → Turn Low-Level Recording On in Robot during recording, subsequent mouse and keyboard actions are automatically stored in an external file. Robot inserts the `PlayJrnl` command into the script to reference the external low-level file.

Low-level scripts are listed in the Robot Asset pane (to the left of the SQABasic script area of the Robot window). To display the contents of a low-level file, double-click the file's ID.

To return to Object-Oriented Recording, click Record → Turn Low-Level Recording Off.

Example This example plays back the low-level actions stored in the file referenced by ID 001.

```
PlayJrnl "001"
```

See Also None.

Pmt

Function

Description Returns a constant periodic payment amount for an annuity or a loan.

Syntax **Pmt** (*rate*, *nper*, *pv*, *fv*, *due*)

Syntax Element	Description
rate	Interest rate per period.
nper	Total number of payment periods.

► ► ►

▶ ▶ ▶

Syntax Element	Description
pv	Present value of the initial lump sum amount paid (as in the case of an annuity) or received (as in the case of a loan).
fv	Future value of the final lump sum amount required (as in the case of a savings plan) or paid (0 as in the case of a loan).
due	An integer value for when the payments are due (`0` = end of each period, `1` = beginning of the period).

Comments

Rate is assumed to be constant over the life of the loan or annuity. If payments are on a monthly schedule, then *rate* will be 0.0075 if the annual percentage rate on the annuity or loan is 9%.

Example

This example finds the monthly payment on a given loan.

```
Sub main
   Dim aprate, totalpay
   Dim loanpv, loanfv
   Dim due, monthlypay
   Dim yearlypay, msgtext
   loanpv=InputBox("Enter the loan amount: ")
   aprate=InputBox("Enter the loan rate percent: ")
   If aprate > 1 then
      Aprate = aprate/100
   End If
   totalpay=InputBox("Enter the total number of monthly payments: ")
   loanfv=0
'Assume payments are made at end of month
   due=0
   monthlypay=Pmt(aprate/12,totalpay,-loanpv,loanfv,due)
   msgtext="The monthly payment is: " & Format(monthlypay,"Currency")
   MsgBox msgtext
End Sub
```

See Also

FV PV
IPmt PPmt
IRR Rate
NPV

PopupMenuIDSelect

User Action Command ▸▸▸SQA▸

Description

Performs a popup menu selection based on the internal ID of the menu item.

Syntax

PopupMenuIDSelect *MenuID&*

Syntax Element	Description
MenuID&	The internal ID of the menu item.

Comments This command is usually preceded by a command containing a mouse-click action required to activate the popup menu.

This command is necessary for making selections from popup menu items that do not contain text, such as owner drawn or bitmap menus.

Example This example clicks the right mouse button at the *x,y* coordinates of 50,43 in the current context window and then selects the menu item identified by the internal ID 1145 from the pop-up menu that appears.

```
Window Right_Click, "", "Coords=50,43"
PopupMenuIDSelect 1145
```

See Also

```
MenuIDSelect        SysMenuIDSelect
MenuSelect          SysMenuSelect
PopupMenuSelect
```

PopupMenuSelect

User Action Command ▸▸▸SQA▸

Description Selects a popup menu item through one or more mouse clicks.

Syntax **PopupMenuSelect** *menuPath$*

Syntax Element	Description
menuPath$	A sequential list of the popup menu's sub-menus, if any, and the target menu item that a user clicks. Each is separated by a pointer (->). If you are specifying an item by position or by ID rather than by name, *menuPath* must begin with Menu=. For example, Menu=pos(3) selects the third item in the popup menu. See *Comments* for more information.

Comments This command is usually preceded by a command containing a mouse-click action required to activate the popup menu.

During recording, Robot identifies menu item selections by item name. Each name represents a mouse click. For example, Robot might record a command to add a new account to a database as follows:

```
PopupMenuSelect "Add Account..."        User clicks Add Account
```

During manual scripting, you can reference a popup menu item selection in any of the following ways:

- Through the menu item name:

  ```
  PopupMenuSelect "Add Account..."
  ```

- Through the position of the menu item on the menu:

  ```
  PopupMenuSelect "menu=pos(3)"
  ```

  The first item in a menu is position 1, not 0. Also, ignore menu item separators when counting the position of an item in a menu.

- Through the menu item ID:

  ```
  PopupMenuSelect "menu=id(9270)"
  ```

You can use any of the above methods to represent both intermediate menu items and the target menu item.

When using `PopupMenuSelect` to select a menu item, you must reference every sub-menu, if any, up to and including the menu where the target item is located. However, you can select a menu item directly by its item ID, without specifying any sub-menu, by calling `PopupMenuIDSelect`.

During manual scripting, you can select a popup menu item through a series of `InputKeys` commands, or through a combination of `PopupMenuSelect` and `InputKeys` commands. This feature lets you play back a menu item selection entirely through keystrokes, or through a combination of keystrokes and mouse clicks, rather than through mouse clicks alone. For example, the following commands select the menu item Folder from the Windows Desktop popup menu and New sub-menu:

```
Window SetContext, "Caption=Program Manager", ""
ListView Right_Click, "ObjectIndex=1", "Coords=27,966"
PopupMenuSelect "New"   ' PopupMenuSelect "menu=pos(6)" also works
InputKeys "f"
```

If a popup menu is displayed, you can clear it by calling `PopupMenuSelect ""`.

Example

This example clicks the right mouse button at the *x,y* coordinates of 50,43 in the current context window and then select the menu item Attributes... from the pop-up menu that appears.

```
Window Right_Click, "", "Coords=50,43"
PopupMenuSelect "Attributes..."
```

See Also

```
MenuIDSelect            SysMenuIDSelect
MenuSelect              SysMenuSelect
PopupMenuIDSelect
```

PPmt
Function

Description

Returns the principal portion of the payment for a given period of an annuity.

Syntax

PPmt (*rate*, *per*, *nper*, *pv*, *fv*, *due*)

Syntax Element	Description
rate	Interest rate per period.
per	Particular payment period in the range 1 through *nper*.
nper	Total number of payment periods.
pv	Present value of the initial lump sum amount paid (as in the case of an annuity) or received (as in the case of a loan).
fv	Future value of the final lump sum amount required (as in the case of a savings plan) or paid (0 as in the case of a loan).
due	An integer value for when the payments are due (0 = end of each period, 1 = beginning of the period).

Comments

Rate is assumed to be constant over the life of the loan or annuity. If payments are on a monthly schedule, then *rate* will be 0.0075 if the annual percentage rate on the annuity or loan is 9%.

Example

This example finds the principal portion of a loan payment amount for payments made in last month of the first year. The loan is for $25,000 to be paid back over 5 years at 9.5% interest.

```
Sub main
   Dim aprate, periods
   Dim payperiod
   Dim loanpv, due
   Dim loanfv, principal
   Dim msgtext
   aprate=9.5/100
   payperiod=12
   periods=120
   loanpv=25000
   loanfv=0
```

```
Rem Assume payments are made at end of month
   due=0
   principal=PPmt(aprate/12,payperiod,periods,- loanpv,loanfv,due)
   msgtext="Given a loan of $25,000 @ 9.5% for 10 years," & Chr(10)
   msgtext=msgtext & " the principal paid in month 12 is: "
   MsgBox msgtext & Format(principal, "Currency")
End Sub
```

See Also

FV
IPmt
IRR
NPV
Pmt
PV
Rate

Print

Statement

Description

Prints data to an open file or to the screen.

Syntax

Print [[*#filenumber%*,] *expressionlist* [{;|,}]]

Syntax Element	Description
#filenumber%	An integer expression identifying the open file to write to. The pound sign (#) preceding the file number is required.
expressionlist	A numeric, string, and Variant expression containing the list of values to print.

Comments

The Print statement outputs data to the specified *filenumber%*. *filenumber%* is the number assigned to the file when it was opened. See the Open statement for more information. If this argument is omitted, the Print statement outputs data to the screen.

If the *expressionlist* is omitted, a blank line is written to the file.

The values in *expressionlist* are separated by either a semicolon (;) or a comma (,). A semicolon indicates that the next value should appear immediately after the preceding one without intervening white space. A comma indicates that the next value should be positioned at the next print zone. Print zones begin every 14 spaces.

The optional [{;|,}] argument at the end of the Print statement determines where output for the next Print statement to the same output file should begin. A semicolon will place output immediately after the output from this Print statement on the current line; a comma will start output at the next print zone on the current line. If neither separator is specified, a CR-LF pair will be generated and the next Print statement will print to the next line.

Special functions `Spc` and `Tab` can be used inside `Print` statement to insert a given number of spaces and to move the print position to a desired column.

The `Print` statement supports only elementary SQABasic data types. See `Input` for more information on parsing this statement.

Example

This example prints to the screen the octal values for the numbers 1 through 25.

```
Sub Main
   Dim x as Integer
   Dim y
   For x=1 to 25
      y=Oct$(x)
      Print x Tab(10) y
   Next x
End Sub
```

This example prints the string *myString* to the file *sFilename*.

```
Sub Main
   Dim myString as String
   Dim sFilename as String
   myString = "ABCDEFGHIJ0123456789"
   sFilename = "C:\Temp0001.txt"
   Open sFilename For Output As #1
   Print #1, myString
   Close #1
End Sub
```

See Also

`Open` `Tab`
`Spc` `Write`

Private

Keyword ▸▸▸SQA▸

`Private` is an unused reserved keyword.

ProgressBar

User Action Command ▸▸▸SQA▸

Description

Performs an action on a progress bar control.

Syntax

ProgressBar *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ Name=*$*. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ▸ State=*$*. An optional qualifier for any other recognition method. There are two possible values for this setting: Enabled and Disabled. The default state is the state of the current context window (as set in the most recent Window SetContext command), or Enabled if the state has not been otherwise declared. ▸ Text=*$*. The text displayed on the object. ▸ VisualText=*$* . An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▸ Coords=*x1,y1,x2,y2*. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

None.

Example This example clicks the first progress bar control in the window (`ObjectIndex=1`) at *x*,*y* coordinates of 50,25.

```
ProgressBar Click, "ObjectIndex=1", "Coords=50,25"
```

See Also `ProgressBarVP`

ProgressBarVP

Verification Point Command

Description Establishes a verification point for a progress bar control.

Syntax *Result* = **ProgressBarVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The text displayed on the object.

▸ ▸ ▸

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$.` The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$` . The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback.

With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the first progress bar control in the window (`ObjectIndex=1`) and compares them to the recorded baseline in verification point `TEST1A`.

```
Result = ProgressBarVP (CompareProperties, "ObjectIndex=1",
"VP=TEST1A")
```

See Also `ProgressBar`

PSCalendar

User Action Command ▸▸▸SQA▸

This command is obsolete and should not be used. It continues to be supported to maintain the upward compatibility of your existing scripts.

PSCalendarVP

Verification Point Command ▸▸▸SQA▸

This command is obsolete and should not be used. It continues to be supported to maintain the upward compatibility of your existing scripts.

PSGrid

User Action Command ▸▸▸SQA▸

Description Performs an action on a PeopleTools grid.

Syntax **`PSGrid`** *`action%, recMethod$, parameters$`*

Syntax Element	Description

action%	One of these actions:
	▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift).
	When *action%* contains a mouse-click value, *parameters$* identifies the grid *row* that was clicked. See *Comments* for more information.
	▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain `Coords=x1,y1,x2,y2`.
	See Appendix E for a list of mouse click and drag values.
	▸ *ScrollAction*. One of these scroll actions:
	`ScrollPageRight` `ScrollPageDown`
	`ScrollRight` `ScrollLineDown`
	`ScrollPageLeft` `ScrollPageUp`
	`ScrollLeft` `ScrollLineUp`
	`HScrollTo` `VScrollTo`
	`HScrollTo` and `VScrollTo` take the required parameter `Position=%`.

recMethod$	Valid values: ▸ `ColIndex=%`. In grids that let you select individual cells (such as the Data Designer), a zero based value that identifies the column that was clicked. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▸ `Heading=$`. In grids that let you select individual cells (such as the Data Designer), identifies the column that was clicked. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▸ `ID=%`. The object's internal Windows ID. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared.

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ `Text=$`. The text displayed on the object. ▶ `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▶ `Col=%;Value=x`. If *`action%`* is a mouse click, these two parameters specify the row that was clicked: – `Col` is the numeric position of a column in the grid (the leftmost column = 1, the next column = 2, etc.) – `Value` is the contents of the cell located at the intersection of column `Col` and the clicked row ▶ `ColTitle=$;Value=x`. If *`action%`* is a mouse click, these two parameters specify the row that was clicked: – `ColTitle` is a column heading – `Value` is the contents of the cell located at the intersection of the column with the heading `ColTitle` and the clicked row ▶ `Coords=x,y`. If *`action%`* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the clicked cell or column. ▶ `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object or the item. ▶ `Position=%`. If *`action%`* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position in the scroll box. Every scroll bar has an internal range, and this value is specific to that range. ▶ `Row=%`. If *`action%`* is a mouse click, the number of the row that was clicked (the topmost row = 1). ▶ `Text=$`. If *`action%`* is a mouse click, the visible text in the row that was clicked.

Comments

With mouse-click actions, *`recMethod$`* may specify the column that was clicked, and *`parameters$`* may specify the row that was clicked.

Robot specifies the clicked row by using one of these *`parameters$`* values (or pairs of values):

- One or more pairs of a column identifier (`Col=`*`%`* or `ColTitle=`*`$`*) followed by `Value=`*`x`*. Robot uses as many column/value pairs as necessary to uniquely identify the clicked row — for example:

  ```
  "ColTitle=Cntry;Value=USA;ColTitle=St;Value=AR;Col=3;Value=18"
  ```

- `Text=`*`$`*. Text values from multiple columns are separated with a pipe separator (|) — for example:

  ```
  "Text=9|0|Edit|Drop Down List|AE_MENU_EDIT|AE_WRK"
  ```

  Optionally, you can use the tab separator `Chr$(9)` instead of the pipe separator.

- `Row=`*`%`*.

- `Coords=`*`x,y`*.

Note the following points about column/value pairs:

- `Value` must *immediately* follow `Col` or `ColTitle`.

- The values are separated by a semicolon (;) — for example:

  ```
  "ColTitle=Customer ID;Value=0253319"
  ```

- The column identifier (`Col` or `ColTitle`) isn't necessarily the column that was clicked. Robot looks for one or more columns of unique values. If a key column is found:

  – The column identifier specifies the key column

  – `Value` specifies the contents of the cell at the intersection of the key column and the row that the user clicked

`parameters$` has a maximum length of 968 characters. If multiple column/row pairs cause *`parameters$`* to exceed the maximum length, Robot uses another way to uniquely identify the clicked row.

Example

In this example, a PeopleSoft grid is clicked. The grid is identified as object 1 in the current context window. The column that was clicked is identified by the heading Count.

```
PSGrid Click, "ObjectIndex=1",Text=6| 0|Message Underline|Frame||"
```

See Also

PSGridHeader	PSNavigator	PSSpinVP
PSGridHeaderVP	PSNavigatorVP	PSTree
PSGridVP	PSPanel	PSTreeHeader
PSMenu	PSPanelVP	PSTreeHeaderVP
PSMenuVP	PSSpin	PSTreeVP

PSGridHeader

User Action Command

Description

Performs an action on a column header in a PeopleTools grid.

Syntax

PSGridHeader *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ▸ State=*$*. An optional qualifier for any other recognition method. There are two possible values for this setting: Enabled and Disabled. The default state is the state of the current context window (as set in the most recent Window SetContext command), or Enabled if the state has not been otherwise declared. ▸ Text=*$*. The text displayed on the object. ▸ VisualText=*$*. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ Coords=*x,y*. If *action%* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the object or the item. ▸ Coords=*x1,y1,x2,y2*. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object or the item.

Comments

Robot only supports actions against visible headers.

Example

In this example, a PeopleSoft grid header is clicked. The grid is identified as object 1 in the current context window.

```
PSGridHeader Click, "ObjectIndex=1", "Coords=328,4"
```

See Also

PSGrid	PSNavigator	PSSpinVP
PSGridHeaderVP	PSNavigatorVP	PSTree
PSGridVP	PSPanel	PSTreeHeader
PSMenu	PSPanelVP	PSTreeHeaderVP
PSMenuVP	PSSpin	PSTreeVP

PSGridHeaderVP

Verification Point Command

SQA

Description

Establishes a verification point for a column header in a PeopleTools grid.

Syntax

Result = **PSGridHeaderVP** (*action%*,*recMethod$*,*parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *parameters$* `VP` and Type are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID.

► ► ►

► ► ►

Syntax Element	Description
	► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object.
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Robot only supports the testing of visible headers.

Example

In this example, an object data verification point is established for a PeopleSoft grid header. The grid is identified as object 1 in the current context window.

```
Result = PSGridHeaderVP (CompareData, "ObjectIndex=1", "VP=GRDTST")
```

See Also

`PSGrid`	`PSNavigator`	`PSSpinVP`
`PSGridHeader`	`PSNavigatorVP`	`PSTree`
`PSGridVP`	`PSPanel`	`PSTreeHeader`
`PSMenu`	`PSPanelVP`	`PSTreeHeaderVP`
`PSMenuVP`	`PSSpin`	`PSTreeVP`

PSGridVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a PeopleTools grid.

Syntax

`Result` = **`PSGridVP`** (*`action%`*, *`recMethod$`*, *`parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *`parameters$`* `VP` and Type are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `CompareText`. Captures the text of the selected row and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `ColIndex=%`. In grids that let you select individual cells (such as the Data Designer), a zero based value that identifies the column that was clicked. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `Heading=$`. In grids that let you select individual cells (such as the Data Designer), identifies the column that was clicked. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `ID=%`. The object's internal Windows ID. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object.
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive.

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ▶ `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Robot supports the testing of all columns in the grid, whether or not a column is visible.

Example

In this example, an object properties verification point is established for a PeopleSoft grid. The grid is identified as object 1 in the current context window.

```
Result = PSGridVP(CompareProperties,"ObjectIndex=1","VP=GRDPRPS")
```

See Also

`PSGrid`	`PSNavigator`	`PSSpinVP`
`PSGridHeader`	`PSNavigatorVP`	`PSTree`
`PSGridHeaderVP`	`PSPanel`	`PSTreeHeader`
`PSMenu`	`PSPanelVP`	`PSTreeHeaderVP`
`PSMenuVP`	`PSSpin`	`PSTreeVP`

PSMenu

User Action Command

Description

Performs an action on a PeopleTools menu object.

Syntax

PSMenu *action%, recMethod$, parameters$*

Syntax Element	Description
action%	The following mouse action: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). Does not require coordinate information. See Appendix E for a list of mouse click values.
recMethod$	Valid values: ▸ `ObjectIndex=%`. The number of the object among all objects of the same type (PSMenu) in the same window. If the action occurs on a menu item, *recMethod$* includes one or more of these child values: – `Class=$`. The class name of the menu item. – `ClassIndex=%`. Index of the object with the same class name value. – `Index=%`. Index of the menu item acted upon. – `Name=$`. Object name of the menu item. – `Type=$`. Either PSMenuBarItem or PSMenuItem. These child values are used only after the parent value `ObjectIndex=%`. Parent/child values are separated by a backslash and semicolons (`;\;`).
parameters$	Valid value: ▸ `Coords=x,y`. Specifies the *x*,*y* coordinates of the click, relative to the top left of the object or the item. If no coordinates are specified, the coordinates at the center of the object or item are used.

Comments

None.

Example

In this example, the user clicks a menu item in a PeopleTools design window. The object name of the menu item is MENUITEM1.

```
Window SetContext, "Caption=DATA_DESIGNER (MENU);Childwindow", ""
PSMenu Click, "ObjectIndex=1;\;Name=MENUITEM1, "Coords=2,8"
```

See Also

PSGrid	PSNavigator	PSSpinVP
PSGridHeader	PSNavigatorVP	PSTree
PSGridHeaderVP	PSPanel	PSTreeHeader
PSGridVP	PSPanelVP	PSTreeHeaderVP
PSMenuVP	PSSpin	PSTreeVP

PSMenuVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a PeopleTools menu object.

Syntax

Result = **PSMenuVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▸ `Compare`. Captures the properties of the menu objects and compares them to the recorded baseline. *parameters$* `VP` is required; `ExpectedResult` is optional.
recMethod$	Valid value: ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window.
parameters$	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▸ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points.

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example

This example verifies a PeopleTools menu object.

```
Result = PSMenuVP (Compare,"ObjectIndex=1", "VP=FILEMNEU")
```

See Also

PSGrid	PSNavigator	PSSpinVP
PSGridHeader	PSNavigatorVP	PSTree
PSGridHeaderVP	PSPanel	PSTreeHeader
PSGridVP	PSPanelVP	PSTreeHeaderVP
PSMenu	PSSpin	PSTreeVP

PSNavigator

User Action Command

▸▸▸SQA▸

Description

Performs an action on a PeopleTools Navigator window or a Navigator map in the PeopleTools Business Process Designer.

Syntax

PSNavigator *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values. ▸ *ScrollAction*. One of these scroll actions: ScrollPageRight ScrollPageDown ScrollRight ScrollLineDown ScrollPageLeft ScrollPageUp ScrollLeft ScrollLineUp HScrollTo VScrollTo HScrollTo and VScrollTo take the required parameter Position=*%*.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ ItemID=*%*. A zero-based value that identifies the map item that was clicked. Used only after one of these parent values: ID=*%*, Name=*$*, ObjectIndex=*%*, Text=*$*. Parent/child values are separated by a backslash and semicolons (;\;).

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
	▶ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. `Name` can specify the Navigator object name or a map item name. When `Name` specifies a map item, it is used only after one of these parent values: `ID=%`, `Name=$`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▶ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▶ `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ▶ `Text=$`. The text displayed on the object. ▶ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▶ `Coords=x,y`. If *`action%`* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the object or the item. ▶ `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object or the item. ▶ `Position=%`. If *`action%`* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position in the scroll box. Every scroll bar has an internal range, and this value is specific to that range.

Comments

Robot recognizes a Navigator window by its internal map name.

Navigator windows are made up of items such as text, links, and steps. Robot considers all items inside a Navigator window to be map items. Different map items have different properties.

When you perform an action against a map item, Robot identifies the map item by an item ID or by its internal name as defined in the Business Process Designer. For example, suppose you double click on a map item named Administrator

Workflow in a Navigator window named PTDMO Default. Robot might define the *recMethod$* argument as follows:

```
"Name=PTDMO Default;\;Name=Administrator Workflow"
```

Remember that the backslash character (\ ) indicates a parent-child relationship — in this case, between the Navigator window and a map item within the window.

Example

This example clicks the PTDMO Default Navigator window.

```
PSNavigator Click, "Name=PTDMO Default", "Coords=10,5"
```

This example clicks the map item identified as item 0 in the Administer Workflow Navigator window.

```
PSNavigator Click, "Name=Administer Workflow;\;ItemID=0", ""
```

See Also

PSGrid
PSGridHeader
PSGridHeaderVP
PSGridVP
PSMenu
PSMenuVP
PSNavigatorVP
PSPanel
PSPanelVP
PSSpin
PSSpinVP
PSTree
PSTreeHeader
PSTreeHeaderVP
PSTreeVP

PSNavigatorVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a PeopleTools Navigator window or a Navigator map in the PeopleTools Business Process Designer.

Syntax

Result = **PSNavigatorVP**(*action%*,*recMethod$*,*parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ CompareData. Captures the data of the object and compares it to a recorded baseline. *parameters$* VP and Type are required; ExpectedResult and Wait are optional. ▸ CompareNumeric. Captures the numeric value of the text of the object and compares it to the value of *parameters$* Value or Range. *parameters$* VP and either Value or Range are required; ExpectedResult and Wait are optional. ▸ CompareProperties. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* VP is required; ExpectedResult and Wait are optional. ▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `ID=%`. The object's internal Windows ID. ► `ItemID=%`. A zero-based value that identifies the map item that was clicked. Used only after one of these parent values: `ID=%`, `Name=$`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. `Name` can specify the Navigator object name or a map item name. When `Name` specifies a map item, it is used only after one of these values: `ID=%`, `Name=$`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object.
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive.

► ► ►

► ► ►

Syntax Element	Description
	► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Robot recognizes a Navigator window by its internal map name.

Navigator windows are made up of items such as text, links, and steps. Robot considers all items inside a Navigator window to be map items. Different map items have different properties.

When you verify a map item, Robot identifies the map item by an item ID or by an internal name as defined in the Business Process Designer. For example, suppose you establish a verification point for a map item named Administrator Workflow in a Navigator window named PTDMO Default. Robot might define the *recMethod$* argument as follows:

```
"Name=PTDMO Default;\;Name=Administrator Workflow"
```

Remember that the backslash character (\ ) indicates a parent-child relationship — in this case, between the Navigator window and a map item within the window.

Example

This example establishes an object properties verification point for the Navigator window Employee Training.

```
Result = PSNavigatorVP (CompareProperties,
    "Name=Employee Training", "VP=NAV")
```

This example establishes an object properties verification point for a map item. The map item is identified as object 4, which is in the Navigator object named Employee Training.

```
Result = PSNavigatorVP (CompareProperties,
    "Name=Employee Training;\;ItemID=4", "VP=NAVTRN")
```

See Also

PSGrid	PSMenuVP	PSSpinVP
PSGridHeader	PSNavigator	PSTree
PSGridHeaderVP	PSPanel	PSTreeHeader
PSGridVP	PSPanelVP	PSTreeHeaderVP
PSMenu	PSSpin	PSTreeVP

PSPanel

User Action Command ▸▸▸SQA▸

Description

Performs an action on a PeopleTools panel. The panel can be encountered at application runtime or while you're editing the panel in the PeopleTools Panel Designer.

Syntax

PSPanel *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.

▸ ▸ ▸

► ► ►

Syntax Element	Description

	► *ScrollAction*. One of these scroll actions:
	`ScrollPageRight` `ScrollPageDown`
	`ScrollRight` `ScrollLineDown`
	`ScrollPageLeft` `ScrollPageUp`
	`ScrollLeft` `ScrollLineUp`
	`HScrollTo` `VScrollTo`
	`HScrollTo` and `VScrollTo` take the required parameter `Position=%`.

recMethod$	Valid values: ► `FieldID=%`. A unique ID that identifies a particular *field* on a panel. Used only after one of these parent values: `ID=%`, `Name=$`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Comments* for more information. ► `FieldIndex=%`. A numeric value used to distinguish between multiple panel *fields* with the same name. Used only after one of these parent values: `ID=%`, `Name=$`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Comments* for more information. ► `FieldLabel=$`. The displayed name of a particular *field* on a panel. Used only after one of these parent values: `ID=%`, `Name=$`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Comments* for more information. ► `ID=%`. The object's internal Windows ID. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. `Name` can specify the name of the panel or an object on the panel. When `Name` specifies an object on the panel, it is used only after one of these parent values: `ID=%`, `Name=$`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared.

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ `Text=$`. The text displayed on the object. ▶ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▶ `Coords=x,y`. If *`action%`* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the object or the item. ▶ `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object or the item. ▶ `Position=%`. If *`action%`* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position in the scroll box. Every scroll bar has an internal range, and this value is specific to that range.

Comments

Robot can recognize all objects (fields) within a PeopleTools panel and can test each field object according to its type. Robot recognizes the following PeopleSoft field objects (names in parentheses are the associated SQA object names):

```
Check Box                       Push Button
Drop Down List Box (ComboBox)   Radio Button
Edit Box                        Scroll Bar
Frame                           Secondary Panel
Group Box                       Static Image (GenericObject)
Image (GenericObject)           SubPanel
Long Edit Box (EditBox)         Text (Label)
```

Note that SubPanels and Secondary panels are only available when you're editing a panel in the Panel Designer. These objects might not exist at application runtime.

To uniquely identify fields that appear as objects on panels, Robot uses one of these identifiers:

Combined record/field name – In some cases, a field that appears on a panel is associated with a field in a PeopleTools database. Robot constructs a unique *panel object* name for these fields by combining the database record name that the field appears in plus the field name. The record name and field name are separated by a period character (.). For example, the following recognition method uniquely identifies the ABSENCE_TYPE field within the ABSENCE_HIST record as a panel object (an edit box):

```
EditBox Click, "Name=ABSENCE_HIST.ABSENCE_TYPE", "Coords=113,11"
```

Record/field syntax has these additional features:

– When *multiple occurrences* of the same field appear within a panel (for example, when the OccursCount for an associated Scroll Bar is greater than 1), Robot distinguishes each field through a zero-based index value. The index value appears in parentheses after the record/field name. For example, suppose an Edit Box field is associated with a scroll bar with an OccursCount of 3. In the database, the Edit Box field, named EMPLYEES, is in a record named ABSENCE_HIST. The following recognition method identifies the second occurrence of the Edit Box on the panel:

```
EditBox Click, "Name=ABSENCE_HIST.EMPLYEES(1)", "Coords=101,9"
```

– If a field on a panel is a *Related Display* (that is, its value is derived from the value of another field), Robot uses the record/field names of the source field as part of the destination field's name. The record/field names are separated by a pointer (->). For example, if the value of field PANEL2.FIELD2 is derived from the value of PANEL1.FIELD1, Robot identifies FIELD 2 as follows:

```
PANEL1.FIELD1->PANEL2.FIELD2
```

FieldLabel – If multiple fields on a panel have the same record/field name and occurrence index (such as groups of radio buttons), Robot identifies the field through both its panel object name and its field *label* (or possibly just its field label if there is no associated record/field). For example:

```
RadioButton Click, "FieldLabel=Female;Name=Personal_Data.Sex"
```

If Robot can't recognize a field by a record/field name or a field label, it uses FieldIndex or FieldID identifiers.

FieldIndex – This number specifies a particular field within a field *type*. For example, the second GroupBox on a panel might be recognized as `FieldIndex=2`. Field index numbers begin with 1.

FieldID – This number is a unique zero-based identifier assigned to each field object in a panel. For example;

```
ScrollBar Click, "FieldID=9", "Coords=9,68"
```

Example

This example clicks a panel with the internal object name ABSENCE_HISTORY.

```
PSPanel Click, "Name=ABSENCE_HISTORY", "Coords=10,5"
```

See Also

PSGrid	PSMenuVP	PSSpinVP
PSGridHeader	PSNavigator	PSTree
PSGridHeaderVP	PSNavigatorVP	PSTreeHeader
PSGridVP	PSPanelVP	PSTreeHeaderVP
PSMenu	PSSpin	PSTreeVP

PSPanelVP

Verification Point Command

Description

Establishes a verification point for a PeopleTools panel. The panel can be encountered at application runtime or while you're editing the panel in the PeopleTools Panel Designer.

Syntax

```
Result = PSPanelVP (action%, recMethod$, parameters$)
```

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *`parameters$`* `VP` and Type are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `FieldID=%`. A unique ID that identifies a particular *field* on a panel. Used only after one of these parent values: `ID=%`, `Name=$`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Comments* for more information. ▸ `FieldIndex=%`. A numeric value used to distinguish between multiple panel *fields* with the same name. Used only after one of these parent values: `ID=%`, `Name=$`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Comments* for more information.

► ► ►

► ► ►

Syntax Element	Description
	► `FieldLabel=$`. The displayed name of a particular *field* on a panel. Used only after one of these parent values: `ID=%`, `Name=$`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). See *Comments* for more information. ► `ID=%`. The object's internal Windows ID. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. `Name` can specify the name of the panel or an object on the panel. When `Name` specifies an object on the panel, it is used only after one of these parent values: `ID=%`, `Name=$`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object.
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information.

► ► ►

► ► ►

Syntax Element	Description
	If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Robot can recognize all objects (fields) within a PeopleTools panel and can test each field object according to its type. Robot recognizes the following PeopleSoft field objects (names in parentheses are the associated SQA object names):

```
Check Box                       Push Button
Drop Down List Box (ComboBox)   Radio Button
Edit Box                        Scroll Bar
Frame                           Secondary Panel
Group Box                       Static Image (GenericObject)
Image (GenericObject)           SubPanel
Long Edit Box (EditBox)         Text (Label)
```

Note that SubPanels and Secondary panels are only available when you're editing a panel in the Panel Designer. These objects might not exist at application runtime.

To uniquely identify fields that appear as objects on panels, Robot uses one of these identifiers:

Combined record/field name – In some cases, a field that appears on a panel is associated with a field in a PeopleTools database. Robot constructs a unique *panel object* name for these fields by combining the database record name that the field appears in plus the field name. The record name and field name are separated by a period character (.). For example, the following recognition method uniquely identifies the ABSENCE_TYPE field within the ABSENCE_HIST record as a panel object:

```
Result = EditBoxVP, (CompareProperties,
"Name=ABSENCE_HIST.ABSENCE_TYPE", "VP=EMPABS")
```

Record/field syntax has these additional features:

– When *multiple occurrences* of the same field appear within a panel (for example, when the OccursCount for an associated Scroll Bar is greater than 1), Robot distinguishes each field through a zero-based index value. The index value appears in parentheses after the record/field name. For example, suppose an Edit Box field is associated with a scroll bar with an OccursCount of 3. In the database, the Edit Box field, named EMPLYEES, is in a record named ABSENCE_HIST. The following recognition method identifies the second occurrence of the Edit Box on the panel:

```
Result = EditBoxVP (CompareProperties,
"Name=ABSENCE_HIST.EMPLYEES(1)", "VP=EMPNAME")
```

– If a field on a panel is a *Related Display* (that is, its value is derived from the value of another field), Robot uses the record/field names of the source field as part of the destination field's name. The record/field names are separated by a pointer (->). For example, if the value of field PANEL2.FIELD2 is derived from the value of PANEL1.FIELD1, Robot identifies FIELD 2 as follows:

```
PANEL1.FIELD1->PANEL2.FIELD2
```

FieldLabel – If multiple fields on a panel have the same record/field name and occurrence index (such as groups of radio buttons), Robot identifies the field through both its panel object name and its field *label* (or possibly just its field label if there is no associated record/field). For example:

```
Result = RadioButonVP (CompareProperties,
"FieldLabel=Female;Name=Personal_Data.Sex", "VP=EMPABSNC")
```

If Robot can't recognize a field by a record/field name or a field label, it uses FieldIndex or FieldID identifiers.

FieldIndex – This number specifies a particular field within a field *type*. For example, the second GroupBox on a panel might be recognized as `FieldIndex=2`. Field index numbers begin with 1.

FieldID – This number is a unique zero-based identifier assigned to each field object in a panel. For example:

```
Result=ScrollBarVP(CompareProperties,"FieldID=4","VP=SCRLPROP")
```

Example

This example establishes an object properties verification point for the PeopleTools panel with the internal object name AE_REQUEST.

```
Result = PSPanelVP (CompareProperties, "Name=AE_REQUEST", "VP=QRY4")
```

See Also

PSGrid	PSMenuVP	PSSpinVP
PSGridHeader	PSNavigator	PSTree
PSGridHeaderVP	PSNavigatorVP	PSTreeHeader
PSGridVP	PSPanel	PSTreeHeaderVP
PSMenu	PSSpin	PSTreeVP

PSSpin

User Action Command

▸▸▸SQA▸

Description

Performs an action on a PeopleTools spin control.

Syntax

PSSpin *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values. ▸ *ScrollAction*. One of these scroll actions: ScrollPageRight ScrollPageDown ScrollRight ScrollLineDown ScrollPageLeft ScrollPageUp ScrollLeft ScrollLineUp HScrollTo VScrollTo HScrollTo and VScrollTo take the required parameter Position=*%*. If Robot cannot interpret the action being applied to a scroll bar, which happens with certain custom standalone scroll bars, it records the action as a click or drag.

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
recMethod$	Valid values: ▶ `ID=%`. The object's internal Windows ID. ▶ `Label=$`. The text of the label object that immediately precedes the PeopleSoft spin control in the internal order (Z order) of windows. ▶ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▶ `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ▶ `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▶ `Coords=x,y`. If *`action%`* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the object or the item. ▶ `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object or the item. ▶ `Position=%`. If *`action%`* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position in the scroll box. Every scroll bar has an internal range, and this value is specific to that range.

Comments

None.

Example

None.

See Also

`PSGrid`
`PSGridHeader`
`PSGridHeaderVP`
`PSGridVP`
`PSMenu`
`PSMenuVP`
`PSNavigator`
`PSNavigatorVP`
`PSPanel`
`PSPanelVP`
`PSSpinVP`
`PSTree`
`PSTreeHeader`
`PSTreeHeaderVP`
`PSTreeVP`

PSSpinVP

Verification Point Command

Description

Establishes a verification point for a PeopleTools spin control.

Syntax

Result = **PSSpinVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Label=$`. The text of the label object that immediately precedes the PeopleSoft spin control in the internal order (Z order) of windows. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window.

▸ ▸ ▸

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback.

With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example None.

See Also

`PSGrid`	`PSMenuVP`	`PSSpin`
`PSGridHeader`	`PSNavigator`	`PSTree`
`PSGridHeaderVP`	`PSNavigatorVP`	`PSTreeHeader`
`PSGridVP`	`PSPanel`	`PSTreeHeaderVP`
`PSMenu`	`PSPanelVP`	`PSTreeVP`

PSTree

User Action Command

▸▸▸SQA▸

Description Performs an action on a PeopleTools tree object.

Syntax **`PSTree`** *`action%, recMethod$, parameters$`*

Syntax Element	Description

`action%`	One of these actions:
	▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*.
	▸ *`MouseDrag`*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *`action%`* contains a mouse-drag value, *`parameters$`* must contain `Coords=`*`x1,y1,x2,y2`*.
	See Appendix E for a list of mouse click and drag values.
	▸ *`ScrollAction`*. One of these scroll actions:
	`ScrollPageRight` `ScrollPageDown`
	`ScrollRight` `ScrollLineDown`
	`ScrollPageLeft` `ScrollPageUp`
	`ScrollLeft` `ScrollLineUp`
	`HScrollTo` `VScrollTo`
	`HScrollTo` and `VScrollTo` take the required parameter `Position=%`.

▸ ▸ ▸

► ► ►

Syntax Element	Description
recMethod$	Valid values: ► `ID=%`. The object's internal Windows ID. ► `ItemIndex=%`. The index of the tree view item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `ItemText=$`. The text of the tree view item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ► `Text=$`. The text displayed on the object. ► `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the object or the item. ► `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object or the item. ► `Position=%`. If *`action%`* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position in the scroll box. Every scroll bar has an internal range, and this value is specific to that range.

Comments

The tree object can appear in the PeopleTools Tree Manager environment.

When you act on a particular item in a tree object, Robot uses the text of the item (plus the text of any parent items) to identify it. In the following *recMethod$* value, the tree item labeled REPORT_VIEWS is a child of the tree item labeled HR_ACCESS_GROUP.

```
"ObjectIndex=1;\;ItemText=HR_ACCESS_GROUP->REPORT_VIEWS"
```

Note the two different parent/child separators — the *backslash* (\ ) separates the window object and its child object. The *pointer* (->) separates the parent text item from its child text item in the tree hierarchy.

Example

This example clicks an item in a PeopleTools tree object. The clicked item is identified by the text 10100.

```
PSTree Click, "ObjectIndex=1;\;ItemText=00001->10100",
"Coords=19,12"
```

See Also

PSGrid	PSMenuVP	PSSpin
PSGridHeader	PSNavigator	PSSpinVP
PSGridHeaderVP	PSNavigatorVP	PSTreeHeader
PSGridVP	PSPanel	PSTreeHeaderVP
PSMenu	PSPanelVP	PSTreeVP

PSTreeHeader

User Action Command

▸▸▸SQA▸

Description

Performs an action on a column header in a PeopleTools tree object.

Syntax

PSTreeHeader *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
recMethod$	Valid values: ▶ `ID=%`. The object's internal Windows ID. ▶ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▶ `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ▶ `Text=$`. The text displayed on the object. ▶ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▶ `Coords=x,y`. If *`action%`* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the object or the item. ▶ `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object or the item.

Comments

The tree object can appear in the PeopleTools Tree Manager environment.

Example

In this example, the user double-clicks a tree header. The tree object is identified as object 1 in the current context window.

```
PSTreeHeader DblClick, "ObjectIndex=1", "Coords=232,9"
```

See Also

PSGrid	PSMenuVP	PSSpin
PSGridHeader	PSNavigator	PSSpinVP
PSGridHeaderVP	PSNavigatorVP	PSTree
PSGridVP	PSPanel	PSTreeHeaderVP
PSMenu	PSPanelVP	PSTreeVP

PSTreeHeaderVP

Verification Point Command

Description Establishes a verification point for a column header in a PeopleTools tree object.

Syntax `Result = PSTreeHeaderVP (action%, recMethod$, parameters$)`

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *parameters$* `VP` and Type are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The text displayed on the object.
parameters$	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail.

► ► ►

► ► ►

Syntax Element	Description
	► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

The tree object can appear in the PeopleTools Tree Manager environment.

Example

This example establishes an object properties verification point for a tree header. The tree object is identified as object 1 in the current context window.

```
Result = PSTreeHeaderVP (CompareProperties, "ObjectIndex=1",
"VP=COLTST")
```

See Also

PSGrid	PSMenuVP	PSSpin
PSGridHeader	PSNavigator	PSSpinVP
PSGridHeaderVP	PSNavigatorVP	PSTree
PSGridVP	PSPanel	PSTreeHeader
PSMenu	PSPanelVP	PSTreeVP

PSTreeVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a PeopleTools tree object.

Syntax

Result = **PSTreeVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ CompareData. Captures the data of the object and compares it to a recorded baseline. *parameters$* VP and Type are required; ExpectedResult and Wait are optional. ▸ CompareNumeric. Captures the numeric value of the text of the object and compares it to the value of *parameters$* Value or Range. *parameters$* VP and either Value or Range are required; ExpectedResult and Wait are optional. ▸ CompareProperties. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* VP is required; ExpectedResult and Wait are optional. ▸ CompareText. Captures the text of the object and compares it to a recorded baseline. *parameters$* VP and Type are required; ExpectedResult and Wait are optional.
recMethod$	Valid values: ▸ ID=%. The object's internal Windows ID. ▸ ItemIndex=%. The index of the tree view item acted upon. Used only after one of these parent values: ID=%, ObjectIndex=%, Text=$. Parent/child values are separated by a backslash and semicolons (;\;).

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `ItemText=$`. The text of the tree view item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object.
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

The tree object can appear in the PeopleTools Tree Manager environment.

When you act on a particular item in a tree object, Robot uses the text of the item (plus the text of any parent items) to identify it. In the following *`recMethod$`* value, the tree item labeled REPORT_VIEWS is a child of the tree item labeled HR_ACCESS_GROUP.

```
"ObjectIndex=1;\;ItemText=HR_ACCESS_GROUP->REPORT_VIEWS"
```

Note the two different parent/child separators — the *backslash* (\ ) separates the window object and its child object. The *pointer* (->) separates the parent text item from its child text item in the tree hierarchy.

Example

This example establishes an object data verification point for a PeopleTools tree object. The tree is identified as object 1 in the current context window.

```
Result = PSTreeVP (CompareData, "ObjectIndex=1", "VP=TREEDATA")
```

See Also

`PSGrid`	`PSMenuVP`	`PSSpin`
`PSGridHeader`	`PSNavigator`	`PSSpinVP`
`PSGridHeaderVP`	`PSNavigatorVP`	`PSTree`
`PSGridVP`	`PSPanel`	`PSTreeHeader`
`PSMenu`	`PSPanelVP`	`PSTreeHeaderVP`

PushButton

Statement

Description

Defines a custom push button.

Syntax

Syntax A **`PushButton`** *`x`*, *`y`*, *`dx`*, *`dy`*, *`text$`*[, .id]

Syntax B **`Button`** *`x`*, *`y`*, *`dx`*, *`dy`*, *`text$`*[, .id]

Syntax Element	Description
x, y	The position of the button relative to the upper left corner of the dialog box.
dx, dy	The width and height of the button.
text$	The name for the push button. If the width of this string is greater than *dx*, trailing characters are truncated.
.id	An optional identifier used by the dialog statements that act on this control.

Comments

A *dy* value of 14 typically accommodates text in the system font.

Use this statement to create buttons other than OK and Cancel. Use this statement in conjunction with the `ButtonGroup` statement. The two forms of the statement (`Button` and `PushButton`) are equivalent.

Use the `Button` statement only between a `Begin Dialog` and an `End Dialog` statement.

Example

This example defines a dialog box with a combination list box and three buttons.

```
Sub main
   Dim fchoices as String
   fchoices="File1" & Chr(9) & "File2" & Chr(9) & "File3"
   Begin Dialog UserDialog 185, 94, "SQABasic Dialog Box"
      Text  9, 5, 69, 10, "Filename:", .Text1
      DropComboBox  9, 17, 88, 71, fchoices, .ComboBox1
      ButtonGroup .ButtonGroup1
      OKButton  113, 14, 54, 13
      CancelButton  113, 33, 54, 13
      PushButton 113, 57, 54, 13, "Help", .Push1
   End Dialog
   Dim mydialog as UserDialog
   On Error Resume Next
   Dialog mydialog
   If Err=102 then
      MsgBox "Dialog box canceled."
   End If
End Sub
```

See Also

`Begin Dialog`	`ComboBox`	`OptionButton`
`End Dialog`	`DropComboBox`	`OptionGroup`
`ButtonGroup`	`DropListBox`	`Picture`
`CancelButton`	`GroupBox`	`StaticComboBox`
`Caption`	`ListBox`	`Text`
`CheckBox`	`OKButton`	`TextBox`

PushButton

User Action Command

Description

Performs an action on a push button control.

Syntax

PushButton *action%, recMethod$*

Syntax Element	Description
action%	The following mouse action: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). Does not require coordinate information. See Appendix E for a list of mouse click values.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The visible text of a Button, Reset, or Submit button of a Web page INPUT form element. The text is from the Value attribute of the INPUT tag or a BUTTON tag. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object. ▸ `ID=%`. The object's internal Windows ID. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the object in the user interface. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared.

► ► ►

► ► ►

Syntax Element	Description
	► `Text=$`. The text displayed on the object. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.

Comments

None.

Example

This example clicks the push button identified by the text OK.

```
PushButton Click, "Text=OK"
```

This example clicks the push button with the Value attribute Send. The button is located within the Web page frame named Main.

```
PushButton Click,
    "Type=HTMLFrame;HTMLId=Main;\;Type=PushButton;HTMLText=Send"
```

See Also

`CheckBox`
`Label`
`RadioButton`

PushButtonVP

Verification Point Command ▸▸▸SQA▸

Description

Establishes a verification point for a push button control.

Syntax

`Result` = **`PushButtonVP`** (*`action%`*, *`recMethod$`*, *`parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ► `CompareData`. Captures the contents or HTML text of the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.

► ► ►

► ► ►

Syntax Element	Description
	► `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ► `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ► `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional. ► `VerifyIsBlank`. Checks that the object has no text. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `HTMLId=$`. The text from the ID attribute of the HTML object. ► `HTMLText=$`. The visible text of a Button, Reset, or Submit button of a Web page INPUT form element. The text is from the Value attribute of the INPUT tag or a BUTTON tag. ► `HTMLTitle=$`. The text from the Title attribute of the HTML object. ► `ID=%`. The object's internal Windows ID. ► `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ► `JavaText=$`. A label that identifies the object in the user interface. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window.

► ► ►

► ► ►

Syntax Element	Description
	► `Text=$`. The text displayed on the object. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`).
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the push button identified by the text `Cancel` and compares them to the recorded baseline in verification point STBUTTN.

```
Result=PushButtonVP(CompareProperties,"Text=Cancel","VP=STBUTTN")
```

This example captures the data of the push button identified by the Value attribute `Clear Form`. The button is located within the Web page frame named Main. `PushButtonVP` compares the data to the recorded baseline in verification point `BtnData1`.

```
Result = PushButtonVP (CompareData,
   "Type=HTMLFrame;HTMLId=Main;\;Type=PushButton;HTMLText=Clear Form",
   "VP=BtnData1")
```

See Also

`LabelVP`
`RadioButtonVP`

Put

Statement

Description

Writes a variable to a file opened in `Random` or `Binary` mode.

Syntax

`Put` [#]*`filenumber%`*, [*`recnumber&`*], *`varname`*

Syntax Element	Description
`filenumber%`	An integer expression identifying the open file to use.
`recnumber&`	A `Long` expression containing the record number or the byte offset at which to start writing.
`varname`	The name of the variable containing the data to write.

Comments

`Filenumber%` is the number assigned to the file when it was opened. See the `Open` statement for more information.

Recnumber& is in the range 1 to 2,147,483,647. If *recnumber&* is omitted, the next record or byte is written.

Note: The commas before and after *recnumber%* are *required*, even if no *recnumber&* is specified.

Varname can be any variable except `Object`, `Application` `Data` `Type` or `Array` variables (single array elements can be used).

For `Random` mode, the following rules apply:

- Blocks of data are written to the file in chunks whose size is equal to the size specified in the `Len` clause of the `Open` statement. If the size of *varname* is smaller than the record length, the record is padded to the correct record size. If the size of variable is larger than the record length, an error occurs.
- For variable length `String` variables, `Put` writes two bytes of data that indicate the length of the string, then writes the string data.
- For Variant variables, `Put` writes two bytes of data that indicate the type of the Variant, then it writes the body of the Variant into the variable. Note that Variants containing strings contain two bytes of type information, followed by two bytes of length, followed by the body of the string.
- User-defined types are written as if each member were written separately, except no padding occurs between elements.

Files opened in `Binary` mode behave similarly to those opened in `Random` mode except:

- `Put` writes variables to the disk without record padding.
- Variable length `Strings` that are not part of user defined types are not preceded by the two-byte string length.

Example

This example opens a file for Random access, puts the values 1-10 in it, prints the contents, and closes the file again.

```
Sub main
' Put the numbers 1-10 into a file
   Dim x, y
   Dim msgtext as String
   Open "C:\TEMP001" as #1
   For x=1 to 10
      Put #1,x, x
   Next x
   msgtext="The contents of the file is:" & Chr(10)
   For x=1 to 10
      Get #1,x, y
      msgtext=msgtext & y & Chr(10)
   Next x
```

```
Close #1
MsgBox msgtext
Kill "C:\TEMP001"
End Sub
```

See Also `Close` `Open` `Get` `Write`

PV

Function

Description

Returns the present value of a constant periodic stream of cash flows as in an annuity or a loan.

Syntax

PV (*rate*, *nper*, *pmt*, *fv*, *due*)

Syntax Element	Description
rate	Interest rate per period.
nper	Total number of payment periods.
pmt	Constant periodic payment per period.
fv	Future value of the final lump sum amount required (in the case of a savings plan) or paid (0 in the case of a loan).
due	An integer value for when the payments are due (`0` = end of each period, `1` = beginning of the period).

Comments

Rate is assumed constant over the life of the annuity. If payments are on a monthly schedule, then *rate* will be 0.0075 if the annual percentage rate on the annuity or loan is 9%.

Example

This example finds the present value of a 10-year $25,000 annuity that will pay $1,000 a year at 9.5%.

```
Sub main
   Dim aprate, periods
   Dim payment, annuityfv
   Dim due, presentvalue
   Dim msgtext
   aprate=9.5
   periods=120
   payment=1000
   annuityfv=25000
Rem Assume payments are made at end of month
   due=0
   presentvalue=PV(aprate/12,periods,-payment, annuityfv,due)
   msgtext="The present value for a 10-year $25,000 annuity @ 9.5%"
   msgtext=msgtext & " with a periodic payment of $1,000 is: "
```

```
      msgtext=msgtext & Format(presentvalue, "Currency")
      MsgBox msgtext
   End Sub
```

See Also

```
FV        Pmt
IPmt      PPmt
IRR       Rate
NPV
```

RadioButton

User Action Command

Description Performs an action on an option button control.

Syntax **RadioButton** *action%, recMethod$*

Syntax Element	Description
action%	The following mouse action: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). Does not require coordinate information. See Appendix E for a list of mouse click values.
recMethod$	Valid values: ▸ HTMLId=*$*. The text from the ID attribute of the HTML object. ▸ HTMLText=*$*. The visible text of a Web page INPUT form element. The text is from the Name attribute of the INPUT tag. ▸ HTMLTitle=*$*. The text from the Title attribute of the HTML object. ▸ ID=*%*. The object's internal Windows ID. ▸ Index=*%*. The number of the object among all objects identified with the same base recognition method. Typically, Index is used after another recognition method qualifier — for example, Name=*$*;Index=*%*. ▸ JavaText=*$*. A label that identifies the object in the user interface.

▸ ▸ ▸

▸ ▸ ▸

Syntax Element	Description
	▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ▸ `Text=$`. The text displayed on the object. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▸ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.

Comments

None.

Example

This example clicks the second option button in the window (`ObjectIndex` of 2).

```
RadioButton Click, "ObjectIndex=2"
```

This example clicks the option button with the Name attribute of Over 50. The option button is located within the Web page frame named Main.

```
RadioButton Click,
    "Type=HTMLFrame;HTMLId=Main;\;Type=RadioButton;Name=Over 50"
```

See Also

`CheckBox`
`Label`
`PushButton`

RadioButtonVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for an option button control.

Syntax

```
Result = RadioButtonVP (action%, recMethod$, parameters$)
```

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the contents or HTML text of the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional. ▸ `VerifyIsBlank`. Checks that the object has no text. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `HTMLId=$`. The text from the ID attribute of the HTML object. ▸ `HTMLText=$`. The visible text of a Web page INPUT form element. The text is from the Name attribute of the INPUT tag. ▸ `HTMLTitle=$`. The text from the Title attribute of the HTML object. ▸ `ID=%`. The object's internal Windows ID. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the object in the user interface.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`).
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the text of the second option button in the window `ObjectIndex=2` and performs a case-insensitive comparison with the recorded baseline in verification point RADIO.

```
Result = RadioButtonVP (CompareText, "ObjectIndex=2",
    "VP=RADIO;Type=CaseInsensitive")
```

This example captures the data from the option button with the Name attribute of Over 50. The option button located within the Web page frame named Main. `RadioButtonVP` compares the data with the recorded baseline in verification point `RadioData2`.

```
Result = RadioButtonVP (CompareData,
   "Type=HTMLFrame;HTMLId=Main;\;Type=RadioButton;Name=Over 50",
   "VP=RadioData2")
```

See Also

`CheckBoxVP`
`LabelVP`
`PushButtonVP`

Randomize

Statement

Description

Seeds the random number generator.

Syntax

Randomize [*number%*]

Syntax Element	Description
number%	An integer value between -32768 and 32767.

Comments

If no *number%* argument is given, SQABasic uses the `Timer` function to initialize the random number generator.

Example

This example generates a random string of characters using the `Randomize` statement and `Rnd` function. The second `For...Next` loop is to slow down processing in the first `For...Next` loop so that `Randomize` can be seeded with a new value each time from the `Timer` function.

```
Sub main
   Dim newline as Integer
   Dim x as Integer
   Dim y
   Dim str1 as String
   Dim str2 as String
   Dim letter as String
   Dim randomvalue
   Dim upper, lower
   Dim msgtext
   upper=Asc("z")
   lower=Asc("a")
   newline=Chr(10)
   For x=1 to 26
      Randomize timer() + x*255
      randomvalue=Int(((upper - (lower+1)) * Rnd) +lower)
      letter=Chr(randomvalue)
      str1=str1 & letter
      For y = 1 to 1500
      Next y
   Next x
   msgtext=str1
   MsgBox msgtext
End Sub
```

See Also

`Rnd`
`Timer`

Rate
Function

Description

Returns the interest rate per period for an annuity or a loan.

Syntax

Rate (*nper*, *pmt*, *pv*, *fv*, *due*, *guess*)

Syntax Element	Description
nper	Total number of payment periods.
pmt	Constant periodic payment per period.
pv	Present value of the initial lump sum amount paid (as in the case of an annuity) or received (as in the case of a loan).
fv	Future value of the final lump sum amount required (in the case of a savings plan) or paid (0 in the case of a loan).
due	An integer value for when the payments are due (`0` = end of each period, `1` = beginning of the period)
guess	A ballpark estimate for the rate returned.

Comments

In general, a guess of between 0.1 (10 percent) and 0.15 (15 percent) would be a reasonable value for *guess*.

`Rate` is an iterative function: it improves the given value of *guess* over several iterations until the result is within 0.00001 percent. If it does not converge to a result within 20 iterations, it signals failure.

Example

This example finds the interest rate on a 10-year $25,000 annuity, that pays $100 per month.

```
Sub main
   Dim aprate
   Dim periods
   Dim payment, annuitypv
   Dim annuityfv, due
   Dim guess
   Dim msgtext as String
   periods=120
   payment=100
   annuitypv=0
   annuityfv=25000
   guess=.1
Rem Assume payments are made at end of month
   due=0
   aprate=Rate(periods,-payment,annuitypv,annuityfv, due, guess)
   aprate=(aprate*12)
   msgtext= "The percentage rate for a 10-year $25,000 annuity "
   msgtext=msgtext & "that pays $100/month has "
```

```
      msgtext=msgtext & "a rate of: " & Format(aprate, "Percent")
      MsgBox msgtext
   End Sub
```

See Also

```
FV        Pmt
IPmt      PPmt
IRR       PV
NPV
```

Rebar

User Action Command

▸▸▸SQA▸

Description

Performs an action on a rebar control.

Syntax

Rebar *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ ItemID=*%*. The application defined ID of the band. Used only after one of these parent values: ID=*%*, ObjectIndex=*%*, Name=*$*, Text=*$*. Parent/child values are separated by a backslash and semicolons (;\;). ▸ ItemIndex=*%*. The index of the rebar item acted upon. Used only after one of these parent values: ID=*%*, ObjectIndex=*%*, Name=*$*, Text=*$*. Parent/child values are separated by a backslash and semicolons (;\;).

► ► ►

Syntax Element	Description
	▸ `ItemText=$`. The text of the rebar item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons `(;\;)`. ▸ `Name=$`. A unique name that a developer assigns to an object to identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The text displayed on the object. ▸ `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
`parameters$`	Valid values: ▸ `Coords=`*`x,y`*. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▸ `Coords=`*`x1,y1,x2,y2`*. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

None.

Example

This example clicks the on the item with the text "links" in the first rebar control in the window (`ObjectIndex=1`) at *x*,*y* coordinates of 21,10.

```
Rebar Click, "ObjectIndex=1;\;ItemText=Links", "Coords=21,10"
```

See Also

`RebarVP`

RebarVP

Verification Point Command

Description

Establishes a verification point for a rebar control.

Syntax

Result = **RebarVP** (*action%, recMethod$, parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Name=$`. A unique name that a developer assigns to an object to identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The text displayed on the object. ▸ `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▸ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▸ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example

This example captures the properties of the first Rebar control in the window (`ObjectIndex=1`) and compares them to the recorded baseline in verification point REBAR1.

```
Result = RebarVP (CompareProperties, "ObjectIndex=1", "VP=REBAR1")
```

See Also

`Rebar`

ReDim

Statement

Description

Changes the upper and lower bounds of a dynamic array's dimensions.

Syntax

`ReDim` [Preserve] *`variableName`* (*`subscriptRange`*, ...) [As [New] *`type`*],...

Syntax Element	Description
`variableName`	The variable array name to redimension.
`subscriptRange`	The new upper and lower bounds for the array.
`type`	The type for the data elements in the array.

Comments

`ReDim` re-allocates memory for the dynamic array to support the specified dimensions, and can optionally re-initialize the array elements. `ReDim` cannot be used at the module level; it must be used inside of a procedure.

The `Preserve` option is used to change the last dimension in the array while maintaining its contents. If `Preserve` is not specified, the contents of the array are re-initialized. Numbers will be set to zero (0). Strings and variants will be set to empty (`""`).

The *`subscriptRange`* is of the format:

```
[startSubscript To] endSubscript
```

If *`startSubscript`* is not specified, 0 is used as the default. The `Option Base` statement can be used to change the default.

A dynamic array is normally created by using `Dim` to declare an array without a specified *`subscriptRange`*. The maximum number of dimensions for a dynamic array created in this fashion is 8. If you need more than 8 dimensions, you can use the `ReDim` statement inside of a procedure to declare an array that has not previously been declared using `Dim` or `Global`. In this case, the maximum number of dimensions allowed is 60.

Arrays support all SQABasic data types. Arrays of arrays, dialog box records, and objects are not supported.

If the `As` clause is not used, the type of the variable can be specified by using a type character as a suffix to the name. The two different type-specification methods can be intermixed in a single `ReDim` statement (although not on the same variable).

The `ReDim` statement cannot be used to change the number of dimensions of a dynamic array once the array has been given dimensions. It can only change the upper and lower bounds of the dimensions of the array. The `LBound` and `UBound` functions can be used to query the current bounds of an array variable's dimensions.

Care should be taken to avoid redimensioning an array in a procedure that has received a reference to an element in the array in an argument; the result is unpredictable.

Example

This example finds the net present value for a series of cash flows. The array variable that holds the cash flow amounts is initially a dynamic array that is redimensioned after the user enters the number of cash flow periods they have.

```
Sub main
   Dim aprate as Single
   Dim varray() as Double
   Dim cflowper as Integer
   Dim x as Integer
   Dim netpv as Double
   cflowper=InputBox("Enter number of cash flow periods:")
   ReDim varray(cflowper)
   For x= 1 to cflowper
       varray(x)=InputBox("Cash flow amount for period #" &x &":")
   Next x
   aprate=InputBox ("Enter discount rate:")
   If aprate>1 then
      aprate=aprate/100
   End If
   netpv=NPV(aprate,varray())
   MsgBox "The Net Present Value is: " & Format(netpv,"Currency")
End Sub
```

See Also

`Dim` `Option Base` `Global` `Static`

RegionVP

Verification Point Command ▸▸▸SQA▸

Description

Establishes a verification point for a specified rectangular screen region.

Syntax

```
Result = RegionVP (action%, "", parameters$)
```

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareImage`. Captures a bitmap image of the specified region on the screen and compares it to a recorded baseline. *`parameters$`* `Coords` and `VP` are required; `ExpectedResult` and `Wait` are optional. ▸ `WaitNegative`. Captures a bitmap image of the specified region on the screen and waits until it does not match the recorded baseline. *`parameters$`* `Name`, `Wait`, and `Coords` are required. **Note**: Unlike `CompareImage`, this action does not use a verification point ID and does not create a failed image file if the comparison reaches timeout before failing. ▸ `WaitPositive`. Captures a bitmap image of the specified region on the screen and waits until it matches the recorded baseline. *`parameters$`* `Name`, `Wait`, and `Coords` are required. **Note**: Unlike `CompareImage`, this action does not use a verification point ID and does not create a failed image file if the comparison reaches timeout before passing.
`""`	The second argument is always left blank.
parameters$	Valid values: ▸ `Coords=`*`x1,y1,x2,y2`*. Specifies the top-left and bottom-right screen coordinates of the region to test. ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▸ `Name=$`. For `WaitPositive` and `WaitNegative` actions, this parameter specifies the image file name to be used as a baseline in the comparison. This file is located in the same directory as the script.

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ VP=*$*. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and Timeout value, as in `Wait=1,30` where 1 indicates the test is to be retried every second but timed-out after 30 seconds.

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example This example establishes a Region verification point identified by screen coordinates. The example compares the image to the record baseline in verification point QBMAINRG.

```
Result = RegionVP (CompareImage, "", "VP=QBMAINRG;
  Coords=231,253,361,343")
```

See Also `WindowVP`

Rem
Statement

Description Identifies a line of code as a comment in an SQABasic program.

Syntax **`Rem`** *`comment`*

Syntax Element	Description
`comment`	The text of the comment.

Comments Everything from `Rem` to the end of the line is ignored. No characters (other than spaces or tabs) can appear on the line before `Rem`.

The single quote (`'`) can also be used to initiate a comment. However, note that the metacommands `'CStrings`, `'$Include`, and `'$NoCStrings` are preceded by a single quote as part of their command syntax.

Example This example defines a dialog box with a combination list box and two buttons. The `Rem` statements describe each block of definition code.

```
Sub main
   Dim fchoices as String
   fchoices="File1" & Chr(9) & "File2" & Chr(9) & "File3"
   Begin Dialog UserDialog 185, 94, "SQABasic Dialog Box"
Rem The next two lines create the combo box
      Text  9, 5, 69, 10, "Filename:", .Text1
      DropComboBox  9, 17, 88, 71, fchoices, .ComboBox1
Rem The next two lines create the command buttons
      OKButton  113, 14, 54, 13
      CancelButton  113, 33, 54, 13
   End Dialog
   Dim mydialog as UserDialog
   On Error Resume Next
   Dialog mydialog
   If Err=102 then
      MsgBox "Dialog box canceled."
   End If
End Sub
```

See Also None.

Reset

Statement

Description Closes all open disk files and writes any data in the operating system buffers to disk.

Syntax **Reset**

Comments None.

Example This example creates a file, puts the numbers 1-10 in it, then attempts to `Get` past the end of the file. The `On Error` statement traps the error and execution goes to the Debugger code which uses `Reset` to close the file before exiting.

```
Sub main
' Put the numbers 1-10 into a file
   Dim x as Integer
   Dim y as Integer
   On Error Goto Debugger
   Open "C:\TEMP001" as #1 Len=2
   For x=1 to 10
      Put #1,x, x
   Next x
   Close #1
   msgtext="The contents of the file is:" & Chr(10)
   Open "C:\TEMP001" as #1 Len=2
   For x=1 to 10
      Get #1,x, y
      msgtext=msgtext & Chr(10) & y
   Next x
   MsgBox msgtext
done:
   Close #1
```

```
   Kill "C:\TEMP001"
   Exit Sub
Debugger:
   MsgBox "Error " & Err & " occurred. Closing open file."
   Reset
   Resume done
End Sub
```

See Also `Close`

ResetTime

Utility Command

Description Resets the delay between execution of script commands to the default delay.

Syntax **`ResetTime`**

Comments The default delay between commands is set in the Playback Options dialog box in Robot.

Example This example resets the time between execution of script commands back to the value set in the Playback Options dialog box.

```
ResetTime
```

See Also `SetTime`

Resume

Statement

Description Halts an error-handling routine.

Syntax

Syntax A **`Resume`** `Next`

Syntax B **`Resume`** *`label`*

Syntax C **`Resume`** `[0]`

Syntax Element	Description
`label`	The label that identifies the statement to go to after handling an error.

Comments When the `Resume Next` statement is used, control is passed to the statement that immediately follows the statement in which the error occurred.

When the `Resume [0]` statement is used, control is passed to the statement in which the error occurred.

The location of the error handler that has caught the error determines where execution will resume. If an error is trapped in the same procedure as the error handler, program execution will resume with the statement that caused the error. If an error is located in a different procedure from the error handler, program control reverts to the statement that last called out the procedure containing the error handler.

Example

This example prints an error message if an error occurs during an attempt to open a file. The `Resume` statement jumps back into the program code at the label, `done`. From here, the program exits.

```
Sub main
   Dim msgtext, userfile
   On Error GoTo Debugger
   msgtext="Enter the filename to use:"
   userfile=InputBox$(msgtext)
   Open userfile For Input As #1
   MsgBox "File opened for input."
'  ....etc....
   Close #1
done:
   Exit Sub
Debugger:
   msgtext="Error number " & Err & " occurred at line: " & Erl
   MsgBox msgtext
   Resume done
End Sub
```

See Also

`Erl` Error function
`Err function` On Error
`Err statement` Trappable Error Codes (Appendix B)
`Error`

RichEdit

User Action Command

Description

Performs an action on a rich edit control.

Syntax

RichEdit *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values. ▸ *ScrollAction*. One of these scroll actions: ScrollPageRight ScrollPageDown ScrollRight ScrollLineDown ScrollPageLeft ScrollPageUp ScrollLeft ScrollLineUp HScrollTo VScrollTo HScrollTo and VScrollTo take the required parameter Position=*%*. If Robot cannot interpret the action being applied to a scroll bar, which happens with certain custom standalone scroll bars, it records the action as a click or drag.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ Label=*$*. The text of the label object that immediately precedes the rich edit control in the internal order (Z order) of windows. ▸ Name=*$*. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ▸ State=*$*. An optional qualifier for any other recognition method. There are two possible values for this setting: Enabled and Disabled. The default state is the state of the current context window (as set in the most recent Window SetContext command), or Enabled if the state has not been otherwise declared. ▸ VisualText=*$*. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.

► ► ►

▶ ▶ ▶

Syntax Element	Description
parameters$	Valid values: ▶ `Coords=`*`x,y`*. If *`action%`* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the object. ▶ `Coords=`*`x1,y1,x2,y2`*. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object. ▶ `Position=%`. If *`action%`* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position in the scroll box. Every scroll bar has an internal range, and this value is specific to that range.

Comments

None.

Example

This example clicks the first rich edit control in the window `ObjectIndex=1` at *x*,*y* coordinates of 50,25.

```
RichEdit Click, "ObjectIndex=1", "Coords=50,25"
```

See Also

`RichEditVP`

RichEditVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a rich edit control.

Syntax

`Result` = **`RichEditVP`** (*`action%`*, *`recMethod$`*, *`parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ▶ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional.

▶ ▶ ▶

► ► ►

Syntax Element	Description
	► `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ► `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional. ► `VerifyIsBlank`. Checks that the object has no text. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `ID=%`. The object's internal Windows ID. ► `Label=$`. The text of the label object that immediately precedes the rich edit control in the internal order (Z order) of windows. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window.
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive.

► ► ►

► ► ►

Syntax Element	Description
	► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the first rich edit control in the window `ObjectIndex=1` and compares them to the recorded baseline in verification point `TEST1A`.

```
Result=RichEditVP(CompareProperties,"ObjectIndex=1","VP=TEST1A")
```

See Also

`RichEdit`

Right
Function

Description

Returns a string of a specified number of characters copied from the end of another string.

Syntax

Right[$](*string$*, *length%*)

Syntax Element	Description
$	Optional. If specified, the return type is `String`. If omitted, the function will typically return a `Variant` of `VarType` 8 (`String`).
string$	A string or expression containing the string to copy.
length%	The number of characters to copy.

Comments

If *length%* is greater than the length of *string$*, this function returns the whole string.

`Right` accepts any type of *string$*, including numeric values, and will convert the input value to a string. If the value of *string$* is NULL, a Variant of VarType 1 (Null) is returned.

To obtain a string of a specified number of bytes, copied from the end of another string, use `RightB`.

Example

This example checks for the extension .BMP in a file name entered by a user and activates the Paint application if the file is found. Note this uses the `Option Compare` statement to accept either uppercase or lowercase letters for the file name extension.

```
Option Compare Text
Sub main
   Dim extension as String
   Dim filename as String
   Dim x, i
   filename=InputBox("Enter a .BMP file and path: ")
   extension=Right(filename,3)
   If extension="BMP" then
     StartApplication "pbrush.exe"
     for i = 1 to 10
         DoEvents
      next I
      AppActivate "untitled - Paint"
      DoEvents
      InputKeys "%FO" & filename & "{Enter}"
```

```
    Else
        MsgBox "File not found or extension not .BMP."
    End If
End Sub
```

See Also

```
GetField     Len             Mid statement
Instr        LTrim           RTrim
Left         Mid function    Trim
```

RmDir

Statement

Description

Removes a directory.

Syntax

RmDir *path$*

Syntax Element	Description
path$	A string expression identifying the directory to remove.

Comments

The syntax for *path$* is:

[*drive*:][\]*directory*[*directory*]

The *drive* argument is optional. The *directory* argument is a directory name.

The directory to be removed must be empty, except for the working (.) and parent (..) directories.

Example

This example makes a new temporary directory in C:\ and then deletes it.

```
Sub main
   Dim path as String
   On Error Resume Next
   path=CurDir(C)
   If path<>"C:\" then
      ChDir "C:\"
   End If
   MkDir "C:\TEMP01"
   If Err=75 then
      MsgBox "Directory already exists"
   Else
      MsgBox "Directory C:\TEMP01 created"
      MsgBox "Now removing directory"
      RmDir "C:\TEMP01"
   End If
End Sub
```

See Also

ChDir
ChDrive
CurDir
Dir
MkDir

Rnd

Function

Description

Returns a single precision random number between `0` and `1`.

Syntax

Rnd [(*number!*)]

Syntax Element	Description
number!	A numeric expression to specify how to generate the random numbers. (`<0` = use the number specified, `>0` = use the next number in the sequence, `0` = use the number most recently generated.)

Comments

If *number!* is omitted, Rnd uses the next number in the sequence to generate a random number. The same sequence of random numbers is generated whenever Rnd is run, unless the random number generator is re-initialized by the Randomize statement.

Example

This example generates a random string of characters within a range. The Rnd function is used to set the range between lowercase a and z. The second For...Next loop slows down processing in the first For...Next loop so that Randomize can be seeded with a new value each time from the Timer function.

```
Sub main
   Dim x as Integer
   Dim y
   Dim str1 as String
   Dim str2 as String
   Dim letter as String
   Dim randomvalue
   Dim upper, lower
   Dim msgtext
   Dim newline as Integer
   upper=Asc("z")
   lower=Asc("a")
   newline=Chr(10)
   For x=1 to 26
      Randomize timer() + x*255
      randomvalue=Int(((upper - (lower+1)) * Rnd) +lower)
      letter=Chr(randomvalue)
      str1=str1 & letter
      For y = 1 to 1500
      Next y
   Next x
```

```
        msgtext=str1
        MsgBox msgtext
    End Sub
```

See Also

```
Exp    Log          Sqr
Fix    Randomize
Int    Sgn
```

Rset

Statement

Description

Right aligns one string inside another string.

Syntax

Rset *string$ = string-expression*

Syntax Element	Description
string$	The string to contain the right-aligned characters.
string-expression	The string containing the characters to put into *string$*.

Comments

If *string$* is longer than *string-expression*, the leftmost characters of *string$* are replaced with spaces.

If *string$* is shorter than *string-expression*, only the leftmost characters of *string-expression* are copied.

Rset cannot be used to assign variables of different user-defined types.

Example

This example uses Rset to right-align an amount entered by the user in a field that is 15 characters long. It then pads the extra spaces with asterisks (*) and adds a dollar sign ($) and decimal places (if necessary).

```
Sub main
   Dim amount as String*15
   Dim x
   Dim msgtext
   Dim replacement
   Dim position as Integer
   Dim length as Integer
   replacement="*"
   amount=InputBox("Enter an amount:")
   position=InStr(amount,".")
   If Right(amount,3)<>".00" then
      amount=Rtrim(amount) & ".00"
   End If
   Rset amount="$" & Rtrim(amount)
   length=15-Len(Ltrim(amount))
   For x=1 to length
      Mid(amount,x)=replacement
   Next x
   MsgBox "Formatted amount: " & amount
End Sub
```

See Also `Lset`

RTrim
Function

Description

Copies a string and removes any trailing spaces.

Syntax

`RTrim``[$](`*`expression`*`)`

Syntax Element	Description
`$`	Optional. If specified the return type is `String`. If omitted the function will typically return a `Variant` of VarType 8 (string).
`expression`	The expression to trim. The expression can be a string, or it can be a numeric data type which Robot passes to the command as a string.

Comments

If the value of ***`string$`*** is NULL, a Variant of VarType 1 (Null) is returned.

Example

This example asks for an amount and then right-aligns it in a field that is 15 characters long. It uses `Rtrim` to trim any trailing spaces in the amount string, if the number entered by the user is less than 15 digits.

```
Sub main
   Dim position as Integer
   Dim length as Integer
   Dim amount as String*15
   Dim x
   Dim msgtext
   Dim replacement
   replacement="X"
   amount=InputBox("Enter an amount:")
   position=InStr(amount,".")
   If position=0 then
      amount=Rtrim(amount) & ".00"
   End If
   Rset amount="$" & Rtrim(amount)
   length=15-Len(Ltrim(amount))
   For x=1 to length
      Mid(amount,x)=replacement
   Next x
   MsgBox "Formatted amount: " & amount
End Sub
```

See Also

`GetField`	`Mid function`
`Left`	`Mid statement`
`Len`	`Right`
`LTrim`	`Trim`

ScrollBar

User Action Command ▸▸▸SQA▸

Description

Performs an action on a scroll bar.

Syntax

`ScrollBar` *`action%, recMethod$, parameters$`*

Syntax Element	Description

`action%`	One of these actions:
	▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*.
	▸ *`MouseDrag`*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *`action%`* contains a mouse-drag value, *`parameters$`* must contain `Coords=`*`x1,y1,x2,y2`*.
	See Appendix E for a list of mouse click and drag values.
	▸ *`ScrollAction`*. One of these scroll actions:
	`ScrollPageRight` `ScrollPageDown`
	`ScrollRight` `ScrollLineDown`
	`ScrollPageLeft` `ScrollPageUp`
	`ScrollLeft` `ScrollLineUp`
	`HScrollTo` `VScrollTo`
	`HScrollTo` and `VScrollTo` take the required parameter `Position=`*`%`*.
	If Robot cannot interpret the action being applied to a scroll bar, which happens with certain custom standalone scroll bars, it records the action as a click or drag.

`recMethod$`	Valid values: ▸ `ID=`*`%`*. The object's internal Windows ID. ▸ `Index=`*`%`*. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=`*`$`*`;Index=`*`%`*.

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
	▶ `JavaText=$`. A label that identifies the object in the user interface. ▶ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▶ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▶ `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ▶ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`).
parameters$	Valid values: ▶ `Coords=x,y`. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▶ `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object. ▶ `Position=%`. If *`action%`* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position. Every scroll bar has an internal range, and this parameter value is specific to that range.

Comments

None.

Example

This example moves the thumb of the first scroll bar in the window (`ObjectIndex=1`) to the 159th position.

```
ScrollBar HScrollTo, "ObjectIndex=1", "Position=159"
```

See Also
```
ComboBox
ComboListBox
ListBox
```

ScrollBarVP

Verification Point Command

Description Establishes a verification point for a scroll bar.

Syntax ***Result*** = **ScrollBarVP** (***action%***, ***recMethod$***, ***parameters$***)

Syntax Element	Description
action%	The type of verification to perform. Valid value: ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the object in the user interface. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`).

▸ ▸ ▸

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example

This example captures the properties of the first scroll bar control in the window `ObjectIndex=1` and compares them to the recorded baseline in verification point SCRLLBAR.

```
Result=ScrollBarVP(CompareProperties,"ObjectIndex=1","VP=SCRLLBAR")
```

See Also

`ComboBoxVP`
`ComboListBoxVP`
`ListBoxVP`

Second

Function

Description

Returns the second component (0-59) of a date-time value.

Syntax

`Second`(*`time`*)

Syntax Element	Description
`time`	An expression containing a date time value.

Comments

`Second` accepts any type of *`time`* including strings and will attempt to convert the input value to a date value.

The return value is a `Variant` of VarType 2 (integer). If the value of *`time`* is NULL, a Variant of VarType 1 (Null) is returned.

Example

This example displays the last saved date and time for a file whose name is entered by the user.

```
Sub main
   Dim filename as String
   Dim ftime
   Dim hr, min
   Dim sec
   Dim msgtext as String
i: msgtext="Enter a filename:"
   filename=InputBox(msgtext)
   If filename="" then
      Exit Sub
   End If
   On Error Resume Next
   ftime=FileDateTime(filename)
   If Err<>0 then
      MsgBox "Error in file name. Try again."
      Goto i:
   End If
   hr=Hour(ftime)
   min=Minute(ftime)
   sec=Second(ftime)
   MsgBox "The file's time is: " & hr &":" &min &":" &sec
End Sub
```

See Also

`Day` `Hour` `Minute` `Month` `Now` `Time function` `Time statement` `Weekday` `Year`

Seek
Function

Description

Returns the current file position for an open file.

Syntax

`Seek``(`*`filenumber%`*`)`

Syntax Element	Description
`filenumber%`	An integer expression identifying an open file to query.

Comments

Filenumber% is the number assigned to the file when it was opened. See the Open statement for more information.

For files opened in Random mode, Seek returns the number of the next record to be read or written. For all other modes, Seek returns the file offset for the next operation. The first byte in the file is at offset 1, the second byte is at offset 2, and so on. The return value is a Long.

Example

This example reads the contents of a sequential file line by line (to a carriage return) and displays the results. The second sub procedure, CREATEFILE, creates the file C:\TEMP001 used by the main sub procedure.

```
Declare Sub createfile
Sub main
   Dim msgtext as String
   Dim testscore as String
   Dim x
   Dim y
   Dim newline
   Call createfile
   Open "C:\TEMP001" for Input as #1
   x=1
   newline=Chr(10)
   msgtext= "The test scores are: " & newline
   Do Until x=Lof(1)
      Line Input #1, testscore
      x=x+1
      y=Seek(1)
      If y>Lof(1) then
         x=Lof(1)
      Else
         Seek 1,y
      End If
      msgtext=msgtext & newline & testscore
   Loop
   MsgBox msgtext
   Close #1
   Kill "C:\TEMP001"
End Sub

Sub createfile()
   Rem Put the numbers 10-100 into a file
   Dim x as Integer
   Open "C:\TEMP001" for Output as #1
   For x=10 to 100 step 10
      Write #1, x
   Next x
   Close #1
End Sub
```

See Also

Get Put
Open Seek statement

Seek
Statement

Description Sets the position within an open file for the next read or write operation.

Syntax **Seek** [#]*filenumber%, position&*

Syntax Element	Description
filenumber%	An integer expression identifying an open file to query.
position&	A numeric expression for the starting position of the next read or write operation (record number or byte offset).

Comments The Seek statement. If you write to a file after seeking beyond the end of the file, the file's length is extended. SQABasic will return an error message if a Seek operation is attempted that specifies a negative or zero position.

Filenumber% is an integer expression identifying the open file to Seek in. See the Open statement for more details.

For files opened in Random mode, *position&* is a record number; for all other modes, *position&* is a byte offset. *Position&* is in the range 1 to 2,147,483,647. The first byte or record in the file is at position 1, the second is at position 2, and so on.

Example This example reads the contents of a sequential file line by line (to a carriage return) and displays the results. The second sub procedure, CREATEFILE, creates the file C:\TEMP001 used by the main sub procedure.

```
Declare Sub createfile
Sub main
   Dim msgtext as String
   Dim testscore as String
   Dim x
   Dim y
   Dim newline
   Call createfile
   Open "C:\TEMP001" for Input as #1
   x=1
   newline=Chr(10)
   msgtext= "The test scores are: " & newline
   Do Until x=Lof(1)
      Line Input #1, testscore
      x=x+1
      y=Seek(1)
      If y>Lof(1) then
         x=Lof(1)
      Else
         Seek 1,y
      End If
      msgtext=msgtext & newline & testscore
```

```
      Loop
      MsgBox msgtext
      Close #1
      Kill "C:\TEMP001"
   End Sub

   Sub createfile()
      Rem Put the numbers 10-100 into a file
      Dim x as Integer
      Open "C:\TEMP001" for Output as #1
      For x=10 to 100 step 10
         Write #1, x
      Next x
      Close #1
   End Sub
```

See Also `Get` `Put` `Open` `Seek function`

Select Case

Statement

Description Executes a series of statements, depending on the value of an expression.

Syntax

```
Select Case testexpression
   [Case expressionlist
      [statement_block]]
   [Case expressionlist
      [statement_block]]
   [Case Else
      [statement_block]]
End Select
```

Syntax Element	Description
testexpression	Any expression containing a variable to test.
expressionlist	One or more expressions that contain a possible value for *testexpression*.
statement_block	The statements to execute if *testexpression* equals *expressionlist*.

Comments When there is a match between *testexpression* and one of the values in *expressionlist*, the *statement_block* following the `Case` clause is executed. When the next `Case` clause is reached, execution control goes to the statement following the `End Select` statement.

The *expressionlist(s)* can be a comma-separated list of expressions of the following forms:

```
expression
expression To expression
Is comparison_operator expression
```

The type of each *expression* must be compatible with the type of *testexpression*.

Note that when the To keyword is used to specify a range of values, the smaller value must appear first. The *comparison_operator* used with the Is keyword is one of: <, >, =, <=, >=, <>.

Each *statement_block* can contain any number of statements on any number of lines.

Example

This example tests the attributes for a file and if it is hidden, changes it to a non-hidden file.

```
Sub main
   Dim filename as String
   Dim attribs, saveattribs as Integer
   Dim answer as Integer
   Dim archno as Integer
   Dim msgtext as String
   archno=32
   On Error Resume Next
   msgtext="Enter name of a file:"
   filename=InputBox(msgtext)
   attribs=GetAttr(filename)
   If Err<>0 then
      MsgBox "Error in filename. Re-run Program."
      Exit Sub
   End If
   saveattribs=attribs
   If attribs>= archno then
      attribs=attribs-archno
   End If
   Select Case attribs
      Case 2,3,6,7
         msgtext="  File: " &filename & " is hidden." & Chr(10)
         msgtext=msgtext & Chr(10) & "   Change it?"
         answer=MsgBox(msgtext,308)
         If answer=6 then
            SetAttr filename, saveattribs-2
            MsgBox "File is no longer hidden."
            Exit Sub
         End If
         MsgBox "Hidden file not changed."
      Case Else
         MsgBox "File was not hidden."
   End Select
End Sub
```

See Also
```
If...Then...Else
On...Goto
Option Compare
```

SendKeys
Statement

This command should no longer be used. Use the `InputKeys` command instead. To maintain the upward compatibility of your existing scripts, the command does not cause an error.

Set
Statement

Description

Assigns a variable to an OLE2 object.

Syntax

`Set` *`variableName = expression`*

Syntax Element	Description
`variableName`	An object variable or a Variant variable.
`expression`	An expression that evaluates to an object--typically a function, an object member, or `Nothing`.

Comments

The following example shows the syntax for the `Set` statement:

```
Dim OLE2 As Object
Set OLE2 = CreateObject("spoly.cpoly")
OLE2.reset
```

Note: If you omit the keyword `Set` when assigning an object variable, SQABasic will try to copy the default member of one object to the default member of another. This usually results in a runtime error:

```
' Incorrect code - tries to copy default member!
OLE2 = GetObject( ,"spoly.cpoly")
```

`Set` differs from `Let` in that `Let` assigns an expression to an SQABasic variable. For example,

```
Set o1 = o2       'Sets the object reference
Let o1 = o2       'Sets the value of the default member
```

Example

This example displays a list of open files in the software application, VISIO. It uses the Set statement to assign VISIO and its document files to object variables. To see how this example works, you need to start VISIO and open one or more documents.

```
Sub main
   Dim visio as Object
   Dim doc as Object
   Dim msgtext as String
   Dim i as Integer, doccount as Integer

'Initialize Visio
   Set visio = GetObject(,"visio.application") ' find Visio
   If (visio Is Nothing) then
      MsgBox "Couldn't find Visio!"
      Exit Sub
   End If
'Get # of open Visio files
   doccount = visio.documents.count            'OLE2 call to Visio
   If doccount=0 then
      msgtext="No open Visio documents."
   Else
      msgtext="The open files are: " & Chr$(13)
      For i = 1 to doccount
         ' access Visio's document method
         Set doc = visio.documents(i)
         msgtext=msgtext & Chr$(13) & doc.name
      Next i
   End If
   MsgBox msgtext
End Sub
```

See Also

Class List
CreateObject
Is
New
Nothing
Object Class
Typeof

SetAttr

Statement

Description

Sets the attributes for a file.

Syntax

SetAttr *pathname$, attributes%*

Syntax Element	Description
pathname$	A string expression containing the file name to modify.

► ► ►

► ► ►

Syntax Element	Description
attributes%	An integer containing the new attributes for the file. Valid attributes: 0. Normal file 1. Read-only file 2. Hidden file 4. System file 32. Archive - file has changed since last backup

Comments

Wildcards are not allowed in *pathname$*. If the file is open, you can modify its attributes, but only if it is opened for Read access.

Example

This example tests the attributes for a file and if it is hidden, changes it to a normal (not hidden) file.

```
Sub main
   Dim filename as String
   Dim attribs, saveattribs as Integer
   Dim answer as Integer
   Dim archno as Integer
   Dim msgtext as String
   archno=32
   On Error Resume Next
   msgtext="Enter name of a file:"
   filename=InputBox(msgtext)
   attribs=GetAttr(filename)
   If Err<>0 then
      MsgBox "Error in filename. Re-run Program."
      Exit Sub
   End If
   saveattribs=attribs
   If attribs>= archno then
      attribs=attribs-archno
   End If
   Select Case attribs
      Case 2,3,6,7
         msgtext="  File: " &filename & " is hidden." & Chr(10)
         msgtext=msgtext & Chr(10) & "   Change it?"
         answer=MsgBox(msgtext,308)
         If answer=6 then
            SetAttr filename, saveattribs-2
            MsgBox "File is no longer hidden."
            Exit Sub
         End If
         MsgBox "Hidden file not changed."
      Case Else
         MsgBox "File was not hidden."
   End Select
End Sub
```

See Also

FileAttr
GetAttr

SetField
Function

Description Replaces a field within a string and returns the modified string. .

Syntax **SetField**[$](*string$*, *field_number%*, *field$*, *separator_chars$*)

Syntax Element	Description
$	Optional. If specified, the return type is String. If omitted, the function typically returns a Variant of VarType 8 (String).
string$	A string consisting of a series of fields, separated by *separator_char$*.
field_number%	An integer for the field to replace within string$.
field$	An expression containing the new value for the field.
separator_char$	A string containing the character(s) used to separate the fields in *string$*.

Comments *separator_char$* can contain multiple separator characters, although the first one will be used as the separator character.

The *field_number%* starts with 1. If *field_number%* is greater than the number of fields in the string, the returned string will be extended with separator characters to produce a string with the proper number of fields.

It is legal for the new *field$* value to be a different size than the old value.

Example This example extracts the last name from a full name entered by the user.

```
Sub main
   Dim username as String
   Dim position as Integer
   username=InputBox("Enter your full name:")
   Do
     position=InStr(username," ")
     If position=0 then
       Exit Do
     End If
     username=SetField(username,1," "," ")
     username=Ltrim(username)
   Loop
   MsgBox "Your last name is: " & username
End Sub
```

See Also GetField

SetProcID

Flow Control Command

This command is obsolete in the current version of SQABasic and should no longer be used. To maintain the upward compatibility of your existing scripts, the command does not cause an error, but it has no effect on script execution.

SetThinkAvg

Timing and Coordination Command

Description Sets the average "think time" delay for the next user action.

Syntax **`SetThinkAvg`** *`avgThinkTime%`*

Syntax Element	Description
`avgThinkTime%`	The delay, in milliseconds Robot observed between two actions during recording. During playback in Robot, Robot used *`avgThinkTime`* as the actual think time delay. During playback in TestManager, TestManager uses *`avgThinkTime`* to calculate the think time delay.

Comments Robot records this command if Record Think Time is selected in the General tab of the GUI Record Options dialog box. During playback, Robot performs think time delays only if Use recorded think time is selected in the Playback tab of the GUI Playback Options dialog box.

Robot delays execution of the next user action during synchronized testing. If running in a TestManager suite, TestManager may adjust the *`AvgThinkTime%`* to prevent playback of simultaneous GUI agents running in lock step. If running as a stand-alone Robot script, the *`avgThinkTime%`* is the actual delay time.

Example This example sets an average think time of 1500 milliseconds (1.5 seconds).

```
SetThinkAvg 1500
```

See Also `TypingDelays`

SetTime
Utility Command

Description
Sets the delay between script commands to the specified number of millisecond.

Syntax
SetTime (*TimeInterval&*)

Syntax Element	Description
TimeInterval&	The number of millisecond to delay between commands.

Comments
This command overrides the Delay Between Commands setting in the Playback Options dialog box in Robot.

Example
This example sets the delay between execution of script commands to 1000 milliseconds (1 second).

```
SetTime (1000)
```

See Also
ResetTime

Sgn
Function

Description
Returns a value indicating the sign of a number.

Syntax
Sgn(*number*)

Syntax Element	Description
number	An expression for the number to use.

Comments
The value that the Sgn function returns depends on the sign of *number*:

- For *numbers* > 0, Sgn (*number*) returns 1.
- For *numbers* = 0, Sgn (*number*) returns 0.
- For *numbers* < 0, Sgn (*number*) returns -1.

Example
This example tests the value of the variable profit and displays 0 for profit if it is a negative number. The sub procedure uses Sgn to determine whether profit is positive, negative or zero.

```
Sub main
    Dim profit as Single
    Dim expenses
    Dim sales
    expenses=InputBox("Enter total expenses: ")
    sales=InputBox("Enter total sales: ")
    profit=Val(sales)-Val(expenses)
    If Sgn(profit)=1 then
        MsgBox "Yeah! We turned a profit!"
    ElseIf Sgn(profit)=0 then
        MsgBox "Okay. We broke even."
    Else
        MsgBox "Uh, oh. We lost money."
    End If
End Sub
```

See Also

Exp Log
Fix Rnd
Int Sqr

Shell

Function

Description

Starts a Windows application and returns its task ID.

Syntax

Shell(*pathname$*, [*windowstyle%*])

Syntax Element	Description
pathname$	The name of the program to execute.
windowstyle%	An integer value for the style of the program's window (1-7). *Windowstyle%* is one of the following values: 1. Normal window with focus 2. Minimized with focus 3. Maximized with focus 4. Normal window without focus 7. Minimized without focus If *windowstyle%* is not specified, the default of *windowstyle%* = 1 is assumed (normal window with focus).

Comments

Shell runs an executable program. *Pathname$* can be the name of any valid .COM, .EXE, .BAT, or .PIF file. Arguments or command line switches can be included. If *pathname$* is not a valid executable file name, or if Shell cannot start the program, an error message occurs.

`Shell` returns the task ID for the program, a unique number that identifies the running program.

Example

This example runs Notepad in maximized format.

```
Sub main
   Shell "Notepad.exe",3
   InputKeys "Hello, world.{enter}Notepad is maximized."
End sub
```

See Also

`AppActivate`
`Command`
`InputKeys`

Sin
Function

Description

Returns the sine of an angle specified in radians.

Syntax

`Sin`(*`number`*)

Syntax Element	Description
`number`	An expression containing the angle in radians.

Comments

The return value will be between `-1` and `1`. The return value is single-precision if the angle is an integer, currency or single-precision value, double precision for a long, Variant or double-precision value. The angle is specified in radians, and can be either positive or negative.

To convert degrees to radians, multiply by (PI/180). The value of PI is 3.14159.

Example

This example finds the height of the building, given the length of a roof and the roof pitch.

```
Sub main
   Dim height, rooflength
   Dim pitch
   Dim msgtext
   Const PI=3.14159
   Const conversion= PI/180
   pitch=InputBox("Enter the roof pitch in degrees:")
   pitch=pitch*conversion
   rooflength=InputBox("Enter the length of the roof in feet:")
   height=Sin(pitch)*rooflength
   msgtext="The height of the building is "
   msgtext=msgtext & Format(height, "##.##") & " feet."
   MsgBox msgtext
End Sub
```

See Also
Atn
Cos
Tan
Derived Trigonometric functions (Appendix D)

Space
Function

Description
Returns a string of spaces.

Syntax
Space[$](*number*)

Syntax Element	Description
$	Optional. If specified the return type is String. If omitted, the function will return a Variant of VarType 8 (String).
number	A numeric expression for the number of spaces to return.

Comments
number can be any numeric data type, but will be rounded to an integer. *number* must be between 0 and 32,767.

Example
This example prints the octal numbers from 1 to 15 as a two-column list and uses Space to separate the columns.

```
Sub main
   Dim x,y
   Dim msgtext
   Dim nofspaces
   msgtext="Octal numbers from 1 to 15:" & Chr(10)
   For x=1 to 15
     nofspaces=10
     y=Oct(x)
     If Len(x)=2 then
        nofspaces=nofspaces-2
     End If
     msgtext=msgtext & Chr(10) & x & Space(nofspaces) & y
   Next x
   MsgBox msgtext
End Sub
```

See Also
Spc
String

Spc
Function

Description
Prints a number of spaces.

Syntax
Spc (*n*)

Syntax Element	Description
n	An integer for the number of spaces to output.

Comments
The Spc function can be used only inside Print statement.

When the Print statement is used, the Spc function will use the following rules for determining the number of spaces to output:

1. If *n* is less than the total line width, Spc outputs *n* spaces.
2. If *n* is greater than the total line width, Spc outputs *n* Mod width spaces.
3. If the difference between the current print position and the output line width (call this difference x) is less than *n* or *n* Mod *width*, then Spc skips to the next line and outputs *n* - x spaces.

To set the width of a print line, use the Width statement.

Example
This example puts five spaces and the string ABCD to a file. The five spaces are derived by taking 15 MOD 10, or the remainder of dividing 15 by 10.

```
Sub main
   Dim str1 as String
   Dim x as String*10
   str1="ABCD"
   Open "C:\TEMP001" For Output As #1
   Width #1, 10
   Print #1, Spc(15); str1
   Close #1
   Open "C:\TEMP001" as #1 Len=12
   Get #1, 1,x
   MsgBox "The contents of the file is: " & x
   Close #1
   Kill "C:\TEMP001"
End Sub
```

See Also
Print Tab
Space Width

SpinControl

User Action Command

Description Performs an action on a spin control.

Syntax **SpinControl** *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ Name=*$*. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ▸ State=*$*. An optional qualifier for any other recognition method. There are two possible values for this setting: Enabled and Disabled. The default state is the state of the current context window (as set in the most recent Window SetContext command), or Enabled if the state has not been otherwise declared. ▸ Text=*$*. The text displayed on the object. ▸ VisualText=*$*. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.

► ► ►

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ► `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

None.

Example

This example clicks the first spin control in the window (`ObjectIndex=1`) at *x*,*y* coordinates of 50,25.

```
SpinControl Click, "ObjectIndex=1", "Coords=50,25"
```

See Also

`SpinControlVP`

SpinControlVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a spin control.

Syntax

`Result` = **`SpinControlVP`** (*`action%`*,*`recMethod$`*,*`parameters$`*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ► `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ► `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.

► ► ►

► ► ►

Syntax Element	Description
	`CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `ID=%`. The object's internal Windows ID. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object.
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text

► ► ►

► ► ►

Syntax Element	Description
	► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example This example captures the properties of the first spin control in the window (`ObjectIndex=1`) and compares them to the recorded baseline in verification point `TEST1A`.

```
Result=SpinControlVP(CompareProperties,"ObjectIndex=1","VP=TEST1A")
```

See Also `SpinControl`

SQAConsoleClear

Utility Command ▸▸▸SQA▸

Description Clears the text currently displayed in the Robot console window.

Syntax **`SQAConsoleClear`**

Comments None.

Example This example clears the contents of the Robot console window.

```
SQAConsoleClear
```

See Also `SQAConsoleWrite`

SQAConsoleWrite

Utility Command

Description Writes the specified text to the Robot console window.

Syntax **`SQAConsoleWrite`** *`text$`*

Syntax Element	Description
`text$`	The text to write to the Robot console window.

Comments The message remains in the Robot console window until you clear it with `SQAConsoleClear` or until it is overwritten.

The `SQAConsoleWrite` command includes a carriage return/line feed with the line of text.

Use the command `Chr$(13)` to insert a carriage return into the message. For example, this command adds a blank line between "Line1" and "Line2":

```
SQAConsoleWrite "Line1" + Chr$(13) + Chr$(13) + "Line2"
```

Example This example writes the text "Start of Playback" to the Robot console window.

```
SQAConsoleWrite "Start of Playback"
```

See Also `SQAConsoleClear`

SQADatapoolClose

Datapool Command

Description Closes the specified datapool.

Syntax *`return&`* **`= SQADatapoolClose`** (*`datapool_id&`*)

Syntax Element	Description
`datapool_id&`	An ID returned by `SQADatapoolOpen` specifying the datapool to close.

Comments This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand `'$Include`.

SQADatapoolClose has the following possible return values (Long):

sqaDpSuccess	0
sqaDpUninitialized	-1
sqaDpFailure	-2
sqaDpExtendedError	-999

Example

This example opens a datapool named repo_dp1 and then closes it.

```
'$Include "sqautil.sbh"
DIM dp_id as Long
DIM dp_Result as Long
dp_id=SQADatapoolOpen ("repo_dp1", FALSE, SQA_DP_SEQUENTIAL, FALSE)
dp_Result = SQADatapoolClose (dp_id)
```

See Also

SQADatapoolOpen

SQADatapoolFetch

Datapool Command

Description

Moves the datapool cursor to the next row.

Syntax

return& **= SQADatapoolFetch** (*datapool_id&*)

Syntax Element	Description
datapool_id&	An ID returned by SQADatapoolOpen that represents an open datapool.

Comments

This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand '$Include.

SQADatapoolFetch has the following possible return values (Long):

sqaDpSuccess	0
sqaDpUninitialized	-1
sqaDpFailure	-2
sqaDpEOF	-3
sqaDpExtendedError	-999

SQADatapoolFetch retrieves the next row in the datapool. The "next row" in the datapool is determined by the arguments you set in SQADatapoolOpen.

If cursor wrapping is disabled, and the last row of the datapool has been retrieved, a call to SQADatapoolFetch returns sqaDpEOF. If SQADatapoolValue is called after sqaDpEOF is returned, a runtime error occurs. (Cursor wrapping is disabled when the *wrap* argument of SQADatapoolOpen is False.)

Example

This example opens a datapool named repo_dp1, moves the cursor to the next row, and then closes the datapool.

```
'$Include "sqautil.sbh"
DIM dp_id as Long
DIM dp_Result as Long
dp_id=SQADatapoolOpen ("repo_dp1", FALSE, SQA_DP_SEQUENTIAL, FALSE)
dp_Result = SQADatapoolFetch (dp_id)
dp_Result = SQADatapoolClose (dp_id)
```

See Also

SQADatapoolOpen SQADatapoolValue
SQADatapoolRewind

SQADatapoolOpen

Datapool Command

Description

Opens the specified datapool and provides information about the datapool cursor.

Syntax

return& **= SQADatapoolOpen** ("*name$*", [*wrap*], [*sequence*], [*exclusive*])

Syntax Element	Description
name$	The name of the datapool to open.
wrap	A optional `Variant` that indicates whether the datapool cursor should return to the first row in the row access order after the last row has been reached. Valid values: ▸ `True`. After the last row in the access order has been reached, the cursor returns to the first row. ▸ `False`. The default. After the last row in the access order has been reached, datapool access ends. If you attempt to retrieve a datapool value after the end of the datapool is reached, a runtime error occurs. To ensure that unique datapool rows are fetched, specify `False`, and make sure the datapool has at least as many rows as the number of users (and user iterations) that will be requesting rows at runtime. This argument is ignored when *sequence* is `SQA_DP_RANDOM`.

▸ ▸ ▸

► ► ►

Syntax Element	Description
sequence	An optional `Variant` that determines row access order. Valid values: ► `SQA_DP_SEQUENTIAL`. The default. Datapool access is in **sequential order**. Access begins with the first row stored in the datapool file, and it ends with the last row. ► `SQA_DP_RANDOM`. Datapool access is in **random order**. Rows are retrieved in any order, and any given row can be retrieved multiple times or not at all. ► `SQA_DP_SHUFFLE`. Datapool access is in **shuffled order**. Each time Robot or TestManager rearranges, or "shuffles," the access order of all datapool rows, a unique sequence results. Each row is referenced in a shuffled sequence only once.
exclusive	An optional `Variant` that indicates whether the datapool cursor is shared with other users or is exclusive for an individual user. Valid values: ► `True`. Indicates exclusive use of the datapool cursor. Each user's cursor operates independently of the others. ► `False`. The default. Indicates a shared datapool cursor. This argument applies only to GUI scripts played back within a TestManager suite.

Comments

This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand `'$Include`.

Upon successful execution, this function returns a handle (a positive `Long` value) for subsequent datapool commands. If the command is not successful, one of these values is returned (`Long`):

```
sqaDpUninitialized      -1
sqaDpFailure            -2
sqaDpInvalidArgument    -998
sqaDpExtendedError      -999
```

With a shared cursor (*shareType*=`True`), all users work from the same access order. For example, if the access order for a Colors column is `Red`, `Blue`, and `Green`, the first user to request a value is assigned `Red`, the second is assigned `Blue`, and the third is assigned `Green`.

With a private cursor (*shareType*=False), each user starts at the top of its exclusive access order. With random order (*sequence*=SQA_DP_RANDOM) or shuffle access (*sequence*=SQA_DP_SHUFFLE), the access order is unique for each user. With sequential access (*sequence*=SQA_DP_SEQUENTIAL), the access order is the same for each user (ranging from the first row stored in the file to the last).

When using a private cursor with a sequential access order, you typically have each user run multiple iterations of the script. If each user runs a single iteration of the script,they each would access the same datapool row (the first row in the datapool).

Think of non-sequential access order (SQA_DP_SHUFFLE and SQA_DP_RANDOM) as being like a shuffled deck of cards. With SQA_DP_SHUFFLE access order, each time you pick a card (access a row), you remove the card from the pack. But with SQA_DP_RANDOM access order, the selected card is returned somewhere in the pack, making it available for selection again.

Also, with SQA_DP_SHUFFLE, after you reach the last card in the pack, you either reshuffle the pack and start again (*wrap*=True), or no more selections are made (*wrap*=False).

With SQA_DP_RANDOM, you never reach the end of the pack (there is no end-of-file condition) so *wrap* is ignored).

If multiple virtual testers (from GUI scripts and/or VU scripts) access the same datapool in a TestManager suite, the datapool cursor is managed as follows:

- For shared cursors, the first call to SQADatapoolOpen initializes the cursor. In the same run of the TestManager suite, virtual testers that subsequently call SQADatapoolOpen to open the same datapool share the initialized cursor.
- For private cursors, the first call to SQADatapoolOpen initializes the virtual tester's private cursor. In the virtual tester's subsequent calls to SQADatapoolOpen in the same suite, the cursor is set to the last row accessed by that virtual tester.

In SQABasic, SQADatapoolOpen is the only way to define the datapool's cursor and row access order. Unlike the VU scripting language, SQABasic does not include a DATAPOOL_CONFIG statement.

Only one virtual tester can exist during Robot playback. If a script contains multiple transactions, or if a shell script executes multiple scripts, playback is considered to be one virtual tester performing multiple transactions. As a result, the concept of a shared cursor doesn't apply when scripts are played back in Robot.

Example

This example opens a datapool named repo_dp1 using the default access order settings. In this example, the datapool is opened for sequential access. All users share the same cursor, meaning that the first user to request a row retrieves the first row in the file, the second user retrieves the second row, and so on. After the last row in the datapool is reached, access to the datapool ends.

```
'$Include "sqautil.sbh"
DIM dp_id as Long
dp_id = SQADatapoolOpen ("repo_dp1", FALSE, SQA_DP_SEQUENTIAL, FALSE)
```

This example opens a datapool named repo_dp2. In this example, the datapool is opened for shuffle access. Each user maintains an exclusive cursor, meaning that each user retrieves rows according to a unique access order. After a user reaches the last row in the datapool, the user's exclusive cursor returns to the first row.

```
'$Include "sqautil.sbh"
DIM dp_id as Long
dp_id = SQADatapoolOpen ("repo_dp2", TRUE, SQA_DP_SHUFFLE, TRUE)
```

This example opens a datapool named repo_dp3. In this example, the datapool is opened for random access. All users share the same cursor, meaning that the first user to request a row retrieves the first row in the random order, the second user retrieves the second row, and so on. Because rows can appear in the access order multiple times, there is no actual end to the access order. Therefore, the *wrap* argument is ignored.

```
'$Include "sqautil.sbh"
DIM dp_id as Long
dp_id = SQADatapoolOpen ("repo_dp3", FALSE, SQA_DP_RANDOM, FALSE)
```

See Also

SQADatapoolClose
SQADatapoolFetch
SQADatapoolRewind
SQADatapoolValue

SQADatapoolRewind

Datapool Command ▸▸▸SQA▸

Description

Resets the datapool cursor to the start of the datapool access order.

Syntax

return& **= SQADatapoolRewind** (*datapool_id&*)

Syntax Element	Description
datapool_id&	An ID returned by SQADatapoolOpen that represents an open datapool.

Comments

This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand `'$Include`.

`SQADatapoolRewind` has the following possible return values (`Long`):

`sqaDpSuccess`	0
`sqaDpUninitialized`	-1
`sqaDpFailure`	-2
`sqaDpExtendedError`	-999

This command rewinds the private cursor for the datapool referenced by datapool_id.

The datapool is rewound as follows:

- With datapools opened for `SQA_DP_SEQUENTIAL` access, `SQADatapoolRewind` resets the cursor to the first record in the datapool file.
- With datapools opened for `SQA_DP_RANDOM` or `SQA_DP_SHUFFLE` access, `SQADatapoolRewind` restarts the random number sequence.
- With datapools opened for `SQA_DP_SHARED` access, `SQADatapoolRewind` has no effect.

See the *`sequence`* argument of `SQADatapoolOpen` for descriptions of `SQA_DP_SEQUENTIAL`, `SQA_DP_RANDOM`, and `SQA_DP_SHUFFLE`.

At the start of a test, datapool cursors always point to the first row.

If you rewind the datapool during a test, previously accessed rows will be fetched again.

Example

This example opens a datapool named repo_dp1, moves the cursor to the next row, resets the cursor, and then closes the datapool.

```
'$Include "sqautil.sbh"
DIM dp_id as Long
DIM dp_Result as Long
dp_id=SQADatapoolOpen ("repo_dp1", FALSE, SQA_DP_SEQUENTIAL, FALSE)
dp_Result = SQADatapoolFetch (dp_id)
dp_Result = SQADatapoolRewind (dp_id)
dp_Result = SQADatapoolClose (dp_id)
```

See Also

`SQADatapoolFetch`

SQADatapoolValue

Datapool Command

▸▸▸SQA▸

Description

Retrieves the value of the specified datapool column.

Syntax

return& **= SQADatapoolValue** (*datapool_id&, column, value$*)

Syntax Element	Description
datapool_id&	An ID returned by SQADatapoolOpen that represents an open datapool.
column	A Variant that specifies the name or ID of the datapool column to retrieve. The value can be either a number (a Long or Integer) indicating the column number, or a String indicating the column name. Column names are case sensitive. The column is in the current row retrieved with SQADatapoolFetch.
value$	Contains the value from the datapool column upon successful return.

Comments

This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand '$Include.

SQADatapoolValue has the following possible return values (Long):

sqaDpSuccess	0
sqaDpUninitialized	-1
sqaDpFailure	-2
sqaDpInvalidArgument	-998
sqaDpExtendedError	-999

If cursor wrapping is disabled, and the last row of the datapool has been retrieved, a call to SQADatapoolFetch returns sqaDpEOF. If SQADatapoolValue is called after sqaDpEOF is returned, a runtime error occurs. (Cursor wrapping is disabled when the *wrap* argument of SQADatapoolOpen is False.)

If you use a column number rather than a column name in *column*, note that the first datapool column listed in the TestManager Datapool Specification dialog box is datapool column 1.

Type checking for the *column* argument is done at runtime, since a Variant can contain data types other than a Long or String.

Example

This example opens a datapool named repo_dp1, moves the cursor to the next row, retrieves the value from column 1, and then closes the datapool.

```
'$Include "sqautil.sbh"
DIM dp_id as Long
DIM dp_Result as Long
dp_id = SQADatapoolOpen ("repo_dp1", FALSE, SQA_DP_SEQUENTIAL,
   FALSE)
dp_Result = SQADatapoolFetch (dp_id)
dp_Result = SQADatapoolValue (dp_id, 1, dp_Value)
dp_Result = SQADatapoolClose (dp_id)
```

See Also `SQADatapoolFetch`

SQAEnvCreateBaseline

Utility Command

Description

Captures a snapshot of the environment state before one or more tasks are performed that change or are suspected of changing the environment.

Syntax

`Result` = **`SQAEnvCreateBaseline`**(*`fileName$`*)

Syntax Element	Description
`fileName$`	The name of the pre-task snapshot. This name is used as the file name for the snapshot data.

Comments

Returns 1 if the function call succeeds or 0 if it fails.

This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand '`$Include`.

You cannot view the snapshot data in *`fileName$`*. However, by calling `SQAEnvCreateDelta`, you can view a comparison report of two snapshot files.

You can reuse file names. Using an existing name when creating a new pre-task snapshot destroys the previous version of the snapshot.

Example

The following code fragment captures a snapshot of the environment just before and after the application-under-test is installed.

```
'$Include "sqautil.sbh"
...

' Capture a pre-task snapshot
Result = SQAEnvCreateBaseline("PreInstall")
If Result = 0 Then
    MsgBox "Error capturing the pre-task snapshot. "
End If

' Install the application-under-test
...

' Capture a post-task snapshot
Result = SQAEnvCreateCurrent("PostInstall")
If Result = 0 Then
    MsgBox "Error capturing the post-task snapshot. "
End If
...
```

See Also

`SQAEnvCreateCurrent`
`SQAEnvCreateDelta`

SQAEnvCreateCurrent

Utility Command

Description

Generates a snapshot of the environment state just after some task is performed that changes or is suspected of changing the environment.

Syntax

Result = **SQAEnvCreateCurrent**(*fileName$*)

Syntax Element	Description
fileName$	The name of the post-task snapshot. This name is used as the file name for the snapshot data.

Comments

Returns 1 if the function call succeeds or 0 if it fails.

This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand '$Include.

You cannot view the snapshot data in *fileName$*. However, by calling SQAEnvCreateDelta, you can view a comparison report of two snapshot files.

A snapshot captured with SQAEnvCreateCurrent can be used as both a post-task snapshot and, at a later point in the script, as a pre-task snapshot. For example, you might want to compare the post-task snapshot captured after you installed the application-under-test with a current snapshot taken after you perform a particular task with the application-under-test. In this case, both snapshots are created with SQAEnvCreateCurrent.

You can reuse file names. Using an existing name when creating a new post-task snapshot destroys the previous version of the snapshot.

Example

The following code fragment captures a snapshot of the environment just before and after the application-under-test is installed.

```
'$Include "sqautil.sbh"
...

' Capture a pre-task snapshot
Result = SQAEnvCreateBaseline("PreInstall")
If Result = 0 Then
    MsgBox "Error capturing the pre-task snapshot. "
End If
```

```
' Install the application-under-test
...

' Capture a post-task snapshot
Result = SQAEnvCreateCurrent("PostInstall")
If Result = 0 Then
    MsgBox "Error capturing the post-task snapshot. "
End If
    ...
```

See Also `SQAEnvCreateBaseline`
`SQAEnvCreateDelta`

SQAEnvCreateDelta

Utility Command ▸▸▸SQA▸

Description

Creates a comparison report of the data captured in the pre-task and post-task snapshots.

Syntax

Result=**SQAEnvCreateDelta**(*preTask$*,*postTask$*,*showReport%*)

Syntax Element	Description
preTask$	The name of the file containing the pre-task snapshot captured with either `SQAEnvCreateBaseline` or `SQAEnvCreateCurrent`.
postTask$	The name of the file containing the post-task snapshot captured with `SQAEnvCreateCurrent`.
showReport%	Specifies whether you want to show the snapshot comparison report in a browser. Valid values: ▸ 1. Show the report in a browser. ▸ 0. Do not show the report in a browser.

Comments

Returns 1 if the function call succeeds or 0 if it fails.

This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand '`$Include`.

`SQAEnvCreateDelta` compares any two snapshots of the environment. For example, you might capture and compare a snapshot of the current environment state (captured with `SQAEnvCreateCurrent`) with either of these snapshots:

- A snapshot of a “clean machine” captured with `SQAEnvCreateBaseline`. Typically, you capture a clean-machine state early in your script, before you begin to install the application-under-test or perform other tasks that might affect the environment.

- A snapshot captured previously with SQAEnvCreateCurrent. For example, you might want to compare the post-task snapshot captured after you installed the application-under-test with a current snapshot taken after you perform a particular task with the application-under-test. In this case, both snapshots are created with SQAEnvCreateCurrent.

The snapshot comparison report is stored in a .HTM file. If you pass the value 1 in *showReport%*, this file is automatically displayed in a browser. If you want to locate this file yourself, you can find the path and file name as follows:

- The path is the log path plus the subdirectory \RESULTS. To find the log path, call SQAGetLogDir.
- The file is a .HTM file with the following root name structure:

  postTask$ - preTask$

Example

The following code fragment captures a snapshot of the environment just before and after the application-under-test is installed. It then calls SQAEnvCreateDelta to compare the two snapshots and display a comparison report.

```
'$Include "sqautil.sbh"
...

' Capture a pre-task snapshot
Result = SQAEnvCreateBaseline("PreInstall")
If Result = 0 Then
    MsgBox "Error capturing the pre-task snapshot. "
End If

' Install the application-under-test
...

' Capture a post-task snapshot
Result = SQAEnvCreateCurrent("PostInstall")
If Result = 0 Then
    MsgBox "Error capturing the post-task snapshot. "
End If

' Compare the pre-task and post-task snapshots and
' generate a report
Result = SQAEnvCreateDelta("PreInstall","PostInstall",1)
If Result = 0 Then
    MsgBox "Error generating the comparison report."
End If
...
```

See Also

SQAEnvCreateBaseline
SQAEnvCreateCurrent
SQAGetLogDir

SQAFindObject

Object Scripting Command

Description

Searches for a specified object.

Syntax

status% = **SQAFindObject**(*recMethod$*)

Syntax Element	Description
recMethod$	The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the PushButton user action command. In addition, you might need to use Type= to specify the object type, and/or use context notation to specify the context for the object. For details, see *Specifying an Object* in Chapter 5.

Comments

Returns the Integer 0 (sqaSuccess) if SQAFindObject finds the specified object. If an error occurs, returns a status code that specifies the error. See the list of Object Scripting status codes in Appendix C.

This command is useful to test if an object exists before you query its properties or act upon it in some other way.

If SQAFindObject doesn't locate the specified object immediately, it returns sqaObjectNotFound. If you want to wait a certain time period for the object to appear, use SQAWaitForObject.

If this command acts upon a Java object, any parent Java object must be referenced in the command's *recMethod$* argument. This command ignores any parent object information in a preceding Browser command. For more information, see *Using Object Scripting Commands with Java Objects* in Chapter 4.

Example

In this example, the user-defined function CheckForOKCancelButtons() verifies that the current window contains an OK and a Cancel button. It returns either sqaPass or sqaFail.

```
Function CheckForOKCancelButtons () As Integer
    Dim Result as Integer
    If SQAFindObject("Type=PushButton;Text=OK") = sqaSuccess And
        SQAFindObject("Type=PushButton;Text=Cancel") = sqaSuccess
        Then Result = sqaPass
    Else
        Result = sqaFail
    End If
    'Get the recognition information for current context window
```

```
    Dim CurrentWindow As Variant
    SQAGetProperty ".\", "Recognition", CurrentWindow
    SQALogMessage Result, "Test for existence of OK and Cancel
        buttons", "Window being tested: " + CurrentWindow
    CheckForOKCancelButtons = Result
End Function

'Example of using above function in a script
Sub Main
    Dim Result As Integer
    Window SetContext, "Name=myApp", ""
    MenuSelect "File->Open..."
    Result = CheckForOKCancelButtons()
End Main
```

See Also `SQAGetChildren`
`SQAWaitForObject`

SQAGetCaptionTerminatorChar

Utility Command ▸▸▸SQA▸

Description

Retrieves the character that Robot is currently using as the window caption terminator character.

Syntax

charcode% = **SQAGetCaptionTerminatorChar()**

Syntax Element	Description
charcode%	The ANSI code of the character currently being used as the caption terminator.

Comments

If no caption terminator is set, the return value is zero (`0`).

You can use `Chr$` to convert the return value into its string equivalent.

`SQAGetCaptionTerminatorChar` is the new name for the command `PLAGetCaptionTerminatorChar`.

Example

This example retrieves the character currently being used as the Robot caption terminator, and then checks to determine if this character is the dash symbol (`-`).

```
charcode% = SQAGetCaptionTerminatorChar()
If Chr$(charcode%) = "-" Then
   'Caption terminator is the dash symbol...
End If
```

See Also `SQASetCaptionTerminatorChar`

SQAGetChildren

Object Scripting Command

Description

Retrieves an array containing recognition methods that identify each of an object's child objects.

Syntax

status% = **SQAGetChildren**(*recMethod$*,*aChildren()*)

Syntax Element	Description
recMethod$	The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the `PushButton` user action command. In addition, you might need to use `Type=` to specify the object type, and/or use context notation to specify the context for the object. For details, see *Specifying an Object* in Chapter 5.
aChildren	An output argument that the command fills with an array of strings. This is a 0-based array that is defined as follows: `Dim aChildren() as String`

Comments

Returns the `Integer` 0 (`sqaSuccess`) if `SQAGetChildren` executes successfully. If an error occurs, returns a status code that specifies the error. See the list of Object Scripting status codes in Appendix C.

This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand `'$Include`.

The full recognition method for the child object is retrieved. The full recognition method includes the parent object's recognition method, a backslash (\ ), and the child object's recognition method — for example:

```
"\;Name=ParentObj;\;Name=ChildObj"
```

If this command acts upon a Java object, any parent Java object must be referenced in the command's *recMethod$* argument. This command ignores any parent object information in a preceding `Browser` command. For more information, see *Using Object Scripting Commands with Java Objects* in Chapter 4.

Example

In this example, the user-defined function TestForLabelAccelerators() tests that all Label objects within a window have an accelerator key.

```
'$Include "sqautil.sbh"
Function TestForLabelAccelerators (WindowRec As String) As Integer
    Dim Result As Integer
```

```
    Dim ChildRec() As String
    Result = sqaPass
    If SQAGetChildren(WindowRec, ChildRec) = sqaSuccess Then
        'cycle through children, looking for labels
        Dim ObjectType, LabelText
        Dim n As Integer
        For n = 0 To UBound(ChildRec)
            SQAGetProperty ChildRec(n), "ObjectType", ObjectType
            If ObjectType = "Label" Then
                'look for & character within each label
                SQAGetProperty ChildRec(n), "Text", LabelText
                If LabelText <> "" And InStr(LabelText, "&") Then
                   SQALogMessage sqaFail, "Test for label
                      accelerators","Object """ + ChildRec(n) + """"
                    Result = sqaFail
                End If
            End If
        Next n
    End If
    If Result = sqaPass Then
        SQALogMessage sqaPass, "Test for label accelerators",
            "All labels within """ + WindowRec + """"
    End If
    TestForLabelAccelerators = Result
End Function

'Example of using above function in a script
Sub Main
    Window SetContext, "Caption=Notepad - (Untitled)", ""
    MenuSelect "File->Open..."
    TestForLabelAccelerators "\;Type=Window;Caption=Open"
    Window SetContext, "Caption=Open",""
    PushButton Click, "Text=Cancel"
End Sub
```

See Also `SQAFindObject`
`SQAGetPropertyNames`
`SQAWaitForObject`

SQAGetDir

Utility Command

Description Retrieves the path of standard directories used by Rational test applications.

Syntax *path$* = **SQAGetDir**(*dirType%*)

Syntax Element	Description
dirType%	The type of directory to locate. Valid values: ▸ SQA_DIR_PROJECT. Retrieve the path of the project directory. ▸ SQA_DIR_REPOSITORY. Retrieve the path of the datastore. ▸ SQA_DIR_RUNFILES. Retrieve the path of the runtime files. ▸ SQA_DIR_SCRIPTS. Retrieve the path of script files. ▸ SQA_DIR_VPS. Retrieve the path of verification point files.

Comments Returns the path of the specified directory type.

This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand `'$Include`.

`SQAGetDir` retrieves paths based on the current structure of the datastore. If the datastore structure changes in a future version of the product, some or all of the paths that `SQAGetDir` retrieves may not be applicable.

Example This example prints to the console the paths of various standard directories.

```
'$Include "sqautil.sbh"

Sub Main

  SQAConsoleWrite "Current project: " + SQAGetDir(SQA_DIR_PROJECT)
  SQAConsoleWrite "Datastore: " + SQAGetDir(SQA_DIR_REPOSITORY)
  SQAConsoleWrite "Runtime files: " + SQAGetDir(SQA_DIR_RUNFILES)
  SQAConsoleWrite "Scripts: " + SQAGetDir(SQA_DIR_SCRIPTS)
  SQAConsoleWrite "Verification points: " + SQAGetDir(SQA_DIR_VPS)

End Sub
```

See Also `SQAGetLogDir`

SQAGetLogDir

Utility Command ▸▸▸SQA▸

Description Returns the full path of the runtime log.

Syntax *logDir$* = **SQAGetLogDir**

Comments Returns a string containing the path of the runtime log file. If the Log management GUI playback option is disabled in Robot, this command returns Robot's temporary path.

Example The following example prints the log path in the Robot console.

```
Sub Main
   Dim logPath as String
   logPath = SQAGetLogDir
   SQAConsoleWrite "The log path is " + logPath
End Sub
```

See Also `SQAEnvCreateDelta`
`SQAGetDir`

SQAGetOcrRegionRect

Utility Command ▸▸▸SQA▸

Description Retrieves the coordinates of the specified OCR region.

Syntax *Result*=**SQAGetOcrRegionRect**(*parameter$*,*region%*,*rectangle*)

Syntax Element	Description
parameter$	Valid value: VP=*$*. The ID of the Window Image or Region Image verification point that tests the specified OCR region.
region%	The number of the OCR region for which you are retrieving coordinates. This number is listed in the Number column of the Image Comparator's Mask/OCR List pane.

rectangle	An output variable for the retrieved object-relative coordinates of the OCR region.
	The coordinates are returned in the following User-Defined data type:
	`Type SQARectangle`
	`  top as Integer`
	`  bottom as Integer`
	`  left as Integer`
	`  right as Integer`
	`End Type`

Comments Returns 1 if coordinates are successfully retrieved, or 0 if the operation fails.

The User-Defined data type `SQARectangle` is already declared and ready to use. You do not have to reference a .SBH file to use it.

This command uses the information in the baseline data file for the Window Image or Region Image verification point where the specified OCR region has been defined.

`SQAGetOcrRegionRect` must be used in conjunction with a Window Image or Region Image verification point that tests the specified OCR region.

For information about defining an OCR region, run the Image Comparator for the specified Window Image or Region Image verification point. Open the online Help and search the index for *OCR*.

Example

The following example retrieves the coordinates of an OCR region within a window image of a Web page. The example then calculates the center of the OCR region and clicks it.

```
Sub Main
    Dim Result As Integer
    Dim ocrResult as Integer
    Dim rect as SQARectangle
    Dim coords as String

    'Initially Recorded: 1/17/00  3:38:33 PM
    'Script Name: ocr rect IE

    Result = GenericObjectVP (CompareImage, "Class=Internet
               Explorer_Server;ClassIndex=1", "VP=Window Image")

    ocrResult = SQAGetOcrRegionRect("VP=Window Image",1,rect)

    If ocrResult = 1 Then
        'Calculate center of the OCR Region
        coords = "Coords=" + Str$(rect.left +
              (Int(rect.right-rect.left)/2)) + "," + Str$(rect.top
+
              (Int(rect.bottom-rect.top)/2))
        'Click the object at center point of OCR region
        GenericObject Click,"Class=Internet Explorer_Server;
               ClassIndex=1",coords
      Else
        SQAConsoleWrite "Problem retrieving coordinates of OCR region"
    End If
End Sub
```

See Also

`SQAGetOcrRegionText`

SQAGetOcrRegionText

Utility Command

Description

Retrieves the text in the specified OCR region.

Syntax

Result = **SQAGetOcrRegionText**(*parameter$*, *region%*, *text$*)

Syntax Element	Description
parameter$	Valid value: ▸ VP=*$*. The ID of the Window Image or Region Image verification point that tests the specified OCR region.
region%	The number of the OCR region for which you are retrieving text. This number is listed in the Number column of the Image Comparator's Mask/OCR List pane.
text$	An output variable for the retrieved text from the specified OCR region of the referenced Window Image or Region Image verification point. See *Comments* for more information.

Comments

Returns 1 if text is successfully retrieved, or 0 if the operation fails.

This command retrieves the text in the specified OCR region, as follows:

- Retrieves the text in the most recent Actual data file, if one exists. An Actual data file is created when the baseline data captured during recording does not match the current, or actual, data captured during playback.
- Retrieves the text in the baseline data file if no Actual data file exists.

SQAGetOcrRegionText must be used in conjunction with a Window Image or Region Image verification point that tests the specified OCR region.

For information about defining an OCR region, run the Image Comparator for the specified Window Image or Region Image verification point. Open the online Help and search the index for *OCR*.

Example

The following example verifies the text in two OCR regions defined in the region image verification point B's9th.

```
Sub Main
    Dim Result as Integer
    Dim ocrResult as Integer
    Dim region as Integer
    Dim ocrText as String

    'Initially Recorded: 1/17/00  1:27:14 PM
    'Script Name: ocr text

    StartApplication """C:\Program Files\ClassicsOnline
              \ClassicsB.exe"""

    Window SetContext, "Name=frmMain", ""
    TreeView Click, "Name=treMain;\;ItemText=Beethoven",
              "Location=Button"
```

```
        TreeView Click, "Name=treMain;\;ItemText=Beethoven->Symphony
                  No. 9", ""
        Result = RegionVP (CompareImage, "",
                  "VP=B's9th;Coords=604,389,811,580")

        For region = 1 to 2
            ocrResult=SQAGetOcrRegionText("VP=B's9th",region,ocrText)
            If ocrResult = 1 Then
                SQAConsoleWrite "OCR region" + Str$(region) + ":"
                SQAConsoleWrite ocrText
                SQAConsoleWrite ""
              Else
                SQAConsoleWrite "Problem retrieving text for region"
                  + Str$(region)
            End If
        Next region
    End Sub
```

See Also `SQAGetOcrRegionRect`

SQAGetProperty

Object Scripting Command

Description Retrieves the value of the specified property.

Syntax *`status%`* = **`SQAGetProperty`**(*`recMethod$`*,*`property$`*,*`value`*)

Syntax Element	Description
`recMethod$`	The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the `PushButton` user action command. In addition, you might need to use `Type=` to specify the object type, and/or use context notation to specify the context for the object. For details, see *Specifying an Object* in Chapter 5.
`property$`	A case-sensitive property name. See *Specifying the Object Property* in Chapter 5 for information on the property names you can specify for a given object.
`value`	An output argument of type `Variant` that will contain the retrieved property value.

Comments

Returns the `Integer` 0 (`sqaSuccess`) if `SQAGetProperty` successfully retrieves the value of the specified property. If an error occurs, returns a status code that specifies the error. See the list of Object Scripting status codes in Appendix C.

The contents of *`value`* is a `Variant` that's based on the native data type of the property being retrieved. For example:

- A Boolean property is retrieved as the `Integer` value 0 (for False) or -1 (for True).
- A color is retrieved as a `Long`. For example, 12632256 is retrieved for a shade of gray instead of RGB(192,192,192).
- A State property for a check box is retrieved as an `Integer` (which is how the property value is stored internally). For example, if a check box is checked, the value 1 might be retrieved rather than the associated `String` value Checked.

To retrieve a property value in `String` form, use `SQAGetPropertyAsString`.

If the value of the specified property is stored in an array, you must specify a particular element in the array through an array index — for example:

```
Result=SQAGetProperty("Name=myList","List(0)",value)
```

Other notes about arrays of property values:

- If you don't specify an array index in a call to `SQAGetProperty`, `sqaArraysNotSupported` is returned.
- To find out how many elements are in an array, call `SQAGetPropertyArraySize`.
- To retrieve all the elements in an array, call `SQAGetPropertyArray` or `SQAGetPropertyArrayAsString`.

The maximum supported size for `Variant` strings is 32 KB. If the actual property value is larger than 32 KB, the contents of *`value`* is clipped to 32 KB.

If this command acts upon a Java object, any parent Java object must be referenced in the command's *`recMethod$`* argument. This command ignores any parent object information in a preceding `Browser` command. For more information, see *Using Object Scripting Commands with Java Objects* in Chapter 4.

Example

In this example, the user-defined function CheckButton() clicks on a check box only if it is currently unchecked.

```
Sub CheckButton (ObjectRec As String)
    Dim Result As Integer
    Dim CheckState As Variant
    'Note: A "State" of 0 means that it is unchecked
```

```
    Result = SQAGetProperty (ObjectRec, "State", CheckState)
    If Result = sqaSuccess And CheckState = 0 Then
        CheckBox Click, ObjectRec
    End If
End Sub

'Example of using above function in a script
Sub Main
    Window SetContext, "Caption=Find", ""
    CheckButton "Text=Match case"
End Sub
```

This example performs the same operation as the previous example, but without calling a user-defined function.

```
Sub Main
    Dim Result As Integer
    Dim CheckState As Variant
    Window SetContext, "Caption=Find", ""
    Result = SQAGetProperty("Type=CheckBox;Text=Match case",
        "State", CheckState)
    'Note: A "State" of 0 means that it is unchecked
    If CheckState = 0 Then
        CheckBox Click, "Text=Match case"
    End If
End Sub
```

See Also

SQAGetPropertyArray
SQAGetPropertyArrayAsString
SQAGetPropertyArraySize
SQAGetPropertyAsString
SQAGetPropertyNames
SQASetProperty
SQAWaitForPropertyValue

SQAGetPropertyArray

Object Scripting Command

▸▸▸SQA▸

Description

Retrieves an array of values for the specified property.

Syntax

status% = **SQAGetPropertyArray**(*recMethod$*,*property$*, *aPropValues()*)

Syntax Element	Description
recMethod$	The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the `PushButton` user action command. In addition, you might need to use `Type=` to specify the object type, and/or use context notation to specify the context for the object. For details, see *Specifying an Object* in Chapter 5.

▸ ▸ ▸

► ► ►

Syntax Element	Description
property$	A case-sensitive property name. See *Specifying the Object Property* in Chapter 5 for information on the property names you can specify for a given object.
aPropValues	An output argument that the command fills with an array of values for the specified property. This is a 0-based array that is defined as follows: `Dim aPropValues() as Variant`

Comments

Returns the `Integer` 0 (`sqaSuccess`) if `SQAGetPropertyArray` successfully retrieves the array of values for the specified property. If an error occurs, returns a status code that specifies the error. See the list of Object Scripting status codes in Appendix C.

This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand `'$Include`.

`SQAGetPropertyArray` retrieves a property's value as a `Variant`. To retrieve the value in `String` form (for example, to retrieve a Boolean as "True" or "False" rather than as -1 or 0), use `SQAGetPropertyArrayAsString`.

If this command acts upon a Java object, any parent Java object must be referenced in the command's *recMethod$* argument. This command ignores any parent object information in a preceding `Browser` command. For more information, see *Using Object Scripting Commands with Java Objects* in Chapter 4.

Example

This example compares the contents of two list boxes.

```
'$Include "sqautil.sbh"
Sub Main
    Window SetContext, "Caption=Copy Files", ""
    Dim List1Content() As Variant
    Dim List2Content() As Variant
    'Get the contents of the two listboxes
    SQAGetPropertyArray "Type=ListBox;ObjectIndex=1", "List",
        List1Content
    SQAGetPropertyArray "Type=ListBox;ObjectIndex=2", "List",
        List2Content
     'Compare the number of elements in each listbox
    If UBound(List1Content) <> UBound(List2Content) Then
        SQALogMessage sqaFail, "Dynamic Listbox Comparison",
            "Listboxes contain different number of elements"
    Else
        Dim n As Integer
        Result = sqaPass
        For n = 0 to UBound(List1Content)
            If List1Content(n) <> List2Content(n) Then
                Result = sqaFail
                Exit For
            End If
```

```
            Next n
            SQALogMessage Result, "Dynamic Listbox Comparison", ""
        End If
    End Sub
```

See Also

`SQAGetProperty`
`SQAGetPropertyArrayAsString`
`SQAGetPropertyArraySize`
`SQAGetPropertyAsString`
`SQAGetPropertyNames`
`SQASetProperty`
`SQAWaitForPropertyValue`

SQAGetPropertyArrayAsString

Object Scripting Command

▸▸▸SQA▸

Description

Retrieves an array of values for the specified property in `String` form.

Syntax

`status%` = **`SQAGetPropertyArrayAsString`**(*`recMethod$`*, *`property$`*,*`aPropValues()`*)

Syntax Element	Description
`recMethod$`	The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the `PushButton` user action command. In addition, you might need to use `Type=` to specify the object type, and/or use context notation to specify the context for the object. For details, see *Specifying an Object* in Chapter 5.
`property$`	A case-sensitive property name. See *Specifying the Object Property* in Chapter 5 for information on the property names you can specify for a given object.
`aPropValues`	An output argument that the command fills with an array of values for the specified property. This is a 0-based array that is defined as follows: `Dim aPropValues() as String`

Comments

Returns the `Integer` `0` (`sqaSuccess`) if `SQAGetPropertyArrayAsString` successfully retrieves the array of values for the specified property. If an error occurs, returns a status code that specifies the error. See the list of Object Scripting status codes in Appendix C.

This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand `'$Include`.

`SQAGetPropertyArrayAsString` retrieves values as strings. To retrieve property values in their native data types (for example, to retrieve a Boolean as -1 or 0 rather than as "True" or "False"), use `SQAGetPropertyArray`.

If this command acts upon a Java object, any parent Java object must be referenced in the command's *`recMethod$`* argument. This command ignores any parent object information in a preceding `Browser` command. For more information, see *Using Object Scripting Commands with Java Objects* in Chapter 4.

Example

This example logs all hidden columns within a grid.

```
'$Include "sqautil.sbh"
Sub Main
    Window SetContext, "Name=myApp", ""
    Dim VisibleStatus() As String
    Dim n As Integer
    SQAGetPropertyArrayAsString "Name=myGrid", "ColsVisible",
        VisibleStatus
    'Cycle through property values, looking for hidden columns
    For n = 0 to UBound(VisibleStatus)
        If VisibleStatus(n) = "False" Then
            SQALogMessage sqaNone, "Column" + Str$(n) + " is
                hidden", ""
        End If
    Next n
End Sub
```

See Also

`SQAGetProperty`
`SQAGetPropertyArray`
`SQAGetPropertyArraySize`
`SQAGetPropertyAsString`
`SQAGetPropertyNames`
`SQASetProperty`
`SQAWaitForPropertyValue`

SQAGetPropertyArraySize

Object Scripting Command

▸▸▸SQA▸

Description

Retrieves the number of elements in an array of property values.

Syntax

`status%` = **`SQAGetPropertyArraySize`**(*`recMethod$`*,*`property$`*, *`size%`*)

Syntax Element	Description
`recMethod$`	The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the `PushButton` user action command.

► ► ►

► ► ►

Syntax Element	Description
	In addition, you might need to use `Type=` to specify the object type, and/or use context notation to specify the context for the object. For details, see *Specifying an Object* in Chapter 5.
property$	A case-sensitive property name. See *Specifying the Object Property* in Chapter 5 for information on the property names you can specify for a given object.
size%	An output value that will contain the number of elements in the array.

Comments

Returns the `Integer` 0 (`sqaSuccess`) if the property specified in *property$* is an array. If an error occurs, returns a status code that specifies the error. See the list of Object Scripting status codes in Appendix C.

If *property$* is not an array, but it is a valid property name, the command returns `sqaPropertyIsNotArray`

If the command returns `sqaSuccess` and *size%* is 0, the array is empty.

Calling this command is a good way to test whether a property is an array before you try to retrieve the property value with `SQAGetProperty`.

If this command acts upon a Java object, any parent Java object must be referenced in the command's *recMethod$* argument. This command ignores any parent object information in a preceding `Browser` command. For more information, see *Using Object Scripting Commands with Java Objects* in Chapter 4.

Example

This example logs the number of elements within a combo box.

```
Sub Main
    Dim Result As Integer
    Dim NumElements As Integer
    Window SetContext, "Name=frmMain", ""
    Result = SQAGetPropertyArraySize("Type=ComboBox;Name=Title",
        "List", NumElements)
    If Result = sqaSuccess Then
        SQALogMessage sqaNone, "The Title combobox contains" +
            Str$(NumElements) + " items", ""
    Else
        SQALogMessage sqaWarning, "Unable to obtain number of items
            in Title combobox", "Error" + Str$(Result) + ": " +
                Error$(Result)
    End If
End Sub
```

See Also

`SQAGetProperty`
`SQAGetPropertyArray`
`SQAGetPropertyArrayAsString`
`SQAGetPropertyAsString`
`SQAGetPropertyNames`
`SQASetProperty`
`SQAWaitForPropertyValue`

SQAGetPropertyAsString

Object Scripting Command

Description

Retrieves a property value in `String` form.

Syntax

`status%` = **`SQAGetPropertyAsString`**(*`recMethod$`*,*`property$`*, *`value`*)

Syntax Element	Description
`recMethod$`	The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the `PushButton` user action command. In addition, you might need to use `Type=` to specify the object type, and/or use context notation to specify the context for the object. For details, see *Specifying an Object* in Chapter 5.
`property$`	A case-sensitive property name. See *Specifying the Object Property* in Chapter 5 for information on the property names you can specify for a given object.
`value`	An output argument of type `Variant` that will contain the retrieved property value.

Comments

Returns the `Integer` 0 (`sqaSuccess`) if `SQAGetPropertyAsString` successfully retrieves the value of the specified property. If an error occurs, returns a status code that specifies the error. See the list of Object Scripting status codes in Appendix C.

`SQAGetPropertyAsString` retrieves a value as a `Variant` of `VarType` 8 (`String`). Compare the command with `SQAGetProperty`, which retrieves a value as a `Variant` that's based on the native data type of the property being retrieved. For example, with `SQAGetPropertyAsString`:

- Boolean properties are retrieved as the value "True" or "False" rather than as -1 or 0.
- A color is retrieved as the string "RGB(###,###,###)", not as a `Long`. For example, a shade of gray might be retrieved as the string RGB(192,192,192), not as the number 12632256.
- A State property for a check box is retrieved in `String form`. For example, if a check box is checked, the value Checked might be retrieved rather than the value 1 (which is how Checked might be stored internally).

If the value of the specified property is stored in an array, you must specify a particular element in the array through an array index — for example:

```
Result=SQAGetPropertyAsString("Name=myList","List(0)",value)
```

Other notes about arrays of property values:

- If you don't specify an array index in a call to `SQAGetPropertyArray`, `sqaArraysNotSupported` is returned.
- To find out how many elements are in an array, call `SQAGetPropertyArraySize`.
- To retrieve all the elements in an array, call `SQAGetPropertyArray` or `SQAGetPropertyArrayAsString`.

The maximum supported size for `Variant` strings is 32 KB. If the actual property value is larger than 32 KB, the contents of *`value$`* is clipped to 32 KB.

If this command acts upon a Java object, any parent Java object must be referenced in the command's *`recMethod$`* argument. This command ignores any parent object information in a preceding `Browser` command. For more information, see *Using Object Scripting Commands with Java Objects* in Chapter 4.

Example

This example logs the state of the Notepad window.

```
Sub Main
    Dim Result As Integer
    Dim StateString As Variant
    Result = SQAGetPropertyAsString("\;Caption=Notepad -
        (Untitled)", "WindowState", StateString)
    If Result = sqaSuccess Then
        SQALogMessage sqaNone, "WindowState is currently: " +
            StateString, ""
    End If
End Sub
```

This example logs the background color of the TotalIncome edit box.

```
Sub Main
    Dim Result As Integer
    Dim MyColor As Variant
    Window SetContext, "Name=frmMain", ""
```

```
        Result = SQAGetPropertyAsString("Type=EditBox;
            Name=TotalIncome", "BackColor", MyColor)
        If Result = sqaSuccess Then
            SQALogMessage sqaNone, "Background color of TotalIncome: "
                + MyColor, ""
        End If
    End Sub
```

See Also

SQAGetProperty
SQAGetPropertyArray
SQAGetPropertyArrayAsString
SQAGetPropertyArraySize
SQAGetPropertyNames
SQASetProperty
SQAWaitForPropertyValue

SQAGetPropertyNames

Object Scripting Command

▸▸▸SQA▸

Description

Retrieves an array containing the names of all the object's properties.

Syntax

status% = **SQAGetPropertyNames**(*recMethod$, aPropNames()*)

Syntax Element	Description
recMethod$	The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the `PushButton` user action command. In addition, you might need to use `Type=` to specify the object type, and/or use context notation to specify the context for the object. For details, see *Specifying an Object* in Chapter 5.
aPropNames()	An output argument that the command fills with an array of strings. This is a 0-based array that is defined as follows: `Dim aPropNames() as String`

Comments

Returns the `Integer` 0 (`sqaSuccess`) if `SQAGetPropertyNames` successfully retrieves the names of the object's properties. If an error occurs, returns a status code that specifies the error. See the list of Object Scripting status codes in Appendix C.

This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand `'$Include`.

If this command acts upon a Java object, any parent Java object must be referenced in the command's *recMethod$* argument. This command ignores any parent object information in a preceding Browser command. For more information, see *Using Object Scripting Commands with Java Objects* in Chapter 4.

Example

This example logs the total number of properties of the specified object.

```
'$Include "sqautil.sbh"
Sub Main
    Dim Result As Integer
    Dim Properties() As String
    Window SetContext, "Name=frmMain", ""
    Result = SQAGetPropertyNames("Name=cmdNext", Properties)
    If Result = sqaSuccess Then
        SQALogMessage sqaNone, "The cmdNext object has" +
            Str$(UBound(Properties)+1) + " properties", ""
    End If
End Sub
```

In this example, the user-defined function SaveAllPropertyValues() writes the values of all of an object's properties to a file.

```
Sub SaveAllPropertyValues (ObjectRec As String, Filename As String)
    Dim Result As Integer
    Dim Properties() As String
    Dim Value As Variant
    Dim n As Integer
    Open Filename For Output As #1
    Result = SQAGetPropertyNames(ObjectRec, Properties)
    If Result <> sqaSuccess Then
        SQALogMessage sqaWarning, "Unable to capture """ +
            ObjectRec + """ properties", "Error" + Str$(Result) +
                ": " + Error$(Result)
        Exit Sub
    End If
    For n = 0 to UBound(Properties)
        Result = SQAGetPropertyAsString(ObjectRec, Properties(n),
            Value)
        If Result = sqaSuccess Then
            Write #1, Properties(n), Value
        End If
     Next n
     Close #1
    SQALogMessage sqaNone, "Properties of " + ObjectRec + " saved
        in " + Filename, ""
    End Sub

'Example of using above function in a script
Sub Main
    Window SetContext, "Name=frmMain", ""
    SaveAllPropertyValues "Name=cmdNext", "C:\BTNPROPS.TXT"
End Sub
```

See Also

SQAGetProperty
SQAGetPropertyArray
SQAGetPropertyArrayAsString
SQAGetPropertyArraySize
SQAGetPropertyAsString
SQASetProperty
SQAWaitForPropertyValue

SQAGetSystemLong

Utility Command

Description

Retrieves a system value.

Syntax

longValue& = **SQAGetSystemLong** (*code%*)

Syntax Element	Description
longValue&	A system value.
code%	Valid values: ▸ SQA_MajorVersion. The major version number of Robot. ▸ SQA_MinorVersion. The minor version number of Robot. ▸ SQA_OS. The current operating system. Returns one of the following: SQA_OS_Win95 SQA_OS_Win2000 SQA_OS_WinNT SQA_OS_WinNT40 SQA_OS_Win95 represents both the Windows 95 and Windows 98 operating systems. See *Comments* for information on distinguishing between these operating systems. ▸ SQA_OS_MajorVersion. The major version number of the operating system. ▸ SQA_OS_MinorVersion. The minor version number of the operating system.

Comments

SQAGetSystemLong is the new name for the command PLAGetSystemLong.

With both Windows 95 and Windows 98 operating systems, SQA_OS returns SQA_OS_WIN95, and SQA_OS_MajorVersion returns 4. Use SQA_OS_MinorVersion to distinguish between Windows 95 and Windows 98, as follows:

- With Windows 95, SQA_OS_MinorVersion returns 0.
- With Windows 98, SQA_OS_MinorVersion returns 10.

Example

This example detects the current operating system and writes it to the Robot console.

```
Sub Main
  Dim OS As Long
  OS = SQAGetSystemLong (SQA_OS)

    Select Case OS
    Case SQA_OS_Win95
         If SQAGetSystemLong(SQA_OS_MinorVersion) = 10 Then
            SQAConsoleWrite "You are running Windows 98"
         Else
            SQAConsoleWrite "You are running Windows 95"
         End If
    Case SQA_OS_WinNT
         If SQAGetSystemLong(SQA_OS_MajorVersion) = 5 Then
            SQAConsoleWrite "You are running Windows NT 5"
         Else
            SQAConsoleWrite "You are running Windows NT 4"
         End If
    Case Else
         SQAConsoleWrite "Not sure what OS you're running"
    End Select
End Sub
```

See Also `SQASetCaptionTerminatorChar`

SQAInvokeMethod

Object Scripting Command ▸▸▸SQA▸

Description Executes the specified method of an object.

Syntax *status%* = **SQAInvokeMethod**(*recMethod$*,*objMethod$*,*args$*)

Syntax Element	Description
recMethod$	The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the `PushButton` user action command. In addition, you might need to use `Type=` to specify the object type, and/or use context notation to specify the context for the object. For details, see *Specifying an Object* in Chapter 5.
objMethod$	The name of the method to execute.
args$	Any arguments that the method takes. Both required and optional arguments must be specified. Separate each argument with a comma.

Comments Returns the `Integer` 0 (`sqaSuccess`) if `SQAInvokeMethod` successfully calls the method. If an error occurs, returns a status code that specifies the error. See the list of Object Scripting status codes in Appendix C.

`SQAInvokeMethod` is only supported for Visual Basic and OCX/ActiveX objects.

The only values returned are the values in the above table. This command does not return the value that the method returns, if any.

If this command acts upon a Java object, any parent Java object must be referenced in the command's *`recMethod$`* argument. This command ignores any parent object information in a preceding `Browser` command. For more information, see *Using Object Scripting Commands with Java Objects* in Chapter 4.

Example

This example moves the Visual Basic data control to the last record and then back to the first, to force all records to be retrieved.

```
Sub Main
    Window SetContext, "Name=frmSamples", ""
    SQAInvokeMethod "Name=datOrderInfo", "Recordset.MoveLast", ""
    SQAInvokeMethod "Name=datOrderInfo", "Recordset.MoveFirst", ""
End Sub
```

This example cycles through all customers (within a VB data control) that meet a certain criteria and then checks that they have a phone number.

```
Sub Main
    Dim Result As Integer
    Dim NoMatch As Integer
    Dim CustName, PhoneNum
    Window SetContext, "Name=frmSamples", ""
    SQALogMessage sqaNone, "Customers starting with 'A' in their
        name...", ""
    SQAInvokeMethod "Name=datCustomerInfo", "Recordset.FindFirst",
        "CustomerName Like 'A*'"
    SQAGetProperty "Name=datCustomerInfo", "Recordset.NoMatch",
        NoMatch
    Do While Not NoMatch
        SQAGetProperty "Name=datCustomerInfo",
            "Recordset.Fields(1).Value", CustName
        SQAGetProperty "Name=datCustomerInfo",
            "Recordset.Fields(7).Value", PhoneNum
        If PhoneNum <> "" Then
            SQALogMessage sqaPass, "Checking for phone number",
                "Customer " + CustName + " has phone number " +
                    PhoneNum
        Else
            SQALogMessage sqaFail, "Checking for phone number",
                "Customer " + CustName + " does not have a phone
                number"
        End If
        'Find next match
        SQAInvokeMethod "Name=datCustomerInfo",
            "Recordset.FindNext", "CustomerName Like 'A*'"
        SQAGetProperty "Name=datCustomerInfo",
            "Recordset.NoMatch", NoMatch
    Loop
End Sub
```

See Also

None.

SQALogMessage

Utility Command

Description

Writes a message to a log and optionally inserts a result flag (Pass, Fail, or Warning) in the Result column.

Syntax

SQALogMessage *code%,message$,description$*

Syntax Element	Description
code%	Lets you insert a result flag in the Result column of the LogViewer, next to the message entry. Valid values: ▸ `sqaPass` or `True`. Inserts Pass in the Result column. ▸ `sqaFail` or `False`. Inserts Fail in the Result column. ▸ `sqaWarning`. Inserts Warning in the Result column. ▸ `sqaNone`. Leaves the Result column blank for the message entry.
message$	The message to insert in the log. The message appears in the Log Event column of the LogViewer.
description$	A description of the message. The description appears in the Description field of the Log Event Properties dialog box.

Comments

For more information about `SQALogMessage`, including an illustration of where messages are displayed, see *Displaying Messages in Robot* in Chapter 5.

To send a message to the log *and* end script execution, use `SQAScriptCmdFailure`.

`SQALogMessage` replaces the command `WriteLogMessage`.

Example

This example writes several messages to the log.

```
Sub Main
    Dim Result As Integer
    Dim Value As Variant
    SQALogMessage sqaNone, "Starting test of Acme Application...", ""
    Window SetContext, "Caption=Acme Inc.", ""
    Result=SQAGetProperty("Type=PushButton;Text=OK","Enabled",Value)
    If Result = sqaSuccess Then
        If Value = TRUE Then
            Result = sqaPass
        Else
            Result = sqaFail
        End If
        SQALogMessage Result,"Test to see if OK button is enabled",""
```

```
        Else
            SQALogMessage sqaWarning, "Unable to perform OK button
                test", "Error" + Str$(Result) + ": " + Error$(Result)
        End If
    End Sub
```

See Also `SQAScriptCmdFailure`

SQAQueryKey

Utility Command

Description Returns the state of a locking key (Caps Lock, Num Lock, and Scroll Lock).

Syntax *state%* = **SQAQueryKey**(*keyType%*)

Syntax Element	Description
keyType%	One of these literal values: ▸ `sqaCapsLock`. Reports the state of the Caps Lock key. ▸ `sqaNumLock`. Reports the state of the Num Lock key. ▸ `sqaScrollLock`. Reports the state of the Scroll Lock key.

Comments Returns -1 if the key state is locked (indicator light is on), or 0 if the key state is not locked.

Example The following example unlocks the Num Lock feature if it is locked in the ON state.

```
If SQAQueryKey(sqaNumLock)= -1 Then
    InputKeys "{NumLock}"
End If
```

See Also `InputKeys`

SQAResumeLogOutput

Utility Command

Description Resumes the output of verification point and wait state results to the log.

Syntax **SQAResumeLogOutput**

Comments `SQAResumeLogOutput` is the new name for the command `PLAResumeLogOutput`.

Example None.

See Also `SQASuspendLogOutput`

SQAScriptCmdFailure

Utility Command

Description Generates a script command failure and ends script execution.

Syntax **`SQAScriptCmdFailure`** *`description$`*

Syntax Element	Description
`description$`	A description of the failure. The description appears in the Result tab of the Log Event Properties dialog box.

Comments This command displays the following text in the LogViewer:

- The text "Script Command Failure" appears in the Log Event column. You can't modify this text.
- The notation Fail appears in the Result column. You can't modify it.
- The text you provide through this command is displayed in the Result tab of the Log Event Properties dialog box.

In addition, the description you provide of the script command failure and the line where it occurs are displayed in the Robot console window.

To send a message to the LogViewer without ending script execution, use `SQALogMessage`.

`SQAScriptCmdFailure` is the new name for the command `PLAScriptCmdFailure`.

Example This example checks the current operating system and generates a script command failure if the operating system is Windows 3.x.

```
If SQAGetSystemLong (SQA_OS) = SQA_OS_Win16 then
   SQAScriptCmdFailure "This test does not work under Windows 3.x"
End If
```

See Also None.

SQASetAssignmentChar

Utility Command

Description Sets the character to be used by Robot as the assignment character in SQABasic user action and verification point commands.

Syntax **SQASetAssignmentChar** *charcode%*

Syntax Element	Description
charcode%	The ANSI code of the character to be used as the assignment character.

Comments The `Asc` function can be used to convert the first character in a string to the correct format to be passed to the `SQASetAssignmentChar` statement.

The assignment character is used in *recMethod$* and *parameters$* arguments of SQABasic user action and verification point commands to assign values specific to that command. By default, this character is the equal sign (=).

`SQASetAssignmentChar` is the new name for the command `PLASetAssignmentChar`.

Example This example sets the Robot assignment character to be the equal sign (=).

```
SQASetAssignmentChar Asc("=")
```

See Also `SQASetSeparatorChar`

SQASetCaptionTerminatorChar

Utility Command

Description Sets the character that Robot uses as the window caption terminator character.

Syntax **SQASetCaptionTerminatorChar** *charcode%*

Syntax Element	Description
charcode%	The ANSI code of the character to be used as the caption terminator.

Comments The caption terminator character allows partial matches between a window caption retrieved during recording and a window caption retrieved during playback.

If this feature is enabled, Robot does not require a match of any characters that appear *after* the caption terminator character. For example, if the caption terminator is a dash (-), the following window captions are considered a match:

```
Mortgage Prequalifier - Customer Name
Mortgage Prequalifier - Name
```

To enable partial caption matching, you must select *either* of the following buttons on the Caption Matching tab of the Robot Playback Options dialog box:

- On each window search
- After automatic wait has timed out

The caption terminator character can also be set through the Robot Playback Options dialog box. A caption terminator character set through `SQASetCaptionTerminatorChar` overrides a caption terminator character set through the Playback Options dialog box.

The `Asc` function can be used to convert the first character in a string to the correct format to be passed to the `SQASetCaptionTerminatorChar` statement.

`SQASetCaptionTerminatorChar` is the new name for the command `PLASetCaptionTerminatorChar`.

Example

This example sets the Robot caption terminator to be the dash symbol (-).

```
SQASetCaptionTerminatorChar Asc("-")
```

See Also

`SQAGetCaptionTerminatorChar`

SQASetDefaultBrowser

Utility Command

▸▸▸SQA▸

Description

Sets the default browser to use during playback.

Syntax

`SQASetDefaultBrowser`(*`browser$`*)

Syntax Element	Description
`browser$`	The browser to use during playback. Valid values: ▸ `Explorer`. Sets Microsoft Internet Explorer as the default browser to use during playback. ▸ `Navigator`. Sets Netscape Navigator as the default browser to use during playback. You can also specify a path for a particular Navigator executable. See *Comments* for syntax information.

Comments

Navigator can be set as the default browser only for playback. During recording, Internet Explorer is always used as the browser.

You can use *browser$* to specify a path for the particular Netscape Navigator executable you want to use. For example:

```
SQASetDefaultBrowser "Navigator=c:\program files\netscape\
                      communicator\program\netscape.exe"
```

Using SQASetDefaultBrowser to change the default playback browser also changes the default browser setting as defined in the Web Browser tab of the Robot GUI Playback Options dialog box (Tools → GUI Playback Options).

If you specify an incorrect value in *browser$*, no runtime error occurs. However, the default browser remains as defined in the Robot Web Browser tab.

If you are specifying Navigator as the default browser, and the location of Navigator's executable file isn't in the Registry, the full path must appear in the *browser$* argument or in the Robot Web Browser tab.

To enable HTML recording, be sure that the HTML-MSIE check box is selected in the Robot Extension Manager dialog box before you begin recording against your Web page. To enable HTML playback, be sure that the HTML-MSIE and/or HTML-Navigator check boxes are selected before you play back a script against HTML objects. To display the Extension Manager dialog box in Robot, click Tools → Extension Manager.

SQASetDefaultBrowser can only be inserted into a script programmatically. Robot does not record this command.

Example

This example sets Netscape Navigator as the default playback browser, and then uses Navigator to open Rational's Web page.

```
SQASetDefaultBrowser "Navigator"
StartBrowser "www.rational.com", "WindowTag=PlaybackNavigator"
```

See Also

StartBrowser

SQASetProperty

Object Scripting Command

▸▸▸SQA▸

Description

Assigns a value to a specified property.

Syntax

status% = **SQASetProperty**(*recMethod$*,*property$*,*value*)

Syntax Element	Description
recMethod$	The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the `PushButton` user action command. In addition, you might need to use `Type=` to specify the object type, and/or use context notation to specify the context for the object. For details, see *Specifying an Object* in Chapter 5.
property$	A case-sensitive property name. See *Specifying the Object Property* in Chapter 5 for information on the property names you can specify for a given object.
value	A `Variant` containing the value you're assigning to the specified property.

Comments

Returns the `Integer` 0 (`sqaSuccess`) if `SQASetProperty` successfully assigns *value%* to the specified property. If an error occurs, returns a status code that specifies the error. See the list of Object Scripting status codes in Appendix C.

The *value* argument can provide a value in the property's native data type (as would be retrieved by `SQAGetProperty`) or in `String` form (as would be retrieved by `SQAGetPropertyAsString`). For example, both of the following commands cause the Classics Online window to minimize:

```
Result=SQASetProperty("Caption=Classics Online","WindowState",1)
Result=SQASetProperty("Caption=Classics Online","WindowState",
              "Minimized")
```

Here are more examples of the alternatives you have for specifying *value*:

- Specify Booleans as True or False (with or without quote marks) or as the `Variant` values -1 or 0.
- Specify colors as a `Long`, a hexadecimal value (&H notation), or as a `String` in the form "RGB(##,##,##)". For example, a shade of gray could be specified as 12632256, &HC0C0C0, or RGB(192,192,192).
- Specify a State property for a check box as an `Integer` (which is how the property value is stored internally) or as a descriptive `String` value associated with each `Integer`. For example, if a check box is checked, the internal `Integer` value for State might be 1, and the associated `String` value might be Checked.

This command changes the value of a property for a given *instance* of an object. It does not permanently change the application under test. Closing and restarting the application undoes any change you make with `SQASetProperty`.

If the specified property has an array of values, you must specify an array index.

Many properties are not modifiable through SQASetProperty. For example, SQASetProperty can't modify DataWindow properties in PowerBuilder applications. If SQASetProperty can't modify a property, it returns the status code sqaPropertyIsReadOnly.

You can't change a property value if it's part of an array of values.

For the following reasons, use SQASetProperty with caution:

- Changing a property value with SQASetProperty can cause unpredictable results in an application-under-test. SQASetProperty uses internal mechanisms for changing properties. These mechanisms may or may not trigger events within the application-under-test.
- Using SQASetProperty to change a property's value may not have the same effect as changing the value through some script actions. For example, the SQASetProperty change may not become visible until the object is redrawn.

A safer way to change a property value is to record the change as a sequence of script actions, when possible.

If this command acts upon a Java object, any parent Java object must be referenced in the command's *recMethod$* argument. This command ignores any parent object information in a preceding Browser command. For more information, see *Using Object Scripting Commands with Java Objects* in Chapter 4.

Example

This example uses SQASetProperty to fill out certain fields of a form.

```
Sub Main
    Window SetContext, "Name=frmMain", ""
    'To change the value of a combobox, modify the "ItemSelected"
    '   property
    SQASetProperty "Name=Title", "ItemSelected", "Mr."
    'To change the value of an editbox, modify the "Text" property
    SQASetProperty "Name=FirstName", "Text", "Michael"
    SQASetProperty "Name=LastName", "Text", "Mulligan"
End Sub
```

This example gets the data out of a specific row of a Grid OCX.

```
Sub Main
    Dim CustName, CurrentRow
    Window SetContext, "Name=frmSamples", ""
    'First get value of current row, so we can restore it later
    SQAGetProperty "Name=grdCustomer", "Row", CurrentRow
    SQASetProperty "Name=grdCustomer", "Row", 2
    SQAGetProperty "Name=grdCustomer", "Columns(1).Text", CustName
    SQALogMessage sqaNone, "Customer at row 2 of grid: " +
        CustName, ""
```

```
    'Restore row to its original setting
        SQASetProperty "Name=grdCustomer", "Row", CurrentRow
    End Sub
```

See Also

SQAGetProperty
SQAGetPropertyArray
SQAGetPropertyArrayAsString
SQAGetPropertyAsString
SQAGetPropertyNames
SQAInvokeMethod
SQAWaitForPropertyValue

SQASetSeparatorChar

Utility Command

Description

Sets the character to be used by Robot as the separator character in SQABasic commands.

Syntax

SQASetSeparatorChar *charcode%*

Syntax Element	Description
charcode%	The ANSI code of the character to be used as the separator character.

Comments

The `Asc` function can be used to convert the first character in a string to the correct format to be passed to the `SQASetSeparatorChar` command.

The separator character is used to separate multiple values in SQABasic user action and verification point command arguments (*recMethod$* and *parameters$*). By default, this character is the semicolon (;).

`SQASetSeparatorChar` is the new name for the command `PLASetSeparatorChar`.

Example

This example sets the Robot separator character to be the semicolon (`;`).

```
    SQASetSeparatorChar Asc(";")
```

See Also

SQASetAssignmentChar

SQAShellExecute

Utility Command

Description

Opens an application or a file.

Syntax

SQAShellExecute *filename$,directory$,parameters$*

Syntax Element	Description
filename$	The full path and file name of the application or file.
directory$	The application's default directory. If you choose not to set the default directory, pass an empty string ("").
parameters$	Optional command-line parameters to pass to the application. If *filename* specifies a non-executable file, *parameters* should contain an empty string ("").

Comments

If *filename* references an application, SQAShellExecute runs the application.

If *filename* references a file other than an application executable, SQAShellExecute opens the file through the application that has a Windows association with the file type. (Windows maintains associations between an application and its file types by associating the application with a particular file extension.) For example, Microsoft Word typically has a Windows association with .DOC files. If *filename* references MEMO.DOC, SQAShellExecute runs Word and opens MEMO.DOC in the Word environment.

On Windows 95 or Windows NT 4.0 platforms, *filename* can reference a Windows link file (.LNK). SQAShellExecute uses the link file to locate the application to run or the file to open. Link files are also called *shortcuts*.

On Windows 95 or Windows NT 4.0 platforms, Robot generates an SQAShellExecute command when you open an application, a file associated with an application, or a link file by clicking Start → Programs → ... or Start → Documents → ... on the Windows taskbar. Robot doesn't generate SQAShellExecute with Windows versions earlier than Windows 95 or Windows NT 4.0.

The maximum length of *filename* plus *parameters* is 259 characters.

Values you pass in *parameters* are application-specific. See the application's documentation for any supported command-line parameters.

SQAShellExecute is the new name for the command PLAShellExecute.

Example

This example opens the Notepad text editor through the Windows 95 Start menu.

```
SQAShellExecute "C:\WIN95\Start Menu\Programs\Accessories\
                 Notepad.lnk", "", ""
```

See Also

StartApplication

SQASuspendLogOutput

Utility Command

Description Suspends the output of verification point and wait state results to the log.

Syntax **SQASuspendLogOutput**

Comments This command is useful if you want to test for a condition without logging a result to the log.

`SQASuspendLogOutput` is the new name for the command `PLASuspendLogOutput`.

Example None.

See Also `SQAResumeLogOutput`

SQASyncPointWait

Timing and Coordination Command

Description Inserts a synchronization point for coordinating users in a TestManager suite.

Syntax *return&* = **SQASyncPointWait** (*syncpointID$*)

Syntax Element	Description
syncpointID$	A user-defined ID that identifies the synchronization point. The ID can have from 1 to 40 characters.

Comments This command requires that you include the header file SQAUTIL.SBH with the SQABasic metacommand `'$Include`.

`SQASyncPointWait` has the following possible return values (`Long`):

```
sqaSPSuccess          0
sqaSPUninitialized    -1
sqaSPFailure          -2
sqaSPExtendedError    -999
```

A script pauses at a synchronization point until the release criteria specified by the TestManager suite have been met. At that time, the script delays a random time specified in the suite, and then resumes execution.

Typically, you will include a synchronization point in a test by inserting it into a TestManager suite rather than by inserting `SQASyncPointWait` into a script.

If you insert a synchronization point through a suite, synchronization occurs at the beginning of the script. If you insert a synchronization point into a script through the `SQASyncPointWait` command, synchronization occurs at that point in the script where you inserted the command. You can insert the command anywhere in the script.

For more information about synchronization points, see the *Using Rational Robot* manual.

Example

This example defines a sync point identified as syncpoint1.

```
SQASyncPointWait ("syncpoint1")
```

See Also

None.

SQAVpGetActualFileName

Utility Command

Description

Generates a unique path and name for an actual data file used in a custom verification point.

Syntax

return$* = **SQAVpGetActualFileName**(*VpName$, VpFileType$)

Syntax Element	Description
VpName$	The name of the custom verification point.
VpFileType$	The file type of the actual data file. For example, if you are comparing data stored in .csv files, specify `CSV` as the file type. *VpFileType$* can have up to three characters and must not begin with the characters VP.

Comments

Returns a `String` containing the full path and name for an actual data file.

An actual data file contains the data captured for an object during the playback of a custom procedure. A baseline data file contains the data captured for the same object during a previous execution of the same custom procedure. (The actions are similar to the playback and recording of a standard verification point.)

For the LogViewer to display the actual data, the actual data file must be in the path returned by `SQAVpGetActualFileName`.

If the actual data captured during playback does not match the baseline data, create a file and write the actual data to it. Store this actual data file in the name and location returned by `SQAVpGetActualFileName`. These actions create an actual data file for this test and store the data file in a directory where the LogViewer expects to find it.

For information about custom verification points, see *Managing Custom Verification Points* in Chapter 5, *Enhancements to Recorded Scripts*.

Example

This example retrieves the full path and name of the actual data file for the custom verification point VPCHECK.

```
DIM VpActual As String
VpActual = SQAVpGetActualFileName ("VPCHECK", "CSV")
```

See Also

`SQAVpGetBaselineFileName`
`SQAVpLog`

SQAVpGetBaselineFileName

Utility Command

▸▸▸SQA▸

Description

Generates a unique path and name for a baseline data file used in a custom verification point.

Syntax

return$* = **SQAVpGetBaselineFileName**(*VpName$, VpFileType$)

Syntax Element	Description
VpName$	The name of the custom verification point.
VpFileType$	The file type of the baseline data file. For example, if you are comparing data stored in .csv files, specify `CSV` as the file type. *VpFileType$* can have up to three characters and must not begin with the characters VP.

Comments

Returns a `String` containing the full path and name for a baseline data file.

A baseline data file contains the data captured for an object during the execution of a custom procedure. An actual data file contains the data captured for the same object during the subsequent playback of the same custom procedure. (The actions are similar to the recording and playback of a standard verification point.)

For the LogViewer to display the baseline data, the baseline data file must be in the path returned by `SQAVpGetBaselineFileName`.

During the playback of a test, copy the current baseline data file pointed to by `SQAVpGetCurrentBaselineFileName` to the name and location returned by `SQAVpGetBaselineFileName`. This action stores the baseline data file (called a logged baseline data file) into the directory where the LogViewer expects to find it for this test.

For information about custom verification points, see *Managing Custom Verification Points* in Chapter 5, *Enhancements to Recorded Scripts*.

Example

This example retrieves the full path and name of the baseline data file for the custom verification point VPBUTTON.

```
DIM VpBaseline As String
VpBaseline = SQAVpGetBaselineFileName ("VPBUTTON", "CSV")
```

See Also

`SQAVpGetActualFileName`
`SQAVpGetCurrentBaselineFileName`
`SQAVpLog`

SQAVpGetCurrentBaselineFileName

Utility Command ▸▸▸SQA▸

Description

Generates the path and name for the current baseline data file used in a custom verification point.

Syntax

return$* = **SQAVpGetCurrentBaselineFileName**(*VpName$, *VpFileType$*)

Syntax Element	Description
VpName$	The name of the custom verification point.
VpFileType$	The file type of the current baseline data file. For example, if you are comparing data stored in .csv files, specify `CSV` as the file type. *VpFileType$* can have up to three characters and must not begin with the characters VP.

Comments

Returns a `String` containing the full path and name for a current baseline data file.

A current baseline data file contains the data captured for an object during the execution of a custom procedure. This action is similar to recording a standard verification point with Robot.

During the playback of a test, copy the current baseline data file pointed to by `SQAVpGetCurrentBaselineFileName` to the name and location returned by `SQAVpGetBaselineFileName`. This action stores the baseline data file (called a logged baseline data file) into the directory where the LogViewer expects to find it for this test.

There is only one current baseline data file per custom verification point. However, in the LogViewer, there can be one logged baseline data file for each verification point entry.

When you capture current baseline data and save it to the current baseline data file, the custom verification point referenced by *`VpName$`* appears in the Robot Asset pane (to the right of the script). You might have to click View → Refresh to see it.

For information about custom verification points, see *Managing Custom Verification Points* in Chapter 5, *Enhancements to Recorded Scripts*.

Example

This example retrieves the full path and name of the current baseline data file for the custom verification point VPBUTTON.

```
DIM VpCurrBaseline As String
VpCurrBaseline = SQAVpGetCurrentBaselineFileName ("VPBUTTON",
"CSV")
```

See Also

`SQAVpGetBaselineFileName`
`SQAVpLog`

SQAVpLog

Utility Command

▸▸▸SQA▸

Description

Writes a custom verification point record to a log and optionally inserts a result flag (Pass, Fail, or Warning) in the Result column of the LogViewer.

Syntax

`SQAVpLog` *`code%, name$, description$, baselineFile$, actualFile$`*

Syntax Element	Description
`code%`	Lets you insert a result flag in the Result column next to the message entry. Valid values: ▸ `sqaPass` or `True`. Inserts Pass in the Result column. ▸ `sqaFail` or `False`. Inserts Fail in the Result column. ▸ `sqaWarning`. Inserts Warning in the Result column. ▸ `sqaNone`. Leaves the Result column blank for the message entry.

▸ ▸ ▸

► ► ►

Syntax Element	Description
name$	The name of the custom verification.
description$	A description of the verification point.
baselineFile$	The full path and name of the baseline data file. Use SQAVpGetBaselineFileName to retrieve the path and name information. Use empty quotes to leave the entry blank.
actualFile$	The full path and name of the actual data file. Use SQAVpGetActualFileName to retrieve the path and name information. Use empty quotes to leave the entry blank.

Comments

For information about custom verification points, see *Managing Custom Verification Points* in Chapter 5, *Enhancements to Recorded Scripts*.

Example

This example retrieves the full path and name of the baseline and actual data files for the Verification Point VPBUTTON, and then writes a log entry.

```
DIM VpBaseline As String
DIM VpActual As String
VpBaseline = SQAVpGetBaselineFileName ("VPBUTTON", "CSV")
VpActual = SQAVpGetActualFileName ("VPBUTTON", "CSV")
SQAVpLog sqaNone, "VPBUTTON", "Verify the Button Properties",
   VpBaseline, VpActual
```

See Also

SQAVpGetActualFileName
SQAVpGetBaselineFileName

SQAWaitForObject

Object Scripting Command ▸▸▸SQA▸

Description

Pauses execution of the script until the specified object can be found.

Syntax

status% = **SQAWaitForObject**(*recMethod$*,*timeout&*)

Syntax Element	Description
recMethod$	The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the PushButton user action command.

► ► ►

▶ ▶ ▶

Syntax Element	Description
	In addition, you might need to use `Type=` to specify the object type, and/or use context notation to specify the context for the object. For details, see *Specifying an Object* in Chapter 5.
timeout&	The maximum number of milliseconds to look for the object. If the object doesn't appear within the timeout period, `sqaTimeout` is returned.

Comments

Returns the `Integer` 0 (`sqaSuccess`) if `SQAWaitForObject` locates the object within the timeout period. If an error occurs, returns a status code that specifies the error. See the list of Object Scripting status codes in Appendix C.

This command is useful to call for objects that take some time to appear.

If this command acts upon a Java object, any parent Java object must be referenced in the command's *recMethod$* argument. This command ignores any parent object information in a preceding `Browser` command. For more information, see *Using Object Scripting Commands with Java Objects* in Chapter 4.

Example

This example waits up to two minutes for a particular push button to appear.

```
Sub Main
    Dim Result As Integer
    Window SetContext, "Caption=MyApp", ""
    MenuSelect "File->Open..."
    Window SetContext, "Caption=Open", ""
    'The OK button may take a long time to appear. We can use
    '   SQAWaitForObject to synchronize our script without
    '   increasing the default wait period of all other actions
    Result = SQAWaitForObject("Type=PushButton;Text=OK", 120000)
    If Result = sqaSuccess Then
        ...          'add the rest of the actions/tests here
    End If
End Sub
```

See Also

`SQAFindObject`
`SQAGetChildren`

SQAWaitForPropertyValue

Object Scripting Command

▸▸▸SQA▸

Description

Pauses execution of the script until a property is set to the specified value.

Syntax

status% = **SQAWaitForPropertyValue**(*recMethod$*,*property$*, *value*,*timeout&*)

Syntax Element	Description
recMethod$	The recognition method values you use to identify an object depend on the object you're accessing. For example, if you're accessing a push button object, use the recognition method values listed for the `PushButton` user action command. In addition, you might need to use `Type=` to specify the object type, and/or use context notation to specify the context for the object. For details, see *Specifying an Object* in Chapter 5.
property$	A case-sensitive property name. For the command to succeed, the value of this property must match the *value* argument. See *Specifying the Object Property* in Chapter 5 for information on the property names you can specify for a given object.
value	A `Variant` that you want the specified property to be set to.
timeout&	The maximum number of milliseconds to wait for the value of the specified property to match *value*. If the values never match within the timeout period, `sqaTimeout` is returned.

Comments

Returns the `Integer` 0 (`sqaSuccess`) if `SQAWaitForPropertyValue` sets the specified property to *value* within the timeout period. If an error occurs, returns a status code that specifies the error. See the list of Object Scripting status codes in Appendix C.

The *value* argument can provide a value in the property's native data type (as would be retrieved by `SQAGetProperty`) or in `String` form (as would be retrieved by `SQAGetPropertyAsString`). For examples, see the Comments section for the `SQASetProperty` command.

`SQAWaitForPropertyValue` waits for the object to appear, then waits for the value of the specified property to match the *value* argument. The total wait time is expressed in the *timeout* argument. For example, if *timeout* is 8000, and it takes 5 seconds for the object to appear, `SQAWaitForPropertyValue` will only wait an additional 3 seconds for the value of the specified property to match *value*.

If the specified property has an array of values, you must specify an array index. For example, this command specifies the fourth item in the List array:

```
Result=SQAWaitForPropertyValue("Name=ColorList","List(3)","Blue")
```

If this command acts upon a Java object, any parent Java object must be referenced in the command's *recMethod$* argument. This command ignores any parent object information in a preceding Browser command. For more information, see *Using Object Scripting Commands with Java Objects* in Chapter 4.

Example

This example opens a customer dialog box and waits for the OK button to be enabled before continuing.

```
Sub Main
    Dim Result As Integer
    Window SetContext, "Name=frmMain", ""
    MenuSelect "File->Open Customer..."
    Window SetContext, "Name=SelectCustomer", ""
    'Wait up to 10 seconds for the OK button to become enabled...
    Result = SQAWaitForPropertyValue("Name=cmdOK", "Enabled",
        TRUE, 10000)
    If Result <> sqaSuccess Then
        SQALogMessage sqaFail, "Waiting for cmdOK button to be
            enabled", "Error" + Str$(Result) + ": " +
            Error$(Result)
    Else
        ListBox Click, "Name=lstCustomers", "Text=Harry Houdini"
        PushButton Click, "Name=cmdOK"
    End If
End Sub
```

See Also

SQAGetProperty
SQAGetPropertyArray
SQAGetPropertyArrayAsString
SQAGetPropertyArraySize
SQAGetPropertyAsString
SQAGetPropertyNames
SQASetProperty

SQLClose

Function

Description

Disconnects from an ODBC data source connection that was established by SQLOpen.

Syntax

SQLClose (*connection&*)

Syntax Element	Description
connection&	A named argument that must be a long integer, returned by SQLOpen.

Comments

The return is a variant. Success returns 0 and the connection is subsequently invalid. If the connection is not valid, -1 is returned.

Example

This example opens the data source named SblTest, gets the names in the ODBC data sources, and closes the connection.

```
Sub main
'   Declarations
'
    Dim outputStr As String
    Dim connection As Long
    Dim prompt As Integer
    Dim datasources(1 To 50) As Variant
    Dim retcode As Variant
    Dim action1 as Integer
    Dim qualifier as String

    prompt = 5
'   Open the datasource "SblTest"
    connection = SQLOpen("DSN=SblTest", outputStr, prompt:=5)

    action1 = 1  'Get the names of the ODBC datasources
    retcode = SQLGetSchema(connection:=connection,action:=1,
              qualifier:=qualifier, ref:=datasources())

'   Close the datasource connection
    retcode = SQLClose(connection)

End Sub
```

See Also

SQLError SQLExecQuery SQLGetSchema SQLOpen SQLRequest SQLRetrieve SQLRetrieveToFile

SQLError

Function

Description

Can be used to retrieve more detailed information about errors that might have occurred when making an ODBC function call. Returns errors for the last ODBC function and the last connection.

Syntax

SQLError (*destination()*)

Syntax Element	Description
destination()	A two dimensional array in which each row contains one error. A named argument that is required, must be an array of variants.

Comments

There is no return value. The fields are: 1) character string indicating the ODBC error class/subclass, 2) numeric value indicating the data source native error code, 3) text message describing the error.

If there are no errors from a previous ODBC function call, then a 0 is returned in the caller's array at (1,1). If the array is not two dimensional or does not provide for the return of the three fields above, then an error message is returned in the caller's array at (1,1).

Example

This example forces an error to test SQLError function.

```
sub main
'  Declarations
   Dim connection As long
   Dim prompt as integer
   Dim retcode as long
   Dim errors(1 To 3, 1 To 10) as Variant
   Dim outputStr as String

'  Open the datasource
   connection = SQLOpen("DSN=SBLTESTW;UID=DBA;
      PWD=SQL",outputStr, prompt:=3)

'  force an error to test SQLError select a
'   nonexistent table
   retcode = SQLExecQuery(connection:=connection,
      query:="select * from notable ")

'  Retrieve the detailed error message information
'    into the errors array
   SQLError destination:=errors
   retcode = SQLClose(connection)
end sub
```

See Also

SQLClose, SQLExecQuery, SQLGetSchema, SQLOpen, SQLRequest, SQLRetrieve, SQLRetrieveToFile

SQLExecQuery

Function

Description

Executes an SQL statement on a connection established by SQLOpen.

Syntax

SQLExecQuery (*connection&, query$*)

Syntax Element	Description
connection&	A named argument, required. A long integer, returned by SQLOpen.
query$	A string containing a valid SQL statement. The return is a Variant.

Comments

It returns the number of columns in the result set for SQL SELECT statements; for UPDATE, INSERT, or DELETE it returns the number of rows affected by the statement. Any other SQL statement returns 0. If the function is unable to execute the query on the specified data source, or if the connection is invalid, a negative error code is returned.

If `SQLExecQuery` is called and there are any pending results on that connection, the pending results are replaced by the new results.

Example

This example performs a query on the data source.

```
Sub main
'   Declarations
'
    Dim connection As Long
    Dim destination(1 To 50, 1 To 125)  As Variant
    Dim retcode As long
    Dim outputStr as String
    Dim query as String

'   open the connection
    connection = SQLOpen("DSN=SblTest",outputStr,prompt:=3)
'
'   Execute the query
    query = "select * from customer"
    retcode = SQLExecQuery(connection,query)
'
'   retrieve the first 50 rows with the first 6
'   columns of each row into
'   the array destination, omit row numbers and put
'    column names in the first row of the array
'
    retcode = SQLRetrieve(connection:=connection,
       destination:=destination, columnNames:=1,
       rowNumbers:=0,maxRows:=50,maxColumns:=6,
       fetchFirst:=0)

'   Get the next 50 rows of from the result set
    retcode = SQLRetrieve(connection:=connection,
       destination:=destination, columnNames:=1,
       rowNumbers:=0,maxRows:=50, maxColumns:=6)

'   Close the connection
    retcode = SQLClose(connection)

End Sub
```

See Also

SQLClose, SQLError, SQLGetSchema, SQLOpen, SQLRequest, SQLRetrieve, SQLRetrieveToFile

SQLGetSchema
Function

Description

Returns a variety of information, including information on the data sources available, current user ID, names of tables, names and types of table columns, and other data source/database related information.

Syntax

SQLGetSchema (*connection&, action%, qualifier$, ref()*)

Syntax Element	Description
connection&	A long integer returned by SQLOpen.
action%	Required. Valid values: 1. List of available data sources (dimension of *ref()* is one) 2. List of databases on the current connection (not supported) 3. List of owners in a database on the current connection (not supported) 4. List of tables on the specified connection 5. List of columns in a the table specified by *qualifier*. (*ref()* must be two dimensions). Returns column name and SQL data type. 6. The user ID of the current connection user. 7. The name of the current database. 8. The name of the data source for the current connection. 9. The name of the DBMS the data source uses (for example. Oracle). 10. The server name for the data source. 11. The terminology used by the data source to refer to owners. 12. The terminology used by the data source to refer to a table. 13. The terminology used by the data source to refer to a qualifier. 14. The terminology used by the data source to refer to a procedure.
qualifier$	Required.
ref()	A Variant array for the results appropriate to the action requested. Value must be an array even if only one dimension with one element. The return is a Variant.

Comments

A negative return value indicates an error. A `-1` is returned if the requested information cannot be found or if the connection is not valid. The destination array must be properly dimensioned to support the action or an error will be returned. Actions 2 and 3 are not currently supported. Action 4 returns all tables and does not support the use of the *`qualifier`*. Not all database products and ODBC drivers support all actions.

Example

This example opens the data source named `SblTest`, gets the names in the ODBC data sources, and closes the connection.

```
Sub main
'   Declarations
'
    Dim outputStr As String
    Dim connection As Long
    Dim prompt As Integer
    Dim datasources(1 To 50) As Variant
    Dim retcode As Variant
    Dim action1 as Integer
    Dim qualifier as String

    prompt = 5
'   Open the datasource "SblTest"
    connection = SQLOpen("DSN=SblTest", outputStr, prompt:=5)

    action1 = 1  'Get the names of the ODBC datasources
    retcode = SQLGetSchema(connection:=connection,
      action:=1, qualifier:=qualifier, ref:=datasources())

'   Close the datasource connection
    retcode = SQLClose(connection)

End Sub
```

See Also

`SQLClose` `SQLError` `SQLExecQuery` `SQLOpen` `SQLRequest` `SQLRetrieve` `SQLRetrieveToFile`

SQLOpen

Function

Description

Establishes a connection to an ODBC data source specified in *`connectStr`* and returns a connection ID in the return, and the completed connection string in *`outputStr`*. If the connection cannot be established, then a negative number ODBC error is returned.

Syntax

`SQLOpen` (*`connectStr$`*[,*`outputStr$`*][,*`prompt%`*])

Syntax Element	Description

connectStr$	A named argument, a required parameter.
OutputStr$	Optional.
Prompt%	Optional. *prompt* specifies when the driver dialog box is displayed. Valid values: 1. Driver dialog is always displayed. 2. Driver dialog is displayed only when the specification is not sufficient to make the connection. 3. The same as 2, except that dialogs that are not required are grayed and cannot be modified. 4. Driver dialog is not displayed. If the connection is not successful, an error is returned. When *prompt* is omitted, SQLOpen uses 2 as the default.

Comments

The content of *connectStr* is described in the Microsoft Programmer's Reference Guide for ODBC. An example string might be "DSN=datasourcename; UID=myid; PWD=mypassword". The return must be a Long.

Example

This example opens the data source named SblTest, gets the names in the ODBC data sources, and closes the connection.

```
Sub main
'   Declarations
'
    Dim outputStr As String
    Dim connection As Long
    Dim prompt As Integer
    Dim datasources(1 To 50) As Variant
    Dim retcode As Variant
    Dim action1 as Integer
    Dim qualifier as String

    prompt = 5
'   Open the datasource "SblTest"
    connection = SQLOpen("DSN=SblTest", outputStr, prompt:=5)

    action1 = 1  'Get the names of the ODBC datasources
    retcode = SQLGetSchema(connection:=connection,
       action:=1, qualifier:=qualifier, ref:=datasources())

'   Close the datasource connection
    retcode = SQLClose(connection)

End Sub
```

See Also

SQLClose, SQLError, SQLExecQuery, SQLGetSchema, SQLRequest, SQLRetrieve, SQLRetrieveToFile

SQLRequest
Function

Description

Establishes a connection to the data source specified in *connectionStr,* executes the SQL statement contained in *query*, returns the results of the request in the *ref()* array, and closes the connection.

Syntax

SQLRequest(*connectionStr$, query$, outputStr$, prompt%, columnNames%, ref()*)

Syntax Element	Description
connectionStr$	A required argument.
query$	A required argument.
outputStr$	Contains the completed connection string.
prompt%	An integer that specifies when driver dialog boxes are displayed (see SQLOpen).
columnNames%	An integer with a value of 0 or nonzero. When *columnNames* is nonzero, column names are returned as the first row of the *ref()* array. If *columnNames* is omitted, the default is 0.
ref()	A required argument that is a two dimensional Variant array.

Comments

In the event that the connection cannot be made, the query is invalid, or other error condition, a negative number error is returned. In the event the request is successful, the positive number of results returned or rows affected is returned. Other SQL statements return 0.

The arguments are named arguments. The return is a Variant.

Example

This example will open the data source SBLTESTW and execute the query specified by query and return the results in destination

```
Sub main
'  Declarations
'
   Dim destination(1 To 50, 1 To 125)  As Variant
   Dim prompt As integer
   Dim retcode as Variant
   Dim query as String
   Dim outputStr as String

'  The following will open the datasource SBLTESTW and
'   execute the query
'  specified by query and return the results in
'   destination
```

```
    query = "select * from class"
       retcode = SQLRequest("DSN=SBLTESTW;UID=DBA;PWD=SQL",
         query, outputStr, prompt, 0, destination())

    End Sub
```

See Also

SQLClose
SQLError
SQLExecQuery
SQLGetSchema
SQLOpen
SQLRetrieve
SQLRetrieveToFile

SQLRetrieve

Function

Description

Fetches the results of a pending query on the connection specified by *connection* and returns the results in the *destination()* array.

Syntax

SQLRetrieve(*connection&, destination(), maxColumns%, maxRows%, columnNames%, rowNumbers%, fetchFirst%*)

Syntax Element	Description
connection&	A long.
destination()	A two dimensional Variant array.
maxColumns%	An optional parameter used to specify the number of columns to be retrieved in the request.
maxRows%	An optional parameter used to specify the number of rows to be retrieved in the request.
columnNames%	An optional parameter that defaults to 0.
rowNumbers%	An optional parameter that defaults to 0.
fetchFirst%	An optional parameter that defaults to 0.

Comments

The return value is the number of rows in the result set or the *maxRows* requested. If the function is unable to retrieve the results on the specified connection, or if there are not results pending, -1 is returned. If no data is found, the function returns 0.

The arguments are named arguments. The return is a Variant.

If *maxColumns* or *maxRows* are omitted, the array size is used to determine the maximum number of columns and rows retrieved, and an attempt is made to return the entire result set.

Extra rows can be retrieved by using SQLRetrieve again and by setting *fetchFirst* to 0. If *maxColumns* specifies fewer columns than are available in the result, SQLRetrieve discards the rightmost result columns until the results fit the specified size.

When *columnNames* is nonzero, the first row of the array will be set to the column names as specified by the database schema. When r*owNumbers* is nonzero, row numbers are returned in the first column of *destination()*. SQLRetrieve will clear the user's array prior to fetching the results.

When *fetchFirst* is nonzero, it causes the result set to be repositioned to the first row if the database supports the function. If the database does not support repositioning, the result set -1 error will be returned.

If there are more rows in the result set than can be contained in the *destination()* array or than have been requested using *maxRows*, the user can make repeated calls to SQLRetrieve until the return value is 0.

Example

This example retrieves information from a data source.

```
Sub main
'   Declarations
'
    Dim connection As Long
    Dim destination(1 To 50, 1 To 125)  As Variant
    Dim retcode As long
    Dim query as String
    Dim outputStr as String
    connection = SQLOpen("DSN=SblTest",outputStr, prompt:=3)
'
'  Execute the query
   query = "select * from customer"
   retcode = SQLExecQuery(connection,query)

'  retrieve the first 50 rows with the first 6 columns
'    of each row into the array destination, omit row
'    numbers and put column names in the first row
'    of the array

    retcode = SQLRetrieve(connection:=connection,
      destination:=destination, columnNames:=1,
      rowNumbers:=0,maxRows:=50, maxColumns:=6,
      fetchFirst:=0)

'   Get the next 50 rows of from the result set
    retcode = SQLRetrieve(connection:=connection,
      destination:=destination, columnNames:=1,
      rowNumbers:=0,maxRows:=50, maxColumns:=6)

'   Close the connection
    retcode = SQLClose(connection)
End Sub
```

See Also

SQLClose
SQLError
SQLExecQuery
SQLGetSchema
SQLOpen
SQLRequest
SQLRetrieveToFile

SQLRetrieveToFile

Function

Description

Fetches the results of a pending query on the connection specified by *connection* and stores them in the file specified by *destination*.

Syntax

SQLRetrieveToFile(*connection&, destination$, columnNames%, columnDelimiter$*)

Syntax Element	Description
connection&	A required argument. A long integer.
destination$	A required argument. A string containing the file and path to be used for storing the results.
columnNames%	An integer; when nonzero, the first row of the file will be set to the column names as specified by the database schema. If *columnNames* is omitted, the default is 0.
columnDelimiter$	Specifies the string to be used to delimit the fields within each row. If *columnDelimiter* is omitted, a horizontal tab is used to delimit fields.

Comments

Upon successful completion of the operation, the return value is the number of rows in the result set. If the function is unable to retrieve the results on the specified connection, or if there are not results pending, `-1` is returned.

The arguments are named arguments. The return is a `Variant`.

Example

This example opens a connection to a data source and retrieves information to a file.

```
Sub main
'   Declarations
'
    Dim connection As Long
    Dim destFile as String
    Dim retcode As Long
    Dim query as String
    Dim outputStr as String
    Dim filename as String
    Dim columnDelimiter as String
'
'   Open the connection
    connection=SQLOpen("DSN=SblTest",outputStr,prompt:=3)
```

```
    '   Execute the query
    '
        query = "select * from customer"
        retcode = SQLExecQuery(connection,query)

    '  Place the results of the previous query in the file
    '   named by  filename and put the column names in the
    '   file as the first row.  The field delimiter is %

        filename = "c:\myfile.txt"
        columnDelimiter = "%"
        retcode = SQLRetrieveToFile(connection:=connection,
           destFile:=filename, columnNames:=1,
           columnDelimiter:=columnDelimiter)

        retcode = SQLClose(connection)

    End Sub
```

See Also

SQLClose
SQLError
SQLExecQuery
SQLGetSchema
SQLOpen
SQLRequest
SQLRetrieve

Sqr

Function

Description

Returns the square root of a number.

Syntax

Sqr(*number*)

Syntax Element	Description
number	An expression containing the number to use.

Comments

The return value is single-precision for an `Integer`, `Currency`, or single-precision numeric expression, and double-precision for a `Long`, `Variant`, or double-precision numeric expression.

Example

This example calculates the square root of 2 as a double-precision floating point value and displays it in scientific notation.

```
Sub main
    Dim value as Double
    Dim msgtext
    value=CDbl(Sqr(2))
    msgtext= "The square root of 2 is: " &
Format(Value,"Scientific")
    MsgBox msgtext
End Sub
```

See Also

```
Exp    Log
Fix    Rnd
Int    Sgn
```

StartApplication

Utility Command

Description Starts the specified application from within the currently running script.

Syntax **`StartApplication`** *`Pathname$`*

Syntax Element	Description
`Pathname$`	The full path and file name of the application to start. Arguments can be included.

Comments This statement writes a message to the log indicating whether the application started successfully or failed.

To specify a quoted string within *`Pathname`*, use two consecutive double-quote characters ("") at the beginning and the end of the enclosed string. For example, double quotes are necessary if the file name or one of the arguments contains a space. Here are some examples:

```
StartApplication "notepad c:\autoexec.bat"
StartApplication "write ""c:\program files\rational\
                          rational test\readme.wri"""
StartApplication """c:\program files\rational\
                          rational test\rtinspector.exe"""
```

Example This example starts the Windows Clock Application (and writes a message to the log indicating if the application was started successfully).

```
StartApplication "C:\WINDOWS\CLOCK.EXE"
```

See Also

```
SQAShellExecute            StartAppUnderPurify
StartAppUnderCoverage      StartAppUnderQuantify
StartAppUnderNone          StartJavaApplication
StartAppUnderPnC
```

StartAppUnderCoverage

Utility Command

Description Starts the specified application from within the currently running script under Rational PureCoverage.

Syntax **StartAppUnderCoverage** *Pathname$*

Syntax Element	Description
Pathname$	The full path and file name of the application to start. Arguments can be included.

Comments Rational PureCoverage provides detailed information about code usage. Running an application under PureCoverage enables the tester to learn what portions of the code are really being tested and what portions of the code are not being exercised when testing.

When The `StartAppUnderCoverage` statement appears in a script, it overrides the settings specified in the Diagnostic Tools tab of the Robot GUI Playback Options dialog box.

This statement writes a message to the log indicating whether the application started successfully or failed.

To specify a quoted string within *Pathname*, use two consecutive double-quote characters ("") at the beginning and the end of the enclosed string. For example, double quotes are necessary if the file name or one of the arguments contains a space. Here are some examples:

```
StartAppUnderCoverage "notepad c:\autoexec.bat"
StartAppUnderCoverage "write ""c:\program files\rational\
                                rational test\readme.wri"""
StartAppUnderCoverage """c:\program files\rational\
                                rational test\rtinspector.exe"""
```

Example This example starts the Windows Clock Application under PureCoverage (and writes a message to the log indicating if the application was started successfully).

```
StartAppUnderCoverage "C:\WINDOWS\CLOCK.EXE"
```

See Also `StartApplication` `StartAppUnderNone` `StartAppUnderPnC` `StartAppUnderPurify` `StartAppUnderQuantify`

StartAppUnderNone

Utility Command ▸▸▸SQA▸

Description Starts the specified application from within the currently running script under none of the Rational diagnostic tools (Rational PureCoverage, Ration al Purify, or Rational Quantify).

Syntax **StartAppUnderNone** *Pathname$*

Syntax Element	Description
Pathname$	The full path and file name of the application to start. Arguments can be included.

Comments When the `StartAppUnderNone` statement appears in a script, it overrides the settings specified in the Diagnostic Tools tab of the Robot GUI Playback Options dialog box.

When the `StartApplication` statement appears in a script, it assumes the settings defined in the user interface.

This statement writes a message to the log indicating whether the application started successfully or failed.

To specify a quoted string within *Pathname*, use two consecutive double-quote characters ("") at the beginning and the end of the enclosed string. For example, double quotes are necessary if the file name or one of the arguments contains a space. Here are some examples:

```
StartAppUnderNone "notepad c:\autoexec.bat"
StartAppUnderNone "write ""c:\program files\rational\
                          rational test\readme.wri"""
StartAppUnderNone """c:\program files\rational\
                          rational test\rtinspector.exe"""
```

Example This example starts the Windows Clock Application without any Rational diagnostic tools (and writes a message to the log indicating if the application was started successfully).

```
StartAppUnderNone "C:\WINDOWS\CLOCK.EXE"
```

See Also `StartApplication` `StartAppUnderPurify` `StartAppUnderCoverage` `StartAppUnderQuantify` `StartAppUnderPnC`

StartAppUnderPnC

Utility Command ▸▸▸SQA▸

Description Starts the specified application from within the currently running script under Rational Purify with code-coverage data.

Syntax **StartAppUnderPnC** *Pathname$*

Syntax Element	Description
Pathname$	The full path and file name of the application to start. Arguments can be included.

Comments This statement enables an application to be run combining the run-time error detection capacity of Rational Purify with the code utilization analysis of Rational PureCoverage.

When the StartAppUnderPnC statement appears in a script, it overrides the settings specified in the Diagnostic Tools tab of the Robot GUI Playback Options dialog box.

This statement writes a message to the log indicating whether the application started successfully or failed.

To specify a quoted string within *Pathname*, use two consecutive double-quote characters ("") at the beginning and the end of the enclosed string. For example, double quotes are necessary if the file name or one of the arguments contains a space. Here are some examples:

```
StartAppUnderPnC "notepad c:\autoexec.bat"
StartAppUnderPnC "write ""c:\program files\rational\
                         rational test\readme.wri"""
StartAppUnderPnC """c:\program files\rational\
                         rational test\rtinspector.exe"""
```

Example This example starts the Windows Clock Application under both Purify and PureCoverage (and writes a message to the log indicating if the application was started successfully).

```
StartAppUnderPnC "C:\WINDOWS\CLOCK.EXE"
```

See Also StartApplication, StartAppUnderPurify, StartAppUnderCoverage, StartAppUnderQuantify, StartAppUnderNone

StartAppUnderPurify

Utility Command ▸▸▸SQA▸

Description Starts the specified application from within the currently running script under Rational Purify.

Syntax **StartAppUnderPurify** *Pathname$*

Syntax Element	Description
Pathname$	The full path and file name of the application to start. Arguments can be included.

Comments Rational Purify is a tool for detecting run-time errors, for example, errors in array bounds, or memory leaks.

When the `StartAppUnderPurify` statement appears in a script, it overrides the settings specified in the Diagnostic Tools tab of the Robot GUI Playback Options dialog box.

This statement writes a message to the log indicating whether the application started successfully or failed.

To specify a quoted string within *Pathname*, use two consecutive double-quote characters ("") at the beginning and the end of the enclosed string. For example, double quotes are necessary if the file name or one of the arguments contains a space. Here are some examples:

```
StartAppUnderPurify "notepad c:\autoexec.bat"
StartAppUnderPurify "write ""c:\program files\rational\
                           rational test\readme.wri"""
StartAppUnderPurify """c:\program files\rational\
                           rational test\rtinspector.exe"""
```

Example This example starts the Windows Clock Application under Purify (and writes a message to the log indicating if the application was started successfully).

```
StartAppUnderPurify "C:\WINDOWS\CLOCK.EXE"
```

See Also `StartApplication` `StartAppUnderPnC` `StartAppUnderCoverage` `StartAppUnderQuantify` `StartAppUnderNone`

StartAppUnderQuantify

Utility Command ▸▸▸SQA▸

Description Starts the specified application from within the currently running script under Rational Quantify.

Syntax **StartAppUnderQuantify** *Pathname$*

Syntax Element	Description
Pathname$	The full path and file name of the application to start. Arguments can be included.

Comments

Rational Quantify is a tool for monitoring and improving application performance.

When the `StartAppUnderQuantify` statement appears in a script, it overrides the settings specified in the Diagnostic Tools tab of the Robot GUI Playback Options dialog box.

This statement writes a message to the log indicating whether the application started successfully or failed.

To specify a quoted string within *Pathname*, use two consecutive double-quote characters ("") at the beginning and the end of the enclosed string. For example, double quotes are necessary if the file name or one of the arguments contains a space. Here are some examples:

```
StartAppUnderQuantify "notepad c:\autoexec.bat"
StartAppUnderQuantify "write ""c:\program files\rational\
                           rational test\readme.wri"""
StartAppUnderQuantify """c:\program files\rational\
                           rational test\rtinspector.exe"""
```

Example

This example starts the Windows Clock Application under Quantify (and writes a message to the log indicating if the application was started successfully).

```
StartAppUnderQuantify "C:\WINDOWS\CLOCK.EXE"
```

See Also

`StartApplication` `StartAppUnderPnC` `StartAppUnderCoverage` `StartAppUnderPurify` `StartAppUnderNone`

StartBrowser

Utility Command

▸▸▸SQA▸

Description

Starts an instance of the browser, enables Web testing, and loads a Web page if one is specified.

Syntax

`StartBrowser` [*`URL$`*`,`] [`WindowTag=`*`Name$`*]

Syntax Element	Description
URL$	The Universal Resource Locator of the Web page to load.
Name$	An optional name that identifies this instance of the

	browser. In subsequent user actions, `WindowTag=`*`Name$`* is used in the *`recMethod$`* argument of the `Window SetContext` command to identify this instance of the browser.

Comments

The `StartBrowser` command enables Web object recognition. If you start a Web browser outside of Robot (that is, without using the `StartBrowser` command), you must open rbtstart.htm in your browser, or run the Rational ActiveX Test Control that rbtstart.htm references, before loading Web pages for testing. By default, rbtstart.htm is located in:

```
C:\Program Files\Rational\Rational Test
```

Once you run StartBrowser or the Rational ActiveX Test Control for a particular browser, Web object recognition is enabled for all subsequent actions against that browser and any new browser windows opened from that browser. For example, if your run StartBrowser to open Browser1, and then from Browser1 you open Browser2 through a JavaScript command or by holding down the Shift key and clicking on a link in Internet Explorer, Web testing is enabled for both Browser1 and Browser2.

Example

This example enables Web object recognition and starts an instance of the Web browser (identified as Instance1). It then loads the www.rational.com Web page, which is now ready for testing.

```
StartBrowser "http://www.rational.com/", "WindowTag=Instance1"
```

See Also

`HTMLDocument` `HTMLDocumentVP` `HTMLImage` `HTMLImageVP` `HTMLLink` `HTMLLinkVP` `HTMLTable` `HTMLTableVP` `SQASetDefaultBrowser`

StartJavaApplication

Utility Command

▸▸▸SQA▸

Description

Starts the specified Java application from within the currently running script.

Syntax

`StartJavaApplication` `Class:=`*`classname$`* `[,CP:=`*`classpath$`*`] [,Working:=`*`workingfolder$`*`] [,JvmKey:=`*`jvmkey$`*`] [,JvmFile:=`*`jvmfile$`*`] [,JvmOpts:=`*`jvmoptions$`*`] [,WhichTool:=`*`whichtool$`*`]`

Syntax Element	Description
`Class:=`*`classname$`*	The application's main class name. The class name is required. Optionally, you can

	include class arguments with the class name.
`CP:=`*`classpath$`*	The class path for the class file and any required components. This value overrides any `classpath` environment setting. You can specify the current directory by inserting a dot (.) into the class path. If you specify multiple directories in the class path, separate them with semi-colons (;).
`Working:=`*`workingfolder$`*	The full path to a working directory. Use this argument to set the working directory before running the Java application. Doing so sets the current directory to the specified working directory for that instance of the application.
`JvmKey:=`*`jvmkey$`*	A Robot-defined keyword that identifies a particular JVM. If a `JvmFile` is also specified, `JvmKey` takes precedence. See *Comments* for the list of possible keywords.
`JvmFile:=`*`jvmfile$`*	The executable file name of a JVM. This argument can include the path as well as the file name. If a `JvmKey` is also specified, `JvmKey` takes precedence.
`JvmOpts:=`*`jvmoptions$`*	Option parameters for the specified JVM.
`WhichTool:=`*`whichtool$`*	The name of the Rational diagnostic tool under which the application will run during playback.

Comments

`StartJavaApplication` uses named arguments. Named arguments can appear in any order after the command name. Further, optional named arguments can be omitted. With `StartJavaApplication`, only `Class:=`*`classname$`* is required. All other arguments are optional. For more information about named arguments, see *Passing Named Arguments* in Chapter 3.

Values for the variable for the `WhichTool:=` *`whichtool$`* argument are `Coverage`, `Quantify`, or `None`. Specifying any of these options in a script overrides the selection of Rational Quantify, Rational PureCoverage, or None made in the Start Java Application dialog box.

If you use `StartJavaApplication`, you cannot start the Java application from a batch file.

To specify a particular JVM, you can use either `JvmKey` or `JvmFile`. Note that:

- If you specify both `JvmKey` and `JvmFile`, `JvmKey` takes precedence.
- If you specify neither `JvmKey` nor `JvmFile`, Robot uses the JavaSoft Sun JVM (java.exe) that it finds using the PATH environment variable.

`JvmKey` can take the following keyword values:

JvmKey keyword	JVM used
Java	The JavaSoft Sun JVM (java.exe) found using the PATH environment variable. This keyword is the default.
Jview	The Microsoft JVM (jview.exe) found using the PATH environment variable.
JavaSoft JDK *n.n*	The JavaSoft installed JDK JVM. Robot uses the Registry to find the executable for the JVM. Note that *n.n* identifies the version number (for example, JavaSoft JDK 1.2).
JavaSoft JRE *n.n*	The JavaSoft installed JRE JVM. Robot uses the Registry to find the executable for the JVM. Note that *n.n* identifies the version number (for example, JavaSoft JRE 1.2).

Example

This example runs the Java application with the class name Notepad. The class path is the current directory, as indicated by the dot (.) in the `CP` argument. Also, a particular working directory is specified on the D drive. In this example, Robot runs the JDK JVM executable file that it finds in the Registry.

```
StartJavaApplication Class:="Notepad",CP:=".",
   Working:="d:\jdk1.2\demo\jfc\notepad",JvmKey:="JavaSoft JDK 1.2"
```

This example runs the Java application with the class name AwtSimple. Two directories are specified in the class path. In this example, Robot runs the Microsoft JVM (jview.exe), which it finds using the PATH environment variable.

```
StartJavaApplication Class:="AwtSimple",
   CP:="E:\VisualCafePDE\BIN\COMPONENTS\SYMBEANS.JAR;
   C:\JviewJavaApps\AwtSimple.Jar",JvmKey:="Jview"
```

See Also None.

StartSaveWindowPositions

Utility Command

▸▸▸SQA▸

Description Marks the start of the script commands that save the window positions for restoration at playback.

Syntax **`StartSaveWindowPositions`**

Comments When you record a script, Robot optionally saves the positions of all windows at the beginning of the recording. Scripts have `Window SetPosition` statements between `StartSaveWindowPositions` and `EndSaveWindowPositions` statements, identifying the locations and status of the windows to be restored.

`StartSaveWindowPositions` sets all playback synchronization and timeout values to zero to speed up the processing of the Window commands. `EndSaveWindowPositions` resets all sync and timeout values to their default values.

Script commands between `StartSaveWindowPositions` and `EndSaveWindowPositions` generate a Warning in the log if not executed properly on playback.

If you do not want to store the window position information, you can turn off this feature in the Recording Options dialog box.

On playback, the Unexpected Active Window checking is turned off between the `StartSaveWindowPositions` and `EndSaveWindowPositions` statements.

Example This example marks the start of the script commands that save the window positions for restoration at playback.

```
StartSaveWindowPositions
   Window SetPosition, "Caption=Text.Doc",
```

```
        "Coords=455,186,161,101;Status=NORMAL"
    Window MoveTo, "Caption=QuarterByte Savings Bank",
        "Coords=151,10,490,248;Status=NORMAL"
EndSaveWindowPositions
```

See Also `EndSaveWindowPositions`
`Window (Action - SetPosition)`

StartTimer
Utility Command

Description Starts the specified timer in the currently running GUI script and writes a message to the log.

Syntax **`StartTimer`** *`TimerID$`*

Syntax Element	Description
`TimerID$`	ID of the timer to be started.

Comments When the timer starts, a log message indicating when the timer was started is written to the log.

A GUI script can have up to 20 simultaneously active timers.

If the specified timer name is already in use in the GUI script, the timer is stopped and the elapsed time is reported to Rational TestManager. The timer is then restarted, beginning with an elapsed time of 0.

Example This example starts timer 001, establishes a verification point for a window, and then stops timer 001.

```
StartTimer "001"
  Result = WindowVP (CompareMenu,
    "Caption=Untitled - Notepad", "VP=QBMPTSTA")
StopTimer "001"
```

See Also `StopTimer`

Static
Statement

Description Declares variables and allocate storage space.

Syntax

Static *variableName* [As *type*] [,*variableName* [As *type*]] ...

Syntax Element	Description
variableName	The name of the variable to declare.
Type	The data type of the variable.

Comments

Variables declared with the `Static` statement retain their value as long as the program is running. The syntax of `Static` is exactly the same as the syntax of the `Dim` statement.

All variables of a procedure can be made static by using the `Static` keyword in a definition of that procedure See `Function` or `Sub` for more information.

Example

This example puts account numbers to a file using the variable `grecord` and then prints them again.

```
Type acctrecord
   acctno as Integer
End Type

Sub main
   Static grecord as acctrecord
   Dim x
   Dim total
   Dim msgtext as String
   On Error Resume Next
   Open "C:\TEMP001" For Output as #1
   Do While grecord.acctno<>0
i:    grecord.acctno=InputBox("Enter 0 or new account #" & x & ":")
      If Err<>0 then
         MsgBox "Error occurred.  Try again."
         Err=0
         Goto i
      End If
      If grecord.acctno<>0 then
         Print #1, grecord.acctno
         x=x+1
      End If
   Loop
   Close #1
   total=x-1
   msgtext="The account numbers are: " & Chr(10)
   Open "C:\TEMP001" For Input as #1
   For x=1 to total
      Input #1, grecord.acctno
      msgtext=msgtext & Chr(10) & grecord.acctno
   Next x
   MsgBox msgtext
   Close #1
   Kill "C:\TEMP001"
End Sub
```

See Also

```
Dim                 Option Base
Function            ReDim
End Function        Sub...End Sub
Global
```

StaticComboBox

Statement

Description

Creates a combination of a list of choices and a text box.

Syntax

Syntax A **StaticComboBox** *x, y, dx, dy, text$, .field*

Syntax B **StaticComboBox** *x, y, dx, dy, stringarray$(), .field*

Syntax Element	Description
x, y	The upper left corner coordinates of the list box, relative to the upper left corner of the dialog box.
dx, dy	The width and height of the combo box in which the user enters or selects text.
text$	A string containing the selections for the combo box.
stringarray$	An array of dynamic strings for the selections in the combo box.
.field	The name of the dialog-record field that will hold the text string entered in the text box or chosen from the list box.

Comments

The `StaticComboBox` statement is equivalent to the `ComboBox` or `DropComboBox` statement, but the list box of `StaticComboBox` always stays visible. All dialog functions and statements that apply to the `ComboBox` apply to the `StaticComboBox` as well.

The *x* argument is measured in 1/4 system-font character-width units. The *y* argument is measured in 1/8 system-font character-width units. (See `Begin Dialog` for more information.)

The *text$* argument must be defined, using a `Dim` statement, before the `Begin Dialog` statement is executed. The arguments in the *text$* string are entered as shown in the following example:

```
dimname="listchoice"+Chr$(9)+"listchoice"+Chr$(9)+"listchoice"...
```

The string in the text box will be recorded in the field designated by the *.field* argument when the OK button (or any PushButton other than Cancel) is pushed. The *field* argument is also used by the dialog statements that act on this control.

Use the StaticComboBox statement only between a Begin Dialog and an End Dialog statement.

Example

This example defines a dialog box with a static combo box labeled Installed Drivers and the OK and Cancel buttons.

```
Sub main
  Dim cchoices as String
  cchoices="MIDI Mapper"+Chr$(9)+"Timer"
  Begin Dialog UserDialog 182, 116, "SQABasic Dialog Box"
    StaticComboBox 7, 20, 87, 49, cchoices, .StaticComboBox1
      Text  6, 3, 83, 10, "Installed Drivers", .Text1
      OKButton  118, 12, 54, 14
      CancelButton  118, 34, 54, 14
  End Dialog
  Dim mydialogbox As UserDialog
  Dialog mydialogbox
  If Err=102 then
      MsgBox "You pressed Cancel."
  Else
      MsgBox "You pressed OK."
  End If
End Sub
```

See Also

Begin Dialog, ComboBox, OptionGroup, End Dialog, Dialog, Picture, Button, DropComboBox, StaticComboBox, ButtonGroup, GroupBox, Text, CancelButton, ListBox, TextBox, Caption, OKButton, CheckBox, OptionButton

StatusBar

User Action Command ▸▸▸SQA▸

Description

Performs an action on a status bar control.

Syntax

StatusBar *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*.

▸ ▸ ▸

▶ ▶ ▶

Syntax Element	Description
	▶ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▶ ID=*%*. The object's internal Windows ID. ▶ Name=*$*. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▶ ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ▶ State=*$*. An optional qualifier for any other recognition method. There are two possible values for this setting: Enabled and Disabled. The default state is the state of the current context window (as set in the most recent Window SetContext command), or Enabled if the state has not been otherwise declared. ▶ VisualText=*$*. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▶ Coords=*x,y*. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▶ Coords=*x1,y1,x2,y2*. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments

None.

Example

This example clicks the first status bar control in the window (ObjectIndex=1) at *x*,*y* coordinates of 50,25.

```
StatusBar Click, "ObjectIndex=1", "Coords=50,25"
```

See Also

StatusBarVP

StatusBarVP

Verification Point Command

Description Establishes a verification point for a status bar control.

Syntax `Result = StatusBarVP (action%, recMethod$, parameters$)`

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *parameters$* `VP` and Type are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window.

► ► ►

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$` . Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive` and `UserDefined`. If UserDefined is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

Example

This example captures the properties of the first status bar control in the window (`ObjectIndex=1`) and compares them to the recorded baseline in verification point `TEST1A`.

```
Result = StatusBarVP(CompareProperties,"ObjectIndex=1","VP=TEST1A")
```

See Also `StatusBar`

Stop
Statement

Description Halts program execution.

Syntax **`Stop`**

Comments `Stop` statements can be placed anywhere in a program to suspend its execution. Although the `Stop` statement halts program execution, it does not close files or clear variables.

Example This example stops program execution at the user's request.

```
Sub main
   Dim str1
   str1=InputBox("Stop program execution? (Y/N):")
   If str1="Y" or str1="y" then
      Stop
   End If
   MsgBox "Program complete."
End Sub
```

See Also None.

StopTimer
Utility Command ▸▸▸SQA▸

Description Stops the specified timer in the currently running GUI script and writes the elapsed time in milliseconds to the log.

Syntax **`StopTimer`** *`TimerID$`*

Syntax Element	Description
`TimerID$`	ID of the timer to be stopped.

Comments When the timer stops, a log message indicating when the timer was stopped and the elapsed time in milliseconds is written to the log.

Example This example starts timer 001, establishes a verification point for a window, and then stops timer 001.

```
StartTimer "001"
Result = WindowVP (CompareMenu, "Caption=Untitled - Notepad",
       "VP=QBMPTSTA")
StopTimer "001"
```

See Also `StartTimer`

Str
Function

Description Returns a string representation of a number.

Syntax **`Str`**`[$](`*`number`*`)`

Syntax Element	Description
`$`	Optional. If specified the return type is `String`. If omitted, the function will return a `Variant` of `VarType` 8 (`String`).
`number`	The number to represent as a string.

Comments The precision in the returned string is single-precision for an integer or single-precision numeric expression, double precision for a long or double-precision numeric expression, and currency precision for currency. Variants return the precision of their underlying VarType.

Example This example prompts for two numbers, adds them, then shows them as a concatenated string.

```
Sub main
   Dim x as Integer
   Dim y as Integer
   Dim str1 as String
   Dim value1 as Integer
   x=InputBox("Enter a value for x: ")
   y=InputBox("Enter a value for y: ")
   MsgBox "The sum of these numbers is: " & x+y
   str1=Str(x) & Str(y)
   MsgBox "The concatenated string for these numbers is: " & str1
End Sub
```

See Also `Format`
`Val`

StrComp
Function

Description

Compares two strings and returns an integer specifying the result of the comparison.

Syntax

StrComp(*string1$*, *string2$*[, *compare%*])

Syntax Element	Description
string1$	Any expression containing the first string to compare.
string2$	The second string to compare.
compare%	An integer for the method of comparison (0 = case-sensitive, 1 = case-insensitive).

Comments

StrComp returns one of the following values:

Value	Meaning
-1	*string1$* < *string2$*
0	*string1$* = *string2$*
>1	*string1$* > *string2$*
Null	*string1$* = Null or *string2$* = Null

If *compare%* is 0, a case sensitive comparison based on the ANSI character set sequence is performed. If *compare%* is 1, a case insensitive comparison is done based upon the relative order of characters as determined by the country code setting for your system. If omitted, the module level default, as specified with Option Compare is used.

The *string1* and *string2* arguments are both passed as variants. Therefore, any type of expression is supported. Numbers will be automatically converted to strings.

Example

This example compares a user-entered string to the string Smith.

```
Option Compare Text
Sub main
   Dim lastname as String
   Dim smith as String
   Dim x as Integer
   smith="Smith"
   lastname=InputBox("Type your last name")
   x=StrComp(lastname,smith,1)
```

```
   If x=0 then
      MsgBox "You typed 'Smith' or 'smith'."
   Else
      MsgBox "You typed: " & lastname & " not 'Smith'."
   End If
End Sub
```

See Also

```
Instr
Option Compare
```

String
Function

Description

Returns a string consisting of a repeated character.

Syntax

Syntax A **`String`**`[$](`*`number, Character%`*`)`

Syntax B **`String`**`[$](`*`number, string-expression$`*`)`

Syntax Element	Description
`$`	Optional. If specified the return type is `String`. If omitted, the function returns a `Variant` of `VarType` 8 (`String`).
`number`	The length of the string to be returned.
`Character%`	A numeric expression that contains an integer for the decimal ANSI code of the character to use.
`string-expression$`	A string argument, the first character of which becomes the repeated character.

Comments

`number` must be between 0 and 32,767.

`Character%` must evaluate to an integer between 0 and 255.

Example

This example places asterisks (*) in front of a string that is printed as a payment amount.

```
Sub main
   Dim str1 as String
   Dim size as Integer
i: str1=InputBox("Enter an amount up to 999,999.99: ")
   If Instr(str1,".")=0 then
      str1=str1+".00"
   End If
   If Len(str1)>10 then
      MsgBox "Amount too large.  Try again."
      Goto i
   End If
   size=10-Len(str1)
```

```
    ' Print amount in a space on a check allotted for 10 characters
       str1=String(size,Asc("*")) & str1
       MsgBox "The amount is: $" & str1
    End Sub
```

See Also

```
Space
Str
```

Sub...End Sub

Statement

Description

Defines a sub procedure.

Syntax

```
[Static] [Private] Sub name [([Optional] arg [As type],...)]
```

End Sub

Syntax Element	Description
name	The name of the sub procedure.
arg	An argument to pass to the sub procedure when it is called. Multiple arguments are separated by commas.
type	The data type of an argument in *arg*.

Comments

A call to a sub procedure stands alone as a separate statement. (See the `Call` statement). Recursion is supported.

arg contains an argument being passed to the sub procedure. An argument is represented by a variable name. Multiple arguments are separated by commas. Note the following information about the arguments being passed:

- The data type of an argument can be specified through a type declaration character or through the `As` clause.
- Arguments of a `User-Defined` data type are declared through an `As` clause and a *type* that has previously been defined through the `Type` statement.
- If an argument is an array, use empty parentheses after the argument name. The array dimensions are not specified within the `Sub` statement. All references to the array within the body of the sub procedure must have a consistent number of dimensions.

- If you declare an argument as `Optional`, its value can be omitted when the sub procedure is called. Only arguments with `Variant` data types can be declared as optional, and all optional arguments must appear after any required arguments in the `Sub` statement. Use the function `IsMissing` to check whether an optional argument was actually sent to the sub procedure or was omitted.
- Arguments can be listed in a particular order, or they can be identified by name. See the `Call` statement for information on named arguments.

The sub procedure returns to the caller when the `End Sub` statement is reached or when an `Exit Sub` statement is executed.

The `Static` keyword specifies that all the variables declared within the sub procedure will retain their values as long as the program is running, regardless of the way the variables are declared.

The `Private` keyword specifies that the procedures will not be accessible to functions and sub procedures from other modules. Only procedures defined in the same module will have access to a `Private` sub procedure.

SQABasic procedures use the call-by-reference convention by default. This means that if the called procedure changes the value of an argument passed in *`arg`*, the new value will apply in the calling procedure as well. This feature should be used with great care.

The MAIN sub procedure has a special meaning. In many implementations of Basic, MAIN will be called when the module is run. The MAIN sub procedure is not allowed to take arguments.

Use `Function` to define a procedure that has a return value.

Example

This example is a sub procedure that uses the `Sub...End Sub` statement.

```
Sub main
    MsgBox "Hello, World."
End Sub
```

See Also

`Call`
`Dim`
`Function`
`End Function`
`Global`
`Option Explicit`
`Static`

SysMenuIDSelect

User Action Command

Description

Performs a system menu selection based on the internal ID of the menu item. A system menu is the menu that appears when you click on the control box in the upper-left corner of a window.

Syntax

SysMenuIDSelect *MenuID&*

Syntax Element	Description
MenuID&	The internal ID of the menu item.

Comments

This command is necessary for making selections from System menu items that do not contain text, such as owner drawn or bitmap menus.

Example

This example selects the menu item identified by the internal ID 2034 from the System menu of the current context window.

```
SysMenuIDSelect 2034
```

See Also

`MenuIDSelect` `MenuSelect` `PopupMenuIDSelect` `PopupMenuSelect` `SysMenuIDSelect`

SysMenuSelect

User Action Command

Description

Perform a system menu selection based on the text of the menu item. A system menu is the menu that appears when you click on the control box in the upper-left corner of a window.

Syntax

SysMenuSelect *menuPath$*

Syntax Element	Description
menuPath$	The name of the menu item.

Comments

The sub-menus are delimited by a pointer (->). Robot can recognize menus and sub-menus up to 5 levels deep.

Example This example selects the menu item Switch To... from the System menu of the current context window.

```
SysMenuSelect "Switch To..."
```

See Also `MenuIDSelect` `MenuSelect` `PopupMenuIDSelect` `PopupMenuSelect` `SysMenuSelect`

Tab
Function

Description Moves the current print position to the column specified.

Syntax **`Tab`** (*n*)

Syntax Element	Description
n	The new print position to use.

Comments The `Tab` function can be used only inside `Print` statement. The leftmost print position is position number 1.

When the `Print` statement is used, the `Tab` function uses the following rules for determining the next print position:

1. If *n* is less than the total line width, the new print position is *n*.
2. If *n* is greater than the total line width, the new print position is *n* `Mod` *width*.
3. If the current print position is greater than *n* or *n* `Mod width,` `Tab` skips to the next line and sets the print position to *n* or *n* `Mod` *width*.

To set the width of a print line, use the `Width` statement.

Example This example prints the octal values for the numbers from 1 to 25. It uses Tab to put five character spaces between the values.

```
Sub main
    Dim x as Integer
    Dim y
    For x=1 to 25
        y=Oct$(x)
        Print x Tab(10) y
    Next x
End Sub
```

See Also

```
Print       Spc
Space       Width
```

TabControl

User Action Command

Description Performs an action on a tab control.

Syntax **`TabControl`** *`action%, recMethod$, parameters$`*

Syntax Element	Description

`action%`	One of these actions:
	▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*.
	▸ *`MouseDrag`*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *`action%`* contains a mouse-drag value, *`parameters$`* must contain `Coords=`*`x1,y1,x2,y2`*.
	See Appendix E for a list of mouse click and drag values.
	▸ *`ScrollAction`*. One of these scroll actions:
	`ScrollPageRight` `ScrollPageDown`
	`ScrollRight` `ScrollLineDown`
	`ScrollPageLeft` `ScrollPageUp`
	`ScrollLeft` `ScrollLineUp`
	`HScrollTo` `VScrollTo`
	`HScrollTo` and `VScrollTo` take the required parameter `Position=`*`%`*.
	If Robot cannot interpret the action being applied to a scroll bar, which happens with certain custom standalone scroll bars, it records the action as a click or drag.

`recMethod$`	Valid values: ▸ `ID=`*`%`*. The object's internal Windows ID. ▸ `Index=`*`%`*. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier.

► ► ►

► ► ►

Syntax Element	Description
	► `ItemIndex=%`. The index of the tab item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `ItemText=$`. The text of the tab item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `JavaText=$`. A label that identifies the object in the user interface. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ► `Text=$`. The text displayed on the object. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the object or the item. ► `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object or the item.

► ► ►

▸ ▸ ▸

Syntax Element	Description
	▸ `Index=%`. In Java environments, specifies the index of the tab being acted upon. ▸ `Position=%`. If *`action%`* is `VScrollTo` or `HscrollTo`, specifies the scroll bar value of the new scrolled-to position in the scroll box. Every scroll bar has an internal range, and this value is specific to that range. ▸ `Text=$`. In Java environments, specifies the label of the tab being acted upon.

Comments

None.

Example

This example clicks the item identified by the text `System` at *x*,*y* coordinates of 50,25 in the first tab control in the window (`ObjectIndex=1`). The clicked tab is labeled System.

```
TabControl Click, "ObjectIndex=1;\;ItemText=System","Coords=50,25"
```

See Also

`TabControlVP`

TabControlVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a tab control.

Syntax

`Result` = **`TabControlVP`** (*`action%, recMethod$, parameters$`*)

Syntax Element	Description
`action%`	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *`parameters$`* `VP` and Type are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ► `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `ID=%`. The object's internal Windows ID. ► `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier. ► `ItemIndex=%`. The index of the tab item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `ItemText=$`. The text of the tab item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `JavaText=$`. A label that identifies the object in the user interface. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object. ► `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`).

► ► ►

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the first tab control in the window (`ObjectIndex=1`) and compares them to the recorded baseline in verification point `TEST1A`.

```
Result=TabControlVP(CompareProperties,"ObjectIndex=1","VP=TEST1A")
```

See Also

`TabControl`

Tan

Function

Description

Returns the tangent of an angle in radians.

Syntax

`Tan`(*`number`*)

Syntax Element	Description
`number`	An expression containing the angle in radians.

Comments

`number` is specified in radians, and can be either positive or negative.

The return value is single-precision if the angle is an integer, currency or single-precision value, double precision for a long, Variant or double-precision value.

To convert degrees to radians, multiply by PI/180. The value of PI is 3.14159.

Example

This example finds the height of the exterior wall of a building, given its roof pitch and the length of the building.

```
Sub main
   Dim bldglen, wallht
   Dim pitch
   Dim msgtext
   Const PI=3.14159
   Const conversion= PI/180
   On Error Resume Next
   pitch=InputBox("Enter the roof pitch in degrees:")
   pitch=pitch*conversion
   bldglen=InputBox("Enter the length of the building in feet:")
   wallht=Tan(pitch)*(bldglen/2)
   msgtext="The building height is: " & Format(wallht,"##.00")
```

```
    MsgBox msgtext
End Sub
```

See Also

```
Atn
Cos
Sin
Derived Trigonometric functions (Appendix D)
```

Text
Statement

Description

Places line(s) of text in a dialog box.

Syntax

Text *x, y, dx, dy, text$*[, *.id*]

Syntax Element	Description
x, y	The upper left corner coordinates of the text area, relative to the upper left corner of the dialog box.
dx, dy	The width and height of the text area.
text$	A string containing the text to appear in the text area defined by *x, y*.
.id	An optional identifier used by the dialog statements that act on this control.

Comments

If the width of *text$* is greater than *dx*, the spillover characters wrap to the next line. This will continue as long as the height of the text area established by *dy* is not exceeded. Excess characters are truncated.

By preceding an underlined character in *text$* with an ampersand (&), you enable a user to press the underlined character on the keyboard and position the cursor in the combo or text box defined in the statement immediately following the `Text` statement.

Use the `Text` statement only between a `Begin Dialog` and an `End Dialog` statement.

Example

This example defines a dialog box with a combination list and text box and three buttons.

```
Sub main
  Dim ComboBox1() as String
  ReDim ComboBox1(0)
  ComboBox1(0)=Dir("C:\*.*")
  Begin Dialog UserDialog 166, 142, "SQABasic Dialog Box"
      Text  9, 3, 69, 13, "Filename:", .Text1
```

```
      DropComboBox  9, 14, 81, 119, ComboBox1(), .ComboBox1
      OKButton  101, 6, 54, 14
      CancelButton  101, 26, 54, 14
      PushButton 101, 52, 54, 14, "Help", .Push1
   End Dialog
   Dim mydialog as UserDialog
   On Error Resume Next
   Dialog mydialog
   If Err=102 then
      MsgBox "Dialog box canceled."
   End If
End Sub
```

See Also

Begin Dialog	CheckBox	OKButton
End Dialog	ComboBox	OptionButton
Button	Dialog	OptionGroup
ButtonGroup	DropComboBox	Picture
CancelButton	GroupBox	StaticComboBox
Caption	ListBox	TextBox

TextBox

Statement

Description

Creates a text box in a dialog box.

Syntax

TextBox [NoEcho] *x, y, dx, dy, .field*

Syntax Element	Description
x, y	The upper left corner coordinates of the text box, relative to the upper left corner of the dialog box.
dx, dy	The width and height of the text box area.
.field	The name of the dialog-record field to hold the text string.

Comments

A *dy* value of 12 will usually accommodate text in the system font.

When the user selects the OK button, or any PushButton other than cancel, the text string entered in the text box will be recorded in *.field*.

The NoEcho keyword is often used for passwords; it displays all characters entered as asterisks (*).

Use the TextBox statement only between a Begin Dialog and an End Dialog statement.

Example

This example creates a dialog box with a group box, and two buttons.

```
Sub main
   Begin Dialog UserDialog 194, 76, "SQABasic Dialog Box"
```

```
            GroupBox  9, 8, 97, 57, "File Range"
            OptionGroup .OptionGroup2
              OptionButton 19, 16, 46, 12, "All pages", .OptionButton3
              OptionButton 19, 32, 67, 8, "Range of pages", .OptionButton4
            Text  25, 43, 20, 10, "From:", .Text6
            Text  63, 43, 14, 9, "To:", .Text7
            TextBox  79, 43, 13, 12, .TextBox4
            TextBox  47, 43, 12, 11, .TextBox5
            OKButton  135, 6, 54, 14
            CancelButton  135, 26, 54, 14
         End Dialog
         Dim mydialog as UserDialog
         On Error Resume Next
         Dialog mydialog
         If Err=102 then
            MsgBox "Dialog box canceled."
         End If
      End Sub
```

See Also

Begin Dialog	CheckBox	OKButton
End Dialog	ComboBox	OptionButton
Button	Dialog	OptionGroup
ButtonGroup	DropComboBox	Picture
CancelButton	GroupBox	StaticComboBox
Caption	ListBox	Text

Time
Function

Description

Returns a string representing the current time.

Syntax

Time[$]

Syntax Element	Description
$	Optional. If specified, the return type is String. If omitted, the function returns a Variant of VarType 8 (String).

Comments

The Time function returns an eight character string. The format of the string is *hh:mm:ss* where *hh* is the hour, *mm* is the minutes and *ss* is the seconds. The hour is specified in military style, and ranges from 0 to 23.

Example

This example writes data to a file if it hasn't been saved within the last 2 minutes.

```
Sub main
   Dim tempfile
   Dim filetime, curtime
   Dim msgtext
   Dim acctno(100) as Single
   Dim x, I
```

```
tempfile="C:\TEMP001"
Open tempfile For Output As #1
filetime=FileDateTime(tempfile)
x=1
I=1
acctno(x)=0
Do
   curtime=Time
   acctno(x)=InputBox("Enter an account number (99 to end):")
   If acctno(x)=99 then
      For I=1 to x-1
         Write #1, acctno(I)
      Next I
      Exit Do
   ElseIf (Minute(filetime)+2)<=Minute(curtime) then
      For I=I to x
         Write #1, acctno(I)
      Next I
   End If
   x=x+1
Loop
Close #1
x=1
msgtext="Contents of C:\TEMP001 is:" & Chr(10)
Open tempfile for Input as #1
Do While Eof(1)<>-1
   Input #1, acctno(x)
   msgtext=msgtext & Chr(10) & acctno(x)
   x=x+1
Loop
MsgBox msgtext
Close #1
Kill "C:\TEMP001"
End Sub
```

See Also

Date function	Timer
Date statement	TimeSerial
Time statement	TimeValue

Time

Statement

Description Sets the system time.

Syntax **Time** = *expression*

Syntax Element	Description
expression	An expression that evaluates to a valid time. When Time (with the dollar sign $) is used, the *expression* must evaluate to a string of one of the following forms: ▸ *hh*. Set the time to *hh* hours 0 minutes and 0 seconds. ▸ *hh:mm*. Set the time to *hh* hours *mm* minutes and 0 seconds. ▸ *hh:mm:ss*. Set the time to *hh* hours *mm* minutes and *ss* seconds.

Comments

Time uses a 24-hour clock. Thus, 6:00 P.M. must be entered as 18:00:00.

If *expression* is not already a Variant of VarType 7 (date), Time attempts to convert it to a valid time. It recognizes time separator characters defined in the International section of the Windows Control Panel. Time (without the $) accepts both 12 and 24 hour clocks.

Example

This example changes the time on the system clock.

```
Sub main
   Dim newtime as String
   Dim answer as String
   On Error Resume Next
i: newtime=InputBox("What time is it?")
   answer=InputBox("Is this AM or PM?")
   If answer="PM" or answer="pm" then
      newtime=newtime &"PM"
   End If
   Time=newtime
   If Err<>0 then
      MsgBox "Invalid time.  Try again."
      Err=0
      Goto i
   End If
End Sub
```

See Also

Date function
Date statement
Time function
TimeSerial
TimeValue

Timer

Function

Description

Returns the number of seconds that have elapsed since midnight.

Syntax

Timer

Comments The `Timer` function can be used in conjunction with the `Randomize` statement to seed the random number generator.

Example This example uses the `Timer` function to find a Megabucks number.

```
Sub main
   Dim msgtext
   Dim value(9)
   Dim nextvalue
   Dim x
   Dim y
   msgtext="Your Megabucks numbers are: "
   For x = 1 to 8
      Do
         value(x)=Timer
         value(x)=value(x)*100
         value(x)=Str(value(x))
         value(x)=Val(Right(value(x),2))
      Loop Until value(x)>1 and value(x)<36
      For y=1 to 1500
      Next y
   Next x
   For y = 1 to 8
     For x = 1 to 8
       If y<>x then
           If value(y)=value(x) then
              value(x)=value(x)+1
           End If
       End If
     Next x
   Next y
   For x = 1 to 8
      msgtext=msgtext & value(x) & " "
   Next x
   MsgBox msgtext
End Sub
```

See Also `Randomize`

TimeSerial

Function

Description Returns a time as a `Variant` of type 7 (date/time) for a specific hour, minute, and second.

Syntax **`TimeSerial`**(*`hour%, minute%, second%`*)

Syntax Element	Description
`hour%`	A numeric expression for an hour (0-23).
`minute%`	A numeric expression for a minute (0-59).

► ► ►

▶ ▶ ▶

Syntax Element	Description
second%	A numeric expression for a second (0-59).

Comments You also can specify relative times for each argument by using a numeric expression representing the number of hours, minutes, or seconds before or after a certain time.

Example This example displays the current time using `TimeSerial`.

```
Sub main
   Dim y
   Dim msgtext
   Dim nowhr
   Dim nowmin
   Dim nowsec
   nowhr=Hour(Now)
   nowmin=Minute(Now)
   nowsec=Second(Now)
   y=TimeSerial(nowhr,nowmin,nowsec)
   msgtext="The time is: " & y
   MsgBox msgtext
End Sub
```

See Also

DateSerial	Now
Date Value	Second
Hour	TimeValue
Minute	

TimeValue

Function

Description Returns a time value for a specified string.

Syntax **TimeValue**(*time$*)

Syntax Element	Description
time$	A valid date time value.

Comments The `TimeValue` function returns a `Variant` of `VarType` 7 (date/time) that represents a time between 0:00:00 and 23:59:59, or 12:00:00 A.M. and 11:59:59 P.M., inclusive.

Example

This example writes a variable to a disk file based on a comparison of its last saved time and the current time. Note that all the variables used for the `TimeValue` function are dimensioned as `Double`, so that calculations based on their values will work properly.

```
Sub main
   Dim tempfile
   Dim ftime
   Dim filetime as Double
   Dim curtime as Double
   Dim minutes as Double
   Dim acctno(100) as Integer
   Dim x, I
   Dim msgtext as String
   tempfile="C:\TEMP001"
   Open tempfile For Output As 1
   ftime=FileDateTime(tempfile)
   filetime=TimeValue(ftime)
   minutes= TimeValue("00:02:00")
   x=1
   I=1
   acctno(x)=0
   Do
      curtime= TimeValue(Time)
      acctno(x)=InputBox("Enter an account number (99 to end):")
      If acctno(x)=99 then
         For I=I to x-1
            Write #1, acctno(I)
         Next I
         Exit Do
      ElseIf filetime+minutes<=curtime then
         For I=I to x
            Write #1, acctno(I)
         Next I
      End If
      x=x+1
   Loop
   Close #1
   x=1
   msgtext="You entered:" & Chr(10)
   Open tempfile for Input as #1
   Do While Eof(1)<>-1
      Input #1, acctno(x)
      msgtext=msgtext & Chr(10) & acctno(x)
      x=x+1
   Loop
   MsgBox msgtext
   Close #1
   Kill "C:\TEMP001"
End Sub
```

See Also

`DateSerial` `Now`
`Date Value` `Second`
`Hour` `TimeSerial`
`Minute`

Toolbar

User Action Command

Description

Performs an action on a toolbar control.

Syntax

Toolbar *action%, recMethod$, parameters$*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ Name=*$*. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ▸ State=*$*. An optional qualifier for any other recognition method. There are two possible values for this setting: Enabled and Disabled. The default state is the state of the current context window (as set in the most recent Window SetContext command), or Enabled if the state has not been otherwise declared. ▸ Text=*$*. The text displayed on the object. ▸ VisualText=*$*. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.

▸ ▸ ▸

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `Coords=`*`x,y`*. If *`action%`* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ► `Coords=`*`x1,y1,x2,y2`*. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object.

Comments None.

Example This example clicks the item identified by the text `System` at *x*,*y* coordinates of 50,25 in the first toolbar control in the window (`ObjectIndex=1`).

```
Toolbar Click, "ObjectIndex=1;ItemText=System", "Coords=50,25"
```

See Also `ToolbarVP`

ToolbarVP

Verification Point Command

▸▸▸SQA▸

Description Establishes a verification point for a toolbar control.

Syntax *`Result`* = **`ToolbarVP`** (*`action%`*, *`recMethod$`*, *`parameters$`*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ► `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ► `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional.

► ► ►

► ► ►

Syntax Element	Description
	► `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `ID=%`. The object's internal Windows ID. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object.
`parameters$`	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example This example captures the properties of the first toolbar control in the window (`ObjectIndex=1`) and compares them to the recorded baseline in verification point `TEST1A`.

```
Result = ToolbarVP (CompareProperties,"ObjectIndex=1","VP=TEST1A")
```

See Also `Toolbar`

Trackbar

User Action Command ▸▸▸SQA▸

Description Performs an action on a trackbar control.

Syntax **`Trackbar`** *`action%, recMethod$, parameters$`*

Syntax Element	Description
action%	One of these mouse actions: ▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain Coords=*x,y*. ▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain Coords=*x1,y1,x2,y2*. See Appendix E for a list of mouse click and drag values. ▸ *ScrollAction*. One of these scroll actions: ScrollPageRight ScrollPageDown ScrollRight ScrollLineDown ScrollPageLeft ScrollPageUp ScrollLeft ScrollLineUp HScrollTo VScrollTo HScrollTo and VScrollTo take the required parameter Position=*%*. If Robot cannot interpret the action being applied to a trackbar, which happens with certain custom standalone trackbars, it records the action as a click or drag.
recMethod$	Valid values: ▸ ID=*%*. The object's internal Windows ID. ▸ Index=*%*. The number of the object among all objects identified with the same base recognition method. Typically, Index is used after another recognition method qualifier — for example, Name=*$*;Index=*%*. ▸ JavaText=*$*. A label that identifies the object in the user interface. ▸ Name=*$*. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ ObjectIndex=*%*. The number of the object among all objects of the same type in the same window. ▸ State=*$*. An optional qualifier for any other recognition method. There are two possible values for this setting: Enabled and Disabled. The default state is the state of the current context window (as set in the most recent Window SetContext command), or Enabled if the state has not been otherwise declared.

► ► ►

▸ ▸ ▸

Syntax Element	Description
	▸ `Text=$`. The text displayed on the object. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ▸ `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ▸ `Coords=x,y`. If *action%* is a mouse click, specifies the coordinates of the click, relative to the top left of the object. ▸ `Coords=x1,y1,x2,y2`. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object. ▸ `Position=%`. If *action%* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position. Every trackbar has an internal range and this parameter value is specific to that range.

Comments

None.

Example

This example clicks the item identified by the text `System` at *x*,*y* coordinates of 50,25 in the first trackbar control in the window (`ObjectIndex=1`).

```
Trackbar Click, "ObjectIndex=1;ItemText=System", "Coords=50,25"
```

See Also

`TrackbarVP`

TrackbarVP

Verification Point Command ▸▸▸SQA▸

Description

Establishes a verification point for a trackbar control.

Syntax

Result = **TrackbarVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
recMethod$	Valid values: ▸ `ID=%`. The object's internal Windows ID. ▸ `Index=%`. The number of the object among all objects identified with the same base recognition method. Typically, `Index` is used after another recognition method qualifier — for example, `Name=$;Index=%`. ▸ `JavaText=$`. A label that identifies the object in the user interface. ▸ `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ▸ `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ▸ `Text=$`. The text displayed on the object. ▸ `Type=$`. An optional qualifier for recognition methods. Used to identify the object within a specific context or environment. The `Type` qualifier uses the following form: `Type=$;recMethod=$`. Parent/child values are separated by a backslash and semicolons (`;\;`).

► ► ►

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback.

With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Example

This example captures the properties of the first trackbar control in the window (`ObjectIndex=1`) and compares them to the recorded baseline in verification point `TEST1A`.

```
Result = TrackbarVP(CompareProperties,"ObjectIndex=1","VP=TEST1A")
```

See Also

`Trackbar`

TreeView

User Action Command

▸▸▸SQA▸

Description

Performs an action on a tree view control.

Syntax

`TreeView` *`action%, recMethod$, parameters$`*

Syntax Element	Description

`action%`	One of these actions:
	▸ *`MouseClick`*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *`action%`* contains a mouse-click value, *`parameters$`* must contain `Coords=`*`x,y`*.
	▸ *`MouseDrag`*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *`action%`* contains a mouse-drag value, *`parameters$`* must contain `Coords=`*`x1,y1,x2,y2`*.
	See Appendix E for a list of mouse click and drag values.
	▸ *`ScrollAction`*. One of these scroll actions:
	`ScrollPageRight` `ScrollPageDown`
	`ScrollRight` `ScrollLineDown`
	`ScrollPageLeft` `ScrollPageUp`
	`ScrollLeft` `ScrollLineUp`
	`HScrollTo` `VScrollTo`
	`HScrollTo` and `VScrollTo` take the required parameter `Position=`*`%`*.
	If Robot cannot interpret the action being applied to a scroll bar, which happens with certain custom standalone scroll bars, it records the action as a click or drag.

▸ ▸ ▸

► ► ►

Syntax Element	Description
recMethod$	Valid values: ► `ID=%`. The object's internal Windows ID. ► `ItemIndex=%`. The index of the tree view item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `ItemText=$`. The text of the tree view item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. The default state is the state of the current context window (as set in the most recent `Window SetContext` command), or `Enabled` if the state has not been otherwise declared. ► `Text=$`. The text displayed on the object. ► `VisualText=$`. An optional setting used to identify an object by its prior label. It is for user clarification only and does not affect object recognition.
parameters$	Valid values: ► `Coords=x,y`. If *`action%`* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the object or the item. ► `Coords=x1,y1,x2,y2`. If *`action%`* is a mouse drag, specifies the coordinates, where *`x1,y1`* are the starting coordinates of the drag, and *`x2,y2`* are the ending coordinates. The coordinates are relative to the top left of the object or the item.

► ► ►

► ► ►

Syntax Element	Description
	► *Location=$*. The part of the tree where the click occurred. Valid values: – `Text` or `Label` (the default). The text displayed on the clicked item. – `Button`. The plus or minus sign used to expand or collapse branches of the tree. – `Icon`. The icon displayed on the clicked item. – `StateIcon`. The icon that displays the state of the tree. – `Left` or `Indent`. A point to the left of the clicked item. – `Right`. A point to the right of the clicked item. During playback, Robot clicks in the center of the specified location. ► `Position=%`. If *`action%`* is `VScrollTo` or `HScrollTo`, specifies the scroll bar value of the new scrolled-to position in the scroll box. Every scroll bar has an internal range, and this value is specific to that range.

Comments

When you act on a particular item in a tree object, Robot uses the text of the item (plus the text of any parent items) to identify it. In the following *`recMethod$`* value, the tree item labeled Service Division is a child of the tree item labeled Star Distribution Co.

```
"Name=tv_product;\;ItemText=Star Distribution Co->Service Division"
```

Note the two different parent/child separators — the *backslash* (\ ) separates the window object and its child object. The *pointer* (->) separates the parent text item from its child text item in the tree hierarchy.

When clicking on a branch that's very low in the tree hierarchy, or if branches have very long names, the maximum length for *`recMethod$`* strings might be exceeded. (The limit is 2,048 characters or less, depending on the circumstances.) If the limit is exceeded, Robot removes parent text items until the string length is within limits. Here are some examples:

Tree Item Syntax	**Meaning**
ItemA->ItemB	This is a standard parent/child relationship used when the string limit has *not* been exceeded. It instructs Robot to look for ItemB in ItemA.

► ► ►

▸ ▸ ▸

Tree Item Syntax	Meaning
->ItemB	In this example, one or more parent items have been dropped. It instructs Robot to look for ItemB *anywhere* in the tree.
->ItemB->->ItemC	In this example, Robot looks for ItemC anywhere in the ItemB subhierarchy and *only* in the ItemB subhierarchy.
.->ItemB	This example introduces a new syntax element — the dot (.). A dot instructs Robot to look in the currently selected level of the tree. In this example, Robot looks for ItemB as a child of the currently selected item.
.->ItemB->->ItemC	In this example, Robot looks for ItemC anywhere in the ItemB subhierarchy. ItemB is a child of the currently selected item.

Using dot syntax is useful to avoid confusion when there are duplicate text items in the tree. It involves a sequence of at least two clicks — one to specify the current tree item, and one to specify some child (direct or indirect) of the current tree item.

Example

This example clicks the expand button (+ sign) on the item identified by the text Employee Training. The item is in the first tree view control in the current context window (`ObjectIndex=1`). It is a child of the item Human Resources.

```
TreeView Click, "ObjectIndex=1;\;ItemText=Human Resources->
Employee Training", "Location=Button"
```

See Also

`TreeViewVP`

TreeViewVP

Verification Point Command

▸▸▸SQA▸

Description

Establishes a verification point for a tree view control.

Syntax

Result = **TreeViewVP** (*action%*, *recMethod$*, *parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareData`. Captures the data of the object and compares it to a recorded baseline. *parameters$* `VP` and Type are required; `ExpectedResult` and `Wait` are optional.

▸ ▸ ▸

► ► ►

Syntax Element	Description
	► `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *`parameters$`* `Value` or `Range`. *`parameters$`* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ► `CompareProperties`. Captures object properties information for the object and compares it to a recorded baseline. *`parameters$`* `VP` is required; `ExpectedResult` and `Wait` are optional. ► `CompareText`. Captures the text of the object and compares it to a recorded baseline. *`parameters$`* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.
`recMethod$`	Valid values: ► `ID=%`. The object's internal Windows ID. ► `ItemIndex=%`. The index of the tree view item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `ItemText=$`. The text of the tree view item acted upon. Used only after one of these parent values: `ID=%`, `ObjectIndex=%`, `Name=$`, `Text=$`. Parent/child values are separated by a backslash and semicolons (`;\;`). ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `ObjectIndex=%`. The number of the object among all objects of the same type in the same window. ► `Text=$`. The text displayed on the object.

► ► ►

► ► ►

Syntax Element	Description
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text ► `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ► `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ► `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback.

With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

When you act on a particular item in a tree object, Robot uses the text of the item (plus the text of any parent items) to identify it. In the following *`recMethod$`* value, the tree item labeled Service Division is a child of the tree item labeled Star Distribution Co.

```
"Name=tv_product;\;ItemText=Star Distribution Co->Service Division"
```

Note the two different parent/child separators — the *backslash* (\ ) separates the window object and its child object. The *pointer* (->) separates the parent text item from its child text item in the tree hierarchy.

When clicking on a branch that's very low in the tree hierarchy, or if branches have very long names, the maximum length for *`recMethod$`* strings might be exceeded. (The limit is 2,048 characters or less, depending on the circumstances.) If the limit is exceeded, Robot removes parent text items until the string length is within limits. Here are some examples:

Tree Item Syntax	**Meaning**
ItemA->ItemB	This is a standard parent/child relationship used when the string limit has *not* been exceeded. It instructs Robot to look for ItemB in ItemA.
->ItemB	In this example, one or more parent items have been dropped. It instructs Robot to look for ItemB *anywhere* in the tree.
->ItemB->->ItemC	In this example, Robot looks for ItemC anywhere in the ItemB subhierarchy and *only* in the ItemB subhierarchy.
.->ItemB	This example introduces a new syntax element — the dot (.). A dot instructs Robot to look in the currently selected level of the tree. In this example, Robot looks for ItemB as a child of the currently selected item.
.->ItemB->->ItemC	In this example, Robot looks for ItemC anywhere in the ItemB subhierarchy. ItemB is a child of the currently selected item.

Using dot syntax is useful to avoid confusion when there are duplicate text items in the tree. It involves a sequence of at least two clicks — one to specify the current tree item, and one to specify some child (direct or indirect) of the current tree item.

Example This example captures the properties of the first tree view control in the window (`ObjectIndex=1`) and compares them to the recorded baseline in verification point `TEST1A`.

```
Result=TreeViewVP (CompareProperties,"ObjectIndex=1","VP=TEST1A")
```

See Also `TreeView`

Trim
Function

Description Returns a copy of a string after removing all leading and trailing spaces.

Syntax **`Trim`**`[$](`*`expression`*`)`

Syntax Element	Description
`$`	Optional. If specified, the return type is `String`. If omitted, the function typically returns a `Variant` of `VarType` 8 (`String`).
`expression`	The expression to trim. The expression can be a string, or it can be a numeric data type which Robot passes to the command as a string.

Comments If the value of ***`string$`*** is NULL, a Variant of VarType 1 (Null) is returned.

Example This example removes leading and trailing spaces from a string entered by the user.

```
Sub main
   Dim userstr as String
   userstr=InputBox("Enter a string with leading/trailing spaces")
   MsgBox "String is: " & Trim(userstr) & " with nothing after it."
End Sub
```

See Also

`GetField`	`Mid function`
`Left`	`Mid statement`
`Len`	`Right`
`LTrim`	`RTrim`

Type
Statement

Description

Declares a User-Defined data type.

Syntax

```
Type userType
    field1 As type1
    field2 As type2
    ...
End Type
```

Syntax Element	Description
userType	The name of the user-defined type.
field1 , field2	The name of a field in the user-defined type.
type1 , type2	A data type: Integer, Long, Single, Double, Currency, String, String**length* (for fixed-length strings), Variant, or another user-defined type.

Comments

The `User-Defined` data type declared by `Type` is then used in a `Dim` statement to declare a variable of that type. A user-defined type is sometimes referred to as a *`record type`* or a *`structure type`*.

`field` cannot be an array. However, arrays of user-defined types are allowed.

The `Type` statement is not valid inside of a procedure definition. To access the fields of a user-defined type, use this syntax:

```
TypeName.FieldName
```

To access the fields of an array of user-defined types, use this syntax:

```
ArrayName(index).FieldName
```

Example

This example illustrates a `Type` and `Dim` statement. You must define a user-defined type before you can declare a variable of that type. The sub procedure then references a field within the user-defined type.

```
Type TestType                ' name of User-Defined type
   Custno As Integer         ' customer id field
   Custname As String        ' customer name field
End Type

Sub main
   Dim MyType As TestType    ' declare a variable for TestType
   Dim answer as String
i: MyType.custname=InputBox("Enter a customer name:")
   If MyType.custname="" then
      Exit Sub
   End If
   answer=InputBox("Is the name: " & MyType.custname &
        " correct? (Y/N)")
```

```
If answer="Y" or answer="y" then
      MsgBox "Thank you."
   Else
      MsgBox "Try again."
      Goto i
   End If
End Sub
```

See Also `Def`*`type`*
`Dim`

Typeof
Function

Description Returns a value showing whether an object is of a given class (`-1`=TRUE, `0`=FALSE).

Syntax `If` **`Typeof`** *`objectVariable`* `Is` *`className`* `then. . .`

Syntax Element	Description
`objectVariable`	The object to test.
`className`	The class to compare the object to.

Comments `Typeof` can only be used in an `If` statement and cannot be combined with other Boolean operators. That is, `Typeof` can only be used exactly as shown in the syntax above.

To test if an object does *`not`* belong to a class, use the following code structure:

```
If Typeof objectVariable Is className Then
    Rem Perform some action
Else
    Rem Perform some other action.
End If
```

Example None.

See Also

`CreateObject`	`Nothing`
`GetObject`	`Object Class`
`Is`	`Class List`
`New`	

TypingDelays

Timing and Coordination Command

▸▸▸SQA▸

Description Sets one or more keystroke delays during playback of the next `InputKeys` command.

Syntax **`TypingDelays`** *`delayString$`*

Syntax Element	Description
`delayString$`	A string containing one or more integers separated by commas. Each integer represents a delay time in milliseconds between keystrokes in the next `InputKeys` command.

Comments Robot records this command if Record Think Time is selected in the General tab of the GUI Record Options dialog box. During playback, Robot performs the keystroke delays only if Use recorded typing delays is selected in the Playback tab of the GUI Playback Options dialog box.

The first integer value in *`delayString$`* is always 0. Successive integers in *`delayString$`* represent the delay time between keystrokes for the corresponding characters in the `InputKeys` command that follows the `TypingDelays` command.

Each `TypingDelays` command is preceded by a `SetThinkAvg` command, which sets the GUI think time between user actions.

Typing delays duration is the same in both Robot and TestManager.

Example This example sets the typing delay between the keystrokes of the text "My Text" in the following `InputKeys` command.

```
SetThinkAvg 1500
TypingDelays "0, 160, 150, 650, 270, 270, 190"
InputKeys "My Text"
```

See Also `SetThinkAvg`
`InputKeys`

UBound

Function

Description Returns the upper bound of the subscript range for the specified array.

Syntax

UBound(*arrayname* [, *dimension*])

Syntax Element	Description
arrayname	The name of the array to use.
dimension	The dimension to use.

Comments

The dimensions of an array are numbered starting with 1. If the *dimension* is not specified, 1 is used as a default.

LBound can be used with UBound to determine the length of an array.

Example

This example resizes an array if the user enters more data than can fit in the array. It uses LBound and UBound to determine the existing size of the array and ReDim to resize it. Option Base sets the default lower bound of the array to 1.

```
Option Base 1
Sub main
   Dim arrayvar() as Integer
   Dim count as Integer
   Dim answer as String
   Dim x, y as Integer
   Dim total
   total=0
   x=1
   count=InputBox("How many test scores do you have?")
   ReDim arrayvar(count)
start:
   Do until x=count+1
     arrayvar(x)=InputBox("Enter test score #" &x & ":")
     x=x+1
   Loop
   answer=InputBox$("Do you have more scores? (Y/N)")
   If answer="Y" or answer="y" then
     count=InputBox("How many more do you have?")
     If count<>0 then
       count=count+(x-1)
       ReDim Preserve arrayvar(count)
       Goto start
     End If
   End If
   x=LBound(arrayvar,1)
   count=UBound(arrayvar,1)
   For y=x to count
        total=total+arrayvar(y)
   Next y
   MsgBox "The average of the " & count & " scores is:
       " & Int(total/count)
End Sub
```

See Also

Dim
Global
LBound
Option Base
ReDim
Static

UCase
Function

Description Returns a copy of a string after converting all lowercase letters to uppercase.

Syntax **UCase**[$](*string$*)

Syntax Element	Description
$	Optional. If specified, the return type is String. If omitted, the function typically returns a Variant of VarType 8 (String).
string$	An expression that evaluates to a string.

Comments The translation is based on the country specified in the Windows Control Panel.

UCase accepts expressions of type string. UCase accepts any type of argument and will convert the input value to a string.

If the value of *string$* is Null, a Variant of VarType 1 (Null) is returned.

Example This example converts a file name entered by a user to all uppercase letters.

```
Option Base 1
Sub main
   Dim filename as String
   filename=InputBox("Enter a filename: ")
   filename=UCase(filename)
   MsgBox "The filename in uppercase is: " & filename
End Sub
```

See Also Asc
LCase

Unlock
Statement

Description Restores access to an open file (releases the lock).

Syntax **Unlock** [#]*filenumber%* [, {*record&* | [*start&*] To *end&*}]

Syntax Element	Description
filenumber%	An integer expression identifying the open file.
record&	Number of the starting record to unlock.

► ► ►

► ► ►

Syntax Element	Description
start&	Number of the first record or byte offset to lock/unlock.
end&	Number of the last record or byte offset to lock/unlock.

Comments

The *filenumber%* is the number used in the Open statement of the file.

For Binary mode, *start&*, and *end&* are byte offsets. For Random mode, *start&*, and *end&* are record numbers. If *start&* is specified without *end&*, only the record or byte at *start&* is locked. If To *end&* is specified without *start&*, all records or bytes from record number or offset 1 to *end&* are locked.

For Input, Output and Append modes, *start&*, and *end&* are ignored and the whole file is locked.

Lock and Unlock always occur in pairs with identical parameters. All locks on open files must be removed before closing the file, or unpredictable results occur.

Example

This example locks a file that is shared by others on a network, if the file is already in use. The second sub procedure, CREATEFILE, creates the file used by the main sub procedure.

```
Declare Sub createfile
Sub main
   Dim btngrp, icongrp
   Dim defgrp
   Dim answer
   Dim noaccess as Integer
   Dim msgabort
   Dim msgstop as Integer
   Dim acctname as String
   noaccess=70
   msgstop=16
   Call createfile
   On Error Resume Next
   btngrp=1
   icongrp=64
   defgrp=0
   answer=MsgBox("Open the account file?" & Chr(10),
        btngrp + icongrp + defgrp)
   If answer=1 then
      Open "C:\TEMP001" for Input as #1
      If Err=noaccess then
         msgabort=MsgBox("File Locked",msgstop,"Aborted")
      Else
         Lock #1
         Line Input #1, acctname
         MsgBox "The first account name is: " & acctname
         Unlock #1
      End If
      Close #1
   End If
```

```
Kill "C:\TEMP001"
End Sub

Sub createfile()
   Rem Put the letters A-J into the file
   Dim x as Integer
   Open "C:\TEMP001" for Output as #1
   For x=1 to 10
      Write #1, Chr(x+64)
   Next x
   Close #1
End Sub
```

See Also `Lock`
`Open`

UserDefinedTC

Verification Point Command

This command is obsolete and should not be used. It continues to be supported to maintain the upward compatibility of your existing scripts.

Val

Function

Description

Returns the numeric value of the first number found in the specified string.

Syntax

`Val`(*`string$`*)

Syntax Element	Description
`string$`	A string expression containing a number.

Comments

If no number is found, `Val` returns 0.

`Val` ignores spaces anywhere in the source string. Val also ignores non-numeric characters that appear after the number. If non-numeric characters appear before the number, `Val` returns 0.

Example

This example tests the value of the variable profit and displays 0 for profit if it is a negative number. The sub procedure uses Sgn to determine whether profit is positive, negative or zero.

```
Sub main
    Dim profit as Single
    Dim expenses
    Dim sales
    expenses=InputBox("Enter total expenses: ")
    sales=InputBox("Enter total sales: ")
    profit=Val(sales)-Val(expenses)
    If Sgn(profit)=1 then
        MsgBox "Yeah! We turned a profit!"
    ElseIf Sgn(profit)=0 then
        MsgBox "Okay. We broke even."
    Else
        MsgBox "Uh, oh. We lost money."
    End If
End Sub
```

See Also

CCur	CSng	Format
CDbl	CStr	Str
CInt	CVar	
CLng	CVDate	

VarType

Function

Description

Returns the Variant type of the specified Variant variable (0-9).

Syntax

VarType(*varname*)

Syntax Element	Description
varname	The `Variant` variable to use.

Comments

The value returned by `VarType` is one of the following:

Ordinal	Representation
0	(Empty)
1	Null
2	Integer
3	Long
4	Single
5	Double
6	Currency
7	Date
8	String
9	Object

Example

This example returns the type of a variant.

```
Sub main
   Dim x
   Dim myarray(8)
   Dim retval
   Dim retstr
   myarray(1)=Null
   myarray(2)=0
   myarray(3)=39000
   myarray(4)=CSng(10^20)
   myarray(5)=10^300
   myarray(6)=CCur(10.25)
   myarray(7)=Now
   myarray(8)="Five"
   For x=0 to 8
      retval=Vartype(myarray(x))
      Select Case retval
         Case 0
            retstr=" (Empty)"
         Case 1
            retstr=" (Null)"
         Case 2
            retstr=" (Integer)"
         Case 3
            retstr=" (Long)"
         Case 4
            retstr=" (Single)"
         Case 5
            retstr=" (Double)"
         Case 6
            retstr=" (Currency)"
         Case 7
            retstr=" (Date)"
         Case 8
            retstr=" (String)"
      End Select
      If retval=1 then
         myarray(x)="[null]"
      ElseIf retval=0 then
         myarray(x)="[empty]"
      End If
      MsgBox "The variant type for " &myarray(x) & " is:
           " &retval &retstr
   Next x
End Sub
```

See Also `IsDate` `IsNull` `IsEmpty` `IsNumeric`

WebSiteVP

Verification Point Command

▸▸▸SQA▸

Description Tests for defects (such as missing or broken links) on a Web site, or compares Web sites.

Syntax *Result* = **WebSiteVP**(*action%*,"",*parameters$*)

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `SiteCheck`. Scans for defects on a single Web site. ▸ `Compare`. Compares two Web sites. These can be the same Web site at two different periods of time, mirror sites, or different Web sites. *`parameters$`* `VP` is required; `ExpectedResult` is optional.
`""`	The second argument is always left blank.
parameters$	Valid values: ▸ `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ▸ `VP=`*`$`*. The verification point ID. IDs must be unique within a script. Required for all verification points.

Comments

This function returns 1 if the verification point passes or 0 if the verification point fails.

When *`action`* is set to `SiteCheck`, `WebSiteVP` tests for the type of defects that you specify in the Rational SiteCheck Scan Options dialog box. You specify the types of defects to test for when you select the Web Site Scan verification point during recording (click Insert → Verification Point → Web Site Scan).

You can use the SiteCheck setting to save the current version of a site in a site map. Then, you can perform a `WebSiteVP Compare` and use this site map as a baseline to compare against a later version of the site.

When *`action`* is set to `Compare`, `WebSiteVP` compares a baseline site and a comparison site. For example, you can compare a previously saved site map with the current version of a site, compare mirror sites, or compare any two sites. The comparison is based on files that have been added, modified, or deleted since the baseline scan. The comparison involves these areas:

- HTML files
- Image files
- Orphan files

- External links
- Other files and links

A `WebSiteVP` verification point passes if no defects or differences are found in any of the areas you specify on the Scan Options dialog box. If one or more defects or differences are found in any of the areas you specify, the verification point fails.

Both PASS and FAIL results are reported in the LogViewer. For an explanation of any failure, double-click on the entry in the LogViewer.

For information about SiteCheck, see the Rational SiteCheck Help.

Example

This example establishes the Web site verification point CKLINKSA.

```
Result = WebSiteVP(SiteCheck,"","VP=CKLINKSA")
```

See Also

None.

Weekday
Function

Description

Returns the day of the week for the specified date-time value.

Syntax

`Weekday`(*`date`*)

Syntax Element	Description
`date`	An expression containing a date time value.

Comments

The `Weekday` function returns an integer between 1 and 7, inclusive (`1` = Sunday, `7` = Saturday).

`Weekday` accepts any expression, including strings, and attempts to convert the input value to a date value.

The return value is a `Variant` of VarType 2 (Integer). If the value of *`date`* is NULL, a Variant of VarType 1 (Null) is returned.

Example

This example finds the day of the week on which New Year's Day will fall in the year 2000.

```
Sub main
   Dim newyearsday
   Dim daynumber
   Dim msgtext
   Dim newday as Variant
```

```
    Const newyear=2000
    Const newmonth=1
    Let newday=1
    newyearsday=DateSerial(newyear, newmonth, newday)
    daynumber=Weekday(newyearsday)
    msgtext="New Year's day 2000 is a " & Format(daynumber, "dddd")
    MsgBox msgtext
End Sub
```

See Also

Date function	Hour	Now
Date statement	Minute	Second
Day	Month	Year

While...Wend

Statement

Description

Controls a repetitive action.

Syntax

```
While condition
   statement_block
Wend
```

Syntax Element	Description
condition	An expression that evaluates to TRUE (non-zero) or FALSE (zero).
statement_block	A series of statements to execute if *condition* is TRUE.

Comments

The *statement_block* statements are until *condition* becomes 0 (FALSE).

The While statement is included in SQABasic for compatibility with older versions of Basic. The Do statement is a more general and powerful flow control statement.

Example

This example opens a series of customer files and checks for the string *Overdue* in each file. It uses While...Wend to loop through the C:\TEMP00? files. These files are created by the sub procedure CREATEFILES.

```
Declare Sub createfiles
Sub main
   Dim custfile as String
   Dim aline as String
   Dim pattern as String
   Dim count as Integer
   Call createfiles
   Chdir "C:\"
   custfile=Dir$("TEMP00?")
   pattern="*" + "Overdue" + "*"
   While custfile <> ""
```

```
      Open custfile for input as #1
      On Error goto atEOF
      Do
          Line Input #1, aline
          If aline Like pattern Then
             count=count+1
          End If
      Loop
nxtfile:
      On Error GoTo 0
      Close #1
      custfile = Dir$
   Wend
   If count<>0 then
      MsgBox "Number of overdue accounts: " & count
   Else
      MsgBox "No accounts overdue"
   End If
   Kill "C:\TEMP001"
   Kill "C:\TEMP002"
   Exit Sub
atEOF:
   Resume nxtfile
End Sub

Sub createfiles()
  Dim odue as String
  Dim ontime as String
  Dim x
  Open "C:\TEMP001" for OUTPUT as #1
  odue="*" + "Overdue" + "*"
  ontime="*" + "On-Time" + "*"
  For x=1 to 3
     Write #1, odue
  Next x
  For x=4 to 6
     Write #1, ontime
  Next x
  Close #1
  Open "C:\TEMP002" for Output as #1
  Write #1, odue
  Close #1
End Sub
```

See Also `Do...Loop`

Width

Statement

Description Sets the output line width for an open file.

Syntax **Width** [#]*filenumber%*, *width%*

Syntax Element	Description
filenumber%	An integer expression for the open file to use.
width%	An integer expression for the width of the line (0 to 255).

Comments

Filenumber% is the number assigned to the file when it is opened. See the Open statement for more information.

A value of zero (0) for *width%* indicates there is no line length limit. The default *width%* for a file is zero (0).

Example

This example puts five spaces and the string ABCD to a file. The five spaces are derived by taking 15 MOD 10, or the remainder of dividing 15 by 10.

```
Sub main
   Dim str1 as String
   Dim x as String*10

   str1="ABCD"
   Open "C:\TEMP001" For Output As #1
   Width #1, 10
   Print #1, Spc(15); str1
   Close #1
   Open "C:\TEMP001" as #1 Len=12
   Get #1, 1,x
   MsgBox "The contents of the file is: " & x
   Close #1
   Kill "C:\TEMP001"
End Sub
```

See Also

Open
Print

Window

User Action Command

▸▸▸SQA▸

Description

Performs an action on a window.

Syntax

Window *action%, recMethod$, parameters$*

Syntax Element	Description

action%	Valid values:
	▸ `CloseWin`. Closes the specified window. *parameters$* is left blank for this action, as in:
	`Window CloseWin, "Caption=App1", ""`
	▸ *MouseClick*. The clicking of the left, center, or right mouse button, either alone or in combination with one or more shifting keys (Ctrl, Alt, Shift). When *action%* contains a mouse-click value, *parameters$* must contain `Coords=`*x,y*.
	▸ *MouseDrag*. The dragging of the mouse while mouse buttons and/or shifting keys (Ctrl, Alt, Shift) are pressed. When *action%* contains a mouse-drag value, *parameters$* must contain `Coords=`*x1,y1,x2,y2*.
	See Appendix E for a list of mouse click and drag values.
	▸ `MoveTo`. A repositioning action for which the *x,y* coordinates specify the position of the top left corner to which the window is to be moved, relative to its parent window, as in:
	`Window MoveTo, "Caption=Mortgage-Prequalifier", "Coords=99,109"`
	▸ `OpenIcon`. Opens an iconized window. *parameters$* is left blank for this action, as in:
	`Window OpenIcon, "Caption=App1", ""`
	▸ `ResetTestContext`. Restores the test context to be the context window. In other words, the test context is set back to its state prior to the last `SetTestContext` action.
	▸ `Resize`. Resizes the specified window, based on its top left and bottom right coordinates (*x1,y1,x2,y2*) as in:
	`Window Resize, "Caption=Program Manager", "Coords=5,2,100,80"`
	▸ `RestorePos`. Restores the specified window to its original size and position. *parameters$* is left blank for this action, as in:
	`Window RestorePos,"Caption=App1",""`

► ► ►

► ► ►

Syntax Element	Description

	► *ScrollAction*. One of these scroll actions:
	`ScrollPageRight` `ScrollPageDown`
	`ScrollRight` `ScrollLineDown`
	`ScrollPageLeft` `ScrollPageUp`
	`ScrollLeft` `ScrollLineUp`
	`HScrollTo` `VScrollTo`
	`HScrollTo` and `VScrollTo` take the required parameter `Position=%`.
	If Robot cannot interpret the action being applied to a scroll bar, which happens with certain custom standalone scroll bars, it records the action as a click or drag.
	► `SetContext`. Establishes the context window for all Object commands that follow.
	During playback, Robot locates the specified window. If the window is the active window, it remains active. If the window is not the active window, Robot takes one of these actions:
	– If *`parameters$`* is an empty string (`""`) or contains `Activate=1`, Robot makes the window the active window.
	– If *`parameters$`* contains `Activate=0`, Robot will not make the window the active window.
	– If *`recMethod$`* does not contain the `State=Disabled` qualifier, Robot makes the window the active window.
	Setting the context window defines an internal state for Robot. If this command fails during playback (for example, if the specified window cannot be found), an error is logged, but playback continue regardless of the playback option for script command failures.
	The context for all Object commands that follow is assumed to be the current context window. For example, when Robot plays back a Command button command, it assumes the button is in the current context window.

► ► ►

► ► ►

Syntax Element	Description

	► `SetPosition`. Sets the size, position, and state of a window. The position is specified by the top left coordinates (*`x1, y1`*) relative to the parent window or Desktop. The width is specified by *`x2`*, and the height by *`y2`*. The state is specified by one of the following keywords: `MINIMIZED`, `MAXIMIZE`, or `NORMAL`. For example:
	`Window SetPosition, "Caption=File", "Coords=5,2,100,80;Status=NORMAL"`
	► `SetTestContext`. Establishes the test context for subsequent verification point commands. It has no effect on standard Object commands. *`parameters$`* is left blank for this action, as in:
	`Window SetTestContext, "Caption=Classics Online", ""`
	By default, the test context is the same as the context window as set by the `SetContext` action. `SetTestContext` is used when you need to insert a verification point for an object or window that is outside of the current context window (for example, if you want to test the properties of a button in one dialog box while acting on a different dialog box).
	Note: The `SetContext` action sets both the context window and the test context. In other words, `SetContext` overrides any prior `SetTestContext` action.
	► `WMaximize`. Maximizes the specified window. *`parameters$`* is left blank for this action, as in:
	`Window WMaximize, "Caption=Classics Online", ""`
	► `WMinimize`. Minimizes the specified window. *`parameters$`* is left blank for this action, as in:
	`Window WMinimize, "Caption=Classics Online", ""`

► ► ►

► ► ►

Syntax Element	Description

recMethod$	Valid values:
	► `[empty quotes]`. If the recognition method is empty, Robot performs the action on the current context window, as specified by the last `SetContext` action. For example, the following commands minimize the window identified by the caption `App1`:
	`Window SetContext,"Caption=App1",""`
	`Window WMinimize, "", ""`
	► `Caption=$`. The text that appears in the window's title bar. 512 characters maximum. The wildcards ? and * are supported. (See *Establishing Context through a Window Command* in Chapter 4 for information.)
	► `ChildWindow`. Indicates that the window specified by the recognition method is a child of the current context window. It is only used in conjunction with another method. This qualifier is necessary when setting the context or acting upon windows that are children of other windows.
	The following example minimizes the window Book1 in Microsoft Excel:
	`Window SetContext,`
	`"Caption=Microsoft Excel",""`
	`Window WMinimize,`
	`"Caption=Book1;ChildWindow",""`
	► `Class=$`. The window's class name.
	► `CurrentWindow`. Sets the context to the currently-active window. Used only programmatically, as in:
	`Window SetContext,"CurrentWindow",""`
	This recognition method is useful when you want to set the context or act upon the window that is currently active, even though that may not be the same window each time the command is played back. This recognition method should not be used in conjunction with any other recognition methods.

► ► ►

► ► ►

Syntax Element	Description
	► `Level=%`. `Level` is combined with another recognition method when the other method does not uniquely identify the windows. For example, if there are multiple windows with the same caption, and `Caption` is the recognition method being used. The `Level` qualifier tells Robot which one of the similarly-identified windows should be targeted for the action, based on the Windows' Z-Order. The first window is assigned `Level=1`, the second `Level=2`, and so on. `Level` serves as a clarifier only and is used only after all other methods have been attempted. ► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1. ► `State=$`. An optional qualifier for any other recognition method. There are two possible values for this setting: `Enabled` and `Disabled`. When Robot looks for a specified window, it checks the state of that window against an expected value (`State=Enabled` is the default). Robot only records this setting if the object is disabled. ► `VisualText=$`. An optional setting used to identify an object by its visible text. It is for user clarification only and does not affect object recognition. ► `WindowTag=$`. An optional setting used during Web testing to identify a particular instance of the browser. If a browser ID exists, it is defined in the `StartBrowser` command.
parameters$	Valid values: ► If *action%* is `SetContext`, *parameters$* contains one of these values: – `Activate=1`. Robot makes the window the active window. This is the default setting. If *parameters$* is an empty string (`""`), Robot makes the window the active window. – `Activate=0`. Robot does not make the window the active window.

► ► ►

► ► ►

Syntax Element	Description
	Note: During recording, Robot generates a *parameters$* value of either "" if the window is to be made the active window, or Activate=0 if the window is not to be made the active window. ► Coords=*x,y*. If *action%* is a mouse click, specifies the *x*,*y* coordinates of the click, relative to the top left of the object. If *action%* is MoveTo, specifies the *x*,*y* coordinates to which the window object is to be moved. The coordinates are relative to the top left of the parent window or Desktop, if there is no parent. ► Coords=*x1,y1,x2,y2*. If *action%* is a mouse drag, specifies the coordinates, where *x1,y1* are the starting coordinates of the drag, and *x2,y2* are the ending coordinates. The coordinates are relative to the top left of the object. If *action%* is Resize or SetPosition, the coordinates correspond to the top left and bottom right coordinates of the resized window. If *action%* is SetPosition, the "Status=" parameter is also used. ► Position=*%*. If *action%* is VScrollTo or HScrollTo, specifies the scroll bar value of the new position of the scroll box Every scroll bar has an internal range and this parameter value is specific to that range. ► Status=*$*. If *action%* is SetPosition, specifies the state of the window: NORMAL, MINIMIZED or MAXIMIZED.

Comments

In this document, a *window* is a top-level object on the desktop. For example, a dialog box is typically a top-level desktop object.

Example

This example double-clicks the window identified by the caption International at the *x*,*y* coordinates of 184,15.

```
Window DblClick, "Caption=International","Coords=184,15"
```

See Also

ComboListBox ListBox
EditBox ScrollBar

WindowVP

Verification Point Command

Description Establishes a verification point for a window.

Syntax `Result = WindowVP (action%, recMethod$, parameters$)`

Syntax Element	Description
action%	The type of verification to perform. Valid values: ▸ `CompareDataWindow`. Captures the data stored in the PowerBuilder DataWindow and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. **Note**: This action is only used when the DataWindow object is a Window itself. ▸ `CompareImage`. Captures a bitmap image of the specified window and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareMenu`. Captures the specified window's menu information and compares it to a recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareNumeric`. Captures the numeric value of the text of the object and compares it to the value of *parameters$* `Value` or `Range`. *parameters$* `VP` and either `Value` or `Range` are required; `ExpectedResult` and `Wait` are optional. ▸ `CompareProperties`. Captures the object properties information of the Window and all of its children, and compares this to the recorded baseline. *parameters$* `VP` is required; `ExpectedResult` and `Wait` are optional. ▸ `CompareText`. Captures the text in the title bar of a specified window and compares it to a recorded baseline. *parameters$* `VP` and `Type` are required; `ExpectedResult` and `Wait` are optional.

► ► ►

► ► ►

Syntax Element	Description
	► `DoesNotExist`. Checks whether a specified window no longer exists at playback. *`parameters$`* `VP` is required; `ExpectedResult`, `Status`, and `Wait` are optional. **Note**: This action cannot be accessed during recording. It must be inserted manually. ► `Exists`. Checks whether a specified window exists at playback. *`parameters$`* `VP` is required; `ExpectedResult`, `Status`, and `Wait` are optional.
`recMethod$`	Valid values: ► `[empty quotes]`. If the recognition method is empty, Robot performs the action on the current test context window, as specified by the last `SetContext` or `SetTestContext` action. ► `Caption=$`. The text that appears in the window's title bar. 512 characters maximum. The wildcards ? and * are supported. (See *Establishing Context through a Window Command* in Chapter 4 for information.) ► `ChildWindow`. Indicates that the window specified by the recognition method is a child of the current context window. It is only used in conjunction with another method. This qualifier is necessary when acting upon windows that are children of other windows. ► `Class=$`. The window's class name. ► `CurrentWindow`. Specifies the windows that is currently active. This recognition method is useful when you want to act upon the active window, even though that may not be the same window each time the command is played back. This recognition method should not be used in conjunction with any other methods. ► `Level=%`. `Level` is combined with another recognition method when the other recognition method does not uniquely identify the windows. For example, if there are multiple windows with the same caption, and `Caption` is the recognition method being used. The `Level` qualifier tells Robot which one of the similarly-identified windows should be targeted for the action, based on the Windows' Z-Order. The first window is assigned `"Level=1"`, the second `"Level=2"`, and so on. `Level` serves as a clarifier only and is used only after all other methods have been attempted.

► ► ►

► ► ►

Syntax Element	Description
	► `Name=$`. A name that a developer assigns to an object to uniquely identify the object in the development environment. For example, the object name for a command button might be Command1.
parameters$	Valid values: ► `ExpectedResult=%`. Specifies whether you expect this verification point to pass (baseline result matches playback result) or fail (baseline result does not match playback result). Valid values: – `PASS`. The default. If the baseline and playback results match as expected, the LogViewer reports Pass. If they do not match, the LogViewer reports Fail. – `FAIL`. If the baseline and playback results do not match as expected, the LogViewer reports Pass. If they do match, the LogViewer reports Fail. ► `Range=&,&`. Used with the action `CompareNumeric` when a numeric range comparison is being performed, as in `Range=2,12` (test for numbers in this range). The values are inclusive. ► `Status=$`. An optional parameter used with the Exists action. When used, the status of the window is also verified. The possible values for this parameter are: `NORMAL`, `MINIMIZED`, and `MAXIMIZED` ► `Type=$`. Specifies the verification method to use for `CompareText` actions. The possible values are: `CaseSensitive`, `CaseInsensitive`, `FindSubStr`, `FindSubStrI` (case insensitive), and `UserDefined`. See *Comments* for more information. If `UserDefined` is specified, two additional parameters are required: – `DLL=$`. The full path and file name of the library that contains the function – `Function=$`. The name of the custom function to use in comparing the text. For example: `Result = WindowVP (CompareText, "Class=MyWndClass", "VP=UDTEXT;Type=UserDefined; DLL=C:\MYFUNC.DLL; Function=VerifyLength")`

► ► ►

▶ ▶ ▶

Syntax Element	Description
	▶ `Value=&`. Used with the action `CompareNumeric` when a numeric equivalence comparison is being performed, as in `Value=25` (test against the value 25). ▶ `VP=$`. The verification point ID. IDs must be unique within a script. Required for all verification points. ▶ `Wait=%,%`. A Wait State that specifies the verification point's Retry value and a Timeout value, as in `Wait=10,40` (retry the test every 10 seconds, but time out the test after 40 seconds).

Comments

This function returns 1 if the action performed passes or 0 if the action performed fails. See the LogViewer for an explanation of any failures.

In this document, a *window* is a top-level object on the desktop. For example, a dialog box is typically a top-level desktop object.

With the `Type=$` parameter, `CaseSensitive` and `CaseInsensitive` require a full match between the current baseline text and the text captured during playback. With `FindSubStr` and `FindSubStrI`, the current baseline can be a substring of the text captured during playback. The substring can appear anywhere in the playback text. To modify the current baseline text, double-click the verification point name in the Robot Asset pane (to the left of the script).

Verification points that check for a window's existence are not kept in the datastore and do not appear in Robot's Asset pane.

Example

This example captures a bitmap image of the window identified by the Caption `Paint` and compares it to a recorded baseline in verification point `PICT1A`.

```
Result = WindowVP (CompareImage, "Caption=Paint", "VP=PICT1A")
```

See Also

`ComboListBoxVP` `ListBoxVP`
`EditBoxVP` `ScrollBarVP`

With

Statement

Description

Executes a series of statements on a specified variable.

Syntax

```
With variable
   statement_block
End With
```

Syntax Element	Description
variable	The variable to be changed by the statements in *statement_block*.
statement_block	The statements to execute.

Comments

Variable can be an `Object` data type or a `user-defined` data type.

`With` statements can be nested.

Example

This example creates a user-defined data type named CustType, declares an instance of the data type called Customer, then uses the `With` statement to fill in values for the fields in `Customer`.

```
Type CustType
   name as String
   ss as String
   salary as Single
   dob as Variant
   street as String
   apt as Variant
   city as String
   state as String
End Type

Sub main
   Dim Customer as CustType
   Dim msgtext
   With Customer
      .name="John Jones"
      .ss="037-67-2947"
      .salary=60000
      .dob=#10-09-65#
      .street="15 Chester St."
      .apt=28
      .city="Cambridge"
      .state="MA"
   End With
   msgtext=Chr(10) & "Name:" & Space(5) & Customer.name & Chr(10)
   msgtext=msgtext & "SS#: " & Space(6) & Customer.ss & chr(10)
   msgtext=msgtext & "D.O.B:" & Space(4) & Customer.dob
   MsgBox "Done with: " & Chr(10) & msgtext
End Sub
```

See Also

`Type...End Type`

Write
Statement

Description Writes data to an open sequential file.

Syntax **Write** *#filenumber%* [,*expressionlist*]

Syntax Element	Description
filenumber%	An integer expression for the open file to use.
expressionlist	One or more values to write to the file.

Comments The file must be opened in Output or Append mode. *filenumber%* is the number assigned to the file when it is opened. See the Open statement for more information.

If *expressionlist* is omitted, the Write statement writes a blank line to the file. (See Input for more information.)

Example This example writes a variable to a disk file based on a comparison of its last saved time and the current time.

```
Sub main
   Dim tempfile
   Dim filetime, curtime
   Dim msgtext
   Dim acctno(100) as Single
   Dim x, I
   tempfile="C:\TEMP001"
   Open tempfile For Output As #1
   filetime=FileDateTime(tempfile)
   x=1
   I=1
   acctno(x)=0
   Do
      curtime=Time
      acctno(x)=InputBox("Enter an account number (99 to end):")
      If acctno(x)=99 then
         If x=1 then Exit Sub
         For I=1 to x-1
            Write #1, acctno(I)
         Next I
         Exit Do
      ElseIf (Minute(filetime)+2)<=Minute(curtime) then
         For I=I to x-1
            Write #1, acctno(I)
         Next I
      End If
      x=x+1
   Loop
   Close #1
   x=1
   msgtext="Contents of C:\TEMP001 is:" & Chr(10)
```

```
   Open tempfile for Input as #1
Do While Eof(1)<>-1
      Input #1, acctno(x)
      msgtext=msgtext & Chr(10) & acctno(x)
      x=x+1
   Loop
   MsgBox msgtext
   Close #1
   Kill "C:\TEMP001"
End Sub
```

See Also `Close` `Print` `Open` `Put`

WriteTestCaseResult

Utility Command

This command is obsolete and should not be used. It continues to be supported to maintain the upward compatibility of your existing scripts.

Year

Function

Description

Returns the year component of a date or date/time value.

Syntax

`Year`(*`date`*)

Syntax Element	Description
`date`	A date or date/time value.

Comments

`Year` returns a year between 100 and 9999, inclusive.

`Year` accepts valid date and date/time formats, including numbers and strings, and will attempt to convert the input value to a date value. Examples of valid *`date`* values:

```
12/27/98
12/27/98 11:53:49 AM
Dec 27 1948
27 Dec 1948
December 27, 1998
```

The return value is a `Variant` of `VarType` 2 (`Integer`). If the value of *`date`* is NULL, a `Variant` of `VarType 1` (Null) is returned.

With this function, a two-digit year is converted to a four-digit year, as follows:

- 00 through 29 is converted to 2000 through 2029
- 30 through 99 is converted to 1930 through 1999

When exchanging data information with external data sources or external programs, you should use double-precision floating point numbers or data strings with at least four characters for identifying the century.

Example

This example returns the year for the current date.

```
Sub main
    Dim nowyear
    nowyear=Year(Now)
    MsgBox "The current year is: " &nowyear
End Sub
```

See Also

Date function	Month
Date statement	Now
Day	Second
Hour	Time function
Minute	Weekday

Year

▸ ▸ ▸ Appendixes

▸ ▸ ▸ A p p e n d i x A

SQABasic Syntax Summary

Arguments

Arguments are separated by commas. Arguments are sometimes enclosed in parentheses, as follows:

- **Function** arguments are always enclosed in parentheses. See the *Function* section for more information.
- **Sub procedure** arguments are not enclosed in parentheses *unless* you use the Call statement. See the *Sub Procedure* section for more information.
- If you're passing an argument *by value*, enclose that particular argument in parentheses:

```
Call MySub((x),y)
```

Array Dimensions

When declaring an array, list the array dimensions after the array name. Array dimensions are separated by commas and enclosed in parentheses:

```
Dim arrayname (6, 8, 500) As Integer
```

Array Elements

A particular element in an array is specified through the index value of each dimension:

```
Dim MyArray(10, 50) As String       ' First declare the array
Dim x, y
...
' Now check every element for an empty string
For x = 0 to 10
    For y = 0 to 50
        If MyArray(x,y) = "" then
            GoTo ErrorRoutine
        End If
    Next y
Next x
```

Array Subscripts

Typically, only the subscript that sets the upper bound of an array dimension is specified (as shown in *Array Dimensions* above). When the lower-bound subscript is omitted, the lower bound defaults to either 0 or 1 (depending on the value of the `Option Base` statement.

However, both the lower-bound and the upper-bound subscript can be specified, as follows:

```
Dim arrayname (3 To 6, -8 To 8, 1 To 500) as Integer
```

Comments

Comments are prefixed by an apostrophe (') or the statement REM. The SQABasic compiler ignores comments:

```
Const SIZE = 10              ' Set the size constant
```

NOTE: The metacommands `'$CStrings`, `'$Include`, and `'$NoCStrings` are exceptions. Even though their names begin with an apostrophe, the SQABasic compiler considers them to be commands, not comments.

Context Notation

Object context can be set through backslash (\ ) and dot-backslash (.\ ) notation. These characters appear in the recognition method (*`recMethod`*) argument of commands and are delimited by semicolons (;):

```
' Requires MyGrid to be in a window named MyWindow
"\;Name=MyWindow;\;Name=MyGrid;\;Name=MyColumn"

' MyGrid can be in whatever window is the current context window
".\;Name=MyGrid;\;Name=MyColumn"
```

Functions

Functions return a value. They have a slightly different calling syntax than sub procedures:

```
' Use this form to retrieve the return value
ReturnValue=MyFunction([argument1,argumentn)

' Use this form to ignore the return value
Call MyFunction(argument1,argumentn)
```

Labels

Labels allow you to jump to a particular line of code.

A label has the same format as any other SQABasic name. Keywords (such as command names) are reserved words and are not valid labels.

To be recognized as a label, a name must begin in the first column of a line of code, and must be immediately followed by a colon (:).

Use the `GoTo` statement to jump to the label:

```
GoTo MyLabel
.
.
.
MyLabel:
```

Line Continuation Syntax

Line continuation syntax allows long statements to extend to the next physical line. Line continuation syntax consists of a space character followed by an underscore character (_):

```
Dim trMonth As Integer,  _        ' Month of transaction
    trYear As Integer             ' Year of transaction
```

Note that you can add a comment after the underscore.

Line Numbers

Line numbers are not supported in SQABasic.

Names

An SQABasic name (such as variable and label names) must start with a letter (A through Z, a through z). The remaining part of a name can also contain numeric digits (0 through 9) or an underscore character (_). A name cannot be more than 40 characters in length. Type-declaration characters are not considered part of a name.

Parameters (***parameters$***) Argument

Parameter values are used in many user action and verification point commands. If more than one parameter is listed, separate them with semicolons (;):

```
Result = CheckBoxVP (CompareProperties, "Text=Read Only", _
    "CaseID=VPTEN;Wait=6,30")
```

Recognition Method (*recMethod$*) Argument

The *recMethod$* arguments are used in many user action and verification point commands. If more than one recognition method is listed, separate them with semicolons (;):

```
Result = FileVP (Compare, _
    "File1= MYPROG.EXE;File2=C:\OLDPROG.EXE", _
    "CaseID=FCMYPROG")
```

Strings

Strings are enclosed in double quotation marks ("):

```
CustName = "Robert Lentz"
```

Sub Procedures

Sub procedures don't return a value. They have a slightly different calling syntax than functions:

```
' If using this form, you need parentheses around your arguments
Call MySubProc (argument1, argumentn)

' If using this form, omit the parentheses
MySubProc argument1,argumentn
```

Variables of User-Defined Type

Variables of User-Defined type use dot notation to separate the name of the variable from its elements:

```
Cust.fName = "John"           ' Customer's first name
Cust.lName = "Smith"          ' Customer's last name
Cust.ID = 12345               ' Customer's unique ID
```

▸ ▸ ▸ Appendix B

Trappable Error Codes

The following table lists the runtime errors SQABasic returns. These errors can be trapped through the `On Error` statement.

Use the `Err` function to query the error code, and use the `Error` function to query the error text.

Code	Error Text	Code	Error Text
5	Illegal function call	70	Permission denied
6	Overflow	71	Disk not ready
7	Out of memory	74	Can't rename with different drive
9	Subscript out of range	75	Path/File access error
10	Duplicate definition	76	Path not found
11	Division by zero	91	Object variable set to Nothing
13	Type Mismatch	93	Invalid pattern
14	Out of string space	94	Illegal use of NULL
19	No Resume	102	Command failed
20	Resume without error	429	Object creation failed
28	Out of stack space	438	No such property or method
35	Sub or Function not defined	439	Argument type mismatch
48	Error in loading DLL	440	Object error
52	Bad file name or number	901	Input buffer would be larger than 64K
53	File not found	902	Operating system error

Code	Error Text	Code	Error Text
54	Bad file mode	903	External procedure not found
55	File already open	904	Global variable type mismatch
58	File already exists	905	User-defined type mismatch
61	Disk full	906	External procedure interface mismatch
62	Input past end of file	907	Push button required
63	Bad record number	908	Module has no MAIN
64	Bad file name	910	Dialog box not declared
68	Device unavailable		

▸ ▸ ▸ Appendix C

Object Scripting Status Codes

The following table contains the Integer values that are returned from the SQABasic Object Scripting commands:

Numeric	Literal	Description
0	`sqaSuccess`	Command executed successfully.
1001	`sqaNoObjectSpecified`	*`Recognition Method`* is empty.
1002	`sqaInvalidRecString`	Invalid syntax in *`Recognition Method`*.
1003	`sqaObjectNotFound`	The specified object couldn't be found.
1004	`sqaNoPropertySpecified`	The *`property$`* argument is empty.
1005	`sqaPropertyNotFound`	The specified property couldn't be found.
1006	`sqaErrorGettingProperty`	An error occurred while getting a property value.
1007	`sqaArraysNotSupported`	No index was specified for an array of property values.
1008	`sqaPropertyIsNotArray`	An index was specified for a property that does not contain an array of values.
1009	`sqaPropertyHasNoValue`	The property has no value or is currently not applicable. A property that has no value is not the same as a property with a value of 0 or null. For example, the ItemSelected property for an empty list box has no value.
1010	`sqaPropertyNotSupported`	The property is not supported. This status typically results when the operating system you're testing on doesn't support a property — for example, the NumbersOnly property for an edit box isn't supported under 16-bit Windows.

▸ ▸ ▸

► ► ►

Numeric	Literal	Description
1011	`sqaUnableToConvertString`	Can't convert the specified property value to a `String`.
1012	`sqaPropertyIsReadOnly`	The property value is read-only and can't be modified.
1013	`sqaInvalidDataType`	The data type of the property can't be converted to a `Variant`. With `SQASetProperty` commands, the type (`VarType`) of `Variant` can't be converted to a property.
1014	`sqaInvalidPropertyValue`	Invalid property value. For example, this error occurs if you try to set the State property for a check box to a value that is not one of the property's choices (Checked or Unchecked).
1015	`sqaIndexOutOfBounds`	The array index is not within the bounds of the array.
1016	`sqaTimeout`	The specified object couldn't be found within the specified time, or (with SQA`WaitForPropertyValue`) was not equal to the specified time.
1017	`sqaNoMethodSpecified`	No method was specified in *`Object Method`*.
1018	`sqaMethodNotFound`	The method specified in *`Object Method`* doesn't exist.
1019	`sqaErrorInvokingMethod`	An error occurred while attempting to execute the method. A likely cause is either that the method doesn't exist or the method arguments are invalid.
1020	`sqaErrorSettingProperty`	An error occurred while setting a property value with `SQASetProperty`.
1030	`sqaOutOfMemory`	There isn't enough memory to run this command.
1031	`sqaUserAbort`	The operation was canceled — for example, by pressing F11.
1040	`sqaUnknownError`	An unknown error occurred.

▸ ▸ ▸ A p p e n d i x D

Derived Trigonometric Functions

Many trigonometric operations can be constructed from built-in functions:

Function	Computed By
Secant	`Sec(x) = 1/Cos(x)`
CoSecant	`CoSec(x) = 1/Sin(x)`
CoTangent	`CoTan(x) = 1/Tan(x)`
ArcSine	`ArcSin(x) = Atn(x/Sqr(-x*x+1))`
ArcCosine	`ArcCos(x) = Atn(-x/Sqr(-x*x+1))+1.5708`
ArcSecant	`ArcSec(x) = Atn(x/Sqr(x*x-1))+Sgn(x-1)*1.5708`
ArcCoSecant	`ArcCoSec(x) = Atn(x/Sqr(x*x-1))+(Sgn(x)-1)*1.5708`
ArcCoTangent	`ArcTan(x) = Atn(x)+1.5708`
Hyperbolic Sine	`HSin(x) = (Exp(x)-Exp(-x))/2`
Hyperbolic Cosine	`HCos(x) = (Exp(x)+Exp(-x))/2`
Hyperbolic Tangent	`HTan(x) = (Exp(x)-Exp(-x))/(Exp(x)+Exp(-x))`
Hyperbolic Secant	`HSec(x) = 2/(Exp(x)+Exp(-x))`
Hyperbolic CoSecant	`HCoSec(x) = 2/(Exp(x)-Exp(-x))`
Hyperbolic Cotangent	`HCotan(x) = (Exp(x)+Exp(-x))/(Exp(x)-Exp(-x))`
Hyperbolic ArcSine	`HArcSin(x) = Log(x+Sqr(x*x+1))`
Hyperbolic ArcCosine	`HArcCos(x) = Log(x+Sqr(x*x-1))`
Hyperbolic ArcTangent	`HArcTan(x) = Log((1+x)/(1-x))/2`
Hyperbolic ArcSecant	`HArcSec(x) = Log((Sqr(-x*x+1)+1)/x)`
Hyperbolic ArcCoSecant	`HArcCoSec(x) = Log((Sgn(x)*Sqr(x*x+1)+1)/x)`
Hyperbolic ArcCoTangent	`HArcCoTan(x) = Log((x+1)/(x-1))/2`

▸ ▸ ▸ A p p e n d i x E

Mouse Actions

Mouse *click* actions occur when you click or double-click any of the mouse buttons while recording. The action written to the script depends on which button was clicked and what combination of SHIFT, CTRL, and ALT keys was held down at the time of the click. The same is true for mouse *drag* actions.

For example, if you double-click the left mouse button on an object while holding the SHIFT key down, a `Shift_DblClick` action is recorded. If you press the right mouse button down and drag an object while holding the CTRL and ALT keys down, a `CtrlAlt_Right_Drag` action is recorded.

Mouse actions using the left mouse button do not contain the word Left because the left button is the default for mouse actions. The button is specified only if the Middle or Right button is used in the action.

When a mouse click occurs on a check box, label, push button, or radio button, Rational Robot does not record coordinates of the click because the actual position is not important. When playing back a recorded click on one of these objects, Rational Robot clicks in the center of the specified object.

When a mouse click occurs on a combo list box or list box, Rational Robot records the selection information, not the coordinates of the click. For example, a mouse click on a list box would indicate the selected item, not the coordinates where the click occurred. When playing back a recorded click on one of these objects, Rational Robot selects the specified item, regardless of its position in the list or the dimensions of the box.

MouseClick Actions

These are the valid values for a *MouseClick* action:

```
Click                       DblClick
Middle_Click                Middle_DblClick
Right_Click                 Right_DblClick
Shift_Click                 Shift_DblClick
Shift_Middle_Click          Shift_Middle_DblClick
Shift_Right_Click           Shift_Right_DblClick
Ctrl_Click                  Ctrl_DblClick
Ctrl_Middle_Click           Ctrl_Middle_DblClick
Ctrl_Right_Click            Ctrl_Right_DblClick
Alt_Click                   Alt_DblClick
Alt_Middle_Click            Alt_Middle_DblClick
Alt_Right_Click             Alt_Right_DblClick
ShiftCtrl_Click             ShiftCtrl_DblClick
ShiftCtrl_Middle_Click      ShiftCtrl_Middle_DblClick
ShiftCtrl_Right_Click       ShiftCtrl_Right_DblClick
ShiftAlt_Click              ShiftAlt_DblClick
ShiftAlt_Middle_Click       ShiftAlt_Middle_DblClick
ShiftAlt_Right_Click        ShiftAlt_Right_DblClick
CtrlAlt_Click               CtrlAlt_DblClick
CtrlAlt_Middle_Click        CtrlAlt_Middle_DblClick
CtrlAlt_Right_Click         CtrlAlt_Right_DblClick
ShiftCtrlAlt_Click          ShiftCtrlAlt_DblClick
ShiftCtrlAlt_Middle_Click   ShiftCtrlAlt_Middle_DblClick
ShiftCtrlAlt_Right_Click    ShiftCtrlAlt_Right_DblClick
```

MouseDrag Actions

These are the valid values for a *MouseDrag* action:

```
Left_Drag                   ShiftCtrl_Drag
Right_Drag                  ShiftCtrl_Middle_Drag
Middle_Drag                 ShiftCtrl_Right_Drag
Shift_Drag                  ShiftAlt_Drag
Shift_Middle_Drag           ShiftAlt_Middle_Drag
Shift_Right_Drag            ShiftAlt_Right_Drag
Ctrl_Drag                   CtrlAlt_Drag
Ctrl_Middle_Drag            CtrlAlt_Middle_Drag
Ctrl_Right_Drag             CtrlAlt_Right_Drag
Alt_Drag                    ShiftCtrlAlt_Drag
Alt_Middle_Drag             ShiftCtrlAlt_Middle_Drag
Alt_Right_Drag              ShiftCtrlAlt_Right_Drag
```

▸ ▸ ▸ Index

Symbols

- numeric operator, 3-12'

'$CStrings metacommand, 6-64
'$Include metacommand, 6-217
'$NoCStrings metacommand, 6-327
& string concatenation operator, 3-12
* numeric operator, 3-12
* wildcard, 4-17, 4-19
.\ separator, 4-18
.csv files, 5-12
.dll files, 3-4, 4-28
.lnk files, 6-498
.rec files, 1-3, 4-2
  as library files, 4-25
.sbh files, 1-3, 4-29
.sbl files, 1-3, 4-25
.sbx files, 1-3, 4-2, 4-27
.tpl files, 4-34
/ numeric operator, 3-12
: in named arguments, 3-5
; separator, 6-497, A-3, A-4
? wildcard, 4-17, 4-19
\ escape character, 4-17, 4-20
\ numeric operator, 3-12
\ separator, 4-18
^ numeric operator, 3-12
_ line continuation character, A-3
| separator, 6-363
+ numeric operator, 3-12
+ string concatenation operator, 3-12
< comparison operator, 3-13
= comparison operator, 3-13
> comparison operator, 3-13
-> separator. *See* pointer separator

A

Abs function, 6-2
absolute value, 6-2
access Clipboard, 6-37
action% argument, 4-8
activate window, 6-6
active window
  AppActivate statement, 6-6
  assigning context to, 4-16
  Window user action command, 6-589
ActiveX Test Control, 6-525
actual data, 5-12, 5-15, 5-16
actual data files, 4-7
  ownership, 5-20
  retrieving the location, 6-500
additional property capture with Object Scripting, 5-7
additions to Basic commands, 1-1, 1-3, 6-1
alias, 6-89
Analyzer utility, 5-20
And logical operator, 3-13
angle
  cosine, 6-60
  sine, 6-448
  tangent, 6-549
AnimateControl user action command, 6-2
AnimateControlVP verification point command, 6-4
ANSI characters, 6-35
AppActivate statement, 6-6
applications, starting
  Shell command, 6-447
  SQAShellExecute command, 6-497
  StartApplication command, 6-519
  StartJavaApplication command, 6-526
arc tangent, 6-8
arguments, 3-3, A-1
  by-value and by-reference, 3-3
  checking for presence of, 6-239
  named, 3-4
  passing, 6-22
  user action and verification point commands, 4-8
arrays, 3-10

command summary, 2-1
default lower-bound, 6-339
dimensions, 3-10, 6-98, 6-179, A-1
dynamic, 3-11
erasing, 6-139
global, 6-179
lower bound, 6-339
lower-bound subscripts, 6-288
of property values, 5-8
redimension, 6-416
retrieving property values as, 6-477, 6-479
size of, for property values, 6-480
subscripts, 3-10, 6-98, 6-179
upper bound, 6-576
upper-bound subscripts, 6-576
Asc function, 6-7
AscB, 6-7
Assert statement, 6-7
assign variables, 6-292
assignment character, 6-492
Atn function, 6-8
attributes of files and directories, 6-174
automatic script generation, 1-1

B

backslash (\ ) and context, 4-18
baseline, 1-3, 4-7
custom verification points, 5-12
baseline data files, 4-7, 5-16
retrieving the location, 6-501
BasicLib, 6-89
Beep statement, 6-8
Begin Dialog...End Dialog statement, 6-9
Boolean data type, 3-7
branching
GoTo statement, 6-181
On...GoTo statement, 6-335
broken links, testing for, 6-582
Browser utility command, 6-13
browsers
default, for playback, 6-493
starting, 6-525
Button statement, 6-16
ButtonGroup statement, 6-17
by-reference arguments, 3-3
by-value arguments, 3-3, A-1

C

C language characters, 6-64
C++ applications, order of recognition method values, 4-13
Calendar user action command, 6-18
CalendarVP verification point command, 6-19
Call statement, 6-21
CallScript utility command, 6-23
CancelButton statement, 6-23
Caption statement, 6-25
caption terminator character
retrieving, 6-468
setting, 6-492
caption wildcard characters, 4-17, 4-19
case, 6-439
case-sensitive comparison, 6-340
CCur function, 6-26
CDbl function, 6-27
change directory, 6-27
change drive, 6-28
ChDir statement, 6-27
ChDrive statement, 6-28
CheckBox statement, 6-29
CheckBox user action command, 6-30
CheckBoxVP verification point command, 6-32
child objects, 6-469
child objects in recognition methods, 4-10, 4-18
Java commands, 4-13
ChildWindow value, 4-19
Chr function, 6-35
ChrB, 6-35
CInt function, 6-36
Class List, 6-37

Class property, 5-7
clear Clipboard, 6-38
clicking the mouse, E-1
ClientRect property, 5-7
Clipboard, 6-37
ClipboardVP verification point command, 6-38
CLng function, 6-39
Close statement, 6-40
colons in named arguments, 3-5
combo box
  elements in array, 6-111
  fill with strings, 6-113
ComboBox statement, 6-41
ComboBox user action command, 6-43
ComboBoxVP verification point command, 6-45
ComboEditBox user action command, 6-48
ComboEditBoxVP verification point command, 6-50
ComboListBox user action command, 6-53
ComboListBoxVP verification point command, 6-56
Command function, 6-58
commands in SQABasic. *See also* SQABasic command categories
  additions to Basic, 1-3
  functional listing of all commands, 2-1
  types, 3-2
comments, 6-419, A-2
Comparators, displaying captured data, 5-12
compare strings, 6-538
comparing environment states, 5-20
comparing Web sites, 6-582
comparison operators, 3-13
compiler directives command summary, 2-1
compiling
  library files, 4-27
  scripts, 4-2
concatenation operators, 3-12
conditional execution, 6-216, 6-335, 6-439, 6-585
console window
  displaying messages in, 5-27
  SQAConsoleWrite, 6-455
Const statement, 6-59
constants
  global scope, 4-22
  header files, 4-31
  local scope, 4-21
  module-level scope, 4-21
  scope of, 3-14, 4-21
contacting
  technical publications, xxii
  technical support, xxii
context, 4-15
  current, 6-589
  default, 4-20
  establishing, through a Window command action, 4-15
  establishing, through context notation, 4-18
  notation syntax, 4-18, A-2
  Object Scripting commands and, 5-5
  test, 4-16, 6-588, 6-590
  window, 4-15, 4-16, 6-589
  Window actions for setting, 4-16
context window, 4-4
convert to type
  currency, 6-26
  double, 6-27
  general rules, 3-9
  integer, 6-36
  long, 6-39
  single, 6-62
  string, 6-63
  variant, 6-66
  variant date, 6-67
Cos function, 6-60
cosine, 6-60
CreateObject function, 6-61
creating dialog boxes, 6-10
CSng function, 6-62
CStr function, 6-63
csv files, 5-12
CurDir function, 6-65

Currency data type, 3-6
current
  context window, 4-16, 6-589
  date, 6-74, 6-75
  directory, 6-65
current baseline data files
  copying to a logged baseline data file, 5-16
  creating, 5-16
  ownership, 5-20
  retrieving the location, 6-502
  vs logged baseline data files, 5-14
CurrentFocus value, 5-5
CurrentWindow, 6-591
CurrentWindow value, 4-16, 5-5
custom buttons, 6-16, 6-17
custom code
  header files, 4-29
  library files, 4-25
  scripts, 4-23
  template file, 4-34
custom procedures
  adding to a library file, 4-25
  adding to a script, 4-23
  declaring in a header file, 4-29
  declaring in a script, 4-23
custom verification points
  displaying captured data, 5-12
  example, 5-17
  managing, 5-12
  retrieving actual file location, 6-500
  retrieving baseline file location, 6-501
  retrieving current baseline file location, 6-502
  summary of management commands, 5-13
  using, 5-15
  writing results to the log, 6-503
customer support, xxii
customizing scripts, 4-20
CVar function, 6-66
CVDate function, 6-67

D

data types
  converting, 3-9
  declaring, 3-5, 6-97
  default, 6-91
  list of, 3-6
  signed, 3-7
  user-defined, 3-8, 6-574
datapool commands, 1-3
  overview, 5-30
  summary, 2-2, 5-31
datapools, role of, 5-30
datastore, location, 6-470
DataWindow user action command, 6-68
DataWindowVP verification point command, 6-72
date
  day component, 6-80
  format, 6-75, 6-159
  is legal, 6-238
  month component, 6-321
  now, 6-329
  value, 6-74, 6-76, 6-79
  year component, 6-600
date and time command summary, 2-2
Date data types, 3-7, 3-8
Date function, 6-74
Date statement, 6-75
DateSerial function, 6-76
DateTime user action command, 6-77
DateTimeVP verification point command, 6-78
DateValue function, 6-79
Day function, 6-80
day of month, 6-80
day of week, 6-584
DDE, 5-37
  command summary, 2-5
DDEAppReturnCode function, 6-81
DDEExecute statement, 6-82
DDEInitiate function, 6-83
DDEPoke statement, 6-85
DDERequest function, 6-86

DDETerminate statement, 6-88
declaration statements summary, 2-2
Declare statement, 6-89
declaring
  .dll files, 4-28
  arrays, 3-10
  data types, 6-97
  SQABasic library files, 4-28
  variables of a User-Defined data type, 3-8
declaring procedures
  in a header file, 4-29
  in a script, 4-23
declaring variables and constants
  global scope, 4-22
  header files, 4-29, 4-31
  local scope, 4-21
  module-level scope, 4-21
  scope, 3-14
default
  context, 4-20
  data type, 6-91
  playback browser, 6-493
Def*type* statement, 6-91
DelayFor utility command, 6-93
delete file, 6-283
derived trigonometric functions, D-1
Desktop user action command, 6-93
dialog box definition command summary, 2-3
dialog box services command summary, 2-4
dialog boxes, 6-9
  as windows, 4-15
  begin/end, 6-9
  captions, 6-25
  closing, 6-107
  commands for handling user actions, 2-4
  creating, 6-10
  declaring in instance of, 6-10
  defining, 6-9, 6-10
  displaying, 6-10, 6-95, 6-96
  enable state, 6-104, 6-106
  focus, 6-109, 6-110
  handling user actions in, 6-10
  numeric ID, 6-102
  OptionGroup, 6-343
  password box, 6-347
  records, 3-9, 6-10
  SQABasic, 6-9
  text in, 6-550
dialog controls
  DropComboBox, 6-127
  DropListBox, 6-129
  hidden/visible, 6-123, 6-124
  InputBox, 6-221
  ListBox, 6-295
  OK button, 6-334
  OptionButton, 6-342
  picture, 6-348
  picture, 6-115
  PushButton, 6-397
  state, 6-120
  StaticComboBox, 6-531
  text, 6-116, 6-118
  TextBox, 6-551
  value, 6-121
Dialog function, 6-95
Dialog statement, 6-96
Dim statement, 6-97
dimension variables, 6-97
dimensions of an array, 3-10, 6-98, 6-179
  default lower bound, 6-339
  lower bound, 6-288
  upper bound, 6-576
  with dynamic arrays, 3-11, 6-416
Dir function, 6-101
directory
  attributes, 6-174
  change, 6-27
  contents, 6-101
  create new, 6-319
  log, 6-471
  remove, 6-428
  standard, 6-470

disk and directory command summary, 2-4
displaying
  custom verification point data, 5-12
  messages, 5-27
DlgControlID function, 6-102
DlgEnable function, 6-104
DlgEnable statement, 6-106, 6-107
DlgFocus function, 6-109
DlgFocus statement, 6-110
DlgListBoxArray function, 6-111
DlgListBoxArray statement, 6-113
DlgSetPicture statement, 6-115
DlgText function, 6-116
DlgText statement, 6-118
DlgValue function, 6-120
DlgValue statement, 6-121
DlgVisible function, 6-123
DlgVisible statement, 6-124
Do...Loop statement, 6-125
document files, 6-498
documentation feedback, xxii
DoEvents statement, 6-126
Double data type, 3-6
dragging the mouse, E-1
drive change, 6-28
DropComboBox statement, 6-127
DropListBox statement, 6-129
dynamic arrays, 3-11, 6-416
Dynamic Data Exchange, 5-37
  close, 6-88
  initiate, 6-83
  receive data, 6-86
  return code, 6-81
  send commands, 6-82
  send data, 6-85
Dynamic Link Library
  declare procedure, 6-89
  library name, 6-89

E

EditBox user action command, 6-130
EditBoxVP verification point command, 6-133
editing scripts, 1-2
elements
  of arrays, 3-10
  of User-Defined types, 3-8
empty variant, 3-7
end of file, 6-138
EndSaveWindowPositions utility command, 6-136
Environ function, 6-137
Environment property, 5-7
environment state, 5-20
  comparison report, 6-465
  summary of commands, 5-21
  test overview, 5-21
environmental control command summary, 2-5
Eof function, 6-138
Eqv logical operator, 3-14
Erase statement, 6-139
Erl function, 6-140
Err function, 6-141
Err statement, 6-142
error codes, B-1
Error function, 6-143
error handling, 3-16
  command summary, 2-5
  halting, 6-421
  location of routine, 6-336
  message text, 6-143
  Object Scripting commands, 5-11
  runtime code, 6-142
  script command failure, 6-491
  trap line number, 6-140
  trap runtime code, 6-141
  user-defined, 6-144

Error statement, 6-144
escape character for wildcards, 4-17, 4-20
execute query, 6-509
Exit statement, 6-145
Exp function, 6-146
explicit data type declaration, 3-5
exponent, 6-146
expressions, 3-12
  Null, 6-240, 6-241

F

factorials, 6-62, 6-155
feedback, xxii
field names and PeopleTools object names, 6-379, 6-384
fields replaced with strings, 6-444
file control command summary, 2-6
FileAttr function, 6-147
FileCopy statement, 6-148
FileDateTime function, 6-149
FileLen function, 6-150
files
  actual data, 4-7, 5-12, 5-15, 5-16
  attributes, 6-174
  baseline, 4-7, 5-16
  close all, 6-420
  closing, 6-40
  copying, 6-148
  current baseline, 5-16
  current offset, 6-307
  date and time of, 6-149
  deleting, 6-283
  end of, 6-138
  header, 4-29
  in a directory, 6-101
  included, 4-29, 6-217
  input from, 6-218, 6-220, 6-294
  length of, 6-150, 6-310
  link, 6-498
  locking, 6-308
  logged baseline, 5-16
  low-level journal, 6-350
  moving, 6-325
  opening, 6-337
  output width, 6-586
  printing to, 6-355
  read data, 6-172
  renaming, 6-325
  reset, 6-420
  seek position, 6-436, 6-438
  set attributes, 6-442
  summary of input/output commands, 2-6
  system handle, 6-147
  types of, 6-498
  unlocking, 6-578
  unused number, 6-163
  writing data, 6-403, 6-599
FileVP verification point command, 6-151
financial
  constant periodic payment, 6-350
  function summary, 2-7
  interest payment, 6-234
  interest per period, 6-412
  net present value, 6-330
  present value, 6-405
  principal amount, 6-354
  rate of return, 6-236
Fix function, 6-153
fixed-length strings, 3-6
flow control statement summary, 2-7
For...Next statement, 6-153
Format function, 6-155
formatting
  date and time, 6-159
  numbers, 6-156
  strings, 6-162
four-digit years, 3-15
FreeFile function, 6-163
FullRecognition property, 5-7
function procedures. *See* functions
Function...End Function statement, 6-164
functional listing of commands, 2-1
functional testing, 1-4

functions
adding to a library file, 4-25
adding to a script, 4-23
calling, 6-21
custom, 4-20
declaration syntax, A-2
declaring in a header file, 4-29
declaring in a script, 4-23, 4-24
defining, 6-164
description of, 3-2
global scope, 4-25
module-level scope, 4-23
future value, 6-166
FV function, 6-166

G

GenericObject user action command, 6-167
GenericObjectVP verification point command, 6-169
get schema, 6-511
Get statement, 6-172
GetAttr function, 6-174
GetField function, 6-175
GetLastVPResult utility command, 6-176
GetObject function, 6-177
global scope
constants, 4-22, 6-60
header files, 4-31
procedures, 4-25
variables, 4-22, 6-178
Global statement, 6-178
global.sbh, 4-30
global.sbl, 4-27
GoTo statement, 6-181
GroupBox statement, 6-182
GroupBox user action command, 6-184
GroupBoxVP verification point command, 6-185
GUI scripts and datapools
datapools and, 5-31
GUI scripts and datapools
assigning datapool values to variables, 5-34
associating variable names and datapool columns, 5-34
adding datapool commands
adding commands to GUI scripts, 5-32
example script, 5-36
substituting variables for literal values, 5-33
tips during recording, 5-32

H

halt execution, 6-536
header files, 4-25, 4-29
declarations in, 4-30
referencing, 4-31
scope, 4-30
SQABasic path, 4-25
Header user action command, 6-187
HeaderVP verification point command, 6-189
help desk, xxii
Hex function, 6-191
hierarchical objects in recognition methods, 4-10, 4-18
HotKeyControl user action command, 6-192
HotKeyControlVP verification point command, 6-193
hotline support, xxii
Hour function, 6-194
HTML user action command, 6-195
HTMLActiveX user action command, 6-198
HTMLActiveX VP verification point command, 6-200
HTMLDocument user action command, 6-201
HTMLDocumentVP verification point command, 6-203
HTMLHiddenVP verification point command, 6-205
HTMLImage user action command, 6-206
HTMLImageVP verification point command, 6-208
HTMLLink user action command, 6-209

HTMLLinkVP verification point command, 6-211
HTMLTable user action command, 6-212
HTMLTableVP verification point command, 6-214
HTMLVP verification point command, 6-197
HTTP requests, 1-4
hWnd property, 5-7

I

If...Then...Else, 6-216
Imp logical operator, 3-14
implicit data type declaration, 3-5
inactive window, 6-589
Include files, 4-25, 4-31
  adding to the template, 4-34
including files, 4-29, 6-217
initializing scripts, 4-2
Input # statement, 6-220
input boxes, 6-221
Input function, 6-218
InputB, 6-219
InputBox function, 6-221
InputChars user action command, 6-222
InputKeys user action command, 6-223
Installation Analyzer utility, 5-20
instance of a dialog box, 3-9
InStr function, 6-229
InStrB, 6-229
Int function, 6-230
Integer data type, 3-6
IPAddress user action command, 6-231
IPAddressVP verification point command, 6-233
IPmt function, 6-234
IRR function, 6-236
Is Operator, 6-237
IsDate function, 6-238
IsEmpty function, 6-238
IsMissing function, 6-239
IsNull function, 6-240
IsNumeric function, 6-241

J

Java applications, starting, 6-526
Java commands and recognition methods, 4-13
Java objects and Object Scripting commands, 4-13
JavaCanvas user action command, 6-242
JavaCanvasVP verification point command, 6-244
JavaListView user action command, 6-246
JavaListViewVP verification point command, 6-248
JavaMenu user action command, 6-250
JavaMenuVP verification point command, 6-251
JavaObject user action command, 6-253
JavaObjectVP verification point command, 6-254
JavaPanel user action command, 6-256
JavaPanelVP verification point command, 6-257
JavaPopupMenu user action command, 6-259
JavaPopupMenuVP verification point command, 6-260
JavaSplitPane user action command, 6-262
JavaSplitPaneVP verification point command, 6-264
JavaSplitter user action command, 6-266
JavaSplitterVP verification point command, 6-267
JavaTable user action command, 6-269
JavaTableHeader user action command, 6-273
JavaTableHeaderVP verification point command, 6-274
JavaTableVP verification point command, 6-271
JavaTree user action command, 6-276
JavaTreeVP verification point command, 6-278
JavaWindow user action command, 6-280
JavaWindowVP verification point command, 6-281

K

keyboard input, 6-223
keystrokes
  InputChars, 6-222
  InputKeys, 6-223
Kill statement, 6-283

L

Label user action command, 6-284
labels in SQABasic code, A-3
LabelVP verification point command, 6-285
language elements, 3-1
LBound function, 6-288
LCase function, 6-289
Left function, 6-290
LeftB, 6-290
Len function, 6-291
LenB, 6-291
Let statement, 6-292
library file location
  .dll, 4-29
  SQABasic library (.rec), 4-26
  SQABasic library (.sbx), 4-26
library files
  compiling, 4-27
  creating, 4-27
  declaring (.dll), 4-28
  declaring (SQABasic .rec), 4-28
  declaring (SQABasic .sbx), 4-28
  including, 4-29, 6-217
  SQABasic path, 4-25
library names and Dynamic Link Libraries, 6-89
Like Operator, 6-293
line continuation syntax, A-3
Line Input statement, 6-294
line numbers not supported, A-3
link files, 6-498
links, testing for problems with, 6-582
list box
  elements in array, 6-111
  fill with strings, 6-113
ListBox Statement, 6-295
ListBox user action command, 6-296
ListBoxVP verification point command, 6-300
ListView user action command, 6-303
ListViewVP verification point command, 6-305
Loc function, 6-307
local scope
  constants, 4-21
  variables, 4-21
Lock statement, 6-308
Lof function, 6-310
Log function, 6-311
log messages
  results of user-defined test, 6-600
  SQALogMessage, 5-28
  SQAScriptCmdFailure, 5-16, 5-30
  writing, 5-28, 6-489
log path, finding, 6-471
logged baseline data files
  copying from a current baseline data file, 5-16
  ownership, 5-20
  vs current baseline data files, 5-14
logical operators, 3-13
LogViewer
  displaying captured data, 5-12
  displaying messages in, 5-28
  SQALogMessage, 6-489
  SQAScriptCmdFailure, 6-491
  SQAVpLog, 6-503
Long data type, 3-6
loops
  Do/While, 6-125
  exiting, 6-145
  For/Next, 6-153
lower bound, 6-288
  default, 6-339
lower case, 6-289
low-level files, 6-350
Lset statement, 6-311
LTrim function, 6-312

M

managing custom verification points, 5-12
MDI windows, 4-19
menu items
  MenuIDSelect, 6-313
  MenuSelect, 6-314

PopupMenuIDSelect, 6-351
PopupMenuSelect, 6-352
SysMenuIDSelect, 6-542
SysMenuSelect, 6-542
MenuIDSelect user action command, 6-313
MenuSelect user action command, 6-314
message boxes, 6-322, 6-324
messages
console window, 5-27
LogViewer, 5-28
overview, 5-26
results of user-defined tests, 6-600
SQAConsoleWrite, 6-455
SQALogMessage, 6-489
SQAScriptCmdFailure, 6-491
SQAVpLog, 6-503
metacommands
'$CStrings, 6-64
'$Include, 4-29, 6-217
'$NoCStrings, 6-327
methods, 5-38
Clipboard, 6-38
execute an object's methods, 6-487
Mid function, 6-315
Mid statement, 6-317
MidB, 6-316, 6-317
Minute function, 6-318
missing arguments, 6-239
missing links, testing for, 6-582
MkDir statement, 6-319
ModuleFileName property, 5-7
module-level scope
constants, 4-21
procedures, 4-23
variables, 4-21
modules, 4-21
ModuleVP verification point command, 6-320
Month function, 6-321
mouse actions, E-1
moving files, 6-325
MsgBox function, 6-322
MsgBox statement, 6-324

N

name format in SQABasic, A-3
Name property, 5-8
Name statement, 6-325
named arguments, 3-4, 6-22
nested scripts, 6-23
net present value, 6-330
new directory, 6-319
New Operator, 6-326
Not logical operator, 3-13
Nothing function, 6-328
Now function, 6-329
NPV function, 6-330
null
expression, 6-240
variables, 6-331
variant, 3-8
Null function, 6-331
numbers
absolute value, 6-2
as string, 6-537
formatted, 6-156
global, 6-180
hexadecimal, 6-191
integer, 6-230
integer part, 6-153
logarithm, 6-311
octal, 6-333
random, 6-411, 6-429
sign of, 6-446
square root, 6-518
value in string, 6-580
numeric
operators, 3-12
variables, 6-98
numeric function summary, 2-8

O

Object Class, 6-332
object command summary, 2-9
object context. *See* context
Object data type, 3-6
object handling, 5-38
Object Properties verification point, 5-6
Object Scripting commands, 1-3, 5-1
  Java objects, 4-13
  object context, 5-5
  object types and, 5-2
  specifying an object, 5-2
  specifying an object property, 5-6
  status codes for, 5-11
  status codes for (list), C-1
  summary, 2-8
  types of properties to access, 5-6, 5-7
object variables, 6-99
objects
  child, 6-469
  class type, 6-575
  compare, 6-237
  current focus, 5-5
  currently active window, 4-16, 5-5
  data type, 3-6
  getting a property value for, 6-475, 6-482
  getting an array of a property's values, 6-477, 6-479
  hierarchical order, in context notation, 4-18
  retrieving property names for, 6-484
  searching for, 6-467
  setting property values for, 6-494
  specifying, 5-2
  SQABasic names for, 5-3
  types of, 5-3
  waiting for appearance of, 6-504
ObjectType property, 5-8
OCR region
  coordinates, 6-472
  text, 6-473
Oct function, 6-333
ODBC
  close source, 6-507
  errors, 6-508
  function summary, 2-9
  open source, 6-512
OKButton statement, 6-334
OLE2, 5-38
  assign variable, 6-441
  associated object, 6-177
  automation object, 6-61
  new object, 6-326
  object class, 6-332
On Error statement, 6-336
On...GoTo statement, 6-335
Open statement, 6-337
opening files, 6-498
operating system, determining the type, 6-486
operators, 3-12
  comparison, 3-13
  logical, 3-13
  numeric, 3-12
  string concatenation, 3-12
Option Base statement, 6-339
Option Compare statement, 6-340
Option Explicit statement, 6-100, 6-341
OptionButton statement, 6-342
Or logical operator, 3-13
order of recognition method values, 4-10
  changing, 4-12
ordinal, 6-89
output width, 6-586
ownership of custom verification point files, 5-20

P

Pager user action command, 6-344
PagerVP verification point command, 6-346
panel objects on PeopleTools panels, 6-379, 6-384
parameters for user actions, 4-9, A-3
parameters$ argument, 4-9, A-3

parent objects in recognition methods, 4-10, 4-18
  Java commands, 4-13
ParentRecognition property, 5-8
passing arguments, 3-3, 6-22
PasswordBox function, 6-347
path, SQABasic, 4-25
pattern matching, 6-293
pause script execution, 6-93
PeopleTools panel object names, 6-379
performance testing, 1-4
Picture statement, 6-348
pictures in dialog controls, 6-115
pipe separator (|), 6-363
playback of a verification point, 4-7
  custom verification points, 5-16
PlayJrnl utility command, 6-350
Pmt function, 6-350
pointer separator (->)
  PeopleSoft derived fields, 6-380, 6-384
  PSTree, 6-391
  PSTreeVP, 6-397
  TreeView, 6-568
  TreeViewVP, 6-572
popup menus, 6-351, 6-352
PopupMenuIDSelect user action command, 6-351
PopupMenuSelect user action command, 6-352
PPmt function, 6-354
Print statement, 6-355
procedures
  adding to a library file, 4-25
  adding to a script, 4-23
  declaring in a header file, 4-29
  declaring in a script, 4-23
  global scope, 4-25
  module-level scope, 4-23
ProgressBar user action command, 6-356
ProgressBarVP verification point command, 6-358
project header files, 4-29
projects, location, 6-470
properties, 5-38
  additional, with Object Scripting commands, 5-7
  retrieving a value, 6-475, 6-482
  retrieving an array of values, 6-477, 6-479
  retrieving the names of, 6-484
  retrieving the number of elements in an array, 6-480
  setting a value for, 6-494
  specifying, 5-6
  types you can access, 5-6
  waiting for a particular value, 6-505
PSGrid user action command, 6-360
PSGridHeader user action command, 6-364
PSGridHeaderVP verification point command, 6-365
PSGridVP verification point command, 6-367
PSMenu user action command, 6-370
PSMenuVP verification point command, 6-371
PSNavigator user action command, 6-372
PSNavigatorVP verification point command, 6-374
PSPanel user action command, 6-377
PSPanelVP verification point command, 6-381
PSSpin user action command, 6-385
PSSpinVP verification point command, 6-387
PSTree user action command, 6-389
PSTreeHeader user action command, 6-391
PSTreeHeaderVP verification point command, 6-392
PSTreeVP verification point command, 6-395
PushButton statement, 6-397
PushButton user action command, 6-399
PushButtonVP verification point command, 6-400
Put statement, 6-403
PV function, 6-405

Q

qualifiers in recognition methods, 4-10

R

radians, 6-8
RadioButton user action command, 6-406
RadioButtonVP verification point command, 6-407
Randomize statement, 6-411
Rate function, 6-412

Rational ActiveX Test Control, 6-525
Rational technical publications, contacting, xxii
Rational technical support, xxii
Rebar user action command, 6-413
RebarVP verification point command, 6-414
rec files, 1-3, 4-2
  as library files, 4-25
recMethod$ argument, 4-8, 5-2, A-4
  context notation and, 4-18
  getting help defining, 5-9
  Java commands and, 4-13
  multiple values in, 4-10
recognition method. *See* recMethod$ argument
recognition methods
  changing the default order, 4-12
  context notation and, 4-18
  getting help defining, 5-9
  Java commands and, 4-13
  multiple values in, 4-10
  order of values, 4-10
  overview, 4-8
  specifying when the object name is unknown, 4-16, 5-5
Recognition property, 5-8
Record data type. *See* User-Defined data type
record names and PeopleTools object names, 6-379, 6-384
record of a dialog box, 3-9, 6-10
recorded baseline, 1-3, 4-7
  custom verification points, 5-12
recording a verification point, 4-7
  custom verification points, 5-16
rectangle of an OCR region, 6-472
ReDim statement, 6-416
referencing library files, 4-29, 6-217
RegionVP verification point command, 6-417
Registry changes, testing for, 5-21
Rem statement, 6-419
renaming files, 6-325
repeated character strings, 6-539
repetitive action, 6-585
repository-wide header files, 4-29
request data, 6-514
Reset statement, 6-420
ResetTime utility command, 6-421
restoring windows during playback, 4-3
Resume statement, 6-421
retrieve data, 6-515
  to file, 6-517
return ASCII value, 6-7
RichEdit user action command, 6-422
RichEditVP verification point command, 6-424
Right function, 6-427
RightB, 6-427
RmDir statement, 6-428
Rnd function, 6-429
Rset statement, 6-430
RTrim function, 6-431
Run Now check box, 6-23
runtime
  errors, 3-16
  file location, 6-470
  files, 1-3

S

saving
  header files, 4-30
  library files, 4-27
  scripts, 4-2
sbh files, 1-3, 4-29
sbl files, 1-3, 4-25
sbx files, 1-3, 4-2
scope
  global, 4-22
  header files, 4-29, 4-30
  procedures, 4-23, 4-25
  variables and constants, 3-14, 4-21
screen I/O command summary, 2-10
ScreenRect property, 5-8
scripts
  automatic generation of, 1-1
  body of, 4-4
  calling from another script, 6-23

compiling, 4-2
customizing, 4-20
declarations in, 4-21, 4-23
ending, 4-4
example, 4-4
initializing, 4-2
location, 6-470
nested, 6-23
overview, 4-1
pausing execution of, 6-93
reasons for editing, 1-2
saving, 4-2
sections of, 4-2
syntax summary, A-1
template file, 4-34
window restoration section, 4-3
ScrollBar user action command, 6-432
ScrollBarVP verification point command, 6-434
Second function, 6-435
Seek function, 6-436
Seek statement, 6-438
Select Case statement, 6-439
select menu items
MenuIDSelect, 6-313
MenuSelect, 6-314
PopupMenuIDSelect, 6-351
PopupMenuSelect, 6-352
SysMenuIDSelect, 6-542
SysMenuSelect, 6-542
SendKeys statement, 6-441
separator character, 6-497
Set statement, 6-441
set system date, 6-75
set system time, 6-553
SetAttr statement, 6-442
SetField function, 6-444
SetThinkAvg timing and coordination command, 6-445
SetTime utility command, 6-446
Sgn function, 6-446
Shell function, 6-447
shortcut files, 6-498
signed data types, 3-7
Sin function, 6-448
sine, 6-448
Single data type, 3-6
socket-level requests, 1-4
source files, 1-3
library, 4-25
scripts, 4-2
Space function, 6-449
spaces
printing, 6-450
string of, 6-449
Spc function, 6-450
special characters, 6-64
SpinControl user action command, 6-451
SpinControlVP verification point command, 6-452
SQABasic
.rec files, 4-2, 4-25
.sbh files, 4-29
.sbl files, 4-25
.sbx files, 4-2, 4-27
.tpl files, 4-34
access to external objects, 5-37
additions to Basic commands, 1-1, 1-3, 6-1
commands, 3-2
context notation, 4-18
custom code, 4-23, 4-25
custom functions, 4-20
custom sub procedures, 4-20
dialog boxes, 6-9
error handling, 3-16
files, 1-3
header files, 4-29
language elements, 3-1
library files, 4-25
name format, A-3
object handling, 5-38
syntax summary, A-1
template file, 4-34
unique commands, 1-4
SQABasic command categories, 2-10
datapool, 2-2

Object Scripting, 2-8
overview, 1-3
timing and coordination, 2-12
user action, 2-12
utility, 2-15
verification point, 2-17
SQABasic path, 4-25, 4-33
SQAConsoleClear utility command, 6-454
SQAConsoleWrite utility command, 6-455
SQADatapoolClose datapool command, 6-455
SQADatapoolFetch datapool command, 6-456
SQADatapoolOpen datapool command, 6-457
SQADatapoolRewind datapool command, 6-460
SQADatapoolValue datapool command, 6-461
SQAEnvCreateBaseline utility command, 6-463
SQAEnvCreateCurrent utility command, 6-464
SQAEnvCreateDelta utility command, 6-465
SQAFindObject Object Scripting command, 6-467
SQAGetCaptionTerminatorChar utility command, 6-468
SQAGetChildren Object Scripting command, 6-469
SQAGetDir utility command, 6-470
SQAGetLogDir utility command, 6-471
SQAGetOcrRegionRect utility command, 6-472
SQAGetOcrRegionText utility command, 6-473
SQAGetProperty Object Scripting command, 6-475
SQAGetPropertyArray Object Scripting command, 6-477
SQAGetPropertyArrayAsString Object Scripting command, 6-479
SQAGetPropertyArraySize, 6-480
SQAGetPropertyAsString Object Scripting command, 6-482
SQAGetPropertyNames Object Scripting command, 6-484
SQAGetSystemLong utility command, 6-486
SQAInvokeMethod Object Scripting command, 6-487
SQALogMessage utility command, 6-489
SQAQueryKey utility command, 6-490
SQARectangle User-Defined data type, 6-472
SQAResumeLogOutput Utility Command, 6-490
SQAScriptCmdFailure utility command, 6-491
SQASetAssignmentChar utility command, 6-492
SQASetCaptionTerminatorChar utility command, 6-492
SQASetDefaultBrowser utility command, 6-493
SQASetProperty Object Scripting command, 6-494
SQASetSeparatorChar utility command, 6-497
SQAShellExecute utility command, 6-497
SQASuspendLogOutput utility command, 6-499
SQASyncPointWait timing and coordination command, 6-499
SQAVpGetActualFileName utility command, 6-500
SQAVpGetBaselineFileName utility command, 6-501
SQAVpGetCurrentBaselineFileName utility command, 6-502
SQAVpLog utility command, 6-503
SQAWaitForObject Object Scripting command, 6-504
SQAWaitForPropertyValue, 6-505
SQL requests, 1-4
SQLClose function, 6-507
SQLError function, 6-508
SQLExecQuery function, 6-509
SQLGetSchema function, 6-511
SQLOpen function, 6-512
SQLRequest function, 6-514
SQLRetrieve function, 6-515
SQLRetrieveToFile function, 6-517
Sqr function, 6-518
square root, 6-518
start application
Shell command, 6-447
SQAShellExecute command, 6-497
StartApplication command, 6-519
StartJavaApplication command, 6-526
StartApplication utility command, 6-519
StartBrowser utility command, 6-525
starting a browser, 6-525
starting a timer, 6-529
StartJavaApplication utility command, 6-526
StartSaveWindowPositions utility command, 6-528
StartTimer utility command, 6-529

statements, 3-2
Static statement, 6-529
StaticComboBox statement, 6-531
status codes for Object Scripting commands, 5-11
  list, C-1
StatusBar user action command, 6-532
StatusBarVP verification point command, 6-534
Stop statement, 6-536
stopping a timer, 6-536
StopTimer utility command, 6-536
Str function, 6-537
StrComp function, 6-538
String function, 6-539
string variable syntax, A-4
strings
  comparing, 6-340
  concatenation operator, 3-12
  converting to lower case, 6-289
  converting to upper case, 6-578
  copying, 6-311
  data type, 3-6
  finding substrings in, 6-315, 6-317, 6-427
  fixed-length, 3-6, 6-99
  global, 6-180
  pattern matching, 6-293
  right align, 6-430
  summary of conversion functions, 2-10
  summary of manipulation functions, 2-11
  trimming spaces, 6-312, 6-431, 6-573
  types of, 6-99
  variable length, 3-6, 6-99
sub procedures
  adding to a library file, 4-25
  adding to a script, 4-23
  calling, 6-21
  custom, 4-20
  declaration syntax, A-4
  declaring in a header file, 4-29
  declaring in a script, 4-23
  defining, 6-540
  description of, 3-2
  global scope, 4-25
  module-level scope, 4-23
sub programs. *See* sub procedures
Sub...End Sub statement, 6-540
subscripts of an array, 3-10, 6-98, 6-179
  default lower bound, 6-339
  lower bound, 6-288
  omitted with dynamic array declarations, 3-11
  upper bound, 6-576
support, technical, xxii
suspend log output, 6-499
symbolic constants, 6-59
syntax of user action and verification point
  commands, 4-8
syntax summary, A-1
SysMenuIDSelect user action command, 6-542
SysMenuSelect user action command, 6-542
system environment, 6-137
system events, 6-126
  retrieve value, 6-486
System menu select
  by ID, 6-542
  by text, 6-542

T

Tab function, 6-543
TabControl user action command, 6-544
TabControlVP verification point command, 6-546
Tan function, 6-549
tangent, 6-549
technical support, xxii
template file, 4-34
test context, 4-16, 6-588, 6-590
test scripts. *See* scripts
Text statement, 6-550
text to/from Clipboard, 6-38
TextBox statement, 6-551
think time, 6-445

time
  as value, 6-556
  as variant, 6-555
  current, 6-552
  format, 6-159
  hour of day, 6-194
  minute component, 6-318
  now, 6-329
  reset delay, 6-421
  seconds component, 6-435
  set average think, 6-445
  set delay, 6-446
  set system, 6-553
Time function, 6-552
Time statement, 6-553
Timer function, 6-554
timers
  starting, 6-529
  stopping, 6-536
  system, 6-554
TimeSerial function, 6-555
TimeValue function, 6-556
timing and coordination commands, 1-3
  summary, 2-12
title bar wildcard characters, 4-17, 4-19
Toolbar user action command, 6-558
ToolbarVP verification point command, 6-559
Trackbar user action command, 6-561
TrackbarVP verification point command, 6-563
trappable errors, B-1
trapping errors, 3-16
  line number, 6-140
  message text, 6-143
  runtime code, 6-141, 6-142
  user-defined, 6-144
TreeView user action command, 6-566
TreeViewVP verification point command, 6-569
trigonometric function summary, 2-8
Trim function, 6-573
TUXEDO, 1-4
two-digit years, 3-15
Type statement, 6-574
type-declaration characters, 3-5
Typeof function, 6-575
types of
  objects, 5-3
  properties, 5-6
TypingDelays timing and coordination command, 6-576

U

UBound function, 6-576
UCase function, 6-578
unique SQABasic commands, 1-4
Unlock statement, 6-578
upper bound, 6-576
upper case, 6-578
user action commands, 1-3
  arguments in, 4-8
  overview, 4-6
  summary, 2-12
  syntax, 4-8
user actions, 4-4, 4-8
  context for, 4-15
User-Defined data type, 3-6, 3-8, 6-99
  declaring, 3-8, 6-99
  defining, 6-574
  global, 6-180
  reassigning to another variable, 6-311
  referencing, A-4
user-defined data types
  when to use
    determining which data types you need
      finding data types for, 5-35
user-defined errors, 3-17
utility commands, 1-3
  summary, 2-15

V

Val function, 6-580
value
  absolute, 6-2
  ASCII, 6-7
  constant, 6-59
  date, 6-74, 6-76, 6-79
variable-length strings, 3-6
variables
  arrays, 6-98
  assignment, 6-292
  declare type, 6-97, 6-341
  define default type, 6-91
  empty, 6-100
  global scope, 4-22, 6-178
  header files, 4-31
  length of, 6-291
  local scope, 4-21
  module-level scope, 4-21
  name format, A-3
  Null, 6-331
  numeric, 6-98
  object, 6-99
  scope of, 3-14, 4-21
  static, 6-529
  string, 6-99
  user-defined, 6-99, 6-574
  variant, 6-100
Variant data type, 3-6
  declaring, 6-100
  empty, 6-238
  explicit and implicit declaration, 3-7
  global, 6-180
  identifying the type of data stored, 3-8, 6-581
  initialized, 6-238
Variants command summary, 2-17
VarType function, 6-581
verification point data files
  retrieving actual file location, 6-500
  retrieving baseline file location, 6-501
  retrieving current baseline file location, 6-502
verification points
  baseline, 4-7
  command summary, 2-17
  command syntax, 4-8
  commands, 1-3
  comparing baseline and actual data, 4-7
  custom. *See* custom verification points
  in library files, 4-26
  in scripts, 4-4
  location, 6-470
  overview, 4-7
  ownership, 5-20
  pass or fail, 1-3
version of Robot, determining, 6-486

W

Web
  default playback browser, 6-493
  starting a browser, 6-525
  testing a site for defects, 6-582
WebSiteVP verification point command, 6-582
Weekday function, 6-584
While...Wend, 6-585
Width statement, 6-586
wildcards for window captions, 4-17, 4-19
window
  activate, 6-6
  caption terminator character, 6-492
  context, 4-4
  making active or keeping inactive, 6-589
  property for window handle, 5-7
  save position, 6-136, 6-528
  wildcards in captions, 4-17, 4-19
Window user action command, 6-587
windows
  child window, 4-19
  context for actions, 4-15
  definition of, 4-15
  MDI, 4-19
  restoring, 4-3

Windows operating system, determining the type, 6-486
WindowVP verification point command, 6-594
With statement, 6-597
Write statement, 6-599
writing
  console window, 5-28
  LogViewer, 5-28
  to a file, 6-403

X

Xor logical operator, 3-14

Y

year 2000 considerations, 3-15
year formats, 3-15
Year function, 6-600