Using the Excel Dictionary

About the Excel AppleScript Dictionary .......................................................................................... 13
Activating a workbook .................................................................................................................... 14
Creating a new workbook ............................................................................................................. 14
Opening a workbook ..................................................................................................................... 14
Referring to sheets by name ......................................................................................................... 14
Referring to sheets by index number ............................................................................................ 15
How to reference cells and ranges ............................................................................................... 15
Selecting and activating cells ....................................................................................................... 18
Working with the active cell ......................................................................................................... 19

Microsoft Office Suite Classes

<table>
<thead>
<tr>
<th>Class</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>assistant</td>
<td>21</td>
</tr>
<tr>
<td>balloon checkbox</td>
<td>24</td>
</tr>
<tr>
<td>balloon</td>
<td>25</td>
</tr>
<tr>
<td>balloon label</td>
<td>29</td>
</tr>
<tr>
<td>command bar</td>
<td>29</td>
</tr>
<tr>
<td>command bar button</td>
<td>33</td>
</tr>
<tr>
<td>command bar combo box</td>
<td>34</td>
</tr>
<tr>
<td>command bar control</td>
<td>36</td>
</tr>
<tr>
<td>command bar popup</td>
<td>39</td>
</tr>
<tr>
<td>custom document property</td>
<td>39</td>
</tr>
<tr>
<td>document property</td>
<td>39</td>
</tr>
<tr>
<td>web page font</td>
<td>41</td>
</tr>
</tbody>
</table>

Microsoft Office Suite Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>add item to combo box</td>
<td>43</td>
</tr>
<tr>
<td>clear combo box</td>
<td>43</td>
</tr>
<tr>
<td>execute</td>
<td>44</td>
</tr>
<tr>
<td>get combo box item</td>
<td>45</td>
</tr>
<tr>
<td>get count of combo box items</td>
<td>45</td>
</tr>
<tr>
<td>remove an item from combo box</td>
<td>46</td>
</tr>
<tr>
<td>reset</td>
<td>46</td>
</tr>
<tr>
<td>show balloon</td>
<td>47</td>
</tr>
</tbody>
</table>
Using the Excel Dictionary

Microsoft Excel Suite Classes

add in ................................................................................................................................... 50
application .......................................................................................................................... 51
autofilter .............................................................................................................................. 64
border ................................................................................................................................ 64
button .................................................................................................................................. 66
calculated field .................................................................................................................. 70
calculated item ................................................................................................................... 70
chart sheet .......................................................................................................................... 71
checkbox .............................................................................................................................. 72
cell ....................................................................................................................................... 74
column field ......................................................................................................................... 75
custom view ......................................................................................................................... 75
data field ................................................................................................................................ 76
default web options ............................................................................................................. 76
dialog ..................................................................................................................................... 80
document .............................................................................................................................. 80
dropdown ............................................................................................................................... 80
Excel comment ..................................................................................................................... 83
filter ......................................................................................................................................... 83
format condition .................................................................................................................. 84
graphic .................................................................................................................................... 86
groupbox .............................................................................................................................. 88
hidden field .......................................................................................................................... 90
hidden item .......................................................................................................................... 91
horizontal page break ......................................................................................................... 91
hyperlink .............................................................................................................................. 92
international macro sheet .................................................................................................. 94
label ....................................................................................................................................... 94
list column .......................................................................................................................... 96
list object ............................................................................................................................. 97
list row ................................................................................................................................. 99
listbox ................................................................................................................................... 99
macro sheet ......................................................................................................................... 102
named item ......................................................................................................................... 102
ODBC error ......................................................................................................................... 104
option button ...................................................................................................................... 105
outline ................................................................................................................................... 107
column field ......................................................................................................................... 108
page setup ............................................................................................................................ 109
pane ...................................................................................................................................... 115
parent item ......................................................................................................................... 115
phonetic ................................................................................................................................ 116
pivot cache ......................................................................................................................... 117
pivot field ............................................................................................................................ 119
pivot formula ....................................................................................................................... 124
pivot item ............................................................................................................................ 125
pivot table ........................................................................................................................... 127
query table .......................................................................................................................... 132
recent file ............................................................................................................................ 139
row field .............................................................................................................................. 140
scenario ............................................................................................................................... 140
scrollbar .............................................................................................................................. 141
sheet ..................................................................................................................................... 143
spinner .................................................................................................................................. 147
Using the Excel Dictionary

textbox.................................................................................................................................................. 149
validation...................................................................................................................................................... 153
vertical page break..................................................................................................................................... 156
web options................................................................................................................................................ 157
window........................................................................................................................................................ 160
workbook................................................................................................................................................... 165
worksheet ................................................................................................................................................... 171

Microsoft Excel Suite Commands

accept all changes................................................................................................................................... 175
activate next ............................................................................................................................................... 175
activate object........................................................................................................................................... 176
activate previous ..................................................................................................................................... 176
add chart autoformat.................................................................................................................................. 176
add custom list......................................................................................................................................... 177
add data validation................................................................................................................................. 177
add item to list......................................................................................................................................... 178
add to favorites....................................................................................................................................... 179
auto show .................................................................................................................................................. 180
auto sort .................................................................................................................................................... 180
break link.................................................................................................................................................. 180
bring to front .......................................................................................................................................... 181
calculate................................................................................................................................................... 181
calculate full............................................................................................................................................. 182
cancel refresh......................................................................................................................................... 182
centimeters to points............................................................................................................................... 182
change data type of list column................................................................................................................ 183
change file access..................................................................................................................................... 184
change link .............................................................................................................................................. 184
change scenario....................................................................................................................................... 185
check spelling.......................................................................................................................................... 185
check spelling for.................................................................................................................................. 186
circle invalid.......................................................................................................................................... 186
clear arrows............................................................................................................................................. 187
clear circles............................................................................................................................................ 187
clear contents ........................................................................................................................................ 187
convert formula ...................................................................................................................................... 187
copy to range.......................................................................................................................................... 188
copy object.............................................................................................................................................. 189
copy picture............................................................................................................................................ 189
copy worksheet....................................................................................................................................... 189
create new document............................................................................................................................... 189
create summary for scenarios.................................................................................................................. 190
cut............................................................................................................................................................ 190
delete chart autoformat............................................................................................................................. 191
delete custom list.................................................................................................................................... 191
delete number format............................................................................................................................... 191
double click.............................................................................................................................................. 192
doubleclick............................................................................................................................................... 192
delete number format............................................................................................................................... 191
double click............................................................................................................................................... 192
doubleclick............................................................................................................................................... 192
edit............................................................................................................................................................. 192
Excel comment text ............................................................................................................................... 192
Excel repeat............................................................................................................................................ 193
exclusive access....................................................................................................................................... 194
execute excel 4 macro.............................................................................................................................. 194
Using the Excel Dictionary

follow ................................................................................................................................. 195
follow hyperlink ............................................................................................................ 195
get border ...................................................................................................................... 196
get clipboard formats .................................................................................................... 197
get custom list contents ............................................................................................... 197
get custom list num ....................................................................................................... 197
get dialog ....................................................................................................................... 198
get file converters ........................................................................................................ 200
get FileMaker criteria ................................................................................................. 200
get international .......................................................................................................... 200
get list item ................................................................................................................... 201
get open filename ........................................................................................................ 201
get pivot table data ...................................................................................................... 201
get previous selections ............................................................................................... 201
get registered functions ............................................................................................. 201
get save as filename ..................................................................................................... 201
get subtotals ............................................................................................................... 202
get values ..................................................................................................................... 203
get visible fields ......................................................................................................... 204
go to ................................................................................................................................ 204
help .............................................................................................................................. 205
highlight changes options .......................................................................................... 206
inches to points ........................................................................................................... 206
input box ..................................................................................................................... 207
intersect ....................................................................................................................... 208
item selected .............................................................................................................. 208
large scroll ................................................................................................................... 209
link info ....................................................................................................................... 209
link sources ................................................................................................................ 210
list formulas ............................................................................................................... 210
merge scenarios .......................................................................................................... 210
merge workbook ........................................................................................................ 211
modify ........................................................................................................................ 211
modify condition ....................................................................................................... 211
new window on workbook ......................................................................................... 213
next Excel comment ................................................................................................. 214
on key ......................................................................................................................... 214
on repeat ..................................................................................................................... 216
open FileMaker file .................................................................................................... 217
open links .................................................................................................................... 217
open text file ............................................................................................................. 218
open workbook ......................................................................................................... 220
paste special on worksheet ..................................................................................... 221
paste worksheet ....................................................................................................... 222
pivot select ............................................................................................................... 223
previous Excel comment .......................................................................................... 224
print out ..................................................................................................................... 224
print preview ............................................................................................................. 224
protect sharing ........................................................................................................... 225
protect workbook ...................................................................................................... 226
protect worksheet ..................................................................................................... 226
purge change history now ....................................................................................... 227
refresh ....................................................................................................................... 227
refresh all ................................................................................................................ 228
refresh query table ................................................................................................. 228
refresh table ............................................................................................................ 229
Using the Excel Dictionary

- register xll ................................................................. 229
- reject all changes ...................................................... 230
- remove all items ....................................................... 230
- remove item ................................................................ 230
- remove user ................................................................ 231
- reset all page breaks .................................................. 231
- run auto macros .......................................................... 232
- run VB Macro ............................................................. 232
- save as ...................................................................... 233
- save workbook as ...................................................... 234
- save workspace .......................................................... 234
- scroll workbook tabs .................................................. 236
- send to back ................................................................ 237
- set background picture .............................................. 237
- set default chart .......................................................... 237
- set FileMaker criteria .................................................. 238
- set list item ................................................................. 239
- set subtotals ............................................................... 239
- show ........................................................................ 240
- show all data .............................................................. 242
- show custom view ..................................................... 242
- show data form ............................................................ 242
- show levels .................................................................. 243
- show pages ................................................................. 243
- small scroll .................................................................. 244
- undo ........................................................................ 244
- union ......................................................................... 245
- unprotect sharing .......................................................... 245
- update ....................................................................... 246
- update from file .......................................................... 246
- update link .................................................................. 247
- use default folder suffix .............................................. 247
- wait ......................................................................... 247
- web page preview ....................................................... 247

Drawing Suite Classes

- arc ........................................................................ 249
- callout ..................................................................... 253
- callout format ............................................................ 254
- connector format ........................................................ 257
- fill format .................................................................. 259
- line .......................................................................... 264
- line format .................................................................. 266
- oval .......................................................................... 270
- picture ....................................................................... 274
- picture format ............................................................ 274
- rectangle .................................................................. 276
- shadow format ............................................................ 279
- shape ........................................................................ 280
- shape connector .......................................................... 285
- shape line .................................................................. 286
- shape textbox .............................................................. 286
Using the Excel Dictionary

text frame.................................................................287
threeD format..........................................................290
word art .................................................................293
word art format .......................................................295

Drawing Suite Commands

apply ...........................................................................299
automatic length.......................................................300
begin connect ..........................................................300
begin disconnect ......................................................301
bring to front (drawing) ..............................................301
check spelling (drawing) ...........................................302
copy object (drawing) ...............................................302
copy picture (drawing) .............................................303
custom drop ............................................................303
custom length ..........................................................304
cut (drawing) ...........................................................304
derect connect .........................................................305
derect disconnect .....................................................306
flip ............................................................................306
one color gradient ....................................................306
patterned .................................................................307
pick up ......................................................................308
preset drop ..............................................................308
preset gradient .......................................................309
preset textured .......................................................310
rerouted connections ..............................................310
reset rotation ..........................................................311
scale height ............................................................312
scale width .............................................................313
send to back (drawing) .............................................313
set extrusion direction .............................................314
set shapes default properties ..................................315
set threeD format ..................................................315
solid .......................................................................316
toggle vertical text ...............................................316
two color gradient ..................................................317
user picture ............................................................318
user textured ..........................................................318
z order .....................................................................318

Text Suite Classes

character .....................................................................319
font ...........................................................................320
style .........................................................................322
Using the Excel Dictionary

Text Suite Commands

get border (text) ........................................................................................................... 326
insert into ..................................................................................................................... 326

Table Suite Classes

cell ............................................................................................................................... 327
column ......................................................................................................................... 327
range ............................................................................................................................ 328
row ............................................................................................................................... 328

Table Suite Commands

activate object (table) .................................................................................................... 339
add comment ................................................................................................................... 339
advanced filter .............................................................................................................. 340
apply names .................................................................................................................. 340
apply outline styles ..................................................................................................... 341
autocomplete .............................................................................................................. 341
autofill .......................................................................................................................... 342
autofilter range ............................................................................................................. 342
autofill .......................................................................................................................... 343
autoformat .................................................................................................................... 344
auto outline ................................................................................................................... 345
calculate (table) .......................................................................................................... 345
calculate (table).......................................................................................................... 345
check spelling (table) .................................................................................................. 347
clear contents (table) .................................................................................................. 348
clear Excel comments ................................................................................................. 348
clear outline ................................................................................................................ 348
clear range .................................................................................................................. 348
clear range formats .................................................................................................... 348
calculate (table) .......................................................................................................... 348
consolidate ................................................................................................................... 349
copy picture (table) ..................................................................................................... 350
copy range ................................................................................................................... 350
create names ................................................................................................................ 350
cut range ...................................................................................................................... 351
data series .................................................................................................................... 351
data table ..................................................................................................................... 352
delete range ................................................................................................................ 352
defill down ................................................................................................................. 353
defill left ....................................................................................................................... 353
defill right .................................................................................................................... 354
defill up ....................................................................................................................... 354
find ................................................................................................................................ 355
find next ...................................................................................................................... 356
find previous .............................................................................................................. 357
function wizard ......................................................................................................... 358
get address ................................................................................................................... 358
Using the Excel Dictionary

get address local .................................................................................................................. 359
get border (table) ............................................................................................................. 359
get end ............................................................................................................................ 359
get offset .......................................................................................................................... 360
get resize .......................................................................................................................... 361
get XML value .................................................................................................................. 361
goal seek ........................................................................................................................... 361
group .................................................................................................................................. 362
insert indent ....................................................................................................................... 363
insert into range ............................................................................................................... 363
justify .................................................................................................................................. 364
list names ........................................................................................................................... 364
merge .................................................................................................................................. 364
navigate arrow .................................................................................................................. 365
parse .................................................................................................................................. 365
paste special ..................................................................................................................... 366
print out (table) ............................................................................................................... 366
print preview (table) ....................................................................................................... 367
remove subtotal ............................................................................................................... 368
replace ................................................................................................................................ 368
row differences ............................................................................................................... 369
run VB macro (table) ..................................................................................................... 369
set XML value ................................................................................................................... 370
show (table) ...................................................................................................................... 370
show dependents ............................................................................................................. 370
show errors ...................................................................................................................... 371
show precedents ............................................................................................................. 371
sort .................................................................................................................................... 371
sort special ....................................................................................................................... 373
special cells ....................................................................................................................... 374
subtotal ............................................................................................................................. 375
text to columns ............................................................................................................... 375
ungroup ............................................................................................................................ 377
unmerge ............................................................................................................................. 378

Proofing Suite Classes

autocorrect ....................................................................................................................... 379

Proofing Suite Commands

add replacement ............................................................................................................... 380
delete replacement ......................................................................................................... 380
get replacement list ......................................................................................................... 380

Chart Suite Classes

area group ......................................................................................................................... 382
axis .................................................................................................................................... 382
axis title ............................................................................................................................ 388
bar group .......................................................................................................................... 390
Using the Excel Dictionary

chart ................................................................. 390
chart area .......................................................... 390
chart fill format .................................................. 397
chart group ......................................................... 401
chart object ........................................................ 404
chart title ........................................................... 406
column group ..................................................... 409
corners .............................................................. 409
data label ............................................................ 409
data table ............................................................. 412
display unit label .................................................. 413
doughnut group ................................................... 415
down bars ............................................................ 416
drop lines ............................................................ 416
error bars ............................................................ 417
floor ................................................................ 417
gridlines .............................................................. 418
hilo lines ............................................................. 419
interior ............................................................... 419
leader lines ........................................................ 421
legend ............................................................... 421
legend entry ....................................................... 422
legend key .......................................................... 423
line group ........................................................... 426
pie group ............................................................ 427
plot area ............................................................. 427
radar group ......................................................... 429
series ................................................................ 429
series lines ........................................................ 435
tick labels ........................................................... 438
trendline ............................................................. 440
up bars ............................................................... 441
walls ................................................................. 442
xy group ............................................................. 443

Chart Suite Commands

activate object (chart) ............................................ 444
apply custom chart type ........................................ 445
apply data labels .................................................. 445
bring to front (chart) ............................................. 445
chart location ..................................................... 446
chart one color gradient ....................................... 446
chart patterned ................................................... 447
chart solid ........................................................ 448
chart two color gradient ...................................... 448
chart user picture ............................................... 449
chart user textured ............................................. 449
chart wizard ....................................................... 449
check spelling (chart) .......................................... 450
clear ................................................................. 450
clear contents (chart) .......................................... 450
clear formats ..................................................... 451
copy chart as picture .......................................... 451
Using the Excel Dictionary

copy object (chart) ............................................................................................................. 451

copy picture (chart) ........................................................................................................... 452

cut (chart) ......................................................................................................................... 452
deselect .................................................................................................................................. 452

error bar ............................................................................................................................... 453

get axis ................................................................................................................................. 453

get chart element ................................................................................................................ 453

get has axis .......................................................................................................................... 455

paste ................................................................................................................................... 455

copy chart ........................................................................................................................... 456

paste chart ......................................................................................................................... 456

paste series .......................................................................................................................... 456

preset chart gradient ......................................................................................................... 457

preset chart textured ......................................................................................................... 458

print out (chart) ................................................................................................................. 458

print preview (chart) .......................................................................................................... 458

protect chart ....................................................................................................................... 459

refresh (chart) .................................................................................................................... 459

save as (chart) .................................................................................................................... 460

send to back (chart) .......................................................................................................... 461

set background picture (chart) ........................................................................................ 461

set has axis .......................................................................................................................... 461

set source data ................................................................................................................... 461

unprotect (chart) ................................................................................................................. 462
Using the Excel AppleScript Dictionary

The Microsoft Excel AppleScript dictionary provides comprehensive access for programmatically controlling Excel by using AppleScript. The Excel AppleScript Dictionary is based on the Visual Basic object model for Excel, and as such its terminology and syntax closely mirror the terminology and syntax used in Visual Basic. As a result of this close relationship with Visual Basic, the Excel AppleScript Dictionary might appear more complex, and less "English-like" than other AppleScript Dictionaries.

Using classes and commands

Classes and commands in the Excel AppleScript Dictionary often have many properties and parameters. Many of these properties and parameters are represented by enumerations — or lists of — constants rather than text or numbers or Boolean operators. These enumerations use many of the same words as their parameters or properties and are usually descriptive of what they represent. Because of the nature of the AppleScript language and the complexity of the underlying object model, expressions containing several properties and parameters can be very long and often look confusing. In such cases, it is helpful to use parentheses to separate out one property from another to make your scripts easier to read. Additionally, you will find that the Excel object model is very deep, requiring several layers to access certain objects. You might find it helpful to use variables to store these objects and reduce the complexity of your script.

As in other applications, optional command parameters are denoted in the dictionary by [square brackets]. Class properties always have default values, which means that when you create new objects it is not necessary to supply values for all of the properties. Properties denoted by [r/o] are read-only and cannot be set once an object exists. However, when you use the make command to create new objects, most read-only properties can be set by using the with properties clause. For more information about the properties available for various objects, see the object's entry in the Dictionary Reference portion of this guide.
Using the Excel Dictionary

Activating a workbook

Activating a workbook using the **activate object** command puts the workbook in the active window. The following procedure activates the open workbook named "MyBook.xls."

```plaintext
tell application "Microsoft Excel"
  activate
  activate object workbook "MyBook.xls"
end tell
```

**Note** The **activate object** command works only if Excel is the active program. When you use the **activate object** command, you should also use the **activate** command to ensure that Excel is the active program.

Creating a new workbook

To create a new workbook, you use the **make** command. The following procedure creates a new workbook. Microsoft Excel automatically names the workbook SheetN, where N is the next available number. The new workbook becomes the active workbook.

```plaintext
make new workbook
```

A better way to create a new workbook is to assign it to a variable. In the following example, the **workbook** object returned by the **make** command is assigned to the variable **newBook**. Next, several properties of **newBook** are set. You can easily control the new workbook using the object variable.

```plaintext
set newBook to make new workbook
set update remote references of newBook to true
save workbook as newBook filename "95Sales.xls"
```

Opening a workbook

You can open a workbook by using the **open workbook** command. The following procedure opens a workbook named MyBook.xls.

```plaintext
open workbook workbook file name "Macintosh HD:Users:Shared:MyBook.xls"
```

**Note** It is recommended that you use the **open workbook** command (Microsoft Excel Suite) rather than the **open** command (Standard Suite) to open a workbook in Excel. In addition to returning a workbook object to which you can assign a variable, the **open workbook** command provides several optional parameters you can set when opening the workbook. If you want to open multiple workbooks at once, use the **open** command.

Referring to sheets by name

You can identify sheets by name by using the **worksheet** and **chart** classes. The following statements activate various sheets in the active workbook.

```plaintext
activate object worksheet "Sheet1"
activate object chart object "Chart 1" of sheet 1
```

You can use the **sheet** class to return a worksheet or chart. The following example activates the sheet named "Chart1" in the active workbook.

```plaintext
activate object sheet "Chart1"
```
Using the Excel Dictionary

**Note** Charts embedded in a worksheet belong to the chart object class, while charts that exist on their own sheets belong to the chart class.

**Referring to sheets by index number**

An index number is a sequential number assigned to a sheet, based on the position of its sheet tab (counting from the left) among sheets of the same type. The following procedure uses the worksheet class to activate worksheet one in the active workbook.

```
activate object worksheet 1
```

If you want to work with all types of sheets (worksheets, charts, modules, and dialog sheets), use the sheet class. The following procedure activates sheet four in the workbook.

```
activate object sheet 4
```

**Note** The index order can change if you move, add, or delete sheets.

**How to reference cells and ranges**

A common task when you are creating a script is to specify a cell or range of cells and then do something with it, such as enter a formula or change the format. You can usually do this in one statement that identifies the range and also changes a property or applies a command.

A range object can be either a single cell or a range of cells. The following topics show the most common ways to identify and work with range objects.

**Referring to cells and ranges using A1 notation**

You can refer to a cell or range of cells in the A1 reference style by using the range class. The following procedure changes the format of cells A1:D5 to bold.

```
set theRange to range "A1:D5" of sheet 1 of active workbook
set bold of font object of theRange to true
```

The following table illustrates some A1-style references using the range class.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>range &quot;A1&quot;</td>
<td>Cell A1</td>
</tr>
<tr>
<td>range &quot;A1:B5&quot;</td>
<td>Cells A1 through B5</td>
</tr>
<tr>
<td>range &quot;C5:D9,G9:H16&quot;</td>
<td>A multiple-area selection</td>
</tr>
<tr>
<td>range &quot;A:A&quot;</td>
<td>Column A</td>
</tr>
<tr>
<td>range &quot;1:1&quot;</td>
<td>Row one</td>
</tr>
<tr>
<td>range &quot;A:C&quot;</td>
<td>Columns A through C</td>
</tr>
<tr>
<td>range &quot;1:5&quot;</td>
<td>Rows one through five</td>
</tr>
<tr>
<td>range &quot;1:1,3:3,8:8&quot;</td>
<td>Rows one, three, and eight</td>
</tr>
</tbody>
</table>
Using the Excel Dictionary

You can also use absolute references with the range class. When you return a cell reference from Excel, the reference is returned as an absolute reference. The following table illustrates absolute cell references.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>range &quot;$A$1&quot;</td>
<td>Cell A1</td>
</tr>
<tr>
<td>range &quot;$A$1:$B$5&quot;</td>
<td>Cells A1 through B5</td>
</tr>
</tbody>
</table>

For more information about the difference between relative and absolute cell references, see “About cell and range references” in Excel Help.

Referring to cells using index numbers

You can use the cell class to refer to a single cell by using row and column index numbers. This class inherits properties from a range object and represents a single cell. In the following example, cell 6 of column 1 returns cell A6 on Sheet1. The value property is then set to 10.

```vba
set value of cell 6 of column 1 of active sheet to 10
```

Referring to rows and columns

To work with entire rows or columns, use the row class or the column class. These classes inherit properties from the range class. In the following example, row 1 of worksheet "sheet 1" returns row one on Sheet1. The bold property of the font object for the row is then set to true.

```vba
set bold of font object of (row 1 of worksheet "sheet1") to true
```

The following table illustrates some row and column references using the row and column classes.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>row 1</td>
<td>Row one</td>
</tr>
<tr>
<td>rows</td>
<td>All the rows on the worksheet</td>
</tr>
<tr>
<td>column 1</td>
<td>Column one</td>
</tr>
<tr>
<td>column &quot;A&quot;</td>
<td>Column one</td>
</tr>
<tr>
<td>columns</td>
<td>All the columns on the worksheet</td>
</tr>
</tbody>
</table>

To work with several rows or columns at the same time, create an object variable and use the union command, combining multiple calls to the row or column class. The following example changes the format of rows one, three, and five on worksheet one in the active workbook to bold.

```vba
set mySheet to worksheet "Sheet1" of active workbook
set myUnion to union range1 (row 1 of mySheet) range2 (row 3 of mySheet) range3 (row 5 of mySheet)
set bold of font object of myUnion to true
```
Using the Excel Dictionary

**Referring to named ranges**
Ranges are easier to identify by name than by A1 notation. To name a selected range, click the name box at the left end of the formula bar, type a name, and then press ENTER.

**Referring to a named range**
The following example refers to the range named "MyRange" in the workbook named "MyBook.xls."
set italic of font object of range "MyBook.xls!MyRange" to true
The following example places a border around the worksheet-specific range named "Sheet1!Sales" in the workbook named "Report.xls."
border around (range "[Report.xls]Sheet1!Sales") weight border weight thin
To select a named range, use the goto command, which activates the workbook and the worksheet and then selects the range.
goto reference (range "MyBook.xls!MyRange")
clear contents selection

**Referring to cells using a range object**
If you set a variable to a range object, you can easily manipulate the range by using the variable name.
The following procedure creates the variable myRange and then assigns the variable to range A1:D5 on Sheet1 in the active workbook. Subsequent statements modify properties of the range by substituting the variable name for the range object.
set myRange to range "A1:D5" of worksheet "Sheet1"
set formula of myRange to "=RAND()"
set bold of font object of myRange to true

**Referring to multiple ranges**
Using the appropriate command, you can easily refer to multiple ranges. To refer to any group of ranges, use the range class and union command.

**Using the range class**
You can refer to multiple ranges with the range class by putting commas between two or more references. The following example clears the contents of three ranges on Sheet1.
clear contents range "C5:D9, G9:H16, B14:D18" of sheet 1 of active workbook
Named ranges make using the range class to work with multiple ranges easier. The following example works when all three named ranges are on the same sheet.
clear contents (range "MyRange, YourRange, TheRange")
Using the Excel Dictionary

Using the union command

You can combine multiple ranges into one range object using the union command. The following example creates a range object named myMultipleRange, defines it as the ranges A1:B2 and C3:D4, and then formats the combined ranges as bold.

set r1 to range "A1:B2" of sheet "Sheet1"
set r2 to range "C3:D4" of sheet "Sheet1"
set myMultipleRange to union range1 r1 range2 r2
set bold of font object of myMultipleRange to true

Selecting and activating cells

When you work with Microsoft Excel, you usually select a cell or cells and then perform an action, such as formatting the cells or entering values in them. When you are writing a script, it is usually not necessary to select cells before modifying them.

For example, if you want to enter a formula in cell D6, you don't need to select the range D6. You just need to return the range object and then set the formula property to the formula you want, as shown in the following example.

set formula of range "D6" of worksheet "Sheet1" to "=SUM(D2:D5)"

For examples of using other commands to control cells without selecting them, see the topic on "How to reference cells and ranges."

Using the select command and the selection property

The select command activates sheets and objects on sheets; the selection property returns an object that represents the current selection on the active sheet in the active workbook. Before you can use the selection property successfully, you must activate a workbook, activate or select a sheet, and then select a range (or other object) by using the select command.

Activating a cell within a selection

You can use the activate object command to activate a cell within a selection. There can be only one active cell, even when a range of cells is selected. The following procedure selects a range and then activates a cell within the range without changing the selection.

activate object worksheet "Sheet1"
select (range "A1:D4")
activate object (range "B2")
Using the Excel Dictionary

Working with the active cell
The active cell property returns a cell object that represents the cell that is active. You can apply any of the properties or commands of a range object to the active cell, as in the following example.

activate
activate object worksheet "Sheet1"
set value of active cell to 35

Note You can work with the active cell only when the worksheet that it is on is the active sheet.

Moving the active cell
You can use the activate object command to designate which cell is the active cell. For example, the following procedure makes B5 the active cell and then formats it as bold.

activate object worksheet "Sheet1"
activate object range "B5" of worksheet "Sheet1"
set bold of font object of active cell to true

Note To select a range of cells, use the select command. To make a single cell the active cell, use the activate object command.

Selecting the cells surrounding the active cell
The current region property returns a range of cells bounded by blank rows and columns. In the following example, the selection is expanded to include the cells adjoining the active cell that contain data.

activate object worksheet "Sheet1"
select current region of active cell
Class: assistant

Plural
assistants

Elements
balloon

Represents the Microsoft Office Assistant.

Use the office assistant property of the application class to return the assistant. Only one assistant object can be active at a time. Use the visible property to display the Assistant.

By default, the Office Assistant is off. The default Assistant is Max. To select a different Assistant programatically, use the file name property.

The following example turns on, displays, and animates the Assistant.

set assistant on of office assistant to true
set visible of office assistant to true
set animation of office assistant to greeting
Microsoft Office Suite

Properties

*animation*

Returns or sets an animation action for the Office Assistant. When this property is applied to the **assistant** object, the Assistant is animated immediately (if it is visible). When this property is applied to the **balloon** object, the Assistant is animated only while the balloon is displayed.

Can be one of the following constants:

- **appear**
- **begin speaking**
- **character success major**
- **checking something**
- **disappear**
- **empty trash**
- **gesture down**
- **gesture left**
- **gesture right**
- **gesture up**
- **get artsy**
- **get attention major**
- **get attention minor**
- **get techy**
- **get wizardy**
- **goodbye**
- **greeting**
- **idle**
- **listens to computer**
- **look down**
- **look down left**
- **look down right**
- **look left**
- **look right**
- **look up**
- **look up left**
- **look up right**
- **printing**
- **saving**
- **searching**
- **sending mail**
- **thinking**
- **working at something**
- **writing noting something**

**assist with help**

True if the Office Assistant appears when the user presses the HELP key to display Help. Read/write.

If this property is set to False, the Help window appears instead of the Office Assistant.

This property corresponds to the **Respond to HELP key** option (Office Assistant dialog box, **Options** tab).

**assist with wizards**

True if the Office Assistant provides online Help with wizards. Read/write.

This property corresponds to the **Help with wizards** option (Office Assistant dialog box, **Options** tab).

**assistant item**

Returns the text associated with the Office Assistant. Read-only.

**assistant on**

True if the Office Assistant is enabled. Read/write.
Microsoft Office Suite

balloon error

Returns a value that indicates the last recorded balloon error. Read-only.

Can be one of the following:

- **bad picture reference**: The balloon contains a graphic that couldn't be displayed because the file doesn't exist or because the graphic isn't a valid PICT file.
- **bad reference**: The balloon contains an unrecognized or unsupported reference.
- **buttonless modal**: The balloon you attempted to display is modal, but it contains no buttons. The balloon won't be shown because it can't be dismissed.
- **button modeless**: The balloon you attempted to display is modeless, contains no buttons, and has no procedure assigned to the callback property. The balloon won't be shown because a callback procedure is required for modeless balloons.
- **none**: No error was encountered.
- **bad character**: The balloon contains an ASCII control character other than CR or LF and greater than 32.
- **out of memory**: The balloon won't appear because there is insufficient memory.
- **too big**: The balloon is too big to appear on the screen.
- **other**: The balloon won't appear because some other error occurred; for example, another modal balloon is already active.

feature tips

**True** if the Office Assistant provides information about using application features more effectively. Read/write.

This property corresponds to the Using features more effectively option (Office Assistant dialog box, Options tab).

file name

Returns or sets the name of the file for the active Office Assistant. Read/write.

The Office Assistant files are installed in the Microsoft Office 2004/Office/Assistants folder.

keyboard shortcut tips

**True** if the Office Assistant displays Help about keyboard shortcuts. Read/write.

This property corresponds to the Keyboard shortcuts option (Office Assistant dialog box, Options tab).

left position

Returns the horizontal position of the Office Assistant window (in points) relative to the screen.
Microsoft Office Suite

mouse tips

True if the Office Assistant provides suggestions for using the mouse effectively. Read/write.

This property corresponds to the Using the mouse more effectively option (Office Assistant dialog box, Options tab).

move when in the way

True if the Office Assistant window automatically moves when it's in the way of the user's work area. For example, the Office Assistant will move if it's in the way of dragging or dropping or in the way of keystroke entries. Read/write.

This property corresponds to the Move when in the way option (Office Assistant dialog box, Options tab).

name

Returns the name of the Office Assistant currently in use. Read-only.

sounds

True if the Office Assistant produces the sounds that correspond to animations. Read/write.

If a sound card is not installed, this property has no effect.

tip of the day

True if the Office Assistant displays a special tip each time the Office application is opened. Read/write.

This property corresponds to the Show the Tip of the Day at startup option (Office Assistant dialog box, Options tab).

top

Returns the vertical position of the Office Assistant window (in points) relative to the screen.

visible

True if the Office Assistant is visible. Read-write.

Class: balloon checkbox

Represents a check box in the Office Assistant balloon.

Use balloon checkbox index, where index is a number from 1 through 5, to return a single balloon checkbox object. There can be up to five check boxes in one balloon; each check box appears when a value is assigned to its checkbox text property.

Remarks

Balloon check boxes display the user's choices until the user dismisses the balloon. To record the user's choice as soon as the user clicks the button beside the label, see the topic on balloon labels.
Microsoft Office Suite

Properties

*balloon checkbox item*

Returns the text associated with the balloon check box. Read-only.

*checkbox text*

Returns or sets the text displayed next to a check box in the Office Assistant balloon. Read/write.

*checked*

*True* if the specified check box in the Office Assistant balloon is checked. Read/write.

*name*

Returns the name of the check box label. Read-only.

Class: balloon

Plural

balloons

Elements

*balloon checkbox*

*balloon label*

Represents the balloon in which the Office Assistant displays information. A balloon can contain controls such as check boxes and labels.

Only one balloon can be visible at a time. However, it's possible to define several balloons and display any one of them when needed. For more information, see "Defining and Reusing Balloons" later in this topic.

To make the specified balloon visible, use the *show balloon* command. Use the *call back* property to run procedures based on selections from modeless balloons (balloons that remain visible while a user works in the application).

The following example creates a balloon that contains tips for saving entered data.

```plaintext
set newbal to make new balloon of office assistant
set balloon type of newbal to bullets
set icon of newbal to icon tip
set balloon button of newbal to buttons ok cancel
set heading of newbal to "Tips for Saving Information."
repeat 3 times
    make new balloon label at the beginning of newbal
    set label text of balloon label 1 of newbal to "Save your work often."
    set label text of balloon label 2 of newbal to "Install a surge protector."
    set label text of balloon label 3 of newbal to "Exit your application properly."
end repeat
show balloon newbal
```
Defining and Reusing Balloons

You can reuse balloon objects you've already created by assigning the object to a variable and displaying the variable when you need it. This example defines balloon1, balloon2, and balloon3 separately so they can be reused.

```vba
set balloon1 to make new balloon of office assistant
set heading of balloon1 to "First balloon"

Set balloon2 to make new balloon of office assistant
set heading of balloon2 to "Second balloon"

Set balloon3 to make new balloon of office assistant
set heading of balloon3 to "Third balloon"

show balloon balloon1
show balloon balloon3
show balloon balloon2
```

Alternatively, instead of using separate variables, you can place the balloon object into an array.

Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>balloon button</code></td>
<td>Returns or sets the type of button displayed at the bottom of the Office Assistant balloon. When you create a new balloon, this property is initially set to <strong>OK</strong>. Read/write.</td>
</tr>
</tbody>
</table>

Can be one of the following:

<table>
<thead>
<tr>
<th>Buttons</th>
<th>Buttons</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>abort retry ignore</code></td>
<td><code>ok cancel</code></td>
</tr>
<tr>
<td><code>back close</code></td>
<td><code>retry cancel</code></td>
</tr>
<tr>
<td><code>back next close</code></td>
<td><code>search close</code></td>
</tr>
<tr>
<td><code>back next snooze</code></td>
<td><code>tips options close</code></td>
</tr>
<tr>
<td><code>cancel</code></td>
<td><code>yes all no cancel</code></td>
</tr>
<tr>
<td><code>next close</code></td>
<td><code>yes no cancel</code></td>
</tr>
<tr>
<td><code>none</code></td>
<td><code>yes no</code></td>
</tr>
<tr>
<td><code>ok</code></td>
<td></td>
</tr>
</tbody>
</table>
**Microsoft Office Suite**

**balloon mode**

Returns or sets the type of balloon displayed. Read/write.

Can be one of the following:

- **auto down balloon** - Balloon is instantly dismissed when the user clicks anywhere on the screen.
- **modal balloon** - This is the initial default setting. User must dismiss the balloon before he or she can return to working in the application.
- **modeless balloon** - User can work in the application while the balloon is visible. When this value is used, a value for the call back callback property is also required. When you create a new balloon, this property is initially set to **modal balloon**.

**balloon text**

Returns or sets the text displayed after the heading but before the labels or check boxes in the Office Assistant balloon. Read/write.

You can specify a graphic to display by using the following syntax:

```
{type location sizing_factor},
```

where

- **type** is pict (Macintosh PICT file).
- **location** is the resource id or the path and file name.
- **sizing_factor** specifies the width of the pict.

**balloon type**

Returns or sets the type of balloon the Office Assistant uses. Read/write.

Can be one of the following:

- **buttons** - This is the initial default setting.
- **bullets**
- **numbers**
Microsoft Office Suite

**call back**

Sets the name of the procedure to run from a modeless balloon. Read/write String.

The procedure you specify for the **call back** property must be written to receive three arguments:

- The balloon object that called the procedure
- The value of the button the user clicked
- An integer that uniquely identifies the balloon that called the procedure

**heading**

Returns or sets the heading that appears in the Office Assistant balloon. Read/write.

You can specify a graphic to display in the balloon heading by using the following syntax:

```
{type location sizing_factor}
```

where

- **type** is pict (Macintosh PICT file).
- **location** is the resource id or the path and file name
- **sizing_factor** specifies the width of the pict.

**icon**

Returns or sets the type of icon that appears in the upper-left portion of the Office Assistant balloon. Read/write.

Can be one of the following:

- **icon alert**
- **icon alert critical**
- **icon alert info**
- **icon alert warning**
- **icon application**
- **icon none**
- **icon tip**

**name**

Returns the name of the balloon. Read-only.
Class: balloon label

Represents a label in the Office Assistant balloon.

Use balloon label index, where index is a number from 1 through 5, to return a balloon label object. There can be up to five labels on one balloon; each label appears when a value is assigned to its label text property.

Remarks
Balloon labels record the user's choice as soon as the user clicks the button beside the label. To display the user's choices until the user dismisses the balloon, see the topic on balloon check boxes.

Properties

balloon label item

  Returns the text associated with the balloon label. Read-only.

label text

  Returns or sets the text displayed next to a label in the Office Assistant balloon. Read/write.

Remarks
You can specify a graphic to display by using the following syntax:

{type location sizing_factor},

where

type is pict (Macintosh PICT file)
location is the resource id or the path and file name
and sizing_factor specifies the width of the pict

name

  Returns the name of the balloon label. Read-only.

Class: command bar

Plural

command bars

Elements

command bar control

Represents a command bar in an Office application.
Use `command bar index`, where `index` is the name or index number of a command bar, to return a command bar object. The following example steps through the collection of command bars to find the command bar named "Forms." If it finds this command bar, the example makes it visible and protects its docking state. In this example, the variable `bars` represents the list of all `command bars`, and the variable `cb` represents a `command bar` object.

```plaintext
set foundFlag to false
set bars to command bars
repeat with cb in bars
    repeat 1 times
        if name of cb is "Forms" then
            set protection of cb to no change dock
            set visible of cb to true
            set foundFlag to true
        end if
    exit repeat
set end of bars to cb
end repeat
if foundFlag is false then
    display dialog "There is no Forms command bar."
end if
```

You can use a name or index number to specify a menu bar or toolbar in the list of available menu bars and toolbars in the Office application. However, you must use a name to specify a menu, shortcut menu, or submenu (all of which are represented by `command bar` objects). This example adds a new menu item to the bottom of the `Tools` menu. When a user clicks the new menu item, it runs the procedure named "qtrReport."

```plaintext
set newItem to make new command bar button at command bar "Tools"
set begin group of newItem to True
set caption of newItem to "Make Report"
set face id of newItem to 0
set OnAction of newItem to "qtrReport"
```

If two or more custom menus or submenus have the same name, `command bar index` returns the first one.
Microsoft Office Suite

Properties

*bar position*

Returns or sets the position of a command bar. Read/write.

Can be one of the following:

- bar left
- bar top
- bar right
- bar bottom
- bar floating
- bar pop up
- bar menu

*bar type*

Returns the type of command bar. Read-only.

Can be one of the following:

- normal command bar
- menubar command bar
- popup command bar

*built in*

True if the specified command bar or command bar control is a built-in command bar or control of the container application. False if it's a custom command bar or control. Read-only.

*context*

Returns or sets a string that determines where a command bar will be saved. The string is defined and interpreted by the application. Read/write.

You can set the context property only for custom command bars. This property will fail if the application doesn't recognize the context string, or if the application doesn't support changing context strings programatically.

*enabled*

True if the specified command bar or command bar control is enabled. Read/write.

For command bars, setting this property to True causes the name of the command bar to appear in the list of available command bars.

For built-in controls, setting this property to True causes the application to determine the state of the control. Setting this property to False forces the control to be disabled.
**Microsoft Office Suite**

*entry index*

Returns the index number for a command bar. Read-only.

The position of the first command bar control is 1. Separators are not counted.

*height*

Returns or sets the height (in pixels) of a command bar or command bar control. Read/write.

An error will occur if you attempt to set the *height* property for a command bar that isn't in a resizable state (that is, if it's docked or protected from resizing).

*left position*

Returns or sets the distance (in pixels) from the left edge of the specified command bar or command bar control to the left edge of the screen. Returns the distance from the left side of the docking area. Read/write.

*local name*

Returns the name of a built-in command bar as it's displayed in the language version of the container application, or returns or sets the name of a custom command bar. Read/write.

**Note** If you attempt to set this property for a built-in command bar, an error occurs.

The local name of a built-in command bar is displayed in the title bar (when the command bar isn't docked) and in the list of available command bars, wherever that list is displayed in the container application.

If you change the value of the *local name* property for a custom command bar, the value of *name* changes as well, and vice versa.

*name*

Returns or sets the name of the specified object. Read/write.

The local name of a built-in command bar is displayed in the title bar (when the command bar isn't docked) and in the list of available command bars, wherever that list is displayed in the container application.

For a built-in command bar, the *name* property returns the command bar's U.S. English name. To return the localized name, use the *local name* property.

If you change the value of the *name* property for a custom command bar, the value of *local name* changes as well, and vice versa.
**protection**

Returns or sets the way a command bar is protected from user customization. Read/write.

Can be one of or a sum of the following:

- no protection
- no customize
- no resize
- no move
- no change visible
- no change dock
- no vertical dock
- no horizontal dock

**row index**

Returns or sets the docking order of a command bar in relation to other command bars in the same docking area. Can be an integer greater than zero.

Several command bars can share the same row index, and command bars with lower numbers are docked first. If two or more command bars share the same row index, the command bar most recently assigned will be displayed first in its group.

**top**

Returns or sets the distance (in pixels) from the top edge of the specified command bar or command bar control to the top edge of the screen. For docked command bars, this property returns or sets the distance from the command bar to the top of the docking area. Read/write.

**visible**

True if a command bar or command bar control is visible. Read/write.

**width**

Returns or sets the width (in pixels) of the specified command bar or command bar control. Read/write.

**Class: command bar button**

**Plural**

**command bar buttons**

Represents a button control on a command bar.

Use **command bar control index**, where index is the index number of the control, to return a **command bar button** object. (The **control type** property of the control must be **control button**.)
Properties

button face is default

True if the face of the specified command bar button control is its original built-in face. This property can only be set to True, which will reset the face to the built-in face. Read/write.

button state

Returns or sets the appearance of a command bar button control. Can be one of the following:

- button state up
- button state down
- button state unset

button style

Returns or sets the way a command bar button control is displayed. Read/write.

Can be one of the following:

- button automatic
- button icon
- button caption
- button icon and caption

face id

Returns or sets the ID number for the face of a command bar button control. Read/write.

The face id property dictates the look, but not the function, of a command bar button. To determine the function of the button, use the id property of the command bar control object.

The value of the face id property for a command bar button with a custom face is 0 (zero).

shortcut text

Returns or sets the shortcut key text displayed next to a button control when the button appears on a menu, submenu, or shortcut menu. Read/write.

You can set this property only for command bar buttons that contain an on-action macro.

Class: command bar combobox

Plural

command bar comboboxes

Represents a combo box control on a command bar.

Use command bar control index, where index is the index number of the control, to return a command bar combobox object. (The control type property of the control must be control edit, control dropdown, control combobox, button dropdown, split dropdown, OCX dropdown, graphic combo, or graphic dropdown.)
The following example creates a new command bar combobox and adjusts the size of the control on the command bar named "Custom," and then it adds two items to the combo box.

```plaintext
set newCombo to make new command bar control at command bar "Custom" with ¬
              properties {control type:control combobox}
set drop down lines of newCombo to 3
set drop down width of newCombo to 90
set list index of newCombo to 0
add item to combobox newCombo combobox item "First Item" entry index 1
add item to combobox newCombo combobox item "Second Item" entry index 2
```

**Properties**

*combobox style*

Returns or sets the way a command bar combo box control is displayed. Read/write.

Can be either of the following:

- **combobox style label**
- **combobox style normal**

*combobox text*

Returns or sets the text in the display or edit portion of the command bar combo box control. Read/write.

*drop down lines*

Returns or sets the number of lines in the specified command bar combo box control. The combo box control must be a custom control, and it must be either a drop-down list box or a combo box. Read/write.

**Note** If this property is set for a combo box control that's either an edit box or a built-in combo box control, an error occurs.

If this property is set to 0 (zero), the number of lines in the control will be based on the number of items in the list.

*drop down width*

Returns or sets the width (in pixels) of the list for the specified command bar combo box control. Read/write.

**Note** An error occurs if you attempt to set this property for a built-in control.

If this property is set to -1, the width of the list is based on the length of the longest item in the combo box list. If this property is set to 0, the width of the list is based on the width of the control.

*list index*

Returns or sets the index number of the selected item in the list portion of the command bar combo box control. If nothing is selected in the list, this property returns zero. Read/write.

**Note** This property fails when applied to controls other than list controls.

Setting the list index property causes the specified control to select the given item and execute the appropriate action in the application.
Class: command bar control

Plural
command bar controls

 Represents a command bar control. The properties and commands of the command bar control object are all shared by the command bar button, command bar combobox, and command bar popup classes.

Note To write scripts to work with custom command bar controls, use the command bar button, command bar combobox, and command bar popup classes. To write scripts to work with built-in controls in the container application that cannot be represented by one of those three classes, use the command bar control class.

Use command bar control index, where index is the index number of a control, to return a command bar control object. (The control type property of the control must be control label, expanding grid, split expanding grid, control grid, or control gauge.)

Note Variables declared as command bar control can be assigned command bar button, command bar combobox, and command bar popup values.

Properties

begin group

 True if the specified command bar control appears at the beginning of a group of controls on the command bar. Read/write.

built in

 True if the specified command bar or command bar control is a built-in command bar or control of the container application. False if it's a custom command bar or control, or if it's a built-in control whose on action property has been set. Read-only.

control type

 Returns the type of command bar control. Read-only.

Can be one of the following:

control button
button drop down
button popup
control combobox
control custom
control dropdown
control edit
expanding grid
control gauge
generic dropdown
graphic combo
graphic popup
graphic dropdown
control grid
control label
OCX dropdown
msopopup
split button MRU popup
split button popup
split dropdown
split expanding grid
description text

Returns or sets the description for the specified command bar control. The description is displayed in the status bar of the container application when the user positions the pointer over a command bar control. Read/write.

Not all applications display a status bar.

enabled

**True** if the specified command bar or command bar control is enabled. Read/write.

For command bars, setting this property to **True** causes the name of the command bar to appear in the list of available command bars.

For built-in controls, if you set the *enabled* property to **True**, the application determines its state. Setting the *enabled* property to **False** forces the control to be disabled.

entry index

Returns the index number for the **command bar control**. Read-only.

height

Returns or sets the height (in pixels) of a command bar or command bar control. Read/write.

An error will occur if you attempt to set the height property for a command bar that isn't in a resizable state (that is, if it's docked or protected from resizing).

help context ID

Returns or sets the Help context Id number for the Help topic attached to the command bar control. Read/write.

To use this property, you must also set the *help file* property.

help file

Returns or sets the Help file name for the Help topic attached to the command bar control. Read/write.

To use this property, you must also set the *help context ID* property.

id

Returns the ID for a built-in command bar control. Read-only.

A control's ID determines the built-in action for that control. The value of the *id* property for all custom controls is 1.
Microsoft Office Suite

left position

Returns the distance (in pixels) from the left edge of the specified command bar or command bar control to the left edge of the screen. Returns the distance from the left side of the docking area. Read-only.

name

Returns or sets the caption text for a command bar control. Read/write.

on action

Returns or sets the name of a Visual Basic procedure that will run when the user clicks or changes the value of a command bar control. Read/write.

parameter

Returns or sets a string that an application can use to execute a command. Read/write.

If the specified parameter is set for a built-in control, the application can modify its default behavior if it can parse and use the new value. If the parameter is set for custom controls, it can be used to send information to Visual Basic procedures, or it can be used to hold information about the control (similar to a second tag property value).

priority

Returns or sets the priority of a command bar control. A control’s priority determines whether the control can be dropped from a docked command bar if the command bar controls can’t fit in a single row. Read/write.

Valid priority numbers are 0 (zero) through 7. Special priority numbers are 0 and 1. A priority of 0 indicates an “automatic” value, which means a number is assigned based on the type of control. A priority of 1 means the control cannot be dropped.

tag

Returns or sets information about the command bar control, such as data that can be used as an argument in procedures, or information that identifies the control. Read/write.

tooltip text

Returns or sets the text displayed in a command bar control’s ScreenTip. Read/write.

top

Returns or sets the distance (in pixels) from the top edge of the specified command bar or command bar control to the top edge of the screen. For docked command bars, this property returns or sets the distance from the command bar to the top of the docking area. Read-only.
Microsoft Office Suite

visible

True if a command bar or command bar control is visible. Read/write.

width

Returns or sets the width (in pixels) of the specified command bar or command bar control. Read/write.

Class: command bar popup

Plural
command bar popups

Elements
command bar control

Represents a pop-up control on a command bar.

Use command bar control index, where index is the number of the control, to return a command bar popup object. (The control type property of the control must be control popup, graphic popup, button popup, split button popup, or split button MRU popup.)

Class: custom document property

Plural
custom document properties

Represents a custom document property of a container document.

Use custom document property index, where index is the name or index number of the custom document property, to return a custom document property object that represents a specific custom document property.

Class: document property

Plural
document properties

Represents a built-in document property of a container document.

Use document property index, where index is the name or index number of the built-in document property, to return a single document property object that represents a specific built-in document property.
The names of all the available built-in document properties are shown on the following list:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Number of Words</td>
</tr>
<tr>
<td>Subject</td>
<td>Number of Characters</td>
</tr>
<tr>
<td>Author</td>
<td>Security</td>
</tr>
<tr>
<td>Keywords</td>
<td>Category</td>
</tr>
<tr>
<td>Comments</td>
<td>Format</td>
</tr>
<tr>
<td>Template</td>
<td>Manager</td>
</tr>
<tr>
<td>Last Author</td>
<td>Company</td>
</tr>
<tr>
<td>Revision Number</td>
<td>Number of Bytes</td>
</tr>
<tr>
<td>Application Name</td>
<td>Number of Lines</td>
</tr>
<tr>
<td>Last Print Date</td>
<td>Number of Paragraphs</td>
</tr>
<tr>
<td>Creation Date</td>
<td>Number of Slides</td>
</tr>
<tr>
<td>Last Save Time</td>
<td>Number of Notes</td>
</tr>
<tr>
<td>Total Editing Time</td>
<td>Number of Hidden Slides</td>
</tr>
<tr>
<td>Number of Pages</td>
<td>Number of Multimedia Clips</td>
</tr>
</tbody>
</table>

Container applications don't necessarily define a value for every built-in document property. If a given application doesn't define a value for one of the built-in document properties, returning the `value` property for that document property causes an error.

**Properties**

- **document property type**
  - Returns or sets the document property type. Read-only for built-in document properties; read/write for custom document properties.
  - Can be one of the following:
    - boolean
    - date
    - float
    - number
    - string

- **link source**
  - Returns or sets the source of a linked custom document property. Read/write.
  - This property applies only to custom document properties; you cannot use it with built-in document properties.
  - The source of the specified link is defined by the container application.
  - Setting the `link source` property sets the `link to context` property to **True**.
**Microsoft Office Suite**

*link to context*

**True** if the value of the custom document property is linked to the content of the container document. **False** if the value is static. Read/write.

This property applies only to custom document properties. For built-in document properties, the value of this property is **False**.

Use the *link source* property to set the source for the specified linked property. Setting the *link source* property sets the *link to context* property to **True**.

*name*

Returns the name of the specified object. Read-only.

*value*

Returns or sets the value of a document property. Read/write.

If the container application doesn't define a value for one of the built-in document properties, reading the *value* property for that document property causes an error.

**Class: web page font**

Represents the default font used when documents are saved as Web pages for a particular character set.

Use the *web page font* object to describe the proportional font, proportional font size, fixed-width font, and fixed-width font size for any available character set. The following character sets are supported:

<table>
<thead>
<tr>
<th>Arabic</th>
<th>Korean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyrillic</td>
<td>Multilingual</td>
</tr>
<tr>
<td>English</td>
<td>Unicode</td>
</tr>
<tr>
<td>Western</td>
<td>Simplified Chinese</td>
</tr>
<tr>
<td>European</td>
<td>Thai</td>
</tr>
<tr>
<td>Other Latin</td>
<td>Traditional Chinese</td>
</tr>
<tr>
<td>Script</td>
<td>Vietnamese</td>
</tr>
</tbody>
</table>

**Properties**

*fixed width font*

Sets or returns the fixed-width font setting in the host application. Read/write.

When you set the *fixed width font* property, the host application does not check the value for validity.
Microsoft Office Suite

**fixed width font size**

Sets or returns the fixed-width font size setting in the host application, in points. Read/write.

When you set the *fixed width font size* property, the host application does not check the value for validity. If you enter an invalid value, such as a nonnumber, the host application sets the size to 0 points. You can enter half-point sizes; if you enter other fractional point sizes, they are rounded up or down to the nearest half-point.

**proportional font**

Sets or returns the proportional font setting in the host application. Read/write.

When you set the *proportional font* property, the host application does not check the value for validity.

**proportional font size**

Sets or returns the proportional font size setting (in points) in the host application. Read/write.

When you set the *proportional font size* property, the host application does not check the value for validity. If you enter an invalid value, such as a nonnumber, the host application sets the size to 0 points. You can enter half-point sizes; if you enter other fractional point sizes, they are rounded up or down to the nearest half-point.
Microsoft Office Suite Commands

Command: add item to combobox

Adds a list item to the specified command bar combo box control. The combo box control must be a custom control, and it must be either a drop-down list box or a combo box.

**Note**  This command will fail if it's applied to an edit box or a built-in combo box control.

**Syntax**

```
add item to combobox command bar combobox combobox item Unicode text [entry index small integer]
```

- `command bar combobox` Required. An expression that returns a command bar combobox object.
- `combobox item` Unicode text Required. The text to be added to the specified control.
- `[entry index small integer]` Optional. The position of the specified item in the list. If this argument is omitted, the item is added at the end of the list.

**Example**

This example adds a combo box control to a command bar. Two items are added to the control, and the number of line items and the width of the combo box are set.

```
set myBar to make new command bar with properties ¬
   {bar type:normal command bar, name:"New"}

set myControl to make new command bar control at myBar¬
   with properties {control type:control combobox, combobox text:"Monday",¬
   combobox style:combobox style label, drop down lines:2, drop down width:75}
add item to combobox myControl combobox item "Monday" entry index 1
add item to combobox myControl combobox item "Tuesday" entry index 2
```

Command: clear combobox

Removes all list items from the specified command bar combo box control (drop-down list box or combo box) and clears the text box (edit box or combo box).

**Note**  This command will fail if it's applied to a built-in command bar control.
Syntax

clear combobox command bar combobox  Required. An expression that returns a command bar combobox object.

Example
This example checks the number of items in the combo box control named "Names" on the command bar named "Custom." If there are more than three items in the list, the example clears the list, adds a new first item to the list, and displays this new item as the default for the combo box control.

set myBar to command bar "Custom"
set myControl to command bar control "Names" of myBar
set listItems to get count of combobox items myControl
if listItems > 3 then
  clear combobox myControl
  add item to combobox myControl combobox item "Third Item" entry index 1
  set list index of myControl to 1
end if

Command: execute

Runs the procedure associated with a command bar control.

Syntax

execute  command bar control  Required. An expression that returns a command bar control, command bar button, or command bar combobox object.

Remarks
This command runs the specified script or command if controls are currently enabled in the application and if the enabled property of the specified object is True.

Applying this command to a command bar popup object generates a run-time error.

Example
This example checks the value of the combo box control on the custom command bar named "My Custom Bar." If the index number of the command bar control is 1, the example runs the script specified by the on action property of the command bar control.

set myControl to the first command bar combobox of command bar "My Custom Bar"
if entry index of myControl = 1 then
  execute myControl
end if
**Command: get combobox item**

Returns the string at the given index of items within a combo box control.

**Syntax**

```
get combobox item command bar combobox   Required. An expression that returns a command bar combobox object.
entry index  small integer   Required. The position of the specified item in the list. If this argument is omitted, the last item in the list is returned.
```

**Example**

This example uses the `get count of combobox items` command to check the number of items in the combo box control named "Names" on the command bar named "Custom." If there are more than three items on the list, the example clears the list, adds a new first item to the list, and displays this new item as the default for the combo box control.

```
set myBar to command bar "Custom"
set myControl to command bar control "Names" of myBar
set listItems to get count of combobox items myControl
if listItems > 3 then
  clear combobox myControl
  add item to combobox myControl combobox item "Third Item" entry index 1
  set list index of myControl to 1
end if
```
Command: remove an item from combobox

Removes an item from a command bar combo box control.

Note  This command fails when applied to controls other than list controls.

Syntax

remove an item from combobox  command bar combobox   Required. An expression that returns a command bar combobox object.

   entry index  small integer   Required. The index number of the item to be removed from the list.

Example

The following example determines whether there are more than three items in a combo box control. If there are more than three items, the example removes the second item, alters the style, and sets a new value.

set myBar to command bar "Custom"
set myControl to command bar combobox 1 of myBar
set listitems to get count of combobox items myControl
if listitems > 3 then
   remove an item from combobox myControl entry index 2
   set combobox style of myControl to combobox style normal
   set combobox text of myControl to "New Default"
end if

Command: reset

Resets a built-in command bar to its default configuration, or resets a built-in command bar control to its original function and face.

Syntax

reset  command bar/command bar control   Required. An expression that returns a command bar, command bar control, command bar button, command bar popup, or command bar combobox object.

Remarks

Resetting a built-in control restores the actions originally intended for the control and resets each of the control's properties back to its original state. Resetting a built-in command bar removes custom controls and restores built-in controls.

Example

This example resets the Formatting toolbar to its default state
reset command bar "Formatting"
Microsoft Office Suite

**Command: show balloon**

Displays the specified balloon object. Returns a constant that indicates which balloon the user clicks.

**Syntax**

```
show balloon   balloon   Required. An expression that returns a balloon object.
```

**Remarks**

You can use the return value of the `show balloon` command to display a user's button selection. The `show balloon` command returns one of the following buttons:

- abort button
- cancel button
- ignore button
- no button
- OK button
- retry button
- snooze button
- yes button
- back button
- close button
- next button
- null button
- options button
- search button
- tips button
- yes to all button

**Example**

This example creates a balloon that contains three choices.

```
set b to make new balloon at office assistant
tell b
    set heading to "This is my heading"
    set balloon text to "Select one of these things"
    repeat 3 times
        make new balloon label at the beginning
    end repeat
    set label text of balloon label 1 to "Choice One"
    set label text of balloon label 2 to "Choice Two"
    set label text of balloon label 3 to "Choice Three"
    show balloon
end tell
```
Microsoft Excel Suite

Microsoft Excel Suite Classes

Microsoft Excel Suite Commands

Microsoft Excel Suite Classes

- add in .................................................................................................................................................. 50
- application ......................................................................................................................................... 51
- autofilter ........................................................................................................................................... 51
- border .............................................................................................................................................. 64
- button ................................................................................................................................................ 66
- calculated field ......................................................... 70
- calculated item ......................................................... 70
- chart sheet ...................................................................................................................................... 70
- checkbox ........................................................................................................................................ 72
- child item ....................................................................................................................................... 74
- column field .................................................................................................................................. 75
- custom view ................................................................................................................................... 75
- data field ......................................................................................................................................... 76
- default web options .................................................. 76
- dialog ............................................................................................................................................ 79
- document ....................................................................................................................................... 80
- dropdown ....................................................................................................................................... 80
- Excel comment ............................................................................................................................. 83
- filter ................................................................................................................................................ 83
- format condition .............................................................. 84
- graphic ........................................................................................................................................... 86
- groupbox ........................................................................................................................................ 88
- hidden field ................................................................................................................................... 90
- hidden item .................................................................................................................................... 91
- horizontal page break .................................................. 91
- hyperlink ....................................................................................................................................... 92
- international macro sheet ........................................ 94
- label ............................................................................................................................................... 94
- list column .................................................................................................................................... 94
- list object ..................................................................................................................................... 96
- list row .......................................................................................................................................... 97
- listbox ........................................................................................................................................... 99
- macro sheet .................................................................................................................................. 99
- named item ................................................................................................................................... 102
- ODBC error .................................................................................................................................. 102
- option button ............................................................. 104
- outline .......................................................................................................................................... 105
- page field ...................................................................................................................................... 107
- page setup .................................................................................................................................... 107
- pane ............................................................................................................................................... 109
- parent item ................................................................................................................................... 115
- phonetic ....................................................................................................................................... 115
- pivot cache .................................................................................................................................... 116
- pivot field ...................................................................................................................................... 117
- pivot group .................................................................................................................................... 117
- pivot label ................................................................................................................................... 118
- pivot name ................................................................................................................................... 118
- pivot title ...................................................................................................................................... 118
- pivot value .................................................................................................................................... 118
- pivot view ...................................................................................................................................... 118
Class: add in

Plural
add ins

Represents a single add-in, either installed or not installed. This list corresponds to the list of add-ins displayed in the Add-Ins dialog box (Tools menu).

Use add in index, where index is the add-in title or index number, to return a single add in object.

The following example installs the Analysis Toolpak add-in.

set installed of add in "analysis toolpak" to true

Don't confuse the add-in title, which appears in the Add-Ins dialog box, with the add-in name, which is the file name of the add-in. You must spell the add-in title exactly as it is spelled in the Add-Ins dialog box, but the capitalization doesn't have to match.

The index number represents the position of the add-in in the Add-ins available box in the Add-Ins dialog box. The following example creates a list that contains specified properties of the available add-ins.

set theList to {"Name","Full Name","Path","Installed"}
set value of range "A1:D1" to theList
set bold of font object of range "A1:D1" to true
repeat with i from 1 to (get count of add ins)
    set value of cell ("A" & (i + 1)) to (get name of add in i)
    set value of cell ("B" & (i + 1)) to (get full name of add in i)
    set value of cell ("C" & (i + 1)) to (get path of add in i)
    set value of cell ("D" & (i + 1)) to (get installed of add in i)
end repeat
set wrap text of column "A:D" to true
To return a reference to the workbook corresponding to a loaded add-in, use **workbook index**, where *index* is the add-in filename (not title). This example sets the `wb` variable to the workbook for `Myaddin.xla`.

```
set wb to workbook "Myaddin.xla"
```

If the *installed* property returns **true**, but calls to functions in the add-in still fail, the add-in may not actually be loaded. This is because the **add in** object represents the existence and installed state of the add-in but doesn't represent the actual contents of the add-in workbook. To guarantee that an installed add-in is loaded, you should open the add-in workbook.

### Properties

**full name**

Returns the name of the object, including its path on disk, as a string. Read-only.

This property is equivalent to the *path* property, followed by the current file system separator, followed by the *name* property.

**installed**

**True** if the add-in is installed. Read/write.

Setting this property to **true** installs the add-in and calls its Auto_Add functions. Setting this property to **false** removes the add-in and calls its Auto_Remove functions.

**name**

Returns or sets the name of the object. The name of a **range** object is a **name** object. For every other type of object, the name is a string.

**path**

Returns the complete path of the object, excluding the final separator and name of the object. Read-only.

Using this property without an object qualifier is equivalent to `get path of application "microsoft excel"` (this returns the path to the Microsoft Excel application).

### Class: application

#### Plural

**applications**

#### Elements

<table>
<thead>
<tr>
<th><strong>add in</strong></th>
<th><strong>window</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>chart sheet</strong></td>
<td><strong>workbook</strong></td>
</tr>
<tr>
<td><strong>command bar</strong></td>
<td><strong>sheet</strong></td>
</tr>
<tr>
<td><strong>named item</strong></td>
<td><strong>worksheet</strong></td>
</tr>
<tr>
<td><strong>range</strong></td>
<td><strong>international macro sheet</strong></td>
</tr>
<tr>
<td><strong>cell</strong></td>
<td><strong>macro sheet</strong></td>
</tr>
<tr>
<td><strong>row</strong></td>
<td><strong>recent file</strong></td>
</tr>
<tr>
<td><strong>column</strong></td>
<td><strong>ODBC error</strong></td>
</tr>
</tbody>
</table>

Represents the entire Excel application.

The **application** class contains application-wide settings and options — for example, many of the options in the **Preferences** dialog box (**Excel** menu) — and properties that return top-level objects, such as **active cell**, **active sheet**, and so on.
Properties

Excel cursor

Returns or sets the appearance of the mouse pointer in Excel. Read/write.

Can be one of the following.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>default cursor</td>
<td>The default pointer</td>
</tr>
<tr>
<td>wait cursor</td>
<td>The spinning color wheel</td>
</tr>
<tr>
<td>northwest arrow cursor</td>
<td>The northwest-arrow pointer</td>
</tr>
<tr>
<td>I beam cursor</td>
<td>The I-beam pointer</td>
</tr>
</tbody>
</table>

The Excel cursor property isn’t reset automatically when the script stops running. You should reset the pointer to default cursor before your script stops running.

ODBC timeout

Returns or sets the ODBC query time limit, in seconds. The default value is 45 seconds. Read/write.

The value 0 (zero) indicates an indefinite time limit.

active cell

Returns a range object that represents the active cell in the active window (the window on top). If the window isn’t displaying a worksheet, this property fails. Read-only.

If you don’t specify an object qualifier, this property returns the active cell in the active window.

Be careful to distinguish between the active cell and the selection. The active cell is a single cell inside the current selection. The selection may contain more than one cell, but only one is the active cell.

The following expressions all return the active cell, and are all equivalent.

active cell
active cell of application
active cell of active window
active cell of active window of application

active chart

Returns a chart object that represents the active chart (either an embedded chart or a chart sheet). An embedded chart is considered active when it’s either selected or activated. When no chart is active, this property returns an incorrect result. Read-only.

If you don’t specify an object qualifier, this property returns the active chart in the active workbook.
**Microsoft Excel Suite**

*active printer*

This property is not currently supported.

*active sheet*

Returns an object that represents the active sheet (the sheet on top) in the active workbook or in the specified window or workbook. Returns an error if no sheet is active. Read-only.

If you don't specify an object qualifier, this property returns the active sheet in the active workbook.

If a workbook appears in more than one window, each window might have a different active sheet.

*active window*

Returns a window object that represents the active window (the window on top). Read-only. Returns an incorrect result if there are no windows open.

*active workbook*

Returns a workbook object that represents the workbook in the active window (the window on top). Read-only. Returns an incorrect result if there are no windows open or if either the Info window or the Clipboard window is the active window.

*alert before overwriting*

True if Excel displays a message before overwriting nonblank cells during a drag-and-drop editing operation. Read/write.

*alt startup path*

Returns or sets the name of the alternate startup folder. Read/write.

*ask to update links*

True if Excel prompts the user to update links when opening files with links. False if links are automatically updated with no dialog box. Read/write.

*autocorrect object*

Returns an autocorrect object that represents the Excel AutoCorrect attributes. Read-only.

*automation security*

Allows Office programs to support security for Visual Basic macros that programmatically open a document but are uncertain whether the VB macros in a document are safe. A developer may want to have the VB macro display the security warnings to the user for these documents.

This property is available in Office 2004 for Mac version 11.1 or later.
Returns or sets an **automation security** value that represents the security mode that an Office program uses when programmatically opening files. This property is automatically set to **msoAutomationSecurityLow** when the program is started. Therefore, to avoid breaking VB macros that rely on the default setting, be careful to reset this property to **msoAutomationSecurityLow** after you open a file programmatically. Also, be sure to set this property immediately before and after you open a file programmatically, to avoid malicious subversion.

This property also allows VB macros to choose to open a document and to trigger the appropriate security warning, which is the same as if an end user is manually opening the document. This property does not affect the behavior when the end user uses the user interface (UI) to open files. In this case, this property does not change the settings in the **Security** pane (on the **Application** menu, select **Preferences**, and then click **Security**).

Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>msoAutomationSecurityLow</td>
<td>Turns on all VB macros and is the default value when you start the program.</td>
</tr>
<tr>
<td>msoAutomationSecurityForceDisable</td>
<td>Disables all VB macros in all files that are opened programmatically, without showing any security warnings.</td>
</tr>
<tr>
<td>msoAutomationSecurityByUI</td>
<td>Uses the security setting that is controlled in the <strong>Security</strong> pane (on the <strong>Application</strong> menu, select <strong>Preferences</strong>, and then click <strong>Security</strong>).</td>
</tr>
</tbody>
</table>

The value of the **display alerts** property does not apply to security warnings. For example, if the user sets the **display alerts** property equal to **false** and the **automation security** property to **msoAutomationSecurityByUI** while the user has macro virus protection enabled in the **Security** pane (on the **Application** menu, select **Preferences**, and then click **Security**), security warnings appear while the VB macro is running. This action allows the VB macro to trap "file open" errors, while still displaying the security warning if the "file open" succeeds.

If the user cancels the command to open the file through the security warning dialog box (by clicking the **Close** button in the message), a run-time error occurs with the command that triggered the "file open." The error code distinguishes between this user UI action and a "file not found" error.

If the VB macro sets **msoAutomationSecurityForceDisable** and opens an Excel workbook with XLM code, the "file open" fails.

**build**

Returns the Excel build number. Read-only.

It's usually safer to use the **version** property, unless you're sure you need to know the build number.
calculate before save

True if workbooks are calculated before they're saved to disk (if the calculation property is set to calculation manual). This property is preserved even if you change the calculation property. Read/write.

calculation

Returns or sets the calculation mode.
Can be one of the following:

- calculation automatic
- calculation manual
- calculation semiautomatic

calculation version

Returns a number whose rightmost four digits are the minor calculation engine version number, and whose other digits (on the left) are the major version of Excel. For a workbook object, this property returns the information about the version of Excel that was used the last time the workbook was fully recalculated. Read-only.

If the workbook was saved in an earlier version of Excel and if the workbook hasn't been fully recalculated, then this property returns 0.

caption

Returns the name that appears in the title bar of the main Excel window. If you don't set a name, or if you set the name to empty, this property returns "Microsoft Excel." Read-only.

cell drag and drop

True if dragging and dropping cells is enabled. Read/write.

command underlines

Returns or sets the state of the command underlines in Excel. Read/write.
Can be one of the following:

- command underlines automatic
- command underlines off
- command underlines on
Microsoft Excel Suite

**copy objects with cells**

*True* if objects are cut, copied, extracted, and sorted with cells. Read/write.

**custom list count**

Returns the number of defined custom lists (including built-in lists). Read-only.

**cut copy mode**

Returns or sets the status of Cut or Copy mode. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Return value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>false</td>
<td>Not in Cut or Copy mode.</td>
</tr>
<tr>
<td>copy mode</td>
<td>In Copy mode.</td>
</tr>
<tr>
<td>cut mode</td>
<td>In Cut mode.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Set value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>false</td>
<td>Cancels Cut or Copy mode and removes the moving border.</td>
</tr>
<tr>
<td>true</td>
<td>Cancels Cut or Copy mode, removes the moving border, and places the contents of the selection on the Clipboard.</td>
</tr>
</tbody>
</table>

**data entry mode**

Returns or sets Data Entry mode, as shown in the following table. When in Data Entry mode, you can enter data only in the unlocked cells in the currently selected range. Read/write.

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>data entry on</td>
<td>Data Entry mode is turned on.</td>
</tr>
<tr>
<td>data entry off</td>
<td>Data Entry mode is turned off.</td>
</tr>
<tr>
<td>data entry strict</td>
<td>Data Entry mode is turned on, and pressing ESC won't turn it off.</td>
</tr>
</tbody>
</table>

**default file path**

Returns or sets the default path that Excel uses when it opens files. Read/write.
default save format

Returns or sets the default format for saving files. Read/write.

Can be one of the following:

- add in file format
- CSV file format
- CSV Mac file format
- CSV MSDos file format
- CSV Windows file format
- DBF2 file format
- DBF3 file format
- DBF4 file format
- DIF file format
- Excel2 file format
- Excel 2 east asian file format
- Excel3 file format
- Excel4 file format
- Excel 4 workbook file format
- Excel7 file format
- Excel 9795 file format
- international add in file format
- international macro file format
- workbook normal file format
- SYLK file format
- template file format
- current platform text file format
- text Mac file format
- text MSDos file format
- text printer file format
- text windows file format
- WJ2WD1 file format
- Works1 file format
- Works 1 all file format
- Works 1 fmt file format
- Works3 file format
- Works 3 fm 3 file format
- Works4 file format
- works file format
- works 2 east asian file format
- WQ1 file format
- WJ3 file format
- WJ3FJ3 file format
- HTML file format
- XML spreadsheet file format

default web options object

Returns the default web options object that contains global application-level attributes used by Excel whenever you save a document as a Web page or open a Web page. Read-only.

display alerts

True if Excel displays certain alerts and messages while a script is running. Read/write.

The default value is true. Set this property to false if you don't want to be disturbed by prompts and alert messages while a script is running; any time a message requires a response, Excel chooses the default response.

If you set this property to false, Excel doesn't automatically set it back to true when your script stops running. Your script should always set the property back to true when it stops running.

display comment indicator

Returns or sets the way cells display comments and indicators. Read/write.

Can be one of the following:

- no indicator
- comment indicator only
- comment and indicator
display excel 4 menus

True if Excel displays version 4.0 menu bars. Read/write.

display formula bar

True if the formula bar is displayed. Read/write.

display full screen

True if Excel is in full-screen mode. Read/write.

Full-screen mode maximizes the application window so that it fills the entire screen and hides the application title bar. Toolbars, the status bar, and the formula bar maintain separate display settings for full-screen mode and normal mode.

display function tooltips

True if function ToolTips can be displayed. Read/write.

display insert options

True if the Insert Options button should be displayed. Read/write.

display note indicator

True if cells containing notes display cell tips and contain note indicators (small dots in their upper-right corners). Read/write.

display recent files

True if the list of recently used files is displayed on the File menu. Read/write.

display scroll bars

True if scroll bars are visible for all workbooks. Read/write.

display status bar

True if the status bar is displayed. Read/write.

edit directly in cell

True if Excel allows editing in cells. Read/write.

enable animations

True if animated insertion and deletion is enabled. Read/write.

When animation is enabled, inserted worksheet rows and columns appear slowly, and deleted worksheet rows and columns disappear slowly.

enable autocomplete

True if the AutoComplete feature is enabled. Read/write.
Microsoft Excel Suite

enable cancel key

Controls how Excel handles ESC or ⌘+period user interruptions to the running procedure. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cancel key</td>
<td>Cancel key trapping is completely disabled.</td>
</tr>
<tr>
<td>disabled</td>
<td></td>
</tr>
<tr>
<td>interrupt</td>
<td>The current procedure is interrupted, and the user can debug or end the procedure.</td>
</tr>
<tr>
<td>error handler</td>
<td>The interrupt is sent to the running procedure as an error, trappable by an error handler set up with an On Error GoTo statement. The trappable error code is 18.</td>
</tr>
</tbody>
</table>

Use this property very carefully. If you use cancel key disabled, there's no way to interrupt a runaway loop or other non-self-terminating code.

The enable cancel key property is always reset to interrupt whenever Excel returns to the idle state and no code is running. To trap or disable cancellation in your procedure, you must explicitly change the enable cancel key property every time the procedure is called.

enable events

True if events are enabled for the specified object. Read/write.

enable sound

True if sound is enabled for Microsoft Office. Read/write.

extend list

True if Excel automatically extends formatting and formulas to new data that is added to a list. Read/write.

To be extended, formats and formulas must appear in at least three of the five list rows or columns preceding the new row or column, and you must add the data to the bottom or to the right-hand side of the list.

fixed decimal

All data entered after this property is set to true will be formatted with the number of fixed decimal places set by the fixed decimal places property. Read/write.

fixed decimal places

Returns or sets the number of fixed decimal places used when the fixed decimal property is set to true. Read/write.

include empty cells in lists

Returns or sets whether Excel will include or exclude the value of empty cells in range lists. This property does not return the formulas in range lists, only the values. Read/write.
Microsoft Excel Suite

iteration
True if Excel will use iteration to resolve circular references. Read/write.

keep four digit years
True if Excel preserves the display of dates entered with four-digit years. Read/write.

library path
Returns the path to the Library folder. Read-only.

math coprocessor available
True if a math coprocessor is available. Read-only.

max change
Returns or sets the maximum amount of change between each iteration as Excel resolves circular references. Read/write.

max iterations
Returns or sets the maximum number of iterations that Excel can use to resolve a circular reference. Read/write.

measurement unit
Returns or sets the measurement unit used when the ruler is displayed in page layout view and for measurements typed in dialog boxes.
Can be one of the following:

- centimeters
- inches
- millimeters

memory free
Returns the amount of memory (in bytes) available for Excel to use. Read-only.

memory total
Returns the total amount of memory (in bytes) available for Excel, including memory already in use. This property is a sum of the memory free and memory used totals. Read-only.

memory used
Returns the amount of memory (in bytes) that Excel is currently using. Under Mac OS X, this property always returns 0. Read-only.

move after return
True if the active cell will be moved as soon as the RETURN key is pressed. Read/write.
To specify the direction in which the active cell is to be moved, use the move after return direction property.
move after return direction

Returns or sets the direction in which the active cell is moved when the user presses ENTER. Read/write.

Can be one of the following:

- toward the bottom
- toward the left
- toward the right
- toward the top

If the move after return property is false, the selection doesn't move at all, regardless of how the move after return direction property is set.

name

Returns the name of the application. Read-only.

network templates path

Returns the network path where templates are stored. If the network path doesn't exist, this property returns an empty string. Read-only.

office assistant

Returns an office assistant object for Excel. Read-only.

operating system

Returns the name and version number of the current operating system, for example, "Macintosh (PowerPC) 10.32". Read-only.

organization name

Returns the registered organization name. Read-only.

path

Returns the complete path of the application's container (folder), excluding the final separator (":"). Read-only.

path separator

Returns the path separator character (":" on the Macintosh). Read-only.

pivot table selection

True if PivotTable reports use structured selection. Read/write.

prompt for summary info

True if Excel asks for summary information when files are first saved. Read/write.

record relative

True if Visual Basic macros should be recorded using relative cell references (A1); false if recording uses absolute cell references ($A$1). Read-only.
reference style

Returns or sets how Excel displays cell references and row and column headings in either A1 or R1C1 reference style. Read/write.

Can be one of the following:

- A1
- R1C1

roll zoom

True if the IntelliMouse zooms instead of scrolling. Read/write.

save interval

Sets the time interval, in minutes, at which AutoSave will occur. Read/write.

screen updating

True if screen updating is turned on. Read/write.

Turn screen updating off to speed up your script. You won't be able to see what the script is doing, but it will run faster.

Remember to set the screen updating property back to true when your script ends.

selection

Returns the selected object in the active window. Read-only.

The returned object type depends on the current selection (for example, if a cell is selected, this property returns a range object). The selection property returns missing value if there is no selection.

sheets in new workbook

Returns or sets the number of sheets that Excel automatically inserts into new workbooks. Read/write.

show chart tip names

True if charts show chart tip names. The default value is true. Read/write.

show chart tip values

True if charts show chart tip values. The default value is true. Read/write.

show tool tips

True if ToolTips are turned on. Read/write.

standard font

Returns or sets the name of the standard font. Read/write.

If you change the standard font by using this property, the change doesn't take effect until you restart Excel.
standard font size

Returns or sets the standard font size, in points. Read/write.

If you change the standard font size by using this property, the change doesn't take effect until you restart Excel.

startup dialog

True if the Project Gallery is displayed when Excel is opened. Read/write.

startup path

Returns the complete path of the startup folder's container (folder), excluding the final separator (':'). Read-only.

status bar

Returns or sets the text in the status bar. Read/write.

This property returns false if Excel has control of the status bar. To restore the default status bar text, set the property to false; this works even if the status bar is hidden.

templates path

Returns the local path where templates are stored. Read-only.

transition menu key

Returns or sets the alternate menu or help key, which is usually '/'. Read/write.

transition menu key action

Returns or sets the action taken when the alternate menu key is pressed. Can only be excel menus. Read/write.

two digit cutoff year

Specifies the cutoff year before which the 21st century is assumed for two-digit years. Read/write.

usable height

Returns the maximum height (in points) of the space that a window can occupy in the application window area. Read-only.

usable width

Returns the maximum width (in points) of the space that a window can occupy in the application window area. Read-only.

user name

Returns or sets the name of the current user. Read/write.

version

Returns the Excel version number. Read-only.
Class: autofilter

Plural
autofilters

Elements
filter

Represents autofiltering for the specified worksheet.

Use the autofilter object property of the sheet object to return an autofilter object.

To create an autofilter object for a worksheet, you must turn autofiltering on for a range on the worksheet either manually or by using the autofilter range command. The following example turns on autofiltering for columns A through C of the active sheet. Before you run this example, make sure there is data in the columns or the example will fail.

autofilter range range "A:C"

Properties
range object

Returns a range object that represents the range to which the specified AutoFilter applies. Read-only.

Class: border

Plural
borders

Represents the border of an object.

Use the get border command to return a single border object and set border properties. The following example sets the weight of the top border of cell A2.

set theBorder to get border range "A2" which border border top
set weight of theBorder to border weight medium

The following example places a red border of medium weight along the bottom edge of the range A1:G1.

set theBorder to get border (range "A1:G1" of active sheet) which border edge bottom
set weight of theBorder to border weight medium
set color index of theBorder to 3
Properties

**color**

This property is not currently supported.

**color index**

Returns or sets the color of the border. Read/write. The color is specified as an index value into the current color palette, or as one of the following:

- color index automatic
- color index none

The following illustration shows the color-index values in the default color palette.

```
 1 2 3 4 5 6 7
 8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26
27 28 29 30 31 32 33 34 35
36 37 38 39 40 41 42
43 44 45 46 47 48 49
60 61 62 63 64 65 66 67
```

**line style**

Returns or sets the line style for the border. Read/write. Can be any of the following:

- continuous
- dash
- dash dot
- dash dot dot
- dot
- double
- slant dash dot
- line style none
**line weight**

Sets or returns the point size for a border. Read/write.

**weight**

Returns or sets the weight of the border. Read/write.

Can be any of the following:

- border weight hairline
- border weight medium
- border weight thick
- border weight thin

**Class: button**

**Plural**

buttons

**Elements**

character

Represents a button control. The *on action* property determines the script or Visual Basic macro that runs when the button is clicked.

Use **button index**, where *index* is the entry index number or name to return a single **button** object.

The following example creates a new button:

make new button at end of worksheet 1 of workbook 1 with properties ->

{top:100, left position:100, height:24, width:100}

The following example gets the properties of a **button** object on a worksheet.

get properties of button 1 of worksheet 1 of workbook 1

**Properties**

**accelerator**

Returns or sets the accelerator character for this control. Read/write.

**add indent**

Returns or sets whether text is automatically indented when the text alignment in a cell is set to equal distribution either horizontally or vertically. Read/write.

This property is not used in U.S. English version of Excel.
auto scale font

True if the text in the object changes font size when the object size changes. The default value is true. Read/write.

auto size

True if the size of the specified object is changed automatically to fit text within its boundaries. Read/write.

bottom right cell

Returns a range object that represents the cell that lies under the the lower-right corner of the object. Read-only.

cancel button

Returns or sets whether this button is the Cancel button. Read/write.

caption

Returns or sets the caption for this object. Read/write.

control text

Returns or sets the default text for the control. Read/write.

default button

Returns or sets whether this button is the default button. Read/write.

dismiss button

Returns or sets whether this button is the Dismiss button. Read/write.

enabled

True if the object is enabled. Read/write.

entry index

Returns the index number of the object within the elements of the parent object. Read-only.

font object

Returns a font object that represents the font of the specified object. Read-only.

formula

Returns or sets the object's formula in A1-style notation. Read/write.

height

Returns or sets the height (in points) of the object. Read/write.

help button

Returns or sets whether this button is the Help button. Read/write.
**Microsoft Excel Suite**

**horizontal alignment**

Returns or sets the horizontal alignment for the object. Read/write.

Can be one of the following:

- horizontal align center
- horizontal align center across selection
- horizontal align distributed
- horizontal align fill
- horizontal align general
- horizontal align justify
- horizontal align left
- horizontal align right

The **horizontal align distributed** alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

**left position**

Returns or sets the position (in points) of the specified object. Read/write.

**locked**

*True* if the object is locked; *false* if the object can be modified when the sheet is protected. Read/write.

**locked text**

*True* if the text in the specified object will be locked to prevent changes when the workbook is protected. Read/write.

**name**

Returns or sets the name of the object. Read/write.

**on action**

Returns or sets either the name of the script or VB macro that's run when the specified object is clicked. AppleScript scripts are not saved with the document. Read/write.

**orientation**

Returns or sets the object's orientation. Read/write.

Can be one of the following:

- orientation down
- orientation horizontal
- orientation upward
- orientation vertical

Can also be a number value between -90 and 90 degrees.
Microsoft Excel Suite

phonetic accelerator
   This property is not currently supported.

placement
   Returns or sets the way the object is attached to the cells below it. Read/write.
   Can be one of the following:
   - placement free floating
   - placement move
   - placement move and size

print object
   True if the object will be printed when the document is printed. Read/write.

reading order
   Returns or sets the reading order for the specified object. Can be any of the following constants: left to right, right to left, context. Read/write.
   This property is not supported on the Macintosh.

top
   Returns or sets the top position (in points) of the specified object. Read/write.

top left cell
   Returns a range object that represents the cell that lies under the upper-left corner of the specified object. Read-only.

vertical alignment
   Returns or sets the vertical alignment of the object. Read/write.
   Can be any of the following:
   - vertical alignment top
   - vertical alignment center
   - vertical alignment bottom
   - vertical alignment justify
   - vertical alignment distributed

   The vertical alignment distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.
Microsoft Excel Suite

visible

True if the object is visible. Read/write.

width

Returns or sets an object's width, in points. Read/write.

wrap auto text

True if Excel wraps the text in the object. Read/write.

z order position

Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.

Whenever you make a new shape or object, it's added to the front of the z-order by default.

Class: calculated field

Plural

calculated fields

Represents a calculated field in a PivotTable report.

Use calculated field index, where index is the calculated field's name or index number, to return a single calculated field object. For example, a PivotTable report that contains Revenue and Expense fields could have a calculated field named "Profit" defined as the amount in the Revenue field minus the amount in the Expense field.

The following example deletes the calculated fields from the PivotTable report named "Pivot1" on worksheet 1.

repeat with fld in (get calculated fields of pivot table "Pivot1" of worksheet 1)
    delete fld
end repeat

Properties

Inheritance pivot field

Inherits the properties and elements of the pivot field class.

Class: calculated item

Plural

calculated items

Represents a calculated item in a PivotTable report.

Use calculated item index, where index is the calculated item's name or index number, to return a single calculated item object. For example, a PivotTable report that contains January, February, and March items could have a calculated item named "FirstQuarter" defined as the sum of the amounts in January, February, and March.
The following example creates a list of the calculated items in the first PivotTable report on worksheet 1, along with their formulas.

```excel
set pt to pivot table 1 of worksheet 1
set r to 0
repeat with ci in (get calculated items of pivot field "Sales of pt")
    set r to r + 1
    set value of cell r of column 1 of worksheet 2 to (get name of ci)
    set value of cell r of column 2 of worksheet 2 to (get formula of ci)
end repeat
```

**Properties**

`<Inheritance> pivot item`  
Inherits the properties and elements of the `pivot item` class.

**Class: chart sheet**

**Plural**

`chart sheets`

Represents a chart sheet in a workbook.

Use `chart sheet index`, where index is the chart-sheet index number or name, to return a single `chart sheet` object. The following example creates a chart sheet from a randomly generated set of data.

```excel
select range "A1:C5"
set value of selection to "=rand()"
make new chart sheet at active workbook
```

The chart index number represents the position of the chart sheet on the workbook tab bar. `chart sheet 1` is the first (leftmost) chart in the workbook; `chart sheet (get count of chart sheets)` is the last (rightmost). All chart sheets are included in the index count, even if they're hidden. The chart-sheet name is shown on the workbook tab for the chart.

The following example moves chart sheet 1 to the last (rightmost) position on the workbook tab bar.

```excel
move chart sheet 1 to after sheet (get count of sheets)
```

The following example changes the color of series 1 on the active chart.

```excel
make new chart at the beginning of active workbook
set color index of interior object of series 1 of active chart to 3
```

**Properties**

`<Inheritance> sheet`  
Inherits the properties and elements of the `sheet` class.

`chart`

Returns the chart for this chart sheet. Read-only.
Class: checkbox

Plural
checkboxes

Elements
character

Represents a checkbox control.

Use checkbox index, where index is the entry index number or name to return a single checkbox object. The following example creates a new checkbox.

make new checkbox at end of worksheet 1 of workbook 1 with properties {top:100, left position:100, height:24, width:100}

The following example gets the properties of a checkbox object on a worksheet.

get properties of checkbox 1 of worksheet 1 of workbook 1

Properties

accelerator
Returns or sets the accelerator character for this control. Read/write.

border
Returns a border object that represents the border of the object. Read-only.

bottom right cell
Returns a range object that represents the cell that lies under the lower-right corner of the object. Read-only.

caption
Returns or sets the caption for this object. Read/write.

control text
Returns or sets the default text for the control. Read/write.

display threeD shading
Returns or sets the 3-D shading for this object. Read/write.

enabled
True if the object is enabled. Read/write.

entry index
Returns the index number of the object within the elements of the parent object. Read-only.

height
Returns or sets the height (in points) of the object. Read/write.
**Microsoft Excel Suite**

**interior object**

Returns an **interior** object that represents the interior of the specified object. Read-only.

**left position**

Returns or sets the position (in points) of the specified object. Read/write.

**linked cell**

Returns or sets the worksheet range linked to the control's value. If you place a value in the cell, the control takes this value. Likewise, if you change the value of the control, that value is also placed in the cell. Read/write.

**locked**

**True** if the object is locked; **false** if the object can be modified when the sheet is protected. Read/write.

**locked text**

**True** if the text in the specified object will be locked to prevent changes when the workbook is protected. Read/write.

**name**

Returns or sets the name of the object. Read/write.

**on action**

Returns or sets either the name of the script or VB macro that runs when the specified object is clicked. AppleScript scripts are not saved with the document. Read/write.

**phonetic accelerator**

This property is not currently supported.

**placement**

Returns or sets the way the object is attached to the cells below it. Read/write.

Can be one of the following:

- **placement free floating**
- **placement move**
- **placement move and size**

**print objects**

**True** if the object will be printed when the document is printed. Read/write.

**top**

Returns or sets the top position (in points) of the specified object. Read/write.

**top left cell**

Returns a **range** object that represents the cell that lies under the upper-left corner of the specified object. Read-only.
value

Returns or sets the value of the control. Read/write.

Can be one of the following:

- checkbox off
- checkbox on
- checkbox mixed

visible

True if the object is visible. Read/write.

width

Returns or sets the width (in points) of an object. Read/write.

z order position

Returns the position of the specified object in the z-order, which corresponds to the object's index number. Read-only.

Whenever you make a new shape or object, it's added to the front of the z-order by default.

Class: child item

Plural

child items

Represents a child item in a PivotTable report.

Use child item index, where index is the child item's name or index number, to return a single child item object. This example adds the names of all the child items of the pivot item named "Vegetables" to a list on a new worksheet.

set nwSheet to make new worksheet
activate object nwSheet
set pvtTable to pivot table of range "A1" of worksheet "Sheet2"
set rw to 0
repeat with pvtItem in (get child items of pivot item "Vegetables" of pivot field "Product" of pvtTable)
    set rw to rw + 1
    set value of cell rw of column 1 of nwSheet to (get name of pvtItem)
end repeat

Properties

<Inheritance> pivot item

Inherits the properties and elements of the pivot item class.
Class: column field

Plural
column fields

Represents a column field in a PivotTable report.

Use column field index, where index is the column field's name or index number, to return a single column field object.

This example adds the field names of the PivotTable columns to a list on a new worksheet.

set nwSheet to make new worksheet
activate object nwSheet
set pvtTable to pivot table of range "A1" of worksheet "Sheet2"
set rw to 0
repeat with pvtField in (get column fields of pvtTable)
    set rw to rw + 1
    set value of cell rw of column 1 of nwSheet to (get name of pvtField)
end repeat

Properties

pivoting field

Inherits the properties and elements of the pivot field class.

Class: custom view

Plural
custom views

Represents a custom workbook view.

Use custom views index, where index is the name or index number of the custom view, to return a custom view object. The following example shows the custom view named "Current Inventory."

show custom view custom view "Current Inventory" of active workbook

Properties

name

Returns the name of the object. Read-only.

print settings

True if print settings are included in the custom view. Read-only.

row col settings

True if the custom view includes settings for hidden rows and columns (including filter information). Read-only.
**Class: data field**

**Plural**

data fields

Represents a data field in a PivotTable report.

Use data field index, where index is the data field's name or index number, to return a single data field object.

This example adds the names for the PivotTable data fields to a list on a new worksheet.

```vba
set nwSheet to make new worksheet
activate object nwSheet
set pvtTable to pivot table of range "A1" of worksheet "Sheet2"
set rw to 0
repeat with pvtField in (get data fields of pvtTable)
    set rw to rw +1
    set value of cell rw of column 1 of nwSheet to (get name of pvtField)
end repeat
```

**Properties**

<p>**<Inheritance>** pivot field</p>

Inherits the properties and elements of the pivot field class.

**Class: default web options**

Contains global application-level attributes used by Excel when you save a document as a Web page or open a Web page. You can return or set attributes either at the application (global) level or at the workbook level. (Note that attribute values can be different from one workbook to another, depending on the attribute value at the time the workbook was saved.) Workbook-level attribute settings override application-level attribute settings. Workbook-level attributes are contained in the web options object.

Use the default web options object property of the application class to return the default web options object. The following example checks to see whether PNG (Portable Network Graphics) is allowed as an image format and sets the strImageFileType variable accordingly.

```vba
set objAppWebOptions to default web options object
if allow png of objAppWebOptions is true then
    set strImageFileType to "PNG"
else
    set strImageFileType to "JPG"
end if
```
**Microsoft Excel Suite**

**Properties**

*allow png*

True if PNG (Portable Network Graphics) is allowed as an image format when you save or publish a complete or partial presentation as a Web page. False if PNG is not allowed as an output format. The default value is False. Read/write.

If you save images in the PNG format as opposed to any other file format, you might improve the image quality or reduce the size of those image files, and therefore decrease the download time, assuming that the Web browsers you are targeting support the PNG format.

*always save in default encoding*

True if the default encoding is used when you save a Web page or plain text document, independent of the file's original encoding when opened. False if the original encoding of the file is used. The default value is false. Read/write.

*encoding*

Returns or sets the document encoding (code page or character set) to be used by the Web browser when you view the saved document. Read/write.

The default is encoding Mac Roman. Can be any of the following:

- encoding Thai
- encoding Japanese ShiftJIS
- encoding simplified Chinese
- encoding Korean
- encoding traditional Chinese
- encoding little endian
- encoding big endian
- encoding central European
- encoding Cyrillic
- encoding Western
- encoding Greek
- encoding Turkish
- encoding Hebrew
- encoding Arabic
- encoding Baltic
- encoding Vietnamese
- encoding auto detect
- encoding Japanese auto detect
- encoding simplified Chinese auto detect
- encoding Korean auto detect
- encoding traditional Chinese auto detect
- encoding Greek auto detect
- encoding Cyrillic auto detect
- encoding EBCDIC Latin1
- encoding ISO88592 central Europe
- encoding ISO88593 Latin3
- encoding ISO88594 Baltic
- encoding ISO88595 Cyrillic
- encoding ISO88596 Arabic
- encoding ISO88597 Greek
- encoding ISO88598 Hebrew
- encoding EBCDIC Greek
- encoding EBCDIC Hebrew
- encoding EBCDIC Korean extended
- encoding EBCDIC Thai
- encoding EBCDIC Icelandic
- encoding EBCDIC Turkish
- encoding EBCDIC Russian
- encoding EBCDIC Serbian Bulgarian
- encoding EBCDIC Japanese Katakana extended and Japanese
- encoding EBCDIC US Canada and Japanese
- encoding EBCDIC extended and Korean
- encoding EBCDIC simplified Chinese extended and simplified Chinese
- encoding EBCDIC US Canada and traditional Chinese
- encoding EBCDIC Japanese Latin extended and Japanese
- encoding OEM United States
- encoding OEM Greek
- encoding OEM Baltic
- encoding OEM multilingual LatinI
- encoding OEM multilingual LatinII
- encoding OEM Cyrillic
- encoding OEM Turkish
- encoding OEM Portuguese
- encoding OEM Icelandic
- encoding OEM Hebrew
- encoding OEM Canadian French
- encoding OEM Arabic
- encoding OEM Nordic
Microsoft Excel Suite

encoding ISO88599 Turkish
encoding ISO885915 Latin9
encoding ISO2022 Japanese no half width Katakana
encoding ISO2022 Japanese JISX02021984
encoding ISO2022 Japanese JISX02011989
encoding ISO2022KR
encoding ISO2022CN traditional Chinese
encoding ISO2022CN simplified Chinese
encoding Mac Roman
encoding Mac Japanese
encoding Mac traditional Chinese Big5
encoding Mac Korean
encoding Mac Greek1
encoding Mac Cyrillic
encoding Mac simplified Chinese GB2312
encoding Mac Romania
encoding Mac Ukraine
encoding Mac Latin2
encoding Mac Icelandic
encoding Mac Turkish
encoding Mac Croatia
encoding EBCDIC US Canada
encoding EBCDIC International
encoding EBCDIC multilingual ROECE Latin2
encoding EBCDIC Greek modern
encoding EBCDIC Turkish Latin5
encoding EBCDIC Germany
encoding EBCDIC Denmark Norway
encoding EBCDIC Finland Sweden
encoding EBCDIC Italy
encoding EBCDIC Latin America Spain
encoding EBCDIC United Kingdom
encoding EBCDIC Japanese Katakana extended
encoding EBCDIC France
encoding EBCDIC Arabic
encoding OEM modern Greek
encoding EUC Japanese
encoding EUC Chinese simplified Chinese
encoding EUC Korean
encoding EUC Taiwanese traditional Chinese
encoding Devanagari
encoding Bengali
encoding Tamil
encoding Telugu
encoding Assamese
encoding Oriya
encoding Kannada
encoding Malayalam
encoding Gujarati
encoding Punjabi
encoding Arabic ASMO
encoding Arabic transparent ASMO
encoding Korean Johab
encoding Taiwan CNS
encoding Taiwan TCA
encoding Taiwan Eten
encoding Taiwan IBM5550
encoding Taiwan teletext
encoding Taiwan Wang
encoding IA5 German
encoding IA5 Swedish
encoding IA5 Norwegian
encoding US ASCII
encoding T61
encoding ISO6937 nonspacing accent
encoding Ext alpha lowercase
encoding KOI8U
encoding Europa3
encoding HZGB simplified Chinese
encoding UTF7
encoding UTF8

load pictures

This property is not currently supported.

location of components

This property is not currently supported.

pixels per inch

Returns or sets the density (pixels per inch) of graphics images and table cells on a Web page. The range of settings is usually from 19 to 480. Common settings for popular screen sizes are 72, 96, and 120. The default setting is 96. Read/write.
This property determines the size of the images and cells on the specified Web page relative to the size of text whenever you view the saved document in a Web browser. The physical dimensions of the resulting image or cell are the result of the original dimensions (in inches) multiplied by the number of pixels per inch.

To set the optimum screen size for the targeted Web browsers, use the screen size property.

**save hidden data**

True if data outside of the specified range is saved when you save the document as a Web page. This data may be necessary for maintaining formulas. False if data outside of the specified range is not saved with the Web page. The default value is true. Read/write.

If you choose not to save data outside of the specified range, references to that data in the formula are converted to static values. If the data is in another sheet or workbook, the result of the formula is saved as a static value.

**screen size**

Returns or sets the ideal minimum screen size (width by height, in pixels) that you should use when viewing the saved document in a Web browser. Read/write.

Can be one of the following:

- resolution544x376
- resolution640x480
- resolution720x512
- resolution800x600
- resolution1024x768
- resolution1152x882
- resolution1152x900
- resolution1280x1024
- resolution1600x1200
- resolution1800x1440
- resolution1920x1200

The default value is resolution800x600.

**update links on save**

True if hyperlinks and paths to all supporting files are automatically updated before you save the document as a Web page, ensuring that the links are up-to-date at the time the document is saved. False if the links are not updated. The default value is true. Read/write.

You should set this property to false if the location where the document is saved is different from the final location on the Web server and the supporting files are not available at the first location.

**use long file names**

True if long file names are used when you save the document as a Web page. False if long file names are not used and the MS-DOS file name format (8.3) is used. The default value is true. Read/write.

If you don't use long file names and your document has supporting files, Excel automatically organizes those files in a separate folder.
Class: dialog

Plural
dialogs

Represents a built-in dialog box. The dialogs list contains all of the built-in dialog boxes in Excel. You cannot create a new built-in dialog box or add one to the dialogs list.

To return a single dialog object, use the get dialog command along with a dialog type constant that identifies the dialog box. The following example displays and carries out the actions taken in the built-in Open dialog box (File menu).

to return a single dialog object, use the get dialog command along with a dialog type constant that identifies the dialog box. The following example displays and carries out the actions taken in the built-in Open dialog box (File menu).

show (get dialog dialog open)

The dialog type constants are formed from the prefix "dialog" followed by the name of the dialog box. For example, the constant for the Page Setup dialog box is dialog page setup, and the constant for the Project Gallery dialog box is dialog new.

Class: document

Plural
documents

Represents a Microsoft Excel workbook.

Use document index, where index is the workbook name or index number, to return a single document object. The following example creates a new workbook.

make new document

Note In most cases, it's best to use the workbook class

Properties
Inherits the properties and elements of the workbook class.

Class: dropdown

Plural
dropdowns

Elements
class

Represents a dropdown control.

Use dropdown index, where index is the entry index number or name, to return a single dropdown object. The following example creates a new dropdown.

make new dropdown at end of worksheet 1 of workbook 1 with properties ¬
{top:100, left position:100, height:24, width:100}
The following example gets the properties of a dropdown object on a worksheet.
get properties of dropdown 1 of worksheet 1 of workbook 1

Properties

bottom right cell
Returns a range object that represents the cell that lies under the lower-right corner of the object. Read-only.
caption
Returns or sets the caption for this object. Read/write.
control text
Returns or sets the default text for the control. Read/write.
display threeD shading
Returns or sets the 3-D shading for this object. Read/write.
drop down lines
Returns or sets the number of dropdown items. Read/write.

enabled
True if the object is enabled. Read/write.

entry index
Returns the index number of the object within the elements of the parent object. Read-only.
height
Returns or sets the height (in points) of the object. Read/write.
left position
Returns or sets the position (in points) of the specified object. Read/write.
linked cell
Returns or sets the worksheet range linked to the control's value. If you place a value in the cell, the control takes this value. Likewise, if you change the value of the control, that value is also placed in the cell. Read/write.

list fill range
Returns or sets the worksheet range used to fill the specified dropdown. Setting this property destroys any existing list in the dropdown. Read/write.

Excel reads the contents of every cell in the range and inserts the cell values into the dropdown. The list tracks changes in the cells within that range.

If the list in the dropdown was created with the add item to list command, this property returns an empty string ("").

list index
Returns or sets the index number of the currently selected item in a dropdown. Read/write.
locked

True if the object is locked; false if the object can be modified when the sheet is protected. Read/write.

name

Returns or sets the name of the object. Read/write.

number of items in list

Returns the total number of items in the list. Read-only.

on action

Returns or sets either the name of the script VB macro that runs when the specified object is clicked. AppleScript scripts are not saved with the document. Read/write.

placement

Returns or sets the way the object is attached to the cells below it. Read/write.

Can be one of the following:

- placement free floating
- placement move
- placement move and size

print object

True if the object will be printed when the document is printed. Read/write.

top

Returns or sets the top position (in points) of the specified object. Read/write.

top left cell

Returns a range object that represents the cell that lies under the upper-left corner of the specified object. Read-only.

value

Returns or sets the value of the control. Read/write.

visible

True if the object is visible. Read/write.

width

Returns or sets an object's width, in points. Read/write.

z order position

Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.

Whenever you make a new shape or object, it's added to the front of the z-order by default.
Class: Excel comment

Plural
Excel comments

Represents a cell comment.

Use the Excel comment property to return an Excel comment object. The following example changes the text in the comment in cell E5.

Excel comment text (Excel comment of range "E5") text "reviewed by Jessica"

Use Excel comment index, where index is the comment number, to return a single Excel comment object. The following example hides comment two on worksheet one.

set visible of Excel comment 2 of sheet 1 to false

To add a comment to a range, use the add comment command. The following example adds a comment to cell E5 on worksheet one.

add comment range "E5" of sheet 1 comment text "reviewed by Jessica"

Properties

author

Returns or sets the author of the comment. Read-only.

shape object

Returns a shape object that represents the shape attached to the specified comment. Read-only.

visible

True if the object is visible. Read/write.

Class: filter

Plural
filters

Represents a filter for a single column. The filter list contains all the filters in an autofiltered range.

Use filter index, where index is the filter title or index number, to return a single filter object. The following example sets a variable to the value of the filter on property of the filter for the first column in the filtered range on the Crew worksheet.

set w to worksheet "Crew"
if autofilter mode of w is true then
    set filterIsOn to (filter on of filter 1 of autofilter object of w)
end if
Microsoft Excel Suite

Note that all the properties of the filter object are read-only. To set these properties, apply autofiltering manually or using the autofilter range command, as shown in the following example.

```
set w to worksheet "Crew"
autofilter range (cells of w) field 2 criteria1 "Crucial" ¬
operator autofilter or criteria2 "Important"
```

**Properties**

**criteria1**

Returns the first filtered value for the specified column in a filtered range. Read-only.

**criteria2**

Returns the second filtered value for the specified column in a filtered range. Read-only.

If you try to access the criteria2 property for a filter that does not use two criteria, an error will occur. Check that the operator property of a filter object doesn't equal zero (0) before trying to access the criteria2 property.

**filter on**

True if the specified filter is on. Read-only

**operator**

Returns the operator that associates the two criteria applied by the specified filter. Read-only.

Can be one of the following:

- autofilter and
- bottom 10 items
- bottom 10 percent
- autofilter or
- top 10 items
- top 10 percent

**Class:** format condition

**Plural**

format conditions

Represents a conditional format.

Use format condition index, where index is the index number of the conditional format, to return a format condition object. The following example creates a new conditional format for cells E1:E10:

```
make new format condition at range
"E1:E10" with properties ¬
{format condition type:cell value, ¬
condition operator:operator between, ¬
formula1:"1", formula2:"10")
```
To control the appearance of formatted cells, use the **font object** and **interior object** properties of the **format condition** object. Some properties of these objects aren’t supported by the conditional format object model. The properties that can be used with conditional formatting are listed in the following table.

<table>
<thead>
<tr>
<th>Object</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>font</td>
<td>bold, color, colorIndex, fontStyle, italic, strikethrough, underline</td>
</tr>
<tr>
<td></td>
<td>The accounting underline styles cannot be used.</td>
</tr>
<tr>
<td>interior</td>
<td>color, colorIndex, pattern, patternColorIndex</td>
</tr>
</tbody>
</table>

### Properties

#### condition operator

Returns the operator for the conditional format. Read-only.

Can be one of the following:

- operator between
- operator not between
- operator equal
- operator not equal
- operator greater
- operator less
- operator greater equal
- operator less equal

#### font object

Returns a **font** object that represents the font of the specified object. Read-only.

#### format condition type

Returns the conditional format type. Read-only.

Can be one of the following:

- cell value
- expression
**Microsoft Excel Suite**

**formula 1**

Returns the value or expression associated with the conditional format. Can be a constant value, a string value, a cell reference, or a formula. Read-only.

**formula 2**

Returns the value or expression associated with the second part of a conditional format. Used only when the condition operator property is operator between or operator not between. Can be a constant value, a string value, a cell reference, or a formula. Read-only.

**interior object**

Returns an interior object that represents the interior of the specified object. Read-only.

**Class: graphic**

**Plural**

**graphics**

Contains properties that apply to header and footer picture objects.

The following properties of the page setup object are graphic objects: center footer picture, center header picture, left footer picture, left header picture, right footer picture, or right header picture.

The following example adds a picture named "Sample.jpg" from the Macintosh HD volume to the left section of the footer, and sets the color type of the graphic to a watermark effect. This example assumes that a file named "Sample.jpg" exists on the Macintosh HD volume.

```excel
set file name of left footer picture of page setup object of active sheet to "Macintosh HD: Sample.jpg"
set color type of page setup object of active sheet to picture color watermark
set left header of page setup object of active sheet to "&G"
```

**Note**  The characters "&G" must be part of the left footer string for the image to show up in the left footer.

**Properties**

**brightness**

Returns or sets the brightness of the specified picture or OLE object. The value for this property must be a number from 0.0 (dimmest) to 1.0 (brightest). Read/write.
color type

Returns or sets the type of color transformation applied to the specified picture or OLE object. Read/write.

Can be one of the following:

- picture color type unset
- picture color automatic
- picture color gray scale
- picture color black and white
- picture color watermark

contrast

Returns or sets the contrast for the specified picture or OLE object. The value for this property must be a number from 0.0 (the least contrast) to 1.0 (the greatest contrast). Read/write.

crop bottom

Returns or sets the number of points that are cropped off the bottom of the specified picture or OLE object. Read/write.

Cropping is calculated relative to the original size of the picture. For example, if you insert a picture that is originally 100 points high, rescale it so that it's 200 points high, and then set the crop bottom property to 50, 100 points (not 50) will be cropped off the bottom of your picture. However, while cropping measurements are calculated relative to the object's original scale, those measurements reflect absolute distances from the edge of the object. You cannot set any of the cropping properties to a negative number.

crop left

Returns or sets the number of points that are cropped off the left side of the specified picture or OLE object. Read/write.

Cropping is calculated relative to the original size of the picture. For example, if you insert a picture that is originally 100 points wide, rescale it so that it's 200 points wide, and then set the crop left property to 50, 100 points (not 50) will be cropped off the left side of your picture. However, while cropping measurements are calculated relative to the object's original scale, those measurements reflect absolute distances from the edge of the object. You cannot set any of the cropping properties to a negative number.

crop right

Returns or sets the number of points that are cropped off the right side of the specified picture or OLE object. Read/write.

Cropping is calculated relative to the original size of the picture. For example, if you insert a picture that is originally 100 points wide, rescale it so that it's 200 points wide, and then set the crop right property to 50, 100 points (not 50) will be cropped off the right side of your picture. However, while cropping measurements are calculated relative to the object's original scale, those measurements reflect absolute distances from the edge of the object. You cannot set any of the cropping properties to a negative number.
Microsoft Excel Suite

crop top
 Returns or sets the number of points that are cropped off the top of the specified picture or OLE object. Read/write.

Cropping is calculated relative to the original size of the picture. For example, if you insert a picture that is originally 100 points high, rescale it so that it's 200 points high, and then set the crop top property to 50, 100 points (not 50) will be cropped off the top of your picture. However, while cropping measurements are calculated relative to the object's original scale, those measurements reflect absolute distances from the edge of the object. You cannot set any of the cropping properties to a negative number.

file name
 Returns or sets the URL (on the intranet or the Web) or path (local or network) to the location where the specified source object was saved. Read/write.

The file name property generates an error if a folder in the specified path doesn’t exist.

height
 Returns or sets the height (in points) of an object. Read/write.

lock aspect ratio
 True if the specified shape retains its original proportions when you resize it. False if you can change the height and width of the shape independently of one another when you resize it. Read/write.

width
 Returns or sets an object's width, in points. Read/write.

Class: groupbox

Plural

groupboxes

Elements

character

Represents a groupbox control.

Use groupbox index, where index is the entry index number or name to return a single groupbox object. The following example creates a new groupbox.

make new groupbox at end of worksheet 1 of workbook 1 with properties
   {top:100, left position:100, height:24, width:100}

The following example gets the properties of a groupbox object on a worksheet.

get properties of groupbox 1 of worksheet 1 of workbook 1
Microsoft Excel Suite

Properties

accelerator
Returns or sets the accelerator character for this control. Read/write.

bottom right cell
Returns a range object that represents the cell that lies under the lower-right corner of the object. Read-only.

caption
Returns or sets the caption for this object. Read/write.

caption text
Returns or sets the default text for the control. Read/write.

display threeD shading
Returns or sets the 3-D shading for this object. Read/write.

enabled
True if the object is enabled. Read/write.

entry index
Returns the index number of the object within the elements of the parent object. Read-only.

height
Returns or sets the height (in points) of the object. Read/write.

left position
Returns or sets the position (in points) of the specified object. Read/write.

locked
True if the object is locked; false if the object can be modified when the sheet is protected. Read/write.

locked text
True if the text in the specified object will be locked to prevent changes when the workbook is protected. Read/write.

name
Returns or sets the name of the object. Read/write.

on action
Returns or sets either the name of a script or VB macro that runs when the specified object is clicked. AppleScript scripts are not saved with the document. Read/write.

phonetic accelerator
This property is not currently supported.
**Microsoft Excel Suite**

*placement*

Returns or sets the way the object is attached to the cells below it. Read/write.

Can be one of the following:

- placement free floating
- placement move
- placement move and size

*print object*

*True* if the object will be printed when the document is printed. Read/write.

*top*

Returns or sets the top position (in points) of the specified object. Read/write.

*top left cell*

Returns a *range* object that represents the cell that lies under the upper-left corner of the specified object. Read-only.

*visible*

*True* if the object is visible. Read/write.

*width*

Returns or sets an object's width, in points. Read/write.

*z order position*

Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.

Whenever you make a new shape or object, it's added to the front of the z-order by default.

**Class: hidden field**

**Plural**

**hidden fields**

Represents a hidden field in a PivotTable report.

Use hidden field *index*, where index is the hidden field's name or index number, to return a single hidden field object.

This example adds the hidden field names to a list on a new worksheet.

```vba
set nwSheet to make new worksheet
activate object nwSheet
set pvtTable to pivot table of range "A1" of worksheet "Sheet2"
set rw to 0
repeat with pvtField in (get hidden fields of pvtTable)
    set rw to rw + 1
    set value of cell rw of column 1 of nwSheet to (get name of pvtField)
end repeat
```
Properties

pivot field

Inherits the properties and elements of the pivot field class.

Class: hidden item

Plural

hidden items

Represents a hidden item in a PivotTable report.

Use hidden item index, where index is the hidden item's name or index number, to return a single hidden item object.

Use hidden items index, where index is the pivot item name or number (can be an array to specify more than one item).

This example adds the names of all the hidden items in the field named "product" to a list on a new worksheet.

```
set nwSheet to make new worksheet
activate object nwSheet
set pvtTable to pivot table of range "A1" of worksheet "Sheet2"
set rw to 0
repeat with pvtItem in (get hidden items of pivot field "product" of pvtTable)
    set rw to rw + 1
    set value of cell rw of column 1 of nwSheet to (get name of pvtItem)
end repeat
```

Properties

pivot item

Inherits the properties and elements of the pivot item class.

Class: horizontal page break

Plural

horizontal page breaks

Represents a horizontal page break.

Use horizontal page break index, where index is the index number of the page break, to return a horizontal page break object. The following example creates new horizontal page breaks on the active sheet.

```
make new horizontal page break at active sheet ¬
    with properties {location:range ("E5")}
make new horizontal page break at active sheet ¬
    with properties {location:range ("C10"),
    extent:page break full, ¬
    horizontal page break type:page break manual}
```
**Properties**

*extent*

Returns the type of the specified page break: full-screen or only within a print area. Read-only.

Can be one of the following:

- page break full
- page break partial

*horizontal page break type*

Returns or sets the type of horizontal page break. Read/write.

Can be one of the following:

- page break automatic
- page break manual
- page break none

*location*

Returns or sets the cell (a `range` object) that defines the page-break location. Horizontal page breaks are aligned with the top edge of the location cell; vertical page breaks are aligned with the left edge of the location cell. Read/write.

**Class:** hyperlink

**Plural**

hyperlinks

Represents a hyperlink.

The following example activates the hyperlink for range A1.

```
set var to hyperlink 1 of range "A1" of active sheet
follow var
```

A range or worksheet can have more than one hyperlink. Use `hyperlink index`, where `index` is the hyperlink number, to return a single `hyperlink` object. The following example activates hyperlink two in the range A1:B2.

```
set var to hyperlink 2 of range "A1:B2" of active sheet
follow var
```

Use the `hyperlink` property to return the `hyperlink` object for a shape (a shape can have only one hyperlink).
Microsoft Excel Suite

**Properties**

*address*

Returns or sets the address of the target document. Read/write.

*email subject*

Returns or sets the text string of the specified hyperlink's e-mail subject line. The subject line is appended to the hyperlink's address. Read/write.

This property is usually used with e-mail hyperlinks. The value of this property takes precedence over any e-mail subject line you have specified by using the *address* property of the same *hyperlink* object.

*hyperlink type*

Returns the hyperlink type (the type of data or object that the hyperlink is associated with). Read-only.

Can be any of the following:

- hyperlink type text range
- hyperlink type shape
- hyperlink type inline shape

*name*

Returns the name of the object. Read-only.

*range object*

Returns a *range* object that represents the range the specified hyperlink is attached to. Read-only.

*screen tip*

Returns or sets the ScreenTip text for the specified hyperlink. Read/write.

After the document has been saved to a Web page, the ScreenTip text may appear (for example) when the mouse pointer is positioned over the hyperlink while the document is being viewed in a Web browser. Some Web browsers may not support ScreenTips.

*shape object*

Returns a *shape* object that represents the shape attached to the specified hyperlink. Read-only.

*sub address*

Returns or sets the location within the document associated with the hyperlink. Read/write.

*text to display*

Returns or sets the text to be displayed for the specified hyperlink. The default value is the address of the hyperlink. Read/write.
Microsoft Excel Suite

Class: international macro sheet

Plural
international macro sheets

Represents an international macro sheet.

Use international macro sheet index, where index is the macro sheet index number or name, to return a single international macro sheet object. The following example creates a new international macro sheet:

make new international macro sheet at the beginning of active workbook

Properties
<Inheritance> sheet

Inherits the properties and elements of the sheet class.

enable selection

Returns or sets what can be selected on the sheet. This property takes effect only when the worksheet is protected. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>no restrictions</td>
<td>Allows any cell to be selected.</td>
</tr>
<tr>
<td>unlocked cells</td>
<td>Allows only those cells whose locked property is false to be selected.</td>
</tr>
<tr>
<td>no selection</td>
<td>Prevents any selection on the sheet.</td>
</tr>
</tbody>
</table>

Class: label

Plural
labels

Represents a label control.

Use label index, where index is the label control's name or index number, to return a single label object. The following example creates a new label control:

make new label at end of worksheet 1 of workbook 1 with properties
{top:100, left position:100, height:24, width:100}

Properties
accelerator

Returns or sets the accelerator character for this control. Read/write.

bottom right cell

Returns a range object that represents the cell that lies under the lower-right corner of the object. Read-only.
Microsoft Excel Suite

caption
   Returns or sets the caption for this object. Read/write.

control text
   Returns or sets the default text for the control. Read/write.

enabled
   True if the object is enabled. Read/write.

entry index
   Returns the index number of the object within the elements of the parent object. Read-only.

height
   Returns or sets the height (in points) of the object. Read/write.

left position
   Returns or sets the position (in points) of the specified object. Read/write.

locked
   True if the object is locked; false if the object can be modified when the sheet is protected. Read/write.

locked text
   True if the text in the specified object will be locked to prevent changes when the workbook is protected. Read/write.

name
   Returns or sets the name of the object. Read/write.

on action
   Returns or sets either the name of a script or VB macro that runs when the specified object is clicked. AppleScript scripts not saved with the document. Read/write.

phonetic accelerator
   This property is not currently supported.

placement
   Returns or sets the way the object is attached to the cells below it. Read/write.
   Can be one of the following:
   - placement free floating
   - placement move
   - placement move and size

print object
   True if the object will be printed when the document is printed. Read/write.
Microsoft Excel Suite

top

Returns or sets the top position (in points) of the specified object. Read/write.

top left cell

Returns a range object that represents the cell that lies under the upper-left corner of the specified object. Read-only.

visible

True if the object is visible. Read/write.

width

Returns or sets an object's width, in points. Read/write.

z order position

Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.

Whenever you make a new shape or object, it's added to the front of the z-order by default.

Class: list column

Plural

list columns

Represents a column in a list object.

Use list column index, where index is the list column index number or name, to return a single list column object. The following example requires that entries added to column 3 of list object 1 be unique.

set unique of list column 3 of list object 1 of sheet 2 to true

Properties

data type

Returns or sets the data type of the specified column in a list object. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>no data type</td>
<td>time data</td>
</tr>
<tr>
<td>whole number data</td>
<td>text data</td>
</tr>
<tr>
<td>decimal data</td>
<td>currency data</td>
</tr>
<tr>
<td>list data</td>
<td>calculated data</td>
</tr>
<tr>
<td>date data</td>
<td>counter data</td>
</tr>
</tbody>
</table>

default value

Sets a default value for a column in a list object. Read/write.

The default value is an empty string.

name

Returns or sets the name of the object. Read/write.
range object

Returns a range object that represents the range to which the specified list column, object, or row applies. Read-only.

show phonetic fields

True if phonetic fields are visible in a list object column. Read/write.

This property is available only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

unique

True if a list column will accept only new, unique values when records are added or edited. Read/write.

The default value is false.

Class: list object

Plural
list objects

Elements
list column
list row

Represents a list object on a worksheet.

Use list object index, where index is the list index number or name, to return a single list object object. The following example converts the second list object on Sheet1 to a normal Excel range.

convert to range list object 2 of sheet "Sheet1"

Properties

cell table

Returns the cell table from a specified list object. Read-only.

name

Returns or sets the name of the object. Read/write.

print field header titles

True if list column labels are reprinted at the top of each page when a list sheet is printed. Read/write.

query table

Returns a query table object that represents the query table that intersects the specified range. Read-only.
**Microsoft Excel Suite**

**range autoformat**

Specifies a predefined format for automatically formatting a range of cells in a list object. Read/write.

Can be one of the following:

- range autoformat threeD effects 1
- range autoformat threeD effects 2
- range autoformat accounting 1
- range autoformat accounting 2
- range autoformat accounting 3
- range autoformat accounting 4
- range autoformat classic 1
- range autoformat classic 2
- range autoformat classic 3
- range autoformat color 1
- range autoformat color 2
- range autoformat color 3
- range autoformat local format 1
- range autoformat local format 2
- range autoformat local format 3
- range autoformat local format 4
- range autoformat none
- range autoformat simple

**range object**

Returns a range object that represents the range to which the specified list column, object, or row applies. Read/write.

**show autofilter**

True if the AutoFilter is implemented in a list object. Read/write.

**total**

Specifies that a totals row be implemented in a list object. Read/write.

The default value is `false`.

**total row**

Returns the totals row, if any, from a specified list object. Read-only.

**used range**

Returns a range object that represents the used range on the specified worksheet. Read-only.

**visuals**

Specifies how, or whether, visuals are displayed in the list object. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>list object visual automatic</td>
<td>Turns the visuals on or off depending on whether the list is</td>
</tr>
<tr>
<td></td>
<td>currently selected.</td>
</tr>
<tr>
<td>list object visual off</td>
<td>Visuals are not displayed in the list object.</td>
</tr>
<tr>
<td>list object visual on</td>
<td>Visuals remain displayed in the list object.</td>
</tr>
</tbody>
</table>
**Microsoft Excel Suite**

**Class: list row**

**Plural**
list rows

Represent a row in a list object.

Use `list row index`, where `index` is the list row index number or name, to return a single list row object. The following example deletes the 25th row from a list object.

```plaintext
delete range range object of list row 25 of list object 1 of sheet 1
```

**Properties**

`range object`

Returns a range object that represents the range to which the specified list column, object, or row applies. Read-only.

**Class: listbox**

**Plural**
listboxes

Represents a listbox control.

Use `listbox index`, where `index` is the entry index number or name, to return a single listbox object. The following example creates a new listbox.

```plaintext
make new listbox at end of worksheet 1 of workbook 1 with properties
    {top:100, left position:100, height:24, width:100}
```

The following example gets the properties of a listbox object on a worksheet.

```plaintext
get properties of listbox 1 of worksheet 1 of workbook 1
```

**Properties**

`bottom right cell`

Returns a range object that represents the cell that lies under the lower-right corner of the object. Read-only.

`display threeD shading`

Returns or sets the 3-D shading for this object. Read/write.

`enabled`

True if the object is enabled. Read/write.

`entry index`

Returns the index number of the object within the elements of the parent object. Read-only.

`height`

Returns or sets the height (in points) of the object. Read/write.
**Microsoft Excel Suite**

*left position*

Returns or sets the position (in points) of the specified object. Read/write.

*linked cell*

Returns or sets the worksheet range linked to the control's value. If you place a value in the cell, the control takes this value. Likewise, if you change the value of the control, that value is also placed in the cell. Read/write.

You cannot use this property if the *multi select* property is *select simple* or *select extended*.

*list fill range*

Returns or sets the worksheet range used to fill the specified list box. Setting this property destroys any existing list in the list box. Read/write.

Excel reads the contents of every cell in the range and inserts the cell values into the list box. The list tracks changes in the range's cells.

If the list in the list box was created with the *add item to list* command, this property returns an empty string (""").

*list index*

Returns or sets the index number of the currently selected item in a list box or combo box. Read/write.

You cannot use this property if the *multi select* property is *select simple* or *select extended*.

*locked*

*True* if the object is locked; *false* if the object can be modified when the sheet is protected. Read/write.

*multi select*

Returns or sets the selection mode of the specified list box. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>select none</td>
<td>Single select — allows only one item at a time to be selected. Clicking the mouse or pressing the SPACEBAR cancels the selection and selects the clicked item.</td>
</tr>
<tr>
<td>select simple</td>
<td>Simple multiselect — toggles the selection on an item in the list when you click it with the mouse or when you press the SPACEBAR while the focus is on the item. This mode is appropriate for pick lists, in multiple items are often selected.</td>
</tr>
<tr>
<td>select extended</td>
<td>Extended multiselect — usually acts like a single-selection list box, so when you click an item, you cancel all other selections. When you hold down SHIFT while clicking the mouse or pressing an arrow key, you select items sequentially from the current item. When you hold down CTRL while clicking the mouse, you add single items to the list. This mode is appropriate when multiple items are allowed but not often used.</td>
</tr>
</tbody>
</table>

To return and set the selected item in a single-select list box, use the *value* or *list index* property.
Microsoft Excel Suite

name
Returns or sets the name of the object. Read/write.

number of items in list
Returns the total number of items in the list. Read-only.

on action
Returns or sets either the name of a script or VB macro that runs when the specified object is clicked. AppleScript scripts not saved with the document. Read/write.

placement
Returns or sets the way the object is attached to the cells below it. Read/write.
Can be one of the following:

- placement free floating
- placement move
- placement move and size

print object
True if the object will be printed when the document is printed. Read/write.

top
Returns or sets the top position (in points) of the specified object. Read/write.

top left cell
Returns a range object that represents the cell that lies under the upper-left corner of the specified object. Read-only.

value
Returns or sets the value of the control. Read/write.

visible
True if the object is visible. Read/write.

width
Returns or sets an object's width, in points. Read/write.

z order position
Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.
Whenever you make a new shape or object, it's added to the front of the z-order by default.
Microsoft Excel Suite

Class: macro sheet

Plural

macro sheets

Represents a macro sheet.

Use macro sheet index, where index is the macro sheet index number or name, to return a single macro sheet object. The following example creates a new macro sheet.

```vba
make new macro sheet
at the beginning of active workbook
```

Properties

<Inheritance> sheet

Inherits the properties and elements of the sheet class.

enable selection

Returns or sets what can be selected on the sheet. This property takes effect only when the worksheet is protected. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>no restrictions</td>
<td>Allows any cell to be selected.</td>
</tr>
<tr>
<td>unlocked cells</td>
<td>Allows only those cells whose locked property is false to be selected.</td>
</tr>
<tr>
<td>no selection</td>
<td>Prevents any selection on the sheet.</td>
</tr>
</tbody>
</table>

Class: named item

Plural

named items

Represents a defined name for a range of cells. Named items can be either built-in names, such as Database, Print_Area, and Auto_Open, or custom names.

Use named item index, where index is the name index number or defined name, to return a single named item object.

The index number indicates the position of the name within the application's internal list of named items. Named items are placed in alphabetical order, from a to z, and are not case-sensitive (this is the same order that is displayed in the Define Name and Apply Names dialog boxes when you click Name on the Insert menu). The following example displays the cell reference for the first name in the application's internal list of named items.

```vba
display dialog references of named item 1
```
**Microsoft Excel Suite**

The following example deletes the name "mySortRange" from the active workbook.

```
delete named item "mySortRange" of active workbook
```

Use the `name` property to return or set the text of the name itself. The following example changes the name of the first `named item` object in the active workbook.

```
set name of named item 1 to "stock_values"
```

**Properties**

*category*

Returns or sets the category for the specified name. The name must refer to a custom function or command. Read/write.

*category local*

Returns or sets the category for the specified name, in the language of the user, if the name refers to a custom function or command. Read/write.

*entry index*

Returns the index number of the object within the elements of the parent object. Read-only.

*macro type*

Returns or sets what the name refers to. Read-write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>macro type command</code></td>
<td>The name refers to a user-defined VB macro.</td>
</tr>
<tr>
<td><code>macro type function</code></td>
<td>The name refers to a user-defined function.</td>
</tr>
<tr>
<td><code>macro type not XLM</code></td>
<td>The name doesn't refer to a function or VB macro.</td>
</tr>
</tbody>
</table>

*name*

Returns or sets the name of the object. Read/write.

*name local*

Returns or sets the name of the object, in the language of the user. Read/write.

If the style is a built-in style, this property returns the name of the style in the language of the current locale.

*reference local*

Returns or sets the formula that the name refers to. The formula is in the language of the user, and it's in A1-style notation, beginning with an equal sign. Read/write.

*reference local r1c1*

Returns or sets the formula that the name refers to. This formula is in the language of the user, and it's in R1C1-style notation, beginning with an equal sign. Read/write.
reference r1c1
Returns or sets the formula that the name refers to. The formula is in R1C1-style notation, beginning with an equal sign. Read/write.

reference range
Returns the range object referred to by a name object. Read-only.
If the name object doesn’t refer to a range (for example, if it refers to a constant or a formula), this property fails.
To change the range that a name refers to, use the reference local property.

references
Returns or sets the formula that the name is defined to refer to, in A1-style notation, beginning with an equal sign. Read/write

shortcut key
Returns or sets the shortcut key for a name defined as a custom Excel 4.0 macro command. Read/write.

value
Returns or sets a string containing the formula that the name is defined to refer to. The string is in A1-style notation and it begins with an equal sign. Read/write.

visible
True if the object is visible. Read/write.
If you set the visible property for a name to false, the name will not appear in the Define Name dialog box.

Class: ODBC error

Plural
ODBC errors
Represents an ODBC error generated by the most recent ODBC query.
Use ODBC error index, where index is the index number of the error, to return a single ODBC error object. The following example refreshes query table one and displays the first ODBC error that occurs.

refresh query table query table 1 of sheet 1
if (count of ODBC errors) > 0 then
    set er to ODBC error 1
    dialog "The following error occurred: " & error string of er & " : " & sql state of er
else
    dialog "Query complete: all records returned."
end if
Properties

error string
Returns the ODBC error string. Read-only.

sql state
Returns the SQL state error. Read-only.
For an explanation of the specific error, see your SQL documentation.

Class: option button

Plural
option buttons

Elements
character
Represents an option button control.
Use option button index, where index is the entry index number or name to return a single option button object. The following example creates a new option button.

make new option button at end of worksheet 1 of workbook 1 with properties
{top:100, left position:100, height:24, width:100}
The following example gets the properties of an option button object on a worksheet.

get properties of option button 1 of worksheet 1 of workbook 1

Properties

accelerator
Returns or sets the accelerator character for this control. Read/write.

border
Returns a border object that represents the border of the object. Read-only.

bottom right cell
Returns a range object that represents the cell that lies under the lower-right corner of the object. Read-only.

caption
Returns or sets the caption for this object. Read/write.

control text
Returns or sets the default text for the control. Read/write.

display threeD shading
Returns or sets the 3-D shading for this object. Read/write.

enabled
True if the object is enabled. Read/write.
Microsoft Excel Suite

entry index
    Returns the index number of the object within the elements of the parent object. Read-only.

group box
    Returns a group box object that represents the grouping of the object. Read-only.

height
    Returns or sets the height (in points) of the object. Read/write.

interior object
    Returns an interior object that represents the interior of the specified object. Read-only.

left position
    Returns or sets the position (in points) of the specified object. Read/write.

linked cell
    Returns or sets the worksheet range linked to the control's value. If you place a value in the cell, the control takes this value. Likewise, if you change the value of the control, that value is also placed in the cell. Read/write.

locked
    True if the object is locked; false if the object can be modified when the sheet is protected. Read/write.

locked text
    True if the text in the specified object will be locked to prevent changes when the workbook is protected. Read/write.

name
    Returns or sets the name of the object. Read/write.

on action
    Returns or sets either the name of a script or VB macro that runs when the specified object is clicked. AppleScript scripts are not saved with the document. Read/write.

phonetic accelerator
    This property is not currently supported.

placement
    Returns or sets the way the object is attached to the cells below it. Read/write.
    Can be one of the following:
    - placement free floating
    - placement move
    - placement move and size

print object
    True if the object will be printed when the document is printed. Read/write.
Microsoft Excel Suite

top

Returns or sets the top position (in points) of the specified object. Read/write.

top left cell

Returns a range object that represents the cell that lies under the upper-left corner of the specified object. Read-only.

value

Returns or sets the value of the control. Read-only.

visible

True if the object is visible. Read/write.

width

Returns or sets an object's width, in points. Read/write.

z order position

Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.

Whenever you make a new shape or object, it's added to the front of the z-order by default.

Class: outline

Plural
outlines

Represents an outline on a worksheet.

Use the outline object property to return an outline object. The following example sets the outline on Sheet4 so that only the first outline level is shown.

show levels (outline object of sheet "Sheet4") row levels 1

Properties

automatic styles

True if the outline uses automatic styles. Read/write.

summary column

Returns or sets the location of the summary columns in the outline, as shown in the following table. Read/write.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>summary on left</td>
<td>The summary column will be positioned to the left of the detail columns in the outline.</td>
</tr>
<tr>
<td>summary on right</td>
<td>The summary column will be positioned to the right of the detail columns in the outline.</td>
</tr>
</tbody>
</table>
**summary row**

Returns or sets the location of the summary rows in the outline, as shown in the following table. Read/write.

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>summary above</td>
<td>The summary row will be positioned above the detail rows in the outline. Use for Microsoft Word-style outlines, where category headers are above the detailed information.</td>
</tr>
<tr>
<td>summary below</td>
<td>The summary row will be positioned below the detail rows in the outline. Use for accounting-style outlines, where summations are below the detailed information.</td>
</tr>
</tbody>
</table>

**Class: page field**

**Plural**

**page fields**

Represents a page field in a PivotTable report.

Use `page field index`, where `index` is the page field's name or index number, to return a single `page field` object.

This example adds the page field names to a list on a new worksheet.

```
set nwSheet to make new worksheet
activate object nwSheet
set pvtTable to pivot table of range "A1" of worksheet "Sheet2"
set rw to 0
repeat with pvtField in (get page fields of pvtTable)
  set rw to rw + 1
  set value of cell rw of column 1 of nwSheet to (get name of pvtField)
end repeat
```

**Properties**

*Inheritance*  **pivot field**

Inherits the properties and elements of the `pivot field` class.
Class: page setup

Plural
page setups

Represents the page setup description. The page setup object contains all page setup attributes (left margin, bottom margin, paper size, and so on) as properties.

Use the page setup object property to return a page setup object. The following example sets the orientation to landscape mode and then prints the worksheet.

```excel
set page orientation of page setup object ¬
       of sheet 1 of active workbook to landscape
print out worksheet 1
```

The following special formatting codes can be included as a part of the header and footer properties (left header, center header, right header, left footer, center footer, right footer).

<table>
<thead>
<tr>
<th>Format code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&amp;L</td>
<td>Left aligns the characters that follow.</td>
</tr>
<tr>
<td>&amp;C</td>
<td>Centers the characters that follow.</td>
</tr>
<tr>
<td>&amp;R</td>
<td>Right aligns the characters that follow.</td>
</tr>
<tr>
<td>&amp;E</td>
<td>Turns double-underline printing on or off.</td>
</tr>
<tr>
<td>&amp;X</td>
<td>Turns superscript printing on or off.</td>
</tr>
<tr>
<td>&amp;Y</td>
<td>Turns subscript printing on or off.</td>
</tr>
<tr>
<td>&amp;B</td>
<td>Turns bold printing on or off.</td>
</tr>
<tr>
<td>&amp;I</td>
<td>Turns italic printing on or off.</td>
</tr>
<tr>
<td>&amp;U</td>
<td>Turns underline printing on or off.</td>
</tr>
<tr>
<td>&amp;S</td>
<td>Turns strikethrough printing on or off.</td>
</tr>
<tr>
<td>&amp;O</td>
<td>Turns outline printing on or off (Macintosh only).</td>
</tr>
<tr>
<td>&amp;H</td>
<td>Turns shadow printing on or off (Macintosh only).</td>
</tr>
<tr>
<td>&amp;D</td>
<td>Prints the current date.</td>
</tr>
<tr>
<td>&amp;T</td>
<td>Prints the current time.</td>
</tr>
<tr>
<td>&amp;F</td>
<td>Prints the name of the document.</td>
</tr>
<tr>
<td>&amp;A</td>
<td>Prints the name of the workbook tab.</td>
</tr>
<tr>
<td>&amp;P</td>
<td>Prints the page number.</td>
</tr>
<tr>
<td>&amp;Z</td>
<td>Prints the path of the document.</td>
</tr>
<tr>
<td>&amp;G</td>
<td>Includes a picture.</td>
</tr>
</tbody>
</table>
### Format code | Description
--- | ---
&P+number | Prints the page number plus the specified number.
&P-number | Prints the page number minus the specified number.
& | Prints a single ampersand.
& "fontname" | Prints the characters that follow in the specified font. Be sure to include the double quotation marks.
&nn | Prints the characters that follow in the specified font size. Use a two-digit number to specify a size in points.
&N | Prints the total number of pages in the document.

### Properties

**black and white**

True if elements of the document will be printed in black and white. Read/write.

This property applies only to worksheets.

**bottom margin**

Returns or sets the size (in points) of the bottom margin. Read/write.

Margins are set or returned in points. Use either the inches to points command or the centimeters to points command to do the conversion. For example:

```plaintext
set bottom margin of page setup object of sheet 1 of active workbook to (inches to points inches 0.5)
```

**center footer**

Returns or sets the center part of the footer. Read/write.

Special format codes can be used in the footer text.

**center footer picture**

Returns a graphic object that represents the picture for the center section of the footer. Used to set attributes about the picture.

The center footer picture property is read-only, but not all of its properties are read-only.

**center header**

Returns or sets the center part of the header. Read/write.

Special format codes can be used in the footer text.

**center header picture**

Returns a graphic object that represents the picture for the center section of the header. Used to set attributes about the picture.

The center header picture property is read-only, but not all of its properties are read-only.
**center horizontally**

**True** if the sheet is centered horizontally on the page when it’s printed. Read/write.

**center vertically**

**True** if the sheet is centered vertically on the page when it’s printed. Read/write.

**chart size**

Returns or sets the way a chart is scaled to fit on a page. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>full screen</td>
<td>Prints the chart the same size as it appears on the screen.</td>
</tr>
<tr>
<td>fit to page</td>
<td>Prints the chart as large as possible, while retaining the chart's height-to-width ratio as shown on the screen.</td>
</tr>
<tr>
<td>full page</td>
<td>Prints the chart to fit the page, adjusting the height-to-width ratio as necessary.</td>
</tr>
</tbody>
</table>

This property applies only to chart sheets (it cannot be used with embedded charts).

**draft**

**True** if the sheet will be printed without graphics. Read/write.

Setting this property to **true** makes printing faster (at the expense of not printing graphics).

**first page number**

Returns or sets the first page number that will be used when this sheet is printed. If this property is omitted, Excel chooses the first page number automatically. Read/write.

**fit to pages tall**

Returns or sets the number of pages tall the worksheet will be scaled to when it's printed. This property applies only to worksheets. Read/write.

If this property is **false**, Excel scales the worksheet according to the **fit to pages wide** property.

If the **zoom** property is **true**, the **fit to pages tall** property is ignored.

**fit to pages wide**

Returns or sets the number of pages wide the worksheet will be scaled to when it's printed. This property applies only to worksheets. Read/write.

If this property is **false**, Excel scales the worksheet according to the **fit to pages wide** property.

If the **zoom** property is **true**, the **fit to pages wide** property is ignored.

**footer margin**

Returns or sets the distance (in points) from the bottom of the page to the footer. Read/write.
**header margin**

Returns or sets the distance (in points) from the top of the page to the header. Read/write.

Margins are set or returned in points. Use the `inches to points` command or the `centimeters to points` command to convert measurements from inches or centimeters.

**left footer**

Returns or sets the left part of the footer. Read/write.

Special format codes can be used in the footer text.

**left footer picture**

Returns a `graphic` object that represents the picture for the left section of the footer. Used to set attributes about the picture.

The `left footer picture` property is read-only, but not all of its properties are read-only.

**left header**

Returns or sets the left part of the header. Read/write.

Special format codes can be used in the header text.

**left header picture**

Returns a `graphic` object that represents the picture for the left section of the header. Used to set attributes about the picture.

The `left header picture` property is read-only, but not all of its properties are read-only.

**left margin**

Returns or sets the size (in points) of the left margin. Read/write.

Margins are set or returned in points. Use the `inches to points` command or the `centimeters to points` command to convert measurements from inches or centimeters.

**order**

Returns or sets the order that Excel uses to number pages when printing a large worksheet. This property applies only to worksheets. Read/write.

Can be one of the following:

- down then over
- over then down

**page orientation**

Returns or sets the page's orientation. Read-write.

Can be one of the following:

- landscape
- portrait
**Microsoft Excel Suite**

*print Excel comments*

Returns or sets the way comments are printed with the sheet. Read/write.

Can be one of the following:
- **print sheet end**
- **print in place**
- **print no comments**

*print area*

Returns or sets the range to be printed as a string using A1-style references. Read/write.

To set the print area to the entire sheet, set this property to **false** or to the empty string (""").

This property applies only to worksheets.

*print gridlines*

**True** if cell gridlines are printed on the page. This property applies only to worksheets. Read/write.

*print headings*

**True** if row and column headings are printed with this page. This property applies only to worksheets. Read/write.

The **display headings** property controls the on-screen display of headings.

*print notes*

**True** if cell notes are printed as end notes with the sheet. This property applies only to worksheets. Read/write.

Use the **print comments** property to print comments as text boxes or end notes.

*print quality*

Returns or sets a two-element list where 1 is the horizontal print quality and 2 is the vertical print quality. Read/write.

Some printers may not support vertical print quality. If you don't specify this argument, the **print quality** command returns (or can be set to) a list that contains both horizontal and vertical print quality.

This example sets print quality on a printer with nonsquare pixels. The list specifies both horizontal and vertical print quality. This example may cause an error, depending on the printer driver you're using.

```excel
set print quality of page setup object ¬
of sheet 1 of active workbook to {240, 140}
```

*print title columns*

Returns or sets the columns that contain the cells to be repeated on the left side of each page, as a string in A1-style notation. Read/write.

If you specify only part of a column or columns, Excel expands the range to full columns.

To turn off title columns, set this property to **false** or to the empty string (""").

This property applies only to worksheets.
print title rows

Returns or sets the rows that contain the cells to be repeated at the top of each page, as a string in A1-style notation. Read/write.

If you specify only part of a row or rows, Excel expands the range to full rows.

To turn off title rows, set this property to false or to the empty string ("").

This property applies only to worksheets.

right footer

Returns or sets the right part of the footer. Read/write.

Special format codes can be used in the footer text.

right footer picture

Returns a graphic object that represents the picture for the right section of the footer. Used to set attributes of the picture.

The right footer picture property is read-only, but not all of its properties are read-only.

right header

Returns or sets the right part of the header. Read/write.

Special format codes can be used in the header text.

right header picture

Returns a graphic object that represents the picture for the right section of the header. Used to set attributes about the picture.

The right header picture property is read-only, but not all of its properties are read-only.

right margin

Returns or sets the size (in points) of the right margin. Read/write.

Margins are set or returned in points. Use the inches to points command or the centimeters to points command to convert measurements from inches or centimeters.

top margin

Returns or sets the size (in points) of the top margin. Read/write.

Margins are set or returned in points. Use the inches to points command or the centimeters to points command to convert measurements from inches or centimeters.

zoom

Returns or sets a percentage (between 10 and 400 percent) by which Excel will scale the worksheet for printing. This property applies only to worksheets. Read/write.

If this property is false, the fit to pages wide and fit to pages tall properties control how the worksheet is scaled.

All scaling retains the aspect ratio of the original document.
Class: pane

Plural
panes

Represents a pane of a window. Please note that pane objects exist only for worksheets and Excel 4.0 macro sheets.

Use pane index, where index is the pane index number, to return a single pane object. The following example splits the window in which worksheet one is displayed and then scrolls through the pane in the lower-left corner until row five is at the top of the pane.

activate sheet 1
set split of active window to true
set scroll row of pane 3 of active window to 5

Properties

entry index

Returns the index number of the object within the elements of the parent object. Read-only.

scroll column

Returns or sets the number of the leftmost column in the pane or window. Read/write.

If the window is split, the scroll column property of the window object refers to the upper-left pane. If the panes are frozen, the scroll column property of the window object excludes the frozen areas.

scroll row

Returns or sets the number of the row that appears at the top of the pane or window. Read/write.

If the window is split, the scroll row property of the window object refers to the upper-left pane. If the panes are frozen, the scroll row property of the window object excludes the frozen areas.

visible range

Returns a range object that represents the range of cells that are visible in the window or pane. If a column or row is partially visible, it's included in the range. Read-only.

Class: parent item

Plural
parent items

Represents a parent item in a PivotTable report.

Use parent item index, where index is the parent item’s name or index number, to return a single parent item object. This example creates a list containing the names of all the items that are group parents in the field named “product.”
Microsoft Excel Suite

set nwSheet to make new worksheet
activate object nwSheet
set pvtTable to pivot table of range "A1" of worksheet "Sheet2"
set rw to 0
repeat with pvtItem in (get parent items of pivot field "product" of pvtTable)
    set rw to rw + 1
    set value of cell rw of column 1 of nwSheet to (get name of pvtItem)
end repeat

Properties

pivot item

Inherits the properties and elements of the pivot item class.

Class: phonetic

Plural
phonetics

Contains information about a specific phonetic text string in a cell.

Use phonetic index, where index is the index number of the phonetic text, to return a single phonetic object.

Use the phonetic object property of the range class to return or set the attributes of phonetic text in a specified range.

This example gets the phonetic text of the phonetic object in cell A4.

get phonetic text of phonetic object of range "A4"

Properties

character type

Returns or sets the type of phonetic text in the specified cell. Read/write.

Can be one of the following:

- phonetic character half width katakana
- phonetic character full width katakana
- phonetic character hiragana
- no phonetic character conversion

font object

Returns the font object that represents the font of the specified object. Read-only.
**Microsoft Excel Suite**

*phonetic alignment*

Returns or sets the alignment for the specified phonetic text. Read/write.

Can be one of the following:

- phonetic align no control
- phonetic align left
- phonetic align center
- phonetic align distributed

*phonetic text*

Returns or sets the text for the specified object. Read/write.

*visible*

Returns or sets if the object is visible. Read/write.

**Class: pivot cache**

**Plural**

pivot caches

Represents the memory cache for a PivotTable report.

Use the `pivot cache` property to return a `pivot cache` object for a PivotTable report (each PivotTable report has only one cache). The following example causes the first PivotTable report on worksheet 1 to refresh itself whenever the workbook is opened.

```excel
set refresh on file open of pivot cache of pivot table 1 of worksheet 1 to true
```

Use `pivot cache index`, where `index` is the cache number, to return a single `pivot cache` object from the list of `pivot cache` objects for a workbook. The following example refreshes cache 1.

```excel
refresh pivot cache 1 of active workbook
```

**Properties**

*SQL query*

Returns or sets the SQL query string used with the specified ODBC data source. Read/write.

This property supports the full ODBC Data Manipulation Language (DML) grammar, including wild card characters, and stored procedures that return data. This property doesn't support Data Definition Language (DDL) statements.

You should use the `command text` property instead of the `SQL query` property, which now exists primarily for compatibility with earlier versions of Excel. If you use both properties, the value for the `command text` property takes precedence.

For ODBC sources, the `command text` property functions exactly like the `SQL query` property, and setting the property causes the data to be refreshed.

*background query*

`True` if queries for the PivotTable report or query table are performed asynchronously (in the background). Read/write.
Microsoft Excel Suite

command text

Returns or sets the command string for the specified data source. Read/write.

You should use the command text property instead of the SQL query property, which now exists primarily for compatibility with earlier versions of Excel. If you use both properties, the value for the command text property takes precedence.

For ODBC sources, the command text property functions exactly like the SQL query property, and setting the property causes the data to be refreshed.

connection

Returns or sets a string that contains one of the following: ODBC settings that enable you to connect to an ODBC data source; a URL that enables Excel to connect to a Web data source; or a file that specifies a database or Web query. Read/write.

Setting the connection property doesn't immediately initiate the connection to the data source. You must use the refresh command to make the connection and retrieve the data.

cache enabled

True if the PivotTable cache or query table can be refreshed by the user. The default value is true. Read/write.

The refresh on file open property is ignored if the enable refresh property is set to false.

entry index

Returns the index number of the object within the elements of the parent object. Read-only.

memory used

Returns the amount of memory (in bytes) that Excel is currently using. Read-only.

optimize cache

True if the PivotTable cache is optimized when it's constructed. The default value is false. Read/write.

Cache optimization results in additional queries and degrades initial performance of the PivotTable report.

record count

Returns the number of records in the PivotTable cache or the number of cache records that contain the specified item. Read-only.

refresh date

Returns the date on which the PivotTable report or pivot cache was last refreshed. Read-only.

refresh name

Returns the name of the person who last refreshed the PivotTable data or pivot cache. Read-only.

refresh on file open

True if the PivotTable cache or query table is automatically updated each time the workbook is opened. The default value is false. Read/write.

Query tables and PivotTable reports are not automatically refreshed when you open the workbook by using the open command. To refresh the data after the workbook is open, use the refresh command.
save password

True if password information in an ODBC connection string is saved with the specified query. False if the password is removed. Read/write.

This property affects only ODBC queries.

source data

Returns or sets the data source for the PivotTable report. Read/write.

Can be one of the following:

- range object
- A1-style range reference
- named range
- list of strings

Class: pivot field

Plural

pivot fields

Elements

child item

hidden item

parent item

pivot item

calculated item

Represents a field in a PivotTable report.

Use pivot field index, where index is the name or index number of the pivot field, to return a single pivot field object. The following example makes the pivot field named "Year" a row field in the first PivotTable report on Sheet3.

set pivot field orientation of pivot field "Year" ¬
    of pivot table 1 of worksheet "Sheet3" ¬
    to orient as row field
Properties

auto show count

Returns the number of top or bottom items that are automatically shown in the pivot field.
Read-only.

auto show field

Returns the name of the data field used to determine the top or bottom items that are
automatically shown in the pivot field. Read-only.

auto show range

Returns position top if the top items are shown automatically in the pivot field; returns
position bottom if the bottom items are shown. Read-only.

auto show type

Returns type_auto if AutoShow is enabled for the pivot field; returns type_manual if
AutoShow is disabled. Read-only.

auto sort field

Returns the name of the data field used to sort the pivot field automatically. Read-only.

auto sort order

Returns the order used to sort the pivot field automatically. Read-only.
Can be one of the following:

- sort ascending
- sort descending
- sort manual (if automatic sorting is disabled)

base field

Returns or sets the base field for a custom calculation. Valid only for data fields. Read/write.

base item

Returns or sets the item in the base field for a custom calculation. Valid only for data fields.
Read/write.
**Microsoft Excel Suite**

*calculation*

Returns or sets the type of calculation done by the specified pivot field. Valid only for data fields. Read/write.

Can be one of the following:
- pivot field calculation difference from
- pivot field calculation index
- pivot field calculation no additional calculation
- pivot field calculation percent difference from
- pivot field calculation percent of
- pivot field calculation percent of column
- pivot field calculation percent of row
- pivot field calculation percent of total
- pivot field calculation running total

*child field*

Returns a pivot field object that represents the child pivot field for the specified field (if the field is grouped and has a child field). Read-only.

If the specified field has no child field, this property causes an error.

*current page*

Returns or sets the current page showing for the page field. This property is valid only for page fields. Read/write.

To set this property, set it to the name of the page. Set it to all to set all pages that are showing.

*data range*

Returns a range object. For a data field, the range is the data contained in the field. For a row, column, or page field, the range is the items in the field. For items, the range is the data qualified by the item. Read-only.

*drag to column*

True if the pivot field can be dragged to the column position. The default value is true. Read/write.

*drag to data*

True if the specified field can be dragged to the data position. The default value is true. Read/write.

*drag to hide*

True if the field can be hidden by being dragged off the PivotTable report. The default value is true. Read/write.
Microsoft Excel Suite

drag to page

True if the field can be dragged to the page position. The default value is true. Read/write.

drag to row

True if the field can be dragged to the row position. The default value is true. Read/write.

formula

Returns or sets the object's formula in A1-style notation. Read/write.

If the cell contains a constant, this property returns the constant. If the cell is empty, formula returns an empty string. If the cell contains a formula, formula returns the formula as a string, in the same format in which it would be displayed in the formula bar (including the equal sign).

If you set the value or formula of a cell to a date, Excel checks to see whether that cell is already formatted with one of the date or time number formats. If not, Excel changes the number format to the default short date number format.

If the range is a one- or two-dimensional range, you can set the formula to an array formula of the same dimensions. Similarly, you can put the formula into a list.

Setting the formula for a multiple-cell range fills all cells in the range with the formula.

function

Returns or sets the function used to summarize the pivot field (data fields only). Read/write.

Can be one of the following:

- do average
- do count numbers
- do maximum
- do minimum
- do product
- do standard deviation
- do standard deviation p
- do sum
- do var
- do var p

group level

Returns the placement of the specified field within a group of fields (if the field is a member of a grouped set of fields). Read-only.

The highest-level parent field (leftmost parent field) is level one, its child is level two, and so on.

is calculated

True if the pivot field or item is a calculated field or item. Read-only.

label range

Returns a range object that represents the cell (or cells) that contain the field label. Read-only.

memory used

Returns the amount of memory (in bytes) currently being used by the object. Read-only.
name

Returns or sets the name of the object. Read/write.

number format

Returns or sets the format code for the object. If all cells in the specified range do not have the same number format, returns missing value. Read/write.

For the pivot field object, you can set the number format property only for a data field.

The format code is the same string as the Format Codes option in the Format Cells dialog box. The format function uses different format code strings than do the number format and number format local properties.

parent field

Returns a pivot field object that represents the pivot field that’s the group parent of the object. The field must be grouped and have a parent field. Read-only.

pivot field data type

Returns a constant describing the type of data in the pivot field. Read-only.

Can be one of the following:

- pivot field type date
- pivot field type number
- pivot field type text

pivot field orientation

Returns or sets the location of the field in the PivotTable report. Read/write.

Can be one of the following:

- orient as column field
- orient as data field
- orient as hidden
- orient as page field
- orient as row field

position

Returns or sets the position of the field (first, second, third, and so on) among all the fields in its orientation (rows, columns, pages, data). Read/write.
server based

**True** if the PivotTable report's data source is external and only the items matching the page field selection are retrieved. Read/write.

When this property is **true**, only records in the database that match the selected page field item are retrieved. From then on, whenever the user changes the page field selection, the newly selected page field item is passed to the query as a parameter, and the cache is refreshed.

This property cannot be set if any of the following conditions are true:

- The field is grouped.
- The data source isn't external.
- The cache is shared by two or more PivotTable reports.
- The field is a data type that cannot be server based (a memo field or an OLE object).

show all items

**True** if all items in the PivotTable report are displayed, even if they don't contain summary data. The default value is **false**. Read/write.

source name

Returns the specified object's name, as it appears in the original source data for the PivotTable report. This might be different from the current item name if the user renamed the item after creating the PivotTable report. Read-only.

total levels

Returns the total number of fields in the current field group. If the field is not grouped, the *total levels* property returns the value 1. Read-only.

All fields in a set of grouped fields have the same *total levels* value.

value

Returns or sets the name of the specified field in the PivotTable report. Read/write.

visible items

Returns an object that represents either a single visible pivot item (a *pivot item* object) or a list of all the visible pivot items (a *pivot items* object) in the specified field. Read-only.

**Class: pivot formula**

**Plural**

**pivot formulas**

Represents a formula used to calculate results in a PivotTable report.

Use **pivot formula index**, where *index* is the formula number or string on the left side of the pivot formula, to return the **pivot formula** object. The following example changes the index number for formula one so that it will be solved after formula two.

**set entry index of pivot formula 1 of pivot table 1 of worksheet 1 to 2**
### Properties

**entry index**

Returns the index number of the object within the elements of the parent object. Read-only.

**formula**

Returns or sets the object's formula in A1-style notation. Read/write.

If the cell contains a constant, this property returns the constant. If the cell is empty, *formula* returns an empty string. If the cell contains a formula, *formula* returns the formula as a string, in the same format in which it would be displayed in the formula bar (including the equal sign).

If you set the value or formula of a cell to a date, Excel checks to see whether that cell is already formatted with one of the date or time number formats. If not, Excel changes the number format to the default short date number format.

If the range is a one- or two-dimensional list, you can set the formula to an array formula of the same dimensions. Similarly, you can put the formula into a list.

Setting the formula for a multiple-cell range fills all cells in the range with the formula.

**value**

Returns or sets the name of the specified formula in the PivotTable report. Read/write.

### Class: pivot item

**Plural**

pivot items

**Elements**

child item

Represents an item in a pivot field. The items are the individual data entries in a field category.

Use *pivot item index*, where *index* is the pivot item index number or name, to return a single *pivot item* object. The following example hides all entries in the first PivotTable report on Sheet3 that contain "1998" in the "Year" pivot field.

```
set visible of pivot item "1998" of pivot field "Year" of pivot table 1 of worksheet "Sheet3" to false
```

**Properties**

**data range**

Returns a range object as shown in the following table. For a data field, the range is the data contained in the field. For a row, column, or page field, the range is the items in the field. For items, the range is the data qualified by the item. Read-only.
Microsoft Excel Suite

**formula**

Returns or sets the object's formula in A1-style notation. Read/write.

If the cell contains a constant, this property returns the constant. If the cell is empty, **formula** returns an empty string. If the cell contains a formula, **formula** returns the formula as a string, in the same format in which it would be displayed in the formula bar (including the equal sign).

If you set the value or formula of a cell to a date, Excel checks to see whether that cell is already formatted with one of the date or time number formats. If not, Excel changes the number format to the default short date number format.

If the range is a one- or two-dimensional list, you can set the formula to an array formula of the same dimensions. Similarly, you can put the formula into a list.

Setting the formula for a multiple-cell range fills all cells in the range with the formula.

**is calculated**

**True** if the pivot field or item is a calculated field or item. Read-only.

**label range**

Returns a **range** object that represents the cell (or cells) that contain the field label. Read-only.

**name**

Returns or sets the name of the object. Read/write.

**parent item**

Returns a **pivot item** object that represents the parent pivot item in the parent **pivot field** object (the field must be grouped so that it has a parent). Read-only.

**parent show detail**

**True** if the specified item is showing because one of its parents is showing detail. **False** if the specified item isn't showing because one of its parents is hiding detail. This property is available only if the item is grouped. Read-only.

**position**

Returns or sets the position of the item in its field, if the item is currently showing. Read/write.

**record count**

Returns the number of records in the PivotTable cache or the number of cache records that contain the specified item. Read-only.

**show detail**

**True** if the pivot item is showing detail. Read/write.

If the specified range is in a PivotTable report, it's possible to set this property for more than one cell at a time if the range is contiguous. This property can be returned only if the range is a single cell.
source name
Returns the name of the specified object, as it appears in the original source data for the PivotTable report. This might be different from the name of the current item if the user renamed the item after creating the PivotTable report. Read-only.

value
Returns or sets the name of the specified item in the PivotTable report. Read/write.

visible
True if the item is currently visible in the table. Read/write.

Class: pivot table

Plural
pivot tables

Elements
column field
data field
hidden field
page field
pivot field
row field
calculated field
pivot formula
Re presents a PivotTable report on a worksheet.

Use pivot table index, where index is the PivotTable index number or name, to return a single pivot table object. The following example makes the pivot field named "Year" a row field in the first PivotTable report on Sheet3.

set pivot field orientation of pivot field "Year" of pivot table 1 of worksheet "Sheet3" to orient as row field

Properties

cache index
Returns or sets the index number of the PivotTable cache. Read/write.

If you set the cache index property so that one PivotTable report uses the cache for a second PivotTable report, the first PivotTable report’s fields must be a valid subset of the fields in the second PivotTable report.

column grand
True if the PivotTable report shows grand totals for columns. Read/write.
**Microsoft Excel Suite**

*column range*

Returns a **range** object that represents the range that contains the PivotTable column area. Read-only.

*data body range*

Returns a **range** object that represents the range that contains the PivotTable data area. Read-only.

*data label range*

Returns a **range** object that represents the range that contains the labels for the PivotTable data fields. Read-only.

*display error string*

**True** if the PivotTable report displays a custom error string in cells that contain errors. The default value is **false**. Read/write.

To set the custom error string, use the **error string** property. This property is particularly useful for suppressing divide-by-zero errors when calculated fields are pivoted.

*display null string*

**True** if the PivotTable report displays a custom string in cells that contain null values. The default value is **true**. Read/write.

To set the custom null string, use the **null string** property.

*enable drilldown*

**True** if drilldown is enabled. The default value is **true**. Read/write.

Setting this property for a PivotTable report sets it for all fields in that PivotTable report.

*enable field dialog*

**True** if the **PivotTable Field** dialog box is available when the user double-clicks the PivotTable field. The default value is **true**. Read/write.

Setting this property for a PivotTable report sets it for all fields in that PivotTable report.

*enable wizard*

**True** if the PivotTable Wizard is available. The default value is **true**. Read/write.

*error string*

Returns or sets the string displayed in cells that contain errors when the **display error string** property is **true**. The default value is an empty string (""). Read/write.

*has autoformat*

**True** if the PivotTable report is automatically formatted when it's refreshed or when fields are moved. Read/write.

*inner detail*

Returns or sets the name of the field that will be shown as detail when the **show detail** property is **true** for the innermost row or column field. Read/write.
**manual update**

*True* if the PivotTable report is recalculated only at the user’s request. The default value is *false*. Read/write.

**merge labels**

*True* if PivotTable outer-row item, column item, subtotal, and grand total labels use merged cells. Read-write.

**name**

Returns or sets the name of the object. Read/write.

**null string**

Returns or sets the string displayed in cells that contain null values when the *display null string* property is *true*. The default value is an empty string (""). Read/write.

**page field order**

Returns or sets the order in which page fields are added to the PivotTable layout. Read/write.

Can be one of the following:

- **down then over**
- **over then down**

**page field style**

Returns or sets the style used in the bound page field area. The default value is a *null string* (no style is applied by default). Read/write.

This style is used as the default style for the background area, and it’s applied before any user formatting. Cells vacated when a field is pivoted from the page field area to another location retain this style.

**page field wrap count**

Returns or sets the number of PivotTable page fields in each column or row. Read/write.

**page range**

Returns a *range* object that represents the range that contains the PivotTable page area. Read-only.

**page range cells**

Returns a *range* object that represents the cells in the PivotTable report containing only the page fields and item drop-down lists. Read-only.

**pivot cache**

Returns a *pivot cache* object that represents the cache for the specified PivotTable report. Read-only.
Microsoft Excel Suite

pivot selection

Returns or sets the PivotTable selection, in standard PivotTable selection format. Read/write.
Setting this property is equivalent to calling the pivot select command with the mode argument set to selection mode data and label.

Standard PivotTable selection format is a string expression used to specify part of a PivotTable report. You can refer to a particular cell only if the PivotTable selection string contains the names of all the items used to identify individual cells in the selection. The number of items in that string should be equal to the number of fields in the view for a cell in a normal data area. If the cell is used in calculating a subtotal or grand total, the number of items in the string would be fewer (including 0 [zero] for the intersection of the column and row grand totals).

The item names in the string can appear in any order. If an item name is ambiguous because it appears in another field as well, it must be qualified by "Field[Item]." If an item name contains symbols and spaces, or if it doesn't start with an alphabetical character, it should be enclosed in single quotation marks. If an item name contains embedded single quotation marks, each of these marks must be converted to two single quotation marks. Quotation marks aren't required for spaces if the name is unambiguous, and they're not required for unqualified names that begin with numbers.

preserve formatting

True if PivotTable formatting is preserved when the PivotTable report is refreshed or recalculated by operations such as pivoting, sorting, or changing page field items. Read/write.

refresh date

Returns the date on which the PivotTable report or pivot cache was last refreshed. Read-only.

refresh name

Returns the name of the person who last refreshed the PivotTable data or pivot cache. Read-only.

row grand

True if the PivotTable report shows grand totals for rows. Read/write.

row range

Returns a range object that represents the range including the PivotTable row area. Read-only.

save data

True if data for the PivotTable report is saved with the workbook; false if only the PivotTable definition is saved. Read/write.
selection mode

Returns or sets the PivotTable structured selection mode. Read/write.

Can be one of the following:

- selection mode label only
- selection mode data and label
- selection mode data only
- selection mode origin
- selection mode button
- selection mode blanks

small grid

True if Excel uses a grid that's two cells wide and two cells deep for a newly created PivotTable report. False if Excel uses a blank stencil outline. Read/write.

You should use the stencil outline. The grid is provided only because it enables compatibility with earlier versions of Excel.

source data

Returns or sets the data source for the PivotTable report. Read/write.

Can be one of the following:

- range object
- A1-style range reference
- named range
- list of strings

subtotal hidden page items

True if hidden page field items in the PivotTable report are included in row and column subtotals, block totals, and grand totals. The default value is false. Read/write.

table range1

Returns a range object that represents the range containing the entire PivotTable report, but doesn't include page fields. Read-only.

The table range2 property includes page fields.

table range2

Returns a range object that represents the range containing the entire PivotTable report, including page fields. Read-only.

The table range1 property doesn't include page fields.
**Microsoft Excel Suite**

*table style*

Returns or sets the style used in the PivotTable body. The default value is a null string (no style is applied by default). Read/write.

This style is used as the default style for the background area, and it's applied before any user formatting.

*tag*

Returns or sets a string saved with the PivotTable report. Read/write.

*vacated style*

Returns or sets the style applied to cells vacated when the PivotTable report is refreshed. The default value is a null string (no style is applied by default). Read/write.

*value*

Returns or sets the name of the PivotTable report. Read/write.

**Class: query table**

**Plural**

query tables

Represents a worksheet table built from data returned from an external data source, such as a SQL server or a Microsoft Access database.

Use *query table index*, where *index* is the index number of the query table, to return a single *query table* object. The following example sets query table one so that formulas to the right of it are automatically updated whenever it's refreshed.

```plaintext
set fill adjacent formulas of query table 1 of sheet "Sheet1" to true
```

**Properties**

**FileMaker fields**

Returns or sets a list of the field names used in a FileMaker database. Read/write.

To set values for this property, assign them by using a list in the form {"field name", "layout number", "field name", "layout number", ...}, alternately specifying a field name and layout number used in the FileMaker database. The number represents the layout from which the field derives. In most cases this value is 0 (zero), designating the layout that contains all the fields.

**FileMaker num criteria**

Returns or sets the number of criteria used in an Excel query table that has been created to run against a FileMaker database. Read/write.

**adjust column width**

*True* if the column widths are automatically adjusted for the best fit each time you refresh a query table. *False* if the column widths aren't automatically adjusted with each refresh. The default value is *true*. Read/write.

The maximum column width is two-thirds the width of the screen.
background query

True if queries for the PivotTable report or query table are performed asynchronously (in the background). Read/write.

connection

Returns or sets a string that contains one of the following: ODBC settings that enable Excel to connect to an ODBC data source, a URL that enables Excel to connect to a Web data source, or a file that specifies a database or Web query. Read/write.

Setting the connection property doesn't immediately initiate the connection to the data source. You must use the refresh query table command to make the connection and retrieve the data.

destination

Returns the cell in the upper-left corner of the query table destination range (the range where the resulting query table will be placed). The destination range must be on the worksheet that contains the query table object. Read-only.

enable editing

True if the user can edit the specified query table. False if the user can only refresh the query table. Read/write.

enable refresh

True if the PivotTable cache or query table can be refreshed by the user. The default value is true. Read/write.

The refresh on file open property is ignored if the enable refresh property is set to false.

fetched row overflow

True if the number of rows returned by the last use of the refresh query table command is greater than the number of rows available on the worksheet. Read-only.

field names

True if field names from the data source appear as column headings for the returned data. The default value is true. Read/write.

fill adjacent formulas

True if formulas to the right of the specified query table are automatically updated whenever the query table is refreshed. Read/write.

has autoformat

True if the PivotTable report is automatically formatted when it's refreshed or when fields are moved. Read/write.

name

Returns or sets the name of the object. Read/write.

post text

Returns or sets the string used with the post method of inputting data into a Web server to return data from a Web query. Read/write.

Excel includes sample Web queries that you can modify by changing the HTML code by using a text editor. You can find these samples in the Microsoft Office 2004/Office/Queries folder.
**query type**

Returns one of the following constants indicating the type of query used by Excel to populate the query table or PivotTable cache: ODBC query, DAO record set, web query, OLE DB query, text import, or ADO recordset. Read-only.

You specify the data source in the prefix for the value of the `connection` property.

**refresh on file open**

- **True** if the PivotTable cache or query table is automatically updated each time the workbook is opened. The default value is **false**. Read/write.

Query tables and PivotTable reports are not automatically refreshed when you open the workbook by using the Open command (File menu). To refresh the data after the workbook is open, use the **refresh all** command.

**refresh style**

Returns or sets the way rows on the specified worksheet are added or deleted to accommodate the number of rows in a recordset returned by a query. Read/write. Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>overwrite cells</td>
<td>No new cells or rows are added to the worksheet. Data in surrounding cells is overwritten to accommodate any overflow.</td>
</tr>
<tr>
<td>insert delete cells</td>
<td>Partial rows are inserted or deleted to match the exact number of rows required for the new recordset.</td>
</tr>
<tr>
<td>insert entire rows</td>
<td>Entire rows are inserted, if necessary, to accommodate any overflow. No cells or rows are deleted from the worksheet.</td>
</tr>
</tbody>
</table>

**refreshing**

- **True** if there's a background query in progress for the specified query table. Read-only.

To cancel background queries, use the **cancel refresh** command.

**result range**

Returns a range object that represents the area of the worksheet occupied by the specified query table. Read-only.

The range doesn't include the field name row or the row number column.

**row numbers**

- **True** if row numbers are added as the first column of the specified query table. Read/write.

Setting this property to true doesn't immediately cause row numbers to appear. The row numbers appear the next time the query table is refreshed, and they're reconfigured every time the query table is refreshed.

**save data**

- **True** if data for the PivotTable report is saved with the workbook. **False** if only the PivotTable definition is saved. Read/write.
save password

**True** if password information in an ODBC connection string is saved with the specified query. **False** if the password is removed. Read/write.

This property affects only ODBC queries.

**sql**

Returns or sets the SQL query string used with the specified ODBC data source. Read/write.

This property supports the full ODBC Data Manipulation Language (DML) grammar, including wild card characters and stored procedures that return data. This property does not support Data Definition Language (DDL) statements.

**tables only from html**

**True** if only the HTML tables in the document are read when a query table is refreshed. **False** if the entire HTML document is read when a query table is refreshed. This property has an effect only when the query table is using a URL connection and the Web query returns an HTML document. Read/write.

**text file column data types**

Returns or sets an ordered list of constants that specify the data types applied to the corresponding columns in the text file that you're importing into a query table. The default constant for each column is **general format**. Read/write.

Can be any of the following:

- **general format**
- **text format**
- **MDY format**
- **DMY format**
- **YMD format**
- **MYD format**
- **DYM format**
- **YDM format**
- **skip column**

Use this property only when your query table is based on data from a text file (with the **query type** property set to **text import**) and only if the value of the **text file parse type** property is **delimited**.

If you specify more elements in the list than there are columns, those values are ignored.

**text file comma delimiter**

**True** if the comma is the delimiter when you import a text file into a query table. **False** if you want to use some other character as the delimiter. The default value is **false**. Read/write.

Use this property only when your query table is based on data from a text file (with the **query type** property set to **text import**) and only if the value of the **text file parse type** property is **delimited**.
Microsoft Excel Suite

**text file consecutive delimiter**

*True* if consecutive delimiters are treated as a single delimiter when you import a text file into a query table. The default value is *false*. Read/write.

Use this property only when your query table is based on data from a text file (with the *query type* property set to *text import*) and only if the value of the *text file parse type* property is *delimited*.

**text file decimal separator**

Returns or sets the decimal separator character that Excel uses when you import a text file into a query table. The default is the system decimal separator character. Read/write.

Use this property only when your query table is based on data from a text file (with the *query type* property set to *text import*), when the file contains decimal and thousands separators that are different from those used on the computer due to a different language setting being used.

The following table shows the results when you import text into Excel using various separators. Numeric results are displayed in the rightmost column.

<table>
<thead>
<tr>
<th>System decimal separator</th>
<th>System thousands separator</th>
<th>TextFile DecimalSeparator value</th>
<th>TextFile ThousandsSeparator value</th>
<th>Text imported</th>
<th>Cell value (data type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period</td>
<td>Comma</td>
<td>Comma</td>
<td>Period</td>
<td>123,123.45</td>
<td>123,123.45 (numeric)</td>
</tr>
<tr>
<td>Period</td>
<td>Comma</td>
<td>Comma</td>
<td>Comma</td>
<td>123,123.45</td>
<td>123,123.45 (text)</td>
</tr>
<tr>
<td>Comma</td>
<td>Period</td>
<td>Comma</td>
<td>Period</td>
<td>123,123.45</td>
<td>123,123.45 (numeric)</td>
</tr>
<tr>
<td>Period</td>
<td>Comma</td>
<td>Period</td>
<td>Comma</td>
<td>123 123.45</td>
<td>123 123.45 (text)</td>
</tr>
<tr>
<td>Period</td>
<td>Comma</td>
<td>Period</td>
<td>Space</td>
<td>123 123.45</td>
<td>123 123.45 (numeric)</td>
</tr>
</tbody>
</table>

**text file fixed column widths**

Returns or sets a list of integers that correspond to the widths of the columns (in characters) in the text file that you’re importing into a query table. Valid widths are from 1 through 32767 characters. Read/write.

Use this property only when your query table is based on data from a text file (with the *query type* property set to *text import*) and only if the value of the *text file parse type* property is *fixed width*.

You must specify a valid, nonnegative column width. If you specify columns that exceed the width of the text file, those values are ignored. If the width of the text file is greater than the total width of columns you specify, the balance of the text file is imported into an additional column.
**text file other delimiter**

Returns or sets the character used as the delimiter when you import a text file into a query table. The default value is null. Read/write.

Use this property only when your query table is based on data from a text file (with the *query type* property set to *text import*) and only if the value of the *text file parse type* property is *delimited*.

If you specify more than one character in the string, only the first character is used.

**text file parse type**

Returns or sets the column format for the data in the text file that you're importing into a query table. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>delimited</td>
<td>The file is delimited by delimiter characters.</td>
</tr>
<tr>
<td>fixed width</td>
<td>The data in the file is arranged in columns of fixed widths.</td>
</tr>
</tbody>
</table>

The default value is *delimited*.

Use this property only when your query table is based on data from a text file (with the *query type* property set to *text import*).

**text file platform**

Returns or sets the origin of the text file you're importing into the query table. This property determines which code page is used during the data import.

Can be any of the following:

- Macintosh
- MSDos
- MSWindows

The default value is the current setting of the *File Origin* option in the Text File Import Wizard. Read/write.

Use this property only when your query table is based on data from a text file (with the *query type* property set to *text import*).

**text file prompt on refresh**

*True* if you want to specify the name of the imported text file each time the query table is refreshed. The *Import Text File* dialog box allows you to specify the path and file name. The default value is *false*. Read/write.

Use this property only when your query table is based on data from a text file (with the *query type* property set to *text import*).

If the value of this property is *true*, the dialog box doesn't appear the first time a query table is refreshed.

The default value is *true* in the user interface.
Microsoft Excel Suite

text file semicolon delimiter

*True* if the semicolon is the delimiter when you import a text file into a query table, and if the value of the text file parse type property is delimited. The default value is *false*. Read/write.

Use this property only when your query table is based on data from a text file (with the query type property set to text import).

text file space delimiter

*True* if the space character is the delimiter when you import a text file into a query table. The default value is *false*. Read/write.

Use this property only when your query table is based on data from a text file (with the query type property set to text import), and only if the value of the text file parse type property is delimited.

text file start row

Returns or sets the row number at which text parsing will begin when you import a text file into a query table. Valid values are integers from 1 through 32767. The default value is 1.

Read/write.

Use this property only when your query table is based on data from a text file (with the query type property set to text import).

text file tab delimiter

*True* if the tab character is the delimiter when you import a text file into a query table. The default value is *false*. Read/write.

Use this property only when your query table is based on data from a text file (with the query type property set to text import), and only if the value of the text file parse type property is delimited.

text file text qualifier

Returns or sets the text qualifier when you import a text file into a query table. The text qualifier specifies that the enclosed data is in text format. Read/write.

Can be any of the following:

- **text qualifier double quote**
- **text qualifier none**
- **text qualifier single quote**

The default is *text qualifier double quote*.

Use this property only when your query table is based on data from a text file (with the query type property set to text import).

text file thousands separator

Returns or sets the thousands separator character that Excel uses when you import a text file into a query table. The default is the system thousands separator character. Read/write.

Use this property only when your query table is based on data from a text file (with the query type property set to text import), especially when the file contains decimal and thousands separators that are different from those used on the computer due to a different language setting being used.
Microsoft Excel Suite

The following table shows the results when you import text into Excel using various separators. Numeric results are displayed in the rightmost column.

<table>
<thead>
<tr>
<th>System decimal separator</th>
<th>System thousands separator</th>
<th>TextFile DecimalSeparator value</th>
<th>TextFile ThousandsSeparator value</th>
<th>Text imported</th>
<th>Cell value (data type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period</td>
<td>Comma</td>
<td>Comma</td>
<td>Period</td>
<td>123,123,45</td>
<td>123,123,45 (numeric)</td>
</tr>
<tr>
<td>Period</td>
<td>Comma</td>
<td>Comma</td>
<td>Comma</td>
<td>123,123,45</td>
<td>123,123,45 (text)</td>
</tr>
<tr>
<td>Comma</td>
<td>Period</td>
<td>Comma</td>
<td>Period</td>
<td>123,123,45</td>
<td>123,123,45 (numeric)</td>
</tr>
<tr>
<td>Period</td>
<td>Comma</td>
<td>Period</td>
<td>Comma</td>
<td>123 123,45</td>
<td>123 123,45 (text)</td>
</tr>
<tr>
<td>Period</td>
<td>Comma</td>
<td>Period</td>
<td>Space</td>
<td>123 123,45</td>
<td>123,123,45 (numeric)</td>
</tr>
</tbody>
</table>

use list object

True if a query table uses a list object to present its data. Read/write.
The default value is True.
This property must be implemented after a refresh; otherwise, an error results.

Class: recent file

Plural
recent files

Represents a file in the list of recently used files.

Use recent file index, where index is the file number, to return a recent file object. The following example opens file two in the list of recently used files.

if (count of recent files) >= 1 then
  open workbook workbook file name (path of recent file 2)
end if

Properties

entry index

Returns the index number of the object within the elements of the parent object.

name

Returns or sets the name of the object.

path

Returns the complete path of the object, excluding the final separator and name of the object. Read-only.
Microsoft Excel Suite

Class: row field

Plural
row fields

Represents a row field in a PivotTable report.

Use row field index, where index is the row field's name or index number, to return a single row field object.

This example adds the PivotTable row field names to a list on a new worksheet.

```
set nwSheet to make new worksheet
activate object nwSheet
set pvtTable to pivot table of range "A1" of worksheet "Sheet2"
set rw to 0
repeat with pvtField in (get row fields of pvtTable)
  set rw to rw + 1
  set value of cell rw of column 1 of nwSheet to (get name of pvtField)
end repeat
```

Properties

<Inheritance> pivot field

Inherits the properties and elements of the pivot field class.

Class: scenario

Plural
scenarios

Represents a scenario on a worksheet. A scenario is a group of input values (called changing cells) that is named and saved.

Use scenario index, where index is the scenario name or index number, to return a single scenario object. The following example shows the scenario named "Typical" on the worksheet named "Options."

```
show scenario "Typical" of worksheet "Options"
```

Properties

Excel comment

Returns or sets the comment associated with the scenario. The comment text cannot exceed 255 characters. Read/write.

changing cells

Returns a range object that represents the changing cells for a scenario. Read-only.
**Microsoft Excel Suite**

*entry index*

    Returns the index number of the object within the elements of the parent object. Read-only.

*hidden*

    **True** if the scenario is hidden. The default value is **false**. Read/write.

*locked*

    **True** if the object is locked; **false** if the object can be modified when the sheet is protected. Read/write.

*name*

    Returns or sets the name of the object. Read/write.

**Class: scrollbar**

**Plural**

*scrollbars*

Represents a scrollbar control. A scroll bar is a stand-alone control you can place on a form. It is visually like the scrollbar you see in certain objects such as a list box or the drop-down portion of a combo box. However, unlike the scrollbars in these examples, the stand-alone scrollbar is not an integral part of any other control.

Use `scrollbar index`, where `index` is the entry index number or name to return a single *scrollbar* object. The following example creates a new scrollbar.

```excel
make new scrollbar at end of worksheet 1 of workbook 1 with properties
{top:100, left position:100, height:24, width:100}
```

The following example gets the properties of a scrollbar object on a worksheet.

```excel
get properties of scrollbar 1 of worksheet 1 of workbook 1
```

**Properties**

*bottom right cell*

    Returns a *range* object that represents the cell that lies under the lower-right corner of the object. Read-only.

*display threeD shading*

    **True** if the object has 3-D shading turned on. Read/write.

*enabled*

    **True** if the object is enabled. Read/write

*entry index*

    Returns the index number of the object within the elements of the parent object. Read-only.

*height*

    Returns or sets the height (in points) of an object. Read/write.
Microsoft Excel Suite

large change

Returns or sets the amount that the scrollbar increments or decrements for a page scroll (when the user clicks in the scrollbar body region). Read/write.

left position

Returns or sets the position (the distance from the left edge of the object to the left edge of column A) of the specified object, in points. Read/write.

linked cell

Returns or sets the worksheet range linked to the value of the control. If you place a value in the cell, the control takes this value. Likewise, if you change the value of the control, that value is also placed in the cell. Read/write.

locked

True if the object is locked; false if the object can be modified when the sheet is protected. Read/write.

maximum value

Returns or sets the maximum value of the scrollbar range. The scrollbar or spinner will not take on values greater than this maximum value. Read/write.

The value of the maximum value property must be greater than the value of the minimum value property.

minimum value

Returns or sets the minimum value of the scrollbar range. The scrollbar or spinner will not take on values less than this minimum value. Read/write.

The value of the minimum value property must be less than the value of the maximum value property.

name

Returns or sets the name of the object. Read/write.

on action

Returns or sets the name of the script or Visual Basic macro that's run when the specified object is clicked. Read/write.

placement

Returns or sets the way the object is attached to the cells below it. Read/write.

Can be one of the following:

- placement free floating
- placement move
- placement move and size

print object

True if the object will be printed when the document is printed. Read/write.
Microsoft Excel Suite

*small change*

Returns or sets the amount that the scrollbar is incremented or decremented for a line scroll (when the user clicks an arrow). Read/write.

*top*

Returns or sets the position (in points) of the specified object. Read/write.

*top left cell*

Returns a **range** object that represents the cell that lies under the upper-left corner of the specified object. Read-only.

*value*

Returns or sets the value of the control. Read/write.

*visible*

Specifies whether an object is visible or hidden. Use the **visible** property to control access to information without displaying it. For example, you could use the value of a control on a hidden form as the criterion for a query.

*width*

Returns or sets an object's width, in points. Read/write.

*z order position*

Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.

Whenever you make a new shape or object, it's added to the front of the z-order by default.

**Class:** sheet

**Plural**

sheets

**Elements**

<table>
<thead>
<tr>
<th>element</th>
<th>listbox</th>
<th>scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>arc</td>
<td>named item</td>
<td>scrollbar</td>
</tr>
<tr>
<td>button</td>
<td>option button</td>
<td>spinner</td>
</tr>
<tr>
<td>cell</td>
<td>oval</td>
<td>textbox</td>
</tr>
<tr>
<td>chart object</td>
<td>pivot table</td>
<td>horizontal page break</td>
</tr>
<tr>
<td>checkbox</td>
<td>range</td>
<td>vertical page break</td>
</tr>
<tr>
<td>dropdown</td>
<td>cell</td>
<td>query table</td>
</tr>
<tr>
<td>groupbox</td>
<td>row</td>
<td>Excel comment</td>
</tr>
<tr>
<td>label</td>
<td>column</td>
<td>hyperlink</td>
</tr>
<tr>
<td>line</td>
<td>rectangle</td>
<td>list object</td>
</tr>
</tbody>
</table>

Represents a worksheet.

Use **sheet index**, where *index* is the worksheet index number or name to return a single **sheet** object. The following example hides the first worksheet in the active workbook.

set visible of sheet 1 to sheet hidden
The worksheet index number denotes the position of the worksheet on the workbook's tab bar. sheet 1 is the first (leftmost) worksheet in the workbook, and sheet (get count of sheets) is the last one. All worksheets are included in the index count, even if they're hidden.

The worksheet name is shown on the tab for the worksheet. To set or return the worksheet name, use the name property. The following example protects the scenarios on the first worksheet in the workbook.

```excel
protect worksheet sheet 1 password "drowssap" with scenarios
```

### Properties

** autofilter mode**

True if the AutoFilter drop-down arrows are currently displayed on the sheet. This property is independent of the filter mode property. Read/write.

This property returns true if the drop-down arrows are currently displayed. You can set this property to false to remove the arrows, but you cannot set it to true. To filter a list and display the drop-down arrows, use the autofilter range command.

** autofilter object**

Returns an autofilter object if filtering is on. Returns missing value if filtering is off. Read-only.

To create an autofilter object for a worksheet, you must turn AutoFilter on for a range on the worksheet either manually or by using the autofilter range command.

**circular reference**

Returns a range object that represents the range containing the first circular reference on the sheet, or returns missing value if there's no circular reference on the sheet. The circular reference must be removed before calculation can proceed. Read-only.

**consolidation function**

Returns the function code used for the current consolidation. Read-only.

Can be any of the following:

- do average
- do count
- do count numbers
- do maximum
- do minimum
- do product
- do standard deviation
- do standard deviation p
- do sum
- do var
- do var p

**consolidation options**

Returns a three-element list of consolidation options, as shown in the following table. If the element is true, that option is set. Read-only.

<table>
<thead>
<tr>
<th>Element</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Use labels in top row.</td>
</tr>
<tr>
<td>2</td>
<td>Use labels in left column.</td>
</tr>
<tr>
<td>3</td>
<td>Create links to source data.</td>
</tr>
</tbody>
</table>
**consolidation sources**

Returns a list of string values that name the source sheets for the worksheet's current consolidation. Returns an empty list if there's no consolidation on the sheet. Read-only.

**display page breaks**

True if page breaks (both automatic and manual) on the specified worksheet are displayed. Read/write.

**enable autofilter**

True if AutoFilter arrows are enabled when user-interface-only protection is turned on. Read/write.

This property applies to each worksheet and isn't saved with the worksheet or session.

**enable calculation**

True if Excel automatically recalculates the worksheet when necessary. False if the user cannot request a recalculation (Excel never recalculates the sheet automatically). Read/write.

When you change this property from false to true, Excel recalculates the worksheet.

**enable outlining**

True if outlining symbols are enabled when user-interface-only protection is turned on. Read/write.

This property applies to each worksheet and isn't saved with the worksheet or session.

**enable pivot table**

True if PivotTable controls and actions are enabled when user-interface-only protection is turned on. Read/write.

This property applies to each worksheet and isn't saved with the worksheet or session.

There must be a sufficient number of unlocked cells below and to the right of the PivotTable report for Excel to recalculate and display the PivotTable report.

**entry index**

Returns the index number of the object within the elements of the parent object. Read-only.

**filter mode**

True if the worksheet is in filter mode. Read-only.

This property is true if the worksheet contains a filtered list in which there are hidden rows.

**name**

Returns or sets the name of the object. Read/write.

**next**

Returns a sheet object that represents the next sheet. Read-only.

**outline object**

Returns an outline object that represents the outline for the specified worksheet. Read-only.
Microsoft Excel Suite

**page setup object**

Returns a **page setup** object that contains all the page setup settings for the specified object. Read-only.

**previous**

Returns a **sheet** object that represents the previous sheet. Read-only.

**protect contents**

**True** if the contents of the sheet are protected. This protects the individual cells. Read-only.

**protect drawing objects**

**True** if shapes are protected. Read-only.

**protection mode**

**True** if user-interface-only protection is turned on. To turn on user interface protection, use the **protect worksheet** command with the **user interface only** argument set to **true**. Read-only.

**scroll area**

Returns or sets the range where scrolling is allowed, as an A1-style range reference. Cells outside the scroll area cannot be selected. Read/write.

Set this property to the empty string (""") to enable cell selection for the entire sheet.

**standard height**

Returns the standard (default) height (in points) of all the rows in the worksheet. Read-only.

**standard width**

Returns or sets the standard (default) width of all the columns in the worksheet. Read/write.

One unit of column width is equal to the width of one character in the Normal style. For proportional fonts, the width of the character 0 (zero) is used.

**transition expression evaluation**

**True** if Excel uses Lotus 1-2-3 expression evaluation rules for the worksheet. Read/write.

**used range**

Returns a **range** object that represents the used range on the specified sheet. Read-only.

The used range is the smallest rectangle that contains all cells in the sheet containing data. The used range may contain empty cells within it, including in its corners. For example, if the sheet contains data only in cells A1, E1 and C3, its used range would be "$A$1:$E$3."

**visible**

**True** if the worksheet is visible. Read/write.

Can be any of the following:

- **sheet visible**
- **sheet hidden**
- **sheet very hidden**

The **sheet very hidden** constant hides the worksheet so that the only way for you to make it visible again is by setting this property to **true** (the user cannot make the sheet visible).
**Microsoft Excel Suite**

*worksheet type*

Returns the worksheet type. Read-only.

Can be any of the following:

- sheet type chart
- sheet type dialog sheet
- sheet type excel 4 intl macro sheet
- sheet type excel 4 macro sheet
- sheet type worksheet

**Class: spinner**

**Plural**

spinners

Represents a spinner control.

Use spinner *index*, where *index* is the entry index number or name to return a single spinner object.

The following example creates a new spinner.

```plaintext
make new spinner at end of worksheet 1 of workbook 1 with properties
    {top:100, left position:100, height:20, width:16}
```

The following example gets the properties of a spinner object on a worksheet.

```plaintext
get properties of spinner 1 of worksheet 1 of workbook 1
```

**Properties**

*bottom right cell*

Returns a range object that represents the cell that lies under the lower-right corner of the object. Read-only.

*display threeD shading*

True if the object has 3-D shading turned on. Read/write.

*enabled*

True if the object is enabled. Read/write.

*entry index*

Returns the index number of the object within the elements of the parent object. Read-only.

*height*

Returns or sets the height (in points) of an object. Read/write.

*left position*

Returns or sets the position (in points) of the specified object. Read/write.
Microsoft Excel Suite

linked cell

Returns or sets the worksheet range linked to the control's value. If you place a value in the cell, the control takes this value. Likewise, if you change the value of the control, that value is also placed in the cell. Read/write.

You cannot use this property if the multi select property is select simple or select extended.

locked

True if the object is locked; false if the object can be modified when the sheet is protected. Read/write.

maximum value

Returns or sets the maximum value of the spinner range. The spinner will not take on values greater than this maximum value. Read/write.

The value of the maximum value property must be greater than the value of the minimum value property.

minimum value

Returns or sets the minimum value of the spinner range. The spinner will not take on values less than this minimum value. Read/write.

The value of the minimum value property must be less than the value of the maximum value property.

name

Returns or sets the name of the object. Read/write.

on action

Returns or sets the name of the script of Visual Basic macro that runs when the specified object is clicked. Read/write.

placement

Returns or sets the way the object is attached to the cells below it. Read/write.

Can be one of the following:

- placement free floating
- placement move
- placement move and size

print object

True if the object will be printed when the document is printed. Read/write.

small change

Returns or sets the amount that the spinner is incremented or decremented for a line scroll (when the user clicks an arrow). Read/write.
Microsoft Excel Suite

**top**

Returns or sets the position (in points) of the specified object. Read/write.

**top left cell**

Returns a range object that represents the cell that lies under the upper-left corner of the specified object. Read-only.

**value**

Returns or sets the value of the control. Read/write.

**visible**

Specifies whether an object is visible or hidden. Use the visible property to control access to information without displaying it. For example, you could use the value of a control on a hidden form as the criterion for a query.

**width**

Returns or sets an object's width, in points. Read/write

**z order position**

Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.

Whenever you make a new shape or object, it's added to the front of the z-order by default.

**Class:** textbox

**Plural**

textboxes

Represents a textbox control.

Use textbox index, where index is the entry index number or name to return a single textbox object. The following example creates a new textbox.

**make new textbox at end of worksheet 1 of workbook 1 with properties**

{top:100, left position:100, height:24, width:100}

The following example gets the properties of a textbox object on a worksheet.

**get properties of textbox 1 of worksheet 1 of workbook 1**

**Properties**

**add indent**

Returns or sets whether the text is automatically indented when the text alignment in a cell is set to equal distribution either horizontally or vertically.

This property is not used in U.S. English versions of Excel.
auto scale font
True if the text in the object changes font size when the object size changes. The default value is true. Read/write.

auto size
True if the size of the specified object is changed automatically to fit text within its boundaries. Read/write.

border
Returns a border object that represents the border of the object. Read-only.

down right cell
Returns a range object that represents the cell that lies under the lower-right corner of the object. Read-only.

caption
Returns or sets the caption for this object. Read/write.

enabled
True if the object is enabled. Read/write

entry index
Returns the index number of the object within the elements of the parent object. Read-only.

font object
Returns a font object that represents the font of the specified object. Read-only.

formula
Returns or sets the object’s formula in A1-style notation. Read/write.

If the cell contains a constant, this property returns the constant. If the cell is empty, formula returns an empty string. If the cell contains a formula, formula returns the formula as a string, in the same format in which it would be displayed in the formula bar (including the equal sign).

If you set the value or formula of a cell to a date, Excel checks to see whether that cell is already formatted with one of the date or time number formats. If not, Excel changes the number format to the default short date number format.

If the range is a one- or two-dimensional list, you can set the formula to an array formula of the same dimensions. Similarly, you can put the formula into a list.

Setting the formula for a multiple-cell range fills all cells in the range with the formula.

height
Returns or sets the height (in points) of an object. Read/write.
horizontal alignment

Returns or sets the horizontal alignment for the object. Read/write.

Can be one of the following:

- horizontal align center
- horizontal align center across selection
- horizontal align distributed
- horizontal align fill
- horizontal align general
- horizontal align justify
- horizontal align left
- horizontal align right

The horizontal align distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

interior object

Returns an interior object that represents the interior of the specified object. Read-only.

left position

Returns or sets the position (in points) of the specified object. The position is defined as the distance from the left edge of the object to the left edge of column A. Read/write.

locked

True if the object is locked; false if the object can be modified when the sheet is protected. Read/write.

locked text

True if the text in the specified object will be locked to prevent changes when the workbook is protected. Read/write.

name

Returns or sets the name of the object. Read/write.

on action

Returns or sets either the name of the script or VB macro that runs when the specified object is clicked. AppleScript scripts are not saved with the document. Read/write.
**orientation**

Returns or sets the object’s orientation. Read/write.

Can be one of the following:

- orientation down
- orientation horizontal
- orientation upward
- orientation vertical

Can also be a number value between -90 and 90 degrees.

**placement**

Returns or sets the way the object is attached to the cells below it. Read/write.

Can be one of the following:

- placement free floating
- placement move
- placement move and size

**print object**

True if the object will be printed when the document is printed. Read/write.

**reading order**

This property is not currently supported.

**rounded corners**

True if the object has rounded corners. Read/write

**shadow**

True if the font is a shadow font or if the object has a shadow. Read/write.

**string value**

Returns or sets the text of the specified object. Read/write.

**top**

Returns or sets the position (in points) of the specified object. Read/write.

**top left cell**

Returns a range object that represents the cell that lies under the upper-left corner of the specified object. Read-only.
vertical alignment
Returns or sets the vertical alignment of the object. Read/write.
Can be one of the following:
- vertical alignment top
- vertical alignment center
- vertical alignment bottom
- vertical alignment justify
- vertical alignment distributed

The vertical alignment distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

visible
Specifies whether an object is visible or hidden. Use the visible property to control access to information without displaying it. For example, you could use the value of a control on a hidden form as the criterion for a query.

width
Returns or sets an object's width, in points. Read/write

wrap auto text
True if multiple lines of text are displayed in a text frame. The default value is true. Read/write.

z order position
Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.
Whenever you make a new shape or object, it's added to the front of the z-order by default.

Class: validation

Plural
validations
Represents data validation for a worksheet range.
Use the validation property to return the validation object. This example changes data validation for cell E5.

set v1 to validation of range "E5"
modify v1 type validate list alert style valid alert stop ¬
    formula1 "=$A$1:$A$10"
To add data validation to a range and create a new validation object, use the add data validation command. The following example adds data validation to cell E5.

```
add data validation (validation of range "E5") ¬
  type validate whole number ¬
  alert style valid alert information ¬
  formula1 "5" formula2 "10"
set input title of validation of range "E5" to "Integers"
set error title of validation of range "E5" to ¬
  "Enter an integer from five to ten"
set input message of validation of range "E5" to ¬
  "You must enter a number from five to ten"
```

**Properties**

**IME mode**

Returns or sets the description of the Japanese input rules. Read/write.

Can be one of the following:

- IME mode no control
- IME mode on
- IME mode off
- IME mode disable
- IME mode hiragana
- IME mode katakana
- IME mode katakana half
- IME mode alpha full
- IME mode alpha
- IME mode hangul full
- IME mode hangul

This property is available only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

**alert style**

Returns the validation alert style. Read-only.

Can be one of the following:

- valid alert none
- valid alert stop
- valid alert warning
- valid alert information

To set the alert style for a range, use the add data validation command. If the range already has data validation, use the modify command to change the alert style.

**error message**

Returns or sets the data validation error message. Read/write.

**error title**

Returns or sets the title of the data-validation error dialog box. Read/write.
**Microsoft Excel Suite**

**formula1**

Returns the value or expression associated with the conditional format or data validation. Can be a constant value, a string value, a cell reference, or a formula. Read-only.

**formula2**

Returns the value or expression associated with the second part of a conditional format or data validation. Used only when the validation operator property is `operator between` or `operator not between`. Can be a constant value, a string value, a cell reference, or a formula. Read-only.

**ignore blank**

True if blank values are permitted by the range data validation. Read/write.

If true, cell data is considered valid if the cell is blank, or if a cell referenced by either the minimum value or maximum value property is blank.

**in cell dropdown**

True if data validation displays a drop-down list that contains acceptable values. Read/write.

This property is ignored if the validation type isn't `validate list`.

**input message**

Returns or sets the data validation input message. Read/write.

**input title**

Returns or sets the title of the data-validation input dialog box. Read/write.

**show error**

True if the data validation error message will be displayed whenever the user enters invalid data. Read/write.

**show input**

True if the data validation input message will be displayed whenever the user selects a cell in the data validation range. Read/write.

**validation operator**

Returns the operator for the conditional format or data validation. Read-only.

Can be one of the following:

- `operator between`
- `operator not between`
- `operator equal`
- `operator not equal`
- `operator greater`
- `operator less`
- `operator great equal`
- `operator less equal`
**validation type**

Returns the data validation type. Read-only.

Can be one of the following:

- validate input only
- validate whole number
- validate decimal
- validate list
- validated date
- validate time
- validate text length
- validate custom

**value**

True if all the validation criteria are met (that is, if the range contains valid data). Read-only.

---

**Class: vertical page break**

**Plural**

**vertical page breaks**

Represents a vertical page break.

Use `vertical page break` index, where index is the page break index number of the page break, to return a `vertical page break` object. The following example creates new vertical page breaks.

make new vertical page break at active sheet with properties {location:range ("E5")}

make new vertical page break at active sheet with properties {location:range ("C10"), extent:page break full, vertical page break type:page break manual}

**Properties**

**extent**

Returns the type of the specified page break: full-screen or only within a print area. Read-only.

Can be one of the following:

- page break full
- page break partial
Microsoft Excel Suite

**location**

Returns or sets the cell (a range object) that defines the page-break location. Horizontal page breaks are aligned with the top edge of the location cell; vertical page breaks are aligned with the left edge of the location cell. Read/write.

**vertical page break type**

Returns or sets the type of vertical page break. Read/write

Can be one of the following:

- **page break automatic**
- **page break manual**
- **page break none**

**Class: web options**

Contains workbook-level attributes used by Excel when you save a document as a Web page or open a Web page.

You can return or set attributes either at the application (global) level or at the workbook level. (Note that attribute values can be different from one workbook to another, depending on the attribute value at the time the workbook was saved.) Workbook-level attribute settings override application-level attribute settings. Application-level attributes are contained in the default web options object.

Use the web options property to return the web options object. The following example checks to see whether PNG (Portable Network Graphics) is allowed as an image format and then sets the option accordingly.

```vba
set objWebOptions to web options of workbook 1
if allow png of objWebOptions is true then
    set strImageFileType to "PNG"
else
    set strImageFileType to "JPG"
end if
```

**Properties**

**allow png**

**True** if PNG (Portable Network Graphics) is allowed as an image format when you save or publish a complete or partial presentation as a Web page. **False** if PNG is not allowed as an output format. The default value is false. Read/write.

If you save images in the PNG format as opposed to any other file format, you might improve the image quality or reduce the size of those image files, and therefore decrease the download time, assuming that the Web browsers you are targeting support the PNG format.
encoding

Returns or sets the document encoding (code page or character set) to be used by the Web browser when you view the saved document. Read/write. The default is the encoding **Mac Roman**.

Can be one of the following:

- encoding Thai
- encoding Japanese ShiftJIS
- encoding simplified Chinese
- encoding Korean
- encoding traditional Chinese
- encoding little endian
- encoding big endian
- encoding central European
- encoding Cyrillic
- encoding Western
- encoding Greek
- encoding Turkish
- encoding Hebrew
- encoding Arabic
- encoding Baltic
- encoding Vietnamese
- encoding auto detect
- encoding Japanese auto detect
- encoding simplified Chinese auto detect
- encoding traditional Chinese auto detect
- encoding Cyrillic auto detect
- encoding Greek auto detect
- encoding Arabic auto detect
- encoding ISO88591 Latin1
- encoding ISO88592 central Europe
- encoding ISO88593 Latin3
- encoding ISO88594 Baltic
- encoding ISO88595 Cyrillic
- encoding ISO88596 Arabic
- encoding ISO88597 Greek
- encoding ISO88598 Hebrew
- encoding ISO88599 Turkish
- encoding ISO885915 Latin9
- encoding ISO2022 Japanese no half width Katakana
- encoding ISO2022 Japanese JISX02021984
- encoding ISO2022 Japanese JISX02011999
- encoding ISO2022KR
- encoding ISO2022CN traditional Chinese
- encoding ISO2022CN simplified Chinese
- encoding Mac Roman
- encoding Mac Japanese
- encoding Mac traditional Chinese Big5
- encoding Mac Korean
- encoding Mac Greek1
- encoding EBCDIC Greek
- encoding EBCDIC Hebrew
- encoding EBCDIC Korean extended
- encoding EBCDIC Thai
- encoding EBCDIC Icelandic
- encoding EBCDIC Turkish
- encoding EBCDIC Russian
- encoding EBCDIC Serbian Bulgarian
- Encoding EBCDIC Japanese Katakana extended and Japanese
- encoding EBCDIC US Canada and Japanese
- encoding EBCDIC extended and Korean
- encoding EBCDIC simplified Chinese extended and simplified Chinese
- encoding EBCDIC US Canada extended and traditional Chinese
- encoding EBCDIC Japanese Latin extended and Japanese
- encoding OEM United States
- encoding OEM Greek
- encoding OEM Baltic
- encoding OEM multilingual LatinI
- encoding OEM Cyrillic
- encoding OEM Turkish
- encoding OEM Portuguese
- encoding OEM Icelandic
- encoding OEM Hebrew
- encoding OEM Canadian French
- encoding OEM Arabic
- encoding OEM Nordic
- encoding OEM CyrillicII
- encoding OEM modern Greek
- encoding EUC Japanese
- encoding EUC Chinese simplified Chinese
- encoding EUC Korean
- encoding EUC Taiwanese
- encoding EUC traditional Chinese
- encoding Devanagari
- encoding Bengali
- encoding Tamil
- encoding Telugu
- encoding Assamese
- encoding Oriya
- encoding Kannada
- encoding Malayalam
Microsoft Excel Suite

encoding Mac Cyrillic encoding Gujarati
encoding Mac simplified Chinese GB2312 encoding Punjabi
encoding Mac Romania encoding Arabic ASMO
encoding Mac Ukraine encoding Arabic transparent ASMO
encoding Mac Latin2 encoding Korean Johab
encoding Mac Icelandic encoding Taiwan CNS
encoding Mac Turkish encoding Taiwan TCA
encoding Mac Croatia encoding Taiwan Et伦
encoding EBCDIC US Canada encoding Taiwan IBM5550
encoding EBCDIC International encoding Taiwan teletext
encoding EBCDIC multilingual encoding Taiwan Wang
ROECE Latin2 encoding IA5 German
encoding EBCDIC Greek modern encoding IA5 Swedish
encoding EBCDIC Turkish Latin5 encoding IA5 Norwegian
encoding EBCDIC Germany encoding US ASCII
encoding EBCDIC Denmark Norway encoding T61
encoding EBCDIC Finland Sweden encoding ISO6937 nonspacing accent
encoding EBCDIC Italy encoding Ext alpha lowercase
encoding EBCDIC Latin America Spain encoding KOI8U
encoding EBCDIC United Kingdom encoding Europa3
encoding EBCDIC Japanese encoding HZGB simplified Chinese
Katakana extended encoding UTF7
encoding EBCDIC France encoding UTF8

location of components

This property is not currently supported.

pixels per inch

Returns or sets the density (pixels per inch) of graphics images and table cells on a Web page. The range of settings is usually from 19 to 480, and common settings for popular screen sizes are 72, 96, and 120. The default setting is 96. Read/write.

This property determines the size of the images and cells on the specified Web page relative to the size of text whenever you view the saved document in a Web browser. The physical dimensions of the resulting image or cell are the result of the original dimensions (in inches) multiplied by the number of pixels per inch.

To set the optimum screen size for the targeted Web browsers, use the screen size property.

screen size

Returns or sets the ideal minimum screen size (width by height, in pixels) that you should use when viewing the saved document in a Web browser. Read/write.

Can be one of the following:

resolution544x376 resolution1152x900
resolution640x480 resolution1280x1024
resolution720x512 resolution1600x1200
resolution800x600 resolution1800x1440
resolution1024x768 resolution1920x1200
resolution1152x882

The default value is resolution800x600.
use long file names

True if long file names are used when you save the document as a Web page. False if long file names are not used and the MS-DOS file name format (8.3) is used. The default value is true. Read/write.

If you don’t use long file names and your document has supporting files, Excel automatically organizes those files in a separate folder.

web page keywords

Returns or sets keywords for the worksheet when it is saved as a Web page. Read/write.

Keywords are not visible in Web browsers, but are stored in meta tags to facilitate page searches.

web page title

Returns or sets the title of a worksheet when it is saved as a Web page. Read/write.

Class: window

Plural windows

Represents a window. Many worksheet characteristics, such as scroll bars and gridlines, are actually properties of the window.

Use window index, where index is the window name or index number, to return a single window object. The following example maximizes window 1.

set window state of window 1 to window state maximized

Note that the active window is always window 1.

The window caption is the text shown in the title bar at the top of the window when the window isn’t maximized. The caption is also shown in the list of open files on the bottom of the Windows menu. To set or return the window caption, use the caption property. Changing the window caption doesn’t change the name of the workbook. The following example turns off cell gridlines for the worksheet shown in the book1.xls:1 window.

set display gridlines of window "book.xls:1" to false

Properties active cell

Returns a range object that represents the active cell in the active window (the window on top) or in the specified window. If the window isn’t displaying a worksheet, this property fails. Read-only.

If you don’t specify an object qualifier, this property returns the active cell in the active window.

Be careful to distinguish between the active cell and the selection. The active cell is a single cell inside the current selection. The selection may contain more than one cell, but only one is the active cell.

The following expressions all return the active cell, and are all equivalent.

active cell

active cell of active window
**active chart**

Returns a chart object that represents the active chart (either an embedded chart or a chart sheet). An embedded chart is considered active when it's either selected or activated. When no chart is active, this property returns an incorrect response. Read-only.

If you don't specify an object qualifier, this property returns the active chart in the active workbook.

**active pane**

Returns a pane object that represents the active pane in the window. Read-only.

This property can be used only on worksheets and macro sheets. You must use the *entry index* property to obtain the index of the active pane.

**active sheet**

Returns an object that represents the active sheet (the sheet on top) in the active workbook or in the specified window or workbook. Returns an incorrect response if no sheet is active. Read-only.

If you don't specify an object qualifier, this property returns the active sheet in the active workbook.

If a workbook appears in more than one window, the *active sheet* property may be different in different windows.

**caption**

The name that appears in the title bar of the document window. Read/write.

**display formulas**

True if the window is displaying formulas; false if the window is displaying values. Read/write.

This property applies only to worksheets and macro sheets.

**display gridlines**

True if gridlines are displayed. Read/write.

This property applies only to worksheets and macro sheets.

This property affects only displayed gridlines. To control the printing of gridlines, use the *print gridlines* property.

**display headings**

True if both row and column headings are displayed; false if no headings are displayed. Read/write.

This property applies only to worksheets and macro sheets.

This property affects only displayed headings. To control the printing of headings, use the *print gridlines* property.

**display horizontal scroll bar**

True if the horizontal scroll bar is displayed. Read/write.
Microsoft Excel Suite

display outline

**True** if outline symbols are displayed. Read/write.

This property applies only to worksheets and macro sheets.

display vertical scroll bar

**True** if the vertical scroll bar is displayed. Read/write.

display workbook tabs

**True** if the workbook tabs are displayed. Read/write.

display zeros

**True** if zero values are displayed. Read/write.

This property applies only to worksheets and macro sheets.

enable resize

**True** if the window can be resized. Read/write.

entry index

Returns the index of this item in the element list of windows. Read-only.

freeze panes

**True** if split panes are frozen. Read/write.

It's possible for **freeze panes** to be **true** and **split** to be **false**, or vice versa.

This property applies only to worksheets and macro sheets.

gridline color

Returns or sets the gridline color as an RGB value. Read/write.

gridline color index

Returns or sets the gridline color as an index into the current color palette, or as one of the following constants:

- **color index automatic**
- **color index none**
- **a color index integer**

Read/write.

The following illustration shows the color-index values in the default color palette.

```
  1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □
  8 □ 9 □ 10 □ 11 □ 12 □ 13 □ 14 □
 15 □ 16 □ 17 □ 18 □ 19 □ 20 □ 21 □
 22 □ 23 □ 24 □ 25 □ 26 □ 27 □ 28 □
 29 □ 30 □ 31 □ 32 □ 33 □ 34 □ 35 □
 36 □ 37 □ 38 □ 39 □ 40 □ 41 □ 42 □
 43 □ 44 □ 45 □ 46 □ 47 □ 48 □ 49 □
 50 □ 51 □ 52 □ 53 □ 54 □ 55 □ 56 □
```
Microsoft Excel Suite

**height**

    Returns or sets the height (in points) of the window. To determine the maximum size for the window, use the usable height property. You cannot set this property if the window is maximized or minimized. To determine the window state, use the window state property.

**left position**

    Returns or sets the distance (in points) from the left edge of the client area to the left edge of the window. Read/write.

**range selection**

    Returns a range object that represents the selected cells on the worksheet in the specified window even if a graphic object is active or selected on the worksheet. Read-only.

    When a graphic object is selected on a worksheet, the selection property returns the graphic object instead of a range object; the range selection property returns the range of cells that was selected before the graphic object was selected.

    This property and the selection property return identical values when a range (not a graphic object) is selected on the worksheet.

    If the active sheet in the specified window is not a worksheet, this property fails.

**scroll column**

    Returns or sets the number of the leftmost column in the pane or window. Read/write.

    If the window is split, the scroll column property of the window object refers to the upper-left pane. If the panes are frozen, the scroll column property of the window object excludes the frozen areas.

**scroll row**

    Returns or sets the number of the row that appears at the top of the pane or window. Read/write.

    If the window is split, the scroll row property of the window object refers to the upper-left pane. If the panes are frozen, the scroll row property of the window object excludes the frozen areas.

**selected sheets**

    Returns a list of sheet objects that represents all of the selected sheets in the specified window. Read-only.

**selection**

    Returns the selected object in the specified window. Read-only.

    The returned object type depends on the current selection (for example, if a cell is selected, this property returns a range object). The selection property returns missing value if there is no selection.

**split**

    True if the window is split. Read/write.

    It's possible for freeze panes to be true and split to be false, or vice versa.

    This property applies only to worksheets and macro sheets.
**Microsoft Excel Suite**

*split column*

Returns or sets the column number where the window is split into panes (the number of
columns to the left of the split line). Read/write.

*split horizontal*

Returns or sets the location (in points) of the horizontal window split. Read/write.

*split row*

Returns or sets the row number where the window is split into panes (the number of rows
above the split). Read/write.

*split vertical*

Returns or sets the location (in points) of the vertical window split. Read/write.

*tab ratio*

Returns or sets the ratio of the width of the workbook's tab area to the width of the window's
horizontal scroll bar (as a number between 0 (zero) and 1; the default value is 0.75.
Read/write.

This property has no effect when *display workbook tabs* is set to *false* (its value is retained, but it
has no effect on the display).

*top*

Returns or sets the distance (in points) from the top edge of the window to the top edge of the
usable area (below the menus, any toolbars docked at the top, and the formula bar).
Read/write.

You cannot set this property for a maximized window. To return or set the state of the
window, use the *window state* property.

*usable height*

Returns the maximum height (in points) of the space that a window can occupy in the
application window area. Read-only.

*usable width*

Returns the maximum width (in points) of the space that a window can occupy in the
application window area. Read-only.

*view*

Returns or sets the view showing in the window. Read/write.

Can be one of the following:

- normal view
- page break preview
- page layout view

*visible*

True if the window is visible. Read/write.
visible range

Returns a range object that represents the range of cells that are visible in the window or pane. If a column or row is partially visible, it's included in the range. Read-only.

width

Returns or sets an object's width, in points. Read/write.
To determine the maximum size for the window, use the usable width property.
You cannot set this property if the window is maximized or minimized. To determine the window state, use the window state property.

window number

Returns the window number. For example, a window named "Book1.xls:2" has 2 as its window number. Most windows have the window number 1. Read-only.
The window number isn't the same as the window index (the return value of the entry index property), which is the position of the window within the list of window objects.

window state

This property is not currently supported.

window type

Returns or sets the window type. Read/write.
Can be one of the following:

- window type chart as window
- window type chart in place
- window type clipboard
- window type info
- window type workbook

zoom

Returns or sets the display size of the window, as a percentage (100 equals normal size, 200 equals double size, and so on). Read/write.
This function affects only the sheet that's currently active in the window. To use this property on other sheets, you must first activate them.

Class: workbook

Plural

workbooks

Represents an Excel workbook.

Use workbook index, where index is the workbook name or index number, to return a single workbook object. The following example activates workbook 1. The application must be active for this command to be successful.

activate object workbook 1
The following example closes all open workbooks without prompting the user to save.

```
close every workbook saving no
```

The index number denotes the order in which the workbooks were opened or created. `workbook 1` is the first workbook opened or created, and `workbook (get count of workbooks)` is the last one opened or created. Activating a workbook doesn't change its index number. All workbooks are included in the index count, even if they're hidden.

The `name` property returns the workbook name. You cannot set the name by using this property; to change the name, use the `save workbook as` command to save the workbook under a different name. The following example activates Sheet1 in the workbook named "cogs.xls" (the workbook must already be open in Excel).

```
activate object worksheet 1 of workbook "cogs.xls"
```

To return the workbook that's currently active, use the `active workbook` command. The following example sets the active workbook to read-only status:

```
set read only of active workbook to true
```

### Properties

**accept labels in formulas**

- **True** if labels can be used in worksheet formulas. The default value is **true**. Read/write.

**active chart**

- Returns a chart object that represents the active chart (either an embedded chart or a chart sheet). An embedded chart is considered active when it's either selected or activated. When no chart is active, this property returns an incorrect result. Read-only.
- If you don't specify an object qualifier, this property returns the active chart in the active workbook.

**active sheet**

- Returns an object that represents the active sheet (the sheet on top) in the active workbook or in the specified window or workbook. Returns an incorrect result if no sheet is active. Read-only.
- If you don't specify an object qualifier, this property returns the active sheet in the active workbook.
- If a workbook appears in more than one window, the `active sheet` property may be different in different windows.

**auto update frequency**

- Returns or sets the number of minutes between automatic updates to the shared workbook. If this property is set to zero (0), updates occur only when the workbook is saved. Read/write.

**auto update save changes**

- **True** if current changes to the shared workbook are posted to other users whenever the workbook is automatically updated. **False** if changes aren't posted (this workbook is still synchronized with changes made by other users). The default value is **true**. Read/write.
- The `auto update frequency` property must be set to a value from 5 to 1440 for this property to take effect.
**calculation version**

Returns a number whose rightmost four digits are the minor calculation engine version number, and whose other digits (on the left) are the major version of Excel. For a workbook object, this property returns the information about the version of Excel that the workbook was last fully recalculated by. Read-only.

If the workbook was saved in an earlier version of Excel and if the workbook hasn't been fully recalculated, then this property returns 0.

**change history duration**

Returns or sets the number of days shown in the change history of the shared workbook. Read/write.

Any changes in the change history older than the setting for this property are removed when the workbook is closed.

**conflict resolution**

Returns or sets the way conflicts are to be resolved whenever a shared workbook is updated. Read/write.

Can be one of the following.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>local session changes</td>
<td>The local user's changes are always accepted.</td>
</tr>
<tr>
<td>other session changes</td>
<td>The local user's changes are always rejected.</td>
</tr>
<tr>
<td>user resolution</td>
<td>A dialog box asks the user to resolve the conflict.</td>
</tr>
</tbody>
</table>

**create backup**

True if a backup file is created when this file is saved. Read-only.

**date 1904**

True if the workbook uses the 1904 date system. Read/write.

**display drawing objects**

Returns or sets how shapes are displayed. Read/write.

Can be one of the following.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>display shapes</td>
<td>Show all shapes.</td>
</tr>
<tr>
<td>placeholders</td>
<td>Show only placeholders.</td>
</tr>
<tr>
<td>hide</td>
<td>Hide all shapes.</td>
</tr>
</tbody>
</table>
Microsoft Excel Suite

**file format**

Returns the file format and/or type of the workbook. Read-only.

The following formats are available only in the Japanese version of Excel: WJ2WD1 file format, Excel 2 east asian file format, and works 2 east asian file format. Can be set to any of the following:

- add in file format
- CSV file format
- CSV Mac file format
- CSV MSDos file format
- CSV Windows file format
- DBF2 file format
- DBF3 file format
- DBF4 file format
- DIF file format
- Excel2 file format
- Excel 2 east asian file format
- Excel3 file format
- Excel4 file format
- Excel 4 workbook file format
- Excel7 file format
- Excel 9795 file format
- international add in file format
- international macro file format
- workbook normal file format
- SYLK file format
- template file format
- current platform text file format
- text Mac file format
- text MSDos file format
- text printer file format
- text windows file format
- WJ2WD1 file format
- Works1 file format
- Works 1 all file format
- Works 1 fmt file format
- Works3 file format
- Works 3 fm 3 file format
- Works4 file format
- works file format
- works 2 east asian file format
- WQ1 file format
- WJ3 file format
- WJ3FJ3 file format
- HTML file format
- XML spreadsheet file format

**full name**

Returns the name of the object, including its path on disk, as a string. Read-only.

This property is equivalent to the *path* property, followed by the current file system separator, followed by the *name* property.

**has password**

True if the workbook has a protection password. Read-only.

You can assign a protection password to a workbook by using the *save workbook as* command.

**highlight changes on screen**

True if changes to the shared workbook are highlighted on-screen. Read/write.
Microsoft Excel Suite

is add in

True if the workbook is running as an add-in. Read/write.

When you set this property to true, the workbook has the following characteristics:

- You won't be prompted to save the workbook if changes are made while the workbook is open.
- The workbook window won't be visible.
- Any Visual Basic macros in the workbook won't be visible in the Macro dialog box (displayed by pointing to Macro on the Tools menu, and then clicking Macros).
- VB macros in the workbook can still be run from the Macro dialog box even though they're not visible. In addition, VB macro names don't need to be qualified with the workbook name.
- Holding down the SHIFT key when you open the workbook has no effect.

keep change history

True if change tracking is enabled for the shared workbook. Read/write.

list changes on new sheet

True if changes to the shared workbook are shown on a separate worksheet. Read/write.

multi user editing

True if the workbook is open as a shared list. Read-only.

To save a workbook as a shared workbook, use the save workbook as command. To switch the workbook from shared mode to exclusive mode, use the exclusive access command.

name

Returns or sets the name of the object. The name of a range object is a name object. For every other type of object, the name is a string.

password

Returns or sets the password that must be supplied to open the specified workbook. Read/write.

path

Returns the complete path of the workbook's container (folder), excluding the final separator (":"). Read-only.

personal view list settings

True if filter and sort settings for lists are included in the user's personal view of the shared workbook. Read/write.

personal view print settings

True if print settings are included in the user's personal view of the shared workbook. Read/write.
**Microsoft Excel Suite**

**precision as displayed**

*True* if calculations in this workbook will be done using only the precision of the numbers as they're displayed. Read/write.

**protect structure**

*True* if the order of the sheets in the workbook is protected. Read-only.

**protect windows**

*True* if the windows of the workbook are protected. Read-only.

**read only**

*True* if the workbook has been opened as read-only. Read-only.

**read only recommended**

*True* if the workbook was saved as read-only recommended. Read-only.

When you open a workbook that was saved as read-only recommended, Excel displays a message recommending that you open the workbook as read-only.

Use the *save workbook as* command to change this property.

**remove personal information**

*True* if personal information can be removed from the specified workbook. The default value is *false*. Read/write.

**revision number**

Returns the number of times the workbook has been saved while open as a shared workbook. If the workbook is open in exclusive mode, this property returns 0 (zero). Read-only.

The *revision number* property is updated only when the local copy of the workbook is saved, not when remote copies are saved.

**save link values**

*True* if Excel saves external link values with the workbook. Read/write.

**saved**

*True* if no changes have been made to the specified workbook since it was last saved. Read/write.

If a workbook has never been saved, its *path* property returns an empty string ("").

You can set this property to *true* if you want to close a modified workbook without either saving it or being prompted to save it.

**show conflict history**

*True* if the Conflict History worksheet is visible in the workbook that's open as a shared workbook. Read/write.

If the specified workbook isn't open as a shared workbook, this property fails. To determine whether a workbook is open as a shared workbook, use the *multi user editing* property.
Microsoft Excel Suite

(template remove external data)

True if external data references are removed when the workbook is saved as a template. Read/write.

(update remote references)

True if Excel updates remote references in the workbook. Read/write.

(user status)

Returns a 1-based, two-dimensional list that provides information about each user who has the workbook open as a shared list. The first element of the second dimension is the name of the user, the second element is the date and time when the user last opened the workbook, and the third element is a number indicating the type of list (1 indicates exclusive; 2 indicates shared). Read-only.

The user status property doesn't return information about users who have the specified workbook open as read-only.

(web options)

Returns the web options object, which contains workbook-level attributes used by Excel when you save a document as a Web page or open a Web page. Read-only.

(workbook comments)

Returns or sets the comment string for this workbook. Read/write.

(write password)

Returns or sets a string for the write password of the workbook. Read/write.

(write reserved)

True if the workbook is write-reserved. Read-only.

Use the write reservation password argument of the save workbook as command to set this property.

(write reserved by)

Returns the name of the user who currently has write permission for the workbook. Read-only.

Class: worksheet

Plural

worksheets

Represents a worksheet.

Use worksheet index, where index is the worksheet index number or name to return a single worksheet object. The following example hides worksheet one in the active workbook.

set visible of worksheet 1 to false

The worksheet index number denotes the position of the worksheet on the tab bar of the workbook. worksheet 1 is the first (leftmost) worksheet in the workbook, and worksheet (get count of worksheets) is the last one. All worksheets are included in the index count, even if they're hidden.
The worksheet name is shown on the tab for the worksheet. To set or return the worksheet name, use the `name` property. The following example protects the scenarios on Sheet1.

```plaintext
protect worksheet sheet "Sheet1" password "drowssap" with scenarios
```

When a worksheet is the active sheet, you can use the `active sheet` property to refer to it. The following example uses the `activate` command to activate Sheet 1, sets the page orientation to landscape mode, and then prints the worksheet.

```plaintext
activate object worksheet "Sheet1"
set page orientation of page setup object of active sheet to landscape
print out active sheet
```

### Properties

**<Inheritance> sheet**

Inherits the properties and elements of the `sheet` class.

**enable selection**

Returns or sets what can be selected on the sheet. This property takes effect only when the worksheet is protected. Read/write.

Can be one of the following.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>no selection</td>
<td>Prevents any selection on the sheet.</td>
</tr>
<tr>
<td>unlocked cells</td>
<td>Allows only those cells whose <code>locked</code> property is false to be selected.</td>
</tr>
<tr>
<td>no restrictions</td>
<td>Allows any cell to be selected.</td>
</tr>
</tbody>
</table>

**protect scenarios**

`True` if the worksheet scenarios are protected. Read-only.
Microsoft Excel Suite Commands

accept all changes ................................................................. 175
activate next ................................................................. 175
activate object ................................................................. 176
activate previous ............................................................. 176
add chart autoformat .......................................................... 176
add custom list ................................................................. 176
add data validation ............................................................. 177
add fields to pivot table ....................................................... 178
add item to list ................................................................. 179
add to favorites ................................................................. 179
auto show ............................................................................ 180
auto sort .............................................................................. 180
break link ........................................................................... 181
bring to front ....................................................................... 181
calculate ............................................................................. 181
calculate full ....................................................................... 182
cancel refresh ...................................................................... 182
change data type of list column ........................................... 182
change file access ............................................................... 183
change link ........................................................................... 184
change scenario ................................................................... 184
check spelling ...................................................................... 185
check spelling for ................................................................ 185
circle invalid ........................................................................ 186
clear arrows ......................................................................... 186
clear circles .......................................................................... 187
clear contents ...................................................................... 187
convert formula .................................................................... 187
copy object .......................................................................... 188
copy picture ........................................................................ 188
copy worksheet ................................................................... 189
create new document ........................................................... 189
create summary for scenarios .............................................. 190
cut ......................................................................................... 190
delete chart autoformat ....................................................... 191
delete custom list ............................................................... 191
delete number format .......................................................... 191
double click ......................................................................... 192
edit ....................................................................................... 192
Excel comment text ............................................................. 193
Excel repeat ......................................................................... 193
exclusive access .................................................................... 194
execute excel 4 macro .......................................................... 194
follow .................................................................................. 195
follow hyperlink .................................................................... 195
get border ............................................................................ 196
get clipboard formats .......................................................... 196
get custom list contents ....................................................... 197
get custom list num ............................................................. 197
get dialog ............................................................................. 197
get file converters .............................................................. 198
get FileMaker criteria ........................................................... 198
get international ................................................................. 198

173
Microsoft Excel Suite

get list item.................................................................................................................. 201
get open filename........................................................................................................ 201
get pivot table data...................................................................................................... 201
get previous selections............................................................................................... 201
get registered functions.............................................................................................. 201
get save as filename.................................................................................................... 202
get subtotals.................................................................................................................. 203
get values...................................................................................................................... 204
get visible fields.......................................................................................................... 204
go to............................................................................................................................. 205
help............................................................................................................................... 205
highlight changes options........................................................................................... 206
inches to points............................................................................................................ 206
input box...................................................................................................................... 207
intersect....................................................................................................................... 208
item selected................................................................................................................ 208
large scroll.................................................................................................................... 209
link info....................................................................................................................... 209
link sources................................................................................................................ 210
list formulas................................................................................................................. 210
merge scenarios......................................................................................................... 210
merge workbook....................................................................................................... 211
modify........................................................................................................................ 211
modify condition........................................................................................................ 213
new window on workbook......................................................................................... 213
next Excel comment................................................................................................. 214
on key......................................................................................................................... 214
on repeat..................................................................................................................... 216
open FileMaker file.................................................................................................... 217
open links.................................................................................................................... 217
open text file.............................................................................................................. 218
open workbook......................................................................................................... 220
paste special on worksheet...................................................................................... 221
paste worksheet........................................................................................................ 222
pivot select.................................................................................................................. 223
previous Excel comment........................................................................................... 224
print out...................................................................................................................... 224
print preview............................................................................................................. 225
protect sharing.......................................................................................................... 225
protect workbook..................................................................................................... 226
protect worksheet..................................................................................................... 226
purge change history now....................................................................................... 227
refresh......................................................................................................................... 227
refresh all................................................................................................................... 228
refresh query table.................................................................................................... 228
refresh table............................................................................................................... 229
register xll................................................................................................................ 229
reject all changes..................................................................................................... 230
remove all items....................................................................................................... 230
remove item.............................................................................................................. 230
remove user.............................................................................................................. 230
reset all page breaks.................................................................................................. 231
reset colors................................................................................................................ 231
run auto macros....................................................................................................... 232
run VB Macro.......................................................................................................... 232
save as....................................................................................................................... 233
Microsoft Excel Suite

accept all changes

Accepts all changes in the specified shared workbook.

Syntax

accept all changes  workbook  Required. An expression that returns a workbook object.

Example

This example accepts all changes in the active workbook.
accept all changes active workbook

Command: activate next

Activates the current window, sends it to the back of the window z-order, then activates the next window according to the z-order.

Syntax

activate next  window  Required. An expression that returns a window object.

Example

This example sends the active window to the back of the z-order. The application must be activated for this example to run successfully.
activate next active window
Command: activate object
Activates the object.

Syntax

activate window/sheet/workbook/pane  Required. An expression that returns a window, sheet, workbook, or pane object.

Example
This example activates Sheet1.
activate object worksheet "Sheet1"
This example selects cells A1:C3 on Sheet1 and then makes cell B2 the active cell.
activate object worksheet "Sheet1"
select range "A1:C3" of active sheet
activate object range "B2"
This example activates Book4.xls. If Book4.xls has multiple windows, the example activates the first window, Book4.xls:1. The application must be activated for this example to run successfully.
activate object workbook "Book4.xls"

Command: activate previous
Activates the specified window and then activates the window at the back of the window z-order.

Syntax

activate previous window  Required. An expression that returns a window object.

Example
This example activates the window at the back of the z-order. The application must be activated for this example to run successfully.
activate previous active window

Command: add chart autoformat
Adds a custom chart AutoFormat to the list of available chart AutoFormats.

Syntax

add chart autoformat

chart  Required. A chart that contains the format that will be applied when the new chart AutoFormat is applied.

name  Unicode text  Required. The name of the AutoFormat.

**Example**

This example adds a new AutoFormat based on Chart1.

```sql
add chart autoformat chart active chart name "Presentation Chart"
```

**Command: add custom list**

Adds a custom list for custom autofill and/or custom sort.

**Syntax**

```sql
add custom list
```

- **list array**: range object/A1-style range reference/named range/list of strings  
  Required. Specifies the source data, as either a list of strings or a range object.

- **[by row Boolean]**: Optional. Used only if list array is a range object. True to create a custom list from each row in the range. False to create a custom list from each column in the range. If this argument is omitted and there are more rows than columns (or an equal number of rows and columns) in the range, Excel creates a custom list from each column in the range. If this argument is omitted and there are more columns than rows in the range, Excel creates a custom list from each row in the range.

If the list you're trying to add already exists, this command does nothing.

**Example**

This example adds a list of strings as a custom list.

```sql
add custom list list array {"cogs","sprockets","widgets","gizmos"}
```

**Command: add data validation**

Adds data validation to the specified range.

**Syntax**

```sql
add data validation validation  
```

- **type**: enumeration  
  Required. The validation type. Can be one of the following:

  - validate input only
  - validate whole number
  - validate decimal
  - validate list
  - validate date
  - validate time
  - validate text length
  - validate custom
Microsoft Excel Suite

[alert style enumeration] Optional. The validation alert style. Can be one of the following: valid alert none, valid alert stop, valid alert warning, valid alert information

[operator enumeration] Optional. The data validation operator. Can be one of the following:

- operator between
- operator no between
- operator equal
- operator not equal
- operator greater
- operator less
- operator greater equal
- operator less equal

[formula1 Unicode text] Optional. The first part of the data validation equation.

[formula2 Unicode text] Optional. The second part of the data validation when operator is operator between or operator not between (otherwise, this argument is ignored).

Example
This example adds data validation to cell A1.

add data validation (validation of range "E5") ¬
    type validate whole number alert style valid alert information ¬
    formula1 "5" formula2 "10"
set input title of validation of range "E5" to "Integers"
set error title of validation of range "E5" to "Integers"
set input message of validation of range "E5" to "Enter an integer from five to ten"
set error message of validation of range "E5" to "You must enter a number from five to ten"

Command: add fields to pivot table

Adds row, column, and page fields to a PivotTable.

Syntax

add fields to pivot table pivot table Required. An expression that returns a pivot table object.

[row fields list] Optional. Specifies a pivot field name (or a list of pivot field names) to be added as rows.

[column fields list] Optional. Specifies a pivot field name (or a list of pivot field names) to be added as columns.
[page fields  list] Optional. Specifies a pivot field name (or a list of pivot field names) to be added as pages.

[add to table  Boolean] Optional. True to add the fields to the PivotTable (none of the existing fields are replaced). False to replace existing fields with the new fields. The default value is false.

You must specify one of the field arguments.

Example
This example replaces the existing column fields in PivotTable one on Sheet1 with the Status and Closed_By fields.

add fields to pivot table pivot table 1 of worksheet "Sheet1" ¬
    column fields {"Status","Closed By"}

Command: add item to list

Adds an item to a list box or a dropdown list.

Syntax

add item to list  listbox/dropdown  Required. An expression that returns a listbox or dropdown object.

    item text  Unicode text  Required. The text to be added.

    [entry index  integer] Optional. The position of the new entry. If the list has fewer entries than the specified index, blank items from the end of the list are added to the specified position. If this argument is omitted, the item is appended to the existing list.

Using this command clears any range specified by the list fill range property.

Example
This example creates a list box and fills it with integers from 1 to 10.

set lb to make new listbox at worksheet 1 with properties ¬
    {top:100,left position:10, width:100, height:100}
repeat with x from 1 to 10
    add item to list lb item text (x as string)
end repeat

Command: add to favorites

Adds a shortcut to the workbook or hyperlink to the Favorites folder.

Syntax

add to favorites  workbook/hyperlink  Required. An expression that returns a workbook or hyperlink object.

Example
This example adds a shortcut to the active workbook to the Favorites folder.

add to favorites active workbook
Command: auto show

Displays the number of top or bottom items for a PivotTable row, page, or column field.

Syntax

**auto show** pivot field  Required. An expression that returns a **pivot field** object.

  **type**  enumeration  Required. To cause the PivotTable to show the items that match the specified criteria, use **type_automatic**. To disable this feature, use **type_manual**.

  **range**  enumeration  Required. The location at which to start showing items. Can be **position top** or **position bottom**.

  **count**  integer  Required. The number of items to be shown.

  **field**  Unicode text  Required. The name of the base data field.

Example

This example shows only the top two companies, based on the sum of sales:

```
auto show pivot field "Company" of pivot table "Pivot1" of active sheet type type_automatic range position top count 2 field "Sum of Sales"
```

Command: auto sort

Establishes automatic PivotTable field-sorting rules.

Syntax

**auto sort** pivot field  Required. An expression that returns a **pivot field** object.

  **sort order**  enumeration  Required. The sort order. Can be **sort ascending**, **sort descending**, or **sort manual**. Use **sort manual** to disable automatic sorting.

  **sort field**  Unicode text  Required. The name of the sort key field.

Example

This example sorts the Company field in descending order, based on the sum of sales.

```
auto sort pivot field "Company" of pivot table 1 of active sheet sort order sort descending sort field "Sum of Sales"
```
Command: **break link**

Converts formulas linked to other Excel sources or OLE sources to values.

**Syntax**

`break link`  workbook   Required. An expression that returns a **workbook** object.

  - `name`  Unicode text   Required. Specifies the name of the link.
  - `type`  enumeration   Required. Specifies the type of link. Can be **link type Excel links** or **link type OLE links**.

**Example**

In this example, Excel converts all of the links (Excel link type) to a workbook named "Source.xls" from the active workbook. This example assumes at least one formula exists in the active workbook that links to the workbook "Source.xls."

```
break link active workbook name "Source.xls" ¬
  type link type Excel links
```

Command: **bring to front**

Brings the object to the front of the z-order.

**Syntax**

`bring to front`  button/checkbox/option button/scrollbar/listbox/groupbox/dropdown/spinner/label/textbox   Required. An expression that returns one of the listed objects.

**Example**

This example brings button 1 on Sheet1 to the front of the z-order.

```
bring to front button 1 of sheet "Sheet1"
```

Command: **calculate**

Calculates all open workbooks or a specific worksheet in a workbook.

**Syntax**

`calculate`  worksheet   Required. An expression that returns a **worksheet** object.

**Example**

This example calculates all the formulas in all open workbooks

```
calculate
```

This example calculates all the formulas in Sheet1.

```
calculate sheet "Sheet1"
```
**Command: calculate full**
Forces a full calculation of the data in all open workbooks.

**Syntax**
calculate full

**Example**
This example compares the version of Excel with the version of Excel that the workbook was last calculated in. If the two version numbers are different, a full calculation of the data in all open workbooks is performed.

```vba
if calculation version of application "Microsoft Excel" is not equal to calculation version of workbook 1 then
calculate full
end if
```

**Command: cancel refresh**
Cancels all background queries for the specified query table. To determine whether a background query is currently in progress, use the refreshing property of the query table object.

**Syntax**
cancel refresh query table Required. An expression that returns a query table object.

**Example**
This example cancels a query table refresh operation.

```vba
if refreshing of query table 1 of sheet 1 then
cancel refresh query table 1 of sheet 1
end if
```

**Command: centimeters to points**
Converts a measurement from centimeters to points (one point equals 0.035 centimeters).

**Syntax**
centimeters to points

```vba
centimeters real Required. Specifies the centimeter value to be converted to points.
```

**Example**
This example sets the left margin of Sheet1 to 5 centimeters.

```vba
set left margin of page setup object of worksheet "Sheet1" to ~(centimeters to points centimeters 5)
```
Command: change data type of list column

Sets the data type formatting for a list column.

Syntax

change data type of list column  list column   Required. An expression that returns a list column object.

[data type   enumeration]   Optional. Specifies the data type to be used in the column. Can be one of the following: no data type, whole number data, decimal data, list data, date data, time data, text data, currency data, calculated data, or counter data.

decimal places   integer]   Optional. Used for data types that can have fixed decimal places (currency data, decimal data, or whole number data), an integer specifying the number of decimal places to use.

[currency symbol   Unicode text]   Optional. Used for data types that can represent currency (currency data, decimal data, or whole number data), a string specifying the monetary symbol to use.

date or time format   Unicode text]   Optional. A string containing the kind of date or time format to be used. If known, the index of the format can also be used.

formula   Unicode text]   Optional. Used when calculated data or list data is specified as the data type, a string containing a formula or a list of items to be used in the column.

Example

This example labels the sixth column of a list object "Date Ordered", sets a date format for its data type, and does not require that unique values be entered in the column.

set name of list column 6 of list object "RecentOrders" ¬
of active sheet to "Date Ordered"

change data type of list column  list column 6 ¬
of list object "RecentOrders" of active sheet ¬
data type date data

change data type of list column  list column 6 ¬
of list object "RecentOrders" of active sheet ¬
date or time format "m/d/yy"

set unique of list column 6 of list object "RecentOrders" ¬
of active sheet to false
Microsoft Excel Suite

Command: change file access
Changes the access permissions for the workbook. This may require an updated version to be loaded from the disk.

Syntax
change file access workbook Required. An expression that returns a workbook object.

[mode enumeration] Optional. Specifies the new access mode. Can be read write or read only.

[write password Unicode text] Optional. Specifies the write-reserved password if the file is write reserved and mode is read write. Ignored if there's no password for the file or if mode is read only.

[notify Boolean] Optional. True (or omitted) to notify the user if the file cannot be immediately accessed.

Remarks
If you have a file open in read-only mode, you don't have exclusive access to the file. If you change a file from read-only to read/write, Excel must load a new copy of the file to ensure that no changes were made while you had the file open as read-only.

Example
This example sets the active workbook to read-only.
change file access active workbook mode read only

Command: change link
Changes a link from one document to another.

Syntax
change link workbook Required. An expression that returns a workbook object.

name Unicode text Required. The name of the Excel or OLE link to be changed, as it was returned from the link sources command.

new name Unicode text Required. The new name of the link.

[type enumeration] Optional. The link type. Can be link type Excel links or link type OLE links. The default value is link type Excel links.

Example
This example changes an Excel link.
change link active workbook name "Source_Old.xls" new name "Source_New.xls"
**Command: change scenario**

Changes the scenario to have a new set of changing cells and (optionally) scenario values.

**Syntax**

```
close scenario  scenario   Required. An expression that returns a scenario object.
```

```
changing cells  range   Required. A range object that specifies the new set of changing cells for the scenario. Can be a range, an A1-style range reference, a named range, or a list of category names. The changing cells must be on the same sheet as the scenario.
```

```
[values  list]   Optional. A list that contains the new scenario values for the changing cells. If this argument is omitted, the scenario values are assumed to be the current values in the changing cells.
```

**Remarks**

If you specify values, the list must contain an element for each cell in the changing cells range; otherwise, Excel generates an error.

**Example**

This example sets the changing cells for scenario one to the range A1:A10 on Sheet1.

```
change scenario scenario 1 of worksheet "Sheet1" changing cells ¬
    range "A1:A10" of worksheet "Sheet1"
```

**Command: check spelling**

Checks the spelling of an object. This form has no return value; Excel displays the Spelling dialog box.

**Syntax**

```
check spelling  sheet/button/checkbox/option button/groupbox/label/textbox   Required. An expression that returns one of the listed objects.
```

```
[custom dictionary  Unicode text]   Optional. A string that indicates the file name of the custom dictionary to examine if the word isn't found in the main dictionary. If this argument is omitted, the currently specified dictionary is used.
```

```
[ignore uppercase  Boolean]   Optional. True to have Excel ignore words that are all uppercase. False to have Excel check words that are all uppercase. If this argument is omitted, the current setting will be used.
```

```
[always suggest  Boolean]   Optional. True to have Excel display a list of suggested alternate spellings when an incorrect spelling is found. False to have Excel wait for you to input the correct spelling. If this argument is omitted, the current setting will be used.
```
Remarks
To check headers, footers, and objects on a worksheet, use this command on a worksheet object.
To check only cells and notes, use this command with the cell object.

Example
This example checks the spelling on Sheet1.
check spelling sheet "Sheet1"

Command: check spelling for

Checks the spelling of a single word. Returns true if the word is found in one of the dictionaries, false if it isn't.

Syntax
check spelling for
text to check Unicode text Required. The word you want to check.

[custom dictionary Unicode text] Optional. A string that indicates the file name of the custom dictionary to examine if the word isn't found in the main dictionary. If this argument is omitted, the currently specified dictionary is used.

[ignore uppercase Boolean] Optional. True to have Excel ignore words that are all uppercase. False to have Excel check words that are all uppercase. If this argument is omitted, the current setting will be used.

Example
This example checks the spelling of a single word.
set formula of cell "A1" to check spelling for ~
text to check "example" as string

Command: circle invalid

Circles invalid entries on the worksheet.

Syntax
circle invalid sheet Required. An expression that returns a sheet object.

Example
This example circles invalid entries on worksheet one.
circle invalid sheet 1
Command: clear arrows
Clears the tracer arrows from the worksheet. Tracer arrows are added by using the auditing feature.

Syntax

\texttt{clear arrows sheet}\quad\texttt{Required. An expression that returns a} \texttt{sheet} \texttt{object.}

Example

This example clears tracer arrows from Sheet1.
\texttt{clear arrows sheet "Sheet1"}

Command: clear circles
Clears circles from invalid entries on the worksheet.

Syntax

\texttt{clear circles sheet}\quad\texttt{Required. An expression that returns a} \texttt{sheet} \texttt{object.}

Remarks

To circle cells that contain invalid data, use the \texttt{circle invalid} command.

Example

This example clears circles from invalid entries on worksheet one.
\texttt{clear circles sheet 1}

Command: clear contents
Clears all the data, formatting, and formulas from a list object.

Syntax

\texttt{clear contents list object}\quad\texttt{Required. An expression that returns a} \texttt{list object} \texttt{object.}

Example

This example clears the data, formatting, and formulas from list object 1 in worksheet 1.
\texttt{clear contents list object 1 of worksheet 1}
Command: convert formula

Converts cell references in a formula between the A1 and R1C1 reference styles between relative and absolute references, or both.

Syntax

calculate formula

formula to convert   Unicode text   Required. A string that contains the formula you want to convert. This must be a valid formula, and it must begin with an equal sign.

from reference style   enumeration   Required. The reference style of the formula. Can be A1 or R1C1.

[to reference style   enumeration]   Optional. The reference style you want returned. Can be A1 or R1C1. If this argument is omitted, the reference style isn't changed; the formula stays in the style specified by from reference style.

[to absolute   enumeration]   Optional. Specifies the converted reference type. Can be A1 or R1C1. If this argument is omitted, the reference type isn't changed.

[relative to range]   Optional. A range object that contains one cell. Relative references relate to this cell. Can be a range, an A1-style range reference, a named range, or a list of category names.

Example

This example converts a SUM formula that contains R1C1-style references to an equivalent formula that contains A1-style references, and then it displays the result.

set inputFormula to "=SUM(R10C2:R15C2)"

display dialog (convert formula formula to convert inputFormula ¬
from reference style R1C1 to reference style A1)

Command: convert to range

Converts a list object to a normal Excel range.

Syntax

convert to range   list object   Required. An expression that returns a list object object.

Example

This example converts the second list object on worksheet 1 to a normal Excel range.

convert to range list object 2 of sheet 1
Command: copy object
This command is not currently supported.

Command: copy picture
This command is not currently supported.

Command: copy worksheet
Copies the sheet to another location in the workbook.

Syntax

```
copy worksheet  sheet   Required. An expression that returns a sheet object.

[before   sheet]   Optional. The sheet before which the copied sheet will be placed. You cannot specify before if you specify after.

[after   sheet]   Optional. The sheet after which the copied sheet will be placed. You cannot specify after if you specify before.
```

Remarks
If you don't specify either before or after, Excel creates a new workbook that contains the copied sheet.

Example
This example copies Sheet1, placing the copy after Sheet3.
```
copy worksheet sheet "Sheet1" after sheet "Sheet3"
```

Command: create new document
Creates a new document linked to the specified hyperlink.

Syntax

```
create new document  hyperlink   An expression that returns a hyperlink object.

file name   Unicode text.   Required. The file name of the specified document.

edit now   Boolean   Required. True to have the specified document open immediately in its associated editing environment. The default value is true.

overwrite   Boolean   Required. True to overwrite any existing file of the same name in the same folder. False if any existing file of the same name is preserved and the file name argument specifies a new file name. The default value is false.
```
Example
This example creates a new document based on the new hyperlink in the first worksheet and then loads the document into Excel for editing. The document is named "Report.xls," and it overwrites any file of the same name in the Server:Annual folder.

Set h2 to make new hyperlink of range "A10" at active sheet with properties {address: "Server:Annual:Report.xls"}

create new document h2 file name "Server:Annual:Report.xls" with edit now with overwrite

Command: create summary for scenarios
Creates a new worksheet that contains a summary report for the scenarios on the specified worksheet.

Syntax

create summary for scenarios worksheet  Required. An expression that returns a worksheet object.

[report type  enumeration]  Optional. The report type. Can be standard summary or summary pivot table. The default value is standard summary.

[result cells  range]  Optional. A range object that represents the result cells on the specified worksheet. Can be a range, an A1-style range reference, a named range, or a list of category names. Normally, this range refers to one or more cells containing the formulas that depend on the changing cell values for your model; that is, the cells that show the results of a particular scenario. If this argument is omitted, there are no result cells included in the report.

Example
This example creates a summary of the scenarios on Sheet1, with result cells in the range C4:C9 on Sheet1.

create summary for scenarios worksheet "Sheet1" result cells range "C4:C9" of worksheet "Sheet1"

Command: cut
Cuts the object to the Clipboard.

Syntax

cut button/checkbox/option
button/scrollbar/listbox/groupbox/dropdown/spinner/label/textbox  Required. An expression that returns one of the listed objects.

Example
This example cuts button 1 on Sheet1 and places it on the Clipboard.

cut button 1 of sheet "Sheet1"
Command: delete chart autoformat

Removes a custom chart autoformat from the list of available chart autoformats.

Syntax

delete chart autoformat

    name  Unicode text  Required. The name of the custom autoformat to be removed.

Example

This example deletes the custom autoformat named "Presentation Chart."
delete chart autoformat name "Presentation Chart"

Command: delete custom list

Deletes a custom list.

Syntax

delete custom list

    list num  integer  Required. The custom list number. This number must be greater than or equal to 5 (Excel has four built-in custom lists that cannot be deleted).

Remarks

This command generates an error if the list number is less than 5 or if there's no matching custom list.

Example

This example deletes a custom list.
set n to (get custom list num list array {"cogs", "sprockets", "widgets", ¬
    "gizmos"})
delete custom list list num n

Command: delete number format

Deletes a custom number format from the workbook.

Syntax

delete number format  workbook  Required. An expression that returns a workbook object.

    number format  Unicode text  Required. Names the number format to be deleted.

Example

This example deletes the number format "000-00-0000" from the active workbook.
delete number format active workbook number format "000-00-0000"
Command: double click

Equivalent to double-clicking the active cell.

Syntax

double click

Example

This example causes a double-click in the active cell on Sheet1.

activate object worksheet "Sheet1"
double click

Command: edit

Reruns the list wizard code with the existing list object, allowing multiple properties to be set at the same time.

Syntax

edit   list object   Required. An expression that returns a list object object.

[destination type   enumeration]   Optional. Determines whether a range on a worksheet or an entire worksheet serves as the destination for a list object. Can be dst range or dst sheet.

[destination   Unicode text]   Optional. A string specifying a single-cell reference as the destination for the top-left corner of the list object.

[name   Unicode text]   Optional. A string specifying a name for the list object or sheet.

[autoformat   enumeration]   Optional. Specifies the kind of automatic formatting to apply to the list object. Can be one of the following:

    range autoformat threeD effects 1
    range autoformat threeD effects 2
    range autoformat accounting 1
    range autoformat accounting 2
    range autoformat accounting 3
    range autoformat accounting 4
    range autoformat classic 1
    range autoformat classic 2
    range autoformat classic 3
    range autoformat color 1
    range autoformat color 2
    range autoformat color 3
    range autoformat list 1
    range autoformat list 2
    range autoformat list 3
    range autoformat local format 1
    range autoformat local format 2
    range autoformat local format 3
    range autoformat local format 4
    range autoformat none
    range autoformat simple

[repeat headers   Boolean]   Optional. Used in conjunction with dst sheet. When the list sheet is printed, determines whether column labels are reprinted on each successive page. The default value is false.

[total row   Boolean]   Optional. Determines whether the list object displays a totals row. The default value is false.
Microsoft Excel Suite

[visuals enumeration]  Optional. Specifies how, or whether, visuals are used in the list object. Can be one of the following: list object visual automatic (default), list object visual off, or list object visual on.

Example
This example moves the list object to the top left of worksheet 1, sets the AutoFormat to range autoformat accounting 1, and turns the visuals off in the list object object.
edit list object 1 of sheet 1 destination type dst range ¬
   destination "$A$1" autoformat range autoformat accounting 1 ¬
   visuals list object visual off

Command: Excel comment text

Returns or sets the text of a comment.

Syntax

Excel comment text  Excel comment  Required. An expression that returns an Excel comment object.

   [text  Unicode text]  Optional. The text to be added.

   [start integer]  Optional. The character number where the added text will be placed. If this argument is omitted, any existing text in the comment is deleted.

   [over write Boolean]  Optional. True to overwrite the existing text. The default value is false (text is inserted).

Example
This example adds a comment to cell E5 on sheet one.
Excel comment text (Excel comment of range "E5") ¬
   text "reviewed by Jessica"

Command: Excel repeat

Repeats the last user-interface action.

Syntax

Excel repeat

Remarks
This command repeats only the last action taken by the user before running the script or Visual Basic macro, and it must be the first line in the script or VB macro. It cannot be used to repeat commands.

Example
This example repeats the last user-interface action. The example must be the first line in a script or macro.
Excel repeat
Command: exclusive access

Assigns the current user exclusive access to the workbook that's open as a shared list.

Syntax

exclusive access  workbook   Required. An expression that returns a workbook object.

Remarks

The exclusive access command saves any changes you've made to the workbook and requires other users who have the workbook open to save their changes to a different file.

If the specified workbook isn't open as a shared list, this command fails. To determine whether a workbook is open as a shared list, use the multi user editing property of the workbook object.

Example

This example determines whether the active workbook is open as a shared list. If it is, the example gives the current user exclusive access.

if multi user editing of active workbook then
    exclusive access active workbook
end if

Command: execute excel 4 macro

Runs an Excel 4.0 macro function and then returns the result of the function. The return type depends on the function.

Syntax

execute excel 4 macro

VB macro name   Unicode text   Required. An Excel 4.0 macro language function without the equal sign. All references must be given as R1C1 strings. If this argument contains embedded double quotation marks, you must double them. For example, to run the macro function =MID("sometext",1,4), this argument would have to be "MID("sometext",1,4)".

Remarks

The Excel 4.0 macro isn't evaluated in the context of the current workbook or sheet. This means that any references should be external and should specify an explicit workbook name. For example, to run the Excel 4.0 macro "My_Macro" in Book1 you must use "Book1!My_Macro()". If you don't specify the workbook name, this command fails.

Example

This example runs the GET.CELL(42) macro function on cell C3 on Sheet1 and then displays the result in a message box. The GET.CELL(42) macro function returns the horizontal distance from the left edge of the active window to the left edge of the active cell.

activate object worksheet "Sheet1"
select range "C3"
display dialog (execute excel 4 macro VB macro name "GET.CELL(42)"
Command: follow

Displays a cached document, if it's already been downloaded. Otherwise, this command resolves the hyperlink and opens the URL in the default web browser.

Syntax

follow hyperlink   Required. An expression that returns a hyperlink object.

[new window  Boolean]   Optional. True to display the target application in a new window. The default value is false.

[extra info  Unicode text]   Optional. A string or list that specifies additional information for HTTP to use to resolve the hyperlink. For example, you can use extra info to specify the coordinates of an image map, the contents of a form, or a FAT file name.

[method  enumeration]   Optional. Specifies the way extra info is attached. Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>append string</td>
<td>extra info is a string that's appended to the address.</td>
</tr>
<tr>
<td>post string</td>
<td>extra info is posted as a string or list.</td>
</tr>
</tbody>
</table>

[header info  Unicode text]   Optional. A string that specifies header information for the HTTP request. The default value is an empty string.

Example

This example follows the hyperlink assigned to shape 1 on the active sheet.

set var to hyperlink of shape 1 of active sheet
follow var

Command: follow hyperlink

Displays a cached document, if it's already been downloaded. Otherwise, this command resolves the hyperlink and opens the URL in the default web browser.

Syntax

follow hyperlink   workbook   Required. An expression that returns a workbook object.

address   Unicode text   Required. The address of the target document.

[sub address  Unicode text]   Optional. The location within the target document. The default value is the empty string.

[new window  Boolean]   Optional. True to display the target application in a new window. The default value is false.
Microsoft Excel Suite

[extra info  Unicode text]  Optional. A string or list that specifies additional information for HTTP to use to resolve the hyperlink. For example, you can use extra info to specify the coordinates of an image map, the contents of a form, or a FAT file name.

[method  enumeration]  Optional. Specifies the way extra info is attached. Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>append string</td>
<td>extra info is a string that's appended to the address.</td>
</tr>
<tr>
<td>post string</td>
<td>extra info is posted as a string or list.</td>
</tr>
<tr>
<td>post file</td>
<td>extra info specifies a FAT file name; the file content is posted.</td>
</tr>
</tbody>
</table>

[header info  Unicode text]  Optional. A string that specifies header information for the HTTP request. The default value is an empty string.

Example
This example loads the document at www.alpineskihouse.com in a new window and adds it to the History folder.

follow hyperlink (active workbook) address "http://www.alpineskihouse.com" with new window

Command: get border

Returns the border object for the specified border of the format condition object.

Syntax

get border  format condition  Required. An expression that returns a format condition object.

which border  enumeration  Required. The border to be retrieved. Can be one of the following:

<table>
<thead>
<tr>
<th>inside horizontal</th>
<th>edge right</th>
</tr>
</thead>
<tbody>
<tr>
<td>inside vertical</td>
<td>edge top</td>
</tr>
<tr>
<td>diagonal down</td>
<td>border bottom</td>
</tr>
<tr>
<td>diagonal up</td>
<td>border left</td>
</tr>
<tr>
<td>edge bottom</td>
<td>border right</td>
</tr>
<tr>
<td>edge left</td>
<td>border top</td>
</tr>
</tbody>
</table>

Example
This example adds a dotted border around the range E1:E10.

set theFC to make new format condition at range "E1:E10" with properties ¬
    {format condition type:cell value, ¬
       condition operator:operator between, ¬
       formula1:"1", formula2:"10")
set line style of (get border theFC which border border top) to dot
set line style of (get border theFC which border border bottom) to dot
set line style of (get border theFC which border border left) to dot
set line style of (get border theFC which border border right) to dot
Command: get clipboard formats
Returns a list of the formats that are currently on the clipboard.

Syntax
get clipboard formats

Example
This example displays a message box if the Clipboard contains a rich-text format (RTF) object. You can create an RTF object by copying text from a Word document.

set aFmts to get clipboard formats
repeat with i from 1 to (count of aFmts)
   if item i of aFmts is "clipboard format RTF" then
      display dialog "Clipboard contains rich text"
   end if
end repeat

Command: get custom list contents
Returns a custom list (a list of strings).

Syntax
get custom list contents

Example
This example writes the elements of the first custom list in column one on Sheet1.

set custList to get custom list contents list num 1
repeat with i from 1 to (count of custList)
   set value of cell ("A" & i) of worksheet "Sheet1" to (item i of custList)
end repeat

Command: get custom list num
Returns the custom list number for a list of strings. You can use this command to match both built-in lists and custom-defined lists.

Syntax
get custom list num

Example
This example writes the elements of the first custom list in column one on Sheet1.

set custList to get custom list contents list num 1
repeat with i from 1 to (count of custList)
   set value of cell ("A" & i) of worksheet "Sheet1" to (item i of custList)
end repeat

Remarks
This command generates an error if there's no corresponding list.
**Example**

This example deletes a custom list.

```plaintext
set n to (get custom list num list array {"cogs", "sprockets", "widgets", ¬
"gizmos"})
delete custom list list num n
```

**Command: get dialog**

Returns the specified dialog object.

**Syntax**

`get dialog  enumeration   Required. The specific dialog box you want to return. Can be one of the following:`

<table>
<thead>
<tr>
<th><code>dialog</code> open</th>
<th><code>dialog</code> change link</th>
<th><code>dialog</code> options general</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>dialog</code> open links</td>
<td><code>dialog</code> app move</td>
<td><code>dialog</code> filter advanced</td>
</tr>
<tr>
<td><code>dialog</code> save as</td>
<td><code>dialog</code> app size</td>
<td><code>dialog</code> mail next letter</td>
</tr>
<tr>
<td><code>dialog</code> file delete</td>
<td><code>dialog</code> main chart type</td>
<td><code>dialog</code> data label</td>
</tr>
<tr>
<td><code>dialog</code> page setup</td>
<td><code>dialog</code> overlay chart type</td>
<td><code>dialog</code> insert title</td>
</tr>
<tr>
<td><code>dialog</code> print</td>
<td><code>dialog</code> open mail</td>
<td><code>dialog</code> font properties</td>
</tr>
<tr>
<td><code>dialog</code> printer setup</td>
<td><code>dialog</code> send mail</td>
<td><code>dialog</code> macro options</td>
</tr>
<tr>
<td><code>dialog</code> arrange all</td>
<td><code>dialog</code> standard font</td>
<td><code>dialog</code> workbook unhide</td>
</tr>
<tr>
<td><code>dialog</code> window size</td>
<td><code>dialog</code> consolidate</td>
<td><code>dialog</code> workbook name</td>
</tr>
<tr>
<td><code>dialog</code> window move</td>
<td><code>dialog</code> sort special</td>
<td><code>dialog</code> gallery custom</td>
</tr>
<tr>
<td><code>dialog</code> run</td>
<td><code>dialog</code> gallery threeD area</td>
<td><code>dialog</code> add chart autoformat</td>
</tr>
<tr>
<td><code>dialog</code> set print titles</td>
<td><code>dialog</code> gallery threeD column</td>
<td><code>dialog</code> chart add data</td>
</tr>
<tr>
<td><code>dialog</code> font</td>
<td><code>dialog</code> gallery threeD line</td>
<td><code>dialog</code> tab order</td>
</tr>
<tr>
<td><code>dialog</code> display</td>
<td><code>dialog</code> gallery threeD pie</td>
<td><code>dialog</code> subtotal create</td>
</tr>
<tr>
<td><code>dialog</code> protect document</td>
<td><code>dialog</code> view threeD</td>
<td><code>dialog</code> workbook tab split</td>
</tr>
<tr>
<td><code>dialog</code> calculation</td>
<td><code>dialog</code> goal seek</td>
<td><code>dialog</code> workbook protect</td>
</tr>
<tr>
<td><code>dialog</code> extract</td>
<td><code>dialog</code> workgroup</td>
<td><code>dialog</code> scrollbar properties</td>
</tr>
<tr>
<td><code>dialog</code> data delete</td>
<td><code>dialog</code> fill group</td>
<td><code>dialog</code> pivot show pages</td>
</tr>
<tr>
<td><code>dialog</code> sort</td>
<td><code>dialog</code> update link</td>
<td><code>dialog</code> text to columns</td>
</tr>
<tr>
<td><code>dialog</code> data series</td>
<td><code>dialog</code> promote</td>
<td><code>dialog</code> format charttype</td>
</tr>
<tr>
<td><code>dialog</code> table</td>
<td><code>dialog</code> demote</td>
<td><code>dialog</code> pivot field group</td>
</tr>
<tr>
<td><code>dialog</code> format number</td>
<td><code>dialog</code> show detail</td>
<td><code>dialog</code> pivot field ungroup</td>
</tr>
<tr>
<td><code>dialog</code> alignment</td>
<td><code>dialog</code> object properties</td>
<td><code>dialog</code> checkbox properties</td>
</tr>
<tr>
<td><code>dialog</code> style</td>
<td><code>dialog</code> save new object</td>
<td><code>dialog</code> label properties</td>
</tr>
<tr>
<td><code>dialog</code> border</td>
<td><code>dialog</code> apply style</td>
<td><code>dialog</code> listbox properties</td>
</tr>
<tr>
<td><code>dialog</code> cell protection</td>
<td><code>dialog</code> assign to object</td>
<td><code>dialog</code> editbox properties</td>
</tr>
<tr>
<td><code>dialog</code> column width</td>
<td><code>dialog</code> object protection</td>
<td><code>dialog</code> open text</td>
</tr>
<tr>
<td><code>dialog</code> clear</td>
<td><code>dialog</code> show toolbar</td>
<td><code>dialog</code> pushbutton properties</td>
</tr>
<tr>
<td><code>dialog</code> paste special</td>
<td><code>dialog</code> print preview</td>
<td><code>dialog</code> filter</td>
</tr>
<tr>
<td><code>dialog</code> edit delete</td>
<td><code>dialog</code> edit color</td>
<td><code>dialog</code> function wizard</td>
</tr>
<tr>
<td><code>dialog</code> insert</td>
<td><code>dialog</code> format main</td>
<td><code>dialog</code> save copy as</td>
</tr>
<tr>
<td><code>dialog</code> paste names</td>
<td><code>dialog</code> format overlay</td>
<td><code>dialog</code> options lists add</td>
</tr>
<tr>
<td><code>dialog</code> define name</td>
<td><code>dialog</code> edit series</td>
<td><code>dialog</code> series axes</td>
</tr>
<tr>
<td><code>dialog</code> create names</td>
<td><code>dialog</code> define style</td>
<td><code>dialog</code> series x</td>
</tr>
<tr>
<td><code>dialog</code> formula goto</td>
<td><code>dialog</code> gallery radar</td>
<td><code>dialog</code> series y</td>
</tr>
<tr>
<td><code>dialog</code> formula find</td>
<td><code>dialog</code> zoom</td>
<td><code>dialog</code> errorbar x</td>
</tr>
</tbody>
</table>
Example
The following example displays and carries out the actions taken in the built-in Save As dialog box (File menu).

show (get dialog dialog save as)
Microsoft Excel Suite

**Command: get file converters**

Returns a list of all of the file converter objects.

**Syntax**

```plaintext
get file converters list   Required. Returns a list of file converters.
```

**Example**

This example returns a list of file converters.

```plaintext
get file converters
```

**Command: get FileMaker criteria**

Retrieves the criteria from an existing Excel query table that has been created against a FileMaker database.

**Syntax**

```plaintext
get FileMaker criteria query table   Required. An expression that returns a query table object.

criteria index integer   Required. An index into the number of criteria that have been set.
```

**Example**

This example returns the values of arguments used in the second set of criteria from an existing Excel query table that was created against a FileMaker database.

```plaintext
set QT to query table 1 of active sheet
set criteriaRecord to get FileMaker criteria QT criteria index 2
set varfieldName to «class 5324» of criteriaRecord
set varClauseText to «class 5325» of criteriaRecord
set varCondition to «class 5326» of criteriaRecord
set varOperator to operator of criteriaRecord
```

**Command: get international**

This command is not currently supported.
Command: get list item

Returns a string from the list.

Syntax

get list item  listbox/dropdown  Required. Returns a string from the list.

[entry index  integer]  Optional. The index of the string to be returned.

Example

This example returns the string contained in list item 1 of listbox 1 on the active sheet.

get list item listbox 1 of active sheet entry index 1

Command: get open filename

This command is not currently supported.

Command: get pivot table data

Syntax

get pivot table data  pivot table  Required. An expression that returns a pivot table object.

  name  Unicode text  Required. Describes a single cell in the PivotTable, using syntax similar to
         the pivot select command or the PivotTable references in calculated item formulas.

Example

This example shows the sum of revenues for apples in January (Data field = Revenue, Product =
Apples, Month = January).

display dialog (get pivot table data (pivot table 1 of active sheet) ¬
  name "'Sum of Revenue' Apples January") as string

Command: get previous selections

This command is not currently supported.

Command: get registered functions

Returns information about functions in code resources that were registered with the REGISTER or
REGISTER.ID macro functions.

Syntax

get registered functions
Example
This example creates a list of registered functions, placing one registered function in each row on Sheet1. Column A contains the full path and file name of the DLL or code resource, column B contains the function name, and column C contains the argument data type code.

set theList to (get registered functions)
if theList is not "" then
display dialog "No registered functions"
else
    repeat with i from 1 to (get count of theList)
        repeat with j from 1 to 3
            set formula of cell i of column j of worksheet "Sheet1" to ~
            (item j of item 1 of theList)
        end repeat
    end repeat
end if

Command: get save as filename
Displays the standard Save As dialog box and gets a file name from the user without actually saving any files.

Syntax
get save as filename

[initial filename  Unicode text]  Optional. Specifies the suggested file name. If this argument is omitted, Excel uses the name of the active workbook.

[file filter  Unicode text]  Optional. A string specifying file filtering criteria. This string is a list of comma-separated file type codes (for example, "TEXT,XLA5,XLS4"). Spaces are significant and shouldn't be inserted before or after the comma separators unless they're part of the file type code. If omitted, this argument defaults to all file types.

[filter index  integer]  Optional. This argument is not currently supported.

[button text  Unicode text]  Optional. Specifies the text used for the Save button in the dialog box. If this argument is omitted, the button text is "Save".

Remarks
This command returns the selected file name or the name entered by the user. The returned name may include a path specification. Returns false if the user cancels the dialog box.

This command may change the current drive or folder.
Example
This example displays the **Save As** dialog box, with the file filter set to text files. If the user chooses a file name, the example displays that file name in a message box.

```vba
set fileSaveName to get save as filename file filter "TEXT"
if fileSaveName is not ""
    display dialog "Save as " & fileSaveName
end if
```

**Command: get subtotals**

Returns subtotals displayed with the specified field. Valid only for non-data fields.

**Syntax**

```
get subtotals pivot field  
[
    subtotal index  
]
```

**pivot field** Required. Specifies the pivot field.

**subtotal index** enumeration Optional. Specifies the subtotal to be returned. Can be one of the following:

- subtotal automatic
- subtotal sum
- subtotal count
- subtotal average
- subtotal max
- subtotal min
- subtotal product
- subtotal count numbers
- subtotal standard deviation
- subtotal standard deviation p
- subtotal variable
- subtotal variable p

Subtotals are returned as follows:

<table>
<thead>
<tr>
<th></th>
<th>subtotal</th>
<th></th>
<th>subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>automatic</td>
<td>7</td>
<td>product</td>
</tr>
<tr>
<td>2</td>
<td>sum</td>
<td>8</td>
<td>count nums</td>
</tr>
<tr>
<td>3</td>
<td>count</td>
<td>9</td>
<td>StdDev</td>
</tr>
<tr>
<td>4</td>
<td>average</td>
<td>10</td>
<td>StdDevp</td>
</tr>
<tr>
<td>5</td>
<td>max</td>
<td>11</td>
<td>Var</td>
</tr>
<tr>
<td>6</td>
<td>min</td>
<td>12</td>
<td>Varp</td>
</tr>
</tbody>
</table>

**Example**

```
get subtotals pivot field 1 of pivot table 1 of active sheet
```
Command: get values

Returns a list that contains the current values of the changing cells for the scenario.

Syntax

get values scenario Required. An expression that returns a scenario object.

Example

This example returns a list that contains the current values of the changing cells for scenario 1.

get values scenario 1 of worksheet "Sheet1"

Command: get visible fields

Returns a list of all of the visible PivotTable fields. Visible PivotTable fields are shown as row, column, page, or data fields.

Syntax

get visible fields pivot table Required. An expression that returns a pivot table object.

Example

get visible fields pivot table 1 of active sheet

Command: get webpage font

Returns a webpage font object for a particular character set.

Syntax

get webpage font enumeration Required. The character set from which you want to return the webpage font object. Can be one of the following:

<table>
<thead>
<tr>
<th>Character Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic character set</td>
</tr>
<tr>
<td>Cyrillic character set</td>
</tr>
<tr>
<td>English character set</td>
</tr>
<tr>
<td>Greek character set</td>
</tr>
<tr>
<td>Hebrew character set</td>
</tr>
<tr>
<td>Japanese character set</td>
</tr>
<tr>
<td>Korean character set</td>
</tr>
<tr>
<td>Multilingual Unicode character set</td>
</tr>
<tr>
<td>Simplified Chinese character set</td>
</tr>
<tr>
<td>Thai character set</td>
</tr>
<tr>
<td>Traditional Chinese character set</td>
</tr>
<tr>
<td>Vietnamese character set</td>
</tr>
</tbody>
</table>

Example

The following example uses the get webpage font command to set myFont to the webpage font object for the English character set in the active application.

set myFont to (get webpage font English character set)
Command: goto

Selects any range in any workbook, and activates that workbook if it's not already active.

Syntax

```
goto
```

[reference  range]  Optional. The destination. Can be a range object, an A1-style range reference, a named range, or a list of category names. If this argument is omitted, the destination is the last range you used the goto command to select.

[scroll  Boolean]  Optional. True to scroll through the window so that the upper-left corner of the range appears in the upper-left corner of the window. False to not scroll through the window. The default is false.

Remarks

This command differs from the select command in the following ways:

- If you specify a range on a sheet that's not on top, Excel will switch to that sheet before selecting. (If you use select with a range on a sheet that's not on top, the range will be selected but the sheet won't be activated.)
- This command has a scroll argument that lets you scroll through the destination window.
- When you use the goto command, the previous selection (before the goto command runs) is added to the list of previous selections. You can use this feature to quickly jump between as many as four selections.

Example

This example selects cell A154 on Sheet1 and then scrolls through the worksheet to display the range.

```
set theRange to range "A154" of worksheet "Sheet1"
goto reference theRange with scroll
```

Command: help

Displays the Help window.

Syntax

```
help
```

[help file  Unicode text]  Optional. The name of the online Help file to display. If this argument isn't specified, Excel Help is displayed.

[help context id  integer]  Optional. Specifies the context ID number for the Help topic to display. If this argument isn't specified, the default topic for the specified Help file is displayed.
Remarks

The help file argument must specify an Office Help file. Otherwise, a "file could not be found" message appears.

Example

This example displays topic number 1027 in the file Excel Help.

```
help help file "Excel Help" help context id 1027
```

**Command: highlight changes options**

Controls how changes are shown in a shared workbook.

**Syntax**

```
highlight changes options  workbook   Required. An expression that returns a workbook object.

[when   enumeration]   Optional. The changes that are shown. Can be one of the following: since my last save, all changes, or not yet reviewed.

[who   Unicode text]   Optional. The user or users whose changes are shown. Can be "Everyone," "Everyone but Me," or the name of one of the users of the shared workbook.

[where   range object/A1-style range reference/named range]   Optional. A range object, A1-style range reference, or named range that specifies the area to check for changes.
```

Example

This example shows all changes made to the shared workbook since it was last saved by the current user.

```
highlight changes options active workbook when since my last save who "Everyone"
```

**Command: inches to points**

Converts a measurement from inches to points.

**Syntax**

```
inches to points

inches   real   Required. Specifies the inch value to be converted to points.
```

Example

This example sets the left margin of Sheet1 to 2.5 inches.

```
set left margin of page setup object of worksheet "Sheet1" to ¬
(inches to points inches 2.5)
```
Command: input box

Displays a dialog box for user input. Returns the information entered in the dialog box.

Syntax

input box

prompt  Unicode text Required. The message to be displayed in the dialog box. This can be a string, a number, a date, or a Boolean value (Excel automatically converts the value to a string before it's displayed).

[title  Unicode text] Optional. The title for the input box. If this argument is omitted, the default title is "Input."

[default  range] Optional. Specifies a value that will appear in the text box when the dialog box is initially displayed. If this argument is omitted, the text box is left empty. Can be a range object, an A1-style range reference, a named range, or input default as string.

[left position  integer] Optional. Specifies an x position (in points) for the dialog box in relation to the upper-left corner of the screen.

[top  integer] Optional. Specifies a y position (in points) for the dialog box in relation to the upper-left corner of the screen.

[type  enumeration] Optional. Specifies the return data type. If this argument is omitted, the dialog box returns text. Can be one of the following:

- a number
- input type as string
- a number or a string
- a bool
- range object
- list of numbers
- list of strings
- list of number or string
- list of bools
- list of range objects

Remarks

Use input box to display a simple dialog box so that you can enter information to be used in a script. The dialog box has an OK button and a Cancel button. If you choose the OK button, input box returns the value entered in the dialog box. If you click the Cancel button, input box returns false.

If type is range object, input box returns a valid range reference as a Unicode text string.

set myRange to (input box prompt "Sample" type range object)
If you use the **input box** command to ask the user for a formula, you must use the **formula local** property to assign the formula to a **range** object. The input formula will be in the language of the user.

**Example**

This example prompts the user for a number.

```excel
input box prompt "Enter a number"
```

This example prompts the user to select a cell on Sheet1. Because this example uses the **type** argument, it returns a valid range reference as a Unicode text string.

```excel
activate sheet "Sheet1"
set myCell to input box prompt "Select a cell" type range object
```

**Command: intersect**

Returns a **range** object that represents the rectangular intersection of two or more ranges. At least two ranges must be specified.

**Syntax**

```
intersect

range1 range  Required. One of the intersecting ranges.
range2 range  Required. One of the intersecting ranges.
[range3, range4, ... range30 range]  Optional. More intersecting ranges.
```

**Example**

This example selects the intersection of two ranges on Sheet1 that have defined names, `rg1` and `rg2`. If the ranges don't intersect, the example displays a message.

```excel
set isect to intersect range1 range of named item "rg1" range2 range of named item "rg2"
select isect
```

**Command: item selected**

Checks whether a particular item in the list is selected.

**Syntax**

```
item selected listbox/dropdown  Required. An expression that returns a **listbox** or **dropdown** object.
[entry index integer]  Optional. The index of the string to be checked to see whether it is selected. Returns **true** if the item was selected.
```

**Example**

```excel
item selected listbox 1 of active sheet entry index 1
```
Microsoft Excel Suite

Command: large scroll

Scrolls the contents of the window by pages.

Syntax

large scroll window/pane  Required. An expression that returns a window or pane object.

[down  integer]  Optional. The number of pages to scroll the contents down.

[up  integer]  Optional. The number of pages to scroll the contents up.

[to right  integer]  Optional. The number of pages to scroll the contents to the right.

[to left  integer]  Optional. The number of pages to scroll the contents to the left.

Remarks

If down and up are both specified, the contents of the window are scrolled by the difference of the arguments. For example, if down is 3 and up is 6, the contents are scrolled up three pages.

If to left and to right are both specified, the contents of the window are scrolled by the difference of the arguments. For example, if to left is 3 and to right is 6, the contents are scrolled to the right three pages.

Any of the arguments can be a negative number.

Example

This example scrolls the contents of the active window of Sheet1 down three pages.

large scroll active window down 3

Command: link info

Returns the link date and update status.

Syntax

link info  workbook  Required. An expression that returns a workbook object.

name  Unicode text  Required. The name of the link, as returned from the link sources command.

link info enumeration  Required. The type of information to be returned. Can be update state or edition date (applies only to editions). For update state, this command returns 1 if the link updates automatically, or it returns 2 if the link must be updated manually.

[type  enumeration]  Optional. The type of link to return. Can be one of the following: link info olelinks, link info publishers, or link info subscribers.

Example

This example sets cell A1 to "TRUE" if the link is updated automatically.

if (link info active workbook name "Word.Document|Document1" ¬
    link info update state type link info olelinks) = 1 then
    set value of cell "A1" to "TRUE"
end if
**Command: link sources**

Returns a list of links in the workbook. The names in the list are the names of the linked documents, editions, or OLE servers. Returns an empty string if there are no links.

**Syntax**

```
link sources workbook   Required. An expression that returns a workbook object.
[type   enumeration]   Optional. The type of link to return. Can be either link type Excel links or link type OLE links.
```

**Remarks**

The format of the list is a one-dimensional list for all types. The returned strings contain the name of the link source in the appropriate notation for the link type.

**Command: list formulas**

Creates a list of calculated PivotTable items and fields on a separate worksheet.

**Syntax**

```
list formulas pivot table   Required. An expression that returns a pivot table object.
```

**Example**

This example creates a list of calculated items and fields for PivotTable one.

```
list formulas pivot table 1 of worksheet 1
```

**Command: merge scenarios**

Merges the scenarios from the merge source worksheet into this worksheet.

**Syntax**

```
merge scenarios worksheet   Required. An expression that returns a worksheet object.

merge source worksheet   Required. The name of the sheet that contains scenarios to be merged, or a worksheet object that represents that sheet.
```

**Example**

This example merges the styles from the workbook Template.xls into the active workbook.

```
merge scenarios active workbook merge source workbook "Template.xls"
```
Command: merge workbook
Merges changes from one workbook into an open workbook.

Syntax

merge workbook workbook  Required. An expression that returns a workbook object.

file name  Unicode text  Required. The file name of the workbook that contains the changes to be merged into the open workbook.

Example
This example merges changes from Book1.xls into the active workbook.
merge workbook active workbook file name "Book1.xls"

Command: modify
Modifies data validation for a range.

Syntax

modify  validation  Required. An expression that returns a validation object.

[type  enumeration]  Optional. The validation type. Can be one of the following:

- validate input only
- validate whole number
- validate decimal
- validate list
- validated date
- validate time
- validate text length
- validate custom

[alert style  enumeration]  Optional. The validation alert style. Can be one of the following: valid alert none, valid alert stop, valid alert warning, or valid alert information.
[operator enumeration]  Optional. The data validation operator. Can be one of the following:

- operator between
- operator not between
- operator equal
- operator not equal
- operator greater
- operator less
- operator greater equal
- operator less equal

[formula1  Unicode text]  Optional. The first part of the data validation equation.

[formula2  Unicode text]  Optional. The second part of the data validation when operator is operator between or operator not between (otherwise, this argument is ignored).

Remarks
The modify command requires different arguments depending on the validation type, as shown in the following table.

<table>
<thead>
<tr>
<th>Validation type</th>
<th>Arguments</th>
</tr>
</thead>
<tbody>
<tr>
<td>validate custom</td>
<td>formula1 is required; formula2 is ignored. formula1 must contain an expression that evaluates to true when data entry is valid and false when data entry is invalid.</td>
</tr>
<tr>
<td>validate input only</td>
<td>alert style, formula1, and formula2 are not used.</td>
</tr>
<tr>
<td>validate list</td>
<td>formula1 is required; formula2 is ignored. formula1 must contain either a comma-delimited list of values or a worksheet reference to the list.</td>
</tr>
<tr>
<td>validate whole number, validated date, validate decimal, validate text length, or validate time</td>
<td>formula1 or formula2, or both, must be specified.</td>
</tr>
</tbody>
</table>

Example
This example changes data validation for cell E5.

set v1 to validation of range "E5"
modify v1 type validate list alert style valid alert stop ¬ 
formula1 "=A$1:A$10"
**Microsoft Excel Suite**

**Command: modify condition**

Modifies an existing conditional format.

**Syntax**

```
modify condition  format condition   Required. An expression that returns a format condition object.

type  enumeration   Required. Specifies whether the conditional format is based on a cell value or an expression. Can be either cell value or expression.

[operator  enumeration]   Optional. The conditional format operator. Can be one of the following:

  operator between
  operator not between
  operator equal
  operator not equal

[formula1  Unicode text]   Optional. The value or expression associated with the conditional format. Can be a constant value, a string value, a cell reference, or a formula.

[formula2  Unicode text]   Optional. The value or expression associated with the second part of the conditional format when operator is operator between or operator not between. Can be a constant value, a string value, a cell reference, or a formula.

Note: If type is expression, then operator is ignored and formula1 is required. If type is cell value, then operator and formula1 are required.
```

**Example**

These examples modify an existing conditional format for the current selection.

```
set theFC to make new format condition at range "E1:E10" with properties {format condition type:cell value, 
condition operator:operator between, formula1:"1", 
formula2:"10"}

modify condition theFC type cell value 
operator:operator equal formula1 "3.5"

set theFC to make new format condition at range "E1:E10" with properties {format condition type:cell value, 
condition operator:operator between, formula1:"1", 
formula2:"10"}

modify condition theFC type expression formula1 
"="SUM(A1:A5)"
```

**Command: new window on workbook**

Creates a new window or a copy of the specified workbook window.

**Syntax**

```
new window on workbook  workbook   Required. An expression that returns a workbook object.
```
Example
This example creates a new window for the active workbook.

new window on workbook active workbook

Command: next Excel comment

Returns an Excel comment object that represents the next comment.

Syntax

next Excel comment Excel comment Required. An expression that returns an Excel comment object.

Remarks
This command works only on one sheet. Using this command on the last comment on a sheet returns missing value (not the next comment on the next sheet).

Example
This example hides the next comment.

set visible of (next Excel comment ¬
    (Excel comment of range "A1")) to false

Command: on key

Runs a specified procedure when a particular key or key combination is pressed.

Syntax

on key

    key string Required. A string indicating the key to be pressed.

    [command key pressed Boolean] Optional. Specifies whether the COMMAND key must be pressed with the key specified by the key argument.

    [shift key pressed Boolean] Optional. Specifies whether the SHIFT key must be pressed with the key specified by the key argument.

    [option key pressed Boolean] Optional. Specifies whether the OPTION key must be pressed with the key specified by the key argument.

    [control key pressed Boolean] Optional. Specifies whether the CONTROL key must be pressed with the key specified by the key argument.

    [procedure script] Optional. A string indicating the name of the procedure to be run. If procedure is "" (empty text), nothing happens when key is pressed. This form of the on key command changes the normal result of keystrokes in Excel. If procedure is omitted, key reverts to its normal result in Excel, and any special key assignments made with previous on key commands are cleared.
**Remarks**

The **key** argument can specify any single key — COMMAND, CTRL, OPTION, or SHIFT, or any combination of these keys. Each key is represented by one or more characters, such as "a" for the character a, or "{RETURN}" for the RETURN key.

To specify characters that aren’t displayed when you press the corresponding key (ENTER or TAB, for example), use the codes listed in the following table. Each code in the table represents one key on the keyboard.

<table>
<thead>
<tr>
<th>Key</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACKSPACE</td>
<td>{BACKSPACE} or {BS}</td>
</tr>
<tr>
<td>BREAK</td>
<td>{BREAK}</td>
</tr>
<tr>
<td>CAPS LOCK</td>
<td>{CAPSLOCK}</td>
</tr>
<tr>
<td>CLEAR</td>
<td>{CLEAR}</td>
</tr>
<tr>
<td>DELETE or DEL</td>
<td>{DELETE} or {DEL}</td>
</tr>
<tr>
<td>DOWN ARROW</td>
<td>{DOWN}</td>
</tr>
<tr>
<td>END</td>
<td>{END}</td>
</tr>
<tr>
<td>ENTER (numeric keypad)</td>
<td>{ENTER}</td>
</tr>
<tr>
<td>ENTER</td>
<td>~ (tilde)</td>
</tr>
<tr>
<td>ESC</td>
<td>{ESCAPE} or {ESC}</td>
</tr>
<tr>
<td>HELP</td>
<td>{HELP}</td>
</tr>
<tr>
<td>HOME</td>
<td>{HOME}</td>
</tr>
<tr>
<td>INS</td>
<td>{INSERT}</td>
</tr>
<tr>
<td>LEFT ARROW</td>
<td>{LEFT}</td>
</tr>
<tr>
<td>NUM LOCK</td>
<td>{NUMLOCK}</td>
</tr>
<tr>
<td>PAGE DOWN</td>
<td>{PGDN}</td>
</tr>
<tr>
<td>PAGE UP</td>
<td>{PGUP}</td>
</tr>
<tr>
<td>RETURN</td>
<td>{RETURN}</td>
</tr>
<tr>
<td>RIGHT ARROW</td>
<td>{RIGHT}</td>
</tr>
<tr>
<td>SCROLL LOCK</td>
<td>{SCROLLLOCK}</td>
</tr>
<tr>
<td>TAB</td>
<td>{TAB}</td>
</tr>
<tr>
<td>UP ARROW</td>
<td>{UP}</td>
</tr>
<tr>
<td>F1 through F15</td>
<td>{F1} through {F15}</td>
</tr>
</tbody>
</table>
You can also specify keys combined with SHIFT and/or CTRL and/or OPTION and/or COMMAND. To specify a key combined with another key or keys, use the following table.

<table>
<thead>
<tr>
<th>To combine keys with</th>
<th>Precede the key code by</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHIFT</td>
<td>+ (plus sign)</td>
</tr>
<tr>
<td>CTRL</td>
<td>^ (caret)</td>
</tr>
<tr>
<td>OPTION</td>
<td>% (percent sign)</td>
</tr>
<tr>
<td>COMMAND</td>
<td>* (asterisk)</td>
</tr>
</tbody>
</table>

To assign a procedure to one of the special characters (+, ^, %, and so on), enclose the character in braces. For details, see the example.

**Example**

This example assigns "InsertProc" to the key sequence CTRL+PLUS SIGN and assigns "SpecialPrintProc" to the key sequence SHIFT+CTRL+RIGHT ARROW.

```plaintext
on key key "+" control key pressed true procedure "InsertProc"
on key key "RIGHT" shift key pressed true control key pressed true procedure "SpecialPrintProc"
```

This example returns SHIFT+CTRL+RIGHT ARROW to its normal meaning.

```plaintext
on key key "RIGHT" shift key pressed true control key pressed true
```

This example disables the SHIFT+CTRL+RIGHT ARROW key sequence.

```plaintext
on key key "RIGHT"
```

**Command: on repeat**

Sets the Repeat menu item and the name of the procedure that will run if you choose the Repeat command (Edit menu) after running the procedure that sets this property.

**Syntax**

```plaintext
on repeat

display text  Unicode text  Required. The text that appears with the Repeat command (Edit menu).

procedure  Unicode text  Required. The name of the procedure that will be run when you choose the Repeat command (Edit menu).
```

**Remarks**

If a procedure doesn't use the on repeat command, the Repeat menu item repeats the procedure that was run most recently.

The procedure must use the on repeat command last to prevent the Repeat menu item from being overwritten by subsequent actions in the procedure.
Example
This example sets the repeat procedure.

```
on repeat display text "Repeat VB Procedure" ¬
    procedure "Book1.xls!My_Repeat_Sub"
```

**Command: open FileMaker file**

Opens the FileMaker Import Wizard for importing data from a FileMaker database into Excel.

**Syntax**

```
open FileMaker file
```

**filename** Unicode text   Required. The path and name of the FileMaker file.

Example
This example opens a file named "Inventory.fp6" in the FileMaker Import Wizard.

```
open FileMaker file filename "Inventory.fp6"
```

**Command: open links**

Opens the supporting documents for a link or links.

**Syntax**

```
open links workbook   Required. An expression that returns a workbook object.
    name Unicode text   Required. The name of the Excel or OLE link, as returned from the link sources command.
[read only Boolean]   Optional. True to open documents as read-only. The default value is false.
[type enumeration]   Optional. The link type. Can be link type Excel links or link type OLE links.
```

Example
This example opens OLE link one in the active workbook.

```
set linkList to (link sources active workbook type link type OLE links)
open links active workbook name item 1 of linkList
```

This example opens all supporting Excel documents for the active workbook.

```
open links active workbook name item 1 of ¬
    (link sources active workbook type link type Excel links)
```
Command: open text file

Loads and parses a text file as a new workbook with a single sheet that contains the parsed text-file data.

Syntax

open text file

filename  Unicode text   Required. Specifies the file name of the text file to be opened and parsed.

[origin  enumeration]   Optional. Specifies the origin of the text file. Can be one of the following: Macintosh, MSWindows, or MSDos. If this argument is omitted, the command uses the current setting of the File Origin option in the Text Import Wizard.

[start row  integer]   Optional. The row number at which to start parsing text. The default value is 1.

[data type  enumeration]   Optional. Specifies the column format of the data in the file. Can be one of the following: delimited or fixed width. The default value is delimited.

[text qualifier  enumeration]   Optional. Specifies the text qualifier. Can be one of the following: text qualifier double quote, text qualifier single quote, or text qualifier none. The default value is text qualifier double quote.

[consecutive delimiter  Boolean]   Optional. True to have consecutive delimiters considered one delimiter. The default is false.

[tab  Boolean]   Optional. True to have the tab character be the delimiter (data type must be delimited). The default value is false.

[semicolon  Boolean]   Optional. True to have the semicolon character be the delimiter (data type must be delimited). The default value is false.

[comma  Boolean]   Optional. True to have the comma character be the delimiter (data type must be delimited). The default value is false.

[space  Boolean]   Optional. True to have the space character be the delimiter (data type must be delimited). The default value is false.

[use other  Boolean]   Optional. True to have the character specified by the other char argument be the delimiter (data type must be delimited). The default value is false.

[other char  Boolean]   Optional (required if use other is true). Specifies the delimiter character when use other is true. If more than one character is specified, only the first character of the string is used; the remaining characters are ignored.
Microsoft Excel Suite

[field info]  Optional. A list containing parse information for individual columns of data. The interpretation depends on the value of data type.

When the data is delimited, this argument is a list of two-element list entries, with each two-element list entry specifying the conversion options for a particular column. The first element is the column number (1-based), and the second element is one of the following numbers, specifying how the column in parsed.

1  General
2  Text
3  MDY date
4  DMY date
5  YMD date
6  MYD date
7  DYM date
8  YDM date
9  Skip the column

The column specifiers can be in any order. If there's no column specifier for a particular column in the input data, the column is parsed with the General setting. This example causes the third column to be skipped, the first column to be parsed as text, and the remaining columns in the source data to be parsed with the General setting.

\{(3, 9), (1, 2)\}

If the source data has fixed-width columns, the first element in each two-element list entry specifies the position of the starting character in the column (as an integer; character 0 (zero) is the first character). The second element in the two-element list entry specifies the parse option for the column as a number between 1 and 9, as listed in the preceding table.

The following example parses two columns from a fixed-width text file. The first column includes characters 1 through 10. Characters 11, 12, 13, 14, and 15 are skipped. The second column includes character 16 through the last character in the line.

\{(0, 1), (10, 9), (15, 1)\}

[decimal separator]  Unicode text  Optional. A string specifying whether a comma or period is used in the text file as the separator for decimal numbers.

[thousands separator]  Unicode text  Optional. A string specifying whether a comma, period, or apostrophe is used in the text file as the separator for thousands.

Example
This example opens the file Data.txt and uses tab delimiters to parse the text file into a worksheet.

open text file filename "DATA.TXT" data type delimited tab true
Command: open workbook

Opens a workbook.

Syntax

open workbook

workbook file name  Unicode text  Required. The file name of the workbook to be opened.

[update links  enumeration]  Optional. Specifies the way links in the file are updated. If this argument is omitted, the user is prompted to specify how links will be updated. Otherwise, this argument can be one of the following:

- do not update links
- update external links only
- update remote links only
- update remote and external links

If Excel is opening a file in the WKS, WK1, or WK3 format and the update links argument is update remote links only, Excel generates charts from the graphs attached to the file. If the argument is do not update links, no charts are created.

[read only  Boolean]  Optional. True to open the workbook in read-only mode.

[format  enumeration]  Optional. If Excel is opening a text file, this argument specifies the delimiter character. If this argument is omitted, the current delimiter is used. Can be one of the following:

- tab delimiter
- commas delimiter
- spaces delimiter
- semicolon delimiter
- no delimiter
- custom character delimiter (see the delimiter argument)

[password  Unicode text]  Optional. A string that contains the password required to open a protected workbook. If this argument is omitted and the workbook requires a password, the user is prompted for the password.

[write reserved password  Unicode text]  Optional. A string that contains the password required to write to a write-reserved workbook. If this argument is omitted and the workbook requires a password, the user will be prompted for the password.

[ignore read only recommended  Boolean]  Optional. True to have Excel not display the read-only recommended message (if the workbook was saved with the Read-Only Recommended option).

[origin  enumeration]  Optional. If the file is a text file, this argument indicates where it originated (so that code pages and Carriage Return/Line Feed (CR/LF) can be mapped correctly). Can be one of the following: Macintosh, MSWindows, or MSDos. If this argument is omitted, Macintosh is used.
[delimiter]  Unicode text]  Optional. If the file is a text file and the format argument is custom character
delimiter, this argument is a string that specifies the character to be used as the delimiter. For example,
use Chr(9) for tabs, use "," for commas, use ";" for semicolons, or use a custom character. Only the first
character of the string is used.
[editable]  Boolean]  Optional. If the file is an Excel 4.0 add-in, this argument is true to open the add-in so
that it's a visible window. If this argument is false or omitted, the add-in is opened as hidden, and it
cannot be unhidden. This option doesn't apply to add-ins created in Excel 5.0 or later. If the file isn't an
add-in, true prevents any Auto_Open macros from running.
[notify]  Boolean]  Optional. If the file cannot be opened in read/write mode, this argument is true to add the
file to the file notification list. Excel will open the file as read-only, poll the file notification list, and then
notify the user when the file becomes available. If this argument is false or omitted, no notification is
requested, and any attempts to open an unavailable file will fail.
[converter]  integer]  Optional. This argument is not currently supported.
[add to mru]  Boolean]  Optional. True to add this workbook to the list of recently used files. The default
value is false.

Remarks
If the workbook being opened has any Auto_Open macros in it, they won't be run when you open
the workbook by using this command. To run the Auto_Open macro, use the run auto macros
command.

Example
This example opens the workbook Analysis.xls and then runs its Auto_Open macro.
open workbook workbook file name "Analysis.xls"
run auto macros active workbook which auto open

Command: paste special on worksheet
Pastes the contents of the Clipboard onto the sheet, using a specified format. Use this command to
paste data from other applications or to paste data in a specific format.

Syntax
paste special on worksheet  sheet  Required. An expression that returns a sheet object.

[format]  Unicode text]  Optional. A string that specifies the Clipboard format of the data.
[link]  Boolean]  Optional. True to establish a link to the source of the pasted data. If the source data isn't
suitable for linking or the source application doesn't support linking, this parameter is ignored. The
default value is False.
[display as icon]  Boolean]  Optional. True to display the pasted as an icon. The default value is False.
[icon file name]  Unicode text]  Optional. The name of the file that contains the icon to use if display as icon
is True.
[icon index]  integer]  Optional. The index number of the icon within the icon file.
Microsoft Excel Suite

[icon label  Unicode text]   Optional. The text label of the icon.

[no HTML formatting  Boolean]   Optional. True to remove all formatting, hyperlinks, and images from HTML when pasted onto a worksheet. False to paste HTML as is. The default value is False.

Remarks
You must select the destination range before you use this command.

This command may modify the sheet selection, depending on the contents of the Clipboard.

Example
This example pastes a Microsoft Word document object from the Clipboard to cell D1 on Sheet1.

select sheet "Sheet1"
select range "D1"
paste special on worksheet active sheet ¬
format "Microsoft Word 8.0 Document Object"

This example pastes the same Microsoft Word document object and displays it as an icon.

paste special on worksheet active sheet ¬
format "Microsoft Word 8.0 Document Object" ¬
with display as icon

Command: paste worksheet

Pastes the contents of the Clipboard onto the sheet.

Syntax

paste worksheet  sheet  Required. An expression that returns a sheet object.

[destination  range]   Optional. A range that specifies where the Clipboard contents should be pasted. Can be a range object, an A1-style range reference, or a named range. If this argument is omitted, the current selection is used. This argument can be specified only if the contents of the Clipboard can be pasted into a range. If this argument is specified, the link argument cannot be used.

[link  Boolean]   Optional. True to establish a link to the source of the pasted data. If this argument is specified, the destination argument cannot be used. The default value is false.

Remarks
If you don't specify the destination argument, you must select the destination range before you use this command.

This command may modify the sheet selection, depending on the contents of the Clipboard.

Example
This example copies data from cells C1:C5 on Sheet1 to cells D1:D5 on Sheet1.

select sheet "Sheet1"
copy range range "C1:C5"
paste worksheet sheet "Sheet1" destination range "D1:D5"
Command: pivot select

Selects part of a PivotTable.

Syntax

pivot select  pivot table   Required. An expression that returns a pivot table object.

name   Unicode text   Required. The selection, in standard PivotTable selection format (see below).

mode   enumeration   Required. Specifies the structured selection mode. Can be one of the following:

- selection mode label only
- selection mode data and label
- selection mode data only
- selection mode origin
- selection mode button
- selection mode blanks

Standard PivotTable selection format

A string expression used to specify part of a PivotTable.

You can refer to a particular cell only if the PivotTable selection string contains the names of all the items used to identify individual cells in the selection. The number of items in that string should be equal to the number of fields in the view for a cell in a normal data area. If the cell is used in calculating a subtotal or grand total, the number of items in the string would be fewer (including 0 [zero] for the intersection of the column and row grand totals).

The item names in the string can appear in any order. If an item name is ambiguous because it appears in another field as well, it must be qualified by "Field[Item]." If an item name contains symbols and spaces, or if it doesn't start with an alphabetical character, it should be enclosed in single quotation marks. If an item name contains embedded single quotation marks, each of these marks must be converted to two single quotation marks. Quotation marks aren't required for spaces if the name is unambiguous, and they're not required for unqualified names that begin with numbers.

Example

This example selects all date labels in PivotTable one.

pivot select (pivot table 1 of worksheet 1) name "date[ALL]" ¬
    mode selection mode label only
**Command: previous Excel comment**

Returns an Excel comment object that represents the previous comment.

**Syntax**

```
previous Excel comment    Excel comment    Required. An expression that returns an Excel comment object.
```

**Remarks**

This command works only on one sheet. Using this command on the first comment on a sheet returns missing value (not the last comment on the previous sheet).

**Example**

This example hides the previous comment.

```
set visible of (previous Excel comment ¬
              (Excel comment of range "A1")) to false
```

**Command: print out**

Prints the object.

**Syntax**

```
print out    window/sheet/workbook    Required. An expression that returns a window, sheet, or workbook object.
[from    integer]    Optional. The number of the page at which to start printing. If this argument is omitted, printing starts at the beginning.
[to    integer]    Optional. The number of the last page to print. If this argument is omitted, printing ends with the last page.
[copies    integer]    Optional. The number of copies to print. If this argument is omitted, one copy is printed.
[preview    Boolean]    Optional. True to have Excel invoke print preview before printing the object. False (or omitted) to print the object immediately.
[active printer    Unicode text]    Optional. This argument is not currently supported.
[print to file    Boolean]    Optional. This argument is not currently supported.
[collate    Boolean]    Optional. True to collate multiple copies.
```

**Remarks**

'Pages' in the descriptions of from and to refers to printed pages, not overall pages in the sheet or workbook.

This command applies to the window object only when it's the Info window.

**Example**

This example prints the active sheet.

```
print out active sheet
```
Command: print preview

Shows a preview of the object as it would look when printed.

Syntax

print preview window/sheet/workbook  Required. An expression that returns a window, sheet, or workbook object.

[enable changes  Boolean]  Optional. Controls access to the Page Setup dialog box and the ability to change margins from the Preview window by enabling or disabling the Setup and Margins buttons, respectively.

Example

This example displays Sheet1 in print preview.

print preview sheet "Sheet1"

Command: protect sharing

Saves the workbook and protects it for sharing.

Syntax

protect sharing workbook  An expression that returns a workbook object.

[file name  Unicode text]  Optional. A string indicating the name of the saved file. You can include a full path; if you don't, Excel saves the file in the current folder.

[password  Unicode text]  Optional. A case-sensitive string indicating the protection password to be given to the file. Should be no longer than 15 characters.

[write reserved password  Unicode text]  Optional. A string indicating the write-reservation password for this file. If a file is saved with the password and the password isn't supplied when the file is opened, the file is opened read-only.

[read only recommended  Boolean]  Optional. True to display a message when the file is opened recommending that the file be opened read-only.

[create backup  Boolean]  Optional. True to create a backup file.

[sharing password  Unicode text]  Optional. A string indicating the password to be used to protect the file for sharing.

Example

This example saves workbook one and protects it for sharing.

protect sharing active workbook password "drowssap"  
     sharing password "gnirahs"
Command: protect workbook

Protects a workbook so that it cannot be modified.

Syntax

protect workbook  workbook  Required. An expression that returns a workbook object.

[password  Unicode text]  Optional. A string that specifies a case-sensitive password for the workbook. If this argument is omitted, you can unprotect the workbook without using a password. Otherwise, you must specify the password to unprotect the workbook. If you forget the password, you cannot unprotect the workbook. It's a good idea to keep a list of your passwords and their corresponding document names in a safe place.

[structure  Boolean]  Optional. True to protect the structure of the workbook (the relative position of the sheets). The default value is false.

[windows  Boolean]  Optional. True to protect the workbook windows. If this argument is omitted, the windows aren't protected.

Example
This example protects the active workbook.

protect workbook active workbook password "drowssap"

Command: protect worksheet

Protects a worksheet so that it cannot be modified.

Syntax

protect worksheet  worksheet  Required. An expression that returns a worksheet object.

[password  Unicode text]  Optional. A string that specifies a case-sensitive password for the sheet. If this argument is omitted, you can unprotect the sheet without using a password. Otherwise, you must specify the password to unprotect the sheet. If you forget the password, you cannot unprotect the sheet. It's a good idea to keep a list of your passwords and their corresponding document names in a safe place.

[drawing objects  Boolean]  Optional. True to protect shapes. The default value is false.

[worksheet contents  Boolean]  Optional. True to protect contents. For a chart, this protects the entire chart. For a worksheet, this protects the individual cells. The default value is true.

[scenarios  Boolean]  Optional. True to protect scenarios. This argument is valid only for worksheets. The default value is true.

[user interface only  Boolean]  Optional. True to protect the user interface, but not macros. If this argument is omitted, protection applies both to macros and to the user interface.
Remarks
If you apply the protect worksheet command with the user interface only argument set to true to a worksheet and then save the workbook, the entire worksheet (not just the interface) will be fully protected when you reopen the workbook. To unprotect the worksheet but re-enable user interface protection after the workbook is opened, you must again apply the protect worksheet command with user interface only set to true.

Example
This example protects the active worksheet.
protect worksheet active sheet password "drowssap"

Command: purge change history now
Removes entries from the change log for the specified workbook.

Syntax
purge change history now workbook An expression that returns a workbook object.

days integer Required. The number of days that changes in the change log are to be retained.

[sharing password Unicode text] Optional. The password that removes protection from the workbook for sharing. If the workbook is protected for sharing with a password and this argument is omitted, the user is prompted for the password.

Example
This example removes all changes that are more than one day old from the change log for the active workbook.
purge change history now active workbook days 1

Command: refresh
Updates the PivotTable cache.

Syntax
refresh pivot cache Required. An expression that returns a pivot cache object.

Example
This example refreshes the PivotTable.
refresh pivot cache of pivot table 1 of sheet 1
Command: refresh all

Refreshes all external data ranges and PivotTables in the workbook.

Syntax

refresh all workbook Required. An expression that returns a workbook object.

Remarks

The refresh order is undefined.

Example

This example refreshes all external data ranges and PivotTables in the workbook.

refresh all active workbook

Command: refresh query table

Updates the query table.

Syntax

refresh query table query table Required. An expression that returns a query table object.

background query Boolean] Optional. Used only with query tables. True to return control to the procedure as soon as a database connection is made and the query is submitted (the query is updated in the background). False to return control to the procedure only after all data has been fetched to the worksheet. If this argument isn't specified, the setting of the background query property of the query table object determines the query mode.

Remarks

The refresh query table command causes Excel to connect to the query table's data source, execute the SQL query, and return data to the query table destination range. Until this command is called, the query table doesn't communicate with the data source.

When making the connection to the ODBC data source, Excel uses the connection string specified by the connection property of the query table object. If the specified connection string is missing required values, the ODBC driver manager or the ODBC driver (or both) will display modal dialog boxes to prompt the user for the required information. If the display alerts property of the application object is false, dialog boxes aren't displayed and the refresh query table command fails with an Insufficient Connection Information exception.

After Excel makes a successful connection, it stores the completed connection string so that prompts won't be displayed for subsequent calls to the refresh query table command during the same editing session. You can obtain the completed connection string by examining the value of the connection property.

After the database connection is made, the SQL query is validated. If the query isn't valid, the refresh query table command fails with the SQL Syntax Error exception.
If the query requires parameters, the parameters must have been initialized with parameter binding information. If not enough parameters have been bound, the `refresh query table` command fails with the Parameter Error exception. If parameters are set to prompt for their values, dialog boxes are displayed to the user regardless of the setting of the `display alerts` property. If the user cancels a parameter dialog box, the `refresh query table` command halts and returns `false`. If there are extra parameters bound, the extra parameters are ignored.

The `refresh query table` command returns `true` if the query is successfully completed or started; it returns `false` if the user cancels a connection or parameter dialog box.

To see whether the number of fetched rows exceeded the number of available rows on the worksheet, examine the `fetched row overflow` property of the `query table` object. This property is initialized every time the `refresh query table` command is called.

**Example**

This example refreshes query table 1 in worksheet 1.

```vba
refresh query table query table 1 of sheet 1
```

**Command: refresh table**

Refreshes the PivotTable from the source data. Returns `true` if it's successful.

**Syntax**

`refresh table`  pivot table  Required. An expression that returns a `pivot table` object.

**Example**

This example refreshes the PivotTable.

```vba
set pvtTable to pivot table of range "A3" of sheet "Sheet3"
refresh pvtTable
```

**Command: register xll**

Loads an XLL code resource and automatically registers the functions and commands contained in the resource.

**Syntax**

`register xll`

```vba
filename  Unicode text  Required. Specifies the name of the XLL file to be loaded.
```

**Remarks**

This command returns `true` if the code resource is successfully loaded; otherwise, the command returns `false`.

**Example**

This example loads an XLL file and registers the functions and commands in the file.

```vba
register xll filename "XLMAPI.XLL"
```
Command: reject all changes
Rejects all changes in the specified shared workbook.

Syntax

reject all changes  workbook  Required. An expression that returns a workbook object.

[when  Unicode text]  Optional. Specifies when all the changes are rejected.
[who  Unicode text]  Optional. Specifies by whom all the changes are rejected.
[where  Unicode text]  Optional. Specifies where all the changes are rejected.

Example
This example rejects all changes in the active workbook.
reject all changes active workbook

Command: remove all items
Removes all entries from an Excel list box or combo box.

Syntax

remove all items  listbox/dropdown  Required. An expression that returns a listbox or dropdown object.

Example
This example removes all items from a list box.
remove all items listbox 1 of sheet 1

Command: remove item
Removes one or more items from a list box or combo box.

Syntax

remove item  listbox/dropdown  Required. An expression that returns a listbox or dropdown object.

entry index  integer  Required. The number of the first item to be removed. Valid values are from 1 to the number of items in the list (returned by the number of items in list property of the listbox or dropdown object).

[count  integer]  Optional. The number of items to be removed, starting at item entry index. If this argument is omitted, one item is removed. If entry index + count exceeds the number of items in the list, all items from entry index through the end of the list are removed without an error.
Remarks
If the specified object has a fill range defined for it, this command fails.
To remove all entries from an Excel list box or combo box, use the remove all items command.

Example
This example removes the selected item from a list box.
remove item listbox 1 of sheet 1 entry index 1

Command: remove user
Disconnects the specified user from the shared workbook.

Syntax
remove user workbook Required. An expression that returns a workbook object.

entry index integer Required. The user index.

Example
This example disconnects user two from the shared workbook.
remove user workbook 2 entry index 2

Command: reset all page breaks
Resets all page breaks on the specified worksheet.

Syntax
reset all page breaks sheet Required. An expression that returns a sheet object.

Example
This example resets all page breaks on worksheet one.
reset all page breaks sheet 1

Command: reset colors
Resets the color palette to the default colors.

Syntax
reset colors workbook Required. An expression that returns a workbook object.

Example
This example resets the color palette in the active workbook.
reset colors active workbook
**Microsoft Excel Suite**

**Command: run auto macros**

Runs the Auto_Open, Auto_Close, Auto_Activate, or Auto_Deactivate macro attached to the workbook.

**Syntax**

```
run auto macros workbook   Required. An expression that returns a workbook object.
which   enumeration   Required. The macros to run. Can be one of the following:
```

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>auto open</td>
<td>Auto_Open macros</td>
</tr>
<tr>
<td>auto close</td>
<td>Auto_Close macros</td>
</tr>
<tr>
<td>auto activate</td>
<td>Auto_Activate macros</td>
</tr>
<tr>
<td>auto deactivate</td>
<td>Auto_Deactivate macros</td>
</tr>
</tbody>
</table>

**Example**

This example opens the workbook Analysis.xls and then runs its Auto_Open macro.

```
open workbook workbook file name "ANALYSIS.XLS"
run auto macros active workbook which auto open
```

This example runs the Auto_Close macro for the active workbook and then closes the workbook.

```
run auto macros active workbook which auto close
close active workbook
```

**Command: run VB Macro**

Runs a Visual Basic macro or calls a function. This can be used to run a macro written in Visual Basic or the Excel 4.0 macro language, or to run a function in a DLL or XLL.

**Syntax**

```
run VB macro range   Optional for application, required for range. An expression that returns the application that contains the VB macro, or a range on a macro sheet that contains an Excel 4.0 macro. Can be a range object, an A1-style range reference, a named range, or the name of the VB macro to run.
[arg1, arg2, ... arg30 anything]   Optional. The arguments that should be passed to the function.
```

**Remarks**

You cannot use named arguments with this command. Arguments must be passed by position.

The run VB macro command returns whatever the called VB macro returns. Range objects passed as arguments to the VB macro are converted to values (by applying the value property to the range object).
Example
This example shows how to call the function macro My_Func_Sum, which is defined on the macro sheet Mycustom.xlm (the macro sheet must be open). The function takes two numeric arguments (1 and 5, in this example).

```vba
set mySum to run VB Macro "MYCUSTOM.XLM!My_Func_Sum" arg1 1 arg2 5
display dialog "Macro result: " & mySum
```

Command: save as

Saves changes to the sheet in a different file.

Syntax

```
save as  sheet   Required. An expression that returns a sheet object.
filename  Unicode text   Required. A string that indicates the name of the file to be saved. You can include a full path; if you don't, Excel saves the file in the current folder.

[file format   enumeration]   Optional. The file format to use when you save the file.
```

The following formats are available only in the Japanese version of Excel: WJ2WD1 file format, Excel 2 east asian file format, and works 2 east asian file format.

Can be one of the following:

- add in file format
- CSV file format
- CSV Mac file format
- CSV MSDos file format
- CSV Windows file format
- DBF2 file format
- DBF3 file format
- DBF4 file format
- DIF file format
- Excel2 file format
- Excel 2 east asian file format
- Excel3 file format
- Excel4 file format
- Excel 4 workbook file format
- Excel7 file format
- Excel 9795 file format
- international add in file format
- international macro file format
- workbook normal file format
- SYLK file format
- template file format
- current platform text file format
- text Mac file format
- text MSDos file format
- text windows file format
- WJ2WD1 file format
- Works1 file format
- Works 1 all file format
- Works3 file format
- Works 3 fm 3 file format
- Works4 file format
- works file format
- works 2 east asian file format
- WQ1 file format
- WJ3 file format
- WJ3FJ3 file format
- HTML file format
- XML spreadsheet file format
Microsoft Excel Suite

[password  Unicode text]  Optional. A case-sensitive string (no more than 15 characters) that indicates the protection password to be given to the file.

[write reservation password  Unicode text]  Optional. A string that indicates the write-reservation password for this file. If a file is saved with the password and the password isn't supplied when the file is opened, the file is opened as read-only.

[read only recommended  Boolean]  Optional. True to display a message when the file is opened, recommending that the file be opened as read-only.

[create backup  Boolean]  Optional. True to create a backup file.

[add to most recently used list  Boolean]  Optional. True to add this workbook to the list of recently used files. The default value is false.

Example
This example creates a new workbook, prompts the user for a file name, and then saves the workbook.

set newBook to make new workbook
set fName to get save as filename
save as (worksheet "Sheet1" of newBook) filename fName

Command: save workbook as

Saves changes to the workbook in a different file.

Syntax

save workbook as  workbook  Required. An expression that returns a workbook object.

[filename  Unicode text]  Optional. A string that indicates the name of the file to be saved. You can include a full path; if you don't, Excel saves the file in the current folder.
Microsoft Excel Suite

[file format  enumeration]  Optional. The file format to use when you save the file.

The following formats are available only in the Japanese version of Excel: WJ2WD1 file format, Excel 2 east asian file format, and works 2 east asian file format.

Can be one of the following:

- add in file format
- CSV file format
- CSV Mac file format
- CSV MSDos file format
- CSV Windows file format
- DBF2 file format
- DBF3 file format
- DBF4 file format
- DIF file format
- Excel2 file format
- Excel 2 east asian file format
- Excel3 file format
- Excel4 file format
- Excel 4 workbook file format
- Excel7 file format
- Excel 9795 file format
- international add in file format
- international macro file format
- workbook normal file format
- SYLK file format
- template file format
- current platform text file format
- text Mac file format
- text MSDos file format
- text printer file format
- text windows file format
- WJ2WD1 file format
- Works1 file format
- Works 1 all file format
- Works 1 fmt file format
- Works3 file format
- Works 1 fm 3 file format
- works file format
- works 2 east asian file format
- WQ1 file format
- WJ3 file format
- WJ3FJ3 file format
- HTML file format
- XML spreadsheet file format

[password  Unicode text]  Optional. A case-sensitive string (no more than 15 characters) that indicates the protection password to be given to the file.

[write reservation password  Unicode text]  Optional. A string that indicates the write-reservation password for this file. If a file is saved with the password and the password isn't supplied when the file is opened, the file is opened as read-only.

[read only recommended  Boolean]  Optional. True to display a message when the file is opened recommending that the file be opened as read-only.

[create backup  Boolean]  Optional. True to create a backup file.

[access mode  enumeration]  Optional. The workbook access mode. Can be one of the following: shared (shared list), exclusive (exclusive mode), or no change (don't change the access mode). If this argument is omitted, the access mode isn't changed. This argument is ignored if you save a shared list without changing the file name. To change the access mode, use the exclusive access command.

[conflict resolution  enumeration]  Optional. Specifies the way change conflicts are resolved if the workbook is a shared list. Can be one of the following: user resolution (display the conflict-resolution dialog box), local session changes (automatically accept the local user's changes), or other session changes (accept other changes instead of the local user's changes). If this argument is omitted, the conflict-resolution dialog box is displayed.

[add to most recently used list  Boolean]  Optional. True to add this workbook to the list of recently used files. The default value is false.
Example
This example creates a new workbook, prompts the user for a file name, and then saves the workbook.

```
set newBook to make new workbook
set fName to get save as filename
save workbook as newBook filename fName
```

Command: save workspace
Saves the current workspace.

Syntax

```
save workspace
```

**workspace file name** Unicode text] Optional. The saved file name.

Example
This example saves the current workspace as "saved workspace.xlw". Before you run this example the workbook must be saved.

```
save workspace workspace file name "saved workspace.xlw"
```

Command: scroll workbook tabs
Scrolls through the workbook tabs at the bottom of the window. Does not affect the active sheet in the workbook.

Syntax

```
scroll workbook tabs window | sheets | position
```

window Required. An expression that returns a window object.

[sheets integer] Optional. The number of sheets to scroll by. To scroll forward, use a positive number; to scroll backward, use a negative number; to not scroll at all, use 0 (zero). You must specify sheets if you don't specify position.

[position enumeration] Optional. To scroll to the first sheet, use scroll tab position first; to scroll to the last sheet, use scroll tab position last. You must specify position if you don't specify sheets.

Example
This example scrolls through the workbook tabs to the last sheet in the workbook.
```
scroll workbook tabs active window position scroll tab position last
```
Command: send to back

Sends the object to the back of the z-order.

Syntax

send to back  button/checkbox/option
button/scrollbar/listbox/groupbox/dropdown/spinner/label/textbox  Required. An expression that returns one of the listed objects.

Example
This example sends button 1 on Sheet1 to the back of the z-order.

send to back button 1 of sheet "Sheet1"

Command: set background picture

Sets the background graphic for a worksheet.

Syntax

set background picture  sheet  Required. An expression that returns a sheet object.

picture file name  Unicode text  Required. The name of the graphic file.

Example
This example sets the background graphic for worksheet one.

set background picture sheet 1 picture file name ¬
"Macintosh HD:Users:Shared:watermark.gif"

Command: set default chart

Specifies the name of the chart template that Excel will use when creating new charts.

Syntax

set default chart

[format name  enumeration]  Optional. Specifies the name of a custom autoformat. This name can be a string naming a custom autoformat, or it can be the special value built in chart template to specify the built-in chart template.

[gallery  enumeration]  Optional. For a custom chart, specifies from which gallery to choose the chart. Can be built in chart type (uses the Chart Gallery files) or custom chart (uses the Custom User Gallery files saved in the Office folder or Preferences folder).

Example
This example sets the default chart template to a built-in chart format.

set default chart format name column clustered gallery built in chart type
Command: set FileMaker criteria

Sets the criteria for creating an Excel query table against a FileMaker database.

Syntax

set FileMaker criteria query table Required. An expression that returns a query table object.

criteria index integer Required. An index into the number of criteria that have been set.

field name Unicode text Required. The name of the field being queried.

operator enumeration Required. The operator used between field name and clause text. Can be one of the following:

  criteria equals
  criteria less than or equal to
  criteria greater than or equal to
  criteria less than
  criteria greater than
  criteria begins with
  criteria ends with
  criteria contains

clause text Unicode text Required. The clause against which field name is tested.

condition enumeration Required. Operator used to add more criteria. Can be one of the following: no condition, and condition, or or condition.

Example

This example performs a query against a FileMaker database, returning cases in the NorthCentral region where sales of particular items have exceeded 5,000. It specifies two sets of criteria and that data from three fields be presented in a new list object on the active worksheet. The example assumes the existence of a FileMaker database named "Regions."

set QT to (make new query table with properties ¬
  { connection:"FILEMAKER;HD:Desktop Folder:2000:Regions", ¬
    destination:range "A1" } )
set FileMaker fields of QT to ¬
  { "Region", 0, "Item", 0, "Sales", 0 } } 
set FileMaker num criteria to 2
set FileMaker criteria QT criteria index 1 field name ¬
  "Region" operator criteria equals ¬
  clause text "NorthCentral" condition no condition
set FileMaker criteria QT criteria index 2 field name ¬
  "Sales" operator criteria greater than ¬
  clause text "5000" condition and condition
set enable refresh of QT to true
set use list object of QT to true
**Microsoft Excel Suite**

**Command: set list item**

Sets the text entries in the specified list box or a combo box as an array of strings, or sets a single text entry. An error occurs if there are no entries in the list.

**Syntax**

```
set list item listbox/dropdown   Required. An expression that returns a listbox or dropdown object.

[entry index integer]   Optional. The index number of a single text entry to be set. If this
                        argument is omitted, the entire list is set as an array of strings.

rhs   Unicode text   Required. The new text to be set.
```

**Remarks**

Using this command clears any range specified by the list fill range property of the listbox or dropdown object.

**Example**

This example sets entry four in a list box on worksheet one.

```
set list item listbox 1 of sheet 1 entry index 4 rhs "gadgets"
```

---

**Command: set subtotals**

Sets subtotals displayed with the specified field. Valid only for non-data fields.

**Syntax**

```
set subtotals pivot field   Required. An expression that returns a pivot field object.

[subtotal index enumeration]   Optional. Specifies the subtotal to be set. Can be one of the
                                following:

                            automatic subtotal        product subtotal
                            sum subtotal                count numbers subtotal
                            count subtotal              standard deviation
                            average subtotal            standard deviation P
                            maximum value               variance subtotal
                            minimum value               variance P subtotal
```

Subtotals are set as follows:

1. automatic
2. sum
3. count
4. average
5. max
6. min
7. product
8. count nums
9. StdDev
10. StdDevp
11. Var
12. Varp
value Boolean Required. Specifies the subtotal to be set as follows:

1 automatic
2 sum
3 count
4 average
5 max
6 min
7 product
8 count nums
9 StdDev
10 StdDevp
11 Var
12 Varp

Example

This example sets subtotals for pivot field 1 to automatic.

set subtotals pivot field 1 of pivot table 1 of active sheet value 1

Command: show

Displays the built-in dialog box and waits for the user to input data, or shows the scenario by inserting its values on the worksheet. The affected cells are the changing cells of the scenario.

Syntax

show dialog/scenario Required. An expression that returns a dialog or scenario object. For dialogs, can be one of the following:

dialog open
dialog open links
dialog save as
dialog file delete
dialog page setup
dialog printer setup
dialog arrange all
dialog window size
dialog window move
dialog run
dialog set print titles
dialog font
dialog display
dialog protect document
dialog calculation
dialog extract
dialog data delete
dialog sort
dialog data series
dialog table
dialog format number
dialog alignment
dialog style
dialog border
dialog cell protection
dialog change link
dialog app move
dialog main chart type
dialog overlay chart type
dialog open mail
dialog send mail
dialog standard font
dialog consolidate
dialog sort special
dialog gallery threeD area
dialog gallery threeD column
dialog gallery threeD line
dialog gallery threeD pie
dialog view threeD
dialog goal seek
dialog main chart type
dialog overlay chart type
dialog open print titles
dialog open mail
dialog send mail
dialog standard font
dialog consolidate
dialog sort special
dialog gallery threeD area
dialog gallery threeD column
dialog gallery threeD line
dialog gallery threeD pie
dialog view threeD
dialog goal seek
dialog main chart type
dialog overlay chart type
dialog open print titles
dialog open mail
dialog send mail
dialog standard font
dialog consolidate
dialog sort special
dialog gallery threeD area
dialog gallery threeD column
dialog gallery threeD line
dialog gallery threeD pie
dialog view threeD
dialog goal seek
dialog main chart type
dialog overlay chart type
dialog open print titles
dialog open mail
dialog send mail
dialog standard font
dialog consolidate
dialog sort special
dialog gallery threeD area
dialog gallery threeD column
dialog gallery threeD line
dialog gallery threeD pie
dialog view threeD
dialog goal seek
dialog main chart type
dialog overlay chart type
dialog open print titles
dialog open mail
dialog send mail
dialog standard font
dialog consolidate
dialog sort special
dialog gallery threeD area
dialog gallery threeD column
dialog gallery threeD line
dialog gallery threeD pie
dialog view threeD
dialog goal seek
dialog main chart type
dialog overlay chart type
dialog open print titles
dialog open mail
dialog send mail
dialog standard font
dialog consolidate
dialog sort special
dialog gallery threeD area
dialog gallery threeD column
dialog gallery threeD line
dia
**Remarks**
For built in dialog boxes, this command returns `true` if the user clicks **OK**, or it returns `false` if the user clicks **Cancel**.

You can use a single dialog box to change many properties at the same time. For example, you can use the **Format Cells** dialog box to change all the properties of the **font** object.

**Example**
This example displays the **Open** dialog box.
```
show (get dialog dialog open)
```

**Command: show all data**
Makes all rows of the currently filtered list visible. If AutoFilter is in use, this command changes the arrows to "All."

```
show all data sheet
```

Required. An expression that returns a **sheet** object.

**Example**
This example makes all data on Sheet1 visible. The example should be run on a worksheet that contains a list you filtered using the **autofilter** command.
```
show all data sheet "Sheet1"
```

**Command: show custom view**
Displays the custom view.

```
show custom view custom view
```

Required. An expression that returns a **custom view** object.

**Example**
This example displays the custom view named "My View."
```
show custom view custom view "My View" of active window
```

**Command: show data form**
Displays the data form associated with the worksheet.

```
show data form sheet
```

Required. An expression that returns a **sheet** object.

**Remarks**
The script pauses while you're using the data form. When you close the data form, the script resumes at the line following the **show data form** command.

This command runs the custom data form, if one exists.
Microsoft Excel Suite

Example
This example displays the data form for Sheet1.
show data form sheet 1

Command: show levels
Displays the specified number of row and/or column levels of an outline.

Syntax
show levels outline Required. An expression that returns an outline object.

row levels integer] Optional. Specifies the number of row levels of an outline to display. If the outline has fewer levels than the number specified, Excel displays all the levels. If this argument is 0 (zero) or is omitted, no action is taken on rows.

column levels integer] Optional. Specifies the number of column levels of an outline to display. If the outline has fewer levels than the number specified, Excel displays all the levels. If this argument is 0 (zero) or is omitted, no action is taken on columns.

Remarks
You must specify at least one argument.

Example
This example displays row levels one through three and column level one of the outline on Sheet1.
show levels outline object of sheet "Sheet1" row levels 3 column levels 1

Command: show pages
Creates a new PivotTable report for each item in the page field. Each new PivotTable report is created on a new worksheet.

Syntax
show pages pivot table Required. An expression that returns a pivot table object.

page field Unicode text] Optional. A string that names a single page field in the PivotTable report.

Example
This example creates a new PivotTable report for each item in the page field, which is the field named "Country."
set pvtTable to pivot table of range "A3" of worksheet "Sheet1"
show pages pvtTable page field "Country"
**Command: small scroll**

Scrolls the contents of the window by rows or columns.

**Syntax**

small scroll  window/pane   Required. An expression that returns a window object.

[down integer]   Optional. The number of rows to scroll the contents down.

[up integer]   Optional. The number of rows to scroll the contents up.

[to right integer]   Optional. The number of columns to scroll the contents to the right.

[to left integer]   Optional. The number of columns to scroll the contents to the left.

**Remarks**

If down and up are both specified, the contents of the window are scrolled by the difference of the arguments. For example, if down is 3 and up is 6, the contents are scrolled up three rows.

If to left and to right are both specified, the contents of the window are scrolled by the difference of the arguments. For example, if to left is 3 and to right is 6, the contents are scrolled to the right three columns.

Any of these arguments can be a negative number.

**Example**

This example scrolls the contents of the active window of Sheet1 down three rows.

small scroll active window down 3

---

**Command: undo**

Cancels the last user-interface action.

**Syntax**

undo

**Remarks**

This command undoes only the last action taken by the user before running the script or Visual Basic macro, and it must be the first line in the script or macro.

**Example**

This example cancels the last user-interface action. The example must be the first line in a script.

undo
Command: union

Returns the union of two or more ranges.

Syntax

union

range1 range  Required. One of the ranges that will be included in the union range.
range2 range  Required. One of the ranges that will be included in the union range.

[range3, range4, ... range30  range]  Optional. More ranges that will be included in the union range.

Example

This example fills the union of two named ranges, Range1 and Range2, with the formula =RAND()

set bigRange to (union range1 reference range of named item "Range1" ¬
                     range2 reference range of named item "Range2")

set formula of bigRange to "=RAND()"

Command: unprotect

Removes protection from a sheet or workbook. This command has no effect if the sheet or workbook isn't protected.

Syntax

unprotect  sheet/workbook  Required. An expression that returns a workbook or sheet object.

[password  Unicode text]  Optional. A string that denotes the case-sensitive password to use to unprotect the sheet or workbook. If the sheet or workbook isn't protected with a password, this argument is ignored. If you omit this argument for a sheet that's protected with a password, you'll be prompted for the password. If you omit this argument for a workbook that's protected with a password, the command fails.

Remarks

If you forget the password, you cannot unprotect the sheet or workbook. It's a good idea to keep a list of your passwords and their corresponding document names in a safe place.

Example

This example removes protection from the active workbook.

unprotect active workbook
Command: unprotect sharing

Turns off protection for sharing and saves the workbook.

Syntax

unprotect sharing  workbook   Required. An expression that returns a workbook object.

[sharing password  Unicode text]   Optional. The workbook password.

Example

This example turns off protection for sharing and saves the active workbook.
unprotect sharing active workbook sharing password "drowssap"

Command: update

Updates the PivotTable.

Syntax

update  pivot table   Required. An expression that returns a pivot table object.

Example

This example updates PivotTable one on Sheet1.
update pivot table 1 of sheet "Sheet1"

Command: update from file

Updates a read-only workbook from the saved disk version of the workbook if the disk version is more recent than the copy of the workbook that is loaded in memory. If the disk copy hasn't changed since the workbook was loaded, the in-memory copy of the workbook isn't reloaded.

Syntax

update from file  workbook   Required. An expression that returns a workbook object.

Remarks

This command is useful when a workbook is opened as read-only by user A and opened as read/write by user B. If user B saves a newer version of the workbook to disk while user A still has the workbook open, user A cannot get the updated copy without closing and reopening the workbook and losing view settings. The update from file command updates the in-memory copy of the workbook from the disk file.

Example

This example updates the active workbook from the disk version of the file.
update from file active workbook
Command: update link

Updates an Excel or OLE link (or links).

Syntax
update link workbook Required. An expression that returns a workbook object.

[name Unicode text] Optional. The name of the Excel or OLE link to be updated, as returned from the link sources command.

[type enumeration] Optional. The link type. Can be link type Excel links or link type OLE links. The default value is link type Excel links.

Example
This example updates all links in the active workbook.
update link active workbook name (link sources active workbook)

Command: use default folder suffix

This command is not currently supported.

Command: wait

Pauses a running script until a specified time. Returns true if the specified time has arrived.

Important The wait command suspends all Excel activity and may prevent you from performing other operations on your computer while wait is in effect. However, background processes such as printing and recalculation continue.

Syntax
wait

[time to wait Unicode text] Required. The time at which you want the script to resume, in Excel date format.

Example
This example pauses a running script or Visual Basic macro until 6:23 P.M. today.
wait time to wait "18:23:00"

Command: web page preview

Displays a preview of the specified workbook as it would look if saved as a Web page.

Syntax
web page preview workbook Required. An expression that returns a workbook object.

Example
This example displays a preview of the first workbook as a Web page.
web page preview workbook 1
## Drawing Suite Class

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>arc</td>
<td>Represents an arc graphic. Use <code>arc index</code>, where <code>index</code> is the arc name or the index number, to return an arc object that represents an arc. The following example positions arc 1 fifty points to the right of the left side of the worksheet.</td>
<td>249</td>
</tr>
<tr>
<td>callout</td>
<td></td>
<td>253</td>
</tr>
<tr>
<td>callout format</td>
<td></td>
<td>254</td>
</tr>
<tr>
<td>connector format</td>
<td></td>
<td>257</td>
</tr>
<tr>
<td>fill format</td>
<td></td>
<td>259</td>
</tr>
<tr>
<td>line</td>
<td></td>
<td>264</td>
</tr>
<tr>
<td>line format</td>
<td></td>
<td>266</td>
</tr>
<tr>
<td>oval</td>
<td></td>
<td>270</td>
</tr>
<tr>
<td>picture</td>
<td></td>
<td>274</td>
</tr>
<tr>
<td>picture format</td>
<td></td>
<td>274</td>
</tr>
<tr>
<td>rectangle</td>
<td></td>
<td>276</td>
</tr>
<tr>
<td>shadow format</td>
<td></td>
<td>279</td>
</tr>
<tr>
<td>shape</td>
<td></td>
<td>280</td>
</tr>
<tr>
<td>shape connector</td>
<td></td>
<td>285</td>
</tr>
<tr>
<td>shape line</td>
<td></td>
<td>286</td>
</tr>
<tr>
<td>shape textbox</td>
<td></td>
<td>287</td>
</tr>
<tr>
<td>text frame</td>
<td></td>
<td>287</td>
</tr>
<tr>
<td>threeD format</td>
<td></td>
<td>290</td>
</tr>
<tr>
<td>word art</td>
<td></td>
<td>293</td>
</tr>
<tr>
<td>word art format</td>
<td></td>
<td>295</td>
</tr>
</tbody>
</table>

### Class: arc

**Plural**

arcs

**Elements**

<table>
<thead>
<tr>
<th>element</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>character</td>
<td>Represents an arc graphic. Use <code>arc index</code>, where <code>index</code> is the arc name or the index number, to return an arc object that represents an arc. The following example positions arc 1 fifty points to the right of the left side of the worksheet.</td>
</tr>
</tbody>
</table>

```plaintext
class arc
def set_left_position_of_arc_1_of_sheet_1_to_50()
```
Properties

add indent

True if text is automatically indented when the text alignment in a cell is set to equal
distribution, either horizontally or vertically. Read/write.

This property is not used in U.S./English versions of Excel.

auto scale font

True if the text in the object changes font size when the object size changes. The default value
is true. Read/write.

auto size

True if the size of the specified object is changed automatically to fit text within its boundaries.
Read/write.

border

Returns a border object that represents the border of the object. Read-only.

bottom right cell

Returns a range object that represents the cell that lies under the the lower-right corner of the
object. Read-only.

caption

Returns or sets the caption for this object. Read/write.

enabled

True if the object is enabled. Read/write.

entry index

Returns the index number of the object within the elements of the parent object. Read-only.

font object

Returns a font object that represents the font of the specified object. Read-only.

formula

Returns or sets the object's formula in A1-style notation. Read/write.

height

Returns or sets the height (in points) of the object. Read/write.
**Drawing Suite**

*horizontal alignment*

Returns or sets the horizontal alignment for the object. Read/write.

Can be one of the following:

- horizontal align center
- horizontal align center across selection
- horizontal align distributed
- horizontal align fill
- horizontal align general
- horizontal align justify
- horizontal align left
- horizontal align right

The horizontal align distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

*interior object*

Returns an interior object that represents the interior of the axis title. Read-only.

*left position*

Returns or sets the position (in points) of the specified object. Read/write.

*locked*

True if the object is locked; false if the object can be modified when the sheet is protected. Read/write.

*locked text*

True if the text in the specified object will be locked to prevent changes when the workbook is protected. Read/write.

*name*

Returns or sets the name of the object. Read/write.

*on action*

Returns or sets either the name of a VBA macro or a string of AppleScript commands that's run when the specified object is clicked. Strings of AppleScript commands are not saved with the document. Read/write.
**Drawing Suite**

*orientation*

Returns or sets the object's orientation. Read/write.

Can be one of the following:

- `orientation down`
- `orientation horizontal`
- `orientation upward`
- `orientation vertical`

Can also be a number value between -90 and 90 degrees.

*placement*

Returns or sets the way the object is attached to the cells below it. Read/write.

Can be one of the following:

- `placement free floating`
- `placement move`
- `placement move and size`

*print object*

**True** if the object will be printed when the document is printed. Read/write.

*reading order*

This property is not currently supported.

*string value*

Returns or sets the text of the specified object. Read/write.

*top*

Returns or sets the top position (in points) of the specified object. Read/write.

*top left cell*

Returns a **range** object that represents the cell that lies under the upper-left corner of the specified object. Read-only.
vertical alignment

Returns or sets the vertical alignment of the object. Read/write.

Can be one of the following:

- vertical alignment top
- vertical alignment center
- vertical alignment bottom
- vertical alignment justify
- vertical alignment distributed

The vertical alignment distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

visible

True if the object is visible. Read/write.

width

Returns or sets an object's width, in points. Read/write.

wrap auto text

True if Excel wraps the text in the object. Read/write.

z order position

Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.

Whenever you make a new shape or object, it's added to the front of the z-order by default.

Class: callout

Plural
callouts

 Represents a callout shape.

Use callout index, where index is the callout name or the index number, to return a callout object.

The following example creates a new callout.

make new callout at the beginning of worksheet 1 of workbook 1
**Properties**

*<Inheritance>*  **shape**

Inherits the properties and elements of the `shape` class.

**callout format**

Returns a `callout format` object that contains callout formatting properties. Read-only.

**callout type**

Returns the type of callout. Read-only.

Can be one of the following:

- callout unset
- callout one
- callout two
- callout three
- callout four

**Class: callout format**

**Plural**

**callout formats**

Represents the formatting options for a callout.

Use the `callout` property to return a `callout format` object. The following example specifies several attributes of callout 3 in the active worksheet:

- The callout will have a vertical accent bar that separates the text from the callout line.
- The angle between the callout line and the side of the callout text box will be 30 degrees.
- There will be no border around the callout text.
- The callout line will be attached to the top of the callout text box.
- The callout line will contain two segments.

For this example to work, shape three must be a callout.

```
set accent of callout format of callout 3 of active sheet to true
set angle of callout format of callout 3 of active sheet to angle30
set border of callout format of callout 3 of active sheet to false
set callout format type of callout format of callout 3 of active sheet to callout three
preset drop callout 3 of active sheet drop type drop top
```
Properties

**accent**

*True* if a vertical accent bar separates the callout text from the callout line. Read/write.

**angle**

Returns or sets the angle of the callout line. If the callout line contains more than one line segment, this property returns or sets the angle of the segment that is farthest from the callout text box. Read/write.

Can be one of the following:

- `angle30`
- `angle45`
- `angle60`
- `angle90`
- `angle automatic`
- `angle unset`

If you set the value of this property to anything other than `angle automatic`, the callout line maintains a fixed angle as you drag the callout.

**auto attach**

*True* if the place where the callout line attaches to the callout text box changes depending on whether the origin of the callout line (where the callout points to) is to the left or right of the callout text box. Read/write.

When the value of this property is *true*, the drop value (the vertical distance from the edge of the callout text box to the place where the callout line attaches) is measured from the top of the text box when the text box is to the right of the origin, and it's measured from the bottom of the text box when the text box is to the left of the origin. When the value of this property is *false*, the drop value is always measured from the top of the text box, regardless of the relative positions of the text box and the origin. To set the drop value, use the custom drop command, and use the drop property to return the drop value.

Setting this property affects a callout only if it has an explicitly set drop value, that is, if the value of the drop type property is drop custom. By default, callouts have explicitly set drop values when they're created.

**auto length**

*True* if the first segment of the callout line (the segment attached to the text callout box) is scaled automatically whenever the callout is moved. *False* if the first segment of the callout retains the fixed length specified by the callout format length property whenever the callout is moved. Applies only to callouts whose lines consist of more than one segment (types callout three and callout four). Read-only.

This property is read-only. To set this property to *true*, use the automatic length command. To set this property to *false*, use the custom length command.

**border**

*True* if the text in the specified callout is surrounded by a border. Read/write.
callout format length

When the auto length property of the specified callout is set to false, the callout format length property returns the length (in points) of the first segment of the callout line (the segment attached to the text callout box). Applies only to callouts whose lines consist of more than one segment (types callout three and callout four). Read-only.

This property is read-only. To set the value of this property, use the custom length command.

callout format type

Returns or sets the callout type. Read/write.

Can be one of the following:

- callout unset
- callout one
- callout two
- callout three
- callout four

drop

For callouts with an explicitly set drop value, this property returns the vertical distance (in points) from the edge of the text bounding box to the place where the callout line attaches to the text box. This distance is measured from the top of the text box unless the auto attach property is set to true and the text box is to the left of the origin of the callout line (the place that the callout points to), in which case the drop distance is measured from the bottom of the text box. Read-only.

To set the value of this property, use the custom drop command.

The value of this property accurately reflects the position of the callout line attachment to the text box only if the callout has an explicitly set drop value, that is, if the value of the drop type property is drop custom. To set the drop type property to drop custom, use the preset drop command.

drop type

Returns a value that indicates where the callout line attaches to the callout text box. Read-only.

Can be one of the following:

- drop bottom
- drop center
- drop custom
- drop unset
- drop top

If the callout drop type is drop custom, the values of the drop and auto attach properties and the relative positions of the callout text box and callout line origin (the place that the callout points to) are used to determine where the callout line attaches to the text box.

This property is read-only. To set the value of this property, use the preset drop command.
**gap**

Returns or sets the horizontal distance (in points) between the end of the callout line and the text bounding box. Read/write.

**Class: connector format**

**Plural**

connector formats

Represents the formatting options for a shape connector. A connector is a line that attaches two other shapes at points called connection sites. If you rearrange shapes that are connected, the geometry of the connector will be automatically adjusted so that the shapes remain connected.

Use the `connector format` property to return a `connector format` object. Use the `begin connect` and `end connect` commands to attach the ends of the connector to other shapes in the document. Use the `reroute connections` command to automatically find the shortest path between the two shapes connected by the connector. Use the `connector` property to see whether a shape is a connector.

Note that you assign a size and a position when you create a connector, but the size and position are automatically adjusted when you attach the beginning and end of the connector to other shapes. Therefore, if you intend to attach a connector to other shapes, the initial size and position you specify are irrelevant. Likewise, you specify which connection sites on a shape to attach the connector to when you attach the connector, but using the `reroute connections` command after the connector is attached may change which connection sites the connector attaches to, making your original choice of connection sites irrelevant.

The following example adds two rectangles to `myDocument` and connects them with a curved connector.

```plaintext
set myDocument to sheet 1
set firstRect to make new shape at end of myDocument with properties ¬
    {auto shape type: autoshape rectangle, top:100, ¬
     left position:50, height:200, width:100}
set secondRect to make new shape at end of myDocument with properties ¬
    {auto shape type: autoshape rectangle, top:300, ¬
     left position:300, height:200, width:100}
set c to make new shape connector at end of myDocument with properties ¬
    {connector type:curve, top:0, left position: 0, height:0, width:0}
begin connect c connected shape firstRect connection site 1
del connect c connected shape secondRect connection site 1
reroute connections c
```
Connection sites are generally numbered according to the rules presented in the following table.

<table>
<thead>
<tr>
<th>Shape type</th>
<th>Connection site numbering scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>AutoShapes, WordArt,</td>
<td>The connection sites are numbered starting at the top and proceeding</td>
</tr>
<tr>
<td>pictures, and OLE objects</td>
<td>counterclockwise.</td>
</tr>
<tr>
<td>Freeforms</td>
<td>The connection sites are the vertices, and they correspond to the</td>
</tr>
<tr>
<td></td>
<td>vertex numbers.</td>
</tr>
</tbody>
</table>

To figure out which number corresponds to which connection site on a complex shape, you can create a shape, select it, and then run the following example. The following code example numbers each connection site and attaches a connector to it.

```vba
set myShape to shape 1 of active sheet
set offx to (left position of myShape + width of myShape + 50)
set offy to (top of myShape + height of myShape + 50)
set shapecount to count of shapes in active sheet
repeat with j from 1 to connection site count of myShape
    set thisconnect to make new shape connector at end of active sheet
    with properties {connector type: elbow, top: offy, left position: offx, height: offy+50, width: offx+50}
    end connect thisconnect connected shape myShape connection site j
    set fore color of line format of thisconnect to {255, 0, 0}
    set l to left position of thisconnect
    set t to top of thisconnect
    make new textbox at end of active sheet with properties
    (left position: l, top: t, width: 14, height: 36)
    set thistextbox to shape textbox (shapecount + (2 * j)) of active sheet
    set visible of fill format of thistextbox to false
    set visible of line format of thistextbox to false
    set content of characters of textbox j of active sheet to (j as string)
end repeat
```

**Properties**

*begin connected*

True if the beginning of the specified connector is connected to a shape. Read-only.

*begin connected shape*

Returns a shape object that represents the shape that the beginning of the specified connector is attached to. Read-only.

If the beginning of the specified connector isn't attached to a shape, this property generates an error.
**Drawing Suite**

*begin connection site*

Returns an integer that specifies the connection site that the beginning of a connector is connected to. Read-only.

If the beginning of the specified connector isn't attached to a shape, this property generates an error.

*connector format type*

Returns or sets the connector type. Read/write.

Can be one of the following:
- connector type unset
- straight
- elbow, curve

*end connected*

True if the end of the specified connector is connected to a shape. Read-only.

*end connected shape*

Returns a shape object that represents the shape that the end of the specified connector is attached to. Read-only.

If the end of the specified connector isn't attached to a shape, this property generates an error.

*end connection site*

Returns an integer that specifies the connection site that the end of a connector is connected to. Read-only.

If the end of the specified connector isn't attached to a shape, this property generates an error.

**Class: fill format**

*Plural*

fill formats

Represents fill formatting for a shape. A shape can have a solid, gradient, texture, pattern, picture, or semi-transparent fill.

Use the fill property to return a fill format object. The following example adds a rectangle to the active worksheet and then sets the gradient and color for the rectangle's fill.

```plaintext
set newRect to make new shape at active sheet with properties ¬
    { auto shape type: autoshape rectangle, left position: 90, top: 90, ¬
      width: 90, height: 80 }
set fore color of fill format of newRect to ({0, 128, 128} as RGB color)
one color gradient newRect gradient style horizontal gradient ¬
    variant 1 degree 1.0
```

Many of the properties of the fill format object are read-only. To set one of these properties, you must apply the corresponding command.
Properties

*back color*

Returns or sets an RGB color that represents the background color for the specified fill format. Read/write.

*fill format type*

Returns the shape fill format type. Read-only.

Can be one of the following:

- fill unset
- fill solid
- fill patterned
- fill gradient
- fill textured
- fill background
- fill picture

*fore color*

Returns or sets an RGB color that represents the foreground color for the fill format. Read-only.

*gradient color type*

Returns the gradient color type for the specified fill. Read-only.

Can be one of the following:

- gradient type unset
- single shade gradient type
- two colors gradient type
- preset colors gradient type

To set the gradient type for the fill format, use the one color gradient, preset gradient, or two color gradient command.
**Drawing Suite**

**gradient degree**

Returns a value that indicates how dark or light a one-color gradient fill format is. A value of 0 (zero) means that black is mixed in with the shape's foreground color to form the gradient; a value of 1 means that white is mixed in; and values between 0 and 1 mean that a darker or lighter shade of the foreground color is mixed in. Read-only.

To set the gradient degree for the fill format, use the **one color gradient** command.

**gradient style**

Returns the gradient style for the specified fill. Read-only.

Can be one of the following:

- gradient unset
- horizontal gradient
- vertical gradient
- diagonal up gradient
- diagonal down gradient
- from corner gradient
- from center gradient
- from title gradient (used only in PowerPoint)

To set the gradient style for the fill, use the **one color gradient** or **two color gradient** command.

**Note** Attempting to return this property for a fill that doesn’t have a gradient generates an error. To determine whether the fill has a gradient, use the **fill type** property.

**gradient variant**

Returns the gradient variant for the specified fill format as an integer value from 1 to 4 for most gradient fills. If the gradient style is **from center gradient**, this property returns either 1 or 2. The values for this property correspond to the gradient variants (numbered from left to right and from top to bottom) on the **Gradient** tab in the **Fill Effects** dialog box. Read-only.

To set the gradient variant for the fill format, use the **one color gradient** or **two color gradient** command.
Drawing Suite

\textit{pattern} \smallskip

Returns a value that represents the pattern applied to the specified fill format. Read-only. 

Can be one of the following:

\begin{itemize}
 \item \texttt{five percent pattern} \hspace{1cm} \texttt{large checker board pattern}
 \item \texttt{ten percent pattern} \hspace{1cm} \texttt{large confetti pattern}
 \item \texttt{twenty percent pattern} \hspace{1cm} \texttt{large grid pattern}
 \item \texttt{twenty five percent pattern} \hspace{1cm} \texttt{light downward diagonal pattern}
 \item \texttt{thirty percent pattern} \hspace{1cm} \texttt{light horizontal pattern}
 \item \texttt{forty percent pattern} \hspace{1cm} \texttt{light upward diagonal pattern}
 \item \texttt{fifty percent pattern} \hspace{1cm} \texttt{light vertical pattern}
 \item \texttt{sixty percent pattern} \hspace{1cm} \texttt{unset pattern}
 \item \texttt{seventy percent pattern} \hspace{1cm} \texttt{narrow horizontal pattern}
 \item \texttt{seventy five percent pattern} \hspace{1cm} \texttt{narrow vertical pattern}
 \item \texttt{eighty percent pattern} \hspace{1cm} \texttt{outlined diamond pattern}
 \item \texttt{ninety percent pattern} \hspace{1cm} \texttt{pattern unset}
 \item \texttt{dark downward diagonal pattern} \hspace{1cm} \texttt{plaid pattern}
 \item \texttt{dark horizontal pattern} \hspace{1cm} \texttt{shingle pattern}
 \item \texttt{dark upward diagonal pattern} \hspace{1cm} \texttt{small checker board pattern}
 \item \texttt{dark vertical pattern} \hspace{1cm} \texttt{small confetti pattern}
 \item \texttt{dashed downward diagonal pattern} \hspace{1cm} \texttt{small grid pattern}
 \item \texttt{dashed horizontal pattern} \hspace{1cm} \texttt{solid diamond pattern}
 \item \texttt{dashed upward diagonal pattern} \hspace{1cm} \texttt{sphere pattern}
 \item \texttt{dashed vertical pattern} \hspace{1cm} \texttt{trellis pattern}
 \item \texttt{diagonal brick pattern} \hspace{1cm} \texttt{wave pattern}
 \item \texttt{divot pattern} \hspace{1cm} \texttt{weave pattern}
 \item \texttt{dotted diamond pattern} \hspace{1cm} \texttt{wide downward diagonal pattern}
 \item \texttt{dotted grid pattern} \hspace{1cm} \texttt{wide upward diagonal pattern}
 \item \texttt{horizontal brick pattern} \hspace{1cm} \texttt{zig zag pattern}
\end{itemize}

To set the pattern for the fill format, use the \texttt{patterned} command.

To set the colors used in the pattern, use the \texttt{back color} and \texttt{fore color} properties. \smallskip

\textit{preset gradient type} \smallskip

Returns the preset gradient type for the specified fill format. Read-only. 

Can be one of the following:

\begin{itemize}
 \item \texttt{gradient brass} \hspace{1cm} \texttt{gradient mahogany}
 \item \texttt{gradient calm water} \hspace{1cm} \texttt{gradient moss}
 \item \texttt{gradient chrome} \hspace{1cm} \texttt{gradient nightfall}
 \item \texttt{gradient chrome2} \hspace{1cm} \texttt{gradient ocean}
 \item \texttt{gradient daybreak} \hspace{1cm} \texttt{gradient parchment}
 \item \texttt{gradient desert} \hspace{1cm} \texttt{gradient peacock}
 \item \texttt{gradient early sunset} \hspace{1cm} \texttt{gradient rainbow}
 \item \texttt{gradient fire} \hspace{1cm} \texttt{gradient rainbow2}
 \item \texttt{gradient fog} \hspace{1cm} \texttt{gradient sapphire}
 \item \texttt{gradient gold} \hspace{1cm} \texttt{gradient silver}
 \item \texttt{gradient gold2} \hspace{1cm} \texttt{gradient wheat}
 \item \texttt{gradient horizon} \hspace{1cm} \texttt{preset gradient unset}
\end{itemize}

To set the preset gradient type for the fill format, use the \texttt{preset gradient} command.
preset texture

Returns the preset texture for the specified fill format. Read-only.

Can be one of the following:

- preset texture unset
- texture blue tissue paper
- texture bouquet
- texture brown marble
- texture canvas
- texture cork
- texture denim
- texture fish fossil
- texture granite
- texture green marble
- texture medium wood
- texture newsprint
- texture oak
- texture paper bag
- texture papyrus
- texture parchment
- texture pink tissue paper
- texture purple mesh
- texture recycled paper
- texture sand
- texture stationery
- texture walnut
- texture water droplets
- texture white marble
- texture woven mat

To set the preset texture for the fill format, use the `preset textured` command.

texture name

Returns the name of the custom texture file for the specified fill format. Read-only.

To set the texture file for the fill format, use the `user textured` command.

texture type

Returns the texture type for the specified fill format. Read-only.

Can be one of the following:

- texture type texture type unset
- texture type preset texture
- texture type user defined texture

To set the texture type for the fill format, use the `preset textured`, `user picture`, or `user textured` command.

transparency

Returns or sets the degree of transparency of the specified fill format as a value between 0.0 (opaque) and 1.0 (clear). Read/write.

The value of this property affects the appearance of solid-colored fills and lines only; it has no effect on the appearance of patterned lines or patterned, gradient, picture, or textured fills.

visible

**True** if the specified object, or the formatting applied to it, is visible. Read/write.
Class: line

Plural
lines

Represents a line graphic object.

Use line index, where index is the line name or the index number, to return a line object that represents a line. The following example adds an arrowhead to a line.

set arrowhead length of line 1 of sheet 1 to arrowhead length long
set arrowhead style of line 1 of sheet 1 to arrowhead style closed

Properties

arrowhead length

Returns or sets the length of an arrowhead. Read/write.

Can be one of the following:

- arrowhead length long
- arrowhead length medium
- arrowhead length short

arrowhead style

Returns or sets the style of an arrowhead. Read/write.

Can be one of the following:

- arrowhead style closed
- arrowhead style double closed
- arrowhead style double open
- arrowhead style none
- arrowhead style open

arrowhead width

Returns or sets the width of an arrowhead. Read/write.

Can be one of the following:

- arrowhead width medium
- arrowhead width narrow
- arrowhead width wide
**Drawing Suite**

*border*

Returns a **border** object that represents the border of the object. Read-only.

*bottom right cell*

Returns a **range** object that represents the cell that lies under the lower-right corner of the object. Read-only.

*enabled*

**True** if the object is enabled. Read/write.

*entry index*

Returns the index number of the object within the elements of the parent object. Read-only.

*height*

Returns or sets the height (in points) of the object. Read/write.

*left position*

Returns or sets the position (in points) of the specified object. Read/write.

*locked*

**True** if the object is locked; **false** if the object can be modified when the sheet is protected. Read/write.

*name*

Returns or sets the name of the object. Read/write.

*on action*

Returns or sets either the name of a VBA macro or a string of AppleScript commands that's run when the specified object is clicked. Strings of AppleScript commands are not saved with the document. Read/write.

*placement*

Returns or sets the way the object is attached to the cells below it. Read/write.

Can be one of the following:

- **placement free floating**
- **placement move**
- **placement move and size**

*print object*

**True** if the object will be printed when the document is printed. Read/write.

*top*

Returns or sets the top position (in points) of the specified object. Read/write.

*top left cell*

Returns a **range** object that represents the cell that lies under the upper-left corner of the specified object. Read-only.
visible
True if the object is visible. Read/write.

width
Returns or sets an object's width, in points. Read/write.

z order position
Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.

Whenever you make a new shape or object, it's added to the front of the z-order by default.

Class: line format

Plural
line formats

Represents line and arrowhead formatting. For a line, the line format object contains formatting information for the line itself; for a shape with a border, this object contains formatting information for the shape's border.

To return a line format object, use the line format property of a shape or inline shape. The following example adds a blue dashed line to the active document. There's a short narrow oval at the line's starting point and a long wide triangle at its end point.

make new shape line at active sheet with properties {begin line X:100, ¬
    begin line Y:100, end line X:200, end line Y:300}
set dash style of line format of shape line 1 of active sheet to ¬
    line dash style dash dot dot
set fore color of line format of shape line 1 of active sheet to ¬
    (50, 0, 128) as RGB color
set begin arrowhead length of line format of shape line 1 of active sheet ¬
    to short arrowhead
set begin arrowhead style of line format of shape line 1 of active sheet ¬
    to oval arrowhead
set begin arrowhead width of line format of shape line 1 of active sheet ¬
    to narrow width arrowhead
set end arrowhead length of line format of shape line 1 of active sheet ¬
    to long arrowhead
set end arrowhead style of line format of shape line 1 of active sheet ¬
    to triangle arrowhead
set end arrowhead width of line format of shape line 1 of active sheet ¬
    to wide arrowhead
Properties

back color
Returns or sets an RGB color that represents the background color for the specified line format. Read/write.

begin arrowhead length
Returns or sets the length of the arrowhead at the beginning of the specified line. Read/write.
Can be one of the following:

- arrowhead length unset
- short arrowhead
- medium arrowhead
- long arrowhead

begin arrowhead style
Returns or sets the style of the arrowhead at the beginning of the specified line. Read/write.
Can be one of the following:

- arrowhead style unset
- no arrowhead
- triangle arrowhead
- open_arrowhead
- stealth arrowhead
- diamond arrowhead
- oval arrowhead

begin arrowhead width
Returns or sets the width of the arrowhead at the beginning of the specified line. Read/write.
Can be one of the following:

- arrowhead width unset
- narrow width arrowhead
- medium width arrowhead
- wide arrowhead
Drawing Suite

dash style

Returns or sets the dash style for the specified line. Read/write.

Can be one of the following:

- line dash style unset
- line dash style solid
- line dash style square dot
- line dash style round dot
- line dash style dash
- line dash style dash dot
- line dash style dash dot dot
- line dash style long dash
- line dash style dash dot
- line dash style long dash dot

dash end arrowhead length

Returns or sets the length of the arrowhead at the end of the specified line. Read/write.

Can be one of the following:

- arrowhead length unset
- short arrowhead
- medium arrowhead
- long arrowhead

dash end arrowhead style

Returns or sets the style of the arrowhead at the end of the specified line. Read/write.

Can be one of the following:

- arrowhead style unset
- no arrowhead
- triangle arrowhead
- open arrowhead
- stealth arrowhead
- diamond arrowhead
- oval arrowhead
Drawing Suite

end arrowhead width
Returns or sets the width of the arrowhead at the end of the specified line. Read/write.
Can be one of the following:

- arrowhead width unset
- narrow width arrowhead
- medium width arrowhead
- wide arrowhead

fore color
Returns or sets an RGB color that represents the foreground color for the line format. Read-only.

line style
Returns or sets the line style for the fill format object. Read/write.
Can be one of the following:

- line style unset
- single line
- thin thin line
- thin thick line
- thick thin line
- thick between thin line

pattern
Returns or sets a value that represents the pattern applied to the specified line format.
Read/write.
Can be one of the following:

- five percent pattern
- ten percent pattern
- twenty percent pattern
- twenty five percent pattern
- thirty percent pattern
- forty percent pattern
- fifty percent pattern
- sixty percent pattern
- seventy percent pattern
- seventy five percent pattern
- eighty percent pattern
- ninety percent pattern
- dark downward diagonal pattern
- dark horizontal pattern
- dark upward diagonal pattern
- dark vertical pattern
- large checker board pattern
- large confetti pattern
- large grid pattern
- light downward diagonal pattern
- light horizontal pattern
- light upward diagonal pattern
- light vertical pattern
- unset pattern
- narrow horizontal pattern
- narrow vertical pattern
- outlined diamond pattern
- plaid pattern
- shingle pattern
- small checker board pattern
- small confetti pattern
- small grid pattern
**Drawing Suite**

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>dashed downward diagonal</td>
<td>solid diamond</td>
</tr>
<tr>
<td>dashed horizontal</td>
<td>sphere</td>
</tr>
<tr>
<td>dashed upward diagonal</td>
<td>trellis</td>
</tr>
<tr>
<td>dashed vertical</td>
<td>wave</td>
</tr>
<tr>
<td>diagonal brick</td>
<td>weave</td>
</tr>
<tr>
<td>divot</td>
<td>wide downward diagonal</td>
</tr>
<tr>
<td>dotted diamond</td>
<td>wide upward diagonal</td>
</tr>
<tr>
<td>dotted grid</td>
<td>zig zag</td>
</tr>
<tr>
<td>horizontal brick</td>
<td>pattern</td>
</tr>
</tbody>
</table>

**transparency**

Returns or sets the degree of transparency of the specified line as a value between 0.0 (opaque) and 1.0 (clear). Read/write.

The value of this property affects the appearance of solid-colored lines only; it has no effect on the appearance of patterned lines.

**visible**

True if the specified object, or the formatting applied to it, is visible. Read/write.

**weight**

Returns or sets the thickness (in points) of the specified line. Read/write.

**Class:** oval

**Plural**

ovals

**Elements**

character

Represents an oval graphic.

Use oval index, where index is the oval name or the index number, to return an oval object that represents an oval. The following example positions oval 1 fifty points to the right of the left side of sheet 1.

set left position of oval 1 of sheet 1 to 50

**Properties**

**add indent**

True if text is automatically indented when the text alignment in a cell is set to equal distribution, either horizontally or vertically. Read/write.

This property is not used in U.S./English versions of Excel.

**auto scale font**

True if the text in the object changes font size when the object size changes. The default value is true. Read/write.

**auto size**

True if the size of the specified object is changed automatically to fit text within its boundaries. Read/write.
Drawing Suite

border
Returns a border object that represents the border of the object. Read-only.

bottom right cell
Returns a range object that represents the cell that lies under the the lower-right corner of the object. Read-only.

caption
Returns or sets the caption for this object. Read/write.

enabled
True if the object is enabled. Read/write.

entry index
Returns the index number of the object within the elements of the parent object. Read-only.

font object
Returns a font object that represents the font of the specified object. Read-only.

formula
Returns or sets the object's formula in A1-style notation. Read/write.

height
Returns or sets the height (in points) of the object. Read/write.

horizontal alignment
Returns or sets the horizontal alignment for the object. Read/write. Can be one of the following:

- horizontal align center
- horizontal align center across selection
- horizontal align distributed
- horizontal align fill
- horizontal align general
- horizontal align justify
- horizontal align left
- horizontal align right

The horizontal align distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

interior object
Returns an interior object that represents the interior of the axis title. Read-only.
**Drawing Suite**

**left position**
Returns or sets the position (in points) of the specified object. Read/write.

**locked**
*True* if the object is locked; *false* if the object can be modified when the sheet is protected. Read/write.

**locked text**
*True* if the text in the specified object will be locked to prevent changes when the workbook is protected. Read/write.

**name**
Returns or sets the name of the object. Read/write.

**on action**
Returns or sets either the name of a VBA macro or a string of AppleScript commands that's run when the specified object is clicked. Strings of AppleScript commands are not saved with the document. Read/write.

**orientation**
Returns or sets the object's orientation. Read/write.
Can be one of the following:

- orientation down
- orientation horizontal
- orientation upward
- orientation vertical

Can also be a number value between -90 and 90 degrees.

**placement**
Returns or sets the way the object is attached to the cells below it. Read/write.
Can be one of the following:

- placement free floating
- placement move
- placement move and size

**print object**
*True* if the object will be printed when the document is printed. Read/write.

**reading order**
This property is not currently supported.
**Drawing Suite**

**shadow**

*True* if the font is a shadow font or if the object has a shadow. Read/write.

**string value**

Returns or sets the text of the specified object. Read/write.

**top**

Returns or sets the top position (in points) of the specified object. Read/write.

**top left cell**

Returns a *range* object that represents the cell that lies under the upper-left corner of the specified object. Read-only.

**vertical alignment**

Returns or sets the vertical alignment of the object. Read/write.

Can be one of the following:

- **vertical alignment top**
- **vertical alignment center**
- **vertical alignment bottom**
- **vertical alignment justify**
- **vertical alignment distributed**

The **vertical alignment distributed** alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

**visible**

*True* if the object is visible. Read/write.

**width**

Returns or sets an object’s width, in points. Read/write.

**wrap auto text**

*True* if Excel wraps the text in the object. Read/write.

**z order position**

Returns the position of the object in the z-order, which corresponds to the object’s index number. Read-only.

Whenever you make a new shape or object, it’s added to the front of the z-order by default.
Class: picture

Plural
pictures

Represents a picture shape.

Use picture index, where index is the picture name or the index number, to return a picture object.

The following example creates a new picture on worksheet 1 from the file "picture.jpg."

make new picture at the beginning of worksheet 1 of workbook 1 ~
    with properties {file name:"picture.jpg."}

Properties

<Inheritance> shape

    Inherits the properties and elements of the shape class.

file name

    Returns or sets the URL (on the intranet or the Web) or path (local or network) to the location where the specified source object was saved. Read/write.

    The file name property generates an error if a folder in the specified path doesn’t exist.

link to file

    True if the picture is linked to the file. Read-only.

picture format

    Returns a picture format object that contains picture formatting properties. Read-only.

save with document

    True if the picture should be saved with the document. Read-only.

Class: picture format

Plural
picture formats

Contains properties that apply to pictures.

Use the picture format property to return a picture format object. The following example sets the brightness and contrast for picture 1 of the active worksheet and crops 18 points off the bottom of the picture. This example works only on a picture object.

set brightness of picture format of picture 1 of active sheet to 0.3
set contrast of picture format of picture 1 of active sheet to 0.7
set crop bottom of picture format of picture 1 of active sheet to 18

Note Cropping is calculated relative to the original size of the picture. For example, if you insert a picture that is originally 100 points high, rescale it so that it's 200 points high, and then set the crop bottom property to 50, 100 points (not 50) will be cropped off the bottom of your picture. However, while cropping measurements are calculated relative to the object's original scale, those measurements reflect absolute distances from the edge of the object. You cannot set any of the cropping properties to a negative number.
Properties

brightness

Returns or sets the brightness of the specified picture. The value for this property must be a number from 0.0 (dimmest) to 1.0 (brightest). Read/write.

color type

Returns or sets the type of color transformations applied to the specified picture. Read/write.
Can be one of the following:

- picture color type unset
- picture color automatic
- picture color gray scale
- picture color black and white
- picture color watermark

contrast

Returns or sets the contrast for the specified picture. The value for this property must be a number from 0.0 (the least contrast) to 1.0 (the greatest contrast). Read/write.

crop bottom

Returns or sets the number of points that are cropped off the bottom of the specified picture. Read/write.

crop left

Returns or sets the number of points that are cropped off the left side of the specified picture. Read/write.

crop right

Returns or sets the number of points that are cropped off the right side of the specified picture. Read/write.

crop top

Returns or sets the number of points that are cropped off the top of the specified picture. Read/write.

transparency color

Returns or sets the transparent color for the specified picture as an RGB value. For this property to take effect, the transparent background property must be set to true. Read/write.

transparent background

True if the parts of the picture that are the color defined as the transparent color appear transparent. To set the transparent color, use the transparency color property. Read/write.
Class: rectangle

Plural
rectangles

Elements
character

Represents a rectangle graphic object.

Use rectangle index, where index is the rectangle name or the index number, to return a rectangle object that represents a rectangle. The following example positions rectangle 1 fifty points to the right of the left side of sheet 1.

set left position of rectangle 1 of sheet 1 to 50

Properties

add indent

True if text is automatically indented when the text alignment in a cell is set to equal distribution, either horizontally or vertically. Read/write.

This property is not used in U.S./English versions of Excel.

auto scale font

True if the text in the object changes font size when the object size changes. The default value is true. Read/write.

auto size

True if the size of the specified object is changed automatically to fit text within its boundaries. Read/write.

border

Returns a border object that represents the border of the object. Read-only.

bottom right cell

Returns a range object that represents the cell that lies under the the lower-right corner of the object. Read-only.

caption

Returns or sets the caption for this object. Read/write.

enabled

True if the object is enabled. Read/write.

entry index

Returns the index number of the object within the elements of the parent object. Read-only.

font object

Returns a font object that represents the font of the specified object. Read-only.
### Drawing Suite

**formula**

Returns or sets the object’s formula in A1-style notation. Read/write.

**height**

Returns or sets the height (in points) of the object. Read/write.

**horizontal alignment**

Returns or sets the horizontal alignment for the object. Read/write.

Can be one of the following:

- horizontal align center
- horizontal align center across selection
- horizontal align distributed
- horizontal align fill
- horizontal align general
- horizontal align justify
- horizontal align left
- horizontal align right

The **horizontal align distributed** alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

**interior object**

Returns an **interior** object that represents the interior of the axis title. Read-only.

**left position**

Returns or sets the position (in points) of the specified object. Read/write.

**locked**

**True** if the object is locked; **false** if the object can be modified when the sheet is protected. Read/write.

**locked text**

**True** if the text in the specified object will be locked to prevent changes when the workbook is protected. Read/write.

**name**

Returns or sets the name of the object. Read/write.

**on action**

Returns or sets either the name of a VBA macro or a string of AppleScript commands that's run when the specified object is clicked. Strings of AppleScript commands are not saved with the document. Read/write.
**Drawing Suite**

*orientation*

Returns or sets the object's orientation. Read/write.

Can be one of the following:

- **orientation down**
- **orientation horizontal**
- **orientation upward**
- **orientation vertical**

Can also be a number value between -90 and 90 degrees.

*placement*

Returns or sets the way the object is attached to the cells below it. Read/write.

Can be one of the following:

- **placement free floating**
- **placement move**
- **placement move and size**

*print object*

**True** if the object will be printed when the document is printed. Read/write.

*reading order*

Returns or sets the reading order for the axis title. Read/write.

This property is not currently supported.

*rounded corners*

**True** if the embedded chart has rounded corners. Read/write.

*shadow*

**True** if the font is a shadow font or if the object has a shadow. Read/write.

*string value*

Returns or sets the text of the specified object. Read/write.

*top*

Returns or sets the top position (in points) of the specified object. Read/write.

*top left cell*

Returns a **range** object that represents the cell that lies under the upper-left corner of the specified object. Read-only.
**vertical alignment**

Returns or sets the vertical alignment of the object. Read/write.

Can be one of the following:

- vertical alignment top
- vertical alignment center
- vertical alignment bottom
- vertical alignment justify
- vertical alignment distributed

The `vertical alignment distributed` alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

**visible**

`True` if the object is visible. Read/write.

**width**

Returns or sets an object's width, in points. Read/write.

**wrap auto text**

`True` if Excel wraps the text in the object. Read/write.

**z order position**

Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.

Whenever you make a new shape or object, it's added to the front of the z-order by default.

**Class: shadow format**

**Plural**

**shadow formats**

Represents shadow formatting for a shape.

Use the `shadow` property to return a `shadow format` object. The following example adds a shadowed rectangle to the active worksheet. The semitransparent blue shadow is offset 5 points to the right of the rectangle and 3 points above it.

```excel
set newShape to make new shape at active sheet with properties ¬
    {auto shape type: autoshape rectangle, left position: 50, top: 50, ¬
        width: 100, height: 200}
set fore color of shadow of newShape to ({0, 0, 128} as RGB color)
set offset x of shadow of newShape to 5
set offset y of shadow of newShape to -3
set transparency of shadow of newShape to 0.5
set visible of shadow of newShape to true
```
Properties

**fore color**

Returns or sets an RGB color that represents the foreground color for the line format. Read-only.

**obscured**

*True* if the shadow of the specified shape appears filled in and is obscured by the shape, even if the shape has no fill. *False* if the shadow has no fill and the outline of the shadow is visible through the shape if the shape has no fill. Read/write.

**offset x**

Returns or sets the horizontal offset (in points) of the shadow from the specified shape. A positive value offsets the shadow to the right of the shape; a negative value offsets it to the left. Read/write.

**offset y**

Returns or sets the vertical offset (in points) of the shadow from the specified shape. A positive value offsets the shadow below the shape; a negative value offsets it above the shape. Read/write.

**shadow format type**

Returns or sets the shape shadow type. Read/write. Can be one of the following:

- `shadow unset`
- `shadow1`
- `shadow2`
- `shadow3`
- `shadow4`
- `shadow5`
- `shadow6`
- `shadow7`
- `shadow8`
- `shadow9`
- `shadow10`
- `shadow11`
- `shadow12`
- `shadow13`
- `shadow14`
- `shadow15`
- `shadow16`
- `shadow17`
- `shadow18`
- `shadow19`
- `shadow20`

**transparency**

Returns or sets the degree of transparency of the specified shadow as a value between 0.0 (opaque) and 1.0 (clear). Read/write.

**visible**

*True* if the **shadow format** object, or the formatting applied to it, is visible. Read/write.

Class: shape

Plural shapes

Represents a single shape on a worksheet, such as an AutoShape, freeform, OLE object, or picture. Use **shape index**, where index is the shape name or the index number, to return a **shape** object. The following example horizontally flips shape 1 and the shape named "Rectangle 1" on myDocument.
Drawing Suite

set myDocument to sheet 1
flip shape 1 of myDocument flip cmd flip horizontal
flip shape named "Rectangle 1" of myDocument flip cmd flip horizontal

Each shape is assigned a default name when you add it to the shapes list. To give the shape a more meaningful name, use the name property. The following example adds a rectangle to myDocument, gives it the name 'Red Square,' and then sets its foreground color and line style.

set myDocument to sheet 1
set myRect to make new shape at end of myDocument ¬
    with properties {auto shape type: autoshape rectangle, ¬
    top: 144, left position: 144, height: 72, width: 72}
set name of myRect to "Red Square"
set fore color of fill format of myRect to (255, 0, 0)
set dash style of line format of myRect to line dash style dash dot

To return a shape object that represents one of the shapes attached by a connector, use the begin connected shape or end connected shape property.

Properties

**auto shape type**

Returns or sets the type of AutoShape. Read/write.

Can be one of the following:

- autoshape shape type unset
- autoshape balloon
- autoshape rectangle
- autoshape parallelogram
- autoshape trapezoid
- autoshape diamond
- autoshape rounded rectangle
- autoshape octagon
- autoshape isosceles triangle
- autoshape right triangle
- autoshape oval
- autoshape hexagon
- autoshape cross
- autoshape regular pentagon
- autoshape can
- autoshape cube
- autoshape bevel
- autoshape folded corner
- autoshape smiley face
- autoshape donut
- autoshape no symbol
- autoshape block arc
- autoshape heart
- autoshape lightning bolt
- autoshape sun
- autoshape moon
- autoshape arc
- autoshape double bracket
- autoshape double brace
- autoshape plaque
- autoshape left bracket
- autoshape right bracket
- autoshape left brace
- autoshape right brace
- autoshape right arrow
- autoshape left arrow
- autoshape up arrow
- autoshape down arrow
- autoshape left right arrow
- autoshape left right up arrow
- autoshape bent arrow
- autoshape U turn arrow
- autoshape left up arrow
- autoshape dent up arrow
- autoshape curved right arrow
- autoshape curved left arrow
- autoshape curved up arrow
- autoshape curved down arrow
- autoshape striped right arrow
- autoshape notched right arrow
- autoshape pentagon
- autoshape chevron
black white mode

This property is not used in Excel. It is provided only for compatibility with the drawing object models in other Microsoft Office applications.

bottom right cell

Returns a range object that represents the cell that lies under the the lower-right corner of the object. Read-only.
connection site count
Returns the number of connection sites on the specified shape. Read-only.

connector
True if the specified shape is a connector. Read-only.

connector format
Returns a connector format object that contains connector formatting properties. Applies to shape objects that represent connectors. Read-only.

connector type
Returns the type of the connector. Read-only.
Can be one of the following:

- connector type unset
- straight
- elbow
- curve

fill format
Returns a fill format object that contains fill formatting properties for the specified shape. Read-only.

height
Returns or sets the height of the specified shape. Read/write.

horizontal flip
True if the specified shape is flipped around the horizontal axis. Read-only.

hyperlink
Returns a hyperlink object that represents the hyperlink associated with the specified shape object. Read-only.

Note If there's no hyperlink associated with the specified shape, an error occurs.

left position
Returns or sets the horizontal position (in points) of the specified shape or shape range. Read/write.

line format
Returns a line format object that contains line formatting properties for the specified shape. (For a line, the line format object represents the line itself; for a shape with a border, the line format object represents the border.) Read-only.

lock aspect ratio
True if the specified shape retains its original proportions when you resize it. False if you can change the height and width of the shape independently of one another when you resize it. Read/write.
Locked

True if the object is locked; false if the object can be modified when the sheet is protected. Read/write.

Name

Returns or sets the shape name. Read/write.

Placement

Returns or sets the way the object is attached to the cells below it. Read/write.

Can be one of the following:

- Placement free floating
- Placement move
- Placement move and size

Rotation

Returns or sets the number of degrees the specified shape is rotated around the z-axis. A positive value indicates clockwise rotation; a negative value indicates counterclockwise rotation. Read/write.

To set the rotation of a three-dimensional shape around the x-axis or the y-axis, use the rotation x property or the rotation y property of the threeD format object.

Shadow

Returns a shadow format object that represents the shadow formatting for the specified shape. Read-only.

Shape on action

Returns or sets either the name of a VBA macro or a string of AppleScript commands that's run when the specified object is clicked. Strings of AppleScript commands are not saved with the document. Read/write.

Shape type

Returns the shape type. Read-only.

Can be one of the following:

- Shape type auto
- Shape type callout
- Shape type chart
- Shape type comment
- Shape type embedded OLE object
- Shape type form control
- Shape type free form
- Shape type group
- Shape type line
- Shape type linked OLE object
- Shape type linked picture
- Shape type media
- Shape type embedded OLE control
- Shape type picture
- Shape type placeholder
- Shape type unset
- Shape type text box
- Shape type text effect
Drawing Suite

text frame
Returns a text frame object that contains the text for the specified shape. Read-only.

threeD format
Returns a threeD format object that contains 3-D-effect formatting properties for the specified shape. Read-only.

top
Returns or sets the vertical position (in points) of the specified shape or shape range. Read/write.

top left cell
Returns a range object that represents the cell that lies under the upper-left corner of the specified object. Read-only.

vertical flip
True if the specified shape is flipped around the vertical axis. Read-only.

visible
True if the specified object, or the formatting applied to it, is visible. Read/write.

width
Returns or sets the width (in points) of the specified object. Read/write.

z order position
Returns the position of the object in the z-order, which corresponds to the object's index number. Read-only.

Whenever you make a new shape or object, it's added to the front of the z-order by default.

Class: shape connector

Plural
shape connectors
Represents a shape connector.

Use shape connectors index, where index is the shape connector name or the index number, to return a shape connector object. The following example creates a new elbow shape connector.

make new shape connector at the beginning of worksheet 1 of workbook 1 ¬
with properties {left position:100, width:100, top:100, height:100, ¬
connector type:elbow}

Properties
<Inheritance> shape

Inherits the properties and elements of the shape class.

connector format

Returns a connector format object that contains connector formatting properties. Read-only.


**Drawing Suite**

*connector type*

Returns the type of the connector. Read-only.

Can be one of the following:

- connector type unset
- straight
- elbow
- curve

**Class: shape line**

**Plural**

*shape lines*

Represents a shape line.

Use *shape line index*, where index is the shape line name or the index number, to return a *shape line* object. The following example creates a new *shape line*.

```make new shape line at the beginning of worksheet 1 of workbook 1 ¬
with properties {left position:100, width:100, top:100, height:100}
```

**Properties**

*<Inheritance> shape*

- Inherits the properties and elements of the *shape* class.

  *begin line X*

  Returns or sets the beginning X position of the line. Read/write.

  *begin line Y*

  Returns or sets the beginning Y position of the line. Read/write.

  *end line X*

  Returns or sets the ending X position of the line. Read/write.

  *end line Y*

  Returns or sets the ending Y position of the line. Read/write.

**Class: shape textbox**

**Plural**

*shape textboxes*

Represents a shape textbox.

Use *shape textbox index*, where index is the shape textbox name or the index number, to return a *shape textbox* object. The following example creates a new *shape textbox*.

```
Drawing Suite

make new shape textbox at the beginning of worksheet 1 of workbook 1 with properties {left position: 100.0, top: 100.0}
set content of characters of textbox 1 of worksheet 1 of workbook 1 to "shape textbox content"

Properties

<Inheritance> shape
Inherits the properties and elements of the shape class.

text orientation
Returns the text orientation of the object. Read-only.
Can be one of the following:

- text orientation unset
- horizontal
- upward
- downward
- vertical east asian
- vertical
- horizontal rotated east asian

Class: text frame

Plural
text frames

Represents the text frame in a shape object. Contains the text in the text frame as well as the properties that control the margins and orientation of the text frame.

Use the text frame property to return the text frame object for a shape. The following example adds a rectangle to myDocument and then sets the margins for the text frame.

set myDocument to sheet 1
set myShape to make new shape at end of myDocument with properties {auto shape type: autoshape rectangle, top: 0, left position: 0, height: 250, width: 140}
set margin bottom of text frame of myShape to 10
set margin left of text frame of myShape to 10
set margin right of text frame of myShape to 10
set margin top of text frame of myShape to 10

Note Currently, you cannot set the content of characters of a text frame. Also, some shapes don't support attached text (lines, freeforms, pictures, and OLE objects, for example). If you attempt to return or set properties that control text in a text frame for those objects, an error occurs.
Properties

auto margins

True if Excel automatically calculates text frame margins. Read/write.

When this property is true, the margin left, margin right, margin top, and margin bottom properties are ignored.

auto size

True if the size of the specified object is changed automatically to fit text within its boundaries. Read/write.

horizontal alignment

Returns or sets the horizontal alignment for the object. Read/write.

Can be one of the following:

- horizontal align center
- horizontal align center across selection
- horizontal align distributed
- horizontal align fill
- horizontal align general
- horizontal align justify
- horizontal align left
- horizontal align right

The horizontal align distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

margin bottom

Returns or sets the distance (in points) between the bottom of the text frame and the bottom of the inscribed rectangle of the shape that contains the text. Read/write.

This property is ignored when the auto margins property is set to true.

margin left

Returns or sets the distance (in points) between the left edge of the text frame and the left edge of the inscribed rectangle of the shape that contains the text. Read/write.

This property is ignored when the auto margins property is set to true.

margin right

Returns or sets the distance (in points) between the right edge of the text frame and the right edge of the inscribed rectangle of the shape that contains the text. Read/write.

This property is ignored when the auto margins property is set to true.
**Drawing Suite**

*margin top*

Returns or sets the distance (in points) between the top of the text frame and the top of the inscribed rectangle of the shape that contains the text. Read/write.

This property is ignored when the *auto margins* property is set to `true`.

*orientation*

Returns or sets the orientation of the text inside the frame. Read/write.

Can be one of the following:

- downward
- horizontal
- text orientation unset
- upward
- vertical east asian
- vertical
- horizontal rotated east asian

*reading order*

This property is not currently supported.

*vertical alignment*

Returns or sets the vertical alignment of the object. Read/write.

Can be any of the following:

- valign top
- valign center
- valign bottom
- valign justify
- valign distributed

The *valign distributed* alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

*wrap auto text*

**True** if Excel wraps the text in the object. Read/write.
Class: threeD format

Plural
threeD formats

Represents a shape's three-dimensional formatting.

Use the threeD format property to return a threeD format object. The following example adds an oval to the active document and then specifies that the oval be extruded to a depth of 50 points and that the extrusion be purple.

```
set myShape to make new shape at active sheet with properties ¬
    { auto shape type: autoShape oval, left position: 90, top: 90, ¬
      width: 90, height: 90 }
set visible of threeD format of myShape to true
set depth of threeD format of myShape to 50
set extrusion color of threeD format of myShape ¬
    to ({255, 100, 255} as RGB color)
```

You cannot apply three-dimensional formatting to some kinds of shapes, such as beveled shapes or multiple-disjoint paths. Most of the properties and commands of the threeD format object for such a shape will fail.

Properties

**depth**

Returns or sets the depth of the shape's extrusion. Can be a value from -600 through 9600 (positive values produce an extrusion whose front face is the original shape; negative values produce an extrusion whose back face is the original shape). Read/write.

**extrusion color**

Returns or sets an RGB color that represents the color of the shape's extrusion. Read/write.

**extrusion color type**

Returns or sets a value that indicates what will determine the extrusion color. Read/write. Can be one of the following:

- extrusion color type unset
- automatic
- custom

**perspective**

True if the extrusion appears in perspective — that is, if the walls of the extrusion narrow toward a vanishing point. False if the extrusion is a parallel, or orthographic, projection — that is, if the walls don't narrow toward a vanishing point. Read/write.
**Drawing Suite**

**preset extrusion direction**

Returns the direction that the extrusion's sweep path takes away from the extruded shape (the front face of the extrusion). Read-only.

Can be one of the following:

- extrude bottom
- extrude bottom left
- extrude bottom right
- extrude left
- extrude none
- extrude right
- extrude top
- extrude top left
- extrude top right
- preset extrusion direction unset

To set the value of this property, use the **set extrusion direction** command.

**preset lighting direction**

Returns or sets the position of the light source relative to the extrusion. Read/write.

Can be one of the following:

- light from bottom
- light from bottom left
- light from bottom right
- light from left
- light from none
- light from right
- light from top
- light from top left
- light from top right
- preset lighting direction unset

**Note** You won't see the lighting effects you set if the extrusion has a wireframe surface.
**Drawing Suite**

*preset lighting softness*

Returns or sets the intensity of the extrusion lighting. Read/write.

Can be one of the following:

- lighting bright
- lighting dim
- lighting normal
- lighting softness unset

*preset material*

Returns or sets the extrusion surface material. Read/write.

Can be one of the following:

- matte
- metal
- plastic
- wireframe
- preset material unset

*preset threeD format*

Returns the preset extrusion format. Each preset extrusion format contains a set of preset values for the various properties of the extrusion. If the extrusion has a custom format rather than a preset format, this property returns *preset threeD format unset*. Read-only.

Can be one of the following:

<table>
<thead>
<tr>
<th>preset threeD format unset</th>
<th>format11</th>
</tr>
</thead>
<tbody>
<tr>
<td>format1</td>
<td>format12</td>
</tr>
<tr>
<td>format2</td>
<td>format13</td>
</tr>
<tr>
<td>format3</td>
<td>format14</td>
</tr>
<tr>
<td>format4</td>
<td>format15</td>
</tr>
<tr>
<td>format5</td>
<td>format16</td>
</tr>
<tr>
<td>format6</td>
<td>format17</td>
</tr>
<tr>
<td>format7</td>
<td>format18</td>
</tr>
<tr>
<td>format8</td>
<td>format19</td>
</tr>
<tr>
<td>format9</td>
<td>format20</td>
</tr>
<tr>
<td>format10</td>
<td>format21</td>
</tr>
</tbody>
</table>

The values for this property correspond to the options (numbered from left to right, top to bottom) displayed when you click the 3-D button on the **Drawing** toolbar.

To set the preset extrusion format, use the *set threeD format* command.
rotation x

Returns or sets the rotation of the extruded shape around the x-axis, in degrees. Can be a value from -90 through 90. A positive value indicates upward rotation; a negative value indicates downward rotation. Read/write.

To set the rotation of the extruded shape around the y-axis, use the rotation y property. To set the rotation of the extruded shape around the z-axis, use the rotation property of the shape object. To change the direction of the extrusion's sweep path without rotating the front face of the extrusion, use the set extrusion direction command.

rotation y

Returns or sets the rotation (in degrees) of the extruded shape around the y-axis. Can be a value from -90 through 90. A positive value indicates rotation to the left; a negative value indicates rotation to the right. Read/write.

To set the rotation of the extruded shape around the x-axis, use the rotation x property. To set the rotation of the extruded shape around the z-axis, use the rotation property of the shape object. To change the direction of the extrusion's sweep path without rotating the front face of the extrusion, use the set extrusion direction command.

visible

True if the specified object, or the formatting applied to it, is visible. Read/write.

Class: word art

Plural
word arts

Represents a word art object.

Use word art index, where index is the name or the index number, to return a single word art object. This example adds WordArt that contains the text "Test text" at the beginning of the active document.

make new word art at beginning of active sheet of active workbook ¬
with properties {word art text:"Test text", ¬
left position:(inches to points inches 1), ¬
top:(inches to points inches 1)}

set preset word art effect of word art format of word art 1 ¬
of active sheet of active workbook to text effect11

set font name of word art format of word art 1 of active sheet ¬
of active workbook to "Arial Black"
Drawing Suite

Properties

<Inheritance>  shape

Inherits the properties and elements of the shape class.

bold

True to set the font used in the WordArt to bold. Read-only.

font name

The name of the font used in the WordArt. Read-only.

font size

The size (in points) of the font used in the WordArt. Read-only.

italic

True to set the font used in the WordArt to italic. Read-only.

preset word art effect

Returns the style of the specified WordArt. The values for this property correspond to the formats in the WordArt Gallery dialog box (numbered from left to right, top to bottom). Read-only.

Can be one of the following:

text effect unset  text effect16
text effect1  text effect17
text effect2  text effect18
text effect3  text effect19
text effect4  text effect20
text effect5  text effect21
text effect6  text effect22
text effect7  text effect23
text effect8  text effect24
text effect9  text effect25
text effect10  text effect26
text effect11  text effect27
text effect12  text effect28
text effect13  text effect29
text effect14  text effect30
text effect15

word art format

Returns the word art format object associated with the WordArt shape object. Read-only.

word art text

The text in the WordArt. Read-only.
Class: word art format

Plural

word art formats

Represents formatting options for WordArt objects.

Use the word art format property to return a word art format object. The following example sets the font name and formatting for word art 1 on the active document.

set font name of word art format of word art 1 of active sheet of active workbook to "Courier New"
set bold of word art format of word art 1 of active sheet of active workbook to true
set italic of word art format of word art 1 of active sheet of active workbook to true

Properties

alignment

Returns or sets the alignment for the specified text effect. Read/write.

Can be one of the following:

- text effect alignment unset
- left text effect alignment
- centered text effect alignment
- right text effect alignment
- justify text effect alignment
- word justify text effect alignment
- stretch justify text effect alignment

bold

True if the text of the WordArt shape is formatted as bold. Read/write.

font name

Returns or sets the name of the font used by the WordArt shape. Read/write.
**Drawing Suite**

*font size*

Returns or sets the font size (in points) for the specified WordArt. Read/write.

*italic*

*True* if the text of the WordArt shape is formatted as italic. Read/write.

*kerned pairs*

*True* if character pairs in the specified WordArt are kerned. Read/write.

*normalized height*

*True* if all characters (both uppercase and lowercase) in the specified WordArt are the same height. Read/write.

*preset shape*

Returns or sets the shape of the specified WordArt. Read/write.

Can be one of the following:

- arch down curve
- arch down pour
- arch up curve
- arch up pour
- button curve
- button pour
- can down
- can up
- cascade down
- cascade up
- chevron down
- chevron up
- circle curve
- circle pour
- curve down
- curve up
- deflate
- deflate bottom
- deflate inflate
- deflate inflate deflate
- deflate top
- double wave1
- double wave2
- fade down
- fade left
- fade right
- fade up
- inflate
- inflate bottom
- inflate top
- text effect unset
- plain text
- ring inside
- ring outside
- slant down
- slant up
- stop
- triangle down
- triangle up
- wave1
- wave2

Setting the *preset word art effect* property automatically sets the *preset shape* property.
**preset word art effect**

Returns or sets the style of the specified WordArt. The values for this property correspond to the formats in the **WordArt Gallery** dialog box (numbered from left to right, top to bottom). Read/write.

Can be one of the following:

- **text effect unset**
- **text effect1**
- **text effect2**
- **text effect3**
- **text effect4**
- **text effect5**
- **text effect6**
- **text effect7**
- **text effect8**
- **text effect9**
- **text effect10**
- **text effect11**
- **text effect12**
- **text effect13**
- **text effect14**
- **text effect15**
- **text effect16**
- **text effect17**
- **text effect18**
- **text effect19**
- **text effect20**
- **text effect21**
- **text effect22**
- **text effect23**
- **text effect24**
- **text effect25**
- **text effect26**
- **text effect27**
- **text effect28**
- **text effect29**
- **text effect30**

Setting the **preset word art effect** property automatically sets many other formatting properties of the specified shape.

**rotated chars**

- **True** if characters in the specified WordArt are rotated 90 degrees relative to the WordArt's bounding shape. **False** if characters in the specified WordArt retain their original orientation relative to the bounding shape. Read/write.

If the WordArt has horizontal text, setting the **rotated chars** property to **true** rotates the characters 90 degrees counterclockwise. If the WordArt has vertical text, setting the **rotated chars** property to **false** rotates the characters 90 degrees clockwise. To switch between horizontal and vertical text flow, use the **toggle vertical text** command.

The **flip** command and **rotation** property of the **shape** object and the **rotated chars** property and **toggle vertical text** command all affect the character orientation and direction of text flow in a **word art** object. You may have to experiment to find out how to combine the effects of these properties and commands to get the result you want.
**Drawing Suite**

*tracking*

Returns or sets the ratio of the horizontal space allotted to each character in the specified WordArt to the width of the character. Can be a value from 0 (zero) through 5. (Large values for this property specify ample space between characters; values less than 1 can produce character overlap.) Read/write.

The following table gives the values of the *tracking* property that correspond to the settings available in the user interface.

<table>
<thead>
<tr>
<th>User interface setting</th>
<th>Equivalent tracking property value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Tight</td>
<td>0.8</td>
</tr>
<tr>
<td>Tight</td>
<td>0.9</td>
</tr>
<tr>
<td>Normal</td>
<td>1.0</td>
</tr>
<tr>
<td>Loose</td>
<td>1.2</td>
</tr>
<tr>
<td>Very Loose</td>
<td>1.5</td>
</tr>
</tbody>
</table>

*word art text*

Returns or sets the text associated with the WordArt. Read/write.
### Drawing Suite Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>apply ..................................................</td>
<td>299</td>
</tr>
<tr>
<td>automatic length .....................................</td>
<td>300</td>
</tr>
<tr>
<td>begin connect ........................................</td>
<td>300</td>
</tr>
<tr>
<td>begin disconnect .....................................</td>
<td>301</td>
</tr>
<tr>
<td>bring to front (drawing) ..........................</td>
<td>301</td>
</tr>
<tr>
<td>check spelling (drawing) ..........................</td>
<td>302</td>
</tr>
<tr>
<td>copy object (drawing) .............................</td>
<td>302</td>
</tr>
<tr>
<td>copy picture (drawing) ............................</td>
<td>303</td>
</tr>
<tr>
<td>custom drop ..........................................</td>
<td>303</td>
</tr>
<tr>
<td>custom length ........................................</td>
<td>304</td>
</tr>
<tr>
<td>cut (drawing) ........................................</td>
<td>304</td>
</tr>
<tr>
<td>end connect ..........................................</td>
<td>305</td>
</tr>
<tr>
<td>end disconnect .......................................</td>
<td>306</td>
</tr>
<tr>
<td>flip ...................................................</td>
<td>306</td>
</tr>
<tr>
<td>one color gradient ..................................</td>
<td>306</td>
</tr>
<tr>
<td>patterned .............................................</td>
<td>307</td>
</tr>
<tr>
<td>pick up ................................................</td>
<td>308</td>
</tr>
<tr>
<td>preset drop ..........................................</td>
<td>308</td>
</tr>
<tr>
<td>preset gradient .....................................</td>
<td>309</td>
</tr>
<tr>
<td>preset textured ......................................</td>
<td>310</td>
</tr>
<tr>
<td>reroute connections ..................................</td>
<td>310</td>
</tr>
<tr>
<td>reset rotation .......................................</td>
<td>311</td>
</tr>
<tr>
<td>scale height .........................................</td>
<td>312</td>
</tr>
<tr>
<td>scale width .........................................</td>
<td>313</td>
</tr>
<tr>
<td>send to back (drawing) ............................</td>
<td>313</td>
</tr>
<tr>
<td>set extrusion direction ............................</td>
<td>314</td>
</tr>
<tr>
<td>set shapes default properties ...................</td>
<td>315</td>
</tr>
<tr>
<td>set threed format ...................................</td>
<td>315</td>
</tr>
<tr>
<td>solid ..................................................</td>
<td>316</td>
</tr>
<tr>
<td>toggle vertical text ................................</td>
<td>316</td>
</tr>
<tr>
<td>two color gradient ..................................</td>
<td>317</td>
</tr>
<tr>
<td>user picture .........................................</td>
<td>318</td>
</tr>
<tr>
<td>user textured ........................................</td>
<td>318</td>
</tr>
<tr>
<td>z order ...............................................</td>
<td>318</td>
</tr>
</tbody>
</table>

---

**Command: apply**

Applies to the specified shape formatting that's been copied by using the pick up command.

### Syntax

```plaintext
apply  shape  Required. An expression that returns a shape object.
```

### Example

This example copies the formatting of shape 1 on myDocument and then applies the copied formatting to shape 2.

```plaintext
set myDocument to worksheet 1
pick up shape 1 of myDocument
apply shape 2 of myDocument
```
Command: automatic length

Specifies that the first segment of the callout line (the segment attached to the text callout box) be scaled automatically when the callout is moved. To specify that the first segment of the callout line retain the fixed length returned by the callout format length property of the callout format object whenever the callout is moved, use the custom length command. Applies only to callouts whose lines consist of more than one segment (types callout three and callout four).

Syntax

automatic length   callout format   Required. An expression that returns a callout format object.

Remarks

Applying this command sets the auto length property of the callout format object to true.

Example

This example toggles between an automatically scaling first segment and one with a fixed length for the callout line for the first shape on myDocument. For the example to work, the first shape must be a callout.

set myDocument to worksheet 1
if auto length of callout format of callout 1 of myDocument is true then
    custom length callout format of callout 1 of myDocument length 50
else
    automatic length callout format of callout 1 of myDocument
end if

Command: begin connect

Attaches the beginning of the specified connector to a specified shape. If there's already a connection between the beginning of the connector and another shape, that connection is broken. If the beginning of the connector isn't already positioned at the specified connecting site, this command moves the beginning of the connector to the connecting site and adjusts the size and position of the connector. Use the end connect command to attach the end of the connector to a shape.

Syntax

begin connect   connector format   Required. An expression that returns a connector format object.

connected shape   shape   Required. The shape to attach the beginning of the connector to.

connection site   integer   Required. A connection site on the shape specified by connected shape. Must be an integer between 1 and the integer returned by the connection site count property of the specified shape. If you want the connector to automatically find the shortest path between the two shapes it connects, specify any valid integer for this argument and then use the reroute connections command after the connector is attached to shapes at both ends.
### Drawing Suite

#### Remarks
When you attach a connector to an object, the size and position of the connector are automatically adjusted, if necessary.

#### Example
This example adds two rectangles to *myDocument* and connects them with a curved connector. Notice that the *reroute connections* command makes it irrelevant what values you supply for the *connection site* arguments used with the *begin connect* and *end connect* commands.

```lisp
set myDocument to worksheet 1
set firstRect to make new shape at end of myDocument with properties {auto shape type:autoshape rectangle, ¬
  left position:100, top:50, width:200, height:100}
set secondRect to make new shape at end of myDocument with properties {auto shape type:autoshape rectangle, ¬
  left position:300, top:300, width:200, height:100}
set c to make new shape connector at end of myDocument with properties {left position:0, top:0, width:100, ¬
  height:100}
set connector format type of connector format of c to curve
begin connect connector format of c connected shape firstRect ¬
  connection site 1
end connect connector format of c connected shape secondRect ¬
  connection site 1
reroute connections c
```

**Command: begin disconnect**

This command is not currently supported.

---

**Command: bring to front** *(drawing)*

Brings the line, rectangle, oval, or arc object to the front of the z-order.

#### Syntax

- **bring to front** *line/rectangle/oval/arc*  
  Required. An expression that returns a *line*, *rectangle*, *oval*, or *arc* object.

#### Example

This example brings rectangle one on Sheet1 to the front of the z-order.

```lisp
bring to front rectangle 1 of worksheet 1
```
Drawing Suite

Command: check spelling (drawing)

Checks the spelling of an object. This form has no return value; Excel displays the Spelling dialog box.

Syntax

check spelling  rectangle/oval/arc   Required. An expression that returns a rectangle, oval, or arc object.

[custom dictionary  Unicode text]   Optional. A string that indicates the file name of the custom dictionary to examine if the word isn't found in the main dictionary. If this argument is omitted, the currently specified dictionary is used.

[ignore uppercase  Boolean]   Optional. True to have Excel ignore words that are all uppercase. False to have Excel check words that are all uppercase. If this argument is omitted, the current setting will be used.

[always suggest  Boolean]   Optional. True to have Excel display a list of suggested alternate spellings when an incorrect spelling is found. False to have Excel wait for you to input the correct spelling. If this argument is omitted, the current setting will be used.

Example

This example checks the spelling of text in Rectangle 1 on Sheet1.

check spelling rectangle 1 of worksheet "Sheet1"

Command: copy object (drawing)

Copies the object to the Clipboard.

Syntax

copy object  line/rectangle/oval/arc/shape   Required. An expression that returns one of the listed objects.

Example

This example copies a rectangle on Sheet1 and then pastes it to a new worksheet.

copy object rectangle 1 of worksheet 1
set newSheet to make new worksheet at end of active workbook
paste newSheet
Command: copy picture (drawing)

Copies the line, rectangle, oval, arc, or shape object to the Clipboard as a picture.

Syntax

`copy picture` line/rectangle/oval/arc/shape   Required. An expression that returns one of the listed objects.

[appearance enumeration]   Optional. Specifies how the picture should be copied. Can be one of the following: `screen` or `printer`. If `screen` is used, the picture is copied to resemble its display on the screen as closely as possible. If `printer` is used, the picture is copied as it will look when it’s printed. The default value is `screen`.

[format enumeration]   Optional. The format of the picture. Can be one of the following: `picture` or `bitmap`. The default value is `picture`.

Example

This example copies a screen image of cells A1:D4 on Sheet1 to the Clipboard, and then it pastes the bitmap to another location on Sheet1.

```
set thisRange to range "A1:D4" of sheet 1
copy picture thisRange appearance screen format bitmap
paste worksheet sheet 1 destination range "A7"
```

Command: custom drop

Sets the vertical distance (in points) from the edge of the text bounding box to the place where the callout line attaches to the text box. This distance is measured from the top of the text box unless the `auto attach` property of the callout format object is set to `true` and the text box is to the left of the origin of the callout line (the place that the callout points to), in which case the drop distance is measured from the bottom of the text box.

Syntax

`custom drop` callout format/callout   Required. An expression that returns a callout or callout format object.

`drop` small real   Required. The drop distance, in points.

Example

This example sets the custom drop distance to 14 points from the top of the text box.

```
set myDocument to worksheet 1
custom drop callout 1 of myDocument drop 14
```
**Command: custom length**

Specifies that the first segment of the callout line (the segment attached to the text callout box) retain a fixed length whenever the callout is moved. To specify that the first segment of the callout line be scaled automatically whenever the callout is moved, use the **automatic length** command. Applies only to callouts whose lines consist of more than one segment (types **callout three** and **callout four**).

**Syntax**

```
custom length  callout format/callout   Required. An expression that returns a callout or callout format object.
length  small real   Required. The length (in points) of the first segment of the callout.
```

**Remarks**

For the **callout format** object, applying this command sets the **auto length** property to **false** and sets the **callout format length** property to the value specified for the **length** argument.

**Example**

This example toggles between an automatically scaling first segment and one with a fixed length for the callout line for the first shape on **myDocument**. For the example to work, the first shape must be a callout.

```
set myDocument to worksheet 1
if auto length of callout format of callout 1 of myDocument is true then
  custom length callout format of callout 1 of myDocument length 50
else
  automatic length callout format of callout 1 of myDocument
end if
```

**Command: cut (drawing)**

Cuts the line, rectangle, oval, arc, or shape object to the Clipboard or pastes it into a specified destination.

**Syntax**

```
cut  line/rectangle/oval/arc/shape   Required. An expression that returns one of the listed objects.
```

**Example**

This example cuts the first shape on **Sheet1** and places it on the Clipboard.

```
cut shape 1 of worksheet "Sheet1"
```
Command: end connect

Attaches the end of the specified connector to a specified shape. If there's already a connection between the end of the connector and another shape, that connection is broken. If the end of the connector isn't already positioned at the specified connecting site, this command moves the end of the connector to the connecting site and adjusts the size and position of the connector. To attach the beginning of the connector to a shape, use the begin connect command.

Syntax

```
end connect  connector format   Required. An expression that returns a connector format object.
connected shape  shape   Required. The shape to attach the end of the connector to.
connection site  integer   Required. A connection site on the shape specified by connected shape. Must be an integer between 1 and the integer returned by the connection site count property of the specified shape. If you want the connector to automatically find the shortest path between the two shapes it connects, specify any valid integer for this argument and then use the reroute connections command after the connector is attached to shapes at both ends.
```

Remarks

When you attach a connector to an object, the size and position of the connector are automatically adjusted, if necessary.

Example

This example adds two rectangles to myDocument and connects them with a curved connector. Notice that the reroute connections command makes it irrelevant what values you supply for the connection site arguments used with the begin connect and end connect commands.

```
set myDocument to worksheet 1
set firstRect to make new shape at end of myDocument ¬
    with properties {auto shape type:autoshape rectangle, ¬
                    left position:100, top:50, width:200, height:100}
set secondRect to make new shape at end of myDocument ¬
    with properties {auto shape type:autoshape rectangle, ¬
                    left position:300, top:300, width:200, height:100}
set c to make new shape connector at end of myDocument ¬
    with properties {left position:0, top:0, width:100, ¬
                    height:100}
set connector format type of connector format of c to curve
begin connect connector format of c connected shape firstRect ¬
    connection site 1
end connect connector format of c connected shape secondRect ¬
    connection site 1
reroute connections c
```
Command: end disconnect
This command is not currently supported.

Command: flip
Flips the specified shape around its horizontal or vertical axis.

Syntax
flip shape Required. An expression that returns a shape object.

flip cmd enumeration Required. Specifies whether the shape is to be flipped horizontally or vertically. Can be either flip horizontal or flip vertical.

Example
This example adds a triangle to myDocument, duplicates the triangle, and then flips the duplicate triangle vertically and makes it red.

set myDocument to sheet 1
set Triangle1 to make new shape at end of myDocument
    with properties {auto shape type:autoshape right triangle, ¬
        left position:10, top:10, height:50, width:50}
set Triangle2 to make new shape at end of myDocument
    with properties {auto shape type:autoshape right triangle, ¬
        left position:10, top:10, height:50, width:50}
set fore color of fill format of Triangle2 to {255,0,0}
flip Triangle2 flip cmd flip vertical

Command: one color gradient
Sets the specified fill to a one-color gradient.

Syntax
one color gradient fill format Required. An expression that returns a fill format object.

gradient style enumeration Required. The gradient style. Can be one of the following:

- gradient unset
- horizontal gradient
- vertical gradient
- diagonal up gradient
- diagonal down gradient
- from corner gradient
- from title gradient (PowerPoint only)
- from center gradient
**Drawing Suite**

**variant** integer Required. The gradient variant. Can be a value from 1 through 4, corresponding to one of the four variants on the Gradient tab in the Fill Effects dialog box. If gradient style is from center gradient, the variant argument can only be 1 or 2.

**degree** small real Required. The gradient degree. Can be a value from 0.0 (dark) through 1.0 (light).

**Example**

This example sets the fill format for shape 2 to the same style used for shape 1.

```lisp
set cIf to fill format of shape 1 of sheet 1
if fill format type of cIf is fill gradient and gradient color type of cIf is single shade gradient type then
    one color gradient fill format of shape 2 of sheet 1
    gradient style (gradient style of cIf) variant gradient variant
    of cIf degree gradient degree of cIf
end if
```

**Command: patterned**

Sets the specified fill to a pattern.

**Syntax**

```lisp
patterned fill format Required. An expression that returns a fill format object.
```

**pattern** enumeration Required. The pattern type. Can be one of the following:

- pattern unset
- five percent pattern
- ten percent pattern
- twenty percent pattern
- twenty five percent pattern
- thirty percent pattern
- forty percent pattern
- fifty percent pattern
- sixty percent pattern
- seventy percent pattern
- seventy five percent pattern
- eighty percent pattern
- ninety percent pattern
- dark horizontal pattern
- dark vertical pattern
- dark downward diagonal pattern
- dark upward diagonal pattern
- small checker board pattern
- trellis pattern
- light horizontal pattern
- light vertical pattern
- light downward diagonal pattern
- light upward diagonal pattern
- small grid pattern
- dotted diamond pattern
- wide downward diagonal
- wide upward diagonal pattern
- dashed upward diagonal pattern
- dashed downward diagonal pattern
- narrow vertical pattern
- narrow horizontal pattern
- dashed vertical pattern
- dashed horizontal pattern
- large confetti pattern
- large grid pattern
- horizontal brick pattern
- large checker board pattern
- small confetti pattern
- solid confetti pattern
- zig zag pattern
- diagonal brick pattern
- outlined diamond pattern
- plaid pattern
- sphere pattern
- weave pattern
- dotted grid pattern
- divot pattern
- shingle pattern
- wave pattern

307
Example
This example sets the fill pattern for the first shape on sheet 1.

patterned fill format of shape 1 of sheet 1 pattern diagonal brick pattern

Command: pick up

Copies the formatting of the specified shape. To apply the copied formatting to another shape, use the apply command.

Syntax

pick up  shape  Required. An expression that returns a shape object.

Example

This example copies the formatting of shape 1 on myDocument and then applies the copied formatting to shape 2.

set myDocument to worksheet 1
pick up shape 1 of myDocument
apply shape 2 of myDocument

Command: preset drop

Specifies whether the callout line attaches to the top, bottom, or center of the callout text box or whether it attaches at a point that's a specified distance from the top or bottom of the text box.

Syntax

preset drop  callout format/callout  Required. An expression that returns a callout or callout format object.

drop type  enumeration  Required. The starting position of the callout line relative to the text bounding box. Can be one of the following: drop unset, drop custom, drop top, drop center, or drop bottom. Specifying drop custom for this argument will cause your code to fail.

Example

This example specifies that the callout line should attach to the top of the text bounding box for the first shape on myDocument. For the example to work, the first shape must be a callout.

set myDocument to worksheet 1
preset drop callout 1 of myDocument drop type drop top

This example toggles between two preset drops for shape one on myDocument. For the example to work, shape one must be a callout.

set myDocument to worksheet 1
if drop type of callout format of callout 1 of myDocument is drop top then
  preset drop callout 1 of myDocument drop type drop top
else if drop type of callout format of callout 1 of myDocument is drop bottom then
  preset drop callout 1 of myDocument drop type drop top
end if
Command: preset gradient

Sets the specified fill to a preset gradient.

**Syntax**

pre**set gradient**  fill format   Required. An expression that returns a **fill format** object.

- **gradient style**  enumeration   Required. The gradient style. Can be one of the following:
  - gradient unset
  - horizontal gradient
  - vertical gradient
  - diagonal up gradient
  - diagonal down gradient
  - from corner gradient
  - from title gradient (PowerPoint only)
  - from center gradient

- **variant**  integer   Required. The gradient variant. Can be a value from 1 through 4, corresponding to one of the four variants on the Gradient tab in the Fill Effects dialog box. If **gradient style** is from center gradient, the **variant** argument can only be 1 or 2.

- **preset gradient type**  enumeration   Required. The gradient type. Can be one of the following:
  - preset gradient unset
  - gradient early sunset
  - gradient late sunset
  - gradient nightfall
  - gradient daybreak
  - gradient horizon
  - gradient desert
  - gradient ocean
  - gradient calm water
  - gradient fire
  - gradient fog
  - gradient moss
  - gradient peacock
  - gradient wheat
  - gradient parchment
  - gradient mahogany
  - gradient rainbow
  - gradient rainbow2
  - gradient gold
  - gradient gold2
  - gradient brass
  - gradient chrome
  - gradient chrome2
  - gradient silver
  - gradient sapphire

**Example**

This example sets the fill format for shape 2 to the same style used for shape 1.

```plaintext
set cIf to fill format of shape 1 of sheet 1
if fill format type of cIf is fill gradient and ¬
    gradient color type of cIf is preset colors gradient type then
    preset gradient fill format of shape 2 of sheet 1 ¬
        gradient style (gradient style of cIf) variant gradient variant ¬
            of cIf preset gradient type (preset gradient type of cIf)
end if
```
Command: preset textured

Sets the specified fill format to a preset texture.

Syntax

preset textured  fill format   Required. An expression that returns a fill format object.

preset texture   enumeration   Required. The preset texture. Can be one of the following:

- preset texture unset
- texture papyrus
- texture canvas
- texture denim
- texture woven mat
- texture water droplets
- texture paper bag
- texture fish fossil
- texture sand
- texture green marble
- texture white marble
- texture brown marble
- texture granite
- texture newsprint
- texture recycled paper
- texture parchment
- texture stationery
- texture blue tissue paper
- texture pink tissue paper
- texture purple mesh
- texture bouquet
- texture cork
- texture walnut
- texture oak
- texture medium wood
- texture paper bag
- texture fish fossil
- texture sand
- texture green marble
- texture white marble
- texture brown marble
- texture granite

Example

This example sets the fill format for shape 2 to the same style used for shape 1.

set cIf to fill format of shape 1 of sheet 1
if fill format type of cIf is fill textured then
  if texture type of cIf is texture type preset texture then
    preset textured fill format of shape 2 of sheet 1 =
    preset texture (preset texture of cIf)
  end if
end if

Command: reroute connections

Reroutes connectors so that they take the shortest possible path between the shapes they connect. To do this, the reroute connections command may detach the ends of a connector and reattach them to different connecting sites on the connected shapes.

This command reroutes all connectors attached to the specified shape; if the specified shape is a connector, it's rerouted.

Syntax

reroute connections   shape   Required. An expression that returns a shape object.

Remarks

If this command is applied to a connector, only that connector will be rerouted. If this command is applied to a connected shape, all connectors to that shape will be rerouted.
Example
This example adds two rectangles to myDocument, connects them with a curved connector, and then reroutes the connector so that it takes the shortest possible path between the two rectangles. Note that the reroute connections command adjusts the size and position of the connector and determines which connecting sites it attaches to, so the values you initially specify for the connection site arguments used with the begin connect and end connect commands are irrelevant.

set myDocument to worksheet 1
set firstRect to make new shape at end of myDocument ¬
    with properties {auto shape type:autoshape rectangle, ¬
                        left position:100, top:50, width:200, height:100}
set secondRect to make new shape at end of myDocument ¬
    with properties {auto shape type:autoshape rectangle, ¬
                        left position:300, top:300, width:200, height:100}
set c to make new shape connector at end of myDocument ¬
    with properties {left position:0, top:0, width:100, ¬
                        height:100}
set connector format type of connector format of c to curve
begin connect connector format of c connected shape firstRect ¬
    connection site 1
end connect connector format of c connected shape secondRect ¬
    connection site 1
reroute connections c

Command: reset rotation
Resets the extrusion rotation around the x-axis and the y-axis to 0 (zero) so that the front of the extrusion faces forward. This command doesn’t reset the rotation around the z-axis.

Syntax
reset rotation  threeD format   Required. An expression that returns a threeD format object.

Remarks
To set the extrusion rotation around the x-axis and the y-axis to anything other than 0 (zero), use the rotation x and rotation y properties of the threeD format object. To set the extrusion rotation around the z-axis, use the rotation property of the shape object that represents the extruded shape.

Example
This example resets the rotation around the x-axis and the y-axis to 0 (zero) for the extrusion of shape 1 on myDocument.

set myDocument to worksheet 1
reset rotation threeD format of shape 1 of myDocument
Command: scale height

Scales the height of the shape by a specified factor. For pictures and OLE objects, you can indicate whether you want to scale the shape relative to the original size or relative to the current size. Shapes other than pictures and OLE objects are always scaled relative to their current height.

Syntax

scale height  picture   Required. An expression that returns a shape object.

factor  small real   Required. Specifies the ratio between the height of the shape after you resize it and the current or original height. For example, to make a rectangle 50 percent larger, specify 1.5 for this argument.

relative to original size   Boolean   Required. True to scale the shape relative to its original size. False to scale it relative to its current size. You can specify true for this argument only if the specified shape is a picture or an OLE object.

[ scale   enumeration]   Optional. Specifies which part of the shape retains its position when the shape is scaled. Can be one of the following: scale from bottom right, scale from middle, or scale from top left. The default value is scale from top left.

Example

This example scales all pictures and OLE objects on myDocument to 175 percent of their original height, and it scales all other shapes to 175 percent of their current height.

set myDocument to worksheet 1
repeat with s in (get every shape in myDocument)
  if shape type is shape type OLE control or ¬
    shape type is shape type linked ole object or ¬
    shape type is shape type embedded OLE control or ¬
    shape type is shape type linked picture or ¬
    shape type is shape type picture then
    scale height s factor 1.75 relative to original size ¬
    true scale scale from middle
  else
    scale height s factor 1.75 relative to original size ¬
    false scale scale from middle
  end if
end repeat
Command: scale width

Scales the width of the shape by a specified factor. For pictures and OLE objects, you can indicate whether you want to scale the shape relative to the original size or relative to the current size. Shapes other than pictures and OLE objects are always scaled relative to their current width.

Syntax

scale width  picture   Required. An expression that returns a shape object.

factor   small real  Required. Specifies the ratio between the width of the shape after you resize it and the current or original height. For example, to make a rectangle 50 percent larger, specify 1.5 for this argument.

relative to original size  Boolean  Required. True to scale the shape relative to its original size. False to scale it relative to its current size. You can specify true for this argument only if the specified shape is a picture or an OLE object.

[scale   enumeration]  Optional. Specifies which part of the shape retains its position when the shape is scaled. Can be one of the following: scale from bottom right, scale from middle, or scale from top left. The default value is scale from top left.

Example

This example scales all pictures and OLE objects on myDocument to 175 percent of their original width, and it scales all other shapes to 175 percent of their current width.

set myDocument to worksheet 1
repeat with s in (get every shape in myDocument)
    if shape type is shape type OLE control or ~
        shape type is shape type linked ole object or ~
        shape type is shape type embedded OLE control or ~
        shape type is shape type linked picture or ~
        shape type is shape type picture then
            scale width s factor 1.75 relative to original size ~
            true scale scale from middle
            else
                scale width s factor 1.75 relative to original size ~
                false scale scale from middle
            end if
        end if
    end repeat

Command: send to back (drawing)

This command is not currently supported.
Command: set extrusion direction

Sets the direction that the extrusion's sweep path takes away from the extruded shape.

Syntax

set extrusion direction threeD format  Required. An expression that returns a threeD format object.

preset extrusion direction enumeration  Required. Specifies the extrusion direction. Can be one of the following:

- extrude bottom
- extrude bottom left
- extrude bottom right
- extrude left
- extrude none
- extrude right
- extrude top
- extrude top left
- extrude top right
- preset extrusion direction unset

Remarks

This command sets the preset extrusion direction property of the threeD format object to the direction specified by the preset extrusion direction argument.

Example

This example specifies that the extrusion for shape 1 on myDocument extend toward the top of the shape and that the lighting for the extrusion come from the left.

set myDocument to sheet 1
set extrusion direction threeD format of shape 1 =
    of myDocument preset extrusion direction extrude top
set preset lighting direction of threeD format =
    of shape 1 of myDocument to light from left
Command: set shapes default properties

Applies the formatting for the specified shape to the default shape. Shapes created after this command has been used will have this formatting applied by default.

Syntax

```
set shapes default properties
```

```
shape   Required. An expression that returns a shape object.
```

Example

This example adds a rectangle to myDocument, formats the rectangle's fill, applies the rectangle's formatting to the default shape, and then adds another smaller rectangle to the document. The second rectangle has the same fill as the first one.

```
set myDocument to sheet 1
set myRect to make new shape at end of myDocument ¬
    with properties {auto shape type: autoshape rectangle, ¬
    top: 5, left position: 5, height:80, width: 60}
set fore color of fill format of myRect to (0,0,255)
set back color of fill format of myRect to (0,204,255)
patterned fill format of myRect pattern diagonal brick pattern
set shapes default properties myRect
make new shape at end of myDocument with properties ¬
    {auto shape type: autoshape rectangle, top: 90, ¬
    left position: 90, height:40, width: 30}
```

Command: set threed format

Sets the preset extrusion format. Each preset extrusion format contains a set of preset values for the various properties of the extrusion.

Syntax

```
set threed format
```

```
threeD format   Required. An expression that returns a threeD format object.
```

```
preset threed format   enumeration   Required. Specifies a preset extrusion format that
    corresponds to one of the options (numbered from left to right, from top to bottom) displayed
    when you click the 3-D button on the Drawing toolbar. Can be one of the following:
```

```
preset threed format unset      format11
format1                  format12
format2                  format13
format3                  format14
format4                  format15
format5                  format16
format6                  format17
format7                  format18
format8                  format19
format9                  format20
format10
```

315
Remarks
This command sets the *preset threeD format* property of the *threeD format* object to the format specified by the *preset threed format* argument.

Example
This example adds an oval to *myDocument* and sets its extrusion format to 3D Style 12.

```
set myDocument to sheet 1
set myOval to make new shape at end of myDocument with properties {auto shape type: autoshape oval, top:30, left position:30, height:50, width:25}
set threed format threeD format of myOval
       preset threed format format12
```

Command: solid
Sets the specified fill to a uniform color. Use this command to convert a gradient, textured, patterned, or background fill back to a solid fill.

Syntax

```
solid  fill format   Required. An expression that returns a fill format object.
```

Example
This example converts all fills on *myDocument* to uniform red fills.

```
set myDocument to worksheet 1
repeat with s in (get every shape in myDocument)
   solid fill format of s
   set fore color of fill format of s to {255, 0, 0}
end repeat
```

Command: toggle vertical text
Switches the text flow in the specified WordArt from horizontal to vertical, or vice versa.

Syntax

```
toggle vertical text  word art format   Required. An expression that returns a word art format object.
```

Remarks
Using the *toggle vertical text* command swaps the values of the *width* and *height* properties of the *shape* object that represents the WordArt and leaves the *left position* and *top* properties unchanged.

The *flip* command and *rotation* property of the *shape* object and the *rotated chars* property and *toggle vertical text* command of the *word art format* object all affect the character orientation and the direction of text flow in a *shape* object that represents WordArt. You may have to experiment to find out how to combine the effects of these properties and commands to get the result you want.
Example
This example adds WordArt that contains the text "Test" to myDocument and switches from horizontal text flow (the default for the specified WordArt style, text effect 1) to vertical text flow.

```app
set myDocument to sheet 1
set myWordArt to make new word art at end of myDocument with properties {preset word art effect: text effect1, word art text: "Test", font name: "Arial Black", font size: 36, bold: false, italic: false, left position: 100, top: 100}
toggle vertical text word art format of myWordArt
```

Command: two color gradient

Sets the specified fill to a two-color gradient.

Syntax
```
two color gradient   fill format   Required. An expression that returns a fill format object.

    gradient style   enumeration   Required. The gradient style. Can be one of the following:
    • gradient unset
    • horizontal gradient
    • vertical gradient
    • diagonal up gradient
    • diagonal down gradient
    • from corner gradient
    • from title gradient (PowerPoint only)
    • from center gradient

    variant   integer   Required. The gradient variant. Can be a value from 1 through 4, corresponding to one of the four variants on the Gradient tab in the Fill Effects dialog box. If gradient style is from center gradient, the variant argument can only be 1 or 2.
```

Example
This example sets the foreground color, background color, and gradient for the fill format on shape 1.

```app
set myDocument to sheet 1
set fore color of fill format of shape 1 of myDocument to (0,0,255)
set back color of fill format of shape 1 of myDocument to (0,204,255)
two color gradient fill format of shape 1 of myDocument with gradient style horizontal gradient variant 1
```
Drawing Suite

**Command: user picture**

This command is not currently supported.

**Command: user textured**

Fills the specified shape with small tiles of an image. To fill the shape with one large image, use the `user picture` command.

**Syntax**

```
user textured  fill format   Required. An expression that returns a fill format object.

[texture file  Unicode text]   Required. The name of the picture file.
```

**Example**

This example sets the fill format for shape 1 of sheet 1 to use the picture file "brick.gif" as the texture.

```
user textured fill format of shape 1 of sheet 1 texture file "brick.gif"
```

**Command: z order**

Moves the specified shape in front of or behind other shapes on the worksheet (that is, changes the shape's position in the z-order).

**Syntax**

```
z order  shape   Required. An expression that returns a shape object.
```

```
z order command   enumeration   Required. Specifies where to move the specified shape relative to the other shapes. Can be one of the following: bring shape to front, send shape to back, bring shape forward, or send shape backward. The constants bring shape in front of text and send shape behind text are used only in Microsoft Word.
```

**Remarks**

To determine a shape's current position in the z-order, use the `z order position` property of the shape object.

**Example**

This example adds an oval to `myDocument` and then places the oval second from the back in the z-order if there is at least one other shape on the document.

```
set myDocument to sheet 1
set myOval to make new shape at end of myDocument ¬
    with properties {auto shape type: autoshape oval, ¬
    top:100, left position:100, height:100, width:300}
if z order position of myOval > 2 then
    z order myOval z order command send shape backward
end if
```
Text Suite

Text Suite Classes

character ......................................................................................................................319
font ...........................................................................................................................320
style ..........................................................................................................................322

Class: character

Plural
characters

Represents characters in an object that contains text. The character object lets you modify any sequence of characters contained in the full text string.

Use character index, where index is the character number, to return a character object. Use characters start thru end, where start is the start character number and end is the end character, to return a list of character objects. The following example adds text to cell B1 and then makes the second word bold.

set value of range "B1" to "New Title"
set bold of font object of (characters 5 thru 9 of range "B1") to true

Properties

content
Returns or sets the text for the specified character. Read/write.

font object
Returns a font object that represents the font of the specified character. Read-only.

phonetic characters
Returns or sets the phonetic text in the specified character object. Read/write.

This property is available only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.
Text Suite

Class: font

Plural
fonts

Contains the font attributes (font name, font size, color, and so on) for an object.

Use the font object property to return the font object. The following example formats cells A1:C5 as bold.

set bold of font object of range "A1:C5" of worksheet "sheet1" to true

If you don’t want to format all the text in a cell or graphic the same way, use the character class to return a subset of the text.

Properties

bold

True if the font is bold. Read/write.

color

Returns or sets the primary color of the font as an RGB value. Read/write.

font background

Returns or sets the text background type. Read/write.

Can be one of the following:

- background automatic
- background opaque
- background transparent

font color index

Returns or sets the color of the font. The color is specified as an index value into the current color palette. You can also use color index none to specify that you don’t want a color, or use color index automatic to specify the automatic color (for text).

This property specifies a color as an index into the workbook color palette. The following illustration shows the color-index values in the default color palette.

<table>
<thead>
<tr>
<th>Color Index</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Red</td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
</tr>
<tr>
<td>3</td>
<td>Green</td>
</tr>
<tr>
<td>4</td>
<td>Black</td>
</tr>
<tr>
<td>5</td>
<td>White</td>
</tr>
<tr>
<td>6</td>
<td>Pink</td>
</tr>
<tr>
<td>7</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

This illustration shows the color-index values in the default color palette.

320
font size
Returns or sets the font size, in points. Read/write.

font style
Returns or sets the font style. Read/write.
Changing this property may affect other font properties (such as bold and italic).
italic
True if the font style is italic. Read/write.

name
Returns or sets the name associated with the font object. Read/write.

outline font
True if the font is an outline font. Read/write.

shadow
True if the font is a shadow font or is formatted with a shadow effect. Read/write.

strike-through
True if the font is struck through with a horizontal line. Read/write.

subscript
True if the font is formatted as subscript. False by default. Read/write.

superscript
True if the font is formatted as superscript. False by default. Read/write.

underline
Returns or sets the type of underline applied to the font. Read/write.
Can be one of the following:

- underline style double
- underline style double accounting
- underline style none
- underline style single
- underline style single accounting
Class: style

Plural styles

Represents a style description for a range. The style object contains all style attributes (font, number format, alignment, and so on) as properties. There are several built-in styles, including Normal, Currency, and Percent. Using the style object is a fast and efficient way to change several cell-formatting properties on multiple cells at the same time.

Use the style object property to return the style object used with a range object. The following example applies the Percent style to cells A1:A10 on Sheet1.

```
set style object of range "A1:A10" of worksheet "Sheet1" to ¬
style "Percent" of active workbook
```

You can change the appearance of a cell by changing properties of the style applied to that cell. Keep in mind, however, that changing a style property will affect all cells already formatted with that style.

Use style index, where index is the style index number or name, to return a single style object from the workbook's list of styles. The following example changes the Normal style for the active workbook by setting the style's bold property.

```
set bold of font object of style "Normal" of active workbook to true
```

Styles are sorted alphabetically by style name. The style index number denotes the position of the specified style in the sorted list of style names. Style 1 is the first style in the alphabetical list, and style (get count of styles) is the last one in the list.

Properties

add indent

This property is not used in U.S./English versions of Excel.

built in

True if the style is a built-in style. Read-only.

font object

Returns a font object that represents the font of the specified style. Read-only.

formula hidden

True if the formula will be hidden when the workbook or worksheet is protected. Read/write.
horizontal alignment

Returns or sets the horizontal alignment for the object. Read/write.

Can be one of the following:

- horizontal align center
- horizontal align center across selection
- horizontal align distributed
- horizontal align fill
- horizontal align general
- horizontal align justify
- horizontal align left
- horizontal align right

The horizontal align distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

include alignment

True if the style includes the add indent, horizontal alignment, vertical alignment, wrap text, and orientation properties. Read/write.

include border

True if the style includes the color, color index, line style, and weight border properties. Read/write.

include font

True if the style includes the font background, bold, color, color index, font style, italic, name, outline font, shadow, font size, strikethrough, subscript, superscript, and underline font properties. Read/write.

include number

True if the style includes the number format property. Read/write

include patterns

True if the style includes the color, color index, invert if negative, pattern, pattern color, and pattern color index interior properties. Read/write

include protection

True if the style includes the formula hidden and locked protection properties. Read/write.

indent level

Returns or sets the indent level for the style. Can be an integer from 0 to 15. Read/write.

Using this property to set the indent level to a number less than 0 (zero) or greater than 15 causes an error.
interior object

Returns an interior object that represents the interior of the style. Read-only.

locked

True if the style is locked; false if the style can be modified when the sheet is protected.

Returns missing value if the specified range contains both locked and unlocked cells.

Read/write.

merged cells

True if the style contains merged cells. Read/write.

name

Returns the name associated with the style object. Read-only.

name local

Returns the name of the style, in the language of the user. Read-only.

If the style is a built-in style, this property returns the name of the style in the language of the current locale.

number format

Returns or sets the format code for the style. Returns missing value if all cells in the specified range don't have the same number format. Read/write.

The format code is the same string as the Format Codes option in the Format Cells dialog box. The Format function uses different format code strings than do the number format and number format local properties.

number format local

Returns or sets the format code for the style as a string in the language of the user. Read/write.

The format code is the same string as the Format Codes option in the Format Cells dialog box. The Format function uses different format code strings than do the number format and number format local properties.

orientation

Returns or sets the style's orientation. Read/write.

Can be one of the following:

- orientation down
- orientation horizontal
- orientation upward
- orientation vertical

Can also be a number value between -90 and 90 degrees.

reading order

This property is not currently supported.
Text Suite

shrink to fit

True if text automatically shrinks to fit in the available column width. Returns missing value if this property isn't set to the same value for all cells in the specified range. Read/write.

value

Returns or sets the name of the specified style. Read/write.

vertical alignment

Returns or sets the vertical alignment of the style. Read/write.

Can be one of the following:

- valign top
- valign center
- valign bottom
- valign justify
- valign distributed

The valign distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

wrap text

True if Excel wraps the text in the style. Returns missing value if the specified range contains some cells that wrap text and other cells that don't. Read/write.

Excel will change the row height of the range, if necessary, to accommodate the text in the range.
Text Suite

Text Suite Commands

get border (text) .......................................................................................................................... 326
insert into ......................................................................................................................................... 326

Command: get border (text)
This command is not currently supported

Command: insert into
Inserts a string preceding the selected characters.

Syntax
insert into     character  Required. An expression that returns a character object.
               string      Unicode text  Required. The string to insert.

Example
This example inserts a string after character 5 in cell B1.
insert into (character 5 of range "B1") string "and improved"
Table Suite

Table Suite Classes

Table Suite Commands

Table Suite Classes

cell ........................................................................................................................... 327
column ..................................................................................................................... 327
range ....................................................................................................................... 328
row ......................................................................................................................... 337

Class: cell

Plural
cells

Represents a cell in a range.

Use cell index, where index is the cell number, to return a single cell object. The following example sets the cell B1 to a given formula.

set formula of cell "B1" to "=A1+A2"

Properties

<Inheritance> range

Inherits the properties and elements of the range class.

Class: column

Plural
columns

Represents a column in a range.

Use column index, where index is the name or column letter range, to return a single column object. The following example sets all of the cells in column B to a given formula.

set formula of column "B:B" to "=A1+A2"

Properties

<Inheritance> range

Inherits the properties and elements of the range class.
Table Suite

Class: range

Plural
ranges

Elements
range
cell
row
column
character
format condition
hyperlink

Represents a cell, a row, a column, a selection of cells containing one or more contiguous blocks of cells, or a 3-D range.

Use range index, where index names the range, to return a range object that represents a single cell or a range of cells. The following example places the value of cell A1 in cell A5.

set value of range "A5" of active sheet to ¬
       (get value of range "A1" of active sheet)

The following example fills the range A1:H8 with random numbers by setting the formula for each cell in the range. When it’s used without an object qualifier (an object of another object), the range object returns a range on the active sheet. If the active sheet isn’t a worksheet, the script fails. Use the activate object command to activate a worksheet before you use the range object without an explicit object qualifier.

activate object worksheet "sheet1"

set formula of range "A1:H8" to "=rand()"

The following example clears the contents of the range named "Criteria."

clear contents range "Criteria" of worksheet 1

If you use a text argument for the range address, you must specify the address in A1-style notation (you cannot use R1C1-style notation). For more information about how to reference cells and ranges, see the topic "How to reference cells and ranges."

Properties

Excel comment

Returns a comment object that represents the comment associated with the cell in the upper-left corner of the range. Read-only.

add indent

This property is not used in U.S./English versions of Excel.
**Table Suite**

- **areas**
  Returns a list of `range` objects that represent all the ranges in a multiple-area selection. Read-only.

- **column width**
  Returns or sets the width of all columns in the specified range. Read/write.
  One unit of column width is equal to the width of one character in the Normal style. For proportional fonts, the width of the character 0 (zero) is used. Use the `width` property to return the width of a column in points. If all columns in the range have the same width, the `column width` property returns the width. If columns in the range have different widths, this property returns `missing value`.

- **current array**
  If the specified cell is part of an array, returns a `range` object that represents the entire array. Read-only.

- **current region**
  Returns a `range` object that represents the current region. The current region is a range bounded by any combination of blank rows and blank columns. Read-only.
  This property is useful for many operations that automatically expand the selection to include the entire current region, such as the `autoformat` command.

- **dependents**
  Returns a `range` object that represents the range containing all the dependents of a cell. This can be a multiple selection (a list of `range` objects) if there’s more than one dependent. Read-only.

- **direct dependents**
  Returns a `range` object that represents the range containing all the direct dependents of a cell. This can be a multiple selection (a list of `range` objects) if there’s more than one dependent. Read-only.

- **direct precedents**
  Returns a `range` object that represents the range containing all the direct precedents of a cell. This can be a multiple selection (a list of `range` objects) if there’s more than one precedent. Read-only.

- **entire column**
  Returns a `range` object that represents the entire column (or columns) that contains the specified range. Read-only.

- **entire row**
  Returns a `range` object that represents the entire row (or rows) that contains the specified range. Read-only.

- **first column index**
  Returns the number of the first column in the first area in the specified range. Read-only.
Table Suite

**first row index**

Returns the number of the first row in the first area in the specified range. Read-only.

**font object**

Returns a font object that represents the font of the specified range. Read-only.

**formula**

Returns or sets the formula of the range object in A1-style notation. Read/write.

If the cell contains a constant, this property returns the constant. If the cell is empty, formula returns an empty string. If the cell contains a formula, formula returns the formula as a string, in the same format in which it would be displayed in the formula bar (including the equal sign).

If you set the value or formula of a cell to a date, Excel checks to see whether that cell is already formatted with one of the date or time number formats. If not, Excel changes the number format to the default short date number format.

Setting the formula for a multiple-cell range fills all cells in the range with the formula.

**formula array**

Returns or sets the array formula of a range. Returns (or can be set to) a single formula or an array. If the specified range doesn't contain an array formula, this property returns missing value. Read/write.

If you use this property to enter an array formula, the formula must use the R1C1 reference style, not the A1 reference style.

**formula hidden**

**True** if the formula will be hidden when the workbook or worksheet is protected. Read/write.

Don't confuse this property with the hidden property.

**formula label**

Returns or sets the formula label type for the specified range. Can be no labels if the range contains no labels, or one of the following: row labels, column labels, or mixed labels. Read/write.

**formula local**

Returns or sets the formula for the range, using A1-style references in the language of the user. Read/write.

If the cell contains a constant, this property returns that constant. If the cell is empty, the property returns an empty string. If the cell contains a formula, the property returns the formula as a string, in the same format in which it would be displayed in the formula bar (including the equal sign).

If you set the value or formula of a cell to a date, Excel checks to see whether that cell is already formatted with one of the date or time number formats. If not, the number format is changed to the default short date number format.

Setting the formula of a multiple-cell range fills all cells in the range with the formula.
Table Suite

formula r1c1

Returns or sets the formula for the range, using R1C1-style notation. Read/write.

If the cell contains a constant, this property returns the constant. If the cell is empty, the property returns an empty string. If the cell contains a formula, the property returns the formula as a string, in the same format in which it would be displayed in the formula bar (including the equal sign).

If you set the value or formula of a cell to a date, Excel checks to see whether that cell is already formatted with one of the date or time number formats. If not, the number format is changed to the default short date number format.

Setting the formula of a multiple-cell range fills all cells in the range with the formula.

formula r1c1 local

Returns or sets the formula for the range, using R1C1-style notation in the language of the user. Read/write.

If the cell contains a constant, this property returns that constant. If the cell is empty, the property returns an empty string. If the cell contains a formula, the property returns the formula as a string, in the same format in which it would be displayed in the formula bar (including the equal sign).

If you set the value or formula of a cell to a date, Excel checks to see whether that cell is already formatted with one of the date or time number formats. If not, the number format is changed to the default short date number format.

Setting the formula of a multiple-cell range fills all cells in the range with the formula.

has array

True if the specified range is part of an array formula. Read-only.

has formula

True if and only if every cell in the specified range contains a formula. Read-only.

height

Returns the height of the range. Read-only.

hidden

True if the rows or columns are hidden. The specified range must span an entire column or row. Read/write.

Don't confuse this property with the formula hidden property.
Table Suite

horizontal alignment

Returns or sets the horizontal alignment for the object. Read/write.
Can be one of the following:

- horizontal align center
- horizontal align center across selection
- horizontal align distributed
- horizontal align fill
- horizontal align general
- horizontal align justify
- horizontal align left
- horizontal align right

The horizontal align distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

indent level

Returns or sets the indent level for the range or style. Can be an integer from 0 to 15. Read/write.

interior object

Returns an interior object that represents the interior of the range. Read-only.

left position

Returns or sets the position (in points) of the specified range. Read/write.

list header rows

Returns the number of header rows for the specified range. Read-only.

list object

Returns a list object object that represents the list containing the upper-left corner of a specified range. Read-only.
location in table

If there is a PivotTable report on the sheet, returns a constant that describes the part of the PivotTable report that contains the upper-left corner of the specified range. Read-only.

Can be one of the following:

- column header
- column item
- data header
- data item
- page header
- page item
- row header
- row item
- table body

locked

**True** if and only if every cell in the specified range is locked. Read/write.

merge area

Returns a range object that represents the merged range containing the specified cell. If the specified cell isn't in a merged range, this property returns the specified cell. Read-only.

merge cells

**True** if the range contains merged cells. Read/write.

name

Returns or sets the name of the range. Read/write.

named item

Returns the named item associated with this range. Read-only.

number format

Returns or sets the number format code for the range. Returns missing value if all cells in the specified range don't use the same number format code. Read/write.

For a list of existing number format codes, click the Custom category on the Number tab of the Format Cells dialog box (Format menu, Cells command).

number format local

Returns or sets the number format code for the range as a string in the language of the user. Read/write.

For a list of existing number format codes, click the Custom category on the Number tab of the Format Cells dialog box (Format menu, Cells command).
Table Suite

**outline level**

Returns or sets the current outline level of the specified row or column. Read/write.

Level one is the outermost summary level.

**page break**

Returns or sets the location of a page break. Can be one of the following: page break automatic, page break manual, or page break none.

This property can return the location of either automatic or manual page breaks, but it can only set the location of manual breaks (it can only be set to page break manual or page break none).

To remove all manual page breaks on a worksheet: set page break of (every range of active sheet) to page break none

**phonetic object**

Returns the phonetic object, which contains information about a specific phonetic text string in a specified range.

This property is available only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

**pivot field**

Returns a pivot field object that represents the pivot field containing the upper-left corner of the specified range. Read-only.

**pivot item**

Returns a pivot item object that represents the pivot item containing the upper-left corner of the specified range. Read-only.

**pivot table**

Returns a pivot table object that represents the PivotTable containing the upper-left corner of the specified range. Read-only.

**precedents**

Returns a range object that represents all the precedents of a cell. This can be a multiple selection (a list of range objects) if there's more than one precedent. Read-only.

**prefix character**

Returns the prefix character for the range. Read-only.

**query table**

Returns a query table object that represents the query table that intersects the specified range. Read-only.

**reading order**

This property is not currently supported.
Table Suite

row height
Returns the height (in points) of all the rows in the range specified. Returns missing value if the rows in the specified range aren't all the same height. Read/write.
For a single row, the value of the height property is equal to the value of the row height property. However, you can also use the height property to return the total height of a range of cells.
In addition, the height property is read-only, and if you return the row height property of several rows, you will get either the row height of each of the rows (if all the rows are the same height) or missing value (if they're different heights). If you return the height property of several rows, you will get the total height of all the rows.

show detail
True if the outline is expanded for the specified range (so that the detail of the column or row is visible). The specified range must be a single summary column or row in an outline. Read/write. If the range object is in a PivotTable report, this property is true if the pivot item is showing detail.
If the specified range isn't in a PivotTable report, the following remarks apply:

- The range must be in a single summary row or column.
- This property returns false if any of the children of the row or column are hidden.
- Setting this property to true is equivalent to unhiding all the children of the summary row or column.
- Setting this property to false is equivalent to hiding all the children of the summary row or column.
If the specified range is in a PivotTable, it's possible to set this property for more than one cell at a time if the range is contiguous. This property can be returned only if the range is a single cell.

shrink to fit
True if text automatically shrinks to fit in the available column width. Returns missing value if this property isn't set to the same value for all cells in the specified range. Read/write.

string value
Returns the text for the range. Read-only.

style object
Returns a style object that represents the style of the specified range. Read-only.

summary
True if the range is an outlining summary row or column. The range should be a row or a column. Read-only.

text orientation
Returns or sets the text orientation. Can be a number value from -90 to 90 degrees. Read/write.
Table Suite

top

Returns or sets the top position (in points) of the specified object. Read/write.

use standard height

True if the row height of the range object equals the standard height of the sheet. Returns missing value if the range contains more than one row and the rows aren’t all the same height. Read/write.

use standard width

True if the column width of the range object equals the standard width of the sheet. Returns missing value if the range contains more than one column and the columns aren’t all the same width. Read/write.

validation

Returns the validation object that represents data validation for the specified range. Read-only.

value

If the range is a single cell, returns or sets the value of the specified cell. If the cell is empty, value returns an empty string. If the range object contains more than one cell, returns a list of values. Each internal list within the outer list corresponds to a row of cell values. The value of a single row returns a list containing a single internal list of cell values.

vertical alignment

Returns or sets the vertical alignment of the object. Read/write.

Can be one of the following:

- vertical alignment top
- vertical alignment center
- vertical alignment bottom
- vertical alignment justify
- vertical alignment distributed

The vertical alignment distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

width

Returns or sets the width of the specified range, in points. Read/write.

worksheet object

Returns a worksheet object that represents the worksheet containing the specified range. Read-only.

wrap text

True if Excel wraps the text in the range. Returns missing value if the specified range contains some cells that wrap text and other cells that don’t. Read/write.

Excel will change the row height of the range, if necessary, to accommodate the text in the range.
Table Suite

Class: row

Plural
rows

Represents a row in a range.

Use row index, where index is the name or row number range, to return a single row object. The following example sets all of the cells in row 3 to a given formula.

set formula of row "3:3" to "=A1+A2"

Properties

<Inheritance> range

Inherits the properties and elements of the range class.
Table Suite Commands

activate object (table).................................................................................................................. 339
add comment ........................................................................................................................... 339
advanced filter ......................................................................................................................... 340
apply names ............................................................................................................................ 340
apply outline styles ................................................................................................................. 341
autocomplete .......................................................................................................................... 341
autofill .................................................................................................................................. 342
autofilter range ....................................................................................................................... 342
autoformat .............................................................................................................................. 343
auto outline ............................................................................................................................ 343
border around ......................................................................................................................... 345
calculate (table) ..................................................................................................................... 346
check spelling (table) .............................................................................................................. 347
clear contents (table) .............................................................................................................. 347
clear Excel comments ............................................................................................................ 347
clear outline .......................................................................................................................... 348
clear range .............................................................................................................................. 348
clear range formats ................................................................................................................ 348
column differences .................................................................................................................. 348
consolidate .............................................................................................................................. 348
copy picture (table) ................................................................................................................. 350
copy range ............................................................................................................................. 350
create names .......................................................................................................................... 350
cut range .................................................................................................................................. 351
data series .............................................................................................................................. 351
data table ............................................................................................................................... 352
delete range ............................................................................................................................ 353
fill down .................................................................................................................................. 353
fill left ...................................................................................................................................... 354
fill right .................................................................................................................................... 354
fill up ....................................................................................................................................... 354
find .......................................................................................................................................... 355
find next .................................................................................................................................... 356
find previous ............................................................................................................................ 357
function wizard ...................................................................................................................... 358
get address ............................................................................................................................... 358
get address local ..................................................................................................................... 359
get border (table) .................................................................................................................... 359
get end ...................................................................................................................................... 360
get offset .................................................................................................................................. 360
get resize .................................................................................................................................. 361
get XML value .......................................................................................................................... 361
goal seek ..................................................................................................................................... 361
group ....................................................................................................................................... 362
insert indent .............................................................................................................................. 363
insert into range ...................................................................................................................... 363
justify ....................................................................................................................................... 364
list names ................................................................................................................................... 364
merge ....................................................................................................................................... 364
navigate arrow .......................................................................................................................... 365
paste special ............................................................................................................................ 366
print out (table) ........................................................................................................................ 367
print preview (table) ............................................................................................................... 367
active object (table)
Activates a single cell, which must be inside the current selection.

Syntax

```
activate range   Required. An expression that returns a range object.
```

Example
This example changes the active cell within the selected range to cell B4.

```
select range "B3:B5"
activate object range "B4"
```

add comment
Adds a comment to the range.

Syntax

```
add comment range   Required. An expression that returns a range object.

[comment text  Unicode text]   Optional. The comment text.
```

Example
This example adds a comment to cell E5 on the active worksheet.

```
add comment (range "E5" of active sheet) comment text "Current Sales"
Command: advanced filter

Filters or copies data from a list based on a criteria range. If the initial selection is a single cell, that cell's current region is used.

Syntax

advanced filter range Required. An expression that returns a range object.

action enumeration Required. The filter operation. Can be one of the following: filter copy or filter in place.

criteria range range] Optional. The criteria range. If this argument is omitted, there are no criteria. Can be a range object, an A1-style range reference, a named range, or a list of category names.

copy to range range] Optional. The destination range for the copied rows if action is filter copy. Otherwise, this argument is ignored. Can be a range object, an A1-style range reference, a named range, or a list of category names.

unique Boolean] Optional. True to filter unique records only. False to filter all records that meet the criteria. The default value is false.

Example

This example filters a database (named "Database") based on a criteria range named "Criteria."

advanced filter range "Database" action filter in place ¬
criteria range range "Criteria"

Command: apply names

Applies names to the cells in the specified range.

Syntax

apply names range Required. An expression that returns a range object.

names list] Optional. A list of the names to be applied. If this argument is omitted, all names on the sheet are applied to the range.

ignore relative absolute Boolean] Optional. True to replace references with names, regardless of the reference types of either the names or references. False to replace absolute references only with absolute names, relative references only with relative names, and mixed references only with mixed names. The default value is true.

use row column names Boolean] Optional. True to use the names of row and column ranges that contain the specified range if names for the range cannot be found. False to ignore the omit column and omit row arguments. The default value is true.

omit column Boolean] Optional. True to replace the entire reference with the row-oriented name. The column-oriented name can be omitted only if the referenced cell is in the same column as the formula and is within a row-oriented named range. The default value is true.
Table Suite

[omit row Boolean] Optional. True to replace the entire reference with the column-oriented name. The row-oriented name can be omitted only if the referenced cell is in the same row as the formula and is within a column-oriented named range. The default value is true.

[order enumeration] Optional. Determines which range name is listed first when a cell reference is replaced by a row-oriented and column-oriented range name. Can be one of the following: row then column or column then row.

[append last Boolean] Optional. True to replace the definitions of the names in names and also replace the definitions of the last names that were defined. False to replace the definitions of the names in names only. The default value is false.

Remarks
You cannot "unapply" names; to delete names, use the delete command.

Example
This example applies names to the entire sheet.
apply names (cells of active sheet) names {"Sales", "Profits"}

Command: apply outline styles
Applies outlining styles to the specified range.

Syntax

apply outline styles  range  Required. An expression that returns a range object.

Example
The following example applies automatic outlining styles to range A1:E6. The range must include the entire outline range on a worksheet.
apply outline styles range "A1:E6"

Command: autocomplete
Returns an AutoComplete match from the list. If there's no AutoComplete match or if more than one entry in the list matches the string to complete, this command returns an empty string.

Syntax

autocomplete  range  Required. An expression that returns a range object (must be a single cell).
string  Unicode text  Required. The string to complete.

Remarks
This command works even if the AutoComplete feature is disabled.
Example
This example returns the AutoComplete match for the string segment "Ap." An AutoComplete match is made if the column containing cell A5 contains a contiguous list and one of the entries in the list contains a match for the string.

```vbnet
set suggest to autocomplete range "A2" string "Ap"
if (suggest = "") then
    display dialog "Completes to " & suggest
else
    display dialog "Has no completion"
end if
```

Command: autofill
Performs an AutoFill on the cells in the specified range.

Syntax

```
autofill range   Required. An expression that returns a range object.

destination range   Required. The cells to be filled. The destination must include the source range. Can be a range object, an A1-style range reference, a named range, or a list of category names.

[type enumeration]   Optional. Specifies the fill type. Can be one of the following: fill copy, fill days, fill default, fill formats, fill months, fill series, fill values, fill weekdays, fill years, growth trend, or linear trend. If this argument is fill default or omitted, Excel selects the most appropriate fill type based on the source range.
```

Example
This example performs an AutoFill on cells A1:A20 on Sheet1, based on the source range A1:A2 on Sheet1. Before running this example, type 1 in cell A1 and type 2 in cell A2.

```vbnet
autofill range "A1:A2" destination range "A1:A20"
```

Command: autofilter range
Filters a list using the AutoFilter.

Note To return an autofilter object, apply the autofilter object property to a sheet object.

Syntax

```
autofilter range   Required. An expression that returns a range object.

[field integer]   Optional. The integer offset of the field on which you want to base the filter (from the left of the list; the leftmost field is field one).

[criteria1 Unicode text]   Optional. The criterion (a string; for example, "101"). If operator is top 10 items, criteria1 specifies the number of items (for example, "10").
```
Table Suite

[operator enumeration] Optional. Can be one of the following: autofilter and, bottom 10 items, bottom 10 percent, autofilter or, top 10 items, or top 10 percent. Use autofilter and and autofilter or with criteria1 and criteria2 to construct compound criteria.

[criteria2 Unicode text] Optional. The second criterion (a string). Used with criteria1 and operator to construct compound criteria.

[visible drop down Boolean] Optional. True to display the AutoFilter drop-down arrow for the filtered field. False to hide the AutoFilter drop-down arrow for the filtered field. True by default.

Remarks
If you omit all the arguments, this command toggles the display of the AutoFilter drop-down arrows in the specified range.

Example
This example filters a list starting in cell A1 on Sheet1 to display only the entries in which field 1 is equal to the string "Otis". The drop-down arrow for field 1 will be hidden.

autofilter range (range "A1" of worksheet "Sheet1") field 1 criteria1 "Otis" ~ without visible drop down

Command: autofit

Changes the width of the columns in the range or the height of the rows in the range to achieve the best fit.

Syntax

autofit range Required. An expression that returns a range object. Must be a row or a range of rows, or a column or a range of columns. Otherwise, this command generates an error.

Remarks
One unit of column width is equal to the width of one character in the Normal style.

Example
This example changes the width of columns A through I on Sheet1 to achieve the best fit.

autofit every column of range "A:I"

This example changes the width of columns A through E on Sheet1 to achieve the best fit, based only on the contents of cells A1:E1.

autofit every column of range "A1:E1"
**Command: autoformat**

Automatically formats a range of cells, using a predefined format.

**Syntax**

```
autoformat range  Required. An expression that returns a range object.

[format  enumeration]  Optional. The range format to be used.

Can be one of the following:

- range autoformat threeD effects 1
- range autoformat threeD effects 2
- range autoformat accounting 1
- range autoformat accounting 2
- range autoformat accounting 3
- range autoformat accounting 4
- range autoformat classic 1
- range autoformat classic 2
- range autoformat classic 3
- range autoformat color 1
- range autoformat color 2
- range autoformat color 3
- range autoformat list 1
- range autoformat list 2
- range autoformat list 3
- range autoformat local format 1
- range autoformat local format 2
- range autoformat local format 3
- range autoformat local format 4
- range autoformat none
- range autoformat simple
```

The default value is `range autoformat classic 1`. The `range autoformat local format 1`, `range autoformat local format 2`, `range autoformat local format 3`, and `range autoformat local format 4` values are not used in the U.S. English version of Excel.

```
[number  Boolean]  Optional. True to include number formats in the autoformat. The default value is true.

[font  Boolean]  Optional. True to include font formats in the autoformat. The default value is true.

[alignment  Boolean]  Optional. True to include alignment in the autoformat. The default value is true.

[border  Boolean]  Optional. True to include border formats in the autoformat. The default value is true.

[pattern  Boolean]  Optional. True to include pattern formats in the autoformat. The default value is true.

[width  Boolean]  Optional. True to include column width and row height in the autoformat. The default value is true.
```

**Example**

This example formats cells A1:D8 on Sheet1, using a predefined format.

```
autoformat range "A1:D8" format range autoformat classic 1
```
Command: auto outline

Automatically creates an outline for the specified range. If the range is a single cell, Excel creates an outline for the entire sheet. The new outline replaces any existing outline.

Syntax

auto outline range Required. An expression that returns a range object.

Example

This example creates an outline for the range A1:G37 on Sheet1. The range must contain either a summary row or a summary column.

auto outline range "A1:G37" of sheet "Sheet1"

Command: border around

Adds a border to a range and sets the color, line style, and weight properties for the new border.

Syntax

border around range Required. An expression that returns a range object.

[ line style enumeration] Optional. The line style for the border. The default value is continuous.

Can be one of the following:

- continuous
- dash
- dash dot
- dash dot dot
- dot
- double
- slant dash dot
- line style none

[weight enumeration] Optional. The border weight. The default value is border weight thin.

Can be one of the following:

- border weight hairline
- border weight medium
- border weight thick
- border weight thin
Table Suite

[color index  enumeration]  Optional. The border color. The color is specified as an index value into the current color palette, or as one of the following:

- color index automatic
- color index none

The following illustration shows the color-index values in the default color palette.

![Color Index Palette](image)

[color  RGB color]  Optional. The border color, as an RGB value.

Remarks
You can specify either color index or color, but not both. If you don't specify either argument, Excel uses the color index automatic color index value.

Similarly, you can specify either line style or weight, but not both. If you don't specify either argument, Excel creates a default border.

This command outlines the entire range without filling it in. To set the borders of all the cells, you must set the color, line style, and weight properties for the list of border objects on the worksheet. To clear the border, you must set the line style property to line style none for all the cells in the range.

Example
This example adds a thick red border around the range A2:D4 on Sheet1.

```
border around range "A2:D4" color index 3 weight border weight thick
```

Command: calculate (table)

Calculates a specified range of cells on a worksheet.

Syntax

calculate  range  An expression that returns a range object.

Example
This example calculates the formulas in columns A, B, and C in the used range on Sheet1.

```
calculate columns 1 through 3 of used range
```
**Table Suite**

**Command: check spelling (table)**

Checks the spelling of text in a range. This form has no return value; Excel displays the Spelling dialog box.

**check spelling**  range  Required. An expression that returns a range object.

- **custom dictionary**  Unicode text  Optional. A string that indicates the file name of the custom dictionary to examine if the word isn't found in the main dictionary. If this argument is omitted, the currently specified dictionary is used.

- **ignore uppercase**  Boolean  Optional. True to have Excel ignore words that are all uppercase. False to have Excel check words that are all uppercase. If this argument is omitted, the current setting will be used.

- **always suggest**  Boolean  Optional. True to have Excel display a list of suggested alternate spellings when an incorrect spelling is found. False to have Excel wait for you to input the correct spelling. If this argument is omitted, the current setting will be used.

**Example**

This example checks the spelling on Sheet1.

```excel
check spelling range "A1:G10" of sheet "Sheet1"
```

**Command: clear contents (table)**

Clears the formulas from the range.

**Syntax**

**clear contents**  range  Required. An expression that returns a range object.

**Example**

This example clears the formulas from cells A1:G37 on Sheet1 but leaves the formatting intact.

```excel
clear contents range "A1:G37" of sheet "Sheet1"
```

**Command: clear Excel comments**

Clears all cell comments from the specified range.

**Syntax**

**clear Excel comments**  range  Required. An expression that returns a range object.

**Example**

This example clears all comments from cell E5.

```excel
clear Excel comments range "E5" of sheet 1
```
Command: clear outline
Clears the outline for the specified range.

Syntax

```
clear outline  range   Required. An expression that returns a range object.
```

Example
This example clears the outline for the range A1:G37 on Sheet1.
```
clear outline range "A1:G37" of sheet "Sheet1"
```

Command: clear range
Clears the entire range object.

Syntax

```
clear range  range   Required. An expression that returns a range object.
```

Example
This example clears the formulas and formatting in cells A1:G37 on Sheet1.
```
clear range range "A1:G37" of sheet "Sheet1"
```

Command: clear range formats
Clears the formatting of the specified range.

Syntax

```
clear range formats  range   Required. An expression that returns a range object.
```

Example
This example clears all formatting from cells A1:G37 on Sheet1.
```
clear range formats range "A1:G37" of sheet "Sheet1"
```

Command: column differences
Returns a range object that represents all the cells whose contents are different from the comparison cell in each column.

Syntax

```
column differences  range   Required. An expression that returns a range object containing the cells to compare.
```

```
comparison  range   Required. A single cell to compare to the specified range. Can be a range object, an A1-style range reference, a named range, or a list of category names.
```
Example
This example selects the cells in column A on Sheet1 whose contents are different from cell A4.
set r1 to column differences range "A:A" comparison range "A4"
selsect r1

Command: consolidate

Consolidates data from multiple ranges on multiple worksheets into a single range on a single worksheet.

Syntax

consolidate range Required. An expression that returns a range object.

[sources list] Optional. The sources of the consolidation as a list of text reference strings in R1C1-style notation. The references must include the full path of sheets to be consolidated.

[consolidation function enumeration] Optional. The consolidation function. The default value is do average. Can be one of the following:
  do average            do standard deviation
  do count              do standard deviation p
  do count numbers      do sum
  do maximum            do var
  do minimum            do var p
  do product

[top row Boolean] Optional. True to consolidate data based on column titles in the top row of the consolidation ranges. False to consolidate data by position. The default value is false.

[left column Boolean] Optional. True to consolidate data based on row titles in the left column of the consolidation ranges. False to consolidate data by position. The default value is false.

[create links Boolean] Optional. True to have the consolidation use worksheet links. False to have the consolidation copy the data. The default value is false.

Example
This example consolidates data from Sheet2 and Sheet3 onto Sheet1 using the SUM function.
consolidate (range "A1" of worksheet "Sheet1") sources {"Sheet2!R1C1:R37C6", "Sheet3!R1C1:R37C6"} consolidation function do sum
Command: copy picture (table)

Copies the selected object to the Clipboard as a picture.

Syntax

```
copy picture   range   Required. An expression that returns a range object.

[appearance   enumeration]   Optional. Specifies how the picture should be copied. Can be screen
   or printer. If screen is used, the picture is copied to resemble its display on the screen as
closely as possible. If printer is used, the picture is copied as it will look when it's printed. The
default value is screen.

[format   enumeration]   Optional. The format of the picture. Can be picture or bitmap. The default value is
picture.
```

Remarks

If you copy a range, it must be made up of adjacent cells.

Example

This example copies a screen image of cells A1:D4 on Sheet1 to the Clipboard, and then it pastes the
bitmap to another location on Sheet1.

```
copy picture range "A1:D4" appearance screen format bitmap
```

Command: copy range

Copies the range to the specified range or to the Clipboard.

Syntax

```
copy range   range   Required. An expression that returns a range object.

[destination   range]   Optional. Specifies the new range to which the specified range will be
copied. If this argument is omitted, Excel copies the range to the Clipboard.
```

Example

This example copies the formulas in cells A1:D4 on Sheet1 into cells E5:H8 on Sheet2.

```
set sourceRange to range "A1:D4" of sheet 1
set destRange to range "E5" of sheet 2
```
Command: create names

Creates names in the specified range based on text labels in the sheet.

Syntax

create names range Required. An expression that returns a range object.

[top Boolean] Optional. True to create names by using labels in the top row. The default value is false.

[left position Boolean] Optional. True to create names by using labels in the left column. The default value is false.

[bottom Boolean] Optional. True to create names by using labels in the bottom row. The default value is false.

[right Boolean] Optional. True to create names by using labels in the right column. The default value is false.

Remarks

If you don’t specify either top, left position, bottom, or right, Excel guesses the location of the text labels based on the shape of the specified range.

Example

This example creates names for cells B1:B3 based on the text in cells A1:A3. Note that you must include the cells that contain the names in the range, even though the names are created only for cells B1:B3.

set rangeToName to range "A1:B3" of worksheet "Sheet1"
create names rangeToName with left position

Command: cut range

Cuts the range object to the Clipboard or pastes it into a specified destination.

Syntax

cut range range Required. An expression that returns a range object.

[destination of cut range] Optional. The range where the object should be pasted. Can be a range object, an A1-style range reference, a named range, or a list of category names. If this argument is omitted, the object is cut to the Clipboard.

Remarks

The cut range must be made up of adjacent cells.

Example

This example cuts the range A1:G37 on Sheet1 and places it on the Clipboard.

cut range range "A1:G37" of sheet "Sheet1"
Table Suite

**Command: data series**

Creates a data series in the specified range.

**Syntax**

```
data series range   Required. An expression that returns a range object.

[rowcol   enumeration]   Optional. Can be by rows or by columns to have the data series entered
in rows or columns, respectively. If this argument is omitted, the size and shape of the range is
used.

[data series type   enumeration]   Optional. Can be one of the following: autofill series, chronological series,
growth series, or data series linear.

[date   enumeration]   Optional. If the data series type argument is chronological series, the date argument
indicates the step date unit. The default value is series date day. Can be one of the following: series date
day, series date month, series date weekday, or series date year.

[increment integer]   Optional. The step value for the series. The default value is 1.

[stop integer]   Optional. The stop value for the series. If this argument is omitted, Excel fills to the end of the
range.

[trend Boolean]   Optional. True to create a linear trend or growth trend. False to create a standard data
series. The default value is false.
```

**Example**

This example creates a series of 12 dates. The series contains the last day of every month in 1996 and
is created in the range A1:A12 on Sheet1.

```
set dateRange to range "A1:A12" of worksheet "Sheet1"
set formula of range "A1" of worksheet "Sheet1" to "31-JAN-1996"
data series dateRange data series type chronological series ¬
    date series date month
```

**Command: data table**

Creates a data table based on input values and formulas that you define on a worksheet.

**Syntax**

```
data table range   Required. An expression that returns a range object.

[row input   cell]   Optional. A single cell to use as the row input for your table.

[column input   cell]   Optional. A single cell to use as the column input for your table.
```

**Remarks**

Use data tables to perform a what-if analysis by changing certain constant values on your worksheet
to see how values in other cells are affected.
Example
This example creates a formatted multiplication table in cells A1:K11 on Sheet1.
set dtRange to range "A1:K11"
set rowInputCell to cell "A12"
set colInputCell to cell "A13"

set formula of range "A1" to "=A12*A13"
set value of range "B1" to 1
autofill range "B1" destination "B1:K1" type fill series
set value of range "A2" to 1
autofill range "A2" destination "A2:A11" type fill series

data table dtRange row input rowInputCell column input colInputCell

Command: delete range

Deletes the range object.

Syntax

delete range  range  Required. An expression that returns a range object.

  [shift  enumeration]  Optional. Used only with range objects. Specifies how to shift cells to
  replace deleted cells. Can be shift to left or shift up. If this argument is omitted, Excel decides
  based on the shape of the range.

Example
This example deletes cells A1:D10 on Sheet1 and shifts the remaining cells to the left.
delete range range "A1:D10" shift shift to left

Command: fill down

Fills down from the top cell or cells in the specified range to the bottom of the range. The contents
and formatting of the cell or cells in the top row of a range are copied into the rest of the rows in the
range.

Syntax

fill down  range  Required. An expression that returns a range object.

Example
This example fills the range A1:A10 on Sheet1, based on the contents of cell A1.
fill down range "A1:A10" of sheet "Sheet1"
Table Suite

**Command: fill left**

Fills left from the rightmost cell or cells in the specified range. The contents and formatting of the cell or cells in the rightmost column of a range are copied into the rest of the columns in the range.

**Syntax**

fill left range  Required. An expression that returns a range object.

**Example**

This example fills the range A1:M1 on Sheet1, based on the contents of cell M1.

fill left range "A1:M1" of sheet "Sheet1"

**Command: fill right**

Fills right from the leftmost cell or cells in the specified range. The contents and formatting of the cell or cells in the leftmost column of a range are copied into the rest of the columns in the range.

**Syntax**

fill right range  Required. An expression that returns a range object.

**Example**

This example fills the range A1:M1 on Sheet1, based on the contents of cell A1.

fill right range "A1:M1" of sheet "Sheet1"

**Command: fill up**

Fills up from the bottom cell or cells in the specified range to the top of the range. The contents and formatting of the cell or cells in the bottom row of a range are copied into the rest of the rows in the range.

**Syntax**

fill up range  Required. An expression that returns a range object.

**Example**

This example fills the range A1:A10 on Sheet1, based on the contents of cell A10.

fill up range "A1:A10" of sheet "Sheet1"
Command: find

Finds specific information in a range, and returns a range object that represents the first cell where that information is found. Returns an error if no match is found. Doesn't affect the selection or the active cell.

Syntax

find range  Required. An expression that returns a range object.
what Unicode text  Required. The data to search for. Can be a string or any Excel data type.
[after range]  Optional. The cell after which you want to search. Can be a range object, an A1-style range reference, a named range, or a list of category names. This corresponds to the position of the active cell when a search is done from the user interface. Note that after must be a single cell in the range. Remember that the search begins after this cell; the specified cell isn't searched until the command wraps back around to this cell. If this argument isn't specified, the search starts after the cell in the upper-left corner of the range.
[look in enumeration]  Optional. Specifies where the find command should look. Can be formulas, values, or comments.
[look at enumeration]  Optional. Specifies the part that should be looked at. Can be whole or part.
[search order enumeration]  Optional. Specifies whether the search should be done by rows or by columns. Can be by rows or by columns.
[search direction enumeration]  Optional. Specifies the search direction, either next or previous. Can be search next or search previous. The default value is search next.
[match case Boolean]  Optional. True to make the search case sensitive.
[match byte Boolean]  Optional. Used only in the Japanese version of Excel. True to have double-byte characters match only double-byte characters. False to have double-byte characters match their single-byte equivalents.

Remarks

The settings for look in, look at, search order, match case, and match byte are saved each time you use this command. If you don't specify values for these arguments the next time you call the command, the saved values are used. Setting these arguments changes the settings in the Find dialog box, and changing the settings in the Find dialog box changes the saved values that are used if you omit the arguments. To avoid problems, set these arguments explicitly each time you use this command.

The find next and find previous commands can be used to repeat the search.

When the search reaches the end of the specified search range, it wraps around to the beginning of the range. To stop a search when this wraparound occurs, save the address of the first found cell, and then test each successive found-cell address against this saved address.
To find cells that match more complicated patterns, use a nested loop. For example, the following code searches for all cells in the range A1:E5 that use a font whose name starts with the letters "Cour". When Excel finds a match, it changes the font to Times New Roman.

```
repeat with theRow from 1 to 5
  repeat with theCol in {"A", "B", "C", "D", "E"}
    if name of font object of cell (theCol & theRow) contains "Cour" then
      set name of font object of cell (theCol & theRow) to "Times New Roman"
    end if
  end repeat
end repeat
```

Example

This example shows how the `find` command is used with the `find next` and `find previous` commands. Before running this example, make sure that Sheet1 contains at least two occurrences of the word "Phoenix" in column B.

```
set fc to (find (range "B:B" of worksheet "Sheet1") what "Phoenix")
display dialog "The first occurrence is in cell " & (get address fc)
set fc to (find next (range "B:B" of worksheet "Sheet1") after fc)
display dialog "The next occurrence is in cell " & (get address fc)
set fc to (find previous (range "B:B" of worksheet "Sheet1") after fc)
display dialog "The previous occurrence is in cell " & (get address fc)
```

Command: `find next`

Continues a search that was begun with the `find` command. Finds the next cell that matches those same conditions and returns a `range` object that represents that cell. Doesn't affect the selection or the active cell.

**Syntax**

```
find next  range  Required. An expression that returns a `range` object.

[after  range]  Optional. The cell after which you want to search. Can be a `range` object, an A1-style range reference, a named range, or a list of category names. This corresponds to the position of the active cell when a search is done from the user interface. Note that `after` must be a single cell in the range. Remember that the search begins `after` this cell; the specified cell isn't searched until the command wraps back around to this cell. If this argument isn't specified, the search starts after the cell in the upper-left corner of the range.
```

**Remarks**

When the search reaches the end of the specified search range, it wraps around to the beginning of the range. To stop a search when this wraparound occurs, save the address of the first found cell, and then test each successive found-cell address against this saved address.
Example
This example shows how the find next command is used with the find and find previous commands. Before running this example, make sure that Sheet1 contains at least two occurrences of the word 'Phoenix' in column B.

```
set fc to (find (range "B:B" of worksheet "Sheet1") what "Phoenix")
display dialog "The first occurrence is in cell " & (get address fc)
set fc to (find next (range "B:B" of worksheet "Sheet1") after fc)
display dialog "The next occurrence is in cell " & (get address fc)
set fc to (find previous (range "B:B" of worksheet "Sheet1") after fc)
display dialog "The previous occurrence is in cell " & (get address fc)
```

Command: find previous
Continues a search that was begun with the find command. Finds the previous cell that matches those same conditions and returns a range object that represents that cell. Doesn't affect the selection or the active cell.

Syntax
```
find previous range Required. An expression that returns a range object.
```

[after range] Optional. The cell after which you want to search. Can be a range object, an A1-style range reference, a named range, or a list of category names. This corresponds to the position of the active cell when a search is done from the user interface. Note that after must be a single cell in the range. Remember that the search begins after this cell; the specified cell isn't searched until the command wraps back around to this cell. If this argument isn't specified, the search starts after the cell in the upper-left corner of the range.

Remarks
When the search reaches the beginning of the specified search range, it wraps around to the end of the range. To stop a search when this wraparound occurs, save the address of the first found cell, and then test each successive found-cell address against this saved address.

Example
This example shows how the find previous command is used with the find and find next commands. Before running this example, make sure that Sheet1 contains at least two occurrences of the word 'Phoenix' in column B.

```
set fc to (find (range "B:B" of worksheet "Sheet1") what "Phoenix")
display dialog "The first occurrence is in cell " & (get address fc)
set fc to (find next (range "B:B" of worksheet "Sheet1") after fc)
display dialog "The next occurrence is in cell " & (get address fc)
set fc to (find previous (range "B:B" of worksheet "Sheet1") after fc)
display dialog "The previous occurrence is in cell " & (get address fc)
```
Command: function wizard

Starts the Function Wizard for the upper-left cell of the range.

Syntax

function wizard range   Required. An expression that returns a range object.

Example

This example starts the Function Wizard for the cell A1 on Sheet1.

function wizard cell "A1" of sheet "Sheet1"

Command: get address

Returns the range reference.

Syntax

generate address range   Required. An expression that returns a range object.

[row absolute   Boolean]   Optional. Set to true to return the row part of the reference as an absolute reference. The default value is true.

column absolute   Boolean]   Optional. Set to true to return the column part of the reference as an absolute reference. The default value is true.


[external   Boolean]   Optional. Set to true to return an external reference, false to return a local reference. The default value is false.

[relative to range]   Optional. If row absolute and column absolute are false, and reference style is R1C1, you must include a starting point for the relative reference. This argument is a range object that defines the starting point. Can be a range object, an A1-style range reference, a named range, or a list of category names.

Example

This example looks for the string "bananas" and if found, returns the range reference. Before running this example, make sure that Sheet1 contains at least one occurrence of the word "bananas" in the range A1:A4.

set fdRange to find range "A1:A4" what "bananas"

display dialog "Found bananas in cell " & (get address fdRange)
Table Suite

Command: get address local

Returns the range reference in the language of the user.

Syntax

get address local  range   Required. An expression that returns a range object.

[row absolute  Boolean]   Optional. Set to true to return the row part of the reference as an absolute reference. The default value is true.

column absolute  Boolean]   Optional. Set to true to return the column part of the reference as an absolute reference. The default value is true.


[external  Boolean]   Optional. Set to true to return an external reference, false to return a local reference. The default value is false.

[relative to  range]   Optional. If row absolute and column absolute are false, and reference style is R1C1, you must include a starting point for the relative reference. This argument is a range object that defines the starting point. Can be a range object, an A1-style range reference, a named range, or a list of category names.

Example

This example looks for the string "bananas" and if found, returns the range reference. Before running this example, make sure that Sheet1 contains at least one occurrence of the word "bananas" in the range A1:A4.

set fdRange to find range "A1:A4" what "bananas"
display dialog "Found bananas in cell " & (get address local fdRange)

Command: get border (table)

Returns the specified border object.

get border  range   Required. An expression that returns a border object.

which border  enumeration   Required. The border to be retrieved. Can be one of the following:

inside horizontal  edge right
inside vertical    edge top
diagonal down      border bottom
diagonal up        border left
diagonal down      border right
diagonal up        border top
edge left
edge bottom
edge right
edge top
Example
This example adds a solid border around the range A1:B5.

```plaintext
set line style of (get border range "A1:B5" which border border top) to continuous
set line style of (get border range "A1:B5" which border border bottom) to continuous
set line style of (get border range "A1:B5" which border border left) to continuous
set line style of (get border range "A1:B5" which border border right) to continuous
```

Command: get end

Returns a range object that represents the cell at the end of the region that contains the source range.

Syntax

```plaintext
get end range Required. An expression that returns a range object.

direction enumeration Required. The direction in which to move. Can be one of the following:
toward the bottom, toward the left, toward the right, or toward the top.
```

Example
This example finds the cell furthest to the right of the cell C2 in the range containing C2. Before running this example, make sure that Sheet1 contains data in every cell in the range A1:E5. The example should return E2.

```plaintext
set theEnd to get end range "C2" direction toward the right
```

Command: get offset

Returns a range object that represents a range that's offset from the specified range.

Syntax

```plaintext
get offset range Required. An expression that returns a range object.

[row offset integer] Optional. The number of rows — positive, negative, or zero — by which the range is to be offset. The default value is 0.

[column offset integer] Optional. The number of columns — positive, negative, or zero — by which the range is to be offset. The default value is 0.
```

Example
This example gets the range object for a range that is offset of range A3:E5 by 3 rows and 4 columns. The example should return a reference for range E6:I8.

```plaintext
get offset range "A3:E5" row offset 3 column offset 4
```
Command: get resize

Resizes the specified range. Returns a range object that represents the resized range.

Syntax

get resize range  Required. An expression that returns a range object.

[row size integer]  Optional. The number of rows in the new range. If this argument is omitted, the number of rows in the range remains the same.

column size integer] Optional. The number of columns in the new range. If this argument is omitted, the number of columns in the range remains the same.

Example

This example changes the size of the range A3:E5 to a range 7 rows down by 4 columns across, with A3 as the top left cell. The example should return a reference for the range A3:D9.

get resize range "A3:E5" row size 7 column size 4

Command: get XML value

Returns the value of the specified range as XML.

Syntax

get XML value range  Required. An expression that returns a range object.

Example

This example gets the value of the range A1:C3 as XML.

get XML value range "A1:C3"

Command: goal seek

Calculates the values necessary to achieve a specific goal. If the goal is an amount returned by a formula, this calculates a value that, when supplied to your formula, causes the formula to return the number you want. Returns true if the goal seek is successful.

Syntax

goal seek range  Required. An expression that returns a range object. Must be a single cell.

goal real  Required. The value you want returned in this cell.

changing cell range  Required. Specifies which cell should be changed to achieve the target value.
Example
This example assumes that Sheet1 has a cell named 'Polynomial' that contains the formula 
\((X^3)+(3X^2)+6\) and another cell named "X" that's empty. The example finds a value for X so that 
Polynomial contains the value 15.

\[
\text{goal seek (range "Polynomial" of worksheet "Sheet1") goal 15 ~} \\
\text{changing cell (range "X" of worksheet "Sheet1")}
\]

Command: group

When the range object represents a single cell in the pivot field's data range, the group command 
performs numeric or date-based grouping in a pivot field.

Syntax

group  range   Required. An expression that returns a range object. The range object must be a 
single cell in the pivot field's data range. If you attempt to apply this command to more than one 
cell, it will fail (without displaying an error message).

[start  integer]   Optional. The first value to be grouped. If this argument is omitted or true, the 
first value in the field is used.

[end  integer]   Optional. The last value to be grouped. If this argument is omitted or true, the last value in 
the field is used.

[by  integer]   Optional. If the field is numeric, this argument specifies the size of each group.

If the field is a date, this argument specifies the number of days in each group if element 4 in 
the periods list is true and all the other elements are false. Otherwise, this argument is 
ignored.

If this argument is omitted, Excel automatically chooses a default group size.

[periods  list]   Optional. A list of Boolean values that specify the period for the group, as shown 
in the following table.

<table>
<thead>
<tr>
<th>Element</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seconds</td>
</tr>
<tr>
<td>2</td>
<td>Minutes</td>
</tr>
<tr>
<td>3</td>
<td>Hours</td>
</tr>
<tr>
<td>4</td>
<td>Days</td>
</tr>
<tr>
<td>5</td>
<td>Months</td>
</tr>
<tr>
<td>6</td>
<td>Quarters</td>
</tr>
<tr>
<td>7</td>
<td>Years</td>
</tr>
</tbody>
</table>

If an element in the list is true, a group is created for the corresponding time; if the element is 
false, no group is created. If the field isn't a date field, this argument is ignored.
Example
This example groups the field named "ORDER_DATE" by 10-day periods.

set pvtTable to pivot table of range "A3" of worksheet "Sheet1"
set groupRange to data range of pivot field "ORDER_DATE" of pvtTable

group (cell 1 of groupRange) by 10 periods {false, false, false, true, false, false, false, false}

Command: insert indent

Adds an indent to the specified range.

Syntax

insert indent  range  Required. An expression that returns a range object.

insert amount  integer  Required. The amount to be added to the current indent.

Remarks

Using this command to set the indent level to a number less than 0 (zero) or greater than 15 causes an error.

To return the indent level for a range, use the indent level property of the range object.

Example

This example decreases the indent level in cell A10.

insert indent range "A10" insert amount -1

Command: insert into range

Inserts a cell or a range of cells into the worksheet or macro sheet and shifts other cells away to make space.

Syntax

insert into range  range  Required. An expression that returns a range object.

[shift enumeration]  Optional. Specifies which way to shift the cells. Can be one of the following: shift down or shift to right. If this argument is omitted, Excel decides based on the shape of the range.

Example

This example inserts a new row before row four on Sheet1.

insert into range row 4 of sheet "Sheet1"

This example inserts new cells at the range A1:C5 on Sheet1 and shifts cells downward.

insert into range range "A1:C5" of sheet "Sheet1" shift shift down
Command: justify
Rearranges the text in a range so that it fills the range evenly.

Syntax
justify  range   Required. An expression that returns a range object.

Remarks
If the range isn't large enough, Excel displays a message telling you that text will extend below the range. If you click the OK button, justified text will replace the contents in cells that extend beyond the selected range. To prevent this message from appearing, set the display alerts property of the application object to false. After you set this property, text will always replace the contents in cells below the range.

Example
This example justifies the text in cell A1 on Sheet1. Before you run this example, make sure you have text in cell A1.

justify range "A1" of sheet "Sheet1"

Command: list names
Paste a list of all non-hidden names onto the worksheet, beginning with the first cell in the range.

Syntax
list names  range   Required. An expression that returns a range object.

Example
This example pastes a list of defined names into cell A1 on Sheet1. The example pastes both workbook-level names and sheet-level names defined on Sheet1.

list names range "A1" of sheet "Sheet1"

Command: merge
Creates a merged cell from the specified range object.

Syntax
merge  range   Required. An expression that returns a range object.

[across  Boolean] Optional. True to merge cells in each row in the specified range as separate merged cells. The default value is false.

Remarks
The value of a merged range is the value specified for the cell in the upper-left corner of the merged range.
Table Suite

Example
This example merges all of the cells in range A1:C10 into cell A1.
merge range "A1:C10"

Command: navigate arrow
Navigates a tracer arrow for the specified range to the precedent, dependent, or error-causing cell or cells. Selects the precedent, dependent, or error cells and returns a range object that represents the new selection. This command causes an error if it's applied to a cell without visible tracer arrows.

Syntax
navigate arrow range Required. An expression that returns a range object.
[toward precedent Boolean] Optional. Specifies the direction to navigate: true to navigate toward precedents, false to navigate toward dependents.
[arrow number integer] Optional. Specifies the arrow number to navigate; corresponds to the numbered reference in the cell's formula.
[link number integer] Optional. If the arrow is an external reference arrow, this argument indicates which external reference to follow. If this argument is omitted, the first external reference is followed.

Example
This example navigates along the first tracer arrow from cell A1 on Sheet1 toward the precedent cell. The example should be run on a worksheet containing a formula in cell A1 that includes references to cells D1, D2, and D3 (for example, the formula =D1*D2*D3). Before running the example, display the Auditing toolbar, select cell A1, and click the Trace Precedents button.
activate object worksheet "Sheet1"
select range "A1"
navigate arrow active cell arrow number 1 with toward precedent

Command: parse
Parses a range of data and breaks it into multiple cells. Distributes the contents of the range to fill several adjacent columns; the range can be no more than one column wide.

Syntax
parse range Required. An expression that returns a range object.
[parse line Unicode text] Optional. A string that contains left and right brackets to indicate where the cells should be split. For example, "[xxx] [xxx]" would insert the first three characters into the first column of the destination range, and it would insert the next three characters into the second column. If this argument is omitted, Excel guesses where to split the columns based on the spacing of the top left cell in the range. If you want to use a different range to guess the parse line, use a range object as the parse line argument. That range must be one of the cells that's being parsed. The parse line argument cannot be longer than 255 characters, including the brackets and spaces.
Table Suite

[destination range] Optional. A range object that represents the upper-left corner of the destination range for the parsed data. If this argument is omitted, Excel parses in place. Can be a range object, an A1-style range reference, a named range, or a list of category names.

Example
This example divides telephone numbers of the form 206-555-1212 into two columns. The first column contains only the area code, and the second column contains the seven-digit telephone number with the embedded hyphen.

parse (range "A:A" of worksheet "Sheet1") parse line "[XXX] [XXXXXXX]" ¬

destination (range "B1" of worksheet "Sheet1")

Command: paste special

Pastes a range from the Clipboard into the specified range.

Syntax

paste special range Required. An expression that returns a range object.

[what enumeration] Optional. The part of the range to be pasted. The default value is paste all. Can be one of the following:
- paste all
- paste all except borders
- paste formats
- paste formulas
- paste comments
- paste values
- paste column widths
- paste validation
- paste formulas and number formats
- paste values and number formats

[operation enumeration] Optional. The paste operation. Can be one of the following:
- paste special operation add
- paste special operation subtract
- paste special operation multiply
- paste special operation divide
- paste special operation none

[skip blanks Boolean] Optional. True to have blank cells in the range on the Clipboard not be pasted into the destination range.

[transpose Boolean] Optional. True to transpose rows and columns when the range is pasted. The default value is false.

Example
This example replaces the data in cells D1:D5 on Sheet1 with the sum of the existing contents and cells C1:C5 on Sheet1.

copy range range "C1:C5"
paste special range "D1:D5" operation paste special operation add
**Table Suite**

**Command:** print out (table)

Prints the object.

**Syntax**

`print out`  range  Required. An expression that returns a range object.

[from  integer]  Optional. The number of the page at which to start printing. If this argument is omitted, printing starts at the beginning.

[to  integer]  Optional. The number of the last page to print. If this argument is omitted, printing ends with the last page.

[copies  integer]  Optional. The number of copies to print. If this argument is omitted, one copy is printed.

[preview  Boolean]  Optional. True to have Excel invoke print preview before printing the object. False (or omitted) to print the object immediately.

[active printer  Unicode text]  Optional. This argument is not currently supported.

[print to file  Boolean]  Optional. This argument is not currently supported.

[merge  Boolean]  Optional. True to collate multiple copies.

**Remarks**

"Pages" in the descriptions of from and to refers to printed pages, not overall pages in the sheet or workbook.

This command applies to the window object only when it's the Info window.

**Example**

This example prints the active sheet.

`print out active sheet`

**Command:** print preview (table)

Shows a preview of the object as it would look when printed.

**Syntax**

`print preview`  range  Required. An expression that returns a range object.

[enable changes  Boolean]  Optional. Controls access to the Page Setup dialog box and the ability to change margins from the Preview window by enabling or disabling the Setup and Margins buttons, respectively.

**Example**

This example displays Sheet1 in print preview.

`print preview sheet "Sheet1"`
Command: remove subtotal

Removes subtotals from a list.

Syntax

```
remove subtotal range   Required. An expression that returns a range object.
```

Example

This example removes subtotals from the range A1:G37 on Sheet1. The example should be run on a list that has subtotals.

```
remove subtotal range "A1:G37" of sheet "Sheet1"
```

Command: replace

Finds and replaces characters in cells within a range. Doesn't change the selection or the active cell.

Syntax

```
replace range   Required. An expression that returns a range object.

what Unicode text   Required. The string to search for.

replacement Unicode text   Required. The replacement string.

[look at enumeration]   Optional. Specifies the part that should be looked at. Can be whole or part.

[search order enumeration]   Optional. Specifies whether the search should be rows or columns. Can be by rows or by columns.

[match case Boolean]   Optional. True to make the search case sensitive.

[match byte Boolean]   Optional. Used only in the Japanese versions of Excel. True to have double-byte characters match only double-byte characters. False to have double-byte characters match their single-byte equivalents.

[match control characters Boolean]   Optional. Used only in the Japanese version of Excel. True to have double-byte characters match only double-byte characters. False to have double-byte characters match their single-byte equivalents.

[match diacritics Boolean]   Optional. Used only in the Japanese version of Excel. True to have double-byte characters match only double-byte characters. False to have double-byte characters match their single-byte equivalents.
```

Remarks

The settings for look at, search order, match case, and match byte are saved each time you use this command. If you don't specify values for these arguments the next time you call the command, the saved values are used. Setting these arguments changes the settings in the Find dialog box, and changing the settings in the Find dialog box changes the saved values that are used if you omit the arguments. To avoid problems, set these arguments explicitly each time you use this command.

If the contents of the what argument are found in at least one cell on the sheet, this command returns true.
Example
This example replaces every occurrence of the function SIN with the function COS. The replacement range is column A on Sheet1.

```
replace (range "A:A" of worksheet "Sheet1") what "SIN" replacement "COS" search order by columns with match case
```

Command: row differences

Returns a range object that represents all the cells whose contents are different from those of the comparison cell in each row.

**Syntax**

```
row differences range   Required. An expression that returns a range containing the cells to be compared.
comparison cell   Required. A single cell to compare with the specified range.
```

Example
This example selects the cells in row one on Sheet1 whose contents are different from those of cell D1.

```
set c1 to row differences range "1:1" comparison range "D1"
select c1
```

Command: run VB macro (table)

Runs the Excel 4.0 (XLM) macro at this location. The range must be on a macro sheet.

**Syntax**

```
run VB macro range   Required. An expression that returns a range on a macro sheet that contains an Excel 4.0 (XLM) macro.
[arg1, arg2, ... anything]   Optional. The arguments that should be passed to the function.
```

**Remarks**

You cannot use named arguments with this command. Arguments must be passed by position.

The run VB macro command returns whatever the called macro returns. Objects passed as arguments to the macro are converted to values (by applying the value property to the range object). This means that you cannot pass objects to macros by using the run VB macro command.

Example
This example shows how to call the function macro My_Func_Sum, which is defined on the macro sheet Mycustom.xlm (the macro sheet must be open). The function takes two numeric arguments (1 and 5, in this example).

```
set mySum to (run VB macro (range "MYCUSTOM.XLM!My_Func_Sum") arg1 1 arg2 5)
display dialog "Macro result: " & mySum
```
### Command: set XML value

Sets the value of the specified range as XML.

**Syntax**

```
set XML value range   Required. An expression that returns a range object.
range value anything  Required. The value of the range.
```

**Example**
This example sets the value of the range A1:C3 as XML.
```
set XML value range "A1:C3" range value "test"
```

### Command: show (table)

Scrolls through the contents of the active window to move the range into view.

**Syntax**

```
show range   Required. An expression that returns a range object.
```

**Example**
This example scrolls through the contents of the active window to show cell M1.
```
show range "M1"
```

### Command: show dependents

Draws tracer arrows to the direct dependents of the range.

**Syntax**

```
show dependents range   Required. An expression that returns a range object. Must be a single cell.
[remove  Boolean]   Optional. True to remove one level of tracer arrows to direct dependents. False to expand one level of tracer arrows. The default value is false.
```

**Example**
This example draws tracer arrows to dependents of cell D7 on Sheet1.
```
show dependents range "D7"
```
This example removes the tracer arrow for one level of dependents of cell D7 on Sheet1.
```
show dependents range "D7" remove true
```
Command: show errors

Draws tracer arrows through the precedents tree to the cell that's the source of the error, and returns the range that contains that cell.

Syntax

show errors  range   Required. An expression that returns a range object.

Example

This example displays a red tracer arrow if there's an error in the active cell on Sheet1.
activate object worksheet "Sheet1"
show errors active cell

Command: show precedents

Draws tracer arrows to the direct precedents of the range.

Syntax

show precedents  range   Required. An expression that returns a range object. Must be a single cell.

[remove   Boolean]   Optional. True to remove one level of tracer arrows to direct precedents. False to expand one level of tracer arrows. The default value is false.

Example

This example draws tracer arrows to the precedents of cell D7 on Sheet1.
show precedents range "D7"
This example removes the tracer arrow for one level of precedents of the active cell on Sheet1.
show precedents active cell remove true

Command: sort

Sorts a PivotTable report, a range, or the current region (if the specified range contains only one cell).

Syntax

sort  range   Required. An expression that returns a range object.

[key1 range]   Optional. The first sort field, as either text (a pivot field or range name) or a range object ("Dept" or cells "1,1", for example).

[order1 enumeration]   Optional. Can be sort ascending, sort descending, or sort manual. Use sort ascending to sort key1 in ascending order. Use sort descending to sort key1 in descending order. The default value is sort ascending.
Table Suite

[key2 range]  Optional. The second sort field, as either text (a pivot field or range name) or a range object. If this argument is omitted, there's no second sort field. Not used when sorting PivotTable reports.

[order2 enumeration]  Optional. Can be sort ascending, sort descending, or sort manual. Use sort ascending to sort key2 in ascending order. Use sort descending to sort key2 in descending order. The default value is sort ascending. Not used when sorting PivotTable reports.

[key3 range]  Optional. The third sort field, as either text (a range name) or a range object. If this argument is omitted, there's no third sort field. Not used when sorting PivotTable reports.

[order3 enumeration]  Optional. Can be sort ascending, sort descending, or sort manual. Use sort ascending to sort key3 in ascending order. Use sort descending to sort key3 in descending order. The default value is sort ascending. Not used when sorting PivotTable reports.

[header enumeration]  Optional. Specifies whether the first row contains headers. Can be one of the following: header yes, header no, or header guess. Use header yes if the first row contains headers (it shouldn't be sorted). Use header no if there are no headers (the entire range should be sorted). Use header guess to let Excel determine whether there's a header, and to determine where it is, if there is one. The default value is header no. Not used when sorting PivotTable reports.

[order custom integer]  Optional. A 1-based integer offset into the list of custom sort orders. If this argument is omitted, 1 (Normal) is used.

[match case Boolean]  Optional. True to do a case-sensitive sort; false to do a sort that's not case sensitive. Not used when sorting PivotTable reports.

[orientation enumeration]  Optional. Specifies whether the sort is done top to bottom or bottom to top. Can be sort rows or sort columns. If sort rows is used, the sort is done from top to bottom (by row). If sort columns is used, the sort is done from left to right (by column).

[sort method enumeration]  Optional. The type of sort. Can be stroke (to sort phonetically) or pin yin (to sort by code page). The default value is stroke. This argument works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

[ignore control characters Boolean]  Optional. This argument is currently not supported.

[ignore diacritics Boolean]  Optional. This argument is currently not supported.

Example
This example sorts the range A1:C20 on Sheet1, using cell A1 as the first sort key and cell B1 as the second sort key. The sort is done in ascending order by row, and there are no headers.

sort range "A1:C20" of worksheet "Sheet1" key1 (range "A1" of worksheet "Sheet1") key2 (range "B1" of worksheet "Sheet1")

This example sorts the current region that contains cell A1 on Sheet1, sorting by the data in the first column and automatically using a header row if one exists. The sort command determines the current region automatically.

sort range "A1" of worksheet "Sheet1" key1 (range "A:A" of worksheet "Sheet1") ~

header header guess
Command: sort special

Uses Japanese sorting techniques to sort the range, or uses the current region if the range contains only one cell.

Syntax

sort special  range   Required. An expression that returns a range object.

[sort method  enumeration]   Optional. Specifies how to sort. Can be stroke (to sort phonetically) or pin yin (to sort by code page). The default value is stroke. This argument works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

[key1  range]   Optional. The first sort field, as either text (a pivot field or range name) or a range object ('Dept' or cells "1,1", for example).

[order1  enumeration]   Optional. Can be sort ascending, sort descending, or sort manual. Use sort ascending to sort key1 in ascending order. Use sort descending to sort key1 in descending order. The default value is sort ascending.

[type  enumeration]   Optional. Specifies which elements are sorted. Can be sort values or sort labels. Used only when sorting PivotTable reports.

[order2  enumeration]   Optional. Can be sort ascending, sort descending, or sort manual. Use sort ascending to sort key2 in ascending order. Use sort descending to sort key2 in descending order. The default value is sort ascending. Not used when sorting PivotTable reports.

[key2  range]   Optional. The second sort field, as either text (a pivot field or range name) or a range object. If this argument is omitted, there's no second sort field. Not used when sorting PivotTable reports.

[order3  enumeration]   Optional. Can be sort ascending, sort descending, or sort manual. Use sort ascending to sort key3 in ascending order. Use sort descending to sort key3 in descending order. The default value is sort ascending. Not used when sorting PivotTable reports.

[header  enumeration]   Optional. Specifies whether the first row contains headers. Can be one of the following: header yes, header no, or header guess. Use header yes if the first row contains headers (it shouldn't be sorted). Use header no if there are no headers (the entire range should be sorted). Use header guess to let Excel determine whether there's a header, and to determine where it is, if there is one. The default value is header no. Not used when sorting PivotTable reports.

[order custom  integer]   Optional. A 1-based integer offset into the list of custom sort orders. If this argument is omitted, 1 (Normal) is used.

[match case  Boolean]   Optional. True to do a case-sensitive sort; false to do a sort that's not case sensitive. Not used when sorting PivotTable reports.

[orientation  enumeration]   Optional. Specifies whether the sort is done top to bottom or bottom to top. Can be sort rows or sort columns. If sort rows is used, the sort is done from top to bottom (by row). If sort columns is used, the sort is done from left to right (by column).
Table Suite

Example
This example sorts the range A1:G37 on Sheet1, using cell A1 as the first sort key and cell C1 as the second sort key. The sort is done in ascending order by row, and there are no headers.

```
sort special range "A1:G37" of worksheet "Sheet1" key1 (range "A1" of worksheet "Sheet1") order1 sort ascending key2 (range "C1" of worksheet "Sheet1") order2 sort ascending
```

Command: special cells

Returns a range object that represents all the cells that match the specified type and value.

Syntax

```
special cells range   Required. An expression that returns a range object.

type   enumeration   Required. The cells to include. Can be one of the following:
```

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cell type all format conditions</td>
<td>All cells containing a format condition</td>
</tr>
<tr>
<td>cell type all validation</td>
<td>All cells containing data validation</td>
</tr>
<tr>
<td>cell type blanks</td>
<td>Empty cells</td>
</tr>
<tr>
<td>cell type comments</td>
<td>Cells containing comments</td>
</tr>
<tr>
<td>cell type constants</td>
<td>Cells containing constants</td>
</tr>
<tr>
<td>cell type formulas</td>
<td>Cells containing formulas</td>
</tr>
<tr>
<td>cell type last cell</td>
<td>The last cell in the used range</td>
</tr>
<tr>
<td>cell type same format conditions</td>
<td>Cells containing the same format conditions</td>
</tr>
<tr>
<td>cell type same validation</td>
<td>Cells containing the same data validation</td>
</tr>
<tr>
<td>cell type visible</td>
<td>All visible cells</td>
</tr>
</tbody>
</table>

[value   enumeration] Optional. If type is either cell type constants or cell type formulas, this argument is used to determine which types of cells to include in the result. These values can be added together to return more than one type. The default is to select all constants or formulas, no matter what the type. Can be one of the following: errors, logical, numbers, or text values.

Example
This example selects the last cell in the used range of Sheet1.

```
activate object worksheet "Sheet1"
activate object (special cells (cells of active sheet) ~
type cell type last cell)
```
### Command: subtotal

Creates subtotals for the range (or the current region, if the range is a single cell).

#### Syntax

**subtotal** range  Required. An expression that returns a range object.

**group by** integer  Required. The field to group by, as a 1-based integer offset. For more information, see the example.

**function** enumeration  Required. The subtotal function. Can be one of the following:

- do average
- do count
- do count numbers
- do maximum
- do minimum
- do product
- do standard deviation
- do standard deviation p
- do sum
- do var
- do var p

**total list** list  Required. A list of 1-based field offsets, indicating the fields to which the subtotals are added. For more information, see the example.

**replace** Boolean  Optional. True to replace existing subtotals. The default value is false.

**page breaks** Boolean  Optional. True to add page breaks after each group. The default value is false.

**summary below data** enumeration  Optional. Can be summary above or summary below. The default value is summary below.

#### Example

This example creates subtotals for the selection on Sheet1. The subtotals are sums grouped by each change in field one, with the subtotals added to fields two and three.

activate object worksheet "Sheet1"
subtotal selection group by 1 function do sum total list {2, 3}

### Command: text to columns

Parses a column of cells that contain text into several columns.

#### Syntax

**text to columns** range  Required. An expression that returns a range object.

**destination** range  Optional. A range object that specifies where Excel will place the results. If the range is larger than a single cell, the top left cell is used. Can be a range object, an A1-style range reference, a named range, or a list of category names.

**data type** enumeration  Optional. The format of the text to be split into columns. Can be delimited or fixed width. The default value is delimited.
Table Suite

[**text qualifier** enumeration]  Optional. The text qualifier. Can be one of the following: **text qualifier double quote**, **text qualifier single quote**, or **text qualifier none**. The default value is **text qualifier double quote**.

[**consecutive delimiter** Boolean] Optional. **True** to have Excel consider consecutive delimiters as one delimiter. The default value is **false**.

[**tab** Boolean] Optional. **True** to have **data type** be **delimited** and to have the tab character be a delimiter. The default value is **false**.

[**semicolon** Boolean] Optional. **True** to have **data type** be **delimited** and to have the semicolon be a delimiter. The default value is **false**.

[**comma** Boolean] Optional. **True** to have **data type** be **delimited** and to have the comma be a delimiter. The default value is **false**.

[**space** Boolean] Optional. **True** to have **data type** be **delimited** and to have the space character be a delimiter. The default value is **false**.

[**use other** Boolean] Optional. **True** to have **data type** be **delimited** and to have the character be specified by the **other char** argument be a delimiter. The default value is **false**.

[**other char** Unicode text] Optional. (required if **use other** is true). The delimiter character when **use other** is true. If more than one character is specified, only the first character of the string is used; the remaining characters are ignored.

[**field info** list] Optional. A list containing parse information for the individual columns of data. The interpretation depends on the value of **data type**.

When the data is delimited, this argument is a list of two-element column specifiers, each specifying the conversion options for a particular column. The first element is the column number (1-based), and the second element is one of the following numbers, specifying how the column is parsed:

1  General
2  Text
3  MDY date
4  DMY date
5  YMD date
6  MYD date
7  DYM date
8  YDM date
9  Skip the column

The column specifiers can be in any order. If a given column specifier is not present for a particular column in the input data, the column is parsed with the **General** setting. This example causes the third column to be skipped, the first column to be parsed as text, and the remaining columns in the source data to be parsed with the **General** setting.

\[\{(3, 9), (1, 2)\}\]
If the source data has fixed-width columns, the first element of each column specifier indicates the starting character position in the column (as an integer; 0 (zero) is the first character). The second element specifies the parse option for the column as a number from 1 through 9, as listed above.

The following example parses two columns from a fixed-width file, with the first column starting at the beginning of the line and extending for 10 characters. The second column starts at position 15 and goes to the end of the line. To avoid including the characters between position 10 and position 15, Excel adds a skipped column entry.

\[\{0, 1\}, \{10, 9\}, \{15, 1\}\]

**decimal separator** Unicode text] Optional. A string specifying whether a comma or period is used in the text file as the separator for decimal numbers.

**thousands separator** Unicode text] Optional. A string specifying whether a comma, period, or apostrophe is used in the text file as the separator for thousands.

**Example**

This example converts the contents of the Clipboard, which contains a space-delimited text table, into separate columns on Sheet1. You can create a simple space-delimited table in a text editor, copy the text table to the Clipboard, switch to Excel, and then run this example.

activate object worksheet "Sheet1"
paste sheet active sheet
text to columns selection data type delimited ¬
   with consecutive delimiter and tab

**Command: ungroup**

Promotes a range in an outline (that is, decreases its outline level). The specified range must be a row or column, or a range of rows or columns. If the range is in a PivotTable report, this command ungroups the items contained in the range.

**Syntax**

`ungroup` range  Required. An expression that returns a `range` object.

**Remarks**

If the active cell is in a field header of a parent field, all the groups in that field are ungrouped and the field is removed from the PivotTable report. When the last group in a parent field is ungrouped, the entire field is removed from the PivotTable report.

**Example**

This example ungroups the ORDER_DATE field.

set pvtTable to pivot table of range "A3" of worksheet "Sheet1"
set groupRange to data range of pivot field "ORDER_DATE" of pvtTable
ungroup (cell 1 of groupRange)
Command: unmerge
Separates a merged area into individual cells.

Syntax

unmerge range  Required. An expression that returns a range object.

Example
This example separates the merged range that contains cell A3.
unmerge range "A3"
Proofing Suite

Class: autocorrect

Contains Excel AutoCorrect attributes (capitalization of names of days, correction of two initial capital letters, automatic correction list, and so on).

Use the autocorrect class to set the attributes of the autocorrect object. The following example sets Excel to correct words that begin with two initial capital letters.

set two initial capitals of autocorrect object to true
set replace text of autocorrect object to true

Properties

capitalize names of days

True if the first letter of day names is capitalized automatically. Read/write.

correct caps lock

True if Excel automatically corrects accidental use of the CAPS LOCK key. Read/write.

correct sentence cap

True if Excel automatically corrects sentence (first word) capitalization. Read/write.

replace text

True if text in the list of AutoCorrect replacements is replaced automatically. Read/write.

two initial capitals

True if words that begin with two capital letters are corrected automatically. Read/write.
Proofing Suite Commands

Command: add replacement

Adds an entry to the list of AutoCorrect replacements.

Syntax

add replacement autocorrect text to replace replacement text

- autocorrect: An expression that returns an autocorrect object.
- text to replace: Unicode text, required. The text to be replaced. If this string already exists in the list of AutoCorrect replacements, the existing substitute text is replaced by the new text.
- replacement text: Unicode text, required. The replacement text.

Example

This example substitutes the word "Temp." for the word "Temperature" in the list of AutoCorrect replacements.

add replacement autocorrect object text to replace "Temp." replacement text "Temperature"

Command: delete replacement

Deletes an entry from the list of AutoCorrect replacements.

Syntax

delete replacement autocorrect what

- autocorrect: An expression that returns an autocorrect object.
- what: Unicode text, required. The text to be replaced, as it appears in the row to be deleted from the list of AutoCorrect replacements. If this string doesn't exist in the list of AutoCorrect replacements, this command fails.

Example

This example removes the word "Temp" from the list of AutoCorrect replacements.

delete replacement autocorrect object what "Temp"

Command: get replacement list

Returns a list of AutoCorrect replacements.

Syntax

get replacement list autocorrect

- autocorrect: An expression that returns a list object.

Example

set myList to get replacement list autocorrect object
Chart Suite

Chart Suite

Chart Suite Classes....................................................................................................................381
Chart Suite Commands .............................................................................................................444

Chart Suite Classes

area group .....................................................................................................................................382
axis ..................................................................................................................................................382
axis title ........................................................................................................................................388
bar group .......................................................................................................................................590
chart ...............................................................................................................................................390
chart area .....................................................................................................................................396
chart fill format ..........................................................................................................................397
chart group ..................................................................................................................................401
chart object ..................................................................................................................................404
chart title ......................................................................................................................................406
column group ................................................................................................................................409
corners .........................................................................................................................................409
data label .....................................................................................................................................409
data table .....................................................................................................................................412
display unit label ..........................................................................................................................413
doughnut group ..........................................................................................................................415
down bars ....................................................................................................................................416
drop lines .....................................................................................................................................416
e-error bars ..................................................................................................................................416
floor ...............................................................................................................................................417
gridlines .........................................................................................................................................418
hilo lines .........................................................................................................................................419
interior ..........................................................................................................................................419
leader lines ...................................................................................................................................421
legend ..........................................................................................................................................421
legend entry .................................................................................................................................422
legend key .....................................................................................................................................423
line group .......................................................................................................................................426
pie group .........................................................................................................................................427
plot area .........................................................................................................................................427
radar group ....................................................................................................................................427
series ..............................................................................................................................................429
series lines .....................................................................................................................................435
series point ....................................................................................................................................436
tick labels .......................................................................................................................................438
trendline .........................................................................................................................................440
up bars ..........................................................................................................................................441
walls ...............................................................................................................................................442
xy group .........................................................................................................................................443
Class: area group

Plural
area groups

Represents one or more series plotted in an area chart. A chart contains one or more chart groups, each chart group contains one or more series, and each series contains one or more points. For example, a single chart might contain both a line chart group, containing all the series plotted with the line chart format, and an area chart group, containing all the series plotted with the area chart format.

Use area group index, where index is the chart-group index number, to return a single area group object. The following example adds drop lines to area group 1 on the active chart.

set has drop lines of area group 1 of active chart to true

Properties
<Inheritance> chart group

Inherits the properties and elements of the chart group class.

Class: axis

Plural
axes

 Represents a single axis in a chart.

Use axis type, group to return a single axis object. Type can be one of the following: category axis, series axis, or value axis. Group can be primary axis or secondary axis.

The following example sets the category axis title text on the active chart.

set axis1 to (get axis active chart axis type category axis)
set has title of axis1 to true
set axis title text of axis title of axis1 to "1994"

Properties

axis between categories

True if the value axis crosses the category axis between categories. Read/write.

This property applies only to category axes, and it does not apply to 3-D charts.

axis group

Returns the group for the specified axis, chart group, or series. Read-only.

Can be one of the following:

- primary axis
- secondary axis

For 3-D charts, only primary axis is valid.
Chart Suite

axis title

Returns an axis title object that represents the title of the specified axis. Read-only.

axis type

Returns or sets the axis type. Read/write.

Can be one of the following:
- category axis
- series axis
- value axis

base unit

Returns or sets the base unit for the specified category axis. Read/write.

Can be one of the following:
- days
- months
- years

Setting this property has no visible effect if the category type property for the specified axis is set to category scale. The set value is retained, however, and takes effect when the category type property is set to time scale.

You cannot set this property for a value axis.

base unit is auto

True if Excel chooses appropriate base units for the specified category axis. The default value is True. Read/write.

You cannot set this property for a value axis.

border

Returns a border object that represents the border of the object. Read-only.

category names

Returns or sets all the category names for the specified axis, as a list. You can set this property to either a list or a range object that contains the category names. Read/write.

Category names are really a property of the "special" series in an axis grouping. Deleting or modifying that special series changes the category names for all series using the axis.

category type

Returns or sets the category axis type. Read/write.

Can be one of the following:
- category scale
- time scale
- automatic scale

You cannot set this property for a value axis.
**crosses**

Returns or sets the point on the specified axis where the other axis crosses. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>axis crosses automatic</td>
<td>Excel sets the axis crossing point.</td>
</tr>
<tr>
<td>axis crosses minimum</td>
<td>The axis crosses at the minimum value.</td>
</tr>
<tr>
<td>axis crosses maximum</td>
<td>The axis crosses at the maximum value.</td>
</tr>
<tr>
<td>axis crosses custom</td>
<td>The crosses at property specifies the axis crossing point.</td>
</tr>
</tbody>
</table>

This property is not available for 3-D charts or radar charts.

This property can be used for both category and value axes. On the category axis, **axis crosses minimum** sets the value axis to cross at the first category, and **axis crosses maximum** sets the value axis to cross at the last category.

Note that **axis crosses minimum** and **axis crosses maximum** can have different meanings, depending on the axis.

**crosses at**

Returns or sets the point on the value axis where the category axis crosses it. Applies only to the value axis. Read/write.

Setting this property causes the **crosses** property to change to **axis crosses custom**.

This property cannot be used on 3-D charts or radar charts.

**display unit**

Returns or sets the unit label for the specified axis. Read/write.

Can be one of the following:

- hundreds
- thousands
- ten thousands
- hundred thousands
- millions
- ten millions
- hundred millions
- thousand millions
- million millions
- custom display unit

If the value is **custom display unit**, the **display unit custom** property returns or sets the value of the displayed units.

Using unit labels when charting large values makes your tick mark labels easier to read. For example, if you label your value axis in units of hundreds, thousands, or millions, you can use smaller numeric values at the tick marks on the axis.

**display unit custom**

If the value of the **display unit** property is **custom display unit**, the **display unit custom** property returns or sets the value of the displayed units. The value must be from 0 through 10E307. Read/write.

Using unit labels when charting large values makes your tick mark labels easier to read. For example, if you label your value axis in units of hundreds, thousands, or millions, you can use smaller numeric values at the tick marks on the axis.
display unit label

Returns the display unit label object for the specified axis. Returns missing value if the has display unit label property is set to false. Read-only.

has display unit label

True if the label specified by the display unit or display unit custom property is displayed on the specified axis. The default value is true. Read/write.

has major gridlines

True if the axis has major gridlines. Only axes in the primary axis group can have gridlines. Read/write.

has minor gridlines

True if the axis has minor gridlines. Only axes in the primary axis group can have gridlines. Read/write.

has title

True if the axis has a visible title. An axis title is represented by an axis title object. Read/write.

height

Returns the height (in points) of the axis. Read-only.

left position

Returns the distance (in points) from the left edge of the axis to the left edge of the chart area. Read-only.

major gridlines

Returns a gridlines object that represents the major gridlines for the specified axis. Only axes in the primary axis group can have gridlines. Read-only.

major tick mark

Returns or sets the type of major tick mark for the specified axis. Read/write.

Can be one of the following:

- tick mark cross
- tick mark inside
- tick mark none
- tick mark outside

major unit

Returns or sets the major units for the axis. Read/write.

Setting this property sets the major unit is auto property to false.

To set tick mark spacing on the category axis, use the tick mark spacing property.

major unit is auto

True if Excel calculates the major units for the axis. Read/write.

Setting the major unit property sets this property to false.
**Chart Suite**

*major unit scale*

Returns or sets the major unit scale value for the category axis when the *category type* property is set to *time scale*. Read/write.

Can be one of the following:
- days
- months
- years

*maximum scale*

Returns or sets the maximum value on the axis. Read/write.

Setting this property sets the *maximum scale is auto* property to **false**.

*maximum scale is auto*

**True** if Excel calculates the maximum value for the axis. Read/write.

Setting the *maximum scale* property sets this property to **false**.

*minimum scale*

Returns or sets the minimum value on the axis. Read/write.

Setting this property sets the *minimum scale is auto* property to **false**.

*minimum scale is auto*

**True** if Excel calculates the minimum value for the axis. Read/write.

Setting the *minimum scale* property sets this property to **false**.

*minor gridlines*

Returns a *gridlines* object that represents the minor gridlines for the specified axis. Only axes in the primary axis group can have gridlines. Read-only.

*minor tick mark*

Returns or sets the type of minor tick mark for the specified axis. Read/write.

Can be one of the following:
- tick mark cross
- tick mark inside
- tick mark none
- tick mark outside

*minor unit*

Returns or sets the minor units on the axis. Read/write.

Setting this property sets the *minor unit is auto* property to **false**.

To set tick mark spacing on the category axis, use the *tick mark spacing* property.
Chart Suite

**minor unit is auto**

*True* if Excel calculates minor units for the axis. Read/write.

Setting the *minor unit* property sets this property to *false*.

**minor unit scale**

Returns or sets the minor unit scale value for the category axis when the *category type* property is set to *time scale*. Read/write.

Can be one of the following:

- **days**
- **months**
- **years**

**reverse plot order**

*True* if Excel plots data points from last to first. Read/write.

This property cannot be used on radar charts.

**scale type**

Returns or sets the value axis scale type. Can be *scale linear* or *scale logarithmic*. Applies only to the value axis. Read/write.

A logarithmic scale uses base 10 logarithms.

**tick label position**

Describes the position of tick-mark labels on the specified axis. Read/write.

Can be one of the following:

- **tick label position high**
- **tick label position low**
- **tick label position next to axis**
- **tick label position none**

**tick label spacing**

Returns or sets the number of categories or series between tick-mark labels. Applies only to category and series axes. Read/write.

Tick-mark label spacing on the value axis is always calculated by Excel.

**tick labels**

Returns a *tick labels* object that represents the tick-mark labels for the specified axis. Read-only.

**tick mark spacing**

Returns or sets the number of categories or series between tick marks. Applies only to category and series axes. Read/write.

To set tick-mark spacing on the value axis, use the *major unit* and *minor unit* properties.
Chart Suite

*top*

Returns the distance (in points) from the top edge of the axis to the top of the chart area. Read-only.

*width*

Returns the width of the axis. Read-only.

**Class: axis title**

**Plural**
axis titles

**Elements**
character

Represents a chart axis title.

Use the *axis title* property to return an *axis title* object. The following example activates the active chart, sets the value axis title text, sets the font color to red, and formats the word "millions" as italic.

```
set axis1 to (get axis active chart axis type value axis)
set has title of axis1 to true
set t1 to axis title of axis1
set axis title text of t1 to "millions"
set font color index of font object of t1 to 3
set italic of font object of t1 to true
```

If the *has title* property for the axis is false, trying to use the *axis title* object will generate an access violation.

**Properties**

*auto scale font*

True if the text in the axis title changes font size when the axis title size changes. The default value is true. Read/write.

*axis title text*

Returns or sets the text for the axis title. Read/write.

*border*

Returns a *border* object that represents the border of the axis title. Read-only.

*caption*

Returns or sets the axis title text. Read/write.

*chart fill format object*

Returns a *chart fill format* object that contains fill formatting properties for the axis title. Read-only.

*font object*

Returns a *font* object that represents the font of the axis title. Read-only.
Chart Suite

**horizontal alignment**

Returns or sets the horizontal alignment for the axis title. Read/write.

Can be one of the following:

- horizontal align center
- horizontal align center across selection
- horizontal align distributed
- horizontal align fill
- horizontal align general
- horizontal align justify
- horizontal align left
- horizontal align right

The horizontal align distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

**interior object**

Returns an interior object that represents the interior of the axis title. Read-only.

**left position**

Returns or sets the position (in points) of the axis title. Read/write.

**name**

Returns the name of the axis title. Read-only.

**orientation**

Returns or sets the axis title's orientation. Can be a number value between -90 and 90 degrees. Read/write.

**reading order**

This property is not currently supported.

**shadow**

True if the font is a shadow font or if the axis title has a shadow. Read/write.

**top**

Returns or sets the distance (in points) from the top edge of the axis title to the top of the chart area. Read/write.
vertical alignment

Returns or sets the vertical alignment of the axis title. Read/write.

Can be one of the following:

- vertical alignment top
- vertical alignment center
- vertical alignment bottom
- vertical alignment justify
- vertical alignment distributed

The vertical alignment distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

Class: bar group

Plural
bar groups

Represents one or more series plotted in a bar chart. A chart contains one or more chart groups, each chart group contains one or more series, and each series contains one or more points. For example, a single chart might contain both a line chart group, containing all the series plotted with the line chart format, and a bar chart group, containing all the series plotted with the bar chart format.

Use bar group index, where index is the chart-group index number, to return a single bar group object. The following example adds drop lines to bar group 1 on the active chart.

```vba
set has drop lines of bar group 1 of active chart to true
```

Properties

<Inheritance> chart group

Inherits the properties and elements of the chart group class.

Class: chart

Plural
charts

Elements

- shape
- arc
- area group
- bar group
- button
- chart group
- chart object
- checkbox
- column group
- doughnut group
- dropdown
- hyperlink
- label
- line group
- line
- listbox
- option button
- oval
- pie group
- radar group
- rectangle
- scrollbar
- series
- spinner
- textbox
- xy group
Chart Suite

Represents a chart in a workbook. The chart can be either an embedded chart (contained in a chart object object) or a separate chart sheet.

Use the chart property of the chart object class to return a chart object that represents the chart contained in a chart object object. The following example sets the pattern for the chart area in a chart sheet.

set color index of interior object of chart area object of active chart to 43

Properties

area threeD group

Returns a chart group object that represents the area chart group on a 3-D chart. Read-only.

auto scaling

True if Excel scales a 3-D chart so that it’s closer in size to the equivalent 2-D chart. The right angle axes property must be set to true. Read/write.

bar shape

Returns or sets the shape used with the 3-D bar or column chart. Read/write.

Can be one of the following:

- box
- pyramid to point
- pyramid to max
- cylinder
- cone to point
- cone to max

bar threeD group

Returns a chart group object that represents the bar chart group on a 3-D chart. Read-only.

chart area object

Returns a chart area object that represents the complete chart area for the chart. Read-only.

chart title

Returns a chart title object that represents the title of the specified chart. Read-only.
Chart Suite

chart type

Returns or sets the chart type. Read/write.

Can be one of the following:

column clustered
column stacked
column stacked 100
ThreeD column clustered
ThreeD column stacked
ThreeD column stacked 100
bar clustered
bar stacked
bar stacked 100
ThreeD bar clustered
ThreeD bar stacked
ThreeD bar stacked 100
line stacked
line stacked 100
line markers
line markers stacked
line markers stacked 100
pie of pie
pie exploded
ThreeD pie exploded
bar of pie
xy scatter smooth
xy scatter smooth no markers
xy scatter lines
xy scatter lines no markers
area stacked
area stacked 100
ThreeD area stacked
ThreeD area stacked 100
doughnut exploded
radar markers
radar filled
surface
surface wireframe
surface top view
surface top view wireframe
bubble
bubble ThreeD effect
stock HLC
stock OHLC
stock VHLC
stock VOHLC
cylinder column clustered
cylinder column stacked
cylinder column stacked 100
cylinder bar clustered
cylinder bar stacked
cylinder bar stacked 100
cone column clustered
cone column stacked
cone column stacked 100
cone bar clustered
cone bar stacked
cone bar stacked 100
cone col
pyramid column clustered
pyramid column stacked
pyramid column stacked 100
pyramid bar clustered
pyramid bar stacked
pyramid bar stacked 100
pyramid column
ThreeD column
line chart
ThreeD line
ThreeD pie
pie chart
xyscatter
ThreeD area
area chart
doughnut
radar

column threeD group

Returns a chart group object that represents the column chart group on a 3-D chart. Read-only.

corners object

Returns a corners object that represents the corners of a 3-D chart. Read-only.
Chart Suite

**data table object**

Returns a data table object that represents the chart data table. Read-only.

**depth percent**

Returns or sets the depth of a 3-D chart as a percentage of the chart width (between 20 and 2000 percent). Read/write.

**display blanks as**

Returns or sets the way that blank cells are plotted on a chart. Read/write.

Can be one of the following:

- interpolated
- not plotted
- zero

**elevation**

Returns or sets the elevation (in degrees) of the 3-D chart view. Read/write.

The chart elevation is the height at which you view the chart, in degrees. The default is 15 for most chart types. The value of this property must be between -90 and 90, except for 3-D bar charts, where it must be between 0 and 44.

**entry index**

Returns the index number of the object within the elements of the parent object. Read-only.

**floor object**

Returns a floor object that represents the floor of the 3-D chart. Read-only.

**gap depth**

Returns or sets the distance between the data series in a 3-D chart, as a percentage of the marker width. The value of this property must be between 0 and 500. Read/write.

**has data table**

True if the chart has a data table. Read/write.

**has legend**

True if the chart has a legend. Read/write.

**has title**

True if the chart has a visible title. A chart title is represented by a chart title object. Read/write.

**height percent**

Returns or sets the height of a 3-D chart as a percentage of the chart width (between 5 and 500 percent). Read/write.

**legend object**

Returns a legend object that represents the legend for the chart. Read-only.

**line threeD group**

Returns a chart group object that represents the line chart group on a 3-D chart. Read-only.
Chart Suite

name
Returns or sets the name of the chart. Read/write.

page setup object
Returns a page setup object that contains all the page setup settings for the specified object. Read-only.

perspective
Returns or sets the perspective for the 3-D chart view. Must be between 0 and 100. This property is ignored if the right angle axes property is true. Read/write.

treeD group
Returns a chart group object that represents the pie chart group on a 3-D chart. Read-only.

plot area object
Returns a plot area object that represents the plot area of a chart. Read-only.

plot by
Returns or sets the way columns or rows are used as data series on the chart. Read/write.
Can be one of the following:
- by columns
- by rows

plot visible only
True if only visible cells are plotted. False if both visible and hidden cells are plotted. Read/write.

protect contents
True if the entire chart is protected. Read-only.

protect data
True if series formulas cannot be modified by the user. Read/write.

protect drawing objects
True if shapes are protected. Read-only.

protect formatting
True if chart formatting cannot be modified by the user. Read/write.
When this property is true, the Object command on the Format menu is disabled and chart elements cannot be added, moved, resized, or deleted.

protect goal seek
True if the user cannot modify chart data points with mouse actions. Read/write.

protect selection
True if chart elements cannot be selected. Read/write.
When this property is true, shapes cannot be added to the chart, and the click and double click events for chart elements don’t occur.
**Chart Suite**

*protection mode*

True if user-interface-only protection is turned on. To turn on user interface protection, use the `protect chart` command with the `user interface only` argument set to true. Read-only.

*right angle axes*

True if the chart axes are at right angles, independent of chart rotation or elevation. Applies only to 3-D line, column, and bar charts. Read/write.

If this property is true, the `perspective` property is ignored.

*rotation*

Returns or sets the rotation of the 3-D chart view (the rotation of the plot area around the z-axis, in degrees). The value of this property must be from 0 to 360, except for 3-D bar charts, where the value must be from 0 to 44. The default value is 20. Applies only to 3-D charts. Read/write.

*show window*

True if the embedded chart is displayed in a separate window. The `chart` object used with this property must refer to an embedded chart. Read/write.

*size with window*

True if Excel resizes the chart to match the size of the chart sheet window. False if the chart size is not attached to the window size. Applies only to chart sheets (does not apply to embedded charts). Read/write.

*surface group*

Returns a `chart group` object that represents the surface chart group on a 3-D chart. Read-only.

*visible*

Returns or sets whether the chart is visible. Read/write.

Can be one of the following:

- sheet visible
- sheet hidden
- sheet very hidden

If you set this property to sheet very hidden, the chart is hidden so that the only way for you to make it visible again is by setting this property to sheet visible (the user cannot make the object visible).

*walls and gridlines twoD*

True if gridlines are drawn two-dimensionally on a 3-D chart. Read/write.

*walls object*

Returns a `walls` object that represents the walls of the 3-D chart. Read-only.

This property does not apply to 3-D pie charts.
Chart Suite

Class: chart area

Plural
chart areas

Represents the chart area of a chart. The chart area on a 2-D chart contains the axes, the chart title, the axis titles, and the legend. The chart area on a 3-D chart contains the chart title and the legend; it does not include the plot area (the area within the chart area where the data is plotted). For information about formatting the plot area, see the plot area object.

Use the chart area property to return the chart area object. The following example sets the pattern for the chart area in a chart sheet.

set pattern of interior object of chart area object ¬
       of active chart to twenty percent pattern

Properties

auto scale font

True if the text in the chart area changes font size when the chart area size changes. The default value is true. Read/write.

border

Returns a border object that represents the border of the chart area. Read-only.

chart fill format object

Returns a chart fill format object that contains fill formatting properties for the chart area. Read-only.

font object

Returns a font object that represents the font of the text in the chart area. Read-only.

height

Returns the height (in points) of the chart area. Read-only.

interior object

Returns an interior object that represents the interior of the chart area. Read-only.

left position

Returns or sets the position (in points) of the chart area. Read/write.

name

Returns the name of the chart area. Read-only.

shadow

True if the chart area has a shadow. Read/write.

top

Returns or sets the distance (in points) from the top edge of the chart area to the top of row 1 (on a worksheet). Read/write.

width

Returns the width of the chart area. Read-only.
Class: chart fill format

Plural
chart fill formats

Used only with charts. Represents fill formatting for chart elements.

To return a chart fill format object, use the chart fill format object property of the chart area class. The following example sets the foreground color, background color, and gradient for the chart area fill on chart one.

```
set background scheme color of chart fill format object of chart area object of active chart to 23
set foreground scheme color of chart fill format object of chart area object of active chart to 3
chart one color gradient chart area object of active chart gradient style horizontal gradient variant 3 degree 0.34
```

Properties

back color

Returns the fill background color. Read-only.

background scheme color

Returns or sets the background color as an index in the current color scheme. Read/write.

The following illustration shows the color-index values in the default color palette.

```
1 □ □ □ □ □ □ □ □ 2 □ □ □ □ □ □ □ □ 3 □ □ □ □ □ □ □ □ 4 □ □ □ □ □ □ □ □ 5 □ □ □ □ □ □ □ □ 6 □ □ □ □ □ □ □ □ 7 □ □ □ □ □ □ □ □ 8 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 9 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 10 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 11 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 12 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 13 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 14 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 15 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 16 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 17 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 18 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 19 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 20 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 21 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 22 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 23 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 24 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 25 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 26 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 27 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 28 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 29 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 30 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 31 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 32 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 33 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 34 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 35 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 36 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 37 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 38 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 39 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 40 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 41 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 42 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 43 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 44 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 45 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 46 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 47 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 48 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 49 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 50 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 51 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 52 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 53 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 54 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 55 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 56 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 57 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 58 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 59 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 60 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 61 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 62 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 63 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 64 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 65 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ 66 □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
```

chart fill format type

Returns the fill type. Read-only.

Can be one of the following:

- fill unset
- fill solid
- fill patterned
- fill gradient
- fill textured
- fill background
- fill picture
fore color

Returns the fill foreground color. Read-only.

foreground scheme color

Returns or sets the foreground color as an index in the current color scheme. Read/write.

For an illustration showing the color-index values in the default color palette, see background scheme color.

gradient color type

Returns the gradient color type for the specified fill. Read-only.

Can be one of the following:

- gradient type unset
- single shade gradient type
- two colors gradient type
- preset colors gradient type

gradient degree

Returns the gradient degree of the specified one-color shaded fill as a floating-point value from 0.0 (dark) through 1.0 (light). Read-only.

To set the gradient degree for the fill, use the chart one color gradient command.

gradient style

Returns the gradient style for the specified fill. Read-only.

Can be one of the following:

- gradient unset
- horizontal gradient
- vertical gradient
- diagonal up gradient
- diagonal down gradient
- from corner gradient
- from center gradient

To set the gradient style for the fill, use the chart one color gradient or chart two color gradient command.

gradient variant

Returns the shade variant for the specified fill as an integer value from 1 through 4. The values for this property correspond to the gradient variants (numbered from left to right and from top to bottom) on the Gradient tab in the Fill Effects dialog box. Read-only.

To set the gradient variant for the fill, use the chart one color gradient or chart two color gradient command.
Chart Suite

**pattern**

Returns or sets the fill pattern. Read-only.

Can be one of the following:

<table>
<thead>
<tr>
<th>Pattern</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pattern unset</td>
<td>wide downward diagonal</td>
</tr>
<tr>
<td>five percent pattern</td>
<td>wide upward diagonal pattern</td>
</tr>
<tr>
<td>ten percent pattern</td>
<td>dashed upward diagonal pattern</td>
</tr>
<tr>
<td>twenty percent pattern</td>
<td>dashed downward diagonal pattern</td>
</tr>
<tr>
<td>twenty five percent pattern</td>
<td>narrow vertical pattern</td>
</tr>
<tr>
<td>thirty percent pattern</td>
<td>narrow horizontal pattern</td>
</tr>
<tr>
<td>forty percent pattern</td>
<td>dashed vertical pattern</td>
</tr>
<tr>
<td>fifty percent pattern</td>
<td>dashed horizontal pattern</td>
</tr>
<tr>
<td>sixty percent pattern</td>
<td>large confetti pattern</td>
</tr>
<tr>
<td>seventy percent pattern</td>
<td>large grid pattern</td>
</tr>
<tr>
<td>seventy five percent pattern</td>
<td>horizontal brick pattern</td>
</tr>
<tr>
<td>eighty percent pattern</td>
<td>large checker board pattern</td>
</tr>
<tr>
<td>ninety percent pattern</td>
<td>small confetti pattern</td>
</tr>
<tr>
<td>dark horizontal pattern</td>
<td>zig zag pattern</td>
</tr>
<tr>
<td>dark vertical pattern</td>
<td>solid diamond pattern</td>
</tr>
<tr>
<td>dark downward diagonal pattern</td>
<td>diagonal brick pattern</td>
</tr>
<tr>
<td>dark upward diagonal pattern</td>
<td>outlined diamond pattern</td>
</tr>
<tr>
<td>small checker board pattern</td>
<td>plaid pattern</td>
</tr>
<tr>
<td>trellis pattern</td>
<td>sphere pattern</td>
</tr>
<tr>
<td>light horizontal pattern</td>
<td>weave pattern</td>
</tr>
<tr>
<td>light vertical pattern</td>
<td>dotted grid pattern</td>
</tr>
<tr>
<td>light downward diagonal pattern</td>
<td>divot pattern</td>
</tr>
<tr>
<td>light upward diagonal pattern</td>
<td>shingle pattern</td>
</tr>
<tr>
<td>small grid pattern</td>
<td>wave pattern</td>
</tr>
<tr>
<td>dotted diamond pattern</td>
<td></td>
</tr>
</tbody>
</table>

**preset gradient type**

Returns the preset gradient type for the specified fill. Read-only.

Can be one of the following:

<table>
<thead>
<tr>
<th>Gradient Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>preset gradient unset</td>
<td>gradient wheat</td>
</tr>
<tr>
<td>gradient early sunset</td>
<td>gradient parchment</td>
</tr>
<tr>
<td>gradient late sunset</td>
<td>gradient mahogany</td>
</tr>
<tr>
<td>gradient nightfall</td>
<td>gradient rainbow</td>
</tr>
<tr>
<td>gradient daybreak</td>
<td>gradient rainbow2</td>
</tr>
<tr>
<td>gradient horizon</td>
<td>gradient gold</td>
</tr>
<tr>
<td>gradient desert</td>
<td>gradient gold2</td>
</tr>
<tr>
<td>gradient ocean</td>
<td>gradient brass</td>
</tr>
<tr>
<td>gradient calm water</td>
<td>gradient chrome</td>
</tr>
<tr>
<td>gradient fire</td>
<td>gradient chrome2</td>
</tr>
<tr>
<td>gradient fog</td>
<td>gradient silver</td>
</tr>
<tr>
<td>gradient moss</td>
<td>gradient sapphire</td>
</tr>
<tr>
<td>gradient peacock</td>
<td></td>
</tr>
</tbody>
</table>

To set the preset gradient type for the fill, use the `preset chart gradient` command.
Chart Suite

preset texture

Returns the preset texture for the specified fill. Read-only.

Can be one of the following:

- preset texture unset
- texture papyrus
- texture canvas
- texture denim
- texture woven mat
- texture water droplets
- texture paper bag
- texture fish fossil
- texture sand
- texture green marble
- texture white marble
- texture brown marble
- texture granite

To set the preset texture for the fill, use the preset chart textured command.

texture name

Returns the name of the custom texture file for the specified fill. Read-only.

To set the texture file for the fill, use the chart user picture or chart user textured command.

texture type

Returns the texture type for the specified fill. Read-only.

Can be one of the following:

- texture type texture type unset
- texture type preset texture
- texture type user defined texture

To set the texture type for the fill, use the chart user textured command.

transparency

Returns or sets the degree of transparency of the specified fill as a value from 0.0 (opaque) through 1.0 (clear). Read/write.

The value of this property affects the appearance of solid-colored fills and lines only; it has no effect on the appearance of patterned lines or patterned, gradient, picture, or textured fills.

visible

True if the specified object is visible. Read/write.
**Chart Suite**

**Class: chart group**

**Plural**
chart groups

**Elements**

series

Represents one or more series plotted in a chart with the same format. A chart contains one or more chart groups, each chart group contains one or more series, and each series contains one or more points. For example, a single chart might contain both a line chart group, containing all the series plotted with the line chart format, and a bar chart group, containing all the series plotted with the bar chart format.

Use chart group index, where index is the chart-group index number, to return a single chart group object. The following example adds drop lines to chart group 1 on the active chart.

```javascript
set has drop lines of chart group 1 of active chart to true
```

Because the index number for a particular chart group can change if the chart format used for that group is changed, it may be easier to use one of the named chart group shortcut classes to return a particular chart group. The pie group class returns the list of pie chart groups in a chart, the line group class returns the list of line chart groups, and so on. Each of these classes can be used with an index number to return a single chart group object, or without an index number to return the list of chart group objects in the chart. The following chart group classes are available:

- area group
- bar group
- column group
- doughnut group
- line group
- pie group
- radar group
- series group
- xy group

**Properties**

axis group

Returns the group for the specified axis, chart group, or series. Read/write.

Can be one of the following:

- primary axis
- secondary axis

For 3-D charts, only primary axis is valid.
Chart Suite

_bubble scale_
Returns or sets the scale factor for bubbles in the specified chart group. Can be an integer value from 0 (zero) to 300, corresponding to a percentage of the default size. Applies only to bubble charts. Read/write.

color scheme
Returns or sets the preset color scheme to apply to a chart. The color scheme is represented by a number between 1 and 18 corresponding to which of the color schemes to apply. Read/write.

color variance
Varies the color within a data series. Read/write. Can be one of the following:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>vary by grayscale</td>
<td>Uses black for all of the data series, with each data series shown at a different level of opacity.</td>
</tr>
<tr>
<td>vary by same color</td>
<td>Uses a single color for a chart that has only one data series.</td>
</tr>
<tr>
<td>vary by color</td>
<td>Uses a different color for each data series.</td>
</tr>
<tr>
<td>vary by shade</td>
<td>Uses a single color for all of the data series, with each data series shown at a different level of opacity.</td>
</tr>
</tbody>
</table>

doughnut hole size
Returns or sets the size of the hole in a doughnut chart group. The hole size is expressed as a percentage of the chart size, between 10 and 90 percent. Read/write.

down bars object
Returns a down bars object that represents the down bars on a line chart. Applies only to line charts. Read-only.

drop lines object
Returns a drop lines object that represents the drop lines for a series on a line chart or area chart. Applies only to line charts or area charts. Read-only.

entry index
Returns the index number of the object within the elements of the parent object. Read-only.

first slice angle
Returns or sets the angle of the first pie-chart or doughnut-chart slice, in degrees (clockwise from vertical). Applies only to pie, 3-D pie, and doughnut charts. Read/write.

gap width
For bar and column charts, returns or sets the space between bar or column clusters, as a percentage of the bar or column width. The value of this property must be between 0 and 500. Read/write.

For pie-of-pie and bar-of-pie charts, returns or sets the space between the primary and secondary sections of the chart. The value of this property must be between 5 and 200. Read/write.
Chart Suite

has drop lines

True if the line chart or area chart has drop lines. Applies only to line and area charts. Read/write.

has hi lo lines

True if the line chart has high-low lines. Applies only to line charts. Read/write.

has radar axis labels

True if a radar chart has axis labels. Applies only to radar charts. Read/write.

has series lines

True if a stacked column chart or bar chart has series lines or if a pie-of-pie chart or bar-of-pie chart has connector lines between the two sections. Applies only to stacked column charts, bar charts, pie-of-pie charts, or bar-of-pie charts. Read/write.

has threeD shading

True if the chart group has three-dimensional shading. Read/write.

has up down bars

True if a line chart has up and down bars. Applies only to line charts. Read/write.

hilo lines Object

Returns a hilo lines object that represents the high-low lines for a series on a line chart. Applies only to line charts. Read-only.

overlap

Specifies how bars and columns are positioned. Can be a value between -100 and 100. Applies only to 2-D bar charts and 2-D column charts. Read/write.

If this property is set to -100, bars are positioned so that there is one bar width between them. If the overlap is 0 (zero), there is no space between bars (one bar starts immediately after the preceding bar). If the overlap is 100, bars are positioned on top of each other.

radar axis labels

Returns a tick labels object that represents the radar axis labels for the specified chart group. Read-only.

second plot size

Returns or sets the size of the secondary section of either a pie-of-pie chart or a bar-of-pie chart, as a percentage of the size of the primary pie. Can be a value from 5 to 200. Read/write.

series lines object

Returns a series lines object that represents the series lines for a stacked bar chart or a stacked column chart. Applies only to stacked bar charts and stacked column charts. Read-only.

show negative bubbles

True if negative bubbles are shown for the chart group. Valid only for bubble charts. Read/write.
size represents

Returns or sets what the bubble size represents on a bubble chart. Read/write.

Can be one of the following:

size is area
size is width

split type

Returns or sets the way the two sections of either a pie-of-pie chart or a bar-of-pie chart are split. Read/write.

Can be one of the following:

- split by position
- split by percent value
- split by custom split
- split by value

split value

Returns or sets the threshold value separating the two sections of either a pie-of-pie chart or a bar-of-pie chart. Read/write.

up bars object

Returns an up bars object that represents the up bars on a line chart. Applies only to line charts. Read-only.

vary by categories

True if Excel assigns a different color or pattern to each data marker. The chart must contain only one series. Read/write.

Class: chart object

Plural

chart objects

Represents an embedded chart on a worksheet. The chart object object acts as a container for a chart object. Properties and commands for the chart object object control the appearance and size of the embedded chart on the worksheet.

Use chart object index, where index is the embedded chart index number or name, to return a single chart object object. The following example sets the pattern for the chart object object in chart object 1 on the active chart.

set ci to interior object of chart area object of chart of chart object 1
set pattern of ci to pattern checker

The embedded chart name is shown in the Name box when the embedded chart is selected. Use the name property to set or return the name of the chart object object. The following example puts rounded corners on chart object 1 on the active chart.

set rounded corners of chart object 1 of active sheet to true
Chart Suite

Properties

border
Returns a border object that represents the border of the chart object. Read-only.

bottom right cell
Returns a range object that represents the cell that lies under the lower-right corner of the chart object. Read-only.

chart
Returns a chart object that represents the chart contained in the object. Read-only.

enabled
True if the object is enabled. Read/write.

entry index
Returns the index number of the chart object within the elements of the parent object. Read-only.

height
Returns or sets the height (in points) of the chart object. Read/write.

interior object
Returns an interior object that represents the interior of the chart object. Read-only.

left position
Returns or sets the distance (in points) from the left edge of the chart object to the left edge of column A. Read/write.

locked
True if the chart object is locked; false if the chart object can be modified when the sheet is protected. Read/write.

name
Returns or sets the name of the chart object. Read/write.

on action
Returns or sets the name of a Visual Basic macro or a string of AppleScript commands that is run when the chart object is clicked. Read/write.

Visual Basic macros are saved with the document, while AppleScript commands are not saved with the document.

placement
Returns or sets the way the chart object is attached to the cells below it. Read/write.

Can be one of the following:

- placement free floating
- placement move
- placement move and size
Chart Suite

print object
True if the chart object will be printed when the document is printed. Read/write.

protect chart object
True if the embedded chart frame cannot be moved, resized, or deleted. Read/write.

rounded corners
True if the embedded chart has rounded corners. Read/write.

shadow
True if the chart object has a shadow. Read/write.

top
Returns or sets the distance (in points) from the top edge of the chart object to the top of column A. Read/write.

top left cell
Returns a range object that represents the cell that lies under the upper-left corner of the specified object. Read-only.

visible
True if the chart object is visible. Read/write.

width
Returns the width of the chart object. Read-only.

z order position
Returns the position of the chart object in the z-order, which corresponds to the object’s index number. Read-only.

Whenever you make a new shape or object, it’s added to the front of the z-order by default.

Class: chart title

Plural
chart titles

Elements
character

Represents the chart title.

Use the chart title property to return the chart title object. The following example adds a title to the active chart.

set has title of active chart to true

If the has title property for the chart is false, trying to use the chart title object will generate an access violation.
Chart Suite

Properties

*auto scale font*

*True* if the text in the chart title changes font size when the chart title size changes. The default value is *true*. Read/write.

*border*

Returns a *border* object that represents the border of the chart title. Read-only.

*caption*

Returns or sets the chart title text. Read/write.

*chart fill format object*

Returns a *chart fill format* object that contains fill formatting properties for the chart title. Read-only.

*chart title text*

Returns or sets the text for the chart title. Read/write.

*font object*

Returns a *font* object that represents the font of the chart title. Read-only.

*horizontal alignment*

Returns or sets the horizontal alignment for the chart title. Read/write.

Can be one of the following:

- horizontal align center
- horizontal align center across selection
- horizontal align distributed
- horizontal align fill
- horizontal align general
- horizontal align justify
- horizontal align left
- horizontal align right

The *horizontal align distributed* alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

*interior object*

Returns an *interior* object that represents the interior of the chart title. Read-only.

*left position*

Returns or sets the position (in points) of the chart title. Read/write.
Chart Suite

name
Returns the name of the chart title. Read-only.

orientation
Returns or sets the chart title's orientation. Read/write.
Can be one of the following:

- orientation down
- orientation horizontal
- orientation upward
- orientation vertical
Can also be a number value between -90 and 90 degrees.

reading order
This property is not current supported.

shadow
True if the font is a shadow font or if the chart title has a shadow. Read/write.

top
Returns or sets the distance (in points) from the top edge of the chart title to the top of the chart area. Read/write.

vertical alignment
Returns or sets the vertical alignment of the chart title. Read/write.
Can be one of the following:

- vertical alignment top
- vertical alignment center
- vertical alignment bottom
- vertical alignment justify
- vertical alignment distributed

The vertical alignment distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.
Chart Suite

Class: column group

Plural

column groups

 Represents one or more series plotted in a column chart. A chart contains one or more chart groups, each chart group contains one or more series, and each series contains one or more points. For example, a single chart might contain both a line chart group, containing all the series plotted with the line chart format, and a bar chart group, containing all the series plotted with the bar chart format.

Use column group index, where index is the chart-group index number, to return a single column group object. The following example adds drop lines to column group 1 on the active chart.

set has drop lines of column group 1 of active chart to true

Properties

<Inheritance> chart group

 Inherits the properties and elements of the chart group class.

Class: corners

 Represents the corners of a 3-D chart.

Use the corners object property to return the corners object. The following example gets the name of the corners of the active chart.

get name of corners object of active chart

If the chart isn't a 3-D chart, the corners object property fails.

Properties

name

 Returns the name of the corners object. Read-only.

Class: data label

Plural

data labels

Elements

character

 Represents the data label on a chart series point or trendline.

Use data label index, where index is the data-label index number, to return a single data label object. The following example sets the data label text of series 1 in the active chart to "Data Label."

set data label text of data labels of series 1 of active chart to "Data Label"

To return the data label object for a single point, use the data label object property of the series point class. The following example turns on the data label for point 1 in series 1 on the active chart.

apply data labels series point 1 of series 1 of active chart
Chart Suite

On a trendline, the data label object property returns the text shown with the trendline. This can be the equation, the R-squared value, or both (if both are showing). The following example sets the trendline text to show only the equation.

```plaintext
set display R squared of trendline 1 of series 1 of active chart to false
set display equation of trendline 1 of series 1 of active chart to true
```

Properties

- **auto scale font**
  
  *True* if the text in the data label changes font size when the data label size changes. The default value is *true*. Read/write.

- **auto text**
  
  *True* if the data label automatically generates appropriate text based on context. Read/write.

- **border**
  
  Returns a border object that represents the border of the data label. Read-only.

- **caption**
  
  Returns or sets the data label text. Read/write.

- **chart fill format object**
  
  Returns a chart fill format object that contains fill formatting properties for the data label. Read-only.

- **data label text**
  
  Returns or sets the text for the data label. Read/write.

- **data label type**
  
  Returns or sets the data label type. Read/write.
  
  Can be one of the following:

  - data labels show none
  - data labels show value
  - data labels show percent
  - data labels show label
  - data labels show label and percent
  - data labels show bubble sizes

- **font object**
  
  Returns a font object that represents the font of the data label. Read-only.
**Chart Suite**

*horizontal alignment*

Returns or sets the horizontal alignment for the data label. Read/write.

Can be one of the following:

- horizontal align center
- horizontal align center across selection
- horizontal align distributed
- horizontal align fill
- horizontal align general
- horizontal align justify
- horizontal align left
- horizontal align right

The *horizontal align distributed* alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

*interior object*

Returns an *interior* object that represents the interior of the data label. Read-only.

*left position*

Returns or sets the position (in points) of the data label. Read/write.

*name*

Returns the name of the data label. Read-only.

*number format*

Returns or sets the format code for the data label. Read/write.

You’ll find a list of format codes under the Custom category on the Number tab in the Format Cells dialog box.

*number format linked*

*True* if the number format is linked to the cells (so that the number format changes in the labels when it changes in the cells). Read/write.

*orientation*

Returns or sets the orientation of the data label. Read/write.

Can be one of the following:

- orientation down
- orientation horizontal
- orientation upward
- orientation vertical

Can also be a number value between -90 and 90 degrees.
position
Returns or sets the position of the data label. Read/write.

Can be one of the following:

- label position center
- label position above
- label position below
- label position left
- label position right
- label position outside end

reading order
This property is not currently supported.

shadow
True if the font is a shadow font or if the data label has a shadow. Read/write.

show legend key
True if the data label legend key is visible. Read/write.

top
Returns or sets the distance (in points) from the top edge of the data label to the top of the chart area. Read/write.

vertical alignment
Returns or sets the vertical alignment of the data label. Read/write.

Can be one of the following:

- vertical alignment top
- vertical alignment center
- vertical alignment bottom
- vertical alignment justify
- vertical alignment distributed

The vertical alignment distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

Class: data table

Plural
data tables
Represents a chart data table.

Use the data table object property to return a data table object. The following example adds a data table with an outline border to the active chart.

set has data table of active chart to true
set has border outline of data table object of active chart to true
Properties

auto scale font

True if the text in the data table changes font size when the data table size changes. The default value is true. Read/write.

border

Returns a border object that represents the border of the data table. Read-only.

font object

Returns a font object that represents the font of the data table. Read-only.

has border horizontal

True if the chart data table has horizontal cell borders. Read/write.

has border outline

True if the chart data table has outline borders. Read/write.

has border vertical

True if the chart data table has vertical cell borders. Read/write.

show legend key

True if the data table legend key is visible. Read/write.

Class: display unit label

Plural
display unit labels

Elements

character

Represents a unit label on an axis in the specified chart. Unit labels are useful for charting large values — for example, in the millions or billions. You can make the chart more readable by using a single unit label instead of large numbers at each tick mark.

To return the display unit label object, use the display unit label property of the axis class. The following example sets the display label caption to "millions" on the value axis in the active chart.

set Axis1 to (get axis active chart axis type value axis)
set display unit of Axis1 to millions
set has display unit label of Axis1 to true
set caption of display unit label of Axis1 to "In millions"

Properties

auto scale font

True if the text in the display unit label changes font size when the display unit label size changes. The default value is true. Read/write.

border

Returns a border object that represents the border of the display unit label. Read-only.
**Chart Suite**

- **caption**
  - Returns or sets the display unit label text. Read/write.

- **chart fill format object**
  - Returns a chart fill format object that contains fill formatting properties for the display unit label. Read-only.

- **display label unit text**
  - Returns or sets the text for the display unit label. Read/write.

- **font object**
  - Returns a font object that represents the font of the display unit label. Read-only.

- **horizontal alignment**
  - Returns or sets the horizontal alignment for the display unit label. Read/write.
  - Can be one of the following:
    - horizontal align center
    - horizontal align center across selection
    - horizontal align distributed
    - horizontal align fill
    - horizontal align general
    - horizontal align justify
    - horizontal align left
    - horizontal align right
  - The horizontal align distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

- **interior object**
  - Returns an interior object that represents the interior of the display unit label. Read-only.

- **left position**
  - Returns or sets the position (in points) of the display unit label. Read/write.

- **name**
  - Returns the name of the display unit label. Read-only.
**Chart Suite**

*orientation*

Returns or sets the orientation of the display unit label. Read/write.

Can be one of the following:

- orientation down
- orientation horizontal
- orientation upward
- orientation vertical

Can also be a number value between -90 and 90 degrees.

*reading order*

This property is not currently supported.

*shadow*

True if the font is a shadow font or if the display unit label has a shadow. Read/write.

*top*

Returns or sets the distance (in points) from the top edge of the display unit label to the top of the chart area. Read/write.

*vertical alignment*

Returns or sets the vertical alignment of the display unit label. Read/write.

Can be one of the following:

- vertical alignment top
- vertical alignment center
- vertical alignment bottom
- vertical alignment justify
- vertical alignment distributed

The vertical alignment distributed alignment style works only in the Japanese version of Excel or in an English version of Excel that you have registered as Japanese by using the Microsoft Language Register application.

**Class:** doughnut group

**Plural doughnut groups**

Represents one or more series plotted in a doughnut chart. A chart contains one or more chart groups, each chart group contains one or more series, and each series contains one or more points. For example, a single chart might contain both a line chart group, containing all the series plotted with the line chart format, and a doughnut chart group, containing all the series plotted with the doughnut chart format.
Use **doughnut group index**, where *index* is the chart-group index number, to return a single *doughnut group* object. The following example adds drop lines to doughnut group 1 on the active chart.

```plaintext
set has drop lines of doughnut group 1 of active chart to true
```

### Properties

**<Inheritance> chart group**

Inherits the properties and elements of the **chart group** class.

---

**Class: down bars**

Represents the down bars in a chart group. Down bars connect points on the first series in the chart group with lower values on the last series (the lines go down from the first series). Only 2-D line groups that contain at least two series can have down bars.

There is no object that represents a single down bar; up bars and down bars are either turned on or off for all points in a chart group.

Use the **down bars object** property to return the **down bars** object. The following example turns on up and down bars for chart group 1 on the active chart.

```plaintext
set has up down bars of chart group 1 of active chart to true
```

If the **has up down bars** property is **false**, most properties of the **down bars** object are disabled.

### Properties

**border**

Returns a **border** object that represents the border of the object. Read-only.

**chart fill format object**

Returns a **chart fill format** object that contains fill formatting properties for the object. Read-only.

**interior object**

Returns an **interior** object that represents the interior of the object. Read-only.

**name**

Returns the name of the object. Read-only.

---

**Class: drop lines**

Represents the drop lines in a chart group. Drop lines connect the points in the chart with the x-axis. Only line and area chart groups can have drop lines.

There is no object that represents a single drop line; drop lines are either turned on or off for all points in a chart group.

Use the **drop lines object** property to return the **drop lines** object. The following example turns on drop lines for an active chart.

```plaintext
set has drop lines of chart group 1 of active chart to true
```

If the **has drop lines** property is **false**, most properties of the **drop lines** object are disabled.
Properties

`border`

Returns a `border` object that represents the border of the object. Read-only.

`name`

Returns the name of the object. Read-only.

Class: `error bars`

Represents the error bars on a chart series. Error bars indicate the degree of uncertainty for chart data. Only series in area, bar, column, line, and scatter groups on a 2-D chart can have error bars. Only series in scatter groups can have x and y error bars.

There is no object that represents a single error bar; x error bars or y error bars are either turned on or off for all points in a series.

Use the `error bars` property to return the `error bars` object. The following example turns on error bars for series 1 in the active chart and then sets the end style for the error bars.

```plaintext
set has error bars of series 1 of active chart to true
set end style of error bars of series 1 of active chart to cap
```

The `error bar` command changes the error bar format and type.

Properties

`border`

Returns a `border` object that represents the border of the object. Read-only.

`end style`

Returns or sets the end style for the error bars. Read/write.

Can be one of the following:

- `cap`
- `no cap`

`name`

Returns the name of the object. Read-only.

Class: `floor`

Plural

`floors`

Represents the floor of a 3-D chart

Use the `floor object` property to return the `floor` object. The following example sets the floor color for the active chart to red. The example will fail if the chart isn't a 3-D chart.

```plaintext
set color index of interior object of floor object of active chart to 3
```
Chart Suite

Properties

border

Returns a border object that represents the border of the floor. Read-only.

chart fill format object

Returns a chart fill format object that contains fill formatting properties for the floor. Read-only.

interior object

Returns an interior object that represents the interior of the floor. Read-only.

name

Returns the name of the floor. Read-only.

picture type

Returns or sets the way pictures are displayed on the floor of a 3-D chart. Read/write. Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>chart picture type</td>
<td>Stretch the picture to reach the necessary value.</td>
</tr>
<tr>
<td>stretch</td>
<td></td>
</tr>
<tr>
<td>chart picture type</td>
<td>Stack the pictures to reach the necessary value.</td>
</tr>
<tr>
<td>stack</td>
<td></td>
</tr>
<tr>
<td>chart picture type</td>
<td>Stack the pictures, but use the picture unit property to determine what</td>
</tr>
<tr>
<td>stack scale</td>
<td>unit each picture represents.</td>
</tr>
</tbody>
</table>

Class: gridlines

Represents major or minor gridlines on a chart axis. Gridlines extend the tick marks on a chart axis to make it easier to see the values associated with the data markers.

There's no object that represents a single gridline; all gridlines for an axis are either turned on or off. Use the major gridlines property to return the gridlines object that represents the major gridlines for the axis. Use the minor gridlines property to return the gridlines object that represents the minor gridlines. It's possible to return both major and minor gridlines at the same time.

The following example turns on major gridlines for the category axis on the active chart sheet.

set has major gridlines of (get axis active chart axis type value axis) to true

Properties

border

Returns a border object that represents the border of the object. Read-only.

name

Returns the name of the object. Read-only.
**Class: hilo lines**

Represents the high-low lines in a chart group. High-low lines connect the highest point with the lowest point in every category in the chart group. Only 2-D line groups can have high-low lines.

There is no object that represents a single high-low line; high-low lines are either turned on or off for all points in a chart group.

Use the `hilo lines object` property to return the `hilo lines` object. The following example creates high-low lines on the active chart and then makes the high-low lines blue.

```
set has hi lo lines of chart group 1 of active chart to true
set color index of interior object of hilo lines of active chart to 32
```

If the `has hi lo lines` property is **false**, most properties of the `hilo lines` object are disabled.

**Properties**

- **border**
  
  Returns a `border` object that represents the border of the object. Read-only.

- **name**
  
  Returns the name of the object. Read-only.

**Class: interior**

**Plural**

- **interiors**

  Represents the interior of an object.

  Use the `interior object` property to return the `interior` object. The following example sets the interior color of the floor of a chart to red.

  ```
  set color index of interior object of floor object of active chart to 3
  ```

**Properties**

- **color**

  Returns or sets the cell shading color or the drawing object fill color as an RGB value.
  
  Read/write.
Chart Suite

color index

Returns or sets the color of the interior fill. The color is specified as an index value into the current color palette. You can also use color index none to specify that you don't want an interior fill, or use color index automatic to specify the automatic fill (for drawing objects).

This property specifies a color as an index into the workbook color palette. The following illustration shows the color-index values in the default color palette.

<table>
<thead>
<tr>
<th>Index</th>
<th>Color Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>23</td>
<td>24</td>
</tr>
<tr>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>31</td>
<td>32</td>
</tr>
<tr>
<td>33</td>
<td>34</td>
</tr>
<tr>
<td>35</td>
<td>36</td>
</tr>
<tr>
<td>37</td>
<td>38</td>
</tr>
<tr>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>41</td>
<td>42</td>
</tr>
<tr>
<td>43</td>
<td>44</td>
</tr>
<tr>
<td>45</td>
<td>46</td>
</tr>
<tr>
<td>47</td>
<td>48</td>
</tr>
<tr>
<td>49</td>
<td>50</td>
</tr>
<tr>
<td>51</td>
<td>52</td>
</tr>
<tr>
<td>53</td>
<td>54</td>
</tr>
<tr>
<td>55</td>
<td>56</td>
</tr>
</tbody>
</table>

invert if negative

True if Excel inverts the pattern in the item when it corresponds to a negative number. Read/write.

pattern

Returns or sets the interior pattern. Read/write.

Can be one of the following:

- pattern automatic
- pattern checker
- pattern criss cross
- pattern down
- pattern gray 16
- pattern gray 25
- pattern gray 50
- pattern gray 75
- pattern gray 8
- pattern grid
- pattern horizontal
- pattern light down
- pattern light horizontal
- pattern light up
- pattern light vertical
- pattern semi gray 75
- pattern solid
- pattern up
- pattern vertical

pattern color

Returns or sets the color of the interior pattern as an RGB value. Read/write.

pattern color index

Returns or sets the color of the interior pattern as an index into the current color palette. You can also use color index automatic to specify the automatic pattern for cells or the automatic fill style for drawing objects, or use color index none to specify that you don't want a pattern (this is the same as setting the pattern property to pattern none). Read/write.

For the color-index values in the default color palette, see the color index property.
**Chart Suite**

**Class: leader lines**

Represents leader lines on a chart. Leader lines connect data labels to data points.

Use the **leader lines** property to return the **leader lines** object. The following example adds data labels and leader lines to the chart.

```plaintext
apply data labels active chart with has leader lines
```

**Properties**

<table>
<thead>
<tr>
<th>border</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returns a <strong>border</strong> object that represents the border of the object. Read-only.</td>
</tr>
</tbody>
</table>

**Class: legend**

**Plural**

legends

**Elements**

legend entry

Represents the legend in a chart. Each chart can have only one legend. The **legend** object contains one or more **legend entry** objects; each **legend entry** object contains a **legend key** object.

Use the **legend object** property to return the **legend** object. The following example sets the font style for the legend in the active chart to bold.

```plaintext
set bold of font object of legend object of active chart to true
```

The chart legend is not visible unless the **has legend** property is **true**. If this property is **false**, properties of the **legend** object will fail.

**Properties**

<table>
<thead>
<tr>
<th>auto scale font</th>
</tr>
</thead>
<tbody>
<tr>
<td>True if the text in the legend changes font size when the legend size changes. The default value is <strong>true</strong>. Read/write.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>border</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returns a <strong>border</strong> object that represents the border of the legend. Read-only.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>chart fill format object</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returns a <strong>chart fill format</strong> object that contains fill formatting properties for the legend. Read-only.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>font object</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returns a <strong>font</strong> object that represents the font of the legend. Read-only.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returns or sets the height (in points) of the legend. Read/write.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>interior object</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returns an <strong>interior</strong> object that represents the interior of the legend. Read-only.</td>
</tr>
</tbody>
</table>
**left position**

Returns or sets the position (in points) of the legend. Read/write.

**name**

Returns the name of the legend. Read-only.

**position**

Returns or sets the position of the legend. Read/write.

Can be one of the following:

- `legend position bottom`
- `legend position corner`
- `legend position left`
- `legend position right`
- `legend position top`

**shadow**

*True* if the font is a shadow font or if the legend has a shadow. Read/write.

**top**

Returns or sets the distance (in points) from the top edge of the legend to the top of the chart area. Read/write.

**width**

Returns or sets the width of the legend. Read/write.

---

**Class: legend entry**

### Plural

**legend entries**

Represents a legend entry in a chart legend.

Each legend entry has two parts: the text of the entry, which is the name of the series associated with the legend entry; and an entry marker, which visually links the legend entry with its associated series or trendline in the chart. Formatting properties for the entry marker and its associated series or trendline are contained in the `legend key` object.

The text of a legend entry cannot be changed. All `legend entry` objects support font formatting, and they can be deleted. No pattern formatting is supported for legend entries. The position and size of entries is fixed.

Use `legend entry index`, where `index` is the legend entry index number, to return a single `legend entry` object. You cannot return legend entries by name.
The index number represents the position of the legend entry in the legend. `legend entry 1` is at the top of the legend, and `legend entry (get count of legend entries)` is at the bottom. The following example changes the font for the text of the legend entry at the top of the legend (this is usually the legend for series one) in a chart.

```plaintext
set italic of font object of legend entry 1 of legend object of active chart to true
```

There is no direct way to return the series or trendline corresponding to the legend entry.

After legend entries have been deleted, the only way to restore them is to remove and recreate the legend that contained them by setting the `has legend` property for the chart to `false` and then back to `true`.

**Properties**

*auto scale font*

- **True** if the text in the legend entry changes font size when the legend entry size changes. The default value is **true**. Read/write.

*entry index*

- Returns the index number of the object within the elements of the parent object. Read-only.

*font object*

- Returns a **font** object that represents the font of the legend entry. Read-only.

*height*

- Returns the height of the object. Read-only.

*left position*

- Returns or sets the position (in points) of the legend entry. Read/write.

*legend key*

- Returns a **legend key** object that represents the legend key associated with the entry. Read-only.

*top*

- Returns or sets the distance (in points) from the top edge of the legend entry to the top of the chart area. Read/write.

*width*

- Returns the width of the object. Read-only.

**Class: legend key**

**Plural: legend keys**

Represents a legend key in a chart legend. Each legend key is a graphic that visually links a legend entry with its associated series or trendline in the chart. The legend key is linked to its associated series or trendline in such a way that changing the formatting of one simultaneously changes the formatting of the other.
Use the `legend key` property to return the `legend key` object. The following example changes the marker background color for the legend entry at the top of the legend for the active chart. This simultaneously changes the format of every point in the series associated with this legend entry. The associated series must support data markers.

```plaintext
set color index of interior object of legend key of legend entry 1 of legend object of active chart to 5
```

### Properties

**border**

Returns a `border` object that represents the border of the legend key. Read-only.

**chart fill format object**

Returns a `chart fill format` object that contains fill formatting properties for the legend key. Read-only.

**height**

Returns the height of the legend key. Read-only.

**interior object**

Returns an `interior` object that represents the interior of the legend key. Read-only.

**invert if negative**

True if Excel inverts the pattern in the item when it corresponds to a negative number. Read/write.

**left position**

Returns or sets the position (in points) of the legend key. Read/write.

**marker background color**

Returns or sets the marker background color as an RGB value. Applies only to line, scatter, and radar charts. Read/write.

**marker background color index**

Returns or sets the marker background color as an index into the current color palette, or as `color index automatic` or `color index none`. Applies only to line, scatter, and radar charts. Read/write.

The following illustration shows the color-index values in the default color palette.
**Chart Suite**

*marker foreground color*

Returns or sets the foreground color of the marker as an RGB value. Applies only to line, scatter, and radar charts. Read/write.

*marker foreground color index*

Returns or sets the marker foreground color as an index into the current color palette, or as *color index automatic* or *color index none*. Applies only to line, scatter, and radar charts. Read/write.

See *marker background color index* for the color-index values in the default color palette.

*marker size*

Returns or sets the data-marker size, in points. Read/write.

*marker style*

Returns or sets the marker style for a point or series in a line chart, scatter chart, or radar chart. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Constant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>marker style none</td>
<td>No markers</td>
</tr>
<tr>
<td>marker style automatic</td>
<td>Automatic markers</td>
</tr>
<tr>
<td>marker style square</td>
<td>Square markers</td>
</tr>
<tr>
<td>marker style diamond</td>
<td>Diamond-shaped markers</td>
</tr>
<tr>
<td>marker style triangle</td>
<td>Triangular markers</td>
</tr>
<tr>
<td>marker style x</td>
<td>Square markers with an X</td>
</tr>
<tr>
<td>marker style star</td>
<td>Square markers with an asterisk</td>
</tr>
<tr>
<td>marker style dot</td>
<td>Short bar markers</td>
</tr>
<tr>
<td>marker style dash</td>
<td>Long bar markers</td>
</tr>
<tr>
<td>marker style circle</td>
<td>Circular markers</td>
</tr>
<tr>
<td>marker style plus</td>
<td>Square markers with a plus sign</td>
</tr>
<tr>
<td>marker style picture</td>
<td>Picture markers</td>
</tr>
</tbody>
</table>
**picture type**

Returns or sets the way pictures are displayed on a column or bar picture chart or on the walls and faces of a 3-D chart. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>chart picture type stretch</td>
<td>Stretch the picture to reach the necessary value.</td>
</tr>
<tr>
<td>chart picture type stack</td>
<td>Stack the pictures to reach the necessary value.</td>
</tr>
<tr>
<td>chart picture type stack scale</td>
<td>Stack the pictures, but use the picture unit property to determine what unit each picture represents.</td>
</tr>
</tbody>
</table>

**picture unit**

Returns or sets the unit for each picture on the chart if the picture type property is set to chart picture type stack scale. If not, this property is ignored. Read/write.

**shadow**

True if the object has a shadow. Read/write.

**smooth**

True if curve smoothing is turned on for the line chart or scatter chart. Applies only to line and scatter charts. Read/write.

**top**

Returns or sets the distance (in points) from the top edge of the legend key to the top of the chart area. Read/write.

**width**

Returns the width of the legend key. Read-only.

**Class: line group**

**Plural**

**line groups**

Represents one or more series plotted in a line chart. A chart contains one or more chart groups, each chart group contains one or more series, and each series contains one or more points. For example, a single chart might contain both a line chart group, containing all the series plotted with the line chart format, and a doughnut chart group, containing all the series plotted with the doughnut chart format.

Use **line group index**, where index is the chart-group index number, to return a single line group object. The following example adds drop lines to line group 1 on the active chart.

**set has drop lines of line group 1 of active chart to true**

**Properties**

**<Inheritance> chart group**

Inherits the properties and elements of the chart group class.
Class: pie group

Plural
pie groups

Represents one or more series plotted in a pie chart. A chart contains one or more chart groups, each chart group contains one or more series, and each series contains one or more points. For example, a single chart might contain both a line chart group, containing all the series plotted with the line chart format, and a pie chart group, containing all the series plotted with the pie chart format.

Use pie group index, where index is the chart-group index number, to return a single pie group object. The following example adds drop lines to pie group 1 on chart 1.

set has drop lines of pie group 1 of chart 1 to true

Properties

<Inheritance> chart group

Inherits the properties and elements of the chart group class.

Class: plot area

Plural
plot areas

Represents the plot area of a chart. This is the area where your chart data is plotted. The plot area on a 2-D chart contains the data markers, gridlines, data labels, trendlines, and optional chart items placed in the chart area. The plot area on a 3-D chart contains all of the above items plus the walls, floor, axes, axis titles, and tick-mark labels in the chart.

The plot area is surrounded by the chart area. The chart area on a 2-D chart contains the axes, the chart title, the axis titles, and the legend. The chart area on a 3-D chart contains the chart title and the legend. For information about formatting the chart area, see the chart area class.

Use the plot area object property to return a plot area object. The following example sets the color of the plot area to red.

set color index of interior object of plot area object of active chart to 3

Properties

border

Returns a border object that represents the border of the object. Read-only.

chart fill format object

Returns a chart fill format object that contains fill formatting properties for the specified chart or shape. Read-only.
**Chart Suite**

`height`
- Returns the height (in points) of the object. Read-only.

`inside height`
- Returns the inside height (in points) of the plot area. Read-only.
  - The plot area used for this measurement does not include the axis labels. The `height` property for the plot area uses the bounding rectangle that includes the axis labels.

`inside left`
- Returns the distance (in points) from the chart edge to the inside left edge of the plot area. Read-only.
  - The plot area used for this measurement does not include the axis labels. The `left position` property for the plot area uses the bounding rectangle that includes the axis labels.

`inside top`
- Returns the distance (in points) from the chart edge to the inside top edge of the plot area. Read-only.
  - The plot area used for this measurement does not include the axis labels. The `top` property for the plot area uses the bounding rectangle that includes the axis labels.

`inside width`
- Returns the inside width (in points) of the plot area. Read-only.
  - The plot area used for this measurement does not include the axis labels. The `width` property for the plot area uses the bounding rectangle that includes the axis labels.

`interior object`
- Returns an `interior` object that represents the interior of the specified object. Read-only.

`left position`
- Returns or sets the position (in points) of the specified object. Read/write.

`name`
- Returns the name of the object. Read-only.

`top`
- Returns or sets the distance (in points) from the top edge of the plot area to the top of the worksheet. Read/write.

`width`
- Returns the width of the object. Read-only.
Chart Suite

Class: radar group

Plural
radar groups

Represents one or more series plotted in a radar chart. A chart contains one or more chart groups, each chart group contains one or more series, and each series contains one or more points. For example, a single chart might contain both a line chart group, containing all the series plotted with the line chart format, and a radar chart group, containing all the series plotted with the radar chart format.

Use radar group index, where index is the chart-group index number, to return a single radar group object. The following example adds drop lines to radar group 1 of the active chart.

set has drop lines of radar group 1 of active chart to true

Properties
<Inheritance> chart group

Inherits the properties and elements of the chart group class.

Class: series

Plural
series collection

Elements
data label
series point
trendline

Represents a series in a chart.

Use series index, where index is the series index number or name, to return a single series object. The following example sets the color of the interior for the first series in a chart.

set color index of interior object of series 1 of active chart to 43

The series index number indicates the order in which the series were added to the chart. series 1 is the first series added to the chart, and series (get count of series collection) is the last one added.
Chart Suite

Properties

apply picture to end

True if a picture is applied to the end of the point or all points in the series. Read/write.

apply picture to front

True if a picture is applied to the front of the point or all points in the series. Read/write.

apply picture to sides

True if a picture is applied to the sides of the point or all points in the series. Read/write.

axis group

Returns the group for the specified series. Read/write.

Can be one of the following:

- primary axis
- secondary axis

For 3-D charts, only primary axis is valid.

bar shape

Returns or sets the shape used with the 3-D bar or column chart. Read/write.

Can be one of the following:

- box
- pyramid to point
- pyramid to max
- cylinder
- cone to point
- cone to max

border

Returns a border object that represents the border of the object. Read-only.

bubble sizes

Returns or sets a string in A1-style notation that refers to the worksheet cells containing the size data for the bubble chart. Applies only to bubble charts. Read/write.

chart fill format object

Returns a chart fill format object that contains fill formatting properties for the specified chart or shape. Read-only.
Chart Suite

chart type

Returns or sets the chart type. Read/write.

Can be one of the following:

column clustered
column stacked
column stacked 100
ThreeD column clustered
ThreeD column stacked
ThreeD column stacked 100
bar clustered
bar stacked
bar stacked 100
ThreeD bar clustered
ThreeD bar stacked
ThreeD bar stacked 100
line stacked
line stacked 100
line markers
line markers stacked
line markers stacked 100
pie of pie
pie exploded
ThreeD pie exploded
bar of pie
xy scatter smooth
xy scatter smooth no markers
xy scatter lines
xy scatter lines no markers
area stacked
area stacked 100
ThreeD area stacked
ThreeD area stacked 100
doughnut exploded
radar markers
radar filled
surface
surface wireframe
surface top view
surface top view wireframe
bubble
bubble ThreeD effectstock HLC
stock OHLC
stock VHLC
stock VOHLC
cylinder column clustered
cylinder column stacked
cylinder column stacked 100
cylinder bar clustered
cylinder bar stacked
cylinder bar stacked 100
cone column clustered
cone column stacked
cone column stacked 100
cone bar clustered
cone bar stacked
cone bar stacked 100
cone col
pyramid column clustered
pyramid column stacked
pyramid column stacked 100
pyramid bar clustered
pyramid bar stacked
pyramid bar stacked 100
pyramid column
ThreeD column
line chart
ThreeD line
ThreeD pie
pie chart
xyscatter
ThreeD area
area chart
doughnut
radar

error bars

Returns an **error bars** object that represents the error bars for the series. Read-only.

explosion

Returns or sets the explosion value for a pie-chart or doughnut-chart slice. Returns 0 (zero) if there is no explosion (the tip of the slice is in the center of the pie). Read/write.
Chart Suite

formula
Returns or sets the object’s formula in A1-style notation. Read/write.

formula local
Returns or sets the formula for the object, using A1-style references in the language of the user. Read/write.

formula r1c1
Returns or sets the formula for the object using R1C1-style notation. Read/write.

formula r1c1 local
Returns or sets the formula for the object using R1C1-style notation in the language of the user. Read/write.

has data labels
True if the series has data labels. Read/write.

has error bars
True if the series has error bars. This property is not available for 3-D charts. Read/write.

has leader lines
True if the series has leader lines. Read/write.

has threeD effect
True if the series has a three-dimensional appearance. Applies only to bubble charts. Read/write.

interior object
Returns an interior object that represents the interior of the series. Read-only.

invert if negative
True if Excel inverts the pattern in the item when it corresponds to a negative number. Read/write.

leader lines
Returns a leader lines object that represents the leader lines for the series. Read-only.

marker background color
Returns or sets the marker background color as an RGB value. Applies only to line, scatter, and radar charts. Read/write.
**Chart Suite**

*marker background color index*

Returns or sets the marker background color as an index into the current color palette, or as color index automatic or color index none. Applies only to line, scatter, and radar charts. Read/write.

The following illustration shows the color-index values in the default color palette.

```
1  2  3  4  5  6  7 
8  9 10 11 12 13 14 
15 16 17 18 19 20 21 
22 23 24 25 26 27 28 
29 30 31 32 33 34 35 
36 37 38 39 40 41 42 
43 44 45 46 47 48 49 
50 51 52 53 54 55 56 
```

*marker foreground color*

Returns or sets the foreground color of the marker as an RGB value. Applies only to line, scatter, and radar charts. Read/write.

*marker foreground color index*

Returns or sets the marker foreground color as an index into the current color palette, or as color index automatic or color index none. Applies only to line, scatter, and radar charts. Read/write.

For the color-index values in the default color palette, see the *marker background color index* property.

*marker size*

Returns or sets the data-marker size, in points. Read/write.

*marker style*

Returns or sets the marker style for a point or series in a line chart, scatter chart, or radar chart. Read/write.

Can be one of the following:

- marker style none
- marker style automatic
- marker style square
- marker style diamond
- marker style triangle
- marker style x
- marker style star
- marker style dot
- marker style dash
- marker style circle
- marker style plus
- marker style picture
Chart Suite

**picture type**

Returns or sets the way pictures are displayed on a column or bar picture chart or on the walls and faces of a 3-D chart. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>chart picture type stretch</td>
<td>Stretch the picture to reach the necessary value.</td>
</tr>
<tr>
<td>chart picture type stack</td>
<td>Stack the pictures to reach the necessary value.</td>
</tr>
<tr>
<td>chart picture type stack scale</td>
<td>Stack the pictures, but use the picture unit property to determine what unit each picture represents.</td>
</tr>
</tbody>
</table>

**picture unit**

Returns or sets the unit for each picture on the chart if the picture type property is set to chart picture type stack scale. If not, this property is ignored. Read/write.

**plot order**

Returns or sets the plot order for the selected series within the chart group. Read/write.

You can set plot order only within a chart group (you cannot set the plot order for the entire chart if you have more than one chart type). Changing the plot order of one series causes the plot orders of the other series in the chart group to be adjusted, as necessary.

**series values**

Returns or sets a collection of all the values in the series. Read/write.

This can be a range on a worksheet or a list of constant values, but not a combination of both. It can also be any of the following:

- range object
- A1-style range reference
- named range
- list of category names

**shadow**

True if the object has a shadow. Read/write.

**smooth**

True if curve smoothing is turned on for the line chart or scatter chart. Applies only to line and scatter charts. Read/write.
Chart Suite

**xvalues**

Returns or sets a list of x values for a chart series. Read/write.

The `xvalues` property can be set to a range on a worksheet or to a list of values, but it cannot be a combination of both. It can also be any of the following:

- range object
- A1-style range reference
- named range
- list of category names

**Class: series lines**

Represents series lines in a chart group. Series lines connect the data values from each series. Only 2-D stacked bar or column chart groups can have series lines. There is no object that represents a single series line; series lines are either turned on or off for all points in a chart group.

Use the `series lines object` property to return a `series lines` object. The following example adds series lines to chart group 1 in the active chart (the chart must be a 2-D stacked bar or column chart).

```vba
set has series lines of chart group 1 of active chart to true
```

If the `has series lines` property is `false`, most properties of the `series lines` object are disabled.

**Properties**

**border**

Returns a `border` object that represents the border of the object. Read-only.

**name**

Returns the name of the object. Read-only.
Chart Suite

Class: series point

Plural
series points

Represents a single point in a series in a chart.

Use series point index, where index is the point index number, to return a single series point object. Points are numbered from left to right on the series. series point 1 is the leftmost point, and series point (get count of series points) is the rightmost point. The following example sets the marker style for the third point in series 1 in the active chart. The specified series must be a 2-D line, scatter, or radar series.

set marker style of series point 3 of series 1 =
of active chart to marker style diamond

Properties
apply pict to end
    True if a picture is applied to the end of the point or all points in the series. Read/write.

apply pict to front
    True if a picture is applied to the front of the point or all points in the series. Read/write.

apply pict to sides
    True if a picture is applied to the sides of the point or all points in the series. Read/write.

border
    Returns a border object that represents the border of the object. Read-only.

chart fill format object
    Returns a chart fill format object that contains fill formatting properties for the specified chart or shape. Read-only.

data label object
    Returns a data label object that represents the data label associated with the point or trendline. Read-only.

explosion
    Returns or sets the explosion value for a pie-chart or doughnut-chart slice. Returns 0 (zero) if there is no explosion (the tip of the slice is in the center of the pie). Read/write.

has data label
    True if the point has a data label. Read/write.

interior object
    Returns an interior object that represents the interior of the specified object. Read-only.

invert if negative
    True if Excel inverts the pattern in the item when it corresponds to a negative number. Read/write.
**marker background color**

Returns or sets the marker background color as an RGB value. Applies only to line, scatter, and radar charts. Read/write.

**marker background color index**

Returns or sets the marker background color as an index into the current color palette, or as `color index automatic` or `color index none`. Applies only to line, scatter, and radar charts. Read/write.

The following illustration shows the color-index values in the default color palette.

```
1 2 3 4 5 6 7 8 9 10 11 12 13 14
15 16 17 18 19 20 21 22 23 24 25 26 27 28
29 30 31 32 33 34 35 36 37 38 39 40 41 42
43 44 45 46 47 48 49 50 51 52 53 54 55 56 57
58 59 60 61 62 63 64 65 66
```

**marker foreground color**

Returns or sets the foreground color of the marker as an RGB value. Applies only to line, scatter, and radar charts. Read/write.

**marker foreground color index**

Returns or sets the marker foreground color as an index into the current color palette, or as `color index automatic` or `color index none`. Applies only to line, scatter, and radar charts. Read/write.

For the color-index values in the default color palette, see the `marker background color index` property.

**marker size**

Returns or sets the data-marker size, in points. Read/write.

**marker style**

Returns or sets the marker style for a point or series in a line chart, scatter chart, or radar chart. Read/write.

Can be one of the following:

- `marker style none`
- `marker style automatic`
- `marker style square`
- `marker style diamond`
- `marker style triangle`
- `marker style x`
- `marker style star`
- `marker style dot`
- `marker style dash`
- `marker style circle`
- `marker style plus`
- `marker style picture`
**picture type**

Returns or sets the way pictures are displayed on a column or bar picture chart or on the walls and faces of a 3-D chart. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>chart picture type stretch</code></td>
<td>Stretch the picture to reach the necessary value.</td>
</tr>
<tr>
<td><code>chart picture type stack</code></td>
<td>Stack the pictures to reach the necessary value.</td>
</tr>
<tr>
<td><code>chart picture type stack scale</code></td>
<td>Stack the pictures, but use the <code>picture unit</code> property to determine what unit each picture represents.</td>
</tr>
</tbody>
</table>

**picture unit**

Returns or sets the unit for each picture on the chart if the `picture type` property is set to `chart picture type stack scale`. If not, this property is ignored. Read/write.

**secondary plot**

True if the point is in the secondary section of either a pie-of-pie chart or a bar-of-pie chart. Applies only to points on pie-of-pie charts or bar-of-pie charts. Read/write.

**shadow**

True if the object has a shadow. Read/write.

---

**Class: tick labels**

Represents the tick-mark labels associated with tick marks on a chart axis. There is no object that represents a single tick-mark label; you must return all the tick-mark labels as a unit.

Tick-mark label text for the category axis comes from the name of the associated category in the chart. The default tick-mark label text for the category axis is the number that indicates the position of the category relative to the left end of this axis. To change the number of unlabeled tick marks between tick-mark labels, you must change the `tick label spacing` property for the category axis.

Tick-mark label text for the value axis is calculated based on the `major unit`, `minimum scale`, and `maximum scale` properties of the value axis. To change the tick-mark label text for the value axis, you must change the values of these properties.

Use the `tick labels` property to return the `tick labels` object. The following example sets the orientation of the tick labels on a chart.

```vba
set orientation of tick labels of (get axis active chart ¬
axis type category axis) to tick label orientation downward
```

**Properties**

**auto scale font**

True if the text in the tick labels changes font size when the tick labels size changes. The default value is `true`. Read/write.

**depth**

Returns the number of levels of category tick labels. Read-only.
Chart Suite

**font object**

Returns a *font* object that represents the font of the object. Read-only.

**name**

Returns the name of the object. Read-only.

**number format**

Returns or sets the format code for the tick labels. Read/write.

You'll find a list of format codes under the **Custom** category on the **Number** tab in the **Format Cells** dialog box.

**number format linked**

*True* if the number format is linked to the cells (so that the number format changes in the labels when it changes in the cells). Read/write.

**offset**

Returns or sets the distance between the levels of labels, and the distance between the first level and the axis line. The default distance is 100 percent, which represents the default spacing between the axis labels and the axis line. The value can be an integer percentage from 0 through 1000, relative to the axis label's font size. Read/write.

**orientation**

Returns or sets the tick label's orientation. Read/write.

Can be one of the following:

- **orientation down**
- **orientation horizontal**
- **orientation upward**
- **orientation vertical**

Can also be a number value between -90 and 90 degrees.

**reading order**

Returns or sets the reading order for the tick label. Read/write.

This property is not used in the U.S. English version of Excel.

**tick alignment**

Returns or sets the alignment for the specified tick label. Read/write.

Can be one of the following:

- **align tick label center**
- **align tick label left**
- **align tick label right**
Class: trendline

Plural
trendlines

Represents a trendline in a chart. A trendline shows the trend, or direction, of data in a series.

Use trendline index, where index is the trendline index number, to return a single trendline object. The following example changes the trendline type for the first series in a chart. If the series has no trendline, this example will fail.

set trendline type of trendline 1 of series 1 of active chart to polynomial

The index number denotes the order in which the trendlines were added to the series. trendline 1 is the first trendline added to the series, and trendline (get count of trendlines) is the last one added.

Properties

backward

Returns or sets the number of periods (or units on a scatter chart) that the trendline extends backward. Read/write.

border

Returns a border object that represents the border of the object. Read-only.

data label object

Returns a data label object that represents the data label associated with the point or trendline. Read-only.

display R squared

True if the R-squared value of the trendline is displayed on the chart (in the same data label as the equation). Setting this property to true automatically turns on data labels. Read/write.

display equation

True if the equation for the trendline is displayed on the chart (in the same data label as the R-squared value). Setting this property to true automatically turns on data labels. Read/write.

entry index

Returns the index number of the object within the elements of the parent object. Read-only.

forward

Returns or sets the number of periods (or units on a scatter chart) that the trendline extends forward. Read/write.

intercept

Returns or sets the point where the trendline crosses the value axis. Read/write.

Setting this property sets the intercept is auto property to false.
**Chart Suite**

*intercept is auto*

*True* if the point where the trendline crosses the value axis is automatically determined by the regression. Read/write.

Setting the *intercept* property sets this property to *false*.

*name*

Returns or sets the name of the trendline. Read/write.

*name is auto*

*True* if Excel automatically determines the name of the trendline. Read/write.

*order*

Returns or sets the trendline order (an integer greater than 1) when the *trendline type* property is *polynomial*. Read/write.

*period*

Returns or sets the period for the moving-average trendline. Read/write.

*trendline type*

Returns or sets the trendline type. Read/write.

Can be one of the following:

- exponential
- linear
- logarithmic
- moving average
- polynomial
- power

**Class: up bars**

Represents the up bars in a chart group. Up bars connect points on series one with higher values on the last series in the chart group (the lines go up from series one). Only 2-D line groups that contain at least two series can have up bars. There is no object that represents a single up bar; up bars must be either turned on or off for all points in a chart group.

Use the *up bars object* property to return the *up bars* object. The following example turns on up and down bars for chart group 1 in a chart.

`set has up down bars of chart group 1 of active chart to true`

If the *has up down bars* property is *false*, most properties of the *up bars* object are disabled.
Properties

border

Returns a border object that represents the border of the object. Read-only.

chart fill format object

Returns a chart fill format object that contains fill formatting properties for the object. Read-only.

interior object

Returns an interior object that represents the interior of the object. Read-only.

name

Returns the name of the object. Read-only.

Class: walls

Represents the walls of a 3-D chart. There is no object that represents a single wall; you must return all the walls as a unit.

Use the walls object property to return the walls object. The following example sets the pattern on the walls for the active chart. If the chart is not a 3-D chart, this example will fail.

set pattern of interior object of walls object to pattern checkered

Properties

border

Returns a border object that represents the border of the object. Read-only.

chart fill format object

Returns a chart fill format object that contains fill formatting properties for the object. Read-only.

interior object

Returns an interior object that represents the interior of the object. Read-only.

name

Returns the name of the object. Read-only.
Picture Type

Returns or sets the way pictures are displayed on a column or bar picture chart or on the walls and faces of a 3-D chart. Read/write.

Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>chart picture type stretch</td>
<td>Stretch the picture to reach the necessary value.</td>
</tr>
<tr>
<td>chart picture type stack</td>
<td>Stack the pictures to reach the necessary value.</td>
</tr>
<tr>
<td>chart picture type stack scale</td>
<td>Stack the pictures, but use the picture unit property to determine what unit each picture represents.</td>
</tr>
</tbody>
</table>

Picture Unit

Returns or sets the unit for each picture on the chart if the picture type property is set to chart picture type stack scale. If not, this property is ignored. Read/write.

Class: xy group

Plural

xy groups

Represents one or more series plotted in an xy chart. A chart contains one or more chart groups, each chart group contains one or more series, and each series contains one or more points. For example, a single chart might contain both a line chart group, containing all the series plotted with the line chart format, and an xy chart group, containing all the series plotted with the xy chart format.

Use xy group index, where index is the chart-group index number, to return a single xy group object. The following example adds drop lines to xy group 1 on the active chart.

set has drop lines of xy group 1 of active chart to true

Properties

<Inheritance> chart group

Inherits the properties and elements of the chart group class.
Chart Suite Commands

activate object (chart) ........................................................................................................... 444
apply custom chart type ........................................................................................................ 445
apply data labels................................................................................................................... 445
bring to front (chart).............................................................................................................. 445
chart location ....................................................................................................................... 446
chart one color gradient ....................................................................................................... 446
chart patterned ..................................................................................................................... 447
chart solid ............................................................................................................................. 448
chart two color gradient ....................................................................................................... 448
chart user picture ................................................................................................................ 449
chart user textured .............................................................................................................. 449
chart wizard ........................................................................................................................ 449
check spelling (chart) ........................................................................................................... 450
clear ..................................................................................................................................... 450
clear contents (chart) ........................................................................................................... 450
clear formats ....................................................................................................................... 450
copy chart as picture .......................................................................................................... 451
copy object (chart) .............................................................................................................. 451
copy picture (chart) ........................................................................................................... 452
cut (chart) ........................................................................................................................... 452
deselect .................................................................................................................................. 452
error bar ............................................................................................................................... 453
get axis .................................................................................................................................. 453
get chart element ................................................................................................................ 453
get has axis .......................................................................................................................... 453
paste ..................................................................................................................................... 455
paste chart .......................................................................................................................... 456
paste series ......................................................................................................................... 456
preset chart gradient .......................................................................................................... 457
preset chart textured ........................................................................................................... 457
print out (chart) ................................................................................................................... 458
print preview (chart) .......................................................................................................... 458
protect chart ....................................................................................................................... 458
refresh (chart) .................................................................................................................... 459
save as (chart) .................................................................................................................... 459
send to back (chart) .......................................................................................................... 460
set background picture (chart) ........................................................................................ 461
set has axis .......................................................................................................................... 461
set source data .................................................................................................................. 461
unprotect (chart) ............................................................................................................... 462

Command: activate object (chart)

Activates the chart object.

Syntax

activate  chart/chart object  Required. An expression that returns a chart or chart object object.

Example

This example creates a new chart called Chart1 and then activates it.

set Chart1 to make new chart object at active sheet
activate object Chart1
**Command: apply custom chart type**

This command is not currently supported.

**Command: apply data labels**

**Syntax**
Applies data labels to a series or all the series in a chart.

```
apply data labels  chart   Required. An expression that returns a chart object.
```

[type  enumeration]   Optional. The data label type. Can be one of the following:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>data labels show none</td>
<td>No data labels.</td>
</tr>
<tr>
<td>data labels show value</td>
<td>Value for the point (assumed if this argument isn't specified).</td>
</tr>
<tr>
<td>data labels show percent</td>
<td>Percentage of the total. Available only for pie charts and doughnut charts.</td>
</tr>
<tr>
<td>data labels show label</td>
<td>Category for the point. This is the default value.</td>
</tr>
<tr>
<td>data labels show label and percent</td>
<td>Percentage of the total, and category for the point. Available only for pie charts and doughnut charts.</td>
</tr>
<tr>
<td>data labels show bubble sizes</td>
<td>On bubble charts, show bubble size.</td>
</tr>
</tbody>
</table>

[legend key  Boolean]   Optional. True to show the legend key next to the point. The default value is false.

[auto text  Boolean]   Optional. True if the object automatically generates appropriate text based on content.

[has leader lines  Boolean]   Optional. True if the series has leader lines.

**Example**
This example applies category labels to series one in the active chart.

```
apply data labels active chart type data labels show value
```

**Command: bring to front (chart)**

Brings the chart object to the front of the z-order.

**Syntax**
```
bring to front  chart object   Required. An expression that returns a chart object object.
```

**Example**
This example brings Chart1 on Sheet1 to the front of the z-order.

```
bring to front chart object "Chart1" of worksheet "Sheet1"
```
Chart Suite

Command: chart location

Moves the chart to a new location.

Syntax
chart location  chart  Required. An expression that returns a chart object.

where  enumeration  Required. Where to move the chart. Can be one of the following: location as new sheet, location as object, or location automatic.

[name  Unicode text]  Optional (Required if where is location as object). The name of the sheet where the chart will be embedded if where is location as object or the name of the new sheet if where is location as new sheet.

Example
This example moves the active chart to a new chart sheet named "Monthly Sales."
chart location active chart where location as new sheet name "Monthly Sales"

Command: chart one color gradient

Sets the specified fill to a one-color gradient.

Syntax
chart one color gradient  chart fill format/chart title/axis title/series point/series/data label/legend key/down bars/floor/walls/plot area/chart area/legend/display unit label Required. An expression that returns one of the listed objects.

gradient style  enumeration  Required. The gradient style. Can be one of the following:

- gradient unset
- horizontal gradient
- vertical gradient
- diagonal up gradient
- diagonal down gradient
- from corner gradient
- from title gradient (PowerPoint only)
- from center gradient

variant  integer  Required. The gradient variant. Can be a value from 1 through 4, corresponding to one of the four variants on the Gradient tab in the Fill Effects dialog box. If gradient style is from center gradient, the variant argument can only be 1 or 2.

degree  small real  Required. The gradient degree. Can be a value from 0.0 (dark) through 1.0 (light).

Example
This example sets the fill format for series 1 of the active chart to a horizontal one-color gradient.
chart one color gradient series 1 of active chart
  gradient style horizontal gradient variant 3 degree 0.34
Command: chart patterned

Sets the specified fill to a pattern.

Syntax

chart patterned chart fill format/chart title/axis title/series point/series/data label/legend key/down bars/floor/walls/plot area/chart area/legend/display unit label

Required. An expression that returns a chart fill format object.

pattern enumeration Required. The pattern type. Can be one of the following:

- pattern unset
- five percent pattern
- ten percent pattern
- twenty percent pattern
- twenty five percent pattern
- thirty percent pattern
- forty percent pattern
- fifty percent pattern
- sixty percent pattern
- seventy percent pattern
- seventy five percent pattern
- eighty percent pattern
- ninety percent pattern
- dark horizontal pattern
- dark vertical pattern
- dark downward diagonal pattern
- dark upward diagonal pattern
- small checker board pattern
trellis pattern
- light horizontal pattern
- light vertical pattern
- light downward diagonal pattern
- light upward diagonal pattern
- small grid pattern
dotted diamond pattern

Example

This example sets the fill pattern for the plot area of the active chart.

chart patterned chart fill format object of plot area object –
of active chart pattern dark downward diagonal pattern
Command: chart solid

Sets the specified fill to a uniform color. Use this command to convert a gradient, textured, patterned, or background fill back to a solid fill.

Syntax

\texttt{chart solid} chart fill format/chart title/axis title/series point/series/data label/legend key/down bars/floor/walls/plot area/chart area/legend/display unit label \textit{Required.} An expression that returns a \texttt{chart fill format} object.

Example

This example converts the floor of the active chart to a solid color.

\texttt{chart solid chart fill format object of floor object of active chart}

Command: chart two color gradient

Sets the specified fill to a two-color gradient.

Syntax

\texttt{chart two color gradient} chart fill format/chart title/axis title/series point/series/data label/legend key/down bars/floor/walls/plot area/chart area/legend/display unit label \textit{Required.} An expression that returns a \texttt{chart fill format} object.

\texttt{gradient style} \texttt{enumeration} \textit{Required.} The gradient style. Can be one of the following:

- \texttt{gradient unset}
- \texttt{horizontal gradient}
- \texttt{vertical gradient}
- \texttt{diagonal up gradient}
- \texttt{diagonal down gradient}
- \texttt{from corner gradient}
- \texttt{from title gradient} (PowerPoint only)
- \texttt{from center gradient}

\texttt{variant} \texttt{integer} \textit{Required.} The gradient variant. Can be a value from 1 through 4, corresponding to one of the four variants on the \texttt{Gradient} tab in the \texttt{Fill Effects} dialog box. If \texttt{gradient style} is \texttt{from center gradient}, the \texttt{variant} argument can only be 1 or 2.

Example

This example sets the two color gradient for a series in the active chart.

\texttt{chart two color gradient series 1 of active chart ~
    gradient style vertical gradient variant 3}
Chart Suite

**Command: chart user picture**

Fills the specified shape with an image.

**Syntax**

```
chart user picture  chart fill format/chart title/axis title/series point/series/data label/legend
key/down bars/floor/walls/plot area/chart area/legend/display unit label
```

Required. An expression that returns a **chart fill format** object.

- [picture file] Unicode text Optional. The name of the picture file.
- [picture format] enumeration Optional. The picture format. Can be one of the following: **chart picture type stack** scale, **chart picture type stack**, or **chart picture type stretch**.
- [picture stack unit] integer Optional. The picture stack or scale unit (depends on the picture format argument).
- [picture placement] enumeration Optional. The picture placement. Can be one of the following: sides, end, end sides, front, front sides, front end, or all faces.

**Example**

This example sets the fill format for a series to a picture titled "brick.bmp."

```
chart user picture series 1 of active chart picture file "brick.bmp"
```

**Command: chart user textured**

Fills the specified shape with small tiles of an image. To fill the shape with one large image, use the **chart user picture** command.

**Syntax**

```
chart user textured  chart fill format/chart title/axis title/series point/series/data label/legend
key/down bars/floor/walls/plot area/chart area/legend/display unit label
```

Required. An expression that returns a **chart fill format** object.

- [texture file] Unicode text Required. The name of the picture file.

**Example**

This example sets the fill format for the floor of the active chart to use a picture titled "brick.bmp" as the texture.

```
chart user textured chart fill format object of floor object ¬
of active chart texture file "brick.bmp"
```

**Command: chart wizard**

This command is not currently supported.
Chart Suite

**Command: check spelling (chart)**

Checks the spelling of an object. This form has no return value; Excel displays the **Spelling** dialog box.

**Syntax**

`check spelling chart` **Required.** Checks the spelling of the chart.

- **[custom dictionary Unicode text]** Optional. A string that indicates the file name of the custom dictionary to examine if the word isn't found in the main dictionary. If this argument is omitted, the currently specified dictionary is used.
- **[ignore uppercase Boolean]** Optional. **True** to have Excel ignore words that are all uppercase. **False** to have Excel check words that are all uppercase. If this argument is omitted, the current setting will be used.
- **[always suggest Boolean]** Optional. **True** to have Excel display a list of suggested alternate spellings when an incorrect spelling is found. **False** to have Excel wait for you to input the correct spelling. If this argument is omitted, the current setting will be used.

**Remarks**
To check headers, footers, and objects on a worksheet, use this command on a **worksheet** object.
To check only cells and notes, use this command on the **cell** object.

**Example**
This example checks spelling on the active chart sheet.

`check spelling active chart with ignore uppercase without always suggest`

---

**Command: clear**

Clears the entire **chart area** or **legend** object.

**Syntax**

`clear chart area/legend` **Required.** An expression that returns a **chart area** or **legend** object.

**Example**
This example removes the chart legend from the active chart.

`clear legend object of active chart`

---

**Command: clear contents (chart)**

Clears the data from a chart but leaves the formatting.

**Syntax**

`clear contents chart area` **Required.** An expression that returns a **chart area** object.

**Example**
This example clears the chart data from the active chart but leaves the formatting intact.

`clear contents chart area object of active chart`
Chart Suite

Command: clear formats
Clears the formatting of the chart object.

Syntax
clear formats  series point/series/legend key/trendline/floor/walls/plot area/chart area/error bars  Required. An expression that returns one of the listed objects.

Example
This example clears the formatting from the first series in the active chart.

clear formats series 1 of active chart

Command: copy chart as picture
Copies the selected chart object to the Clipboard as a picture.

Syntax
copy chart as picture  chart  Required. An expression that returns a chart object.

[appearance  enumeration]  Optional. Specifies how the picture should be copied. Can be one of the following: screen or printer. If screen is used, the picture is copied to resemble its display on the screen as closely as possible. If printer is used, the picture is copied as it will look when it's printed. The default value is screen.

[format  enumeration]  Optional. The format of the picture. Can be one of the following: picture or bitmap. The default value is picture.

[output size  enumeration]  Optional. Used only with chart objects. The size of the copied picture when the object is a chart on a chart sheet (not embedded on a worksheet). Can be one of the following: screen or printer. If screen is used, the picture is copied to match the size of its display on the screen as closely as possible. If printer is used, the picture is copied to match its printed size as closely as possible. The default value is printer.

Remarks
If you copy a range, it must be made up of adjacent cells.

Example
This example copies the active chart to the Clipboard as a picture optimized for display on a screen.

copy chart as picture active chart appearance screen ¬
format picture output size screen

Command: copy object (chart)
Copies the object to the Clipboard.

Syntax
copy object  chart object/series point/series/chart area  Required. An expression that returns one of the listed objects.

Example
This example copies the active chart to the Clipboard.

copy object active chart
Command: copy picture (chart)

Copies the selected object to the Clipboard as a picture.

Syntax

**copy picture**  
**chart object**  
Required. An expression that returns a **chart object** object.

[appearance enumeration]  Optional. Specifies how the picture should be copied. Can be one of the following: **screen** or **printer**. If **screen** is used, the picture is copied to resemble its display on the screen as closely as possible. If **printer** is used, the picture is copied as it will look when it’s printed. The default value is **screen**.

[format enumeration]  Optional. The format of the picture. Can be one of the following: **picture** or **bitmap**. The default value is **picture**.

Remarks

If you copy a range, it must be made up of adjacent cells.

Example

This example copies a screen image of the active chart object.

```plaintext
copy picture active chart appearance screen format picture
```

Command: cut (chart)

Cuts the object to the Clipboard or pastes it into a specified destination.

Syntax

**cut**  
**chart object**  
Required. An expression that returns a **chart object** object.

Only embedded charts can be cut.

Example

This example creates and then cuts the chart on the active sheet.

```plaintext
set ch1 to (make new chart object at active sheet)  
cut ch1
```

Command: deselect

Cancels the selection for the specified chart.

Syntax

**deselect**  
**chart**  
Required. An expression that returns a **chart object** object.

Example

This example is equivalent to pressing ESC while working on the active chart. The example should be run on a chart that has a component (such as an axis) selected.

```plaintext
deselect active chart
```
Chart Suite

Command: error bar

This command is not currently supported.

Command: get axis

Returns an object that represents the specified axis.

Syntax

get axis chart Required. An expression that returns a chart object.

axis type enumeration Required. Specifies the axis to return. Can be one of the following: category axis, series axis, or value axis. The series axis value is valid only for 3-D charts.

[which axis enumeration] Optional. Specifies the axis group. Can be one of the following: primary axis or secondary axis. If this argument is omitted, the primary axis group is used. 3-D charts have only one axis group.

Example

This example gets the category axis of the active chart.

get axis active chart axis type category axis

Command: get chart element

Returns information about the chart element at specified X and Y coordinates. This command is unusual in that you specify values for only the first two arguments. Excel fills in the other arguments, and your code should examine those values when the command returns.

Syntax

get chart element chart Required. An expression that returns a chart object.

x integer Required. The X coordinate of the chart element.

y integer Required. The Y coordinate of the chart element.

Returned items

element id integer Returned. When the command returns, this argument contains the value of the chart element at the specified coordinates.

argument1 integer Returned. When the command returns, this argument contains information related to the chart element.

argument2 integer Returned. When the command returns, this argument contains information related to the chart element.
The value of element id after the command returns determines whether argument1 and argument2 contain any information, as shown in the following table.

<table>
<thead>
<tr>
<th>element id</th>
<th>argument1</th>
<th>argument2</th>
</tr>
</thead>
<tbody>
<tr>
<td>chart area</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>chart title</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>plot area</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>legend</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>floor</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>walls</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>corners</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>data table</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>series</td>
<td>series index</td>
<td>point index</td>
</tr>
<tr>
<td>data label</td>
<td>series index</td>
<td>point index</td>
</tr>
<tr>
<td>trendline</td>
<td>series index</td>
<td>trendline index</td>
</tr>
<tr>
<td>error bars</td>
<td>series index</td>
<td>none</td>
</tr>
<tr>
<td>x error bars</td>
<td>series index</td>
<td>none</td>
</tr>
<tr>
<td>y error bars</td>
<td>series index</td>
<td>none</td>
</tr>
<tr>
<td>legend entry</td>
<td>series index</td>
<td>none</td>
</tr>
<tr>
<td>legend key</td>
<td>series index</td>
<td>none</td>
</tr>
<tr>
<td>axis</td>
<td>axis index</td>
<td>axis type</td>
</tr>
<tr>
<td>major gridlines</td>
<td>axis index</td>
<td>axis type</td>
</tr>
<tr>
<td>minor gridlines</td>
<td>axis index</td>
<td>axis type</td>
</tr>
<tr>
<td>axis title</td>
<td>axis index</td>
<td>axis type</td>
</tr>
<tr>
<td>up bars</td>
<td>group index</td>
<td>none</td>
</tr>
<tr>
<td>down bars</td>
<td>group index</td>
<td>none</td>
</tr>
<tr>
<td>series lines</td>
<td>group index</td>
<td>none</td>
</tr>
<tr>
<td>hilo lines</td>
<td>group index</td>
<td>none</td>
</tr>
<tr>
<td>drop lines</td>
<td>group index</td>
<td>none</td>
</tr>
<tr>
<td>radar axis labels</td>
<td>group index</td>
<td>none</td>
</tr>
<tr>
<td>shape</td>
<td>shape index</td>
<td>none</td>
</tr>
<tr>
<td>nothing</td>
<td>none</td>
<td>none</td>
</tr>
</tbody>
</table>
The following table describes the meaning of **argument1** and **argument2** after the command returns.

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>series index</td>
<td>Specifies the offset for a specific series.</td>
</tr>
<tr>
<td>point index</td>
<td>Specifies the offset for a specific point within a series. A value of -1 indicates that all data points are selected.</td>
</tr>
<tr>
<td>trendline index</td>
<td>Specifies the offset for a specific trendline within a series.</td>
</tr>
<tr>
<td>axis index</td>
<td>Specifies whether the axis is primary (0) or secondary (1).</td>
</tr>
<tr>
<td>axis type</td>
<td>Specifies the axis type: category axis (0), value axis (1), or series axis (2).</td>
</tr>
<tr>
<td>group index</td>
<td>Specifies the offset for a specific chart group.</td>
</tr>
<tr>
<td>shape index</td>
<td>Specifies the offset for a specific shape.</td>
</tr>
</tbody>
</table>

**Example**

This example gets the chart element at coordinate 120:120.

get chart element active chart x 120 y 120

**Command:** get has axis

Returns which axes exist on the chart.

**Syntax**

```
get has axis chart
```

Required. An expression that returns a **chart** object.

```
[ axis type  enumeration]   Optional. Specifies the axis type. Can be one of the following: category axis, series axis, or value axis.
```

```
[ axis group  enumeration]   Optional. Specifies the axis group. Can be one of the following: primary axis or secondary axis.
```

**Example**

This example checks for the existence of a category axis for chart one.

get has axis active chart axis type category axis axis group primary axis

**Command:** paste

Pastes a **floor** or **walls** object from the Clipboard into a specified destination.

**Syntax**

```
paste floor/walls
```

Required. An expression that returns a **floor** or **walls** object.

**Example**

This example pastes a **floor** object from the Clipboard.

paste floor object of active chart
Chart Suite

**Command: paste chart**

Pastes chart data from the Clipboard into the specified chart.

**Syntax**

```
paste chart  chart   Required. An expression that returns a chart object.
```

```
[format  enumeration]   Optional. Specifies the chart information to paste if a chart is on the Clipboard. Can be one of the following:
```

- paste all
- paste all except borders
- paste formats
- paste formulas
- paste comments
- paste values
- paste column widths
- paste validation
- paste formulas and number formats
- paste values and number formats

The default value is **paste all**. If there is data other than a chart on the Clipboard, this argument cannot be used.

This command changes the current selection.

**Example**

This example pastes a chart from the Clipboard.

```
paste chart active chart
```

**Command: paste series**

Pastes a picture from the Clipboard as the marker on the selected series.

**Syntax**

```
paste series  series   Required. An expression that returns a series object.
```

**Example**

This example pastes a picture from the Clipboard into series 1 in the active chart.

```
paste series series 1 of active chart
```
Chart Suite

Command: preset chart gradient

Sets the specified fill to a preset gradient.

Syntax

**preset chart gradient**  
chart fill format/chart title/axis title/series point/series/data label/legend key/down bars/floor/walls/plot area/chart area/legend/display unit label  Required. An expression that returns a **chart fill format** object.

**gradient style**  
enumeration  
Required. The gradient style. Can be one of the following:

- gradient unset
- horizontal gradient
- vertical gradient
- diagonal up gradient
- diagonal down gradient
- from corner gradient
- from title gradient (PowerPoint only)
- from center gradient

**variant**  
integer  
Required. The gradient variant. Can be a value from 1 through 4, corresponding to one of the four variants on the Gradient tab in the Fill Effects dialog box. If **gradient style** is from center gradient, the **variant** argument can only be 1 or 2.

**preset gradient type**  
enumeration  
Required. The gradient type. Can be one of the following:

- preset gradient unset
- gradient early sunset
- gradient late sunset
- gradient nightfall
- gradient daybreak
- gradient horizon
- gradient desert
- gradient ocean
- gradient calm water
- gradient fire
- gradient fog
- gradient moss
- gradient peacock
- gradient wheat
- gradient parchment
- gradient mahogany
- gradient rainbow
- gradient rainbow2
- gradient gold
- gradient gold2
- gradient brass
- gradient chrome
- gradient chrome2
- gradient silver
- gradient sapphire

Example

This example sets the gradient for the up bars of the active chart.

```
preset chart gradient up bars object of chart group 1 =  
of active chart gradient style diagonal up =  
gradient variant 3 preset gradient type gradient daybreak
```
Command: preset chart textured
This command is not currently supported.

Command: print out (chart)
Prints the chart.

Syntax

print out chart Required. An expression that returns a chart object.

[from integer] Optional. The number of the page at which to start printing. If this argument is omitted, printing starts at the beginning.

[to integer] Optional. The number of the last page to print. If this argument is omitted, printing ends with the last page.

[copies integer] Optional. The number of copies to print. If this argument is omitted, one copy is printed.

[preview Boolean] Optional. True to have Excel invoke print preview before printing the object. False (or omitted) to print the object immediately.

[active printer Unicode text] Optional. This argument is not currently supported.

[print to file Boolean] Optional. This argument is not currently supported.

[collate Boolean] Optional. True to collate multiple copies.

Remarks

"Pages" in the descriptions of from and to refers to printed pages, not overall pages in the sheet or workbook.

This command applies to the window object only when it's the Info window.

Example

This example prints the active chart sheet.

print out active sheet

Command: print preview (chart)

Shows a preview of the chart as it would look when printed.

Syntax

print preview chart Required. An expression that returns a chart object.

[enable changes Boolean] Optional. Controls access to the Page Setup dialog box and the ability to change margins from the Print Preview window by enabling or disabling the Setup and Margins buttons, respectively.
Chart Suite

Example
This example displays the active sheet in print preview.
print preview active sheet

Command: protect chart
Protects a chart so that it cannot be modified.

Syntax

protect chart chart Required. An expression that returns a chart object.

[password Unicode text] Optional. A string that specifies a case-sensitive password for the sheet. If this argument is omitted, you can unprotect the sheet without using a password. Otherwise, you must specify the password to unprotect the sheet. If you forget the password, you cannot unprotect the sheet. It's a good idea to keep a list of your passwords and their corresponding document names in a safe place.

[drawing objects Boolean] Optional. True to protect shapes. The default value is false.

[chart contents Boolean] Optional. True to protect contents. This protects the entire chart. The default value is true.

[user interface only Boolean] Optional. True to protect the user interface, but not VB macros. If this argument is omitted, protection applies both to VB macros and to the user interface.

Example
This example protects the active chart by setting "drowssap" as the password.
protect chart active chart password "drowssap"

Command: refresh (chart)
Updates the cache of the chart object.

Syntax

refresh chart Required. An expression that returns a chart object.

Example
This example refreshes the active chart.
refresh active chart
**Chart Suite**

**Command: save as (chart)**

Saves changes to a different file.

**Syntax**

```plaintext
save as chart   Required. An expression that returns a chart object.

filename   Unicode text   Optional. A string that indicates the name of the file to be saved. You can include a full path; if you don’t, Excel saves the file in the current folder.

file format   enumeration]   Optional. The file format to use when you save the file. Can be one of the following:

- add in file format
- CSV file format
- CSV Mac file format
- CSV MSDos file format
- CSV Windows file format
- DBF2 file format
- DBF3 file format
- DBF4 file format
- DIF file format
- Excel2 file format
- Excel 2 east asian file format
- Excel3 file format
- Excel4 file format
- Excel 4 workbook file format
- Excel7 file format
- Excel 9795 file format
- international add in file format
- international macro file format
- workbook normal file format
- SYLK file format
- template file format
- current platform text file format
- text Mac file format
- text MSDos file format
- text printer file format
- text windows file format
- WJ2WD1 file format
- Works1 file format
- Works 1 all file format
- Works 1 fmt file format
- works file format
- works 2 east asian file format
- WQ1 file format
- WJ3 file format
- WJ3FJ3 file format
- HTML file format
- XML spreadsheet file format
```

The following formats are available only in the Japanese version of Excel: **WJ2WD1 file format**, **Excel 2 east asian file format**, and **works 2 east asian file format**.

```plaintext
$password   Unicode text]   Optional. A case-sensitive string (no more than 15 characters) that indicates the protection password to be given to the file.

$write reservation password   Unicode text]   Optional. A string that indicates the write-reservation password for this file. If a file is saved with the password and the password isn’t supplied when the file is opened, the file is opened as read-only.

$read only recommended   Boolean]   Optional. True to display a message when the file is opened, recommending that the file be opened as read-only.

$create backup   Boolean]   Optional. True to create a backup file.

$add to most recently used list   Boolean]   Optional. True to add this workbook to the list of recently used files. The default value is false.
```
Example
This example saves a chart in Excel 4 workbook format and adds a password.

```
save as active chart filename "saved chart" ¬
    file format Excel 4 workbook file format ¬
    password "password"
```

Command: send to back (chart)
Sends the chart object to the back of the z-order.

Syntax
```
send to back  chart object   Required. An expression that returns a chart object.
```

Example
This example sends the active chart to the back of the z-order.

```
send to back active chart
```

Command: set background picture (chart)
Sets the background graphic for a chart.

Syntax
```
set background picture  chart   Required. An expression that returns a chart object.
    picture file name   Unicode text   Required. The name of the graphic file.
```

Example
This example sets the background graphic for the active chart.

```
set background picture active chart ¬
    picture file name "Macintosh HD:Users:Shared:watermark.gif"
```

Command: set has axis
Sets which axes exist on the chart.

Syntax
```
set has axis  chart   Required. An expression that returns a chart object.
    axis exists   Boolean   Required. True if the specified axis should exist.
    [axis type  enumeration] Optional. Specifies the axis type. Can be one of the following: category axis, series axis, or value axis.
    [axis group  enumeration] Optional. Specifies the axis group. Can be one of the following: primary axis or secondary axis.
```
Example
This example turns off the category axis for the chart.
set has axis active chart axis exists false axis type category axis

Command: set source data
Sets the source data range for the chart.

Syntax

set source data chart Required. An expression that returns a chart object.

source range Required. The range that contains the source data.

[plot by enumeration] Optional. Specifies the way the data is to be plotted. Can be either by columns or by rows.

Example
This example sets the source data range for the active chart and plots by columns.
set source data active chart source range "=Sheet1!$B$1:$C$4" plot by columns

Command: unprotect (chart)
Removes protection from a chart. This command has no effect if the sheet or workbook isn't protected.

Syntax

unprotect chart Required. An expression that returns a chart object.

[password Unicode text] Optional. A string that denotes the case-sensitive password to use to unprotect the chart. If the chart isn't protected with a password, this argument is ignored. If you omit this argument for a chart that's protected with a password, you'll be prompted for the password.

Remarks
If you forget the password, you cannot unprotect the chart. It's a good idea to keep a list of your passwords and their corresponding document names in a safe place.

Example
This example removes protection from the active chart by providing the correct password.
unprotect active chart password "drowssap"