

# Windows Toolkit 1.5.0

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Windows COM interface and additional functionality on Windows for GNU Octave.

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# 1 Installing and loading

The Windows toolkit must be installed and then loaded to be used.

It can be installed in GNU Octave directly from octave-forge, or can be installed in an off-line mode via a downloaded tarball.

The toolkit must be then be loaded once per each GNU Octave session in order to use its functionality.

## 1.1 Windows install

If running in Windows, the package may already be installed, to check run:

```
pkg list windows
```

Otherwise it can be installed by installing the requirements and then using the online or offline install method.

## 1.2 Online Direct install

With an internet connection available, the Windows package can be installed from octave-forge using the following command within GNU Octave:

```
pkg install -forge windows
```

The latest released version of the toolkit will be downloaded and installed.

## 1.3 Off-line install

With the Windows toolkit package already downloaded, and in the current directory when running GNU Octave, the package can be installed using the following command within GNU Octave:

```
pkg install windows-1.5.0.tar.gz
```

## 1.4 Loading

Regardless of the method of installing the Windows toolkit, in order to use its functions, the toolkit must be loaded using the pkg load command:

```
pkg load windows
```

The toolkit must be loaded on each GNU Octave session.

## 2 Basic Usage Overview

The Windows package must be loaded each time a GNU Octave session is started:

```
pkg load windows
```

The Windows toolkit provides 2 main types of functionality:

COM Interface functions

These are functions that allow interfacing to COM objects.

Windows Utilities

Functions that provide additional functions for windows

### 2.1 COM objects

#### 2.1.1 Creating a COM object

To create a COM object, you use the `actxserver` function with the name of the object to create.

```
wshell = actxserver ("WScript.Shell");
```

A `octave_com_object` type will be returned that provides an interface to the functions and properties of the object.

To get a list of properties for the object, use the `get` function. Assuming we have the `wshell` object from the previous example:

```
get(wshell)
```

A list of the properties of the object will be displayed.

To get a list of the methods available for the object, use the `methods` function.

```
methods(wshell)
```

#### 2.1.2 Using a COM object

Once a object is created using the `actxserver` function, and you know the methods and properties available, call the properties of methods using the dot notation.

The following example will display the current directory.

```
wshell = actxserver ("WScript.Shell");  
wshell.CurrentDirectory
```

Calling functions is performed in the same way.

```
wshell = actxserver ("WScript.Shell");  
wshell.Exec("notepad.exe");
```

#### 2.1.3 Releasing COM object

A COM object should be released when it is not going to be used anymore to free any resources it may have allowed.

```
release(wshell);
```

### 2.2 Windows Utility functions

A number of utility functions are available. See the reference for their usage.

## 3 Function Reference

The functions currently available in the Windows toolkit are described below:

### 3.1 Windows Utilities

#### 3.1.1 grab

`[x,y] = grab (axis)` [Loadable Function]

Grab positions of landmarks on the screen.

*x* is the x coordinates of the points.

*y* is the y coordinates of the points.

*axis* (optional) if specified then the first 2 clicks must be on the appropriate axes. *x* and *y* (or just *x* if only 2 points specified ) will then be normalised.

for example:

```
x=grab([1 10])
```

the first two clicks should correspond to *x*=1 and *x*=10 subsequent clicks will then be normalized to graph units.

for example:

```
[x,y]=grab;
```

gives *x* and *y* in screen pixel units (upper left = 0,0 )

Select points by positioning the cursor over the points and clicking <SPACE>. 'q' or <ESC> quits

#### 3.1.2 win32\_MessageBox

`rv = win32_MessageBox (title, text)` [Loadable Function]

`rv = win32_MessageBox (title, text, MboxType)` [Loadable Function]

Display a message box using the win32 API.

*title* MessageBox title string

*text* MessageBox text string

*MBoxType* can be an integer or a string.

For integer values, consult <windows.h>

The following string values are recognized:

- MB\_OK
- MB\_OKCANCEL
- MB\_ABORTRETRYIGNORE
- MB\_YESNOCANCEL
- MB\_YESNO
- MB\_RETRYCANCEL

Default is MB\_OK

Returns a value *rv*:

- |   |                      |
|---|----------------------|
| 1 | User Clicked OK      |
| 2 | User Clicked Cancel  |
| 3 | User Clicked Abort i |

4	User Clicked Retry
5	User Clicked Ignore
6	User Clicked Yes
7	User Clicked No
10	User Clicked Try Again
11	User Clicked Continue

### 3.1.3 win32\_ReadRegistry

[ *rv*, *code* ] = win32\_ReadRegistry (*key*, *subkey*, *value*) [Loadable Function]  
 Read a value from the Windows registry.

Example:

```
key='SOFTWARE\\Cygnus Solutions\\Cygwin\\mounts v2';
win32_ReadRegistry('HKLM',key,'cygdrive prefix')
```

key must be one of the following strings:

HKCR	HKEY_CLASSES_ROOT
HKCU	HKEY_CURRENT_USER
HKLM	HKEY_LOCAL_MACHINE
HKU	HKEY_USERS

*rv* is an octave string of the returned bytes. This is a natural format for REG\_SZ data; however, if the registry data was in another format, REG\_DWORD then the calling program will need to process them

*code* is the success code. Values correspond to the codes in the winerror.h header file. The code of 0 is success, while other codes indicate failure In the case of failure, 'rv' will be empty

### 3.1.4 win32api

*rv* = win32\_MessageBox (*title*, *text*) [Loadable Function]  
*rv* = win32\_MessageBox (*title*, *text*, *MboxType*) [Loadable Function]

Display a message box using the win32 API.

*title* MessageBox title string

*text* MessageBox text string

*MboxType* can be an integer or a string.

For integer values, consult <windows.h>

The following string values are recognized:

- MB\_OK
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- MB\_ABORTRETRYIGNORE
- MB\_YESNOCANCEL
- MB\_YESNO
- MB\_RETRYCANCEL

Default is MB\_OK

Returns a value *rv*:

1	User Clicked OK
---	-----------------



2	User Clicked Cancel
3	User Clicked Abort i
4	User Clicked Retry
5	User Clicked Ignore
6	User Clicked Yes
7	User Clicked No
10	User Clicked Try Again
11	User Clicked Continue

### 3.1.5 winopen

**winopen** (*name*) [Loadable Function]

Open the file or directory *name* in the windows registered application for the file, using shell open command.

Examples:

Open file document.docx in the docx viewer:

```
winopen ("document.docx");
```

Open the current directory in explorer:

```
winopen (pwd);
```

## 3.2 COM Interface

### 3.2.1 @octave\_com\_object/delete

**delete** (*obj*)

A delete override for octave\_com\_object objects.

Release interfaces from COM object *obj* and then delete the COM server.

**See also:** com\_delete delete.

### 3.2.2 @octave\_com\_object/get

*S* = **get** (*obj*)

*S* = **get** (*obj*, *propertynames*)

A get override for octave\_com\_object objects.

When specifying just *obj*, the function will return a list of property names in *S*. When also providing *propertynames*, the function return the values of the properties.

**See also:** com\_get, get.

### 3.2.3 @octave\_com\_object/invoke

**invoke** (*obj*)

*S* = **invoke** (*obj*, *methodname*)

*S* = **invoke** (*obj*, *methodname*, *arg1*, ..., *argN*)

Invoke a method on a COM object.

When called with just the single *obj*, invoke displays the methods available to the object.

When called with *methodname*, invoke will invoke the method with optional args and return the result in *S*.

**See also:** com\_invoke, methods.

### 3.2.4 @octave\_com\_object/methods

`methods (obj)`

`mtds = methods (obj)`

List the names of the public methods for the object `octave_com_object obj`.

When called with no output arguments, `methods` prints the list of method names to the screen. Otherwise, the output argument `mtds` contains the list in a cell array of strings.

**See also:** `methods`.

### 3.2.5 @octave\_com\_object/release

`release (obj)`

Release the COM object `obj` and all of its resources.

**See also:** `com_release`, `delete`.

### 3.2.6 @octave\_com\_object/set

`S = set (obj, propname, value)`

A set override for `octave_com_object` objects.

Call `set` function on COM object `obj` to set property `propname` to value `value`. Returns any result in `S`.

**See also:** `com_set`.

### 3.2.7 actxserver

`h = actxserver (progid)`

[Loadable Function]

Create a COM server using the `progid` identifier.

Returns `h`, a handle to the default interface of the COM server.

Example:

```
# create a COM server running Microsoft Excel
app = actxserver ('Excel.Application');
# free the object
destroy (app);
```

### 3.2.8 com\_atexit

`com_atexit ()`

[Loadable Function]

Close down all GNU Octave managed COM handles.

Called during pkg unload.

### 3.2.9 com\_delete

`com_delete (obj)`

[Loadable Function]

Release interfaces from COM object `obj` and then delete the COM server

### 3.2.10 com\_get

`S = com_get (obj)`

[Loadable Function]

Call `get` function on COM object `obj`. Returns any result in `S`

### 3.2.11 com\_invoke

`result = com_invoke (obj)` [Loadable Function]  
`result = com_invoke (obj, method)` [Loadable Function]

Call invoke on *obj* to run a method, or obtain a list of all methods.

`com_invoke (obj)` returns a list of all methods available for object *obj* in *result*.

`com_invoke (obj, method)` invokes *method* method for object *obj* and returns result *result*.

### 3.2.12 com\_release

`com_release (obj)` [Loadable Function]  
 Release interfaces from COM object *obj*

### 3.2.13 com\_set

`S = com_set (obj, propname, value)` [Loadable Function]  
 Call set function on COM object *obj* to set property *propname* to value *value*. Returns any result in *S*

### 3.2.14 iscom

`tf = iscom (h)` [Function File]

Determine whether *h* is a COM object.

if *h* is a COM object, returns true, otherwise returns false.

**See also:** actxserver.

## 3.3 Examples

### 3.3.1 mat2xls

`mat2xls (obj,filename)` [Function File]

Save *obj* as an Excel sheet into the file *filename*. The object *obj* must be either a cell matrix or a real matrix, that is a 2-dimensional object. All elements of the matrix are converted to Excel cells and put into the first worksheet, starting at cell A1. Supported types are real values and strings.

If *filename* does not contain any directory, the file is saved in the current directory.

This function is intended to demonstrate the use of the COM interface within octave. You need Excel installed on your computer to make this function work properly.

Examples:

```
mat2xls (rand (10, 10), 'test1.xls');
mat2xls ({'This', 'is', 'a', 'string'}, 'test2.xls');
```

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Version 3, 29 June 2007

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