

ShowHTMLDialog with Python and ctypes

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This python recipe demonstrates how to use the Win32 `ShowHTMLDialog()` with Python, `ctypes` and `comtypes` on Windows.

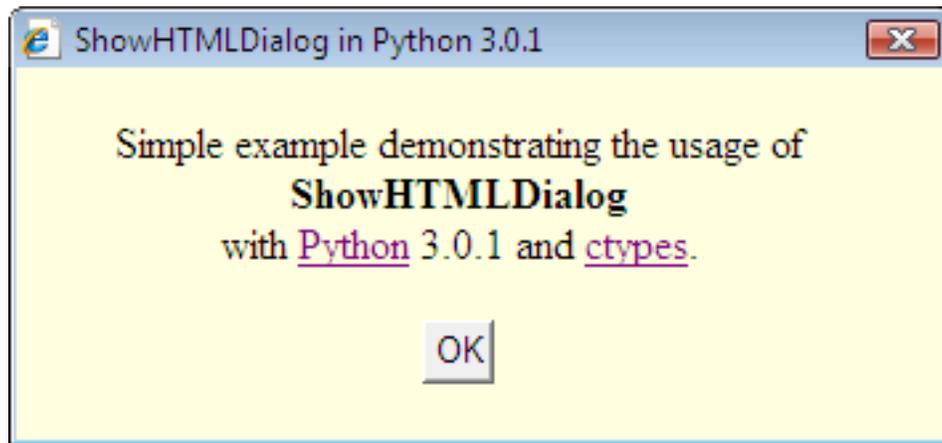


Figure 1: HTML dialog screenshot

I initially published this recipe in the *ctypes wiki* that is not maintained anymore. During the rewrite I revisited the code and made some adjustments to get the sample running with both Python 2.6 and Python 3.1.

Requirements

- Python 2.6 or 3.1 on windows
- ctypes created by Thomas Heller is included in the above versions of Python
- comtypes also created by Thomas is available in the Python Package Index (PyPI)

Install comtypes

To run the examples below, I installed `comtypes` directly from the source downloaded from the `comtypes` Sourceforge repository. Installing `comtypes` with Python 2.6 required to perform the following in the `comtypes` directory:

```
C:\> python setup.py install
```

With Python 3.1, an additional step needs to be performed. To help overcome the burden of converting Python 2.6 and above to version 3.1 Python 3.1 includes the conversion script `2to3.py`. You can find this script in your Python 3 directory, under **Tools/Scripts**. Prior installing `comtypes` for Python 3.1, convert `comtypes` code by executing the following command in the directory where you checked out `comtypes`:

```
C:\> python C:\Python31\Tools\Scripts\2to3.py -w .
```

This generates some errors that can be ignored to run `ShowHTMLDialog` code under Python 3. After conversion, install `comtypes` using the same command as with Python 2.6:

```
C:\> python setup.py install
```

ShowHTMLDialog

`ShowHTMLDialog` is a Win32 function which creates a modal dialog box that displays HTML. In the context of a Python program targeting the Windows platform, it is an easy way to write a simple dialog box, such as an About Box for example. `ShowHTMLDialog()` allows for some more advanced mechanisms like handling parameters and data entered in the dialog box, but this is not addressed in this article. `ShowHTMLDialog()` is implemented in `MSHTML.DLL`. This DLL contains related methods with slight differences: `ShowHTMLDialogEx()` and `ShowModelessHTMLDialog()`. Those two methods may address particular requirements that would not be met by `ShowHTMLDialog` (e.g. displaying a modeless dialog).

`ShowHTMLDialog()` takes 5 parameters:

1. Handle to the parent of the dialog box
2. Address of an `IMoniker` interface
3. Address of `VARIANT` structure for the input data
4. Dialog box options
5. Address of `Variant` structure for the output data

For more details about those parameters consult the `ShowHTMLDialog` documentation. Using `ctypes` to invoke a basic version of a `ShowHTMLDialog` call can be implemented with the following lines of Python 3.1 code:

```
options = "dialogWidth:350px;dialogHeight:140px:center=yes;help=no"
moniker = POINTER(IUnknown)()
windll.urlmon.CreateURLMonikerEx(0, url, byref(moniker), 1)
windll.mshtml.ShowHTMLDialog(None, moniker, None, options, None)
```

`url` in the code example above is the full path of a file containing some HTML content. See the next section for a complete example.

Complete Example

This is a full example of working code demonstrating a simple usage of `ShowHTMLDialog()`. You will notice that in order to make it compliant with both Python 2.6 and Python 3.1, especially to handle `url` in Unicode format, there is the introduction of `wstr` allowing to call `unicode()` in Python 2.6 and `str()` in Python 3.1. `str()` is not necessary for Python 3.1, this is just for the purpose of this example and to maintain a unique file for this article.

```
"""ShowHTMLDialog

Creates a modal dialog box to display HTML (Win32).
Tested with Python 2.6 and Python 3.0

$Id: ShowHTMLDialog.py 540 2009-07-01 00:46:57Z andre $

"""

from ctypes import windll, byref, POINTER
from comtypes import IUnknown
import os
```

```
import tempfile
import sys

# From urlmon.h
URL_MK_UNIFORM = 1

# Dialog box properties
DLG_OPTIONS = "dialogWidth:350px;dialogHeight:140px;center:yes;help:no"

# HTML content
HTML_DLG = """
<html>
<head>
<title>ShowHTMLDialog in Python %(python_ver)s</title>
</head>
</script>
<body bgcolor="lightyellow">
<center>
<br/>
<p>
Simple example demonstrating the usage of<br/>
<b>ShowHTMLDialog</b><br/>
with <a href="http://www.python.org/" target="_blank">Python</a> %(python_ver)s
  and <a href="http://starship.python.net/crew/theller/ctypes/" target="_blank">
ctypes</a>.
</p>
<input type="button" value="OK" onClick="window.close();" />
</center>
</body>
</html>""" % {'python_ver': sys.version.split()[0] }

# Create temp HTML file
def create_html_file(html):
    """Create temporary HTML file from HTML template."""
    tmp_fd, url = tempfile.mkstemp(suffix='.html')
    tmp_file = os.fdopen(tmp_fd, 'w')
    tmp_file.write(html)
    tmp_file.close()
    return url

def show_html_dialog(url, dlg_options):
    """Prepare moniker. Invoke ShowHTMLDialog."""

    # Helper for Python 2.6 and 3.0 compatibility
    if sys.version_info > (3, 0):
        wstr = str
    else:
        wstr = unicode

    moniker = POINTER(IUnknown)()
    windll.urlmon.CreateURLMonikerEx(0, wstr(url),
                                     byref(moniker), URL_MK_UNIFORM)
```

```
windll.mshtml.ShowHTMLDialog(None, moniker, None, wstr(dlg_options), None)

if __name__ == '__main__':
    show_html_dialog(create_html_file(HTML_DLG), DLG_OPTIONS)
```

Release Notes

- July, 23 2009: Initial publication of this article