

Automated Love

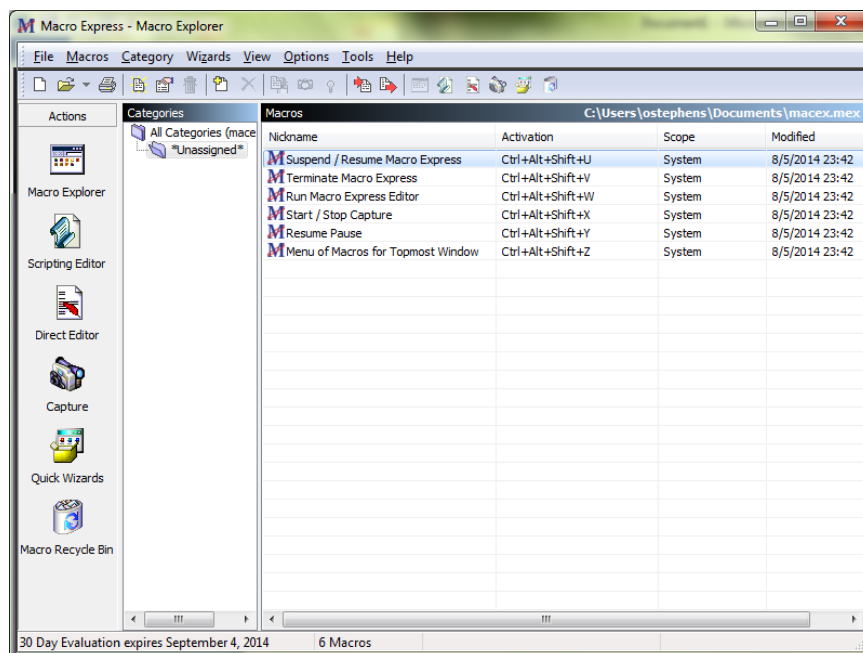
Examples 1 and 2 requires you to install Macro Express software. This can be downloaded on a 30 day trial basis from <http://www.macros.com/download.htm>.

Example 3 requires you to to install the 'iMacros' extension in Firefox (recommended), Chrome or Internet Explorer (the latter options have not been tested). The iMacros extension can be installed from <https://addons.mozilla.org/en-US/firefox/addon/imacros-for-firefox/>

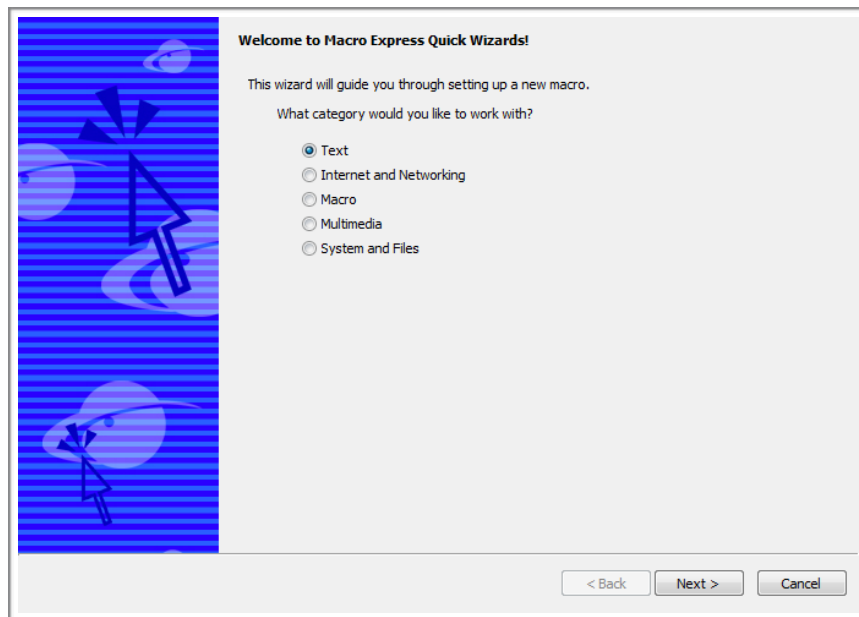
Example 1: Shortcut to insert a word/phrase

This example uses Macro Express to setup a keyboard shortcut to automatically enter text into any program.

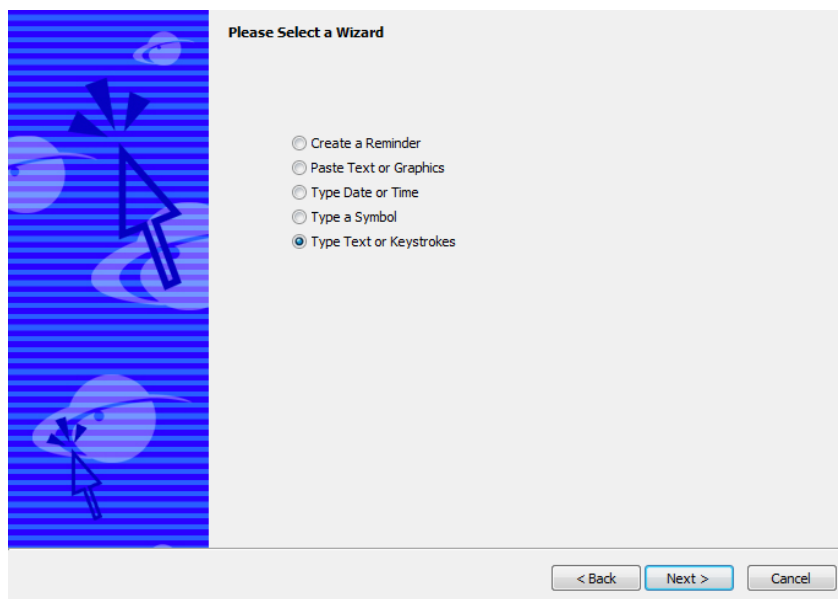
Start Macro Express from the Start Menu. This will should start the Macro Express program and an icon will show in your taskbar. To create a new macro press 'Ctrl+Alt+Shift+W' - this will open in the 'Macro Explorer' view as follows:



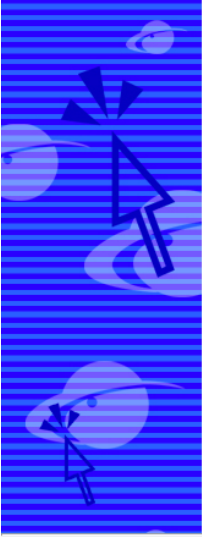
Click the 'Quick Wizards' option on the right hand side. You will then be presented with a choice of different categories of Macro to create:



Choose 'Text' and click 'Next'.



You will then be asked for what you want the macro to do. In this case choose 'Type Text or Keystrokes' and click 'Next' twice.



Enter the text you want typed into your programs

You may mix special keys (such as F1, TAB, RIGHT ARROW, etc.) in with your text by pressing the "Keystrokes" button. You may also place international characters and symbols in your text by pressing the "Symbols" button.

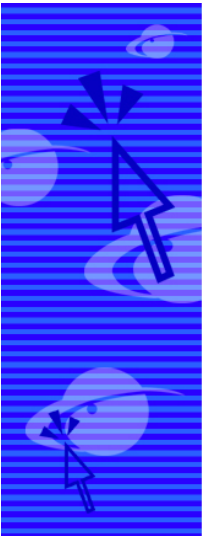
Keystrokes Symbols

Owen Stephens
Owen Stephens Consulting Ltd
52 Queensway
Leamington Spa
CV31 3JZ

< Back Next > Cancel

You can then enter the text you want to be entered into a program each time you run the macro. In the example here I've used an address.

When you've finished entering the text, click 'Next'



Select a Hot Key from the list below

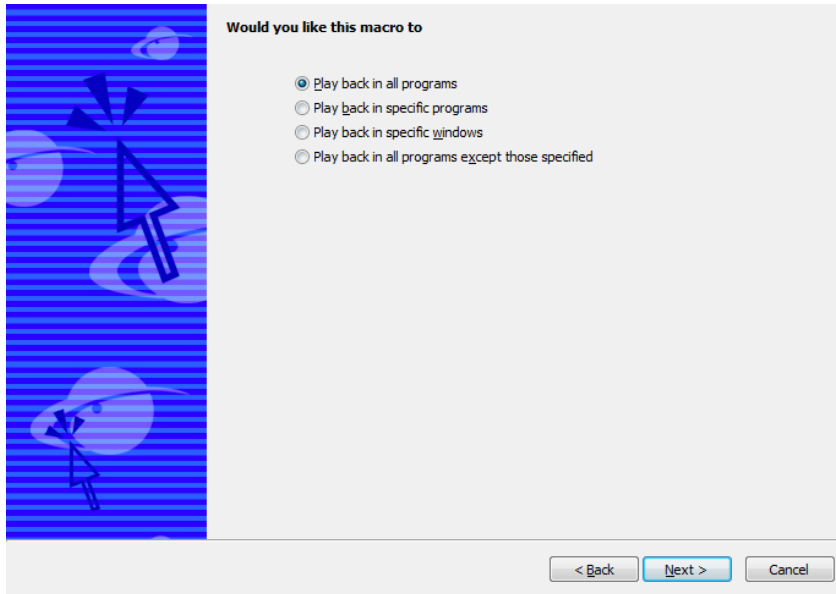
Place cursor in the field below and press a hot key to select.

Ctrl+0

Ctrl+Y	Global Key Not In Use
Ctrl+Z	Global Key Not In Use
Ctrl+0	Global Key Not In Use
Ctrl+1	Global Key Not In Use
Ctrl+2	Global Key Not In Use
Ctrl+3	Global Key Not In Use
Ctrl+4	Global Key Not In Use
Ctrl+5	Global Key Not In Use
Ctrl+6	Global Key Not In Use
Ctrl+7	Global Key Not In Use
Ctrl+8	Global Key Not In Use
Ctrl+9	Global Key Not In Use
Ctrl+F1	Global Key Not In Use

< Back Next > Cancel

Choose a key combination you want to trigger the macro - avoid any key combination that you use regularly for other purposes (e.g. Ctrl+A = Select All; Ctrl+X/C/V = Cut/Copy/Paste etc.). In this case I've chosen Ctrl+0. Then click 'Next'

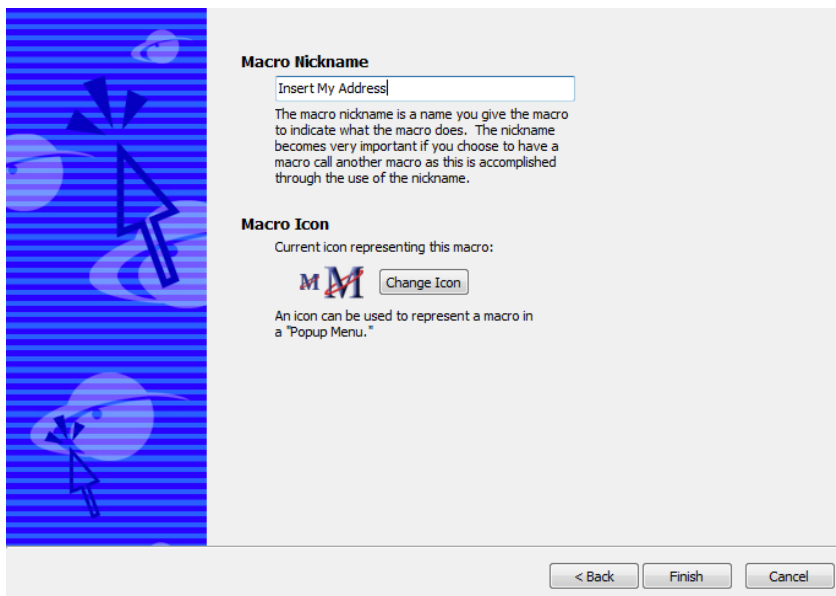


Would you like this macro to

- ☒ Play back in all programs
- ☐ Play back in specific programs
- ☐ Play back in specific windows
- ☐ Play back in all programs except those specified

< Back Next > Cancel

You can choose for the macro to only work in specific contexts, but in this case I want it to work in any program, so choose 'Play back in all programs', and click 'Next'.




Macro Nickname

Insert My Address

The macro nickname is a name you give the macro to indicate what the macro does. The nickname becomes very important if you choose to have a macro call another macro as this is accomplished through the use of the nickname.

Macro Icon

Current icon representing this macro:

 [Change Icon](#)

An icon can be used to represent a macro in a "Popup Menu."

< Back Finish Cancel

Finally give the macro a name and 'Click Finish'

Once you've created the macro, open a Word document or a text document, click the 'hot key' combination you assigned to the macro (e.g. Ctrl+0) and watch the text appear.

Going Further

In the Macro Explorer view, highlight the macro you've created and then select 'Scripting Editor' from the left hand panel.

In the 'Macro Script' pane, you can double click lines to edit them. Can you change the text that is typed when the macro is triggered?

Can you see how you could automatically fill out forms in programs or on websites using only this 'Text Type' command?

Hint: What key can you press to move between boxes in a form?

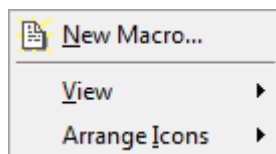
Example 2: Search WorldCat

This example uses Macro Express to take text you've highlighted (e.g. a word, phrase or ISBN) and use this as a search term in WorldCat. Before you start on this example, try doing the process manually:

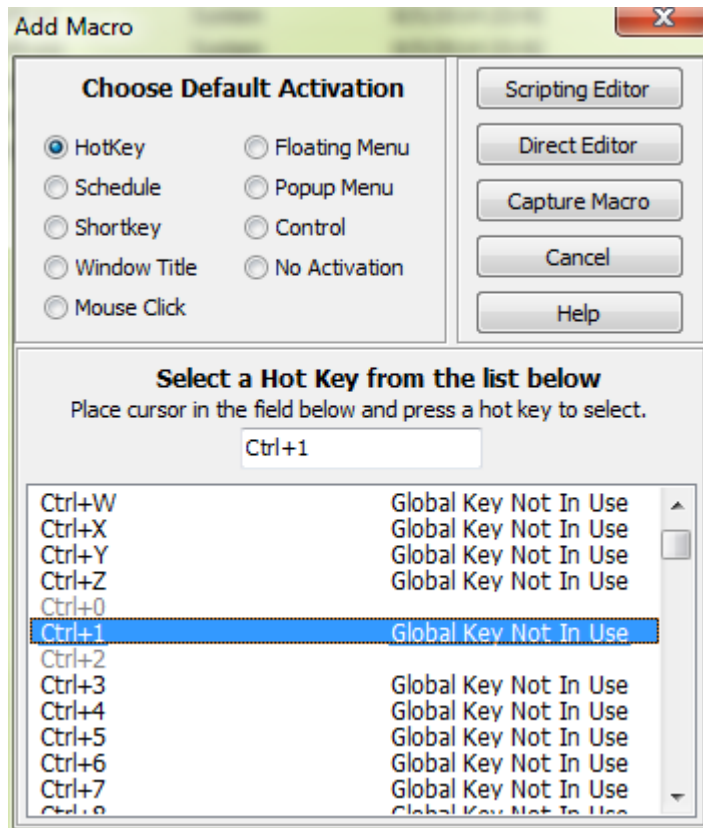
- Find a suitable piece of text (e.g. an ISBN), and copy it to the clipboard
- Open a browser
- Type '<http://worldcat.org>' and press enter
- Paste the text into the search box. Note that the search box is automatically selected
- Hit 'enter'

You should find that the search is carried out and the results are displayed.

Start the Macro Express Editor (Ctrl+Alt+Shift+W), and in the 'Macros' pane (on the right hand side) right click to show a menu:

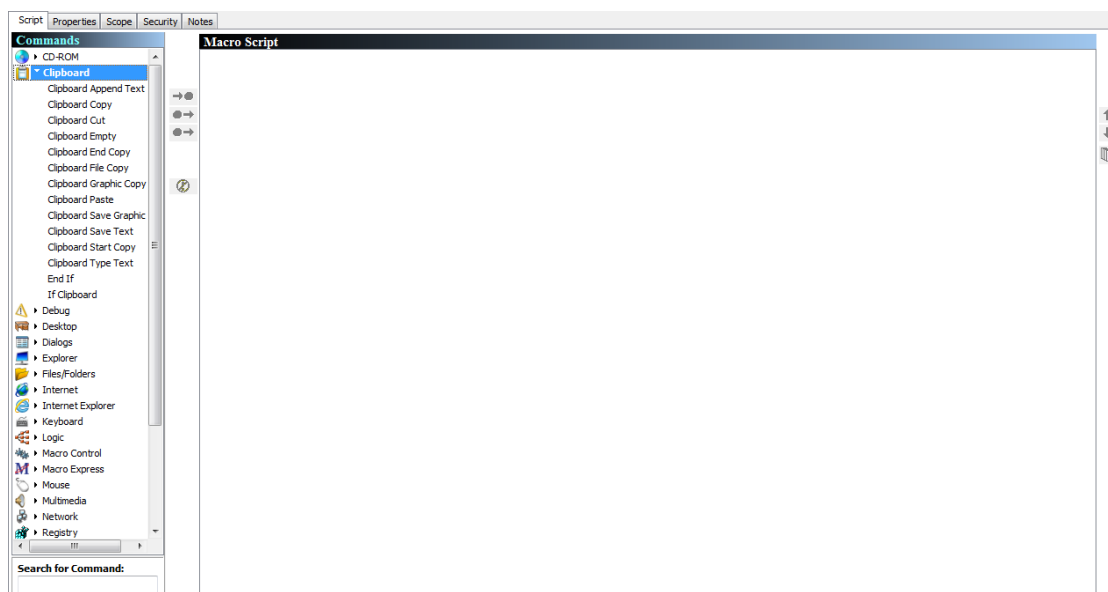


Choose 'New Macro', and you will get the following screen:



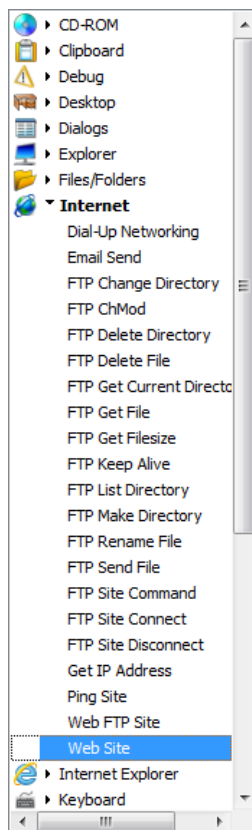
Choose the hot key combination you want to use to trigger the macro. In this case I've chose 'Ctrl+1'. Note that there are other ways of triggering a macro besides a 'hot key' combination.

Once you have selected the hot key, click 'Scripting Editor'. This will bring up an empty scripting editor window:

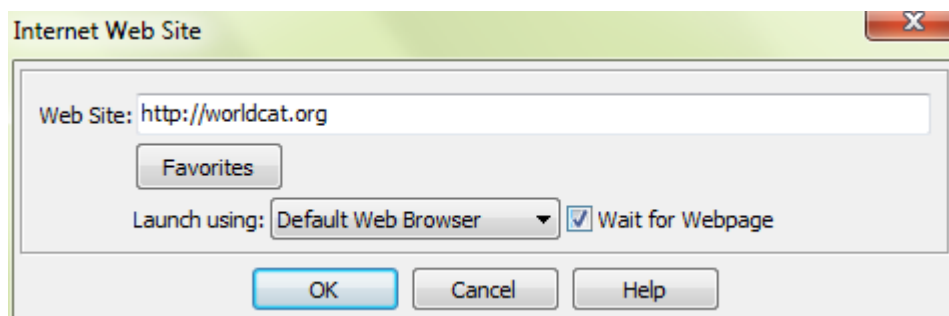


In the left hand pane there are a number of commands (grouped by type) which can be added to the script. The first command we are going to add is a 'copy' command to copy whatever text is currently selected. To add a 'copy' command to the script, click

'Clipboard' in the Commands pane, and then double click 'Clipboard Copy' - which will add a 'Clipboard Copy' command to the Macro Script pane on the right.



Next click on 'Internet' in the left hand pane, and double click 'Web Site'. You will be prompted for the address of the website you want to use:



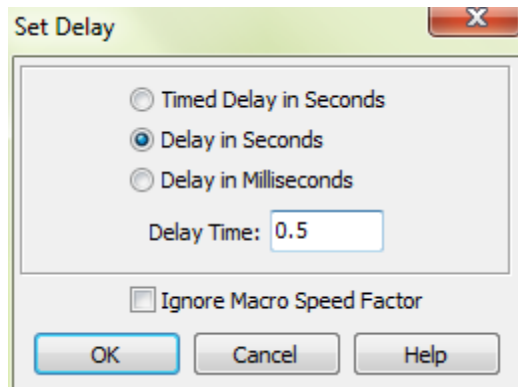
Type in the address 'http://worldcat.org'.

Tick the 'Wait for Webpage' option - this will tell the macro not to go to the next step until the web page has loaded.

Click OK.

Experimentation has shown that while the macro will automatically wait for the website to load, there is a slight delay between the web page loading, and the cursor being ready in the 'Search' box on the Worldcat website. For this reason we add an extra delay into the macro.

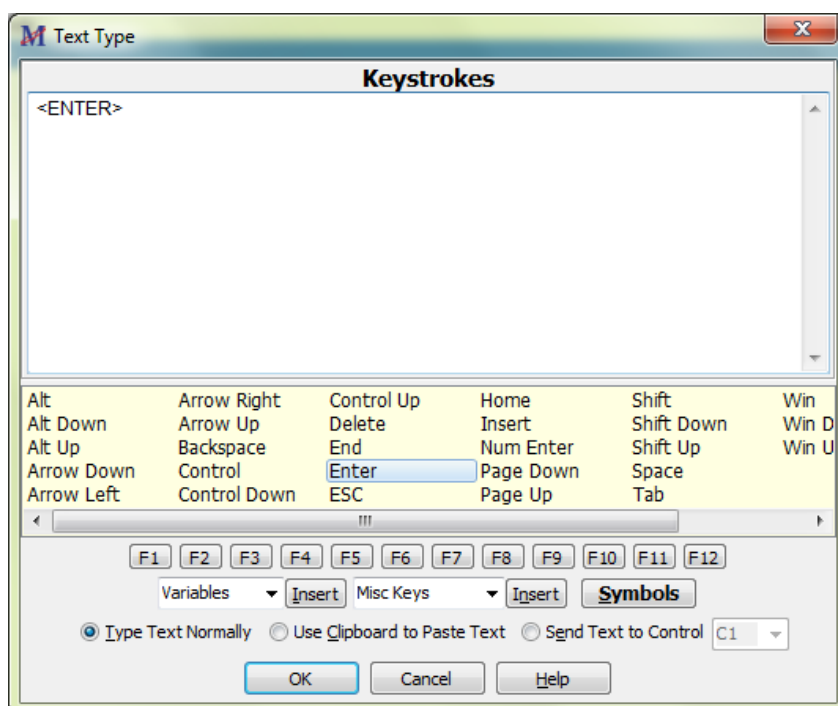
In the left hand panel find the 'Timing' commands and double click 'Delay'. A 'delay' makes the macro pause for a period of time, and is often needed in situations where the macro would otherwise start the next step too early - it is surprisingly easy for a macro to get ahead of the computer! It can sometimes be a matter of trial and error to get the right amount of delay in a macro.



You'll be prompted for the length of the delay. In this case we can use 0.5 seconds (or 500 milliseconds if you prefer).

Next find the Clipboard / Clipboard Paste command and add this to the macro.

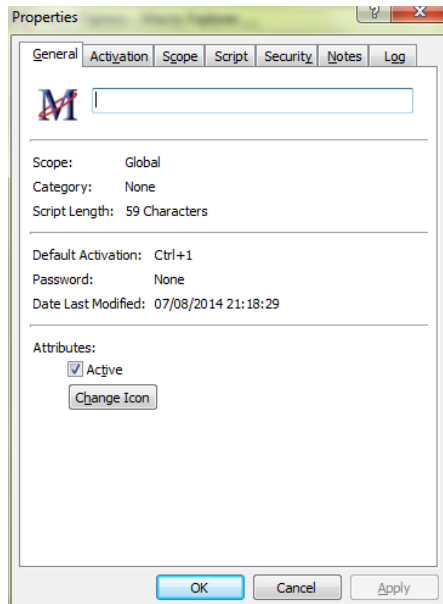
Finally to carry out the search, you need to 'press enter'. This can be done using a Keyboard / Text Type command. While it is called 'text type' it can be used to send any key strokes - including 'Enter':



Click OK, to finish adding the keystrokes to the macro.

You've now finished the macro - you can save it (File/Save), and switch back to the Macro Explorer (through the 'Actions' panel on the left).

The macro doesn't have a nickname yet - so appears as a blank line in the Macro Explorer. To change name right-click on the relevant line and select 'Properties...'. In the 'General' panel you can enter the name in the top box:



You are now ready to run the macro - select a piece of text and trigger the macro with the hot key

Going Further

At http://www.meanboyfriend.com/overdue_ideas/wp-content/uploads/2015/02/isbns.csv there is a file called 'ISBNs.xls'. This contains five ISBNs in a column.

Can you use the Scripting Editor to build a macro that copies an ISBN from the spreadsheet, searches for it in WorldCat, then copies the next ISBN from the spreadsheet and searches for that on WorldCat, and so on until all ISBNs have been searched.

Hints:

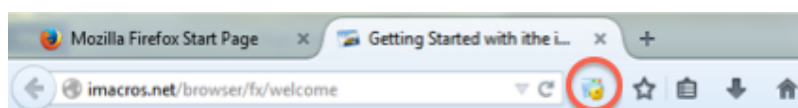
- The 'Window Activate' command can make the macro switch to any open window
- Work out the keystrokes you need to move around the Excel spreadsheet one ISBN at a time
- To repeat a set of actions, use the 'Repeat Start' command before the set of actions you want to repeat, and 'Repeat End' commands after the set of actions you want to repeat

Example 3: Login to a web application

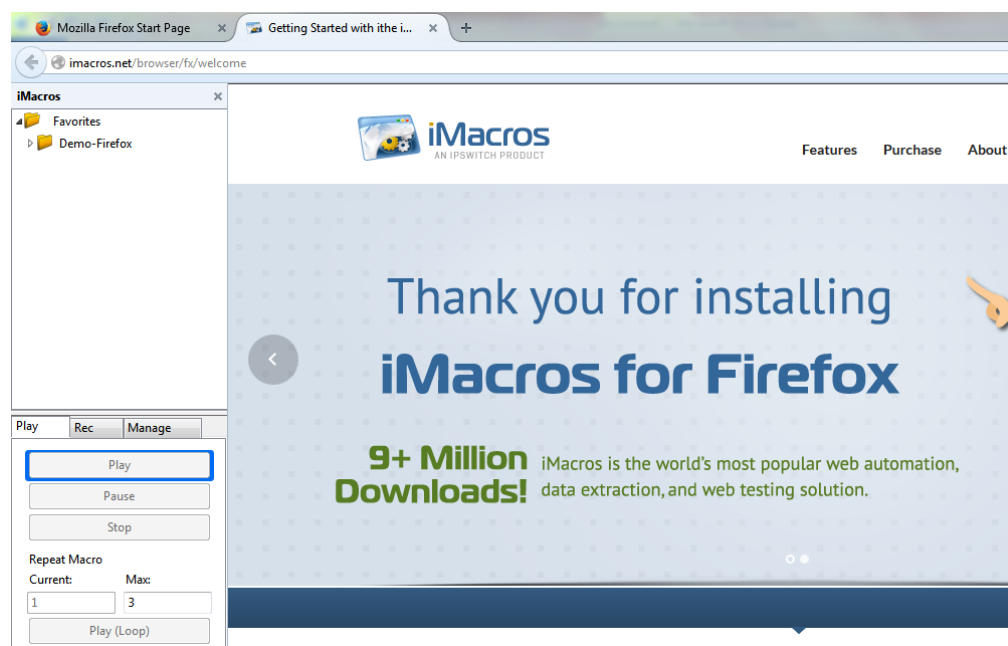
This example uses the iMacros Firefox Extension to automatically login to a web application, including navigating a 'WAYF' (Where are you from) page (commonly encountered when logging onto library resources in academic libraries).

The specific resource used in this example is a UK based service called 'KB+' which is accessible to all UK Universities. However, the same approach could be applied to an alternative online service if you do not have access to KB+.

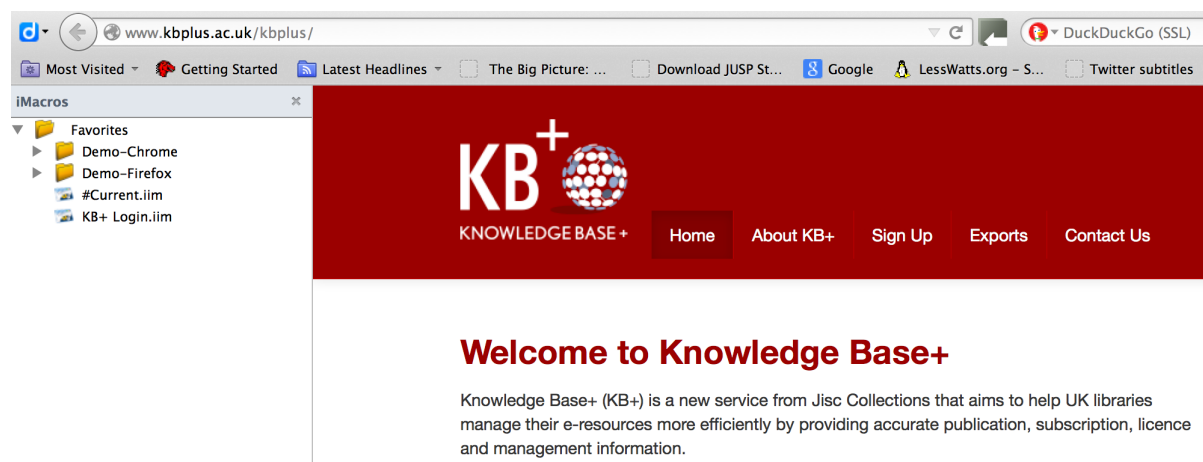
You will need to install the iMacros extension from <https://addons.mozilla.org/en-US/firefox/addon/imacros-for-firefox/>. Once you've installed the iMacros extension a new icon should display in the Firefox navigation bar.



Click the icon to show the iMacros pane in the browser:

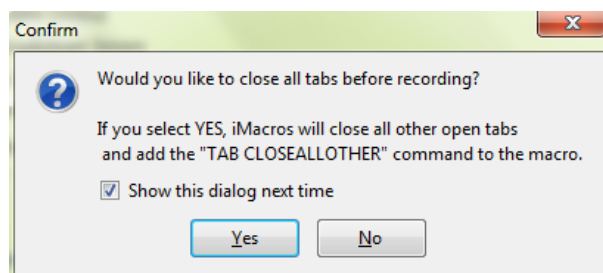


The iMacros pane allows you to record, play and manage macros. To get started, click the 'Rec' tab in the lower half of the iMacros pane.



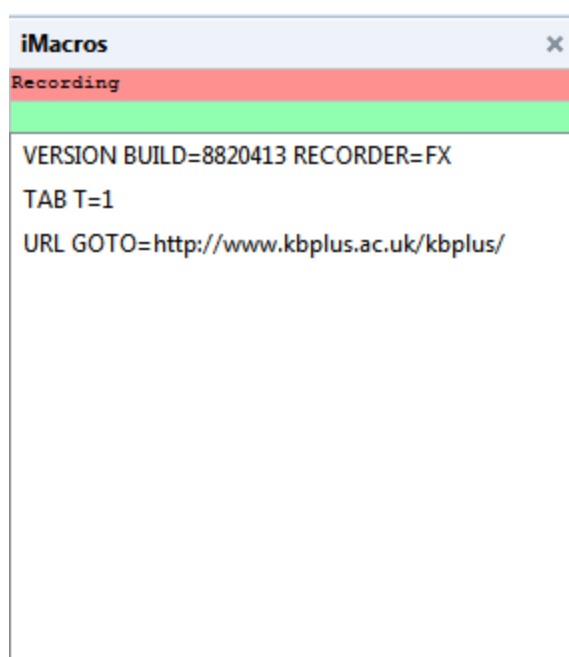
Then navigate to the page you want to start from (this is recommended before you start recording the macro). In this example, I'm using the Jisc KB+ (KnowledgeBase+) service at <http://www.kbplus.ac.uk/kbplus>

In the lower part of the iMacros pane, click the 'Record' button. The first time you do this you will get the following prompt:



Generally you probably won't want this kind of macro to close all other tabs in the browser, so click 'No' (and if you don't want to be asked again, uncheck the 'Show this dialog next time' box).

As you carry out actions in the browser, you will see lines being added to the iMacros pane - one for each action. You can see the command which takes you to the starting page "URL GOTO=<http://www.kbplus.ac.uk/kbplus/>" is added straight away:



You now want to carry out a login as normal, although there are some things you need to look out for. First, click "Knowledge Base+ Member Login". This should take you to the 'WAYF' service, where you need to choose the organisation you belong to in order to login.



Knowledge Base+

Which organisation would you like to sign in with?

Start typing the name of your organisation (e.g. Anywhere College) in the search box, and options will appear below:

EDINA (staff and trials)

EDINA

remove x

Type the name of your organisation

Continue

[Need help logging in?](#)
or [Let me choose from a list](#)

The box where you would normally type the name of your organisation is controlled by javascript. Experience shows that avoiding any clever javascript is best where possible. Therefore instead of typing in the name of the organisation as usual, click 'Let me choose from a list' instead, and use the dropdown list to find the value you want to choose.

KB+ KNOWLEDGE BASE+

Select the value you want to choose from the dropdown list

Ecole Nationale Vétérinaire d'Alfort
Ecole Nationale Vétérinaire de Toulouse (ENV)
Ecole normale supérieure
Ecole Supérieure d'Agriculture d'Angers
Ecoles de Saint-Cyr Coëtquidan
Economic & Social Research Council
Edge Hill University
EDINA (staff and trials)
Edinburgh College
Edinburgh Napier University
Educagri - Enseignement Agricole
Eduserv Athens
EHESS
ENCE (IBGE) - Escola Nacional de Ciências Estatísticas
ENIB - Ecole Nationale d'Ingénieurs de Brest
ENIM
ENISE
ENIT Ecole Nationale Ingénieurs Tarbes
ENITA de Bordeaux
ENS de Cachan
ENS de Lyon

Select...

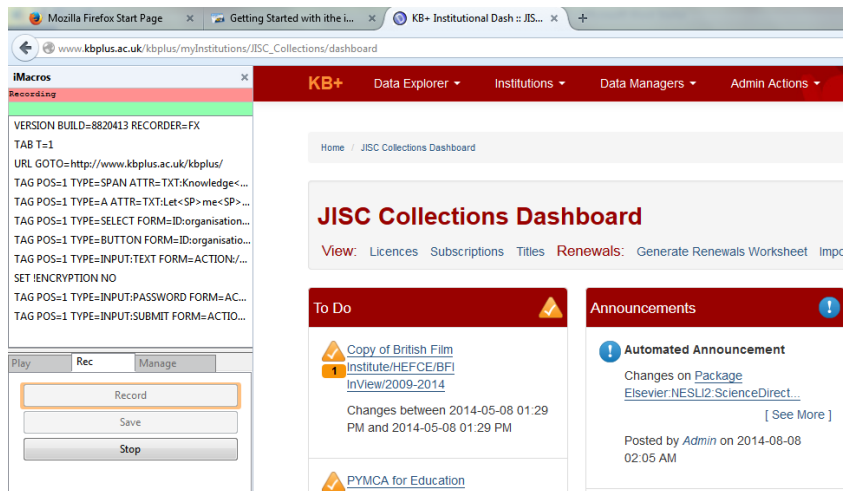
Continue

[Need help logging in?](#)
or [Let me search](#)

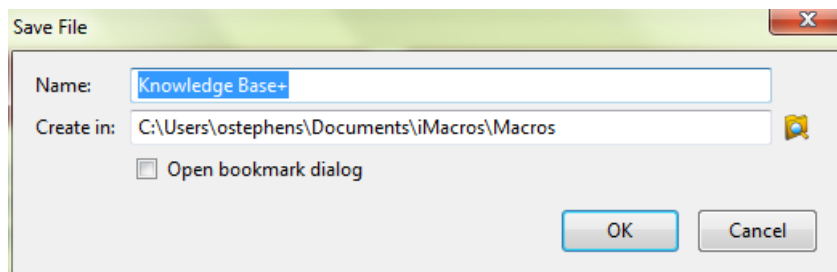
Click 'Continue'. You should then get taken to a login screen for your own institution.

You could stop recording at this point, especially if you don't want your username and password to be part of the recorded macro (as any username/password in the macro won't be encrypted, and would be available to anyone with access to the macro).

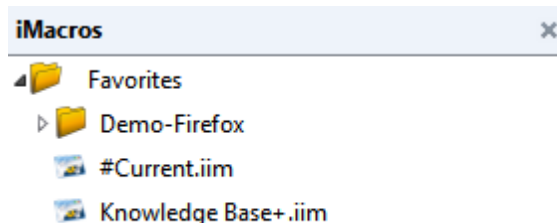
In this case I've filled in my password successfully and get taken to the application



Once you have completed recording the macro, click 'Stop' in the left hand pane, and then click 'Save' to save the macro.



Give the macro a sensible name, and click 'OK' - you will see the macro appear in the iMacros pane.



You've now recorded the macro. To 'replay' the macro choose the macro in the iMacros pane, click on the 'Play' tab at the bottom of the pane, and click 'Play'. You should find your steps are carried out. When testing login scripts you may wish to quite Firefox and restart first, as in some cases the first login will have created a session which is stored until you quit the browser.

Going Further 1:

In the iMacros pane click on 'Manage'. Highlight the macro you have just saved and click 'Edit Macro'

If you know that you can open a new Browser tab using the command:

TAB T=OPEN

and you can select which TAB you are working in using:

TAB T={number of tab} (e.g. TAB T=2)

Can you work out how to extend this macro to open an additional webpage in a new tab?

Hints:

- **A tab needs to be open before you can use it**
- **Look at the line starting 'URL' to see how to open a web page**

Going Further 2:

In the iMacros pane click on 'Manage'. Highlight the macro you have just saved and click 'Edit Macro'

You will see the Macro script displayed. Look for the lines that contain "SELECTOR". This uses a CSS Selector expressing to specify what part of the web page is being used or interacted with. You can read more about CSS Selectors at https://developer.mozilla.org/en-US/docs/Web/Guide/CSS/Getting_started/Selectors

If you enjoy learning through games/interactive media try CSS Diner at <http://flukeout.github.io>

The 'Firebug' extension for Firefox, and the accompanying 'FirePath' extension can be used to find and test CSS selector paths. You can install these from

- <https://addons.mozilla.org/en-US/firefox/addon/firebug>
- <https://addons.mozilla.org/en-US/firefox/addon/firepath>

Example 4: Search WorldCat, Take 2

This example uses the iMacros Firefox Extension to search for a series of ISBNs on WorldCat. See Example 3 for a link to the extension if you have not yet installed this.

N.B. There seems to be some variability in how the iMacros Extension records actions, and so you may not find that the lines recorded are exactly as given below. In particular you may find that the recording creates lines starting 'TAGS' rather than 'EVENTS'. If this happens the approach outlined below should still work, but you will need to work out where the relevant changes need to be made.

Before you start this example, download the file 'isbn.csv' into the /iMacros/Datasources directory on your computer.

Make sure the 'Current' macro is highlighted in the left hand iMacro pane in your browser. Navigate to <http://www.worldcat.org>, then hit 'record'.

Type a search term into the search box, and click the 'Search Everything' button.

Once Worldcat returns results (it doesn't matter if it finds any results or not) stop the recording.

Now switch to 'Manage' in the iMacros and click 'Edit Macro' - this will bring up the macro editor.

Find the line that reads something like:

```
EVENTS TYPE=KEYPRESS SELECTOR="#q1" CHARS= "..."
```

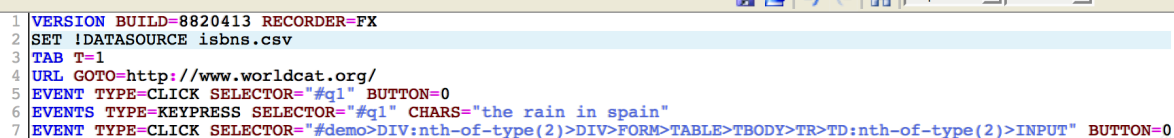
Instead of the value that is typed (represented here by ...) we want to use a value from the 'isbn.csv' file - this is done first by specifying a 'source' file, and then using a value from the file in place of the search string.

To do this the first thing is to set a 'source file' by adding a line towards the top of the macro (below the line that starts 'VERSION') that looks like:

```
SET !DATASOURCE isbn.csv
```

If the file 'isbn.csv' is in the iMacros 'Datasources' directory on your computer, you don't need to specify a path for the file. Otherwise you will need to specify the full path.

Your macro should now look something like:



```
1 | VERSION BUILD=8820413 RECORDER=FX
2 | SET !DATASOURCE isbn.csv
3 | TAB T=1
4 | URL GOTO=http://www.worldcat.org/
5 | EVENT TYPE=CLICK SELECTOR="#q1" BUTTON=0
6 | EVENTS TYPE=KEYPRESS SELECTOR="#q1" CHARS="the rain in spain"
7 | EVENT TYPE=CLICK SELECTOR="#demo>DIV:nth-of-type(2)>DIV>FORM>TABLE>TBODY>TR>TD:nth-of-type(2)>INPUT" BUTTON=0
```

To use a value from the file you have to first read a line from the file (the first line in the file is number 1). For example the following command uses the first line in the file:

SET !DATASOURCE_LINE 1

Add this to your file after the 'SET !DATASOURCE' line.

Once you have selected the line to use, you can select a value from any column using a command like:

{{!COL1}}

In this example this would be used to select the value from the first column. This can be used where you would (for example) normally enter text in the macro. In this case you want to add it to the line where your search term is entered. Your macro should now look like:

```
1 VERSION BUILD=8820413 RECORDER=FX
2 SET !DATASOURCE isbnns.csv
3 SET !DATASOURCE_LINE 1
4 TAB T=1
5 URL GOTO=http://www.worldcat.org/
6 EVENT TYPE=CLICK SELECTOR="#q1" BUTTON=0
7 EVENTS TYPE=KEYPRESS SELECTOR="#q1" CHARS={{!COL1}}
8 EVENT TYPE=CLICK SELECTOR="#demo>DIV:nth-of-type(2)>DIV>FORM>TABLE>TBODY>TR>TD:nth-of-type(2)>INPUT" BUTTON=0
```

This macro would read the first column in the first line in the isbnns.csv file - that is, the first ISBN in the file.

You could extend the macro to then read the second line of the file using:

SET !DATASOURCE_LINE 2

on line 9, and then copy lines 5-8 to search for the second ISBN in the file.

However, there is a better way to get the macro to use each line in the file using the "Play (Loop)" option - you can see this on the 'Play' tab in the iMacro pane. The 'Play (loop)' option allows you to specify how many times the macro will be played consecutively when you click the 'Play (loop)' button.

When you use 'Play (Loop)' iMacro uses a counter, which starts at '1' and increases by one each time the macro is played. This counter can be used in the iMacro script using the following command:

{{!LOOP}}

You can take advantage of this counter to set the line of the file to be read:

SET !DATASOURCE_LINE {{!LOOP}}

When you use this in conjunction with the 'Play (loop)' each time the macro is repeated the line number being read will increase by one.

```
VERSION BUILD=7500718 RECORDER=FX
SET !DATASOURCE isbnns.csv
SET !DATASOURCE_LINE {{!LOOP}}
TAB T=1
URL GOTO=http://worldcat.org
EVENTS TYPE=KEYPRESS SELECTOR="#q1" CHARS={{!COL1}}
```



```
EVENT TYPE=CLICK SELECTOR="#demo>DIV:nth-of-type(2)>DIV>FORM>TABLE>TBODY>TR>TD:nth-of-type(2)>INPUT" BUTTON=0
```

However, this macro will do the search in the same tab each time which may make it difficult to review the result of each search. You can use the `{{!LOOP}}` together with the command:

```
TAB T=OPEN
```

If you make this adjustment, the final code will look like:

```
VERSION BUILD=7500718 RECORDER=FX
SET !DATASOURCE isbnns.csv
SET !DATASOURCE_LINE {{!LOOP}}
TAB T={{!LOOP}}
URL GOTO=http://worldcat.org
EVENTS TYPE=KEYPRESS SELECTOR="#q1" CHARS={{!COL1}}
EVENT TYPE=CLICK SELECTOR="#demo>DIV:nth-of-type(2)>DIV>FORM>TABLE>TBODY>TR>TD:nth-of-type(2)>INPUT" BUTTON=0
TAB T=OPEN
```

If you play this macro using the “Play (loop)” option with ‘Max’ set to 5, it will search for each ISBN in the isbnns.csv file on Worldcat.

Going Further:

How would you use this approach to automatically re-key information from a spreadsheet into a web application?