



Troï URL Plug-in 2.0

USER GUIDE

August 2006



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Installing plug-ins

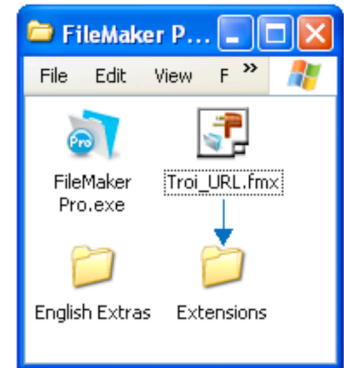
For Mac OS and Mac OS X:

- Quit FileMaker Pro.
- Put the file “Trois_URL.fmplugin” from the folder “Mac OS Plug-in” into the “Extensions” folder in the FileMaker Pro application folder.
- If you have installed previous versions of this plug-in, you are asked: “An older item named “Trois_URL.fmplugin” already exists in this location. Do you want to replace it with the one you’re moving?”. Press the OK button.
- Start FileMaker Pro. The first time Trois URL Plug-in is used it will display a dialog box, indicating that it has loaded and showing the registration status.



For Windows:

- Quit FileMaker Pro.
- Put the file "Trois_URL.fmx" from the directory "Windows Plug-in" into the "System" subdirectory in the FileMaker Pro application directory.
- If you have installed previous versions of this plug-in, you are asked: “This folder already contains a file called 'Trois_URL.fmx'. Would you like to replace the existing file with this one?”. Press the Yes button.
- Start FileMaker Pro. The first time Trois URL Plug-in is used it will display a dialog box, indicating that it has loaded and showing the registration status.



The instructions above show FileMaker 8. You can also install the plug-in with FileMaker Pro 7 or 8.5.

TIP1 You can check which plug-ins you have loaded by going to the plug-in preferences: Choose **Preferences** from the **Edit** menu, and then choose **Plug-ins**.

TIP2 Starting with FileMaker Pro 7 the plug-in folder is named "Extensions", on Windows and on Mac.

You can now open the file "All URL Examples.fp7" to see how to use the plug-in's functions. There is also a function overview in the download.

If you have problems

This user guide tries to give you all the information necessary to use this plug-in. So if you have a problem please read this user guide first. You may also visit our support web page:

[<http://www.troi.com/support/>](http://www.troi.com/support/)

This page contains FAQ's (Frequently Asked Questions), help on registration and much more. If that doesn't help you can get free support by email. Send your questions to support@troi.com with a full explanation of the problem. Also give as much relevant information (version of the plug-in, which platform, version of the operating system, version of FileMaker Pro) as possible.

If you find any mistakes in this manual or have a suggestion please let us know. We appreciate your feedback!

TIP You can get more information on returned error codes from the OSErrrs database on our web site: [<http://www.troi.com/software/oserrrs.html>](http://www.troi.com/software/oserrrs.html). This free FileMaker database lists all error codes for Windows and Mac OS!

What can this plug-in do?

Troi URL Plug-in lets you post and retrieve information from the Internet. Troi URL Plug-in can help you fill in web forms on the Internet, all from FileMaker Pro. It also retrieves data from any HTTP URL.

You can:

- use the POST command to fill in a web form and retrieve the result directly in FileMaker
- use the GET command to retrieve data
- use a secure connection (HTTPS) using SSL
- use cookies

This plug-in makes it possible to:

- fill in forms on web sites or your intranet
- get online data like stock quotes, weather reports, etc.
- automatically add information to listings and online databases
- search the Internet for terms or other specific items (like in Sherlock)

Software requirements

System requirements for Mac OS

Mac OS X 10.3.9 for PowerPC-based Macs or Mac OS X 10.4.5 for Intel-based Macs.

System requirements for Windows

Software Requirements: Windows 2000 (Service Pack 4), or Windows XP (Service Pack 2).

FileMaker requirements

FileMaker Pro 7 or FileMaker Developer 7 or higher

FileMaker Pro 8 or FileMaker Pro Advanced 8 or higher

FileMaker Pro 8.5 or FileMaker Pro Advanced 8.5 or higher.

NOTE Troi URL Plug-in version 1.8 (and later) uses the plug-in API introduced with FileMaker Pro 7. The functions of this plug-in have this format: FunctionName(parameter1 ; parameter2). This means that Unicode is supported and more.

You can also use FileMaker Server to serve databases that use functions of the Troi URL Plug-in. You need to have the plug-in installed at the clients that use these functions.

Troi URL Plug-in version 1.8 (and higher) does **not** run on versions prior to FileMaker Pro 7.0. If you need to run on versions prior to FileMaker Pro 7: see our web site for the Troi URL Plug-in 1.3 which is using the 'classic' plug-in API, which is using the External("functionName" , "parameter") format. The 1.3 version runs on FileMaker 6, 5.x and 4.x.. See our web site here:

<<http://www.troi.com/urlplugin.html>>

FileMaker Server and AutoUpdate

You can also use FileMaker Server 7 or 8 to serve databases that use functions of the Troi URL Plug-in. You need to have the plug-in installed at the clients that use these functions.

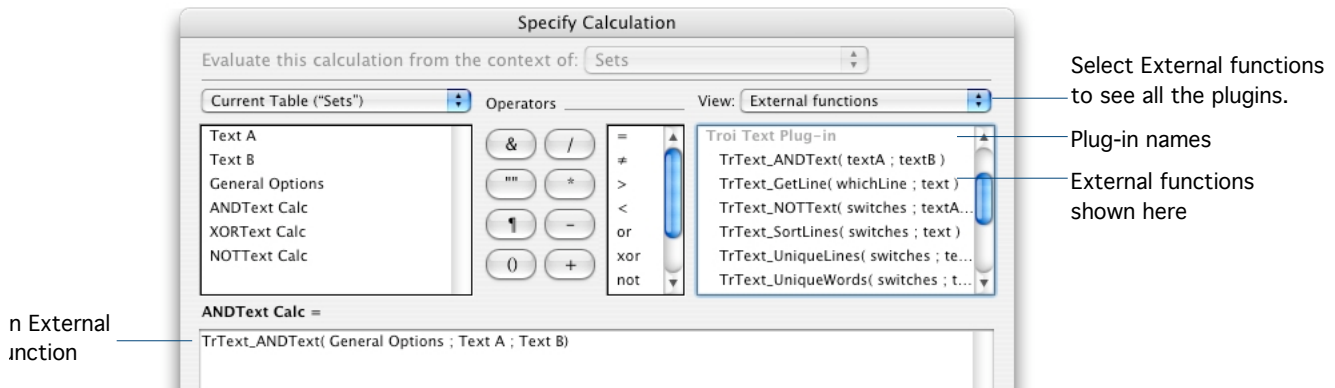
The AutoUpdate feature of FileMaker Server 7 or 8 can help you automate installing and updating plug-ins automatically. We created an example file and a tar formatted plug-in of Troi URL Plug-in (only needed on Mac OS) to get you started. Visit our AutoUpdate web page to download the example:

<<http://www.troi.com/software/autoupdate.html>>

Getting started

Using external functions

Troi URL Plug-in adds new functions to the standard functions that are available in FileMaker Pro. The functions added by a plug-in are called external functions. You can see those extra functions for all plug-ins at the top right of the Specify Calculation box:



You use special syntax with external functions: `FunctionName(parameter1 ; parameter 2)` where `FunctionName` is the name of an external function. A function can have zero or more parameters. Each parameter is separated by a semi-colon. Plug-ins don't work directly after installation. To access a plug-in function, you need to add the calls to the function in a calculation, for example in a text calculation in Define Fields or in a ScriptMaker Script.

Where to add the External Functions?

External functions for this plug-in are intended to be used in a Set Field script step using a calculation. For most functions of this plug-in, it makes no sense to add them to a define field calculation, as the functions will have side effects. Only the `TURL_ToHTTP` function has no side effects and can be used in define field calculation.

Simple example

This example shows how to begin using the Troi URL Plug-in. Say you have a database myGetTest.fp7, with a global text field called gResult. In ScriptMaker create a script "Simple Example". Add the following script step to this script:

```
Set Field[gResult, TURL_Get("-unused" ; "http://www.example.com/") ]
```

This will get the web page and put it in the field gResult. The result will be similar to this:

```
<HTML><HEAD><TITLE>Example Web Page</TITLE></HEAD>
<BODY><p>You have reached this web page by typing www.example.com ...These domain
names are reserved for use in documentation and are not available for
registration.</p> </BODY>/HTML>
```

Function names, like TURL_Get, are no longer case sensitive. You can type them or get them from the External Functions list at the top right of the "Specify Calculation" dialog.

Please take a close look at the included example files, as they provide a great starting point. From there you can move on, using the functions of the plug-in as building blocks. Together they give you all the tools you need to interact with the Internet in powerful ways directly from FileMaker Pro.

Summary of functions

Troi URL Plug-in adds the following functions:

<u>function name</u>	<u>short description</u>
TURL_Version	Use this function to see which version of the plug-in is loaded. This function is also used to register the plug-in.
TURL_Get	Gets the raw data of the specified URL. This can be for example the HTML of a web page.
TURL_Post	Sends data to the server, using the POST method, and returns the result as raw data.
TURL_SetUserName	Sets the user name to be used for password protected URLs.
TURL_SetPassword	Sets the password to be used for password protected URLs
TURL_SetCookies	Sets the cookies text to be used to send to a web server.
TURL_SetCustomHeader	Sets a custom header to be used.
TURL_SetUserAgent	Sets a custom text for the name of the user agent the plug-in sends to a server.
TURL_SetProgressText	Sets a custom text to be used for the progress dialog.
TURL_SetProxy	Sets the proxy server to be used.
TURL_IsSecure	Indicates if the last request was secure.
TURL_ToHTTP	Encodes a text in HTTP format.

How to make sense of a web form

This section describes how to determine what you must send to make a web form work.

Introduction

On the Internet there are a lot of web forms. A web form requires one or more fields to be filled before you can use a submit button to send the data to the server. The web server then sends a response. Web forms usually work with the POST method of the HTTP protocol.

It is not that easy to find out the right way to send form data to the server. You need some knowledge of HTML. To find out what to send to a server use the following steps:

- 1 Save the HTML source of the page.
- 2 Find the <FORM> part in the source
- 3 Remove all formatting, leaving only the fields of the form
- 4 Build the form data to send

Step 1: Save the HTML source of the page

In your web browser load the page with the web form on it. Then save the HTML source. On some browsers this can be done with the "Save as" command under the File menu. Choose as format "HTML source" or "Web Page, HTML only" or similar.

Step 2: Find the <FORM> part in the source

Open the file in a Text editor, like BBEdit on Mac or Notepad on Windows. Or use a HTML editor if you have one. The page will look something like the simplified page in figure 1.

```
<HTML>
<HEAD>
  <TITLE>Test Form</TITLE>
</HEAD>
<BODY BGCOLOR="#FFFFFF">
<H2>An example form</H2>

<P><FORM ACTION="/cgi-sys/formmail.pl" METHOD=POST>
  <P><INPUT TYPE=text NAME=field1 VALUE="" SIZE=30><FONT
COLOR="#FF0000"><I>&nbsp;</I></FONT><INPUT TYPE=text NAME=field2 VALUE=""
SIZE=30><INPUT TYPE=hidden NAME=secret VALUE=A12474><INPUT TYPE=submit
NAME=Submit VALUE="Submit for Processing">
</FORM></P>

<P><I>&copy; 2002 Troi Automatisering, Have Fun!</I></P>

<P></P>
</BODY>
</HTML>
```

Figure 1: Example page with form (simplified)

Find the form, by locating the <FORM> tag. The end of the form is indicated with the </FORM> tag. In our example page this is easy, but most web pages are much more complicated.

NOTE there may be more forms on that web page. Make sure you find the correct form.

Remove everything outside the <FORM> </FORM> tags. In our example this will results in figure 2:

```
<FORM ACTION="/cgi-sys/formmail.pl" METHOD=POST>
  <P><INPUT TYPE=text NAME=field1 VALUE="" SIZE=30><FONT
COLOR="#FF0000"><I>&nbsp;</I></FONT><INPUT TYPE=text NAME=field2 VALUE=""
SIZE=30><INPUT TYPE=hidden NAME=secret VALUE=A12474><INPUT TYPE=submit
NAME=Submit VALUE="Submit for Processing">
</FORM>
```

Figure 2: Only the form

Step 3: Remove all formatting, leaving only the fields of the form

Remove all formatting tags, and irrelevant text etc. You should leave all the <INPUT ...> tags. With some extra returns this gives:

```
<FORM ACTION="/cgi-sys/formmail.pl" METHOD=POST>
<INPUT TYPE=text NAME=field1 VALUE="" SIZE=30>
<INPUT TYPE=text NAME=field2 VALUE="" SIZE=30>
<INPUT TYPE=hidden NAME=secret VALUE=A12474>
<INPUT TYPE=submit NAME=Submit VALUE="Submit for Processing">
```

Figure 3: The form without formatting

Step 4: Build the form data to send

In the ACTION attribute of the FORM tag you can find where the form data should be sent, in this case: "/cgi-sys/formmail.pl". Assuming that this page is run on the web site www.example.com the total URL would be: "http://www.example.com/cgi-sys/formmail.pl" Note also the METHOD=POST attribute. This can also be METHOD=GET.

In the form itself you now see there are 3 INPUT fields and a submit field.

field1 with an empty initial value
field2 with an empty initial value
secret with value A12474
Submit with value Submit for Processing

In the POST method you need to concatenate all fields separated with an ampersand "&".

From all this we can infer the data to send. Assuming we want to send data1 as the value for field1 and data2 as the value for field2, then the form data to be sent should be the text:

```
field1=data1&field2=data2&secret=A12474&Submit=Submit%20for%20Processing
```

NOTE Spaces are not allowed, so you need to encode these as %20. Also other higher ASCII characters need to be encoded. You can use the TURL_ToHTTP function of the plug-in to do this.

To finally bring it all together you create a ScriptMaker Script. In this ScriptMaker Script you create this script step:

```
Set Field [result ,
  TURL_Post("-unused" ;
    "http://www.example.com/cgi-sys/formmail.pl" ;
    "field1=data1&field2=data2&secret=A12474&Submit=Submit%20for%20Processing") ]
```

This will POST the form data to the web server and return the result.

Using fields as data

You can also get the data to send to a server from fields in the database. We assume that you want to send to the same web form as above. In your FileMaker file the following fields should be defined:

result	Text
field1	Text
field2	Text
formURL	Text
gTimeOutTime	Global, number

The fields field1 and field2 should be filled with the data to send to the server. The field formURL will be set to the URL that handles the form. In ScriptMaker add the following script steps:

```
Set Field [formURL , "http://www.example.com/cgi-sys/formmail.pl"]
Set Field [result ,
  TURL_Post("-unused" ; formURL ;
    "field1=" & field1 &
    "&field2=" & field2 &
    "&secret=A12474&Submit=Submit%20for%20Processing" ) ]
```

This will post the form data to the URL specified and return the result as raw HTML data. If the server does not react the function will time-out after gTimeOutTime ticks and an error code of "\$\$-4230" will be returned.

How to handle radio buttons and checkboxes in a form

With the URL plug-in you can also post forms that have radio buttons or checkboxes in it.

Say you have a web page with a FORM on it.

```
<HTML>
<HEAD>
  <TITLE>Test Form</TITLE>
</HEAD>
<BODY>
<P>TEST</P>

<FORM ACTION="/cgi-sys/formmail.pl" METHOD=POST>
  <P><INPUT TYPE=checkbox NAME=checkboxx1 VALUE=value1 CHECKED>checklabel</P>
  <P><INPUT TYPE=radio NAME=myradio VALUE=radiovalue2>radiolabel 1
  <INPUT TYPE=radio NAME=myradio VALUE=radiovalue2>radiolabel 2</P>

  <P>input data: <INPUT TYPE=text NAME=field1 VALUE="" SIZE=32><BR>
  <BR>
  <INPUT TYPE=submit NAME=Submit VALUE="Submit for Processing"></P>
</FORM>

</BODY>
</HTML>
```

This FORM has a checkbox, 2 radio buttons and an input field.

Checkboxes

In the POST data you only include the checkbox if it is checked. Otherwise leave it out.
When you add it, add the name, in this case "checkbox1", an equals sign and the value, here "value1".

So in the case above you add: "checkbox1=value1" for this checked box.

Radio buttons

For a radio button you include the value of the radio button that is selected.
In this example "myradio", an equals sign and the value of the chosen radio button, here "radiovalue2".

Putting it together you need to send this as the POST data (the 3rd parameter):

```
checkbox1=value1&myradio=radiovalue2&field1=typeddata&Submit=Submit+for+Processing
```

Pitfalls and considerations

- Javascripts may move entered data from one field in the web form to another just before the submit is done. Look if this happens in the javascript that's on the web page.
- Servers may use sessionIDs or other ways to make sure the web page is used only once. A sessionID may also time out. This may cause the submission of the web form to fail.
- Web site owners usually don't permit getting data from their web site in any way. Data is usually copyrighted, so be sure to check if you comply with the use of the data.
- Certain special characters and all "high ASCII" characters (characters with an ASCII value above 127) must be encoded when sent to a web server. The function TURL_ToHTTP of the plug-in returns the contents of the specified field or text value encoded in HTTP.

The special characters that must be encoded are

; / ? : @ = & > < # % { } ' | \ ^ ~ [] ` " © " (space)

plus all high ASCII characters. These characters are encoded using the formula %nn where nn is the hexadecimal value that represents the character in the International Standards Organization (ISO) Latin-1 character set. For example %20 is the encoded value for the space character.

- The submit field may sometimes be left out as not all web servers require it.

URL Lengths

The length of URLs is limited, by both the plug-in and receiving servers. A lot of web servers don't support URLs longer than 2048 characters. Note that the plug-in has higher limits: the total length of an URL must be less than 32867 characters.

This has consequences for the use of a GET or a POST method.

Use GET and POST in HTML forms - which is better?

In HTML, one can specify two different submission methods for a form. The difference between "GET" (the default) and "POST" is primarily defined in terms of form data encoding. The GET method sends extra data as part of the URL, while a POST has a fixed URL and sends the data separately.

If the set-up of the receiving web server is a given, you need to use the method that is specified in the web source. However, if you want to send longer strings of text (more than 2048 characters) you should use the POST method to submit the form.

NB: The official recommendations say that "GET" should be used if and only if the form processing is idempotent, which typically means a pure query form. Generally it is advisable to do so. There are, however, problems related to

long URLs and non-ASCII character repertoires which can make it necessary to use "POST" even for idempotent processing.

See <<http://www.cs.tut.fi/~jkorpela/forms/methods.html>> for a more in-depth explanation on these issues.

Plug-in limitations and known issues

Starting with version 1.1 Troi URL Plug-in removes some limitations:

- Secure connections (HTTPS) using SSL are supported on Windows (Mac OS already supported this). Be sure to install the latest version, otherwise SSL won't work.
- Cookies are now supported. On Windows cookies are handled natively by the operating system. On Mac OS you need to use the function TURL_SetCookies. See also the section on cookies.

Troi URL Plug-in 2.0 still has some limitations. Please be aware of the following:

- The maximum size of an URL is 32867 characters, but see also the section above on URL lengths.
- You can not save data directly to disk. A possible solution is storing the data in a field and then use the Troi File Plug-in (see <<http://www.troi.com/software/fileplugin.html>>) to write it to disk.
- Error codes on Mac and on Windows can be different in the same situation. We hope to change this, so that (in most situations) the same error will be returned on all platforms.
- It is possible to use Troi URL Plug-in to access a file hosted with the Web Companion. However it won't work always if you are trying to access a URL on the same computer. This is the case if you use the same FileMaker Pro Client for the Web Companion and Troi URL Plug-in.

Cookies

A cookie is a piece of text that a Web server can store on a user's hard disk. Cookies allow a Web server to store information on a user's machine and later retrieve it. These cookies serve as state information, for example as an unique visitorID.

Cookies are supported by Troi URL Plug-in. On Windows cookies are handled natively by the operating system, meaning that cookies are sent to the web server without the plug-in need to do something. On Mac OS you need to use the function TURL_SetCookies to specify which cookie text to send.

Which cookies do you need to send?

Some web servers want to receive cookies before they return the wanted data. In this case you need to find out first which cookies to send. You can do this by returning the headers of a web page in the TURL_Get or TURL_Post functions. For example we get the home page of Amazon:

```
Set Field [ result , TURL_Get( "-ReturnHeader" ; "http://www.amazon.com/" ) ]
```

This will result in something similar to this (simplified) page:

```
HTTP/1.1 200 OK
Date: Mon, 31 Mar 2003 16:05:33 GMT
Server: Stronghold
Set-Cookie: session-id=104-1127-69752; path=/; domain=.amazon.com; expires=Monday, 07-Apr-20
08:00:00 GMT
Set-Cookie: session-id-time=1049400; path=/; domain=.amazon.com; expires=Monday, 07-Apr-2003
08:00:00 GMT
Set-Cookie: obidos_path_continue-shopping=continue-shopping-url=/subst/home/home.html/104-12
6952&continue-shopping-post-data=&continue-shopping-description=generic.gateway.default; pat
domain=.amazon.com
Connection: close
Content-Type: text/html
<html> ...
</html>
```

Each line that starts with "Set-Cookie:" is a request of the web server to set a cookie on this computer. In this case there are 3 cookies being set. If you want to sent those 3 in the next request add this ScriptMaker Script step before the next TURL_Get or TURL_Post step:

```
Set Field [ gErrorCode, TURL_SetCookies( "-unused" ;
"session-id=104-1127-69752; session-id-time=1049400; obidos_path_continue-shopping=continue-
shopping-url=/subst/home/home.html/104-123397-6952&continue-shopping-post-data=&continue-sho
description=generic.gateway.default
" )]
```

You need to do this on Mac OS only. On Windows cookies are handled natively by the operating system. So this function does not do anything on this platform.

NB: To view cookies on Windows XP open the control panel "Internet Options". Then click on the Settings button in the section "Temporary Internet files" under the General tab. Click on the View Files button to see the cookie files.

See <<http://www.howstuffworks.com/cookie1.htm>> for an explanation on how cookies work.

Function Reference

TURL_Get

Syntax TURL_Get(switches ; theURL)

Gets the raw data of the specified URL. This can be for example the HTML of a web page.

Parameters

switches	this determines the behaviour of the plug-in
theURL	the url to get

Switches can be one or more of these:

-NoDialog	don't display a progress dialog
-TimeoutTicks=x	specify the timeout time in x ticks (1/60th of a second)
-ReturnHeader	include the header in the returned text (at the beginning)
-Portnumber=y	specify the port number to use

Returned result

If successful it returns the data of the URL. If unsuccessful it returns an error code starting with \$\$ and the error code.
Possible error codes are:

\$\$-1	user cancelled
\$\$-4230	the connection timed out
\$\$-3242	this protocol is not supported (use only http and https)
\$\$-30776	authentication error, you need to supply a correct user name and password
\$\$-92	servername part of the url is too long
\$\$-2110	path part of the url is too long

Other errors may be returned, specifically errors in the range 300 to 599, which are HTTP Status Codes.

Special considerations

Starting with version 1.1 secure connections (HTTPS) using SSL are supported on Windows too (Mac OS already supported HTTPS).

If you don't specify a timeout, a default timeout of 15 seconds is used.

On Mac OS and Mac OS X a progress dialog is displayed. On this platform you can also cancel a long operation with an ESC or a Command-Period.

The maximum length of the URL is limited, by both the plug-in and receiving servers. A lot of web servers don't support URLs longer than 2048 characters. Note that the plug-in has higher limits of 32867 characters. See also the user guide for more on these limits.

On Mac OS you might need to set cookies to get the desired result. See the TURL_SetCookies function.

TURL_Get

Example usage

```
TURL_Get( "-unused" ; "http://www.example.com/")
```

This will return the specified web page. It will return something similar to:

```
<HTML><HEAD><TITLE>Example Web Page</TITLE></HEAD>
<BODY><p>You have reached this web page by typing www.example.com ...These domain names are reserved for use in
documentation and are not available for registration.</p> </BODY>/HTML>
```

Example 2

We assume that in your FileMaker file the following fields are defined:

theURL	Text
gTimeOutTime	Global, number

theURL should contain the URL, for example "http://www.filemaker.com". In ScriptMaker add the following script step:

```
Set Field[resultText, TURL_Get( "-NoDialog -TimeoutTicks=" & gTimeOutTime & ; theURL) ]
```

This will get the get data of the URL (the raw web page), without showing a dialog. If the server does not react the function will timeout after gTimeOutTime ticks and an error code of "\$\$-4230" will be returned.

TURL_GetLastProperties

Syntax TURL_GetLastProperties(switches)

Gets the (image) properties of the last retrieved image by a TURL_Get or a TURL_Post action.

Parameters

switches determines the behaviour of the function

switches can be one of these:

- ImageType get the image type actually returned, for example GIF
- ImageWidth get the width of the last image, in pixels
- ImageHeight get the height of the last image, in pixels

Returned result

Possible values for image types are currently:

UNKNOWN
JPEG
GIF
PNG

If the last GET or POST did not return an image UNKNOWN will be returned as image type and 0, 0 is returned as width and height.

Special considerations

Some web pages have images which have the wrong extension, for example abc.jpg, which is then actually a GIF. This function makes it possible to detect this.

Example usage

TURL_GetLastProperties("-ImageType") will for example return "JPEG".

Example 2

```
Set Field [ containerField , TURL_Get( "-unused" ; "http://www.troi.com/ima/sm_peter.jpg" ) ]  
Set Field [ imageType , TURL_GetLastProperties( "-ImageType" ) ]  
Set Field [ imageWidth , TURL_GetLastProperties( "-ImageWidth" ) ]  
Set Field [ imageHeight , TURL_GetLastProperties( "-ImageHeight" ) ]
```

This will get an image and put it into a containerField and fill the other fields with JPEG, 48 and 48 respectively.

TURL_IsSecure

Syntax TURL_IsSecure(switches)

Indicates if the last request was secure.

Parameters

switches not used, reserved for future use. Leave blank or put "-unused"

Returned result

If the last request was secure this function returns 1.

If the last request was NOT secure this function returns 0.

TURL_Post

Syntax TURL_Post(switches ; theURL ; theData)

Sends data to the server, using the POST method, and returns the result as raw data.

Parameters

switches	this determines the behaviour of the plug-in
theURL	the url of the server
theData	the data to be sent with the POST method

Switches can be one or more of these:

-NoDialog	don't display a progress dialog
-TimeoutTicks=x	specify the connect timeout time in x ticks (1/60th of a second)
-ReturnHeader	include the header in the returned text (at the beginning)
-Portnumber=y	specify the port number to use
-NotEncoded	send the post data without any normal encoding for "www-form-urlencoded".

Returned result

If successful it returns the data of the URL. If unsuccessful it returns an error code starting with \$\$ and the error code. Possible error codes are:

\$\$-1	user cancelled
\$\$-4230	the connection timed out
\$\$-3242	this protocol is not supported (use only http and https)
\$\$-30776	authentication error, you need to supply a correct user name and password
\$\$-92	servername part of the url is too long
\$\$-2110	path part of the url is too long

Other errors may be returned, specifically errors in the range 300 to 599, which are HTTP Status Codes.

Special considerations

If you don't specify a timeout, a default timeout of 15 seconds is used.

See also the user guide section "How to make sense of a web form", to determine what you must send to make the form work.

On Mac OS X a progress dialog is displayed. On this platform you can also cancel a long operation with an ESC or a Command-Period.

The length of the URL is limited, by both the plug-in and receiving servers. A lot of web servers don't support URLs longer than 2048 characters. Note that the plug-in has higher limits of 32867 characters for the URL. The 3rd parameter "theData" can be longer, as long as the total length of the parameter is not longer than 64000. See also the user guide for more on these limits.

On Mac OS you might need to set cookies to get the desired result. See the TURL_SetCookies function.

Example usage

TURL_Post

```
TURL_Post( "-unused" ; "http://www.idninc.com/cgi-bin/sherlock.cgi?name=troi")
```

This will send the form data "name=troi" for the Sherlock form "cgi-bin/sherlock.cgi" to the server www.idninc.com and return the result. This will return something similar to:

```
<HTML>
<HEAD><TITLE>COMPANY SEARCH</TITLE></HEAD>
<body><CENTER><!--BANNER_START--><A HREF="http://www.BestSiteFirst.com">
<IMG SRC="http://www.idninc.com/images/banner.gif" border=0></A>
<!--BANNER_END-->
...
<!--SEARCH_RESULTS_START-->
<P> <!--RELEVANCE-->100<!--END_RELEVANCE-->
% <A HREF="http://www.troi.com">Trois Automatisering: For FileMaker Pro plug-ins</A>
<UL>Check out the latest FileMaker Pro Plug-ins, Tips and Shareware from Trois Automatisering </UL></P>
...
<!--SEARCH_RESULTS_END-->
</UL></BODY>
</HTML>
```

Example 2

We assume that in your FileMaker file the following fields are defined:

theURL	Text
gTimeOutTime	Global, number

theURL should contain the URL, for example "http://www.filemaker.com". In ScriptMaker add the following script steps:

```
Set Field[formData, "name=troi&number=123456"]
Set Field[resultText, TURL_Post(" -TimeoutTicks=" & gTimeOutTime ; theURL ; formData) ]
```

This will post the form data to the URL specified and return the result as raw HTML data. If the server does not react the function will timeout after gTimeOutTime ticks and an error code of "\$-4230" will be returned.

TURL_Reinitialize

Syntax TURL_Reinitialize(switches)

Restarts the plug-in.

Parameters

switches not used, reserved for future use. Leave blank or put "-unused"

Returned result

If successful this function returns 0. If unsuccessful it returns an error code starting with \$\$ followed by the error code.

At the moment this function does not return errors.

TURL_SetCookies

Syntax TURL_SetCookies(switches ; cookiesText)

Sets the cookies (on Mac OS and Mac OS X) to be sent as part of a GET or POST request.

Parameters

switches	not used, reserved for future use. Leave blank or put "-unused"
cookiesText	the text of the cookies. separate each cookie with a semicolon

Returned result

If successful this function returns 0. If unsuccessful it returns an error code starting with \$\$ followed by the error code. Possible error codes are:

0	no error
\$\$-92	length of the cookies text is too long (maximum 2000 characters)
\$\$-4221	this function does not do anything on Windows

Special considerations

The cookie text is remembered until you specify a different cookie text. If you want to remove a previously specified cookie text, call this function with an empty cookie text.

The cookie text is also removed when you quit FileMaker Pro. The maximum length of a cookie text is now 1 Gb.

To see which cookies are set by a web server add the switch "-ReturnHeader" to the TURL_Get or TURL_Post functions of the web page.

On Windows cookies are handled natively by the operating system. So this function does not do anything on this platform. NB: To view cookies on Windows XP open the control panel "Internet Options". Then click on the Settings button in the section "Temporary Internet files" under the General tab. Click on the View Files button to see the cookie files.

See also <<http://www.howstuffworks.com/cookie1.htm>> for an explanation on how cookies work.

Example usage

```
Set Field [ result, TURL_SetCookies( "-unused " ; "troicookie=aap ; plunk=A32" ) ]
```

This will send the 2 cookies with each subsequent request.

```
Set Field [ result, TURL_SetCookies( "-unused" ; "" ) ]
```

This will clear the cookie text. No cookies will be send with a request.

Example 2

To find out first which cookies to send we first return the headers of a web page in the TURL_Get or TURL_Post functions. In this case we get the home page of Amazon:

```
Set Field [ result , TURL_Get( "-ReturnHeader" ; "http://www.amazon.com/" ) ]
```

TURL_SetCookies

This will result in something similar to this (simplified) page:

```
HTTP/1.1 200 OK
Date: Mon, 31 Mar 2003 16:05:33 GMT
Server: Stronghold
Set-Cookie: session-id=104-1127-69752; path=/; domain=.amazon.com; expires=Monday, 07-Apr-2003 08:00:00 GMT
Set-Cookie: session-id-time=1049400; path=/; domain=.amazon.com; expires=Monday, 07-Apr-2003 08:00:00 GMT
Set-Cookie: obidos_path_continue-shopping=continue-shopping-url=/home.html/104-123397; path=/;
domain=.amazon.com
Connection: close
Content-Type: text/html
<html> ...</html>
```

Each line that starts with "Set-Cookie:" is a request of the web server to set a cookie on this computer. In this case there are 3 cookies being set. If you want to sent those 3 in the next request add this ScriptMaker Script step before the next GET or POST request:

```
Set Field [ gErrorCode, TURL_SetCookies("-unused" ;
    "session-id=104-1127-69752; session-id-time=1049400;
    obidos_path_continue-shopping=continue-shopping-url=/home.html/104-123397" )]
```

TURL_SetCustomHeader

Syntax TURL_SetCustomHeader(switches ; customHeaderText)

Sets a custom header to be used.

Parameters

switches	not used, reserved for future use. Leave blank or put "-unused"
customHeaderText	the customHeaderText

Returned result

If successful this function returns 0. If unsuccessful it returns an error code starting with \$\$ followed by the error code.

At the moment this function does not return errors.

Special considerations

Some web browsers require a special header text before they return the wanted data. This function allows you to set this text.

The custom header text is remembered until you specify a different text. The text is also removed when you quit FileMaker Pro. The maximum length of the custom header text is 1Gb.

If you don't specify a custom header text the plug-in will use a default header. If you specify an empty string the default header will be used.

Example usage

```
TURL_SetCustomHeader("-unused " ;  
"Accept: */*  
Content-Type:text/html" )
```

This will send the custom header with each subsequent request.

```
Set Field [ result, TURL_TURL_SetCustomHeader( "-unused" ; "" )]
```

This will clear the custom header text. No cookies will be send with a request.

TURL_SetPassword

Syntax TURL_SetPassword(switches ; password)

Sets the password to be used for password protected URLs.

Parameters

switches	not used, reserved for future use. Leave blank or put "-unused"
password	the password (this is case sensitive)

Returned result

If successful this function returns 0. If unsuccessful it returns an error code starting with \$\$ followed by the error code.

At the moment this function does not return errors.

Special considerations

The password is remembered until you specify a different password. If (for security) you want to remove a previously specified password, call this function with an empty password. The password is also removed when you quit FileMaker Pro.

The maximum length of a password is 1 Gb.

Example usage

```
TURL_SetPassword( "-unused" ; "Als ik zo vrij mag zijn")
```

This will set the password to "Als ik zo vrij mag zijn".

Example 2

This will set the user name and password and get a web page. We assume that in your FileMaker file the following fields are defined:

gUserName	Global, text
gPassword	Global, text

gUserName should contain the user name, for example "Olie B. Bommel" and gPassword should contain the password, for example "denkraam". In ScriptMaker add the following script steps:

```
Set Field[gErrorCode, TURL_SetUserName( "-unused" ; gUserName) ]
If [gErrorCode = 0]
    Set Field[gErrorCode, TURL_SetPassword( "-unused" ; gPassword) ]
End if
If [gErrorCode = 0]
    Set Field[gResult, TURL_Get( "-NoDialog" ; "http://www.mtv.nl/" ) ]
    # forget the user name and password
    Set Field[gErrorCode, TURL_SetUserName( "-unused" ; "" ) ]
    Set Field[gErrorCode, TURL_SetPassword( "-unused" ; "" ) ]
End if
```


TURL_SetProgressText

Syntax TURL_SetProgressText(switches ; messageText ; buttonText)

Sets a custom text to be used for the progress dialog.

Parameters

switches	not used, reserved for future use. Leave blank or put "-unused"
messageText	the text of the progress dialog
buttonText	(optional) the text of the stop button

Returned result

If successful this function returns 0. If unsuccessful it returns an error code starting with \$\$ followed by the error code.

At the moment this function does not return errors.

Special considerations

The text is remembered until you specify a different text. The text is also removed when you quit FileMaker Pro.

The maximum length of the message text is 255 characters. The maximum length of the button text is 20 characters.

At the moment the plug-in shows a Progress Dialog only on Mac OS and Mac OS X.

Example usage

```
TURL_SetProgressText("-unused" ; "Getting your data..." ; "Stop")
```

Example 2

This will get a web page with a custom text. We assume that in your FileMaker file the following fields are defined:

urlField	text
gErrorCode	Global, text

urlField should contain the URL you are getting, for example "www.troi.com" . In ScriptMaker add the following script steps:

```
Set Field[gErrorCode, TURL_SetProgressText("-unused" ; "Getting data from: " & urlField ; "Halt") ]  
Set Field[resultText, TURL_Get("-unused " ; urlField) ]
```

TURL_SetProxy

Syntax TURL_SetProxy(switches ; proxyAddress ; proxyPortNr)

Sets an explicit proxy server to be used, via which the data is sent to the web server.

Parameters

switches	not used, reserved for future use. Leave blank or put "-unused"
proxyAddress	the IP address of the proxy server
proxyPortNr	(optional) the portnr of the proxy server

Returned result

If successful this function returns 0. If unsuccessful it returns an error code starting with \$\$ followed by the error code.

At the moment this function does not return errors.

Special considerations

If you don't use this function the system settings for proxies will be used.

You can reset the proxy by specifying an empty proxyAddress string. The systems settings will be used then.

Example usage

```
TURL_SetProxy("-unused"; "proxy.server.com" ; 1234)
```

This sets the proxy to the server at proxy.server.com at port 1234.

Example 2

```
Set Field [ gErrorCode , TURL_SetProxy("-unused"; "192.168.0.60" ; 8000) ]
```

This sets the proxy to the server at address "192.168.0.60" and port 8000.

```
Set Field [ gErrorCode , TURL_SetProxy("-unused"; "" ) ]
```

This resets the proxy setting. The plug-in will use the system settings for proxies.

TURL_SetUserAgent

Syntax TURL_SetUserAgent(switches ; userAgentText)

Sets a custom text to be used for the name of the user agent requesting the information. The user agent can be set to the name of a popular browser, so that unwanted redirects don't occur.

Parameters

switches	not used, reserved for future use. Leave blank or put "-unused"
userAgentText	the user agent text

Returned result

If successful this function returns 0. If unsuccessful it returns an error code starting with \$\$ followed by the error code.

At the moment this function does not return errors.

Special considerations

The text is remembered until you specify a different text. The text is also removed when you quit FileMaker Pro. The maximum length of the userAgentText is 1Gb.

If you don't specify a user agent text the plug-in will use a default of "Troi URL Plug-In 1.8 (Windows)" or "Troi URL Plug-In 1.8 (Macintosh; Mach-O)" respectively.

If you specify an empty string the default text will be used.

Example usage

```
TURL_SetUserAgent("-unused"; "Mozilla/4.0 (compatible; MSIE 5.5; Windows NT 5.0)")
```

This pretends this is Internet Explorer on Windows.

```
TURL_SetUserAgent(" -unused"; "Mozilla/4.0 (compatible; MSIE 5.21; Mac_PowerPC)")
```

This pretends this is Internet Explorer on Mac OS.

TURL_SetUserName

Syntax TURL_SetUserName(switches ; username)

Sets the user name to be used for password protected URLs.

Parameters

switches	not used, reserved for future use. Leave blank or put "-unused"
username	the user name (this is case sensitive)

Returned result

If successful this function returns 0. If unsuccessful it returns an error code starting with \$\$ followed by the error code.

At the moment this function does not return errors.

Special considerations

The user name is remembered until you specify a different user name. If (for security) you want to remove a previously specified user name, call this function with an empty user name.

The user name is also removed when you quit FileMaker Pro.

The maximum length of a username is 255 characters.

Example usage

```
TURL_SetUserName( "-unused" ; "Tom Poes")
```

This will set the user name to "Tom Poes".

Example 2

This will set the user name and password and get a web page. We assume that in your FileMaker file the following fields are defined:

gUserName	Global, text
gPassword	Global, text

gUserName should contain the user name, for example "Olie B. Bommel" and gPassword should contain the password, for example "denkraam". In ScriptMaker add the following script steps:

```
Set Field[gErrorCode, TURL_SetUserName( "-unused" ; gUserName) ]
If [gErrorCode = 0]
    Set Field[gErrorCode, TURL_SetPassword( "-unused" ; gPassword) ]
End if
If [gErrorCode = 0]
    Set Field[gResult, TURL_Get( "-NoDialog" ; "http://www.mtv.nl/" ) ]
    # forget the user name and password
    Set Field[gErrorCode, TURL_SetUserName( "-unused" ; "" ) ]
    Set Field[gErrorCode, TURL_SetPassword( "-unused" ; "" ) ]
End if
```

TURL_ToHTTP

Syntax TURL_ToHTTP(switches ; text)

Encodes a text in HTTP.

Parameters

switches	not used, reserved for future use. Leave blank or put "-unused"
text	either the name of a text field or a text constant (in quotes) that you want converted to HTTP

Returned result

The result is the HTTP encoded text. Certain special characters and all "high ASCII" characters (characters with an ASCII value above 127) must be encoded when converted to HTTP.

TURL_ToHTTP returns the contents of the specified field or text value encoded in HTTP. The special characters that must be encoded are:

; / ? : @ = & > < # % { } ' | \ ^ ~ [] ` " © " (space)

plus all high ASCII characters. These characters are encoded using the formula %nn where nn is the hexadecimal value that represents the character in the International Standards Organization (ISO) Latin-1 character set. For example, %20 is the encoded value for the space character.

Special considerations

This function is exactly the same as the Web_ToHTTP function of the Web companion. However, for this step you don't need the Web companion to be active. For example in a runtime.

Example usage

Set Field [result, TURL_ToHTTP("-unused" ; "Hello World!")]

gives this result: "Hello%20World!"

Example 2

In a database you have defined a text field named theURL which contains "<http://www.filemaker.com>". Create a script with this step:

Set Field [result, TURL_ToHTTP("-unused" ; theURL)]

Then the result will contain the encoded text:

%3Chttp%3A%2F%2Fwww.filemaker.com%3E

TURL_Version

Syntax TURL_Version(switches)

Use this function to see which version of the plug-in is loaded. This function is also used to register the plug-in.

Parameters

switches determine the behaviour of the function

switches can be one of these:

- GetString the version string is returned (default)
- GetVersionNumber returns the version number of the plug-in
- ShowFlashDialog shows the Flash Dialog of the plug-in (returns 0)

If you leave the parameter empty the version string is returned.

Returned result

The function returns "" if this plug-in is not loaded. If the plug-in is loaded the result depends on the input parameter. It is either a:

VersionString:

If you asked for the version string it will return for example "Troi URL Plug-in 1.8".

VersionNumber:

If you asked for the version number it returns the version number of the plug-in x1000. For example version 1.8 will return number 1800.

ShowFlashDialog:

This will show the flash dialog and then return the error code 0.

Special considerations

IMPORTANT Always use this function to determine if the plug-in is loaded. If the plug-in is not loaded use of external functions may result in data loss, as FileMaker will return an empty field to any external function that is not loaded.

Example usage

TURL_Version("") will for example return "Troi URL Plug-in 1.8.1".

Example 2

TURL_Version("-GetVersionNumber") will return 1800 for version 1.8.

TURL_Version("-GetVersionNumber") will return 2130 for (a future) version 2.1.3

So if you want to test for a feature introduced with version 1.8, test if the result is equal or greater than 1800.

HTTP Status Codes

Communicating with a web server is done with the help of Status Codes. Below you find the possible codes. Some of those may be returned by our plug-in.

Informational 1xx

<u>no.</u>	<u>what</u>
100	Continue
101	Switching Protocols

Successful 2xx

<u>no.</u>	<u>what</u>
200	OK
201	Created
202	Accepted
203	Non-Authoritative Information
204	No Content
205	Reset Content
206	Partial Content

Redirection 3xx

<u>no.</u>	<u>what</u>
300	Multiple Choices
301	Moved Permanently
302	Moved Temporarily
303	See Other
304	Not Modified
305	Use Proxy
306	(Unused)
307	Temporary Redirect

Client Error 4xx

<u>no.</u>	<u>what</u>	<u>description</u>
400	Bad Request	The request could not be understood by the server due to incorrect syntax.
401	Unauthorized User	Authentication is required.
402	Payment Required	
403	Forbidden	The server understood the request, but is refusing to fulfil it.
404	Page Not Found	The server has not found anything matching the Request-URI.
405	Method Not Allowed	The method specified in the Request-Line is not allowed for the resource identified by the Request-URI.
406	Not Acceptable	The server cannot generate a response that the requestor is willing to accept.
407	Proxy Authentication Required	This code is similar to 401 (Unauthorized), but indicates that the client must first authenticate itself with the proxy.
408	Request Timed Out	The server stopped waiting for a client request.
409	Conflict	The request could not be completed due to a conflict with the current state of the resource.
410	Gone	The requested resource is no longer available at the server and no forwarding address is known. This condition is similar to 404, except that the 410 error condition is expected to be permanent.
411	Length Required	The server requires a content-length in the request.
412	Precondition Failed	The precondition given in one or more of the request-header fields evaluated to false when it was tested on the server.
413	Request Entity Too Large	The server is refusing to process a request because the request entity is larger than the server is willing or able to process.
414	Request URL Too Long	The server is refusing to service the request because the Request-URL is longer than the server is willing to interpret.
415	Unsupported Media Type	The server is refusing to service the request because the entity of the request is in a format not supported by the requested resource for the requested method.
416	Requested Range Not Satisfiable	
417	Expectation Failed	

Server Error 5xx

<u>no.</u>	<u>what</u>	<u>description</u>
500	Internal Server Error	Internal Web server error
501	Not Implemented	Function not implemented in Web server software
502	Bad Gateway	Bad Gateway; a server being used by this Web server has sent an invalid response.
503	Service Unavailable	Service unavailable because of temporary overload or maintenance.
504	Gateway Timeout	A server being used by this server has not responded in time.
505	HTTP Version Not Supported	The server does not support the HTTP protocol version that was used in the request message.