Automatic Drop of External Files into 4D

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Abstract

Dragging and dropping external information into 4D is quite easy. Objects on a 4D form such as Picture Variables, Web Areas, Text Variables and the like have draggable and droppable properties that are rarely utilized in today's 4D solutions. This technical note explores what happens when certain types of documents and information are dropped into each of these areas. Useful tips and techniques are discussed along the way so that incorporating such areas into your solutions will be as painless as possible.

Introduction

The 'Draggable' and 'Droppable' properties for objects such as picture variables, list boxes and the like have existed in 4D even as far back as 4D 2004. With these properties enabled, the following 4D Form Events can be triggered:

- On Begin Drag Over
- On Drag Over
- On Drop

Here, the 4D developer programmatically handles what happens when each event is triggered.

For more information on these events, see Chapter 14: Drag and Drop in the "4D v11 Language Reference" available at http://4d.com/support/documentation.html.

Automatic Drag and Drop

4D v11 SQL introduces new properties, 'Automatic Drag' and 'Automatic Drop' in which 4D automatically manages the insertion of external data into 4D objects if possible. 'Automatic Drag' and 'Automatic Drop' also support internal dragging and dropping between 4D objects within 4D as well. Also, a new type of object is introduced in 4D v11 SQL known as the 4D Web Area, which supports many external file formats such as pictures, PDFs, HTML files, etcetera.

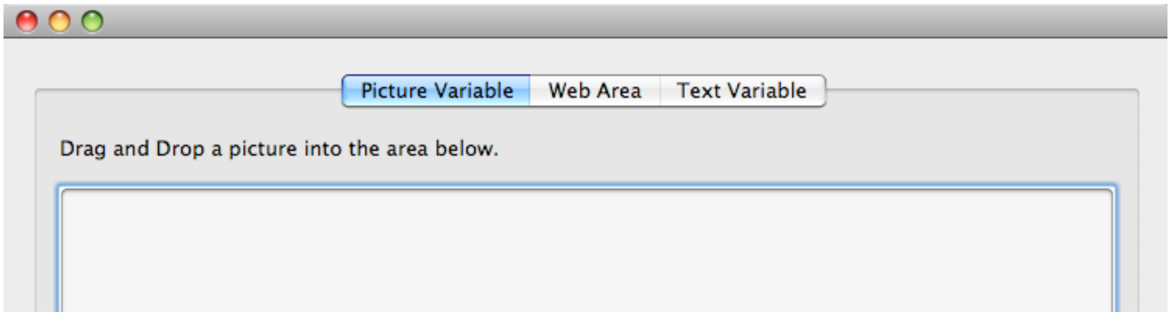
'Automatic Drag' and 'Automatic Drop' trigger the On Data Change and On After Edit events.

They do not trigger the events supported by the 'Draggable' and 'Droppable' properties (On Begin Drag Over, On Drag Over, and On Drop).

Setting Up

The Demo

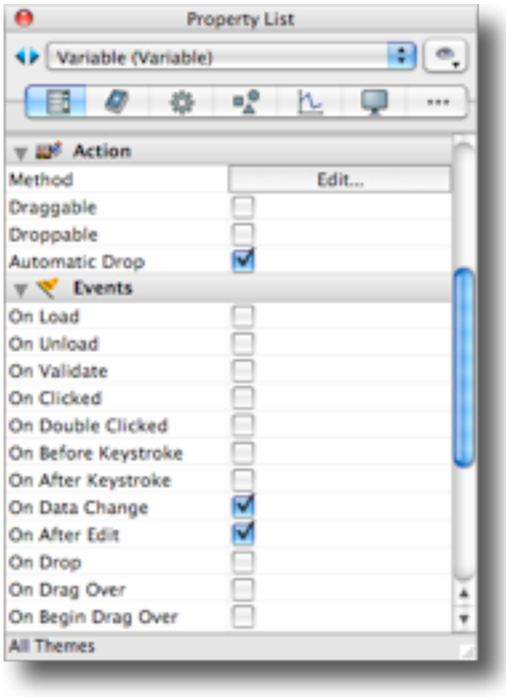
This technical note comes with a demo database with a form that has three types of areas (Picture Variable, Web Area, Text Variable) where you are allowed to drop external selections and files into the form.



Drag and Drop a picture into the area below.

The Property List

Each type of area has its own set of properties and events selected in the Property List editor. Suggested properties and events for each area type are discussed in the following sections.



Action

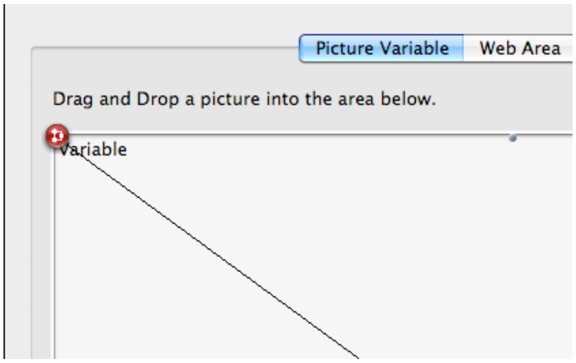
Method: Edit...
Draggable □
Droppable □
Automatic Drop ☑

Events

On Load □
On Unload □
On Validate □
On Clicked □
On Double Clicked □
On Before Keystroke □
On After Keystroke □
On Data Change ☑
On After Edit ☑
On Drop □
On Drag Over □
On Begin Drag Over □

The code

Feel free to go into Design Mode and view the object methods for these objects.



Drag and Drop a picture into the area below.

You may be surprised to see that there is no code in the object methods. Yes, all you need to do is drop a 4D object onto a form (ie. Picture Variable), and make sure a property such as 'Automatic Drop' is selected. Then 4D automatically takes care of the importing of external data if it is deemed possible.

Thus, this technical note explores what happens when different types of external files and data are dropped into these objects.

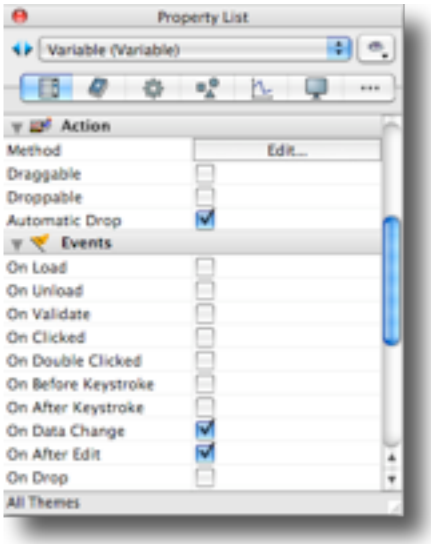
Overview

This technical note focus on the following areas:

- Dragging into a Picture Variable
- Dragging into a Web Area
- Dragging into a Text Variable

Dragging into a Picture Variable

The first tab of the demo has a Picture Variable area. Here is a look at the enabled properties and events in the Property List:



Property List

Variable (Variable)

Action	
Method	Edit...
Draggable	□
Droppable	□
Automatic Drop	☑
Events	
On Load	□
On Unload	□
On Validate	□
On Clicked	□
On Double Clicked	□
On Before Keystroke	□
On After Keystroke	□
On Data Change	☑
On After Edit	☑
On Drop	□

All Themes

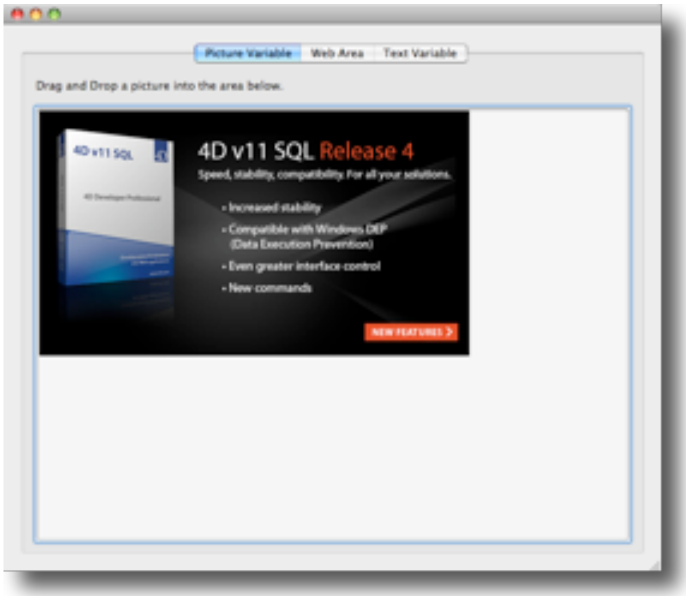
The Picture Variable supports the Automatic Drop property. This means you can drag image files from your operating system into the picture variable and 4D then tries to automatically handle the insertion of this data.

Notice that in the image above, the On Data Change and On After Edit events are selected. This is to point out that the dropping of external files into the Picture Variable can trigger these events.

However, for the purposes of this demo, no code is executed once these events are triggered.

Drag a Picture

Here we drag a JPG into the Picture Variable.



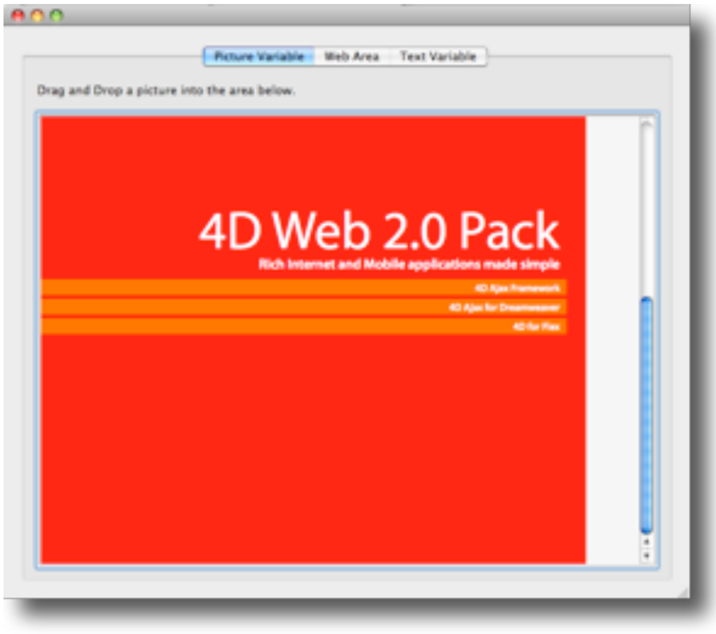
Drag and Drop a picture into the area below.

Picture Variable
Web Area
Text Variable
4D v11 SQL Release 4
Speed, stability, compatibility. For all your solutions.
• Increased stability
• Compatible with Windows DEP (Data Execution Prevention)
• Even greater interface control
• New commands
NEW FEATURES

What occurs here is that the image is now contained in the Picture Variable by dragging and dropping. This is essentially importing the file into the 4D Picture Variable, although with no code necessary.

Drag a PDF

Dragging a PDF into a 4D Picture Variable seems to work at first glance. However, some problems arise as well. The PDF file is actually 9 pages long, but we only see 1 page in the Picture Variable.

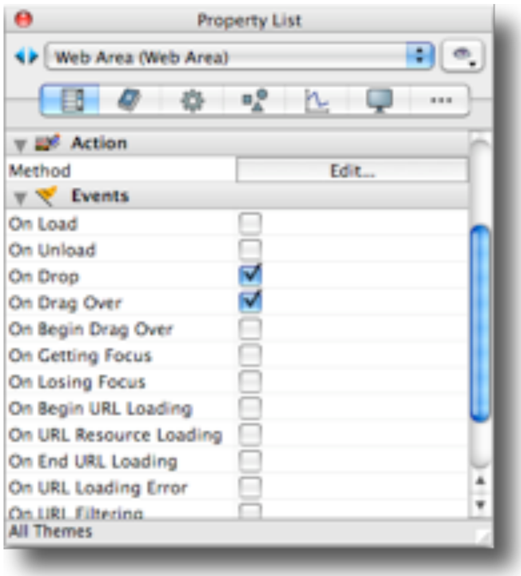


Drag and Drop a picture into the area below.

What happens is that the PDF is converted into a picture when it is dropped into the picture variable and only the first page of the PDF is preserved. It is as if it took a screenshot of the first page only. This means that the Picture Variable is not the ideal area for PDFs to be dropped into.

Dragging into a Web Area

The next tab of the demo has a Web Area. Here is a look at the enabled properties and events in the Property List:



Property List

Web Area (Web Area)

Action

Method	Edit...

Events

On Load	□
On Unload	□
On Drop	☑
On Drag Over	☑
On Begin Drag Over	□
On Getting Focus	□
On Losing Focus	□
On Begin URL Loading	□
On URL Resource Loading	□
On End URL Loading	□
On URL Loading Error	□
On URL Filtering	□

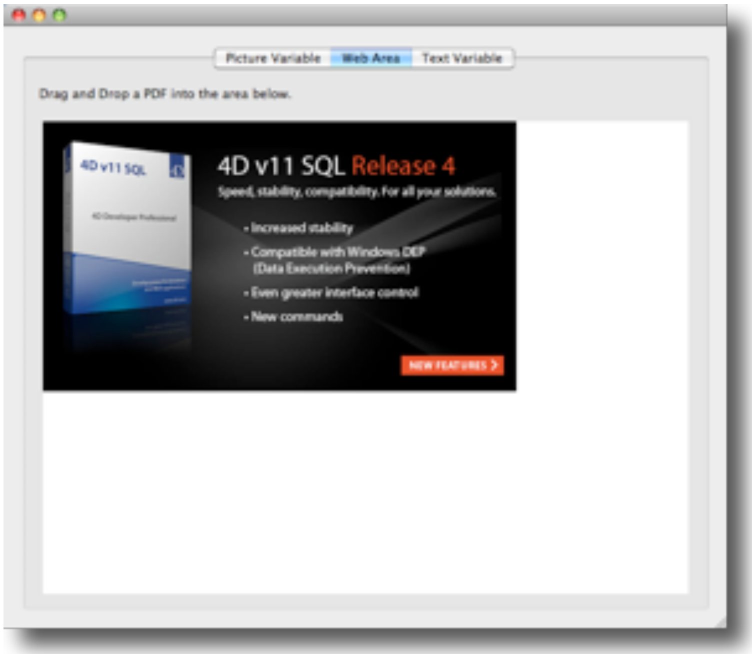
All Themes

The Web Area is an interesting object since drag and drop actions displayed in the Property List (ie. ‘Draggable’, ‘Droppable’, ‘Automatic Drag’, and ‘Automatic Drop’), yet external files can still be dragged and dropped into it. Also, events such as *On Drop* and *On Drag Over* can be triggered when files are dropped into the Web Area.

This section explores how the Web Area reacts when picture files, HTML files, text files, and text selections are dropped into it.

Drag a Picture

Here we drag a JPG into the Web Area.



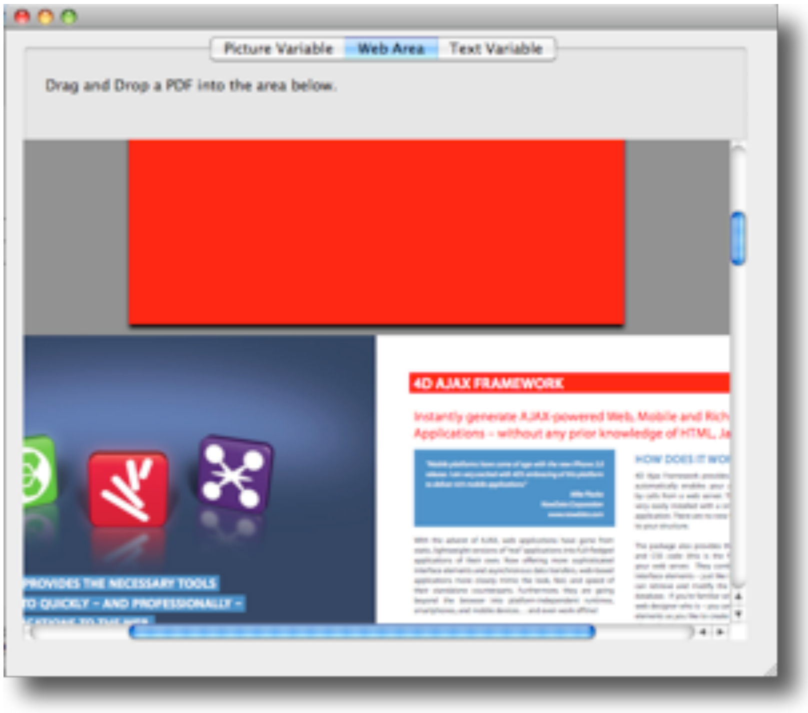
Drag and Drop a PDF into the area below.

Picture Variable
Web Area
Text Variable
4D v11 SQL
4D v11 SQL Release 4
Speed, stability, compatibility. For all your solutions.
• Increased stability
• Compatible with Windows DEP (Data Execution Prevention)
• Even greater interface control
• New commands
NEW FEATURES

Much like the Picture Variable example, the JPG is successfully loaded into the Web Area.

Drag a PDF

The same 9-page PDF that was dropped into the Picture Variable previously can now be dropped into the Web Area. The difference here is that the PDF successfully loads all 9 pages in this scenario.


Picture Variable
Web Area
Text Variable
4D AJAX FRAMEWORK
Instantly generate AJAX-powered Web, Mobile and Rich
Applications – without any prior knowledge of HTML, Ja
HOW DOES IT WO
PROVIDES THE NECESSARY TOOLS
TO QUICKLY – AND PROFESSIONALLY –

Drag and Drop a PDF into the area below.

If you are having problems viewing the PDF in the Web Area on Mac OS X, try removing the following files from the these directories:

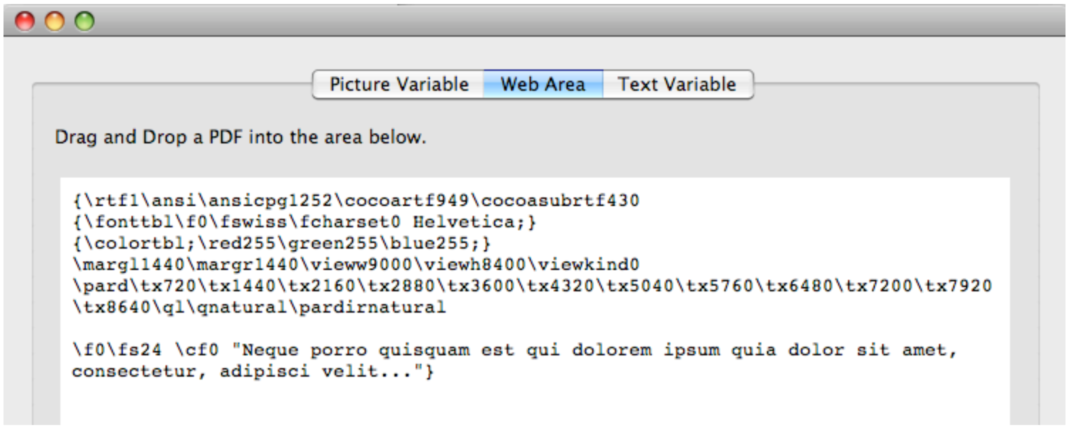
Hard drive > Users > YourUsername > Library > Internet Plug-Ins > AdobePDFViewer.plugin

Hard drive > Library > Internet Plug-Ins > AdobePDFViewer.plugin

Remember that the functionality of the Web Area is dependent on the operating system it is running on. Thus on Mac OS X, for example, it is dependent on Apple's Webkit which powers the Safari web browser. There was a known issue where some versions of Adobe Reader would install a plug-in that would conflict with Webkit's default ability to view PDFs (which as a result would hinder 4D Web Area's ability to view PDFs as well).

Drag a Rich Text File and a Plain Text File

Rich text files (.rtf) themselves cannot be dragged into the Web Area. This is of interest to note because plain text files on the other hand *can* be dropped into a Web Area.



Drag and Drop a PDF into the area below.

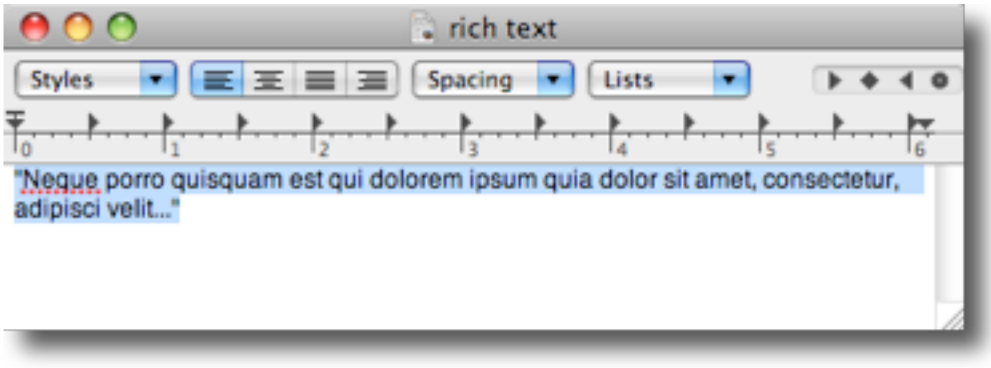
```
{\rtf1\ansi\ansicpg1252\cocoartf949\cocoasubrtf430
{\fonttbl\f0\fswiss\fcharset0 Helvetica;}
{\colortbl;\red255\green255\blue255;}
\margl1440\margr1440\vieww9000\viewh8400\viewkind0
\pard\tx720\tx1440\tx2160\tx2880\tx3600\tx4320\tx5040\tx5760\tx6480\tx7200\tx7920
\tx8640\ql\qnatural\pardirnatural

\f0\fs24 \cf0 "Neque porro quisquam est qui dolorem ipsum quia dolor sit amet,
consectetur, adipisci velit..."}
```

However, as we can see, a significant amount of unnecessary text is also included when the plain text file is dropped into the Web Area.

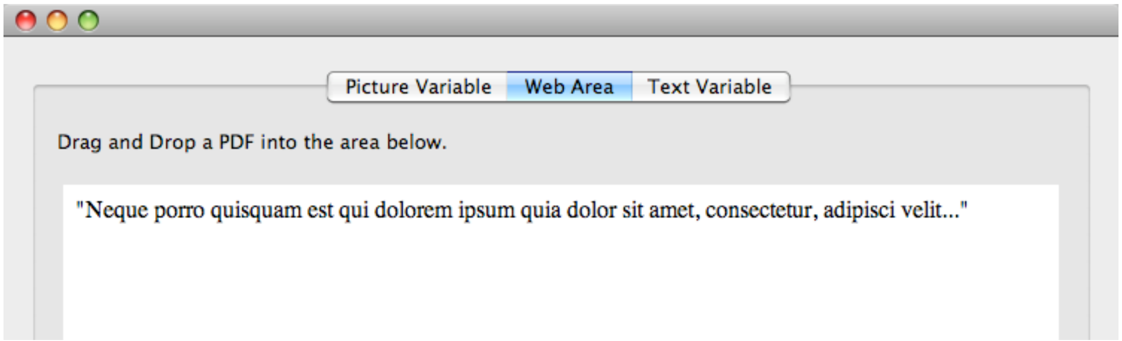
Drag a Text Selection

Rich text files (.rtf) themselves cannot be dragged into the Web Area. Selections of text, on the other hand, can be successfully dropped into a 4D Web Area regardless of what application it is from (as long as the external application and/or operating system allows it to be highlighted and dragged).



"Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit..."

Here is a selection of text of a rich text document. When dragged into the Web Area, it looks like:



Drag and Drop a PDF into the area below.

"Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit..."

What we notice here is that the text is not editable. It is for display only.

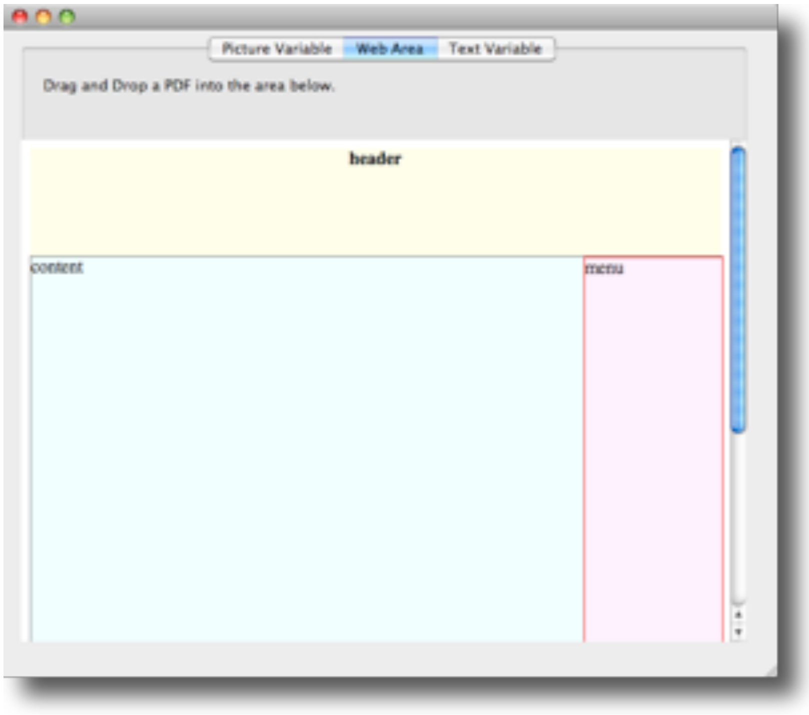
Compare this to how a selection of text is treated in a text variable (the last tab of the demo).

Also, any subsequent drag from a different selection of text would overwrite the existing text in the Web Area. This means that only one selection of text can appear in the Web Area at one time.

Again, compare how this scenario is handled in a text variable.

HTML Files

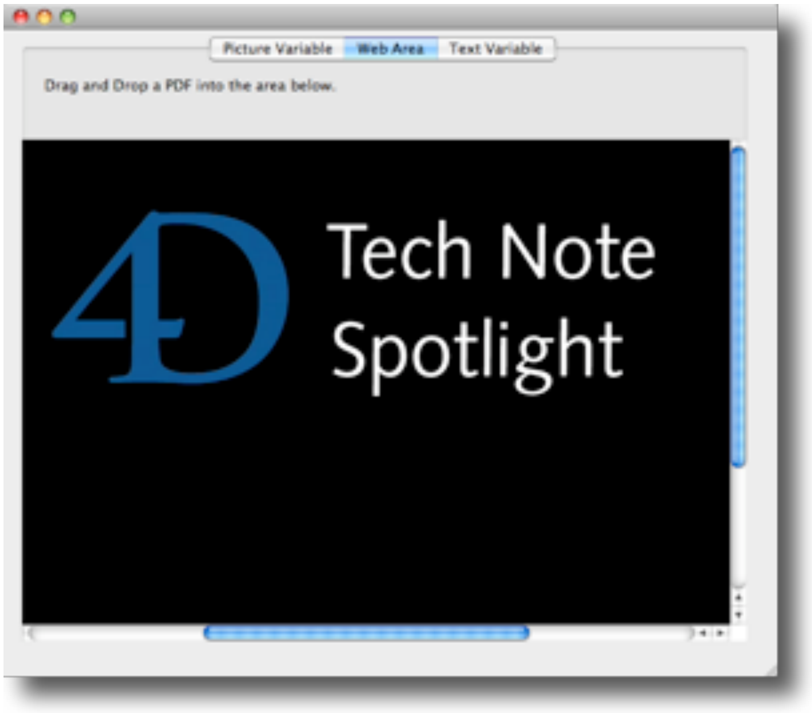
Naturally, the Web Area can also accept and load HTML files dragged into it.



Drag and Drop a PDF into the area below.

Quicktime Movie Files

Here, a movie file is dropped into the Web Area.



Drag and Drop a PDF into the area below.

The movie successfully loads into the Web Area, and it can be played back.

What happens when files are dropped into the Web Area?

For those familiar with Web Area, this area can open any website URL passed into it. It can also open any file path to any local file on the system it is running on. Thus when local files are dropped into the Web Area, the file path to that file is loaded. This is much different than a Picture Variable where the actual contents of the file are copied into the variable. Here, the Web Area is using a reference to the file dropped into it.

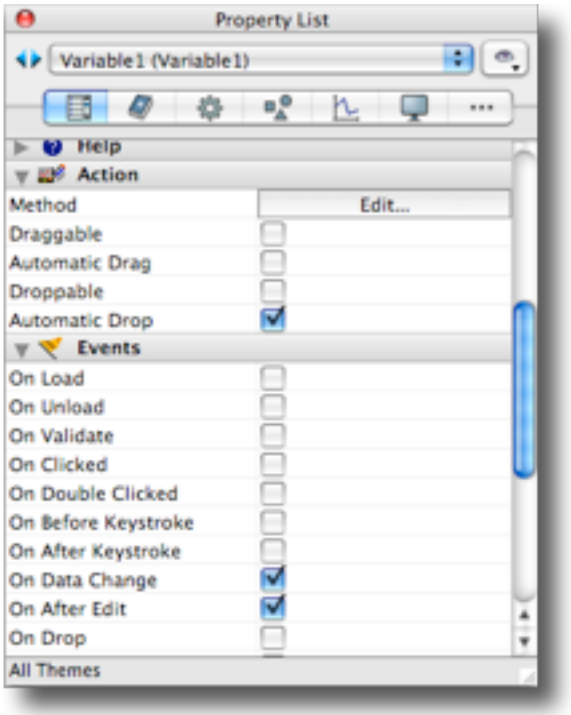
Closing Thoughts on Web Area

The Web Area is quite the versatile object. It can load many types of files natively and it can accept many of these types of files if they are dropped into it, even though it does not possess the standard 'Draggable' or 'Automatic Drop' action properties in its Property List.

Remember that the Web Area's functionality depends on the capabilities of the native browser the end user is using.

Dragging into a Text Variable

The last tab of the demo has a text variable. Here is a look at the enabled properties and events in the Property List:



Action	
Method	Edit...
Draggable	□
Automatic Drag	□
Droppable	□
Automatic Drop	☑
Events	
On Load	□
On Unload	□
On Validate	□
On Clicked	□
On Double Clicked	□
On Before Keystroke	□
On After Keystroke	□
On Data Change	☑
On After Edit	☑
On Drop	□

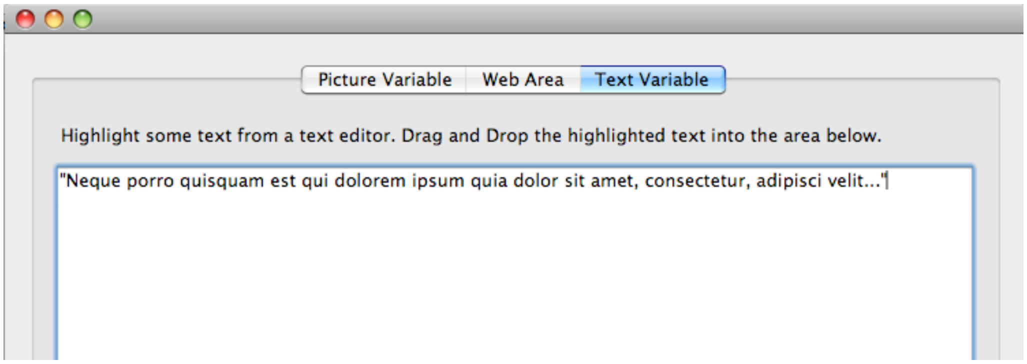
The Text Variable supports 'Automatic Drag' and 'Automatic Drop'. This is different from the Picture Variable where only 'Automatic Drop' is supported.

Notice that in the image above, the On Data Change and On After Edit events are selected. This is to point out that the dropping of external files into the Text Variable can trigger these events.

However, for the purposes of this demo, no code is executed once these events are triggered.

A Selection of Text

Much like the similar example for the Web Area, only a selection of text is droppable into a Text Variable on a 4D Form (not the text file itself from the operating system).

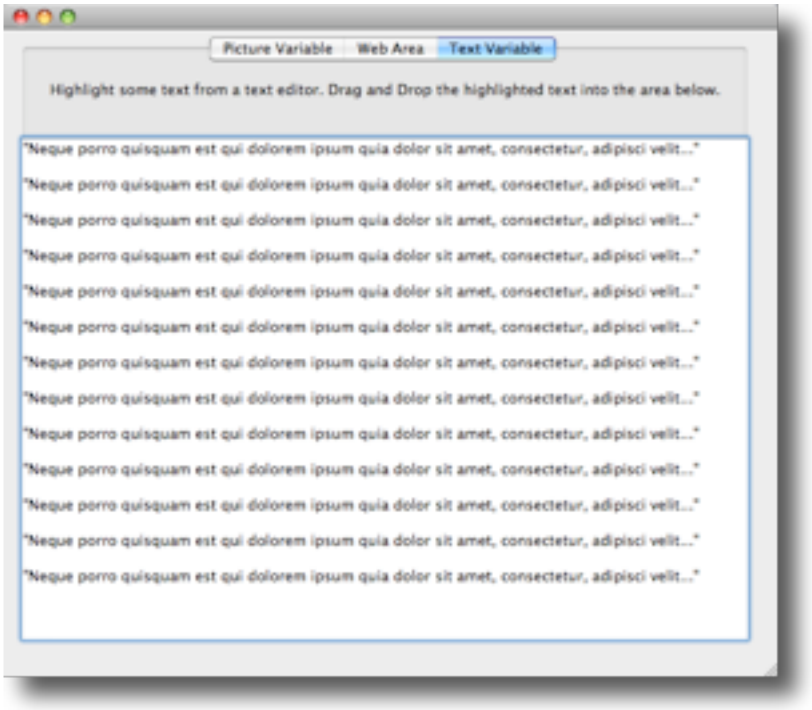


Highlight some text from a text editor. Drag and Drop the highlighted text into the area below.

"Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit..."

And of course, a Text Variable would not be a Text Variable if it did not enable the user to edit the text in the area.

This is different from the Web Area, where a selection of text can be dragged into it, but the text is in read-only mode.



Highlight some text from a text editor. Drag and Drop the highlighted text into the area below.

"Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit..."

"Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit..."

"Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit..."

"Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit..."

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"Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit..."

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"Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit..."

"Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit..."

"Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit..."

"Neque porro quisquam est qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit..."

Since the Text Variable is editable, you can drag the multiple selections into it and each new selection of text places itself into the Text Variable (depending on where your cursor lies when it is dropped.

This is different from the Web Area, where a new selection of text would completely overwrite any previously existing content in it.

Conclusion

In this technical note, we took an investigative look into the types of external files and selections of data that could automatically be dropped into 4D areas, such as the Picture Variable, the Web Area, and the Text Variable. We bypassed the standard ‘Droppable’ property and focused on the ‘Automatic Drop’ action property to see how 4D v11 SQL automatically handles different external files dropped into it. Here we came to the conclusion that a Picture Variable is the best 4D area to drop an image into, the Text Variable is the best area to handle text, and that the Web Area is quite versatile at accepting various types of files.