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Playing with new Web technologies in J-ISIS

The J-ISIS embedded Web browser and Web server offer the possibility to use the new Web technologies such as HTML5, CSS3, JavaScript inside ISIS print formats. This document explains and demonstrates how some of the features offered by HTML5, CSS3, and JavaScript can be used inside J-ISIS print formats.

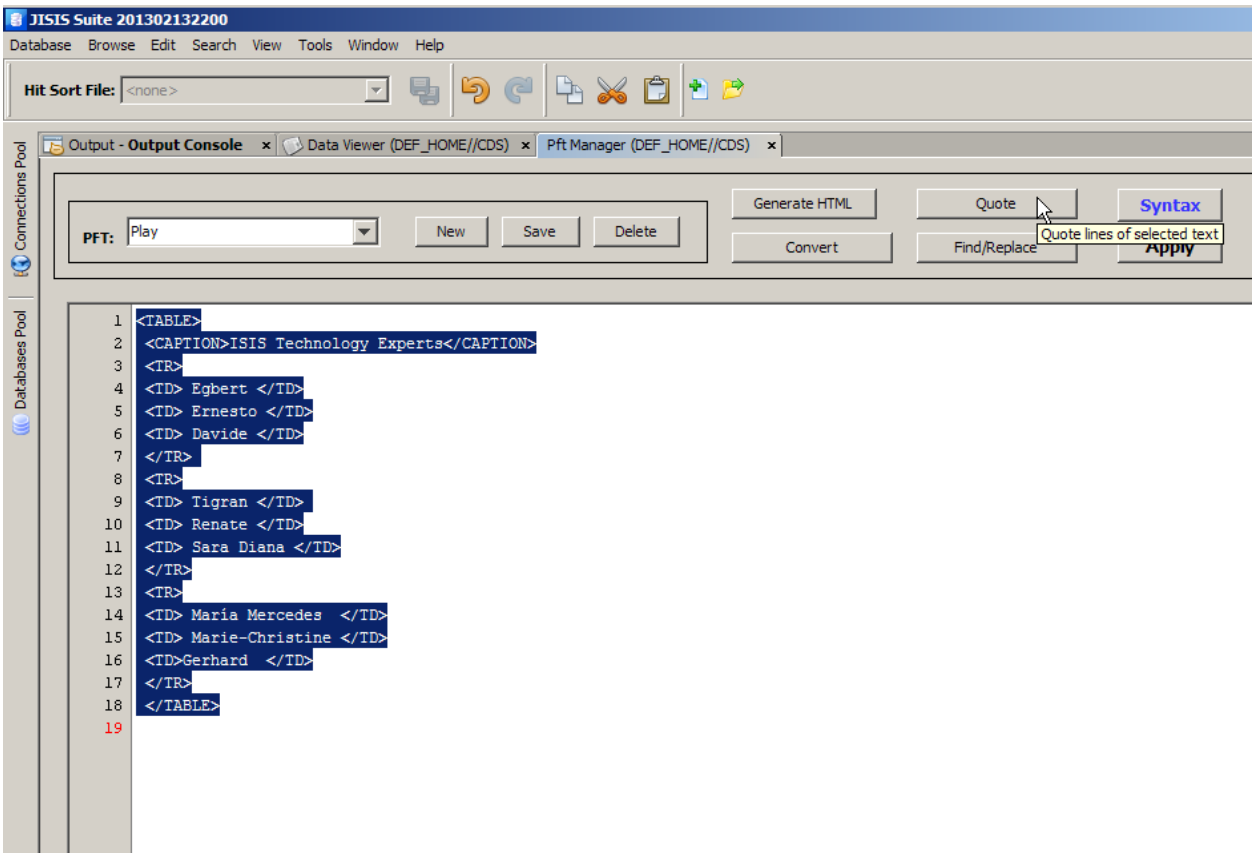
The J-ISIS PFT Manager will be used to create, test and display rich J-ISIS formats that contain HTML5, CSS3, and JavaScript.

1. Building a table with xhtml and CSS3

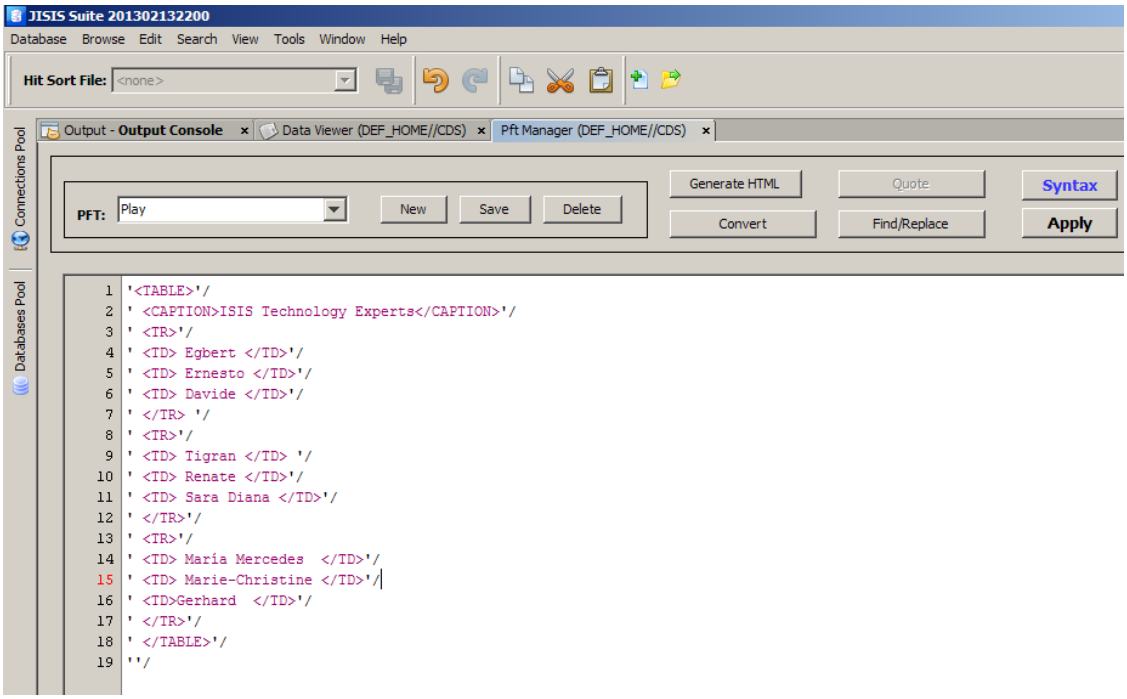
Basic Table Skeleton:

```
<TABLE>
 <CAPTION>ISIS Technology Experts</CAPTION>
 <TR>
 <TD> Egbert </TD>
 <TD> Ernesto </TD>
 <TD> Davide </TD>
 </TR>
 <TR>
 <TD> Tigran </TD>
 <TD> Renate </TD>
 <TD> Sara Diana </TD>
 </TR>
 <TR>
 <TD> María Mercedes  </TD>
 <TD> Marie-Christine </TD>
 <TD>Gerhard  </TD>
 </TR>
 </TABLE>
```

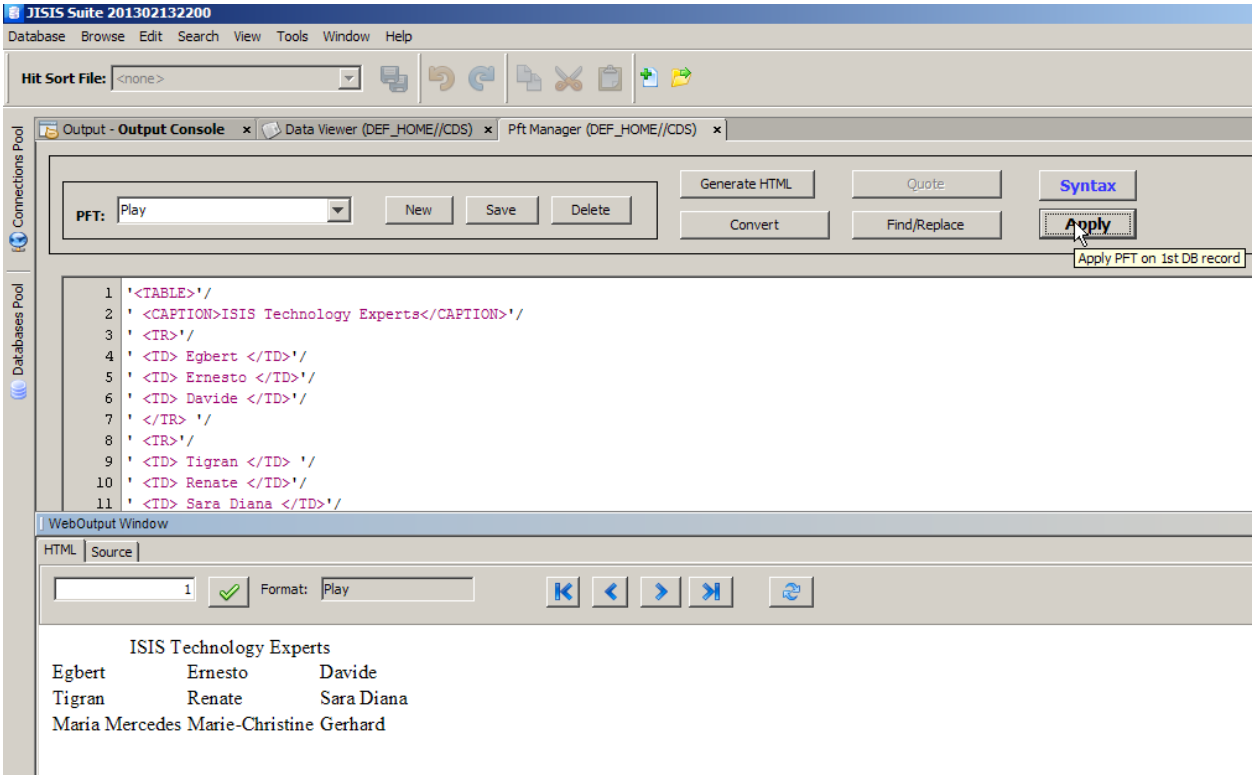
The CDS example database will be used. After starting J-ISIS, opening a connection and CDS database. We can launch the J-ISIS PFT editor and create a new PFT called Play. Then the above HTML can be selected and copied/pasted into the new "Play" J-ISIS format.
HTML5/CSS3/JavaScript code is embedded in J-ISIS format as unconditional literals. Thus we need to quote HTML5/CSS3/JavaScript code by selecting the code lines and clicking on the "Quote" button as follow:



Starting and ending quotes are added to the selected lines as well as a slash J-ISIS format command.



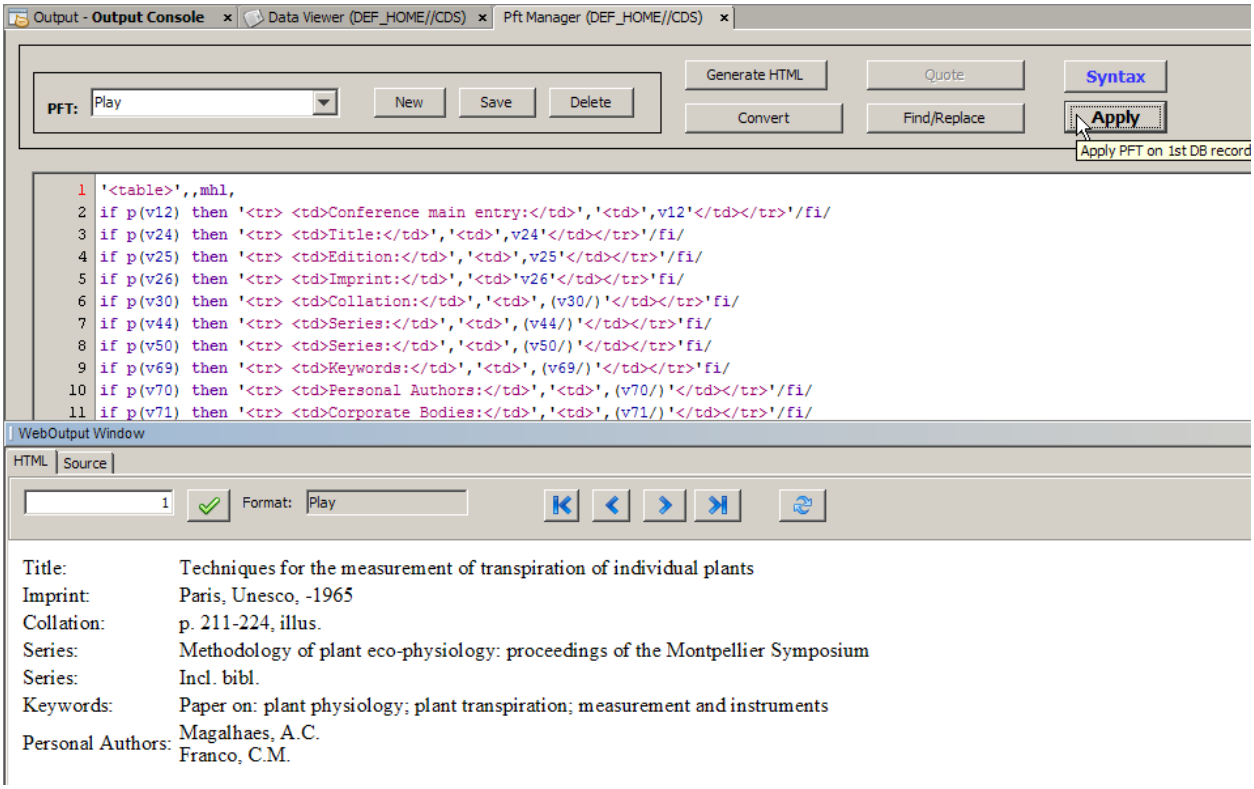
Clicking on the "Apply" button will apply the format to the 1st CDS database record. We don't reference any record content in this simple example but any J-ISIS Print format could have been used to extract record content. The Print format result is displayed at the bottom in the HTML tab of the WebOutput window.



Now, let's start with the following Print format that displays CDS database records in a Table.

```
'<table>',,mhl,
if p(v12) then '<tr> <td>Conference main entry:</td>','<td>',v12'</td></tr>'/fi/
if p(v24) then '<tr> <td>Title:</td>','<td>',v24'</td></tr>'/fi/
if p(v25) then '<tr> <td>Edition:</td>','<td>',v25'</td></tr>'/fi/
if p(v26) then '<tr> <td>Imprint:</td>','<td>'v26'</td></tr>'fi/
if p(v30) then '<tr> <td>Collation:</td>','<td>',(v30/)'</td></tr>'fi/
if p(v44) then '<tr> <td>Series:</td>','<td>',(v44/)'</td></tr>'fi/
if p(v50) then '<tr> <td>Series:</td>','<td>',(v50/)'</td></tr>'fi/
if p(v69) then '<tr> <td>Keywords:</td>','<td>',(v69/)'</td></tr>'fi/
if p(v70) then '<tr> <td>Personal Authors:</td>','<td>',(v70/)'</td></tr>'/fi/
if p(v71) then '<tr> <td>Corporate Bodies:</td>','<td>',(v71/)'</td></tr>'/fi/
if p(v72) then '<tr> <td>Meetings:</td>','<td>',(v72/)'</td></tr>'/fi/
if p(v74) then '<tr> <td>Added Title:</td>','<td>',(v74/)'</td></tr>'/fi/
if p(v76) then '<tr> <td>Other language titles:</td>','<td>',(v76/)'</td></tr>'/fi/
'</table>'
```

Clicking on the "Apply" button will apply the format to the 1st CDS database record. And the result is the following:



Adding CSS to the picture

You may learn HTML5/CSS and JavaScript from W3CShools http://www.w3schools.com/css/default.asp

The displayed table doesn't show any border to separate the table cells, we will use CSS to add a border. We will start by adding border lines to the table. This is accomplished by defining an internal style sheet as follow:

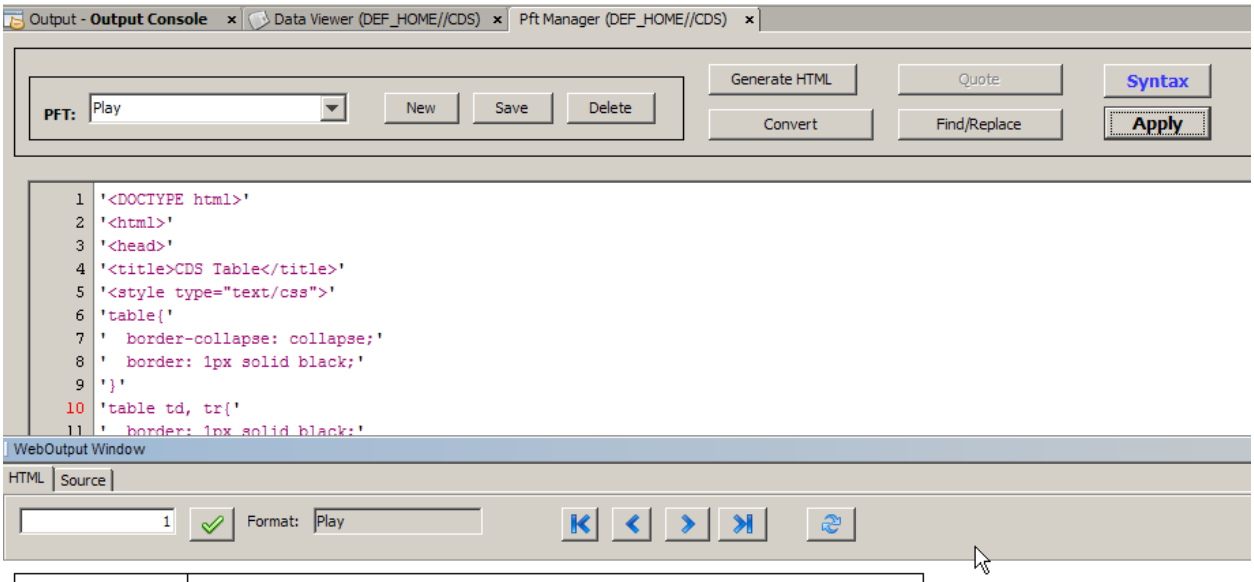
`'<!DOCTYPE html>'`	HTML5 DOC type command
`'<html>'`	
`'<head>'`	
`'<title>CDS Table</title>'`	
`'<style type="text/css">'`	Internal style sheet start tag
`'table{'`	We want to style the table HTML element
`'  border-collapse: collapse;'`	the **border-collapse** attribute removes space between cells
`'  border: 1px solid black;'`	Border will be 1 pixel solid and black
`'}'`	
`'table td, tr{'`	We want to style the table td and tr elements
`'  border: 1px solid black;'`	Border will be 1 pixel solid and black
`'  padding:5px;'`	space between the border and content in a table
`'}'`	
`'</style>'`	Internal style sheet ending tag

CSS Tables are explained at **http://www.w3schools.com/css/css_table.asp**

Thus it looks as follow in the PFT Editor:

```
'<DOCTYPE html>'
'<html>'
'<head>'
'<title>CDS Table</title>'
'<style type="text/css">'
'table{'
'  border-collapse: collapse;'
'  border: 1px solid black;'
'}'
'table td, tr{'
'  border: 1px solid black;'
'  padding:5px;'
'}'
'</style>'
'</head>'
'<body>'
'<table>',,mhl,
if p(v12) then '<tr> <td>Conference main entry:</td>','<td>',v12'</td></tr>'/fi/
if p(v24) then '<tr> <td>Title:</td>','<td>',v24'</td></tr>'/fi/
if p(v25) then '<tr> <td>Edition:</td>','<td>',v25'</td></tr>'/fi/
if p(v26) then '<tr> <td>Imprint:</td>','<td>'v26'</td></tr>'fi/
if p(v30) then '<tr> <td>Collation:</td>','<td>',(v30/)'</td></tr>'fi/
if p(v44) then '<tr> <td>Series:</td>','<td>',(v44/)'</td></tr>'fi/
if p(v50) then '<tr> <td>Series:</td>','<td>',(v50/)'</td></tr>'fi/
if p(v69) then '<tr> <td>Keywords:</td>','<td>',(v69/)'</td></tr>'fi/
if p(v70) then '<tr> <td>Personal Authors:</td>','<td>',(v70/)'</td></tr>'/fi/
if p(v71) then '<tr> <td>Corporate Bodies:</td>','<td>',(v71/)'</td></tr>'/fi/
if p(v72) then '<tr> <td>Meetings:</td>','<td>',(v72/)'</td></tr>'/fi/
if p(v74) then '<tr> <td>Added Title:</td>','<td>',(v74/)'</td></tr>'/fi/
if p(v76) then '<tr> <td>Other language titles:</td>','<td>',(v76/)'</td></tr>'/fi/
'</table>'
'</body>'
'</html>'
```

And now, clicking on the "Apply" button will display the record data in a table with borders.



Title:	Techniques for the measurement of transpiration of individual plants
Imprint:	Paris, Unesco, -1965
Collation:	p. 211-224, illus.
Series:	Methodology of plant eco-physiology: proceedings of the Montpellier Symposium
Series:	Incl. bibl.
Keywords:	Paper on: plant physiology; plant transpiration; measurement and instruments
Personal Authors:	Magalhaes, A.C. Franco, C.M.

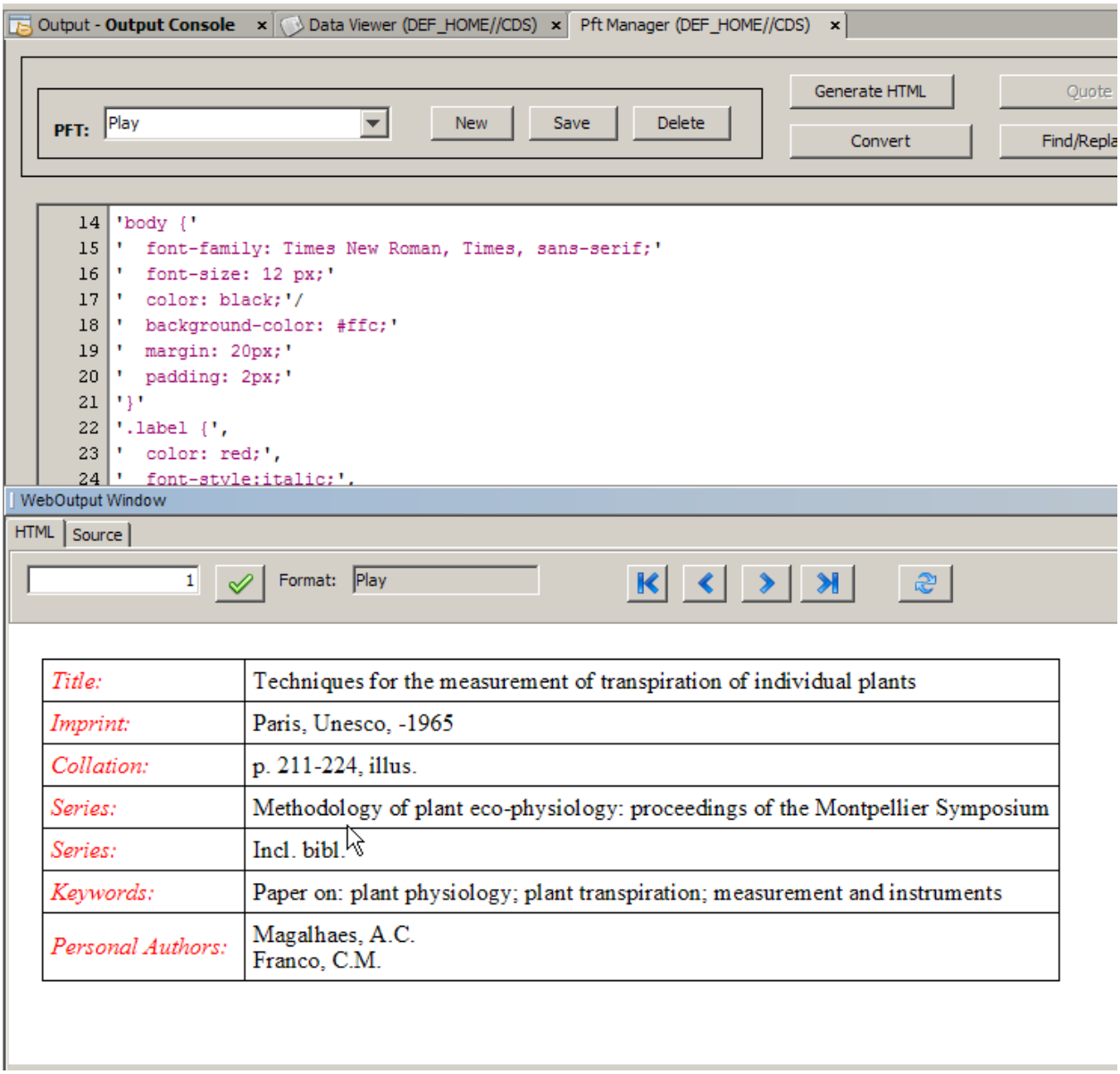
Now, we improve the Table presentation, adding a class (http://www.w3schools.com/css/css_id_class.asp) to define special styling for the labels and changing some of the body html element styles.

The new J-ISIS Print format will look like this:

```
'<DOCTYPE html>'
'<html>'
'<head>'
'<title>CDS Table</title>'
'<style type="text/css">'
'table{'
'  border-collapse: collapse;'
'  border: 1px solid black;'
'}'
'table td, tr{'
'  border: 1px solid black;'
'  padding:5px;'
'}'
'body {'
'  font-family: Times New Roman, Times, sans-serif;'
'  font-size: 12 px;'
'  color: black;'/
'  background-color: #ffc;'
'  margin: 20px;'
'  padding: 2px;'
'}'
'.label {',
'  color: red;',
'  font-style:italic;',
'  padding-right:10px;',
'}',
'</style>'
'</head>'
'<body>'
'<table>',,mhl,
if p(v12) then '<tr> <td width=15% class="label">Conference main entry:</td>','<td>',v12'</td></tr>'/fi/
if p(v24) then '<tr> <td class="label">Title:</td>','<td>',v24'</td></tr>'/fi/
if p(v25) then '<tr> <td class="label">Edition:</td>','<td>',v25'</td></tr>'/fi/
if p(v26) then '<tr> <td class="label">Imprint:</td>','<td>'v26'</td></tr>'fi/
if p(v30) then '<tr> <td class="label">Collation:</td>','<td>',(v30/)'</td></tr>'fi/
if p(v44) then '<tr> <td class="label">Series:</td>','<td>',(v44/)'</td></tr>'fi/
if p(v50) then '<tr> <td class="label">Series:</td>','<td>',(v50/)'</td></tr>'fi/
if p(v69) then '<tr> <td class="label">Keywords:</td>','<td>',(v69/)'</td></tr>'fi/
if p(v70) then '<tr> <td class="label">Personal Authors:</td>','<td>',(v70/)'</td></tr>'/fi/
if p(v71) then '<tr> <td class="label">Corporate Bodies:</td>','<td>',(v71/)'</td></tr>'/fi/
if p(v72) then '<tr> <td class="label">Meetings:</td>','<td>',(v72/)'</td></tr>'/fi/
if p(v74) then '<tr> <td class="label">Added Title:</td>','<td>',(v74/)'</td></tr>'/fi/
if p(v76) then '<tr> <td class="label">Other language titles:</td>','<td>',(v76/)'</td></tr>'/fi/
'</table>'
'</body>'
'</html>'
```

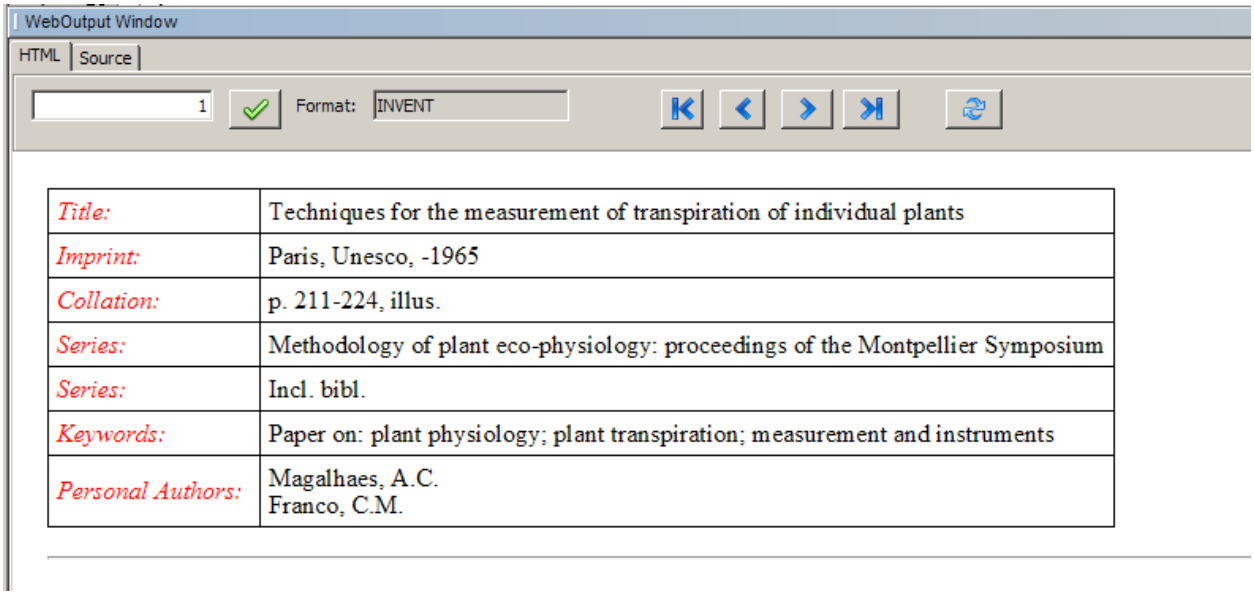
Please note that the `<td>` tag for the labels is now `<td class="label">` to change the label styles.

And now, clicking on the "Apply" button will display the record data in a table with borders, using Times New Roman font for the data extracted from CDS records, and the labels are displayed in red with an italic font.

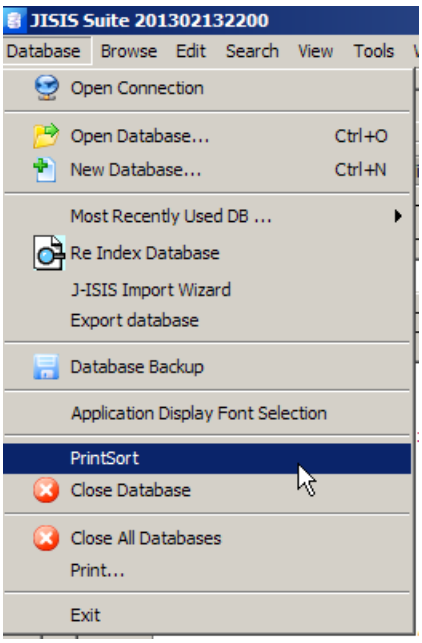


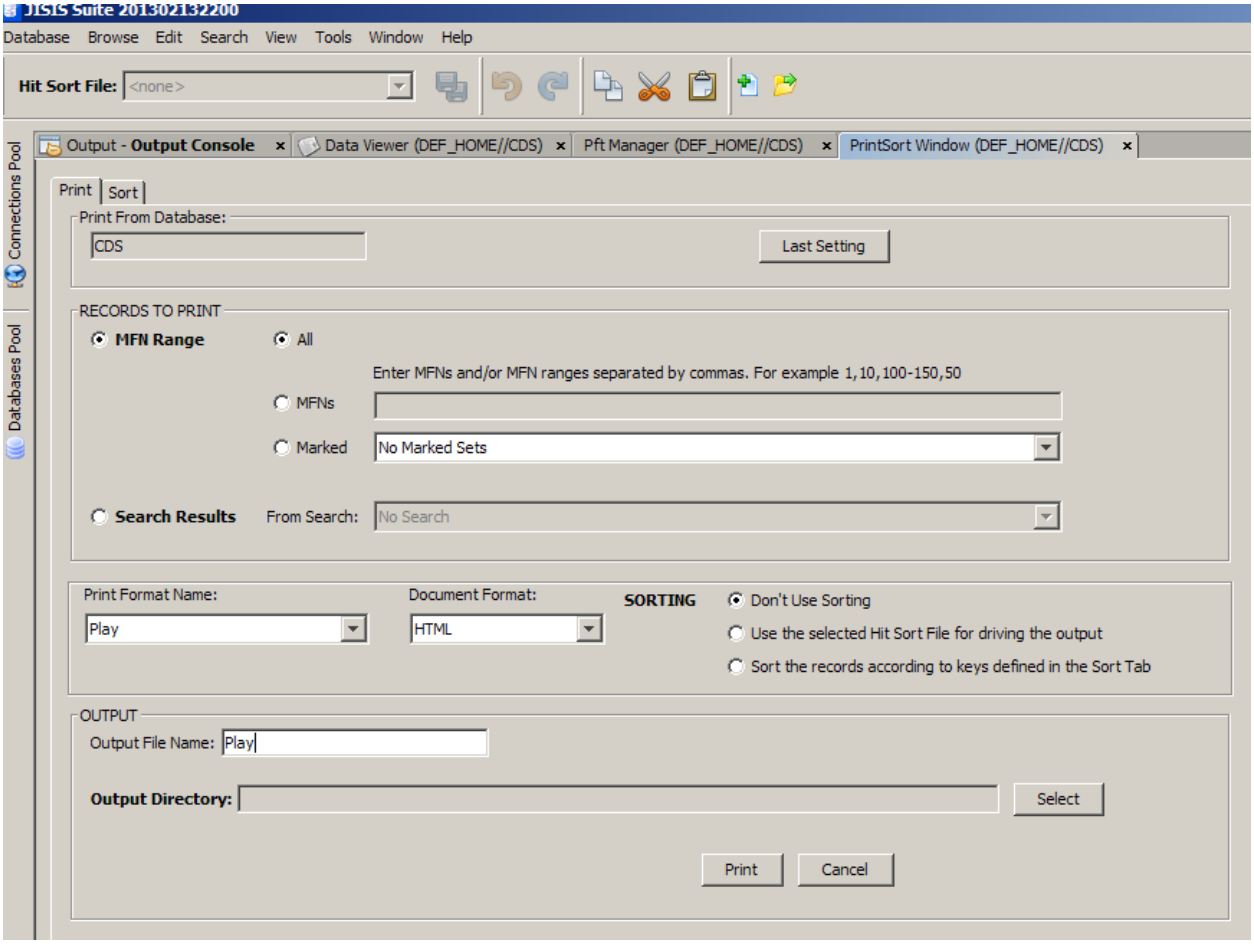
As we plan to print a list of records, we can add an horizontal rule for separating records.

```
if p(v76) then '<tr> <td class="label">Other language
titles:</td>','<td>',(v76/)'</td></tr>'/fi/
'</table>'
'<br />', '<hr /><br />'
'</body>'
'</html>'
##
```

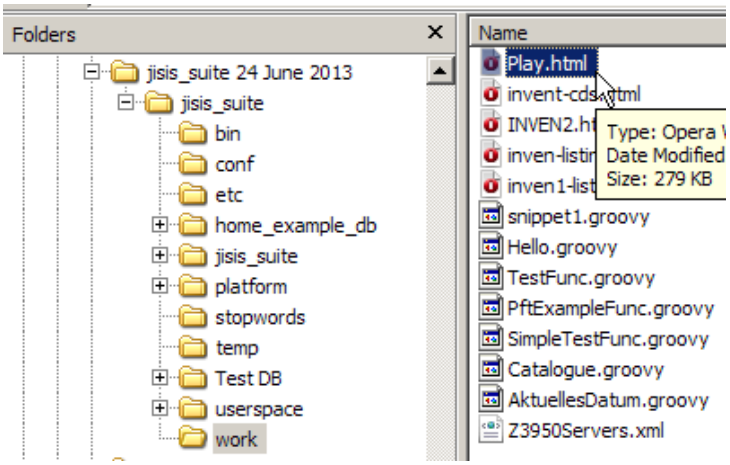


We can produce a HTML listing of records using the J-ISIS PrintSort module:





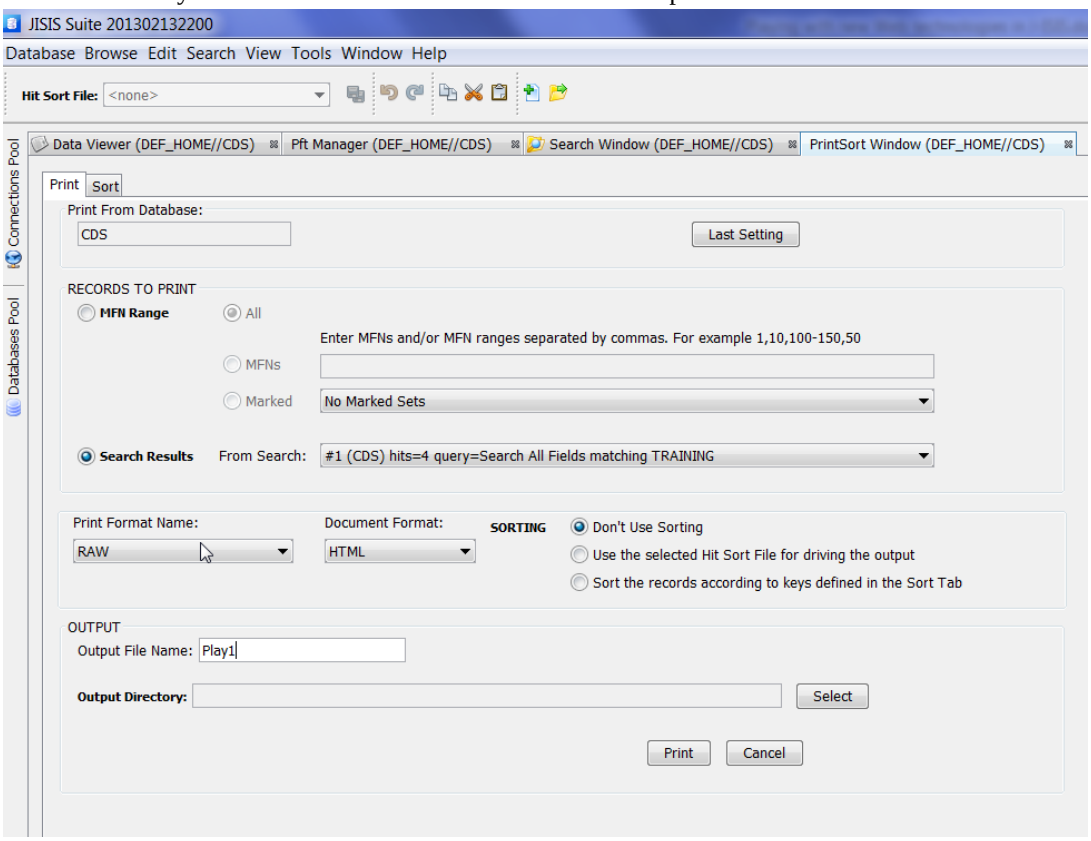
Opening the Play.html file in a browser will display a list of records separated by an horizontal rule.



Title:	Techniques for the measurement of transpiration of individual plants
Imprint:	Paris, Unesco, -1965
Collation:	p. 211-224, illus.
Series:	Methodology of plant eco-physiology: proceedings of the Montpellier Symposium
Series:	Incl. bibl.
Keywords:	Paper on: plant physiology; plant transpiration; measurement and instruments
Personal Authors:	Magalhaes, A.C. Franco, C.M.

Title:	The Controlled climate in the plant chamber and its influence upon assimilation and transpiration
Imprint:	1965
Collation:	p. 225-232, illus.
Series:	Methodology of plant eco-physiology: proceedings of the Montpellier Symposium
Series:	Incl. bibl.
Keywords:	Paper on: plant evapotranspiration
Personal Authors:	Bosian, G.

Please note that you could also select records retrieved from a previous search:



2. J-ISIS Web browser (JavaFX 2.2) vs. HTML5: Media Support

The **J-ISIS Web browser** component is based on the JavaFX embedded browser, a user interface component that provides a web viewer and full browsing functionality through its API. The JavaFX embedded browser component is based on WebKit, an open source web browser engine. It supports Cascading Style Sheets (CSS), JavaScript, Document Object Model (DOM), and HTML5.

2.1 JavaFX vs. HTML5: Media Streaming

JavaFX 2 has the following codec support for **audio streaming**:

- **MP3**: MP3 is a digital audio encoding standard for audio compression. Used mostly to transfer music, MP3 uses a lossy compression technique that greatly reduces the amount of data required to represent audio, with minimal auditory distortion.
- **AIFF**: Audio Interchange File Format uses uncompressed PCM (Pulse Code Modulation), although it has its compressed variant AIFF-C/AIFC. JavaFX does not support its compressed variant yet. This format is particularly useful when working with AudioTrack and AudioEquilizer in JavaFX. It requires much more space than MP3 -- say a sample size of 16-bit audio would require 10MB at the sample rate of 44.1 kHz.
- **WAV**: Most WAV files are uncompressed, but they can hold compressed audio as well. JavaFX has no support for playing the compressed form yet. So when incorporating WAV files, developers need to make sure that the file format is WAV containing uncompressed PCM.

JavaFX 2 has the following codec support for **video streaming**:

- **FLV**: Flash video is basically a container format like zip, containing file with varied encoding audio/video format. Apart from Flash video embedded in SWF files, there are two different video file formats in Flash video: FLV and F4V. Flash videos are usually encoded with codecs such as Sorenson Spark or VP6 video compression formats, other than AAC and MP3 for audio and H.264 for video.

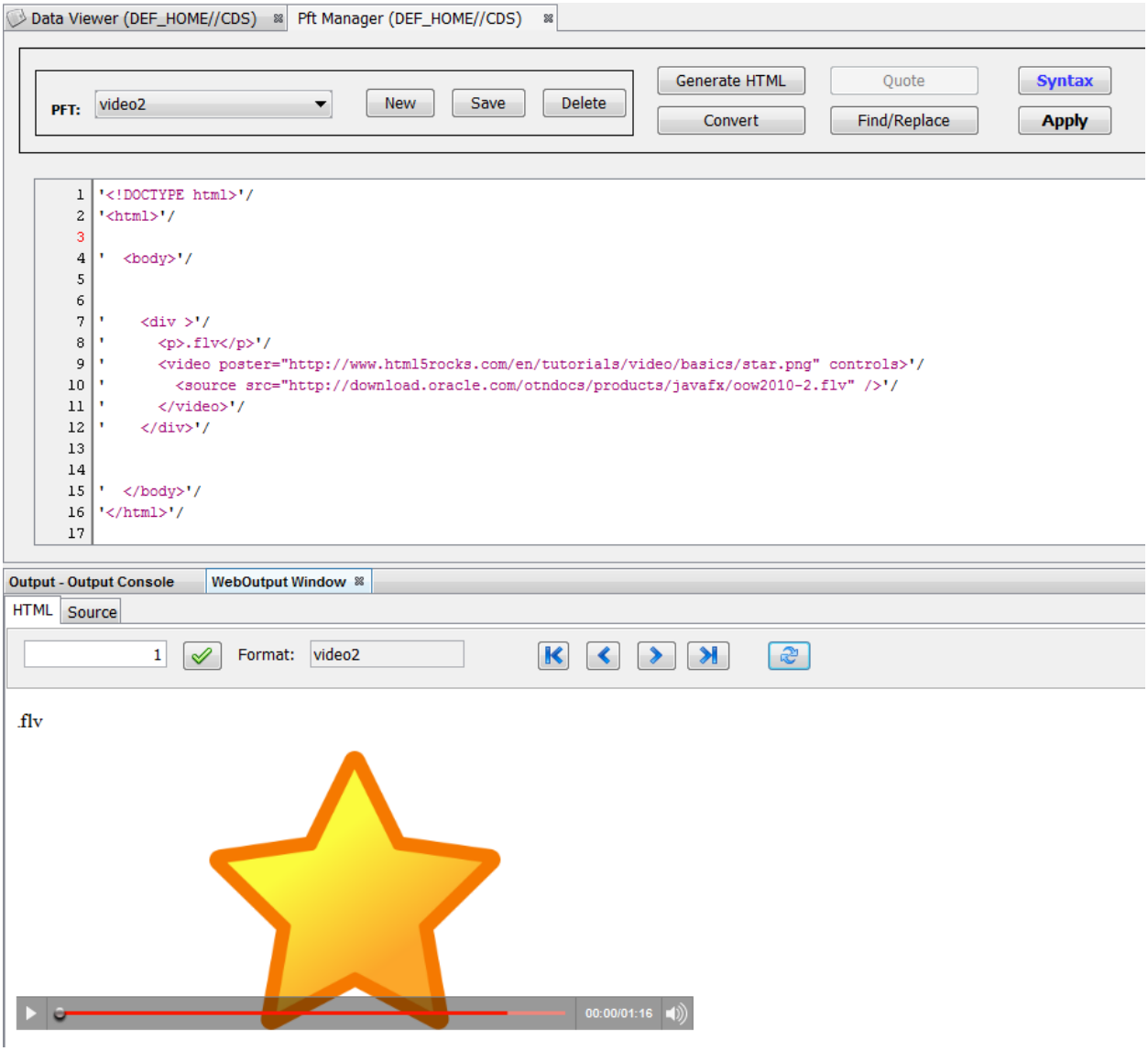
  When trying to play back video files in JavaFX, user should be conscious of the format they are trying to play. For example, the media format commonly found on YouTube or Metacafe -- especially the FLV files -- have some issues in JavaFX. JavaFX does not yet support playback of formats that adhere to Sorenson FLV. Also JavaFX still does not have any interface to return a list of supported formats and encodings.

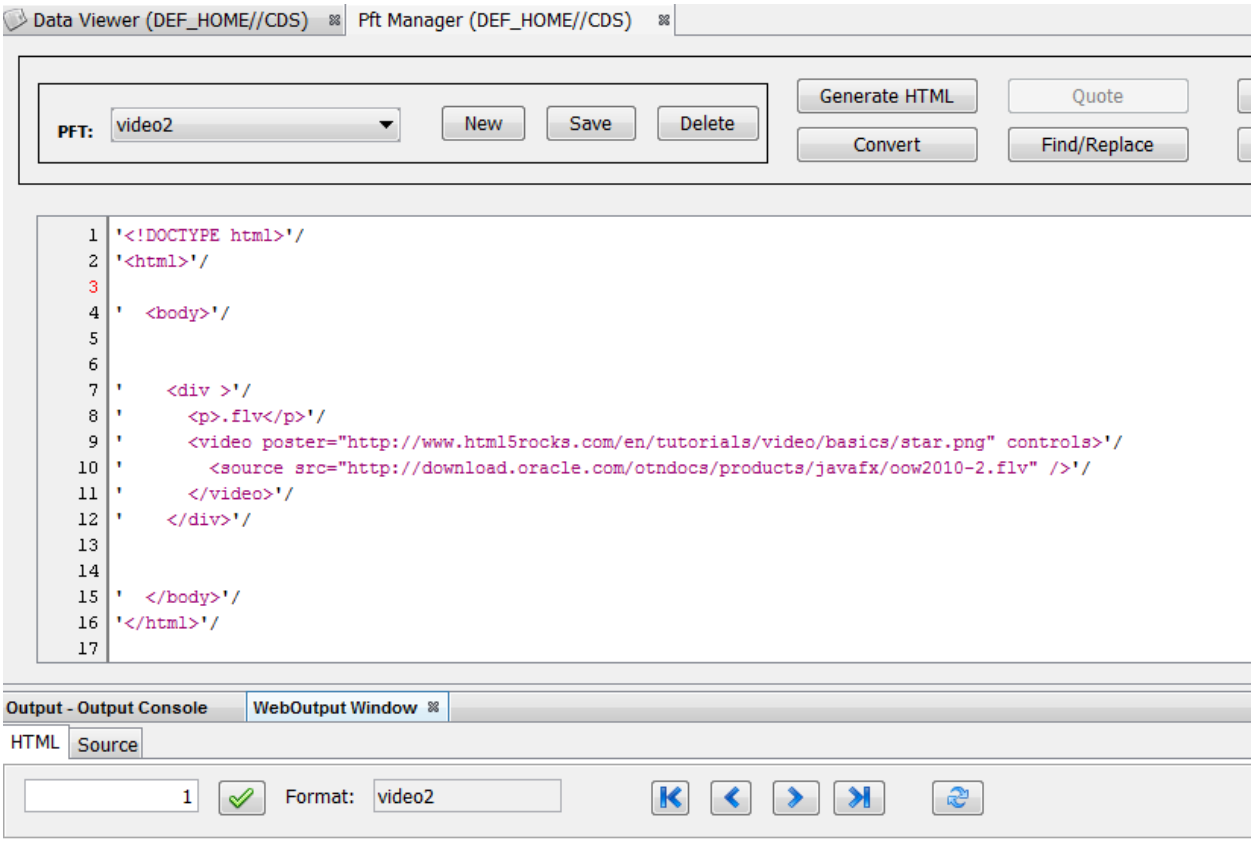
- **MPEG-4**: MPEG4 includes compression of audio/video data for media streaming in CDs and telephone, videophone and broadcast television applications. H.264/MPEG-4 Part 10 and AVC are the most commonly used formats for distribution of high definition video. For more information, read MPEG-4 multimedia support in JavaFX.

Besides limitations in browser support, HTML5 has similar issues as JavaFX in supporting audio/video formats. For more information on these issue, read How to embed video in HTML5. The HTML5 <video> tag defines a video or movie.The <video> element works in all modern browsers.

2.2 HTML Video - Playing . flv videos encoded using the on2 vp6 codec

A simple example using HTML5 <video> tag

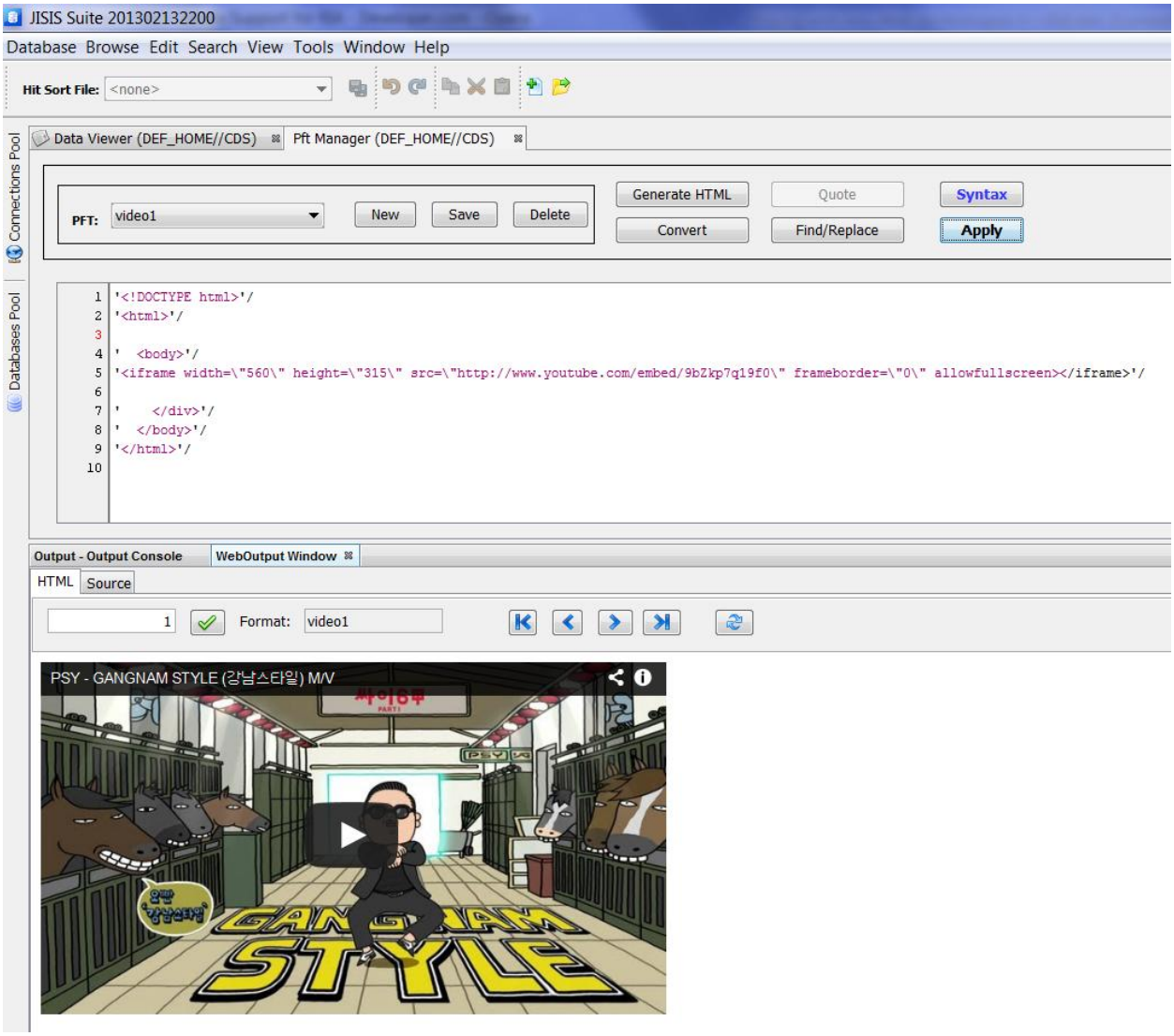




.flv

2.3 HTML Video - YouTube Solution

If you want to play a video in a web page, you can upload the video to YouTube and insert the proper HTML code to display the video. Here is a simple example:



2.4 HTML Video - Using A Hyperlink

If a web page includes a hyperlink to a media file, most browsers will use a "helper application" to play the file.

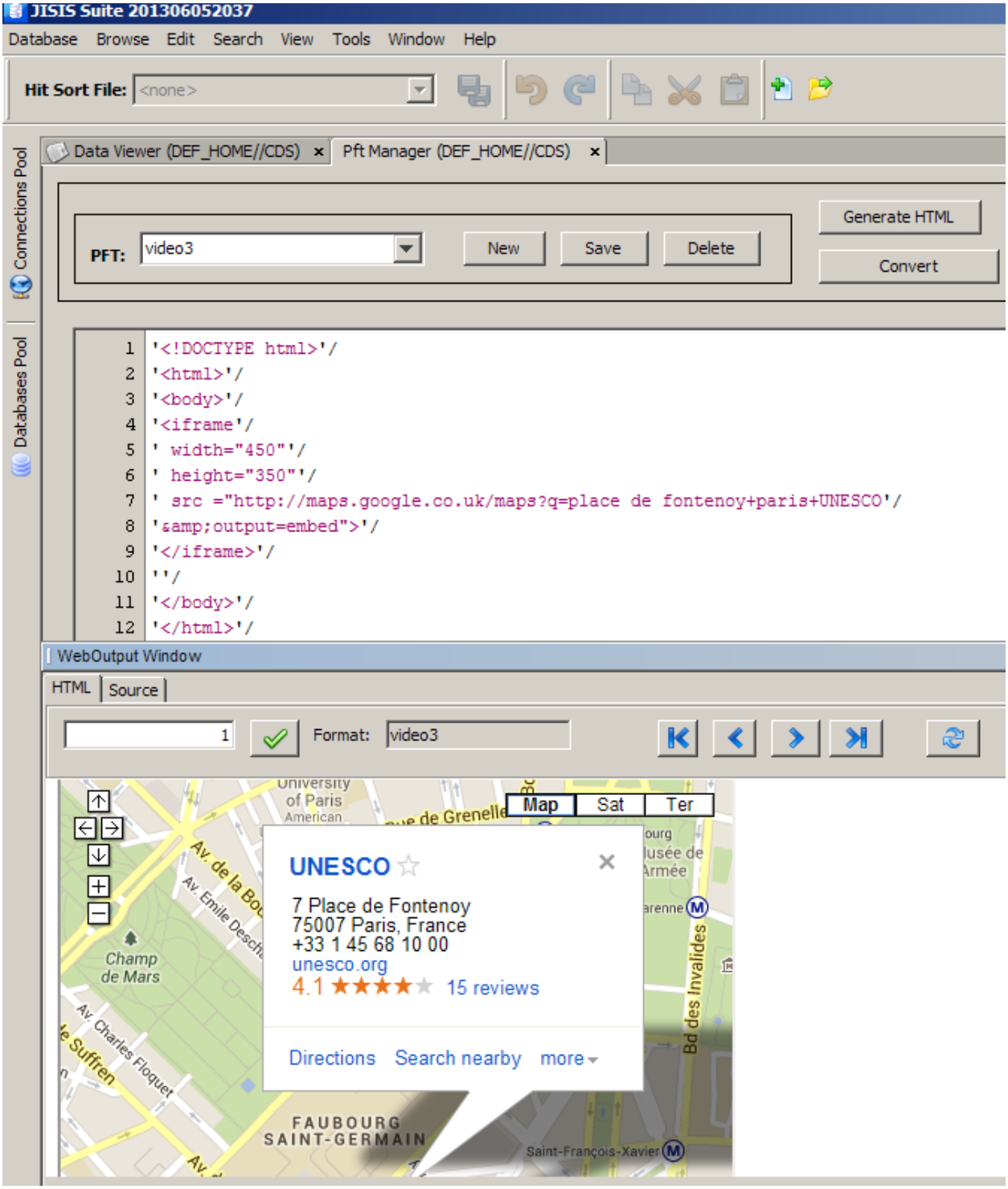
The following code fragment displays a link to a Flash video. If a user clicks on the link, the browser will launch a helper application to play the file:

Example

```
<a href="intro.swf">Play a video file</a>
```

3. Inserting a Google Map in A J-ISIS Print Format

```
'<!DOCTYPE html>'/
'<html>'/
'<body>'/
'<iframe'/
' width="450"'/
' height="350"'/
' src ="http://maps.google.co.uk/maps?q=place de
fontenoy+paris+UNESCO'/
'&amp;output=embed">'/
'</iframe>'/
''/
'</body>'/
'</html>'/
```


JISIS Suite 201306052037
Database Browse Edit Search View Tools Window Help
Hit Sort File: <none>
Data Viewer (DEF_HOME//CDS)
Pft Manager (DEF_HOME//CDS)
Connections Pool
Databases Pool
PFT: video3
New
Save
Delete
Generate HTML
Convert
1 '<!DOCTYPE html>'/
2 '<html>'/
3 '<body>'/
4 '<iframe'/
5 ' width="450"'/
6 ' height="350"'/
7 ' src ="http://maps.google.co.uk/maps?q=place de fontenoy+paris+UNESCO'/
8 '&output=embed">'/
9 '</iframe>'/
10 ''/
11 '</body>'/
12 '</html>'/
WebOutput Window
HTML
Source
Format: video3
Map
Sat
Ter
UNESCO
7 Place de Fontenoy
75007 Paris, France
+33 1 45 68 10 00
unesco.org
4.1 15 reviews
Directions
Search nearby
more
Champ de Mars
FAUBOURG SAINT-GERMAIN
Bd des Invalides