



**Adobe**

# **Designing Forms for LiveCycle® Output ES**

July 2008

**Adobe® LiveCycle® Designer ES**

Version 8.2

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Adobe® LiveCycle® Designer ES (8.2) Designing Forms for LiveCycle Output ES for Microsoft® Windows®  
Edition 1.2, July 2008

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# About This Document

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This document explains what to consider when using Adobe® LiveCycle® Designer ES to design forms for Adobe LiveCycle Output ES. It includes information about setting up forms for printing, choosing fonts, paper tray handling, configuring forms for Zebra printers, and configuring output based on variable data.

## Who should read this document?

This document is intended for form authors and form developers who create forms that will be rendered using Output ES. Together with the information that you obtain from the LiveCycle ES administrator and the network printer administrator, this document provides you with things to keep in mind when planning your forms.

## Additional information

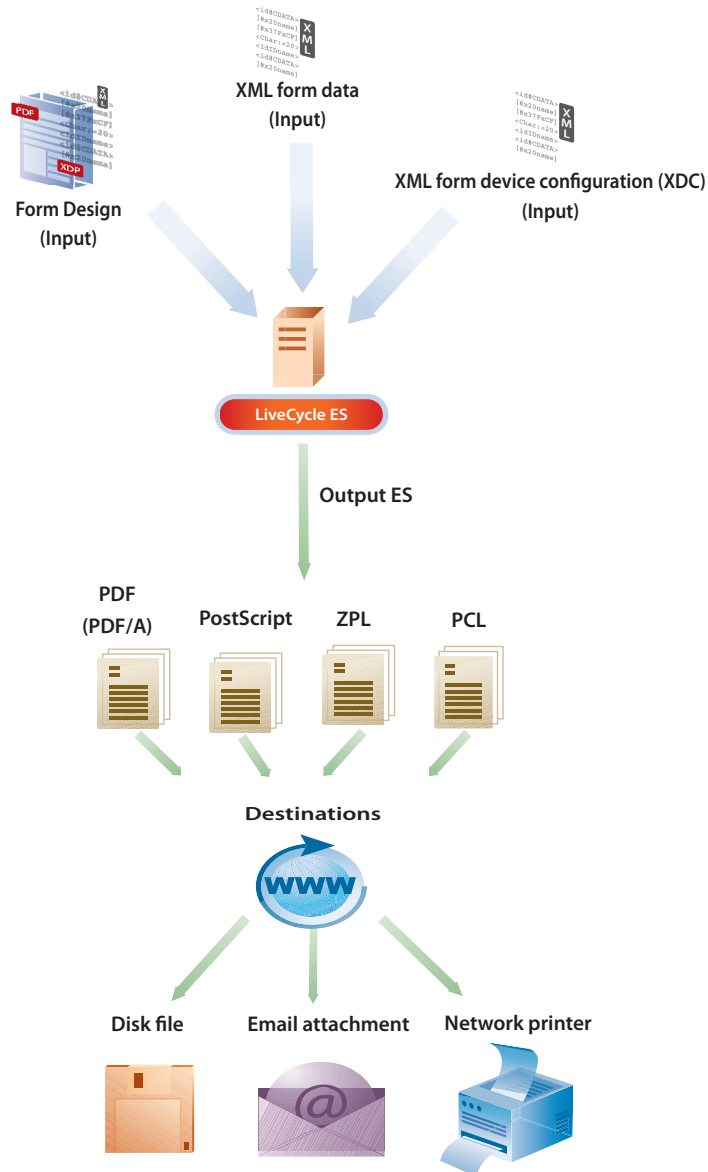
The resources in this table can help you learn more about Designer ES.

<b>For information about</b>	<b>See</b>
Creating forms using Designer ES	<a href="#">LiveCycle Designer ES Help</a>
Output ES	<a href="#">LiveCycle ES Services</a>
Editing XDC files	<a href="#">LiveCycle ES XDC Editor Help</a>
Using a service in a process map	<a href="#">LiveCycle Workbench ES Help</a>

# 1

## Setting Up Forms for Printing

LiveCycle Output ES merges XML form data with a form design created in LiveCycle Designer ES to produce a formatted document. Documents can be sent to a disk file, a network printer, or when used as part of a process, to an email recipient as a file attachment. As shown in the following illustration, Output ES lets you output documents in Adobe PDF (including PDF/A), Adobe PostScript®, and Zebra Printer Language (ZPL) formats, and Printer Control Language (PCL).



## Specify the master page placement in a page set

Prior to LiveCycle Designer ES 8.0, you managed page sets by controlling the number of occurrences of each page in the form. This meant that you controlled repetitive rendering of pages by specifying the Restrict Page Occurrence, Min, Count, and Max options in the Object palette for the selected page set or master page. For compatibility reasons, this functionality is still available.

In Designer ES 8.0 or later, you use master pages in a page set to control the placement and number of occurrences of the pages in a form.

Form designs contain at least one page set. For forms intended for double-sided printing, you must specify where in the page set the master page is used; for example, in the first printed page, the last printed page, or the printed pages in between.

**Note:** The first page in the root page set cannot be blank; it must contain a content area.

In addition, for form designs that contain more than one page set, you must specify a break in a subform for printing to transition from one page set to the next.

**Note:** Specifying master page placement is not relevant for form designs that are based on setting minimum and maximum page-occurrence values.

The Only Page (in Page Set) option is useful when the rendered form can be printed on one side of a printed page. For example, although the data fits on one printed page in the form below, two pages are printed because there is a master page for the first printed page and a master page for the last printed page in the page set. In the example, the header information appears on the first\_page master page and the footer information on the last\_page master page.

The image shows two parts: a Hierarchy pane on the left and a rendered form page on the right.

**Hierarchy Pane:** The tree structure is as follows:

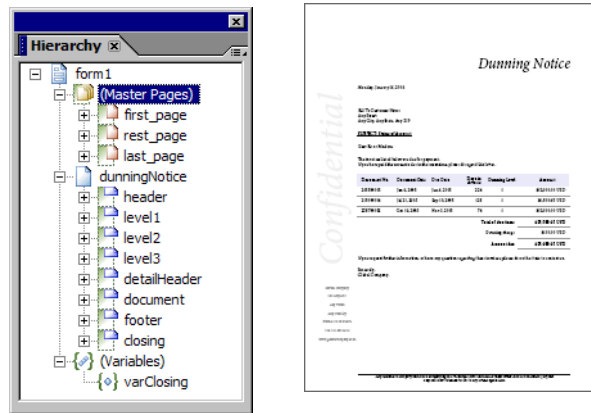
- form1
  - (Master Pages)
    - first\_page
    - rest\_page
    - last\_page
  - dunningNotice
    - header
    - level1
    - level2
    - level3
    - detailHeader
    - document
    - footer
    - closing
  - (Variables)
    - varClosing

**Rendered Form Page:** The page is titled "Dunning Notice" and features a "Confidential" watermark. It includes a table with the following data:

Invoice No.	Invoice Date	Due Date	Due Amount	Dunning Level	Action
1000000	Jan 1, 2003	Jan 3, 2003	100	1	ADJUDICATE
1000000	Jan 1, 2003	Jan 3, 2003	100	2	ADJUDICATE
1000000	Jan 1, 2003	Jan 3, 2003	100	3	ADJUDICATE

Additional text on the page includes "GLOBAL" logo, "Dunning Notice", "Invoice Number: 1000000", "Invoice Date: Jan 1, 2003", "Due Date: Jan 3, 2003", "Due Amount: 100", "Dunning Level: 1", and "Action: ADJUDICATE".

To prevent two pages from being printed when everything can fit on one page, create a master page and select the Only Page (in Page Set) option. Whenever the data of the rendered form fits on one side of a printed page, this master page is used.



1. In the Hierarchy palette, under the Master Pages node, select the master page you want to place.
2. In the Object palette, click the Pagination tab.
3. In the Placement list, select the placement of the master page.

## Use page sets to control single-sided and double-sided printing in a form

For forms intended for printing, you can specify single-sided or double-sided printing for each page set in the form design.

For example, you may want to create a form design to be used to generate a preprint and plain copy form. A *preprint form* is a form that is printed on paper that already has items printed on it. A *plain copy form* is a form that is printed on blank paper.

For this example, you create five master pages that are combined into page sets. You can specify which page sets print single-sided and which ones print double-sided.

MasterPage1 contains the title page information, is used in the first page in the page set, and prints single-sided. MasterPage1 includes a page break in a subform that allows printing to transition to the PrePrint page set.

In MasterPage2, the paper that the preprint form is printed on contains the company logo and contact information. This master page leaves room for that information outside the content area. A small content area follows next to receive employee-specific information. It occurs once for the preprint form and therefore is assigned as the first page in the second page set. The second page set requires double-sided printing.

MasterPage3 has a larger content area, possibly covering the whole page, to receive more information. It is used for the second and subsequent pages of the preprint form. It is assigned the Rest of Pages placement option in the second page set. MasterPage3 includes a page break in a subform that allows printing to transition to the PlainCopy page set.

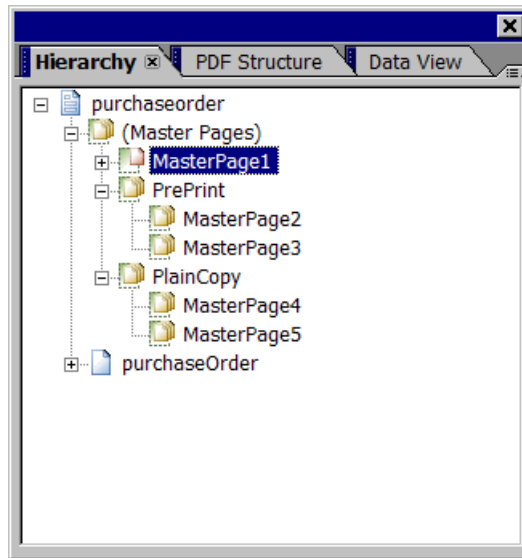
MasterPage4 has the company logo and contact information first, outside the content area. A small content area follows next to receive employee-specific information. It occurs once for the plain copy form and therefore is assigned as the first page in the third page set. The third page set also requires double-sided printing.



MasterPage5 has a larger content area, possibly covering the whole page, to receive more information. It is used for the second and subsequent pages of the plain copy form. It occurs 0 to infinite times. It is assigned the Rest of Pages placement option in the second page set.

The master pages are grouped into page sets:

- The Main page set is set to print single-sided.
- The PrePrint page set is set to print double-sided.
- The PlainCopy page set is set to print double-sided.



The form is rendered according to the order of the page set in the hierarchy:

- The first subform is always placed on MasterPage1.
- The next subform is placed on MasterPage2 and then MasterPage3 if the form is a preprint form, or on MasterPage4 and then MasterPage5 if the form is a plain copy form.

## Specify which side of the paper the master page is applied to

For forms intended for double-sided printing, you can specify which side of the paper the master page is applied to: odd (front), even (back), no odd/even restrictions, or blank.

You can use master pages for the odd (front) and even (back) sides of a form intended for double-sided printing. For example, you may want the page numbers of a double-sided printed form to appear at the lower-right corner of the odd (front) printed pages and the lower-left corner of an even (back) printed pages.

Select the Blank Pages option when you need a blank page inserted between two odd (front) double-sided printed pages.

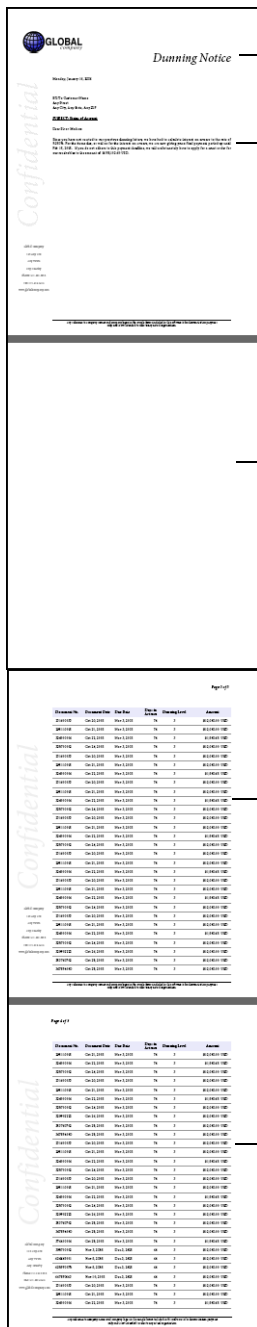
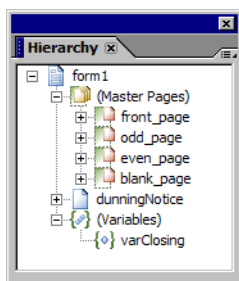
**Note:** The options in the Odd/Even list are not relevant for form designs that are based on setting minimum and maximum page-occurrence values.

1. In the Hierarchy palette, under the Master Pages node, select the master page.
2. In the Object palette, click the Pagination tab.

3. In the Odd/Even list, select the printed page where the master page is applied.

## Insert a blank page after the first page in a form intended for double-sided printing

To insert a blank page after the first page in a form that is intended for double-sided printing, the page set must include master pages for the first, odd, and even printed pages. For example, you may want a blank page to print on the back side of the cover letter. By specifying that the area that follows the cover letter subform begins on an odd page, a blank page is inserted as the first even page when the form is printed.



This page uses the front\_page master page

The area after this subform is set to Go To Next Odd Page

The blank page is inserted as the first even page by using the blank\_page master page

This page uses the odd\_page master page

This page uses the even\_page master page

4. Add a new master page to the page set.

5. Click anywhere in the master page.
6. Click the Pagination tab and select Blank Pages from the Odd/Even list.
7. Select the subform or subform set that occurs before the blank page.
8. Click the Pagination tab and select Go To Next Odd Page from the After list.
9. Preview the form in the Preview PDF tab.

## Preview and test printing forms

Testing your form and its data bindings in Designer ES saves both time and paper by avoiding the need to deploy the forms to the server and generate a printed test output.

As you work in Designer ES, if you have Adobe Acrobat® Professional, Acrobat Standard or Adobe Reader® installed, you can preview the form in the Preview PDF tab. Use the Preview PDF tab to view and test the operation of the form as if it were a PDF file. You set options for previewing interactive forms or printable forms in PDF by using the Form Properties dialog box (Preview tab).

You can also preview the form with data from an existing XML data file or you can generate sample data by clicking the Generate Preview Data button from the Preview tab in the Form Properties dialog box. Previewing the form with sample data allows you to determine whether the layout, formatting, content, and behavior of a form responds as expected.

In addition, you can print the form design with sample data to a network printer by selecting Print Form with Data in the Print dialog box. When you print the form, the data values from the sample XML file appear in the respective objects. If you are setting up the form for double-sided printing, you can use sample data to test printing and review how the rendered form looks when the printed page ends on an odd page or an even page, and when the rendered form fits on one printed page. You select Two-Sided Print in the Print dialog box for double-sided printing.

For more information, see [LiveCycle Designer ES Help](#).

**Note:** When preparing sample data to test printing a form in Output ES, the sample data that you use must contain only one data record. This is a Designer ES restriction; Output ES can merge XML form data that contains multiple records.

For example, the following XML data shows an example of a data file that contains three data records.

```
<?xml version="1.0" encoding="UTF-8"?>
<batch>
  <LoanRecord>
    <mortgageAmount>500000</mortgageAmount>
    <lastName>Blue</lastName>
    <firstName>Tony</firstName>
    <SSN>555666777</SSN>
    <Description>Buy a home</Description>
  </LoanRecord>
  <LoanRecord>
    <mortgageAmount>300000</mortgageAmount>
    <lastName>White</lastName>
    <firstName>Sam</firstName>
    <SSN>555666222</SSN>
    <Description>Buy a home</Description>
```

```
</LoanRecord>
<LoanRecord>
  <mortgageAmount>700000</mortgageAmount>
  <lastName>Green</lastName>
  <firstName>Steve</firstName>
  <SSN>55566688</SSN>
  <Description>Buy a home</Description>
</LoanRecord>
</batch>
```

To test printing a form with data in Output ES, the XML data should contain only one data record.

```
<?xml version="1.0" encoding="UTF-8"?>
<LoanRecord>
  <mortgageAmount>500000</mortgageAmount>
  <lastName>Blue</lastName>
  <firstName>Tony</firstName>
  <SSN>555666777</SSN>
  <Description>Buy a home</Description>
</LoanRecord>
```

For information about creating sample data files in Designer ES, see the topics “To create sample data to print with your form” and “To automatically generate sample data to print with your form” in [LiveCycle Designer ES Help](#).

## Specify the device configuration file

Designer ES includes device configuration files (XDC) for PCL and PostScript printers that you can select from when test printing your forms.

The device configuration files are installed in the Designer ES installation folder and appear as options in the Configuration File list in the Print dialog box. Any custom device configuration files that you place in the Designer ES installation folder also appear as options in the Configuration File list. This is useful when you want to test printing your forms using the same XDC file that Output ES will use to render your forms.

The Configuration File list shows the name of the XDC file in square brackets, such as PCL - Black & White [hppcl5e].

## About Output-IVS

As part of your testing, you may want your network printer administrator to test rendering your forms in Output ES. Output-IVS is a sample application that ships with Output ES. It provides network printer administrators with an interface that they can use to test the rendering of your forms.

Output-IVS is installed with Output ES, but is not deployed automatically to the application server. The network printer administrator must manually deploy the `adobe-output-ivs-<appName>.ear` file to the application server. This file can be found in the `C:\Adobe\LiveCycle8.2\deploy` directory in a default installation.

## 2

## Font Handling

---

The set of fonts available in LiveCycle Designer ES is primarily determined from the fonts present on the computer hosting Designer ES, plus any fonts enumerated in the Designer.xdc file.

When designing forms for use with LiveCycle Output ES, it is important that the fonts you choose for designing the form in Designer ES are also available when the form is output from Output ES. For example, when Output ES renders a PDF file that uses unavailable fonts, the missing fonts are substituted, which can cause the layout of the form to change from the original design in Designer ES. Similarly, rendering documents in PostScript, Printer Control Language (PCL), and Zebra Programming Language (ZPL) formats that use unavailable fonts will produce unexpected results when missing fonts are substituted.

You can define font substitution rules in the font-mapping table. Designer ES uses the font-mapping table stored in the Designer.xci file to speed up the substitution of an unavailable font with one of the fonts on your computer. It contains several default entries for font mapping. For information about adding a new mapping to the font-mapping table, see [LiveCycle Designer ES Help](#).

Output ES can embed or reference additional fonts in the generated output.

In the case of PDF, you can select the Embed Fonts option in the Form Properties (Save As tab) dialog box to embed the fonts in the saved PDF form. (See [LiveCycle Designer ES Help](#).)

When output is generated for either PCL or PostScript, preference is given to fonts that are known to be standard fonts included on the printer. These fonts are known as printer-resident fonts. Printer-resident fonts are stored in a printer's memory or on a hard drive connected to the printer. For information about specifying printer-resident fonts in Designer ES, see "[Specifying printer-resident fonts in Designer ES](#)."

Consulting with your network printer administrator and test printing a few sample forms from Output ES will help you to determine which fonts are available.

Forms that result in a smaller file size can be rendered more quickly and transferred to the printer more efficiently than forms that result in a larger file size. To minimize the file size, use printer resident fonts and keep the number of embedded fonts used to a minimum.

To ensure that a form design looks the same across PDF, PCL, and PostScript output devices, use these fonts, which are resident in most computers:

- Courier
- Arial
- Times New Roman

Alternatively, you can choose to embed a font. It will look the same across all devices as well, but a larger output file is produced.

For form designs that are rendered only as PDF forms, use any of the following fonts, which are included with Adobe Reader to optimize performance:

- Courier Std, Courier Std Bold, Courier Std Bold Oblique, Courier Std Oblique
- Minion® Pro Bold, Minion Pro Bold It, Minion Pro It, Minion Pro Regular
- Myriad® Pro Bold, Myriad Pro Bold It, Myriad Pro It, Myriad Pro Regular

- Symbol (Type 1)

## Specifying printer-resident fonts in Designer ES

The fonts that you use in your form design do not need to be present on the computer hosting Designer ES. Normally, you select a font from the Font list of the Font palette, but Designer ES also permits you to enter a font name. The font name that you enter must be identical to the network printer's printer-resident font name. (See [LiveCycle ES XDC Editor Help](#).)

## Font mapping

Designer ES and Output ES provide font mapping to accommodate the unique font requirements of printers. In the Designer ES installation directory, the Designer.xci file contains the default set of font mappings. This configuration file can be extended to accommodate additional font mappings. However, this file affects only Designer ES. Font mappings intended to be in effect at the time of processing a form in concert with a particular XDC device profile must also be present in the target XDC file.

The following is an excerpt from the Designer.xci, showing the XML markup describing font mapping statements that map requests for a variety of Helvetica fonts to similar Arial fonts.

```
<equate from="Helvetica Black_*_*" to="Arial Black_*_*" force="0"/>
<equate from="HelveticaBlack_*_*" to="Arial Black_*_*" force="0"/>
<equate from="Helvetica-Black_*_*" to="Arial Black_*_*" force="0"/>
<equate from="Helvetica_*_*" to="Arial_*_*" force="0"/>
<equate from="Helv_*_*" to="Arial_*_*" force="0"/>
```

The font mapping capabilities provide for strict control over mapping. You can map whole typefaces or an individual typeface with a particular weight and posture. The force attribute denotes whether a font should be mapped always, or only when the requested font is not available.

The equate font mapping statements are evaluated in order until a matching statement is encountered.

See "Adding a new mapping to the font-mapping table in LiveCycle Designer ES" in [LiveCycle Designer ES Help](#).

# 3

## Paper Tray Handling

---

In LiveCycle Designer ES, you select paper from different input trays by associating a master page with a paper type (media type) in the Paper Type list on the Master Pages tab in the Object palette. Because a form design can have more than one master page, the form design can contain multiple paper types.

The paper types available in Designer ES are derived from the Designer.xdc file. Using the Designer.xdc file, printers are capable of selecting the paper trays from which they pull basic paper types, such as letter and legal.

**Single paper type for a paper size:** If the printer has one paper tray with plain letter-sized paper and the form's master pages use letter-sized paper, the printer will automatically print on the letter-sized paper. This is also true for legal and other sizes that are installed on the printer.

**Four or fewer paper types for a paper size:** The Designer.xdc file defines a set of special paper types that can be used for the majority of cases before it is necessary to create new ones and hand edit the XDC file used by Designer ES (Designer.xdc). For letter size, these are the defined paper types:

- Letter Plain
- Letter Letterhead
- Letter Color
- Letter Special

An equivalent set of paper types exists for the A4 and B4 JIS paper sizes.

For example, an application can use letter-sized paper from three different trays, such as plain paper, preprinted letter head, and a pink sheet, without modifying the Designer.xdc file. This example assumes that the correct paper types are installed in the input trays associated with each paper type, as defined in the XDC file for the printer.

Here is another example of a complex job that can be printed using the Designer.xdc file without modification. Consider an insurance document package that uses four different letter-size paper types:

- First page uses letterhead. (Select Letter Letterhead in the Paper Type list in the Master Page tab.)
- Second page through third-to-last page use plain white. (Select Letter Plain in the Paper Type list in the Master Page tab.)
- Second-to-last page uses blue paper with some kind of notice/information. (Select Letter Color in the Paper Type list in the Master Page tab.)
- Final page uses preprinted and prescored insurance cards at the bottom. (Select Letter Special in the Paper Type list in the Master Page tab.)

This example assumes that the correct paper types are installed in the input trays associated with each paper type, as defined in the XDC file for the printer.

You can also add unique paper types to the Designer.xdc file. You must work closely with your network printer administrator to ensure that the new paper type information is included in both the Designer.xdc file and the XDC file used by the LiveCycle Output ES server network printers. For more information about adding a paper type to the XDC files, see [LiveCycle ES XDC Editor Help](#).

# 4

## Designing for Zebra Printers

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By default, LiveCycle Designer ES uses the Designer.xdc file, which is located in the installation directory. Designer ES also includes a separate XDC file created specifically for output to Zebra printers that contain Zebra fonts and label sized media.

The file is called Designer.xdc.zebra and is also located in the installation directory. When designing for output to Zebra printers, you must move or rename the default Designer.xdc file and then rename Designer.xdc.zebra to Designer.xdc.

### Testing Zebra standard fonts

The Zebra standard fonts that appear in Designer ES are representative of the fonts that are printed and may not accurately reflect how the font will appear on the printed label. Therefore, it is recommended that you test print your labels to see a true representation of the font that you chose.


### Using hardware-only barcodes

The supported barcode formats are listed in the Barcodes category of the Object Library palette. This icon  is displayed next to the hardware-only barcodes in the list.

Because hardware-only barcodes are formatted directly on the printer, Designer ES uses a placeholder to represent hardware barcodes in the form design. (See [LiveCycle Designer ES Help](#).)

### Using Radio Frequency Identification (RFID) barcode objects (for printers that support ZPL only)

RFID printers/encoders simultaneously encode an integrated circuit chip that is embedded in the label as well as print barcodes and text on the label. The encoding is accomplished using radio frequency waves; RFID does not require the tag or label to be seen to read its stored data.

The RFID barcode object ( RFID) is listed in the Barcodes category of the Object library palette and is used to program the RFID. Designer ES uses this object as a placeholder to represent the RFID in the form design.

For more information about specifying the RFID parameters, see [LiveCycle ES XDC Editor Help](#).



LiveCycle Output ES can process XML files that contain one record or XML files that contain many records; these XML files are referred to as batch data files. When processing a batch XML data file, Output ES can generate a single output file that contains many documents (one output file for each record), or a separate file for each document generated (one output file for each record).

The following XML data shows an example of a data file that contains three data records.

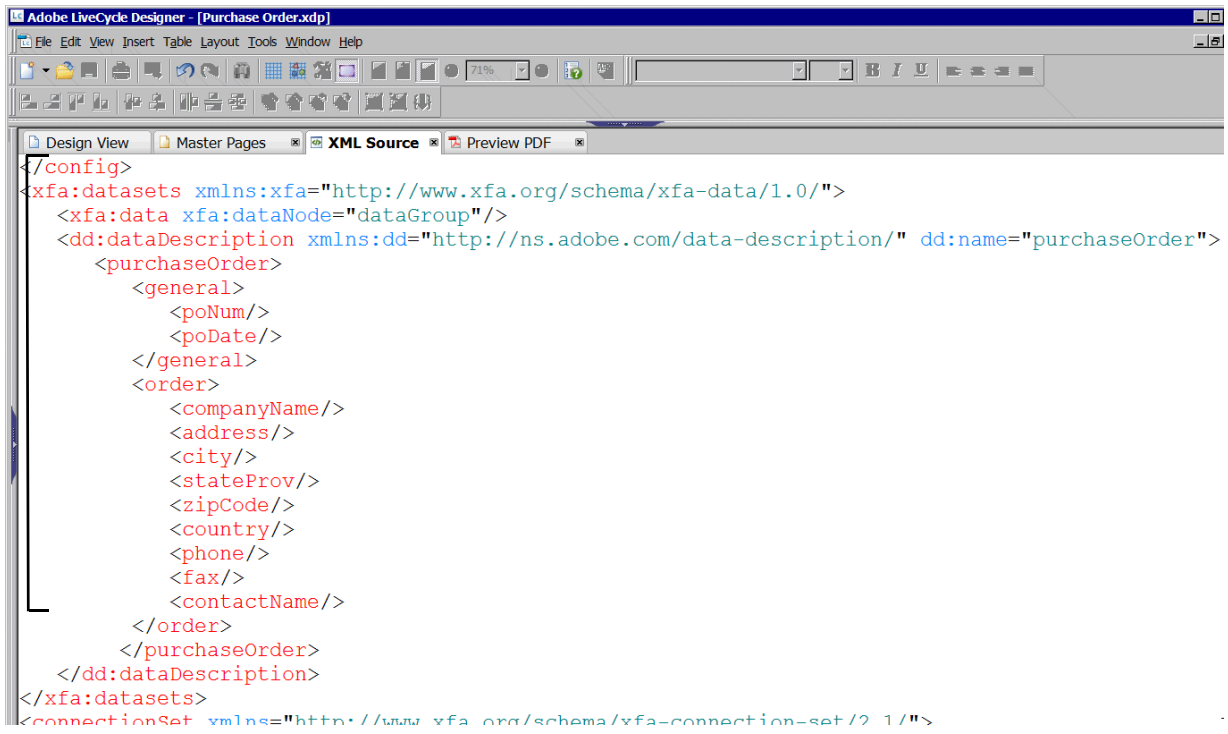
```
<?xml version="1.0" encoding="UTF-8"?>
<batch>
  <LoanRecord>
    <mortgageAmount>500000</mortgageAmount>
    <lastName>Blue</lastName>
    <firstName>Tony</firstName>
    <SSN>555666777</SSN>
    <Description>Buy a home</Description>
  </LoanRecord>
  <LoanRecord>
    <mortgageAmount>300000</mortgageAmount>
    <lastName>White</lastName>
    <firstName>Sam</firstName>
    <SSN>555666222</SSN>
    <Description>Buy a home</Description>
  </LoanRecord>
  <LoanRecord>
    <mortgageAmount>700000</mortgageAmount>
    <lastName>Green</lastName>
    <firstName>Steve</firstName>
    <SSN>555666888</SSN>
    <Description>Buy a home</Description>
  </LoanRecord>
</batch>
```

**Note:** Notice that the XML element that starts and ends each data record is named `LoanRecord`. This XML element is referenced by the application logic that generates each document.

### Incrementally loading multiple records in a batch

Output ES incrementally loads each record in a batch into memory, processes the record, and then releases it before moving on to read the next record. Incremental loading is useful when merging a form design with a batch data set. The result is an improvement in the volume of records that can be processed because not all the records are being loaded and merged at once into memory.

To enable incremental loading, you must remove the `<xfa:datasets>` node from the form design in LiveCycle Designer ES. This is a restriction in the current version of Designer ES. You can view and remove the `<xfa:datasets>` node in the XML Source tab.



To take advantage of incremental loading, you must remember the Record Level and Record Name Output ES run-time options as you design your form and data binding in Designer ES.

To ensure that the records are properly designed and that the data binding functions properly, start with a schema that has a representation of what one record would look like. Match the record to record level 2 or 3 in the Record Level Output ES run-time option. If the XML data contains various record types, create a representation for each record, matching each to the Record Name option.

Avoid using [\*] at the record node because this will cause Output ES to look to repeat the record rather than loading a new record.

After you test the form and are satisfied, you can base the remaining records on the ones used for testing.

## Scripting methods for use when processing batch data sets

Several scripting methods that you can use in the LiveCycle Designer ES scripting environment are available.

Method	Description
documentCountInBatch	Determines the number of documents in the current batch
absPageCountInBatch	Determines the page count of the current batch
documentInBatch	Determines the ordinal number of the current document within the batch
sheetCountInBatch	Determines the sheet count of the current batch
absPageInBatch	Determines which page within the batch contains the form object
cancelBatch	Cancels a pending batch update
sheetInBatch	Determines which sheet within the batch contains the form object
updateBatch	Writes all pending batch updates to the data source

For the most up-to-date information about scripting objects, properties, and methods, see [LiveCycle Designer ES Scripting Reference](#).