



Variable Data Printing

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Overview of variable data printing (VDP)

Variable data printing (VDP) combines a set of master elements that are common across copies of a document with a set of variable elements that change from copy to copy.

VDP uses digital printing technology that links databases that contain the content for printed documents to a print device. The customized communication includes rules that specify the selection of content from the database and the placement of that content in the document.

This lets you create personalized communications, such as a brochure that greets customers by name and includes other personal information obtained from a database. Background elements, illustrations, and text blocks that do not change across copies of the brochure are master elements. The customer's name and other customer-specific information are variable elements.

In its simplest form, you can use VDP as a basic mail merge. However, you can also dynamically assemble images, charts, text, and other objects to create highly customized documents.

Ways that VDP can specify reusable data

Technologies for specifying reusable data within a VDP language are either page-based or element-based.

The following VDP technologies describe how you can specify reusable data within a VDP language.

- Page-based technology - Describes static, reusable data (the master element) in terms of entire pages. Each page element is called a master page. Page-based languages are more suitable for simple, predictable layouts. FreeForm is a page-based language.
- Element-based technology - Describes static, reusable data in terms of elements or objects. Element-based technology lets you use many separate objects within a page as static elements or variable elements individually.

Element-based variable data jobs use reusable objects for the variable elements in the job, such as images. Because these elements are frequently accessed, they are stored on the Fiery Server and cached as a group.

Typical VDP job components

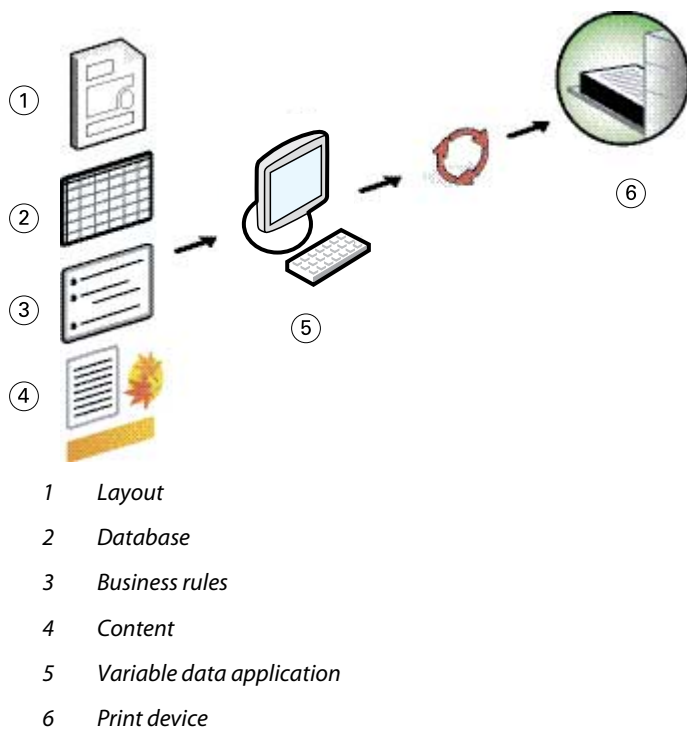
A typical VDP job uses content, a database, business rules, layout, VDP application, and a print device.

These major components involve the following:

Variable data component	Description
Content	Includes the text, images, or photographs placed in different areas of your document. You can create static or variable content using a variety of applications, such as Adobe Photoshop or Microsoft Word.
Database	Contains all the changeable or variable elements in a printed document, The data must be in records and fields (categories) for each record.

Variable data component	Description
Business rules	Specify which variable content to use and where to place it within your document.
Layout	Encompasses the document's design or page layout in any desktop publishing or word processing application. (The layout must accommodate space for variable text and images.)
VDP applications	Combine master elements and variable information and prepare the document for printing. (FreeForm does not require a dedicated VDP application.)
Print device	Turns digital files into hardcopy documents. This can be any printer, copier, or digital press that supports VDP.

The following diagram shows the VDP components:



VDP on the Fiery Server

The Fiery Server combines VDP languages, third-party VDP applications, and Fiery Server core features to integrate into many existing workflows.

Compatible VDP languages for Fiery Server

Using a Fiery Server requires a compatible VDP language.

The following VDP languages are compatible with Fiery Server:

- **FreeForm and FreeForm 2** - Process reusable data only once, enabling the printer to run faster.
FreeForm can create master elements and variable data from any desktop application or computer platform. Within the application, the master page receives a number from 1 to 100. FreeForm options are in the driver and job management tools
FreeForm 2 lets you determine page conditions and rules for printing a job containing multiple master pages. It also lets you define the boundaries of each record in the data stream. This means defining a start and end for each record. Unlike FreeForm, FreeForm 2 requires a VDP application that specifically supports FreeForm 2.
- **PPML** - Is an industry standard that allows the printer to store text elements and graphic elements and reuse them as needed, making variable data jobs print faster.
The Fiery Server accepts zipped and non-zipped PPML jobs. To print documents in PPML format, use a third-party software application that is compatible with PPML format. You can send the PPML job to the Fiery Server or download the PPML file using Command WorkStation or Hot Folders.
The Fiery Server does not support PPML files created using the IMPOSITION or PRINT_LAYOUT commands specified from the PPML application. You must specify these options from Command WorkStation, using Fiery Impose.
- **Creo Variable Print Specification (VPS)** - Is Creo's extension of the PostScript language. A Creo VPS file consists of a Header section and a Booklet section. The Header section contains the global objects for the entire job. The Booklet section contains one copy of a personalized document. Page elements are reusable objects as defined in the Creo VPS format. You must package all the page elements inside the Creo VPS file.
To print, you must have an application that emits the Creo VPS data stream. You can download a Creo VPS file using Command WorkStation or Hot Folders.
- **Xerox Variable Data Intelligent PostScript Printware (VIPP)** is a proprietary page description language developed by Xerox. To print documents in Xerox VIPP format, use a third-party application that is compatible with Xerox VIPP format. Send the Xerox VIPP job or download the Xerox VIPP file using Command WorkStation or Hot Folders.
- **Portable Document Format/Variable Transitional (PDF/VT)** - Is an Adobe format based on PDF technology. PDF/VT enables reliable document exchange for variable data and transactional printing. Transactional documents include invoices, statements, and documents that integrate billing information with marketing information.
A VDP application generates the PDF/VT files, which contain pages and records and pages per record metadata. You import these PDF/VT files to the Fiery Server. The PDF/VT files can be processed through PostScript or APPE and can show pages and records and pages per record. PDF/VT uses object-based technology.
- **PS and PDF files when Define Record Length is set to On** - Lets you process a PS or PDF file like a variable data job when Define Record Length is selected in Job Properties. With this option selected, you can define a fixed subset length for variable data processing.

Define Record Length is available for VDP and Quick Doc Merge jobs.

Fiery Server features for VDP

Variable data support in the features of the Fiery Server, such as Fiery Impose and Mixed Media, let you create custom layouts and apply different media and finishing options to your variable data jobs.

You can also manage reusable objects for a variable data job using VDP Resources.

Fiery Impose with VDP imposition

The Fiery Server is compatible with VDP imposition with Fiery Impose for a variety of VDP languages.

- FreeForm and FreeForm 2 variable data jobs
- PPML
- Creo VPS
- Xerox VIPP
- PDF/VT
- PS and PDF files when Define Record Length is selected

Hot Folders with VDP imposition

You can impose a variable data job using Hot Folders when you submit it to the Fiery Server. You must set up a proper VDP imposition template for the specific Hot Folder in the Hot Folders application.

Mixed media with VDP

You can apply Mixed Media settings to all VDP jobs. When using Mixed Media settings, the Fiery Server recognizes each variable data record as a separate job. For a VDP job that is not imposed, Fiery server applies the Mixed Media settings to all the VDP job's records.

VDP Resources

Reusable objects are required images that you must download to the Fiery Server for variable data jobs that contain variable elements. These reusable objects are stored on the Fiery Server and cached as a group.

The VDP Resources feature available from Command WorkStation lists the reusable objects, letting you delete them or leave them for future variable data jobs. VDP Resources is compatible with the following VDP languages:

- FreeForm
- PPML
- Creo VPS
- Xerox VIPP
- PDF/VT

Printing variable data documents using FreeForm

FreeForm technology lets you use print options to define master documents and assign them to variable data jobs sent to the Fiery Server.

FreeForm VDP sends the job's master-element data to the Fiery Server and rasterizes it separately from the variable-element data. The master-element data resides on the Fiery Server in rasterized form as a FreeForm master, and you can use the data as required, with multiple sets of variable-element data. Because the FreeForm master job is preprocessed and stored on the Fiery Server, only the variable-element data requires processing thus reducing the job's total processing time.

You can use FreeForm masters for any fixed-element data you combine with different data from day to day. For example, you can store a letterhead template as a FreeForm master and use it for different letter content (the variable-element data).

FreeForm lets you create the master and variable documents using any application, different applications, or computer platforms. To create the master document, you use a page layout or graphics application. To create the variable document, you use a word processing application that has a mail merge feature, a page layout application that supports scripting, or a database application.

The Create Master and Use Master print options let you control FreeForm functions. You set these options in the printer driver when you send a job, or instruct the operator to set them with job overrides from Command WorkStation. The processed master document appears in VDP Resources in the Device Center of Command WorkStation. Command WorkStation also lets you monitor and manage all the FreeForm masters stored on the Fiery Server.

When you print a variable data job with FreeForm, you create a master document, then create a variable document, and finally use FreeForm to combine the master and variable files.

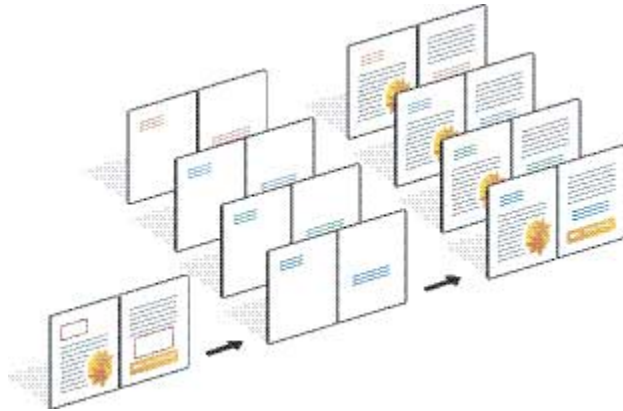
For information about supported variable data languages and features, see *Printing*.

Possible master document structures

A master document can include more than one page. When you print a variable document and specify a FreeForm master that has multiple pages, the master pages combine with the variable pages in a cycle.

For example, with a two-page master, Pages 1 and 2 of the variable document combine with Pages 1 and 2 of the master document. Then Pages 3 and 4 of the variable document combine with Pages 1 and 2 of the master document. This pattern continues for each subsequent set of pages in the variable document.

Figure 1: Combined document using 2-page master



Guidelines for printing VDP jobs

This section provides some guidelines to help you print variable data jobs correctly.

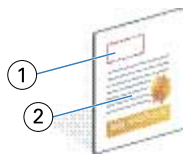
- Ask your administrator or operator how your site assigns FreeForm master numbers.
- You cannot specify the Use Master option and Create Master option in the same job.
- Limit single page FreeForm Masters to single-sided output. You cannot duplex a single page FreeForm Master.
- Do not send your variable printing jobs to the Direct connection. If you send a variable data job to the Direct connection, the job does not process.
- Use the Notes and Instructions fields to communicate instructions about your job to the operator.
- Assign your jobs unique and descriptive names. However, the following restrictions apply:
 - The Create Master and Use Master options do not allow the characters |, /, \, *, ?, ", ' , ` , ; , < , > , or special control characters.
 - FreeForm 2 master names cannot begin with "form" or "formU".
 - Character length for FreeForm 2 master names cannot be more than 64 characters.
- Consider these restrictions when using FreeForm:
 - The master file and variable file must use identical paper size and orientation settings. You must limit each job to a single paper size, even when you apply mixed media.
 - Finishing options and paper tray selection settings in the variable data file take precedence over master job settings, if these settings are different.
 - Only FreeForm supports the Create Master and Use Master settings.
- You cannot designate an imposed job (.dbp) as a master for any type of FreeForm job.
- You need to impose only the variable data file for FreeForm and FreeForm 2.
- FreeForm 2 jobs require record boundary settings, as produced by the application, for use with VDP imposition and record-based finishing.

Create a master document for use with FreeForm

Before you use FreeForm, you must create a master document and a variable document, which will be the layout for the combined document, with space for individual elements.

- 1 From an application of your choice, layout the master.
- 2 Arrange the master elements (text and graphics that do not change) on one or more pages, leaving space for the variable elements.

Figure 2: Master document



- 1 Space for variable elements
- 2 Unchanging master elements

- 3 Save the file.

Create a variable document for use with FreeForm

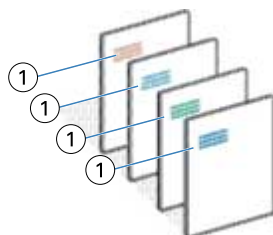
Creating the variable document requires a desktop publishing application that provides a mail merge function, a database application, or a page layout application that supports scripting.

Your application takes information from a list or database and merges it into an existing document that accepts the master information. Each application has different controls for this function.

- 1 From your supported application, create the variable document to conform to the layout of the master document.
- 2 Add the variable information in the appropriate places in your document.

Note: The variable document must have the same page count as the master page document. For example, if a master document has a record length of four pages, all the variable documents must have a record length of four pages. You can use Enhanced FreeForm to add empty pages to the last record of the variable document, if necessary.

Figure 3: Variable document



- 1 Variable element

- 3 Save the file.

Combine the FreeForm master with the variable document

The Fiery Server combines the raster data of the variable document with the FreeForm master processed earlier, creating a new raster data file.

When you print a variable document to the Fiery Server, you specify the FreeForm master created from your master document with the Use Master print option. You can set the FreeForm master number when you send the master document, or use one assigned by the operator.

- 1 Print the master document that you created to the Fiery Server. (Set the Create Master print option to one of the FreeForm Master numbers.)
Note: You can also set the Create Master option to None and use overrides from Command WorkStation to create a FreeForm master from this job.
- 2 To print your FreeForm master to check it before you merge it with variable data, enable the Print Master feature after the file is sent to the Fiery Server.
- 3 Print the variable document that you created to the Fiery Server, with the Use Master print option set to the appropriate FreeForm master number.
- 4 If desired, do one of the following to preview the job:
 - To preview the master page, click Preview Master from the printer driver to generate a low-resolution image of the master page.
 - To check the job from Preview before it prints, process and hold the job.

Figure 4: Combined document



Preview master documents in the Windows printer driver

After you create a master document, you can preview it from the Windows printer driver, which lets you conveniently select your master document when you print using FreeForm.

The FreeForm master numbers and names appear in the Create Master and Use Master options.

- 1 Choose Print in your application.
- 2 Select the Fiery Server as your printer and click Properties.
- 3 Click the Fiery Printing tab.
- 4 Click the VDP icon.

5 Click Update to retrieve the list of FreeForm master names from the Fiery Server.

Note: You must enable Two-Way Communication to retrieve the list of FreeForm master names.

6 Select the master document that you want to preview from the Use Master option and click Preview Master.

Map master and variable files using Enhanced FreeForm

Enhanced FreeForm lets you map the master and variable file in a fixed user-defined order, eliminating the need to add blank pages to get the desired merged output. (FreeForm always has a fixed page order.)

You can map any page in the master to any page of the variable document. The master may contain more pages than the final document. Additionally, the variable document record length does not have to match the total number of master pages.

1 Select a FreeForm job and select Actions > Properties.

2 Click the VDP tab in Job Properties.

3 From Use Master, select a FreeForm master.

Note: Make sure that you know the number of master pages used for your job when you select the FreeForm master.

4 Select Enable Enhanced FreeForm and click Define Mapping.

5 In Variable Pages per record, enter the number of pages per record for your job.

6 To preview your master page, click Preview Master.

7 In Total pages per record to be finished, enter the record length after all the masters and variables are merged for your job, and then click Continue.

8 Map each page from the Variable Pages column to a master page from the Master Pages column.

9 For master pages that are not assigned to a variable page, click the up and down arrows to arrange the page order.

Print variable data documents with FreeForm 2

FreeForm 2 extends the functionality of FreeForm. Using FreeForm with a third-party printing application that supports FreeForm 2, you can create multiple page masters for more personalization and customization of your documents.

You can use a master created in another application, and then use a third-party application that supports FreeForm 2 to combine the design and database information.

FreeForm 2 and the third-party VDP application allow you to specify page conditions that determine rules for individual master pages. These rules, described by "if" and "then" statements in each master page, allow you to skip or print pages within a master file.

FreeForm 2 also lets you delete a specified FreeForm master from the Fiery Server after its corresponding variable data job has been successfully processed and printed. You can set this feature in a third-party application that supports clearing FreeForm masters.

- 1** Open the variable document in a third-party VDP application that supports FreeForm 2.
- 2** Select FreeForm 2 when you send the variable document.
- 3** Print the document.

Printing other VDP files

You can design the master and variable elements of your job using a third-party VDP application, and then print the job to the Fiery Server from the application using a compatible file format.

The Fiery Server is compatible with a number of VDP languages. See [Compatible VDP languages for Fiery Server](#) on page 7.

Import VDP files using Command WorkStation

You can use Command WorkStation to import VDP files.

- 1 Click File > Import Job.
- 2 Click Add, navigate to the location of the file that you want to add, and then click Open.
- 3 From Import Using, choose from a list of server presets and virtual printers that are currently published on the Fiery Server.
- 4 From Default Action, select the print queue that you want to import the file to.

If you select Virtual Printer for the Import Using option, the default action appears dimmed, as the action associated with the virtual printer is used.

Note: You must send a variable data job to the Print or Hold queue to use the reprocessing capabilities of master components. If you send a variable data job to the Direct connection, the job does not process.

Print PS or PDF files as VDP files using Define Record Length

When Define Record Length is selected, you can define a subset length and enable the file for record-based finishing. Command WorkStation displays the numbers of records and pages per record in Job Center.

Note: Define Record Length is available for VDP and Quick Doc Merge jobs.

- 1 Import any PS or PDF file to Command WorkStation, select the job, and then click Actions > Properties.
- 2 Click the VDP tab and select Define Record Length.
- 3 From Pages Per Record, specify the fixed master length (in pages) to apply all finishing to records, rather than to the whole job.

Print variable data jobs with remote resources

File Search Path lets you specify a shared location to store remote variable data resources, such as images and fonts. The Fiery Server accesses all required resources at the location specified and retrieves them automatically.

If you know the path location, you can also search for external resources on a job-by-job basis. Before you print the job, set the File Search Path. File Search Path accepts the following VDP languages:

- Creo VPS
- VIPP
- PPML

To search for resources remote to the Fiery Server, you must enter the File Search Path to the remote network computer in *Configure*. See *Configure Help*.

Note: If the Fiery Server cannot find the reusable objects for the job, the job does not process. Make sure that you enter the correct File Search Path location.

- 1 Submit the Creo VPS, VIPP, or PPML job to the Fiery Server using a third-party application that supports the VDP language.
- 2 In Command WorkStation, select the Creo VPS, VIPP, or PPML job and select Actions > Job Properties .
- 3 Click the VDP tab and enter the File Search Path location.
- 4 Process the Creo VPS, VIPP, or PPML job.

Imposing variable data jobs

You can use Fiery Impose, if it is supported on your Fiery Server, to impose FreeForm and FreeForm 2 jobs, as well as jobs that use other compatible variable data languages.

When you impose a variable data job, you can choose a single record imposition scheme or a multiple records imposition scheme.

You can also impose a variable data job using Hot Folders.

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